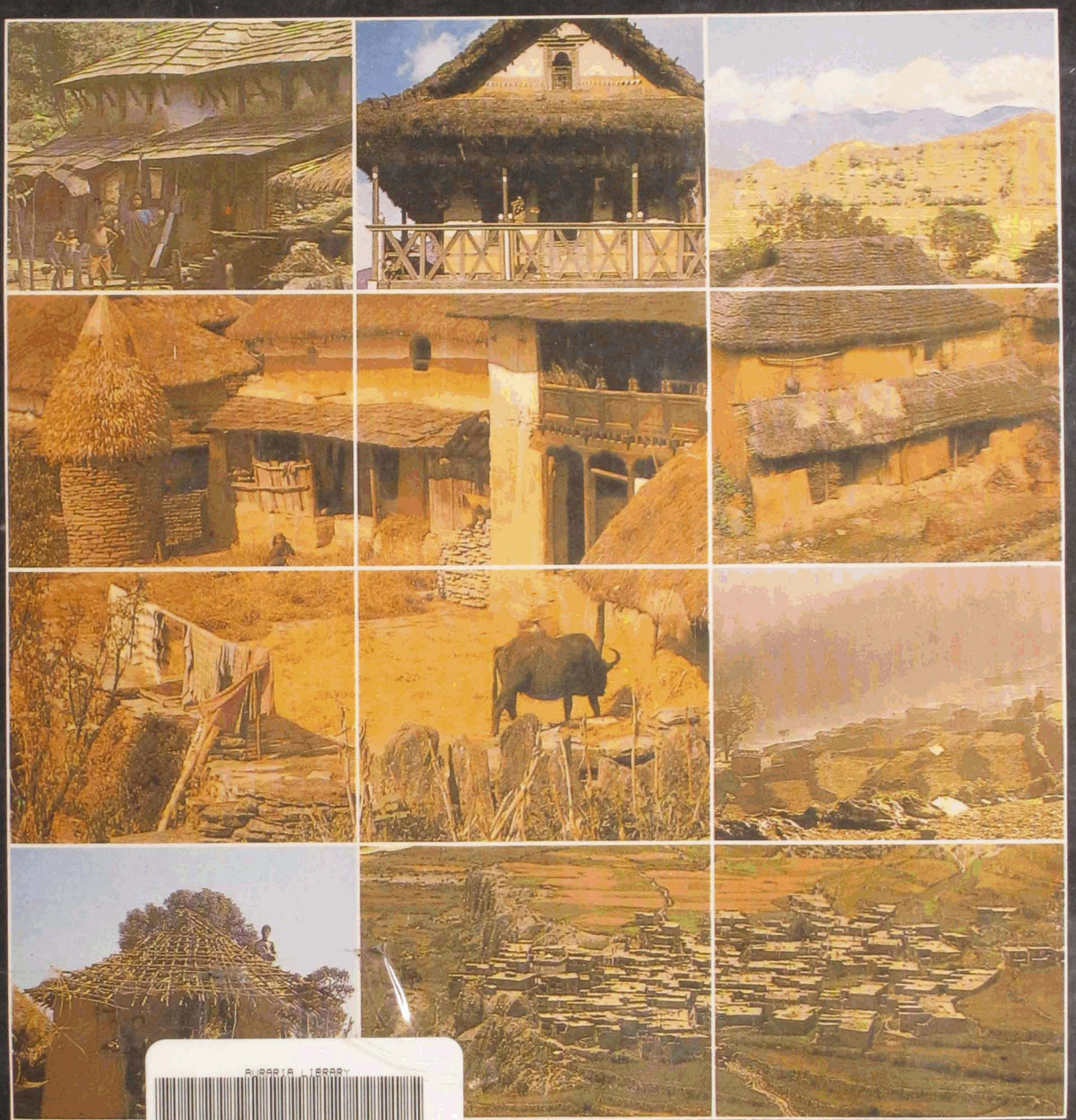
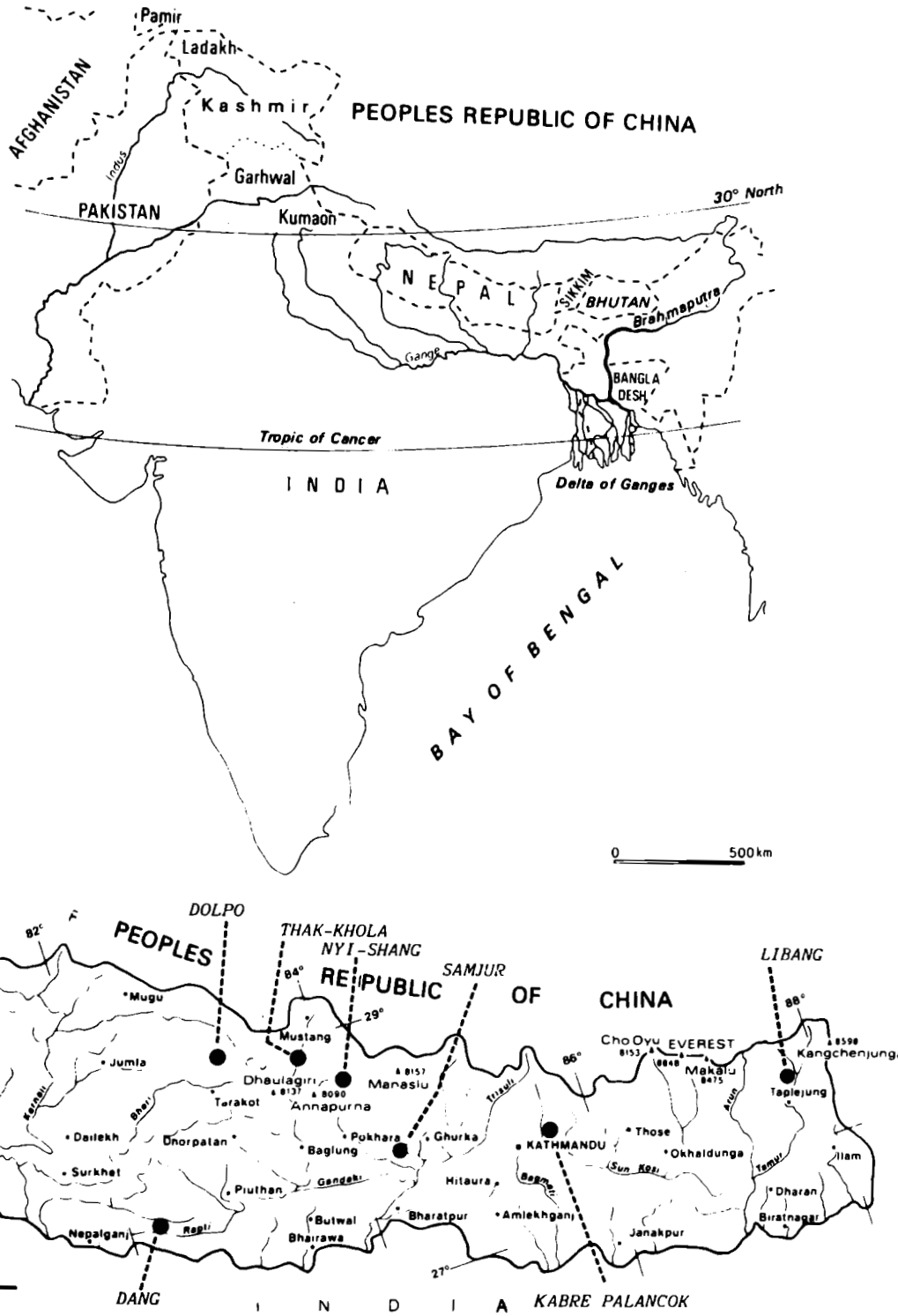
MAN AND HIS HOUSE IN THE HIMALAYAS



Edited by **GÉRARD TOFFIN**

MAN AND HIS HOUSE IN THE HIMALAYAS

Ecology of Nepal



Situation de l'Himalaya (en haut), le Népal (en bas). Les noms de localité en gros caractères indiquent les lieux d'enquête de différents contributeurs. Dolpo (Corneille Jest) ; Thak-Khola (Francis Morillon et Philippe Thouveny) ; Nyi-Shang (Pascal Maréchaux) ; Samjur (Marc Gaborieau) ; Libang (Philippe Sagant) ; Kabre Palancok (Véronique Bouillier et Sarkiman Majhi) ; Dang (Camille Milliet-Mondon)

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Cover Photographs: slides of M. Gaborieau, C. Jest, P. Sagant and G. Toffin showing different types of Himalayan habitat

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INTRODUCTION

Gérard Toffin

For the past twenty years or so, a small group of ethnologists of the Centre National de la Recherche Scientifique (France) has been working in the Himalayas. Despite widely varying areas of interests, every researcher has had something to say on habitat, if only to discuss the house inhabited while working on the field. Here as elsewhere, domestic habitat is the point of anchorage of the family group and lies at the centre of the various networks which constitute the very fabric of social life. It exercises a widespread influence on society as a whole and includes within its purview political, religious and economic phenomena, difficult for the ethnologist to ignore if he stays in a village for any length of time.

This rich collection of data has been further supplemented by a series of studies of a more specific nature devoted to the construction sphere. Undertaken within the framework of the G.R.E.C.O. Himalaya-Karakorum (C.N.R.S.) by architects and construction specialists—sometimes in close collaboration with ethnologists—these studies bring out other aspects, more technical, more functional perhaps, of the house, enabling a better comparison of the different types of architecture in the zone under consideration.

The aim of publishing this collection is to give an outline of the research work accomplished and to compare the viewpoints of the various researchers.[1]

This work also constitutes our response to another major concern. At a time when, under the patronage of the U.N.E.S.C.O., an exhaustive inventory of the national Nepalese heritage is being drawn up, covering the most representative edifices of the Himalayan civilisations, it seemed desirable to us to draw attention to another kind of heritage, more modest, more familiar, more fragile: domestic habitat. This task is all the more necessary as "vernacular" forms of architecture are very much the order of the day. Architects and ethnologists now realise that the house is as much a part of the culture of a given population as the palace or the temple and tells us as much about the religious representations of its inhabitants as the most sacred monuments.

The Himalayas are the ideal place to study such domestic architecture. Stretching between the high Tibetan plateau of Central Asia and the tropical plains of the Indian sub-continent, they offer an infinite variety of house types. Double sloping roofs, inclined to varying degrees, or flat roofs; roofing in thatch, tiles, roofing stone, shingle or mats; mud, brick or stone walls, simple mat or thatch screens; single level horizontal buildings or vertical buildings with two, three, four storeys, etc.: the differences within this single zone are immense.

Such diversity may be attributed to reasons that are both geographical and cultural. The Himalayan regions cover an extremely wide range of ecological milieux from the tropical zones (Terai) of the Indo-Gangetic basin, close to sea level, to the interior valleys, situated at an altitude of over 4000 m, of the high chain, with an intermediate zone of highly compartmentalised hills which vary from 600 to 2000 metres in altitude.[2] The transition is so rapid that although the traveller approaching Nepal from the South arrives in a hot, flat and humid region, already he is able to perceive the snow-clad Himalayan chain in the distance. The numerous kinds of natural milieux subject the inhabitants to radically different constraints. In some places, one has to fight against the heat and parasites to ensure reasonable living conditions; in others, it is a battle against the persistent and penetrating cold of the high mountains; elsewhere, torrential rainfall—the eastern hills of Nepal receive in four months twice as much rain as Paris gets in a year—threatens each year to destroy everything in its wake—cattle, fields and habitations. The form and arrangement of the habitat are an expression of the need to adapt to given physical conditions. In the bordering Terai plain, the houses

(Tharu) are built of light materials, with thin walls, to provide maximum ventilation, indispensable in the case of humid heat. In high altitude houses on the contrary, everything is designed to fight against the cold and to maintain an internal temperature which man is able to withstand: solid construction, use of heavy materials, location of the cattle shed on the ground floor to provide some heat to the upper inhabited rooms. The materials used also bear the stamp of the milieu: habitations may be made of mud, stone, wooden planks or plants (reed, straw, bamboo) according to the flora of the region, not to mention the combination of methods often adopted. The physical constraints explain to a large extent the profound harmony which unites the house to its environment: the Tharu (tribal group of the Terai) habitation has a plant-like appearance that merges with the exuberant vegetation, whereas the high altitude house blends in perfectly with the austerity of the arid landscape.

Cultural reasons also contribute to this diversity. For these ecological zones, with such highly contrasting bio-climatic conditions of life, are inhabited by populations who differ from each other linguistically, culturally and physically. The Terai includes groups whose language and culture are completely Indian, the Madeshes and certain ethnic groups who today also speak Indian languages, such as the Tharus, of whom more shall be said later on in the book. The hill zone contains numerous tribes belonging to the Tibeto-Burmese linguistic family, such as the Gurungs, the Tamangs, the Magars and the Limbus and of the Indo-Nepalese, Khas-Bahun or Parbatiya, a mixed population where North Indian elements have been superimposed on an ancient Indo-European background, and who show affinity with the Paharis ("hill dwellers") of Uttar Pradesh (India). The Kathmandu Valley, an extremely fertile alluvial basin situated in the heart of the Nepalese country, is mostly inhabited by a highly Indianised population belonging to the Tibeto-Burmese language group: the Newars. The Tibetan enclaves in the North are occupied by populations of the Tibetan language group and culture, and they are referred to as Bhotiyas by the inhabitants of the Middle country. Thus, without it being possible to assign to each group a fixed territory because of the numerous migrations which made the ethnic groups move from one place to another over the course of history, there is a close relation between the ecological layer and the population, in the ethnic and linguistic sense of the latter term. Connected to this notion of arrangement in layers is the utilisation of different economic resources—transhumant breeding, intensive agriculture, trade—which has a bearing, as is to be expected, on the general appearance and organisation of domestic habitat.

We must, at the very outset, make clear a point in theory and methodology to avoid any ambiguity whatsoever. Between strictly ecological and cultural factors, it would appear that more often than not, it is the latter which prevail and which give to the house its originality. Terrains displaying similar characteristics like the Terai give rise to very different house types and similar house types are built on varying terrains. Transplanted outside the Kathmandu Valley to which they originally belonged, the Newars reconstructed for example exactly the same house type as the one they left behind. This uniformity would become even more evident if one were to examine religious edifices: the Tibetan monasteries are built in identical fashion, be they at an altitude of 4000m or 1500m in the Kathmandu Valley, or even at sea level (Buddhist buildings of Bodh Gaya and Sarnath in India). And "Nepalese" style temples can be found both in the Kathmandu Valley, where this style originated as well as in the Nepalese hills. To come back to domestic habitat, the cultural milieu influences not only the psychological and cultural values attached to the house, but also its form and internal arrangement. Everything proceeds as if a certain "cultural model" was associated with the habitations, a model difficult to dissociate from the other socio-religious institutions of the considered group. Culture thus takes precedence and chooses its path from the range of options provided by the physical environment, altering in some cases the primary forms.[3] We believe, therefore, that an in-depth study of the house, particularly if it is undertaken in a country other than that of the observer, must necessarily deal with a very wide area of anthropology, integrating the contributions of several specialists, beginning with those whose task is to build and design houses in Western society. In the final analysis, ethnology must be given a decisive place.

The impact of political and economic factors cannot be ignored when studying the development of architectural forms. The relationship between a house and the system of values that it propogates should not be examined from a completely synchronic point of view, in a watertight compartment, by abstracting it from the surrounding context. The cultural specificity of the house does not exclude selective borrowing or rejection of cultural elements, in accordance with the trends set by the dominant group. The uniform structure of the house in the Nepalese hills, described by P. Sagant in a recent book,[4] is in fact the result of a long historical process during the course of which the tribes belonging to the Tibeto-Burmese language group of the eastern regions gave up the old house type—built on piles according to the accounts of XIXth century English travellers—to borrow from the Indo-Nepalese house type, when the

latter succeeded in extending their power and domination over them. In fact, one is inclined to believe that the Thakali habitations described in this very book by F. Morillon and P. Thouveny are representative of the highly Tibetanised recent forms, far removed from their initial model. There is certainly nothing more misleading that the apparent uniformity observed in the hills of the Middle country in modern day Nepal—M. Gaborieau has found similar uniformity in the central part of the country—if one tries to imagine the form and general appearance of these habitations 150 or 200 years ago.

The present volume, comprising thirteen contributions written by ethnologists, architects and a "companion carpenter", all of whom have stayed in the field for an extended period of time, tries to illustrate the diversity of the Himalayan habitat. As this is in the nature of a preliminary work, it does not include a comparative study in the strict sense of the term. The confrontation of several monographs aims however at formulating the problematic and bringing out the various research orientations.

The book begins with an article on the house of the Tharus, a tribal group of about 1,50,000 members, the native inhabitants of the Terai. This is followed by two contributions which complement each other to a great extent and which are devoted to the Indo-Nepalese of the Middle country, who constitute the majority of the Nepalese population. The Newars as a whole, a highly distinctive group, epitomising a profoundly urbanised civilisation in contrast to the other groups which are essentially rural in nature, form the subject matter of the third part of this book. Four chapters are devoted to the hill tribals: the first deals with the Limbus, the second with the Majhis, the third with the transhumant pastors and the last chapter with the Thakalis. Finally, the fourth part deals with a highly typified group, that of the populations of Tibetan language and culture.

The book should not be viewed as an inventory. Each author has dealt with his subject following his own interests and inclinations. This explains the great variety of styles and the highly contrasting points of view, ranging from a purely architectural approach to a far more sociological perspective, which considers the house as a symbol of a given social and political organisation. Far from disrupting the unity of the work, the diversity of approaches only reflects the extreme richness of the subject and the numerous ways in which it can be studied. It is up to the reader to decide the prospective merits and worth of each article.

A word finally on the structure of the book. Twelve articles deal with Nepal, a country particularly favoured by the C.N.R.S. for ethnological research in that part of the world over the last twenty years or so. The thirteenth article deals with Ladakh which has only very recently been opened to the West. The limitations of the work are thus obvious. Immense zones, extremely rich from the ethnographic point of view, like north-eastern Pakistan, the NEFA and the Assamese foothills, have not been covered. We hope that in order to fill these gaps, this collection will be followed by other publications on regions not easily accessible today on account of the prevailing political situation.

We have been helped in the publishing of this book by L. Barré, architect, who chose the illustrations and designed the cover in association with G. Bulot, and by C. Jest, ethnologist, who gave us the benefit of his knowledge of the Tibetan milieu. Several other people have participated in this common enterprise and helped in the production of this work. We would like to thank in particular G. Bulot (Publications Service), D.Fautret and F. Beaujean (Photo Division) of the C.N.R.S. of Meudon-Bellevue, as well as L. Boulnois and L. Cayla (C.N.R.S.) GRECO Himalaya-Karakorum. The drawings are by the authors themselves, except for a few—signed—which are the work of L. Barré.

Notes

1. A few studies on one or the other groups exist already. Amongst the most important are P. Sagant's study on the Limbus, that of P. Denwood on the Tibetan population of Bhutan as well as W. Korn's study on traditional Newar architecture in the Kathmandu Valley.
2. The reader can get an insight into the geographic and ethnic diversity of the Himalayas from the work of J.F. Dobremez, *Le Népal, écologie et biogéographie*, Paris, ed. of the C.N.R.S., 1977 and from the special edition of *Objets et Mondes*, t. XIV, fsc. 4, 1974, entitled: "L'Homme et la haute montagne: l' Himalaya".
3. This position, as we can see, is very close to the one taken by A. Rapoport in his book: *Pour une Anthropologie de la maison*. Paris, Dunod ed., 1972. For a critical appraisal of the work, see C. Parrain, *Sur la problématique de la maison rurale*. La Pensée, 171, 1973, pp. 141-148.
4. P. Sagant - *Le paysan limbu; sa maison et ses champs*, Paris, Mouton ed. 1976.

THE TERAI

Fig. 1 — Village road; return of flocks — South zone
(Cl. F. Meyer)

A THARU HOUSE IN THE DANG VALLEY

Camille Milliet-Mondon

The Dang Valley and Its Population

Forming part of the traditional territory of the Tharus, 'Tharuwan' or 'Tharwot'[1] the Dang Valley lies in western Terai of south-west Nepal. It is demarcated by the Curia Range of the Siwalik Chain in the south and by the foothills of the Mahabharat Lekh in the north.

The Valley, 'dun',[2] is a basin about 72 km long and 30 km wide. Its altitude does not exceed 600m. From the north to the south-west the relatively flat basin floor is crossed by small rivers which are supplied with water during the summer monsoon. This forms a series of shallow depressions edged with alluvium and sand. Together, the rivers flow into the Babai Khola in the South of the Valley.

Dang has a bixerique type of climate with a long dry period of about eight months interrupted by light and irregular rainfall. In summer, the monsoon rains are heavy and continuous from the 15th of June till the end of September. Day temperatures vary from 15 to 30° maximum. Winter nights can get colder (20° C recorded in December 1973). A mild and regular wind blows throughout the year. During two periods—10 to 15 days at the end of the monsoon and from mid-November till the end of January the wind can grow stronger.

Previously a zone of tropical forests, the valley has been completely deforested today. Only in the surrounding foothills has the forest been spared. However, bamboo, neem and pipal trees which are considered sacred are planted close to the dwelling settlements.

According to the administrative break-up of the region, the Dang Valley belongs to the Rapti Zone and to the Dang-Deukhuri district. Dang must have probably derived its name from the name of an ancient king 'Dangi Sharan'.[3]

In 1961, the total population of Dang was 56,019 inhabitants; 60 per cent spoke the Tharu language and the density of population was 150 per sq. mile. Today this constitutes a little more than 10 per cent of the total Tharu population spread over Central and Western Terai.

The language of the Dang Tharus is a mixture of Nepali words (40%), Hindi words (40%) and 20 per cent of the words have been taken from languages and dialects of Northen India.[4] The Tharus belong to the Rana, Raghatiya, Solariya, Dangaura and Kathariya groups which are sub-divided into clans and lineages.

The Tharus are the oldest known inhabitants of Southern Nepal. Their origins are ill-defined. They are probably the products of marriages between Rajput women (North India) and the natives, at the time of the Islamic invasion.[5] The origin of the name itself is controversial. According to J.C. Nesfield it must have been derived from the language of the group, 'thar' which itself means "man of the forest".

The Dang Tharus are divided into villages ranging from 50 to 200 inhabitants. Each village has a chief, 'mahatua',[6] chosen by the community and whose main function is to maintain law and order. His position is important both from the social and the religious points of view and his services are required at the time of construction of the house. The 'jamindar' (t), senior official, is more specifically in charge of relations between the village and the local government at the district level.

In contrast to the other Tharus, the Dang inhabitants do not call upon the services of Brahmin priest for the performance of their religious ceremonies; they have their own medicine men-sorcerers, the 'guruvas'. Of these, the 'dasbandhiya guruva' is recognised by the entire village and the 'ghar guruva'[7] officiates directly at the family level. Their religion is composite in nature; they venerate certain deities of the Hindu pantheon like

'Narayan', 'Mahadev' and 'Satyanarayan' and have a number of their own deities such as the spirit of good and evil, mountain gods, forest spirits. Among them, 'Cabahwa' and 'Daharcandi' watch over the crops, protect men and their cattle and their effigies are built at the festival grounds.

The greater god 'Bhutwa' inhabits the 'Bhayar than', place of sacrifices made to the spirits invoked by the 'guruva' and the 'mahatua' during ceremonies.

In the dwelling, the ancestoral spirits or 'Kul deuta'[9] are symbolised by a large decorated silo placed at the north-eastern angle of the house[9] in the 'deurhar' or 'dura kunti' (t), the room for the deities. In case of illness, the guruva mediates with the 'Kul deuta' as also on the occasion of a birth, marriage or funeral in the family.

Hindu festivals are held the year round, the most important being 'Maghe Sankranti' and 'Holi' in January and February, 'Bari Charai' in April, 'Asadhi' in July and 'Diwali' in October. The festivals are linked to agricultural production and take place before periods of hectic activity.

The Tharus follow the joint family system: father, mother, married sons, children and grandchildren live under the same roof.

Most of the family communities observed consisted of not more than four couples. The father has full authority over the members of his family. On his death, he is succeeded by his youngest brother or in his absence by his eldest son. The mother plays a very important role. She looks after the children and has complete control over the running of the house, food and grain reserves. The eldest daughter-in-law, ranked after the mother in the hierarchy, acts as an intermediary between the mother and the womenfolk of the house. The daughter-in-law who joins the house the last is put in charge of the kitchen. With the arrival of a new daughter-in-law, she will be relieved of her duties.

There is a trend among the Tharus to break away from the joint family. A break can be effected with the mutual consent of the brothers. In such a case, one or several sons and their families leave the common house and live under another roof. Even though this phenomenon is gaining ground, the majority of Tharus live in family communities for reasons of economy and according to tradition.

Generally, they own neither their lands nor the plot on which the house is built. But the dwelling building, household equipment, agricultural implements, bow nets, fishing nets which are the responsibility of the father are the collective property of the entire family. Each one has his own clothes and personal objects; especially the jewels and gifts of the in-laws for the women.

On the death of the father, goods in silver and in grain are divided amongst the sons. The house and its equipment go to the eldest son who in turn becomes the head of the family and keeps his younger brothers and unmarried sisters under his roof.

Paternal authority is challenged by sons who wish to have their say in the management of the community.

Traditionally, the Tharus are agriculturists and stock breeders but they also fish, gather and hunt though the last activity is on the decline in Dang.

While in the past, the fertile lands of the Dang Valley belonged to the 'Tharus', emigrants of Indian origin—Brahmans, Chetri and Thakuri—gradually appropriated the entire territory for themselves and exploited the native inhabitants.

After Herculean efforts, some Tharus have been able to buy back their lands[10] which they cultivate for their own use. Nevertheless, a large majority still works for the 'jamindars' (t), rich land owners who act as agents for the Government.

Each family is entrusted with the cultivation of 3 or 4 bighas of land and is allotted a plot of one kota[11] needed for the construction of the house and the planting of a kitchen garden. Every community has to give one fourth of its produce to the master.[12] If the number of village inhabitants is small, the 'Tharus' give half of their produce. The remaining three-fourths or half goes to the family.

While performing most of the tasks allocated to them—agricultural work, herding of cattle—families get together in groups of two or three and jointly farm the lands to facilitate cultivation and to get a better yield.

An annual timetable of agricultural task is drawn up in accordance with the different kinds of cultivation. The principal crops grown in Dang are rice, maize, wheat, mustard, red lentils and various vegetables. Rice cultivation is an important activity and keeps the inhabitants busy from May to December. The kitchen garden is planted close to the dwelling building beyond which lie the maize and cornfields followed by the rice fields which occupy three fourths of the cultivated land.

The Tharus herd the cattle of the 'jamindar' who owns a large number of cows and buffaloes. Each family owns several animals—four or five cows, one buffalo, three to four sheep, two pigs and sometimes a goat. Bovines are raised to plough the land and for field manure. Meat is not eaten and if there is no calf, the milk

is consumed by the family. Animals in herds of 20-30 graze along the paths and in the fallow lands. They provide dung which when mixed with chopped rice straw is flattened into dung cakes. These are put out to dry and are used as fuel. The forests are too far away to get an adequate supply of firewood. Mutton and pork are consumed during festivals. The women spin and weave wool.

Fishing is a major activity in the spare time between agricultural activities. In Dang, everyone knows how to fish. Fishing methods vary in accordance with the seasons. In summer, when the water is deep, bow nets, cast nets or filter bottles are used. During the winter months, when the water level goes down, the women look for shell fish in the river beds while the men fish in the rapids.

Fish is eaten fresh or dried.

Through gathering and cutting the inhabitants are able to meet their basic necessities: firewood and grass used in basketwork and in the roofing of the house. Berries and leaves are collected for ceremonies.

The Tharus are well versed in the manufacture of basketwork articles used for agricultural purposes, food preparation, storing of clothes and personal objects. Colourful basketwork is made at the time of marriages; shapes and size vary according to usage. The materials used are bamboo, reeds, grass. Basketwork is carried out by the women and bamboo sheets, rain hats, bow nets, withes ropes are made by the eldest male member of the house. Pottery ware of daily use such as earthenware water pitchers, pots and pans, clay crockery are generally bought from a professional potter. However, the earthenware silos for storing the grain are made by the women themselves.

Self-sufficient to a great extent, the Dang inhabitants buy all that they do not produce. The barter system is hardly practised any longer though women still exchange grain for spices, bracelets or trinkets. Ready money needed for purchases comes from the sale of surplus grain, mainly rice and wheat. Traders come to the villages and buy the grains at a lucrative price.

Today, the Tharus are willing to spend in order to get better agricultural and domestic equipment. They buy metal tools,brass and copper cutlery, pottery ware, clothes, ornaments and at the time of festivals, alcohol and luxury goods. Despite the ever increasing demands, the self sufficient nature of the Dang economy has been preserved.

The Tharu Village

Dispersed in the heart of the Dang Valley, the Tharu villages are situated at a distance of about 20 minutes by foot from each other and are connected by a network of mud paths. In winter, they form an oasis of greenery amidst the parched rice fields. These units contrast sharply with the non-Tharu houses, scattered haphazardly in the middle of the fields outside the precincts of the Tharu village.

The villages are closed on all sides with tall bamboo hedges. The number of houses varies from 15 to 30 and the construction pattern is identical—long, low houses with an adjoining kitchen garden. Houses[13] lie on both sides of the road, traditionally orientated north-south and running across the entire length of the settlement. The four wooden stakes[14] which mark the cardinal points are supposed to keep prosperity within the precincts of the village.

The constructions, built side by side, are separated by only a few metres. Some villages consist of several rows of houses; however for the most part, a village comprises just a single row of houses on either side of the road. The width of the village therefore remains more or less the same whereas the length varies according to the number of houses.

Villages differ from each other in the arrangement of community equipment such as wells, ponds for the animals, oil crushers, threshing grounds, places of worship and also in the number of constructions, the dimensions of the houses which vary according to the size of the family.

For a better understanding of the Tharu habitat, we have focussed our attention on the Gaurigon village which we consider to be typical of the Dang Valley.

The Gaurigon Example

Situated in the centre of the Dang Valley, the Gaurigon village has a little over 300 inhabitants and 53 houses. On the one hand, the non-Tharu houses—2 Thakuri, 3 Brahman, 20 Chetri lie scattered over private lands in the north and the west, and on the other, 28 Tharu which form a closed village.

The Tharu settlement covers a surface 120 m wide by 580 m long. The constructions are built side by side in two rectilinear rows on either side of the road and face each other. The road runs north-south, as also the longitudinal axis of the dwelling buildings. This ensemble and the adjoining cultivated fields belong to a single Thakuri owner, Khillat Bahadur Singh whose house in located at the north-eastern extremity of the village.

Each adjacent dwelling unit includes: an open space giving on to the road, the dwelling building which

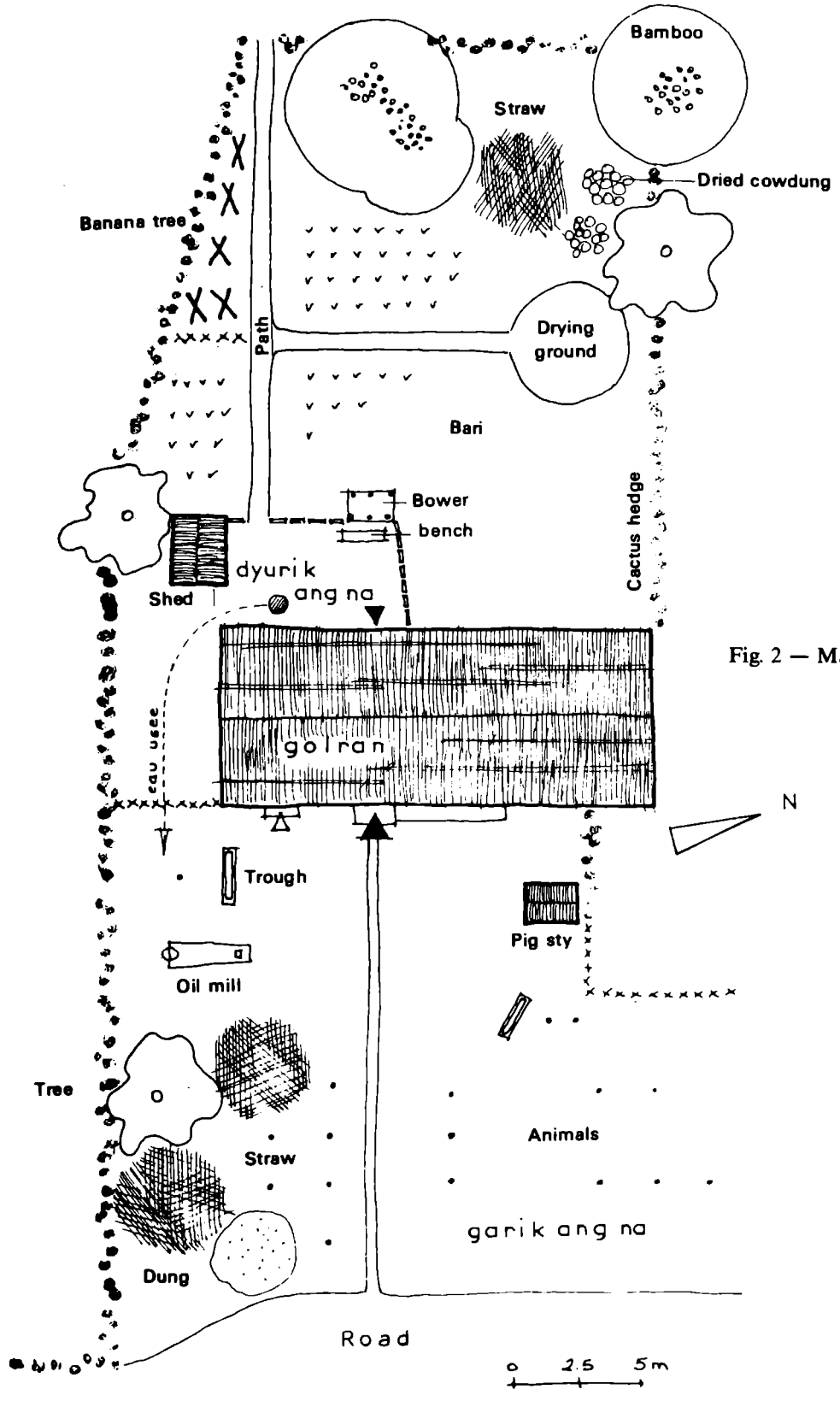


Fig. 2 — Map of habitation unit

Fig. 3 — Parnasi village; main facade, traditional decor
(Cl. F. Meyer)

Fig. 4 — A house in Gaurigaon village; facade giving on to the road.
(Cl. C. Milliet-Mondon)

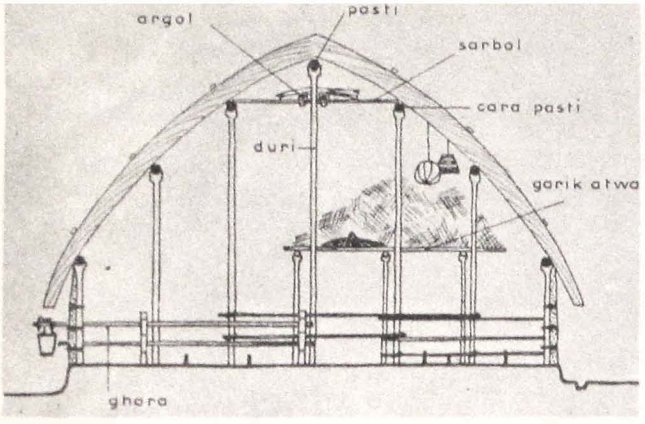


Fig. 5

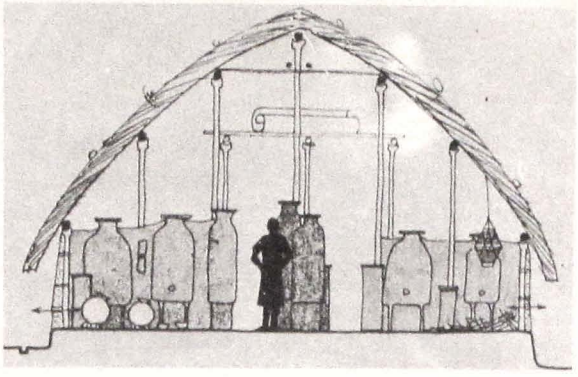


Fig. 6

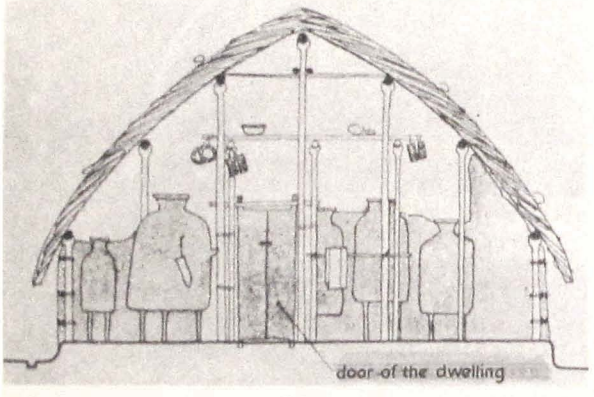


Fig. 7

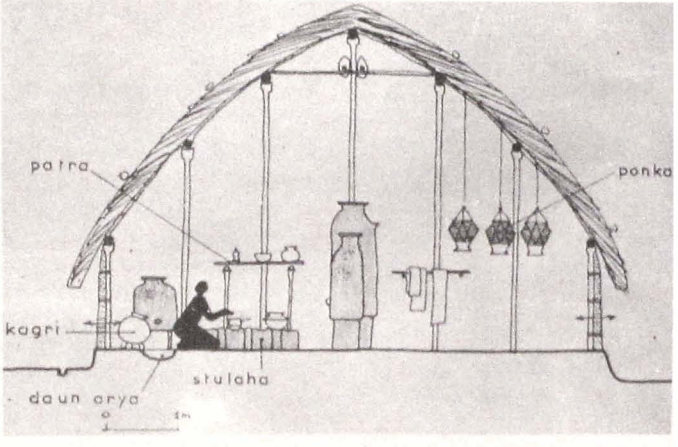


Fig. 8

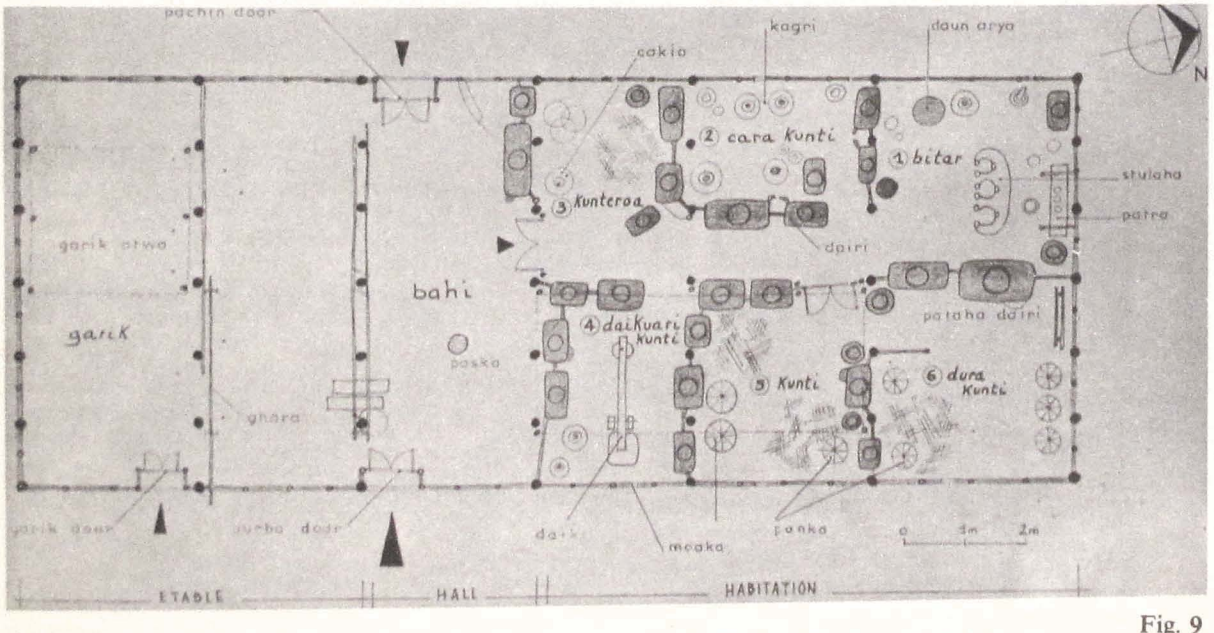


Fig. 9

Fig. 5 — Section-Manger; Fig. 6 — Section hall; Fig. 7 — Section cells 2 + 5;
Fig. 8 — Sections Cells 1 + 6; Fig. 9 — Plan of the house.

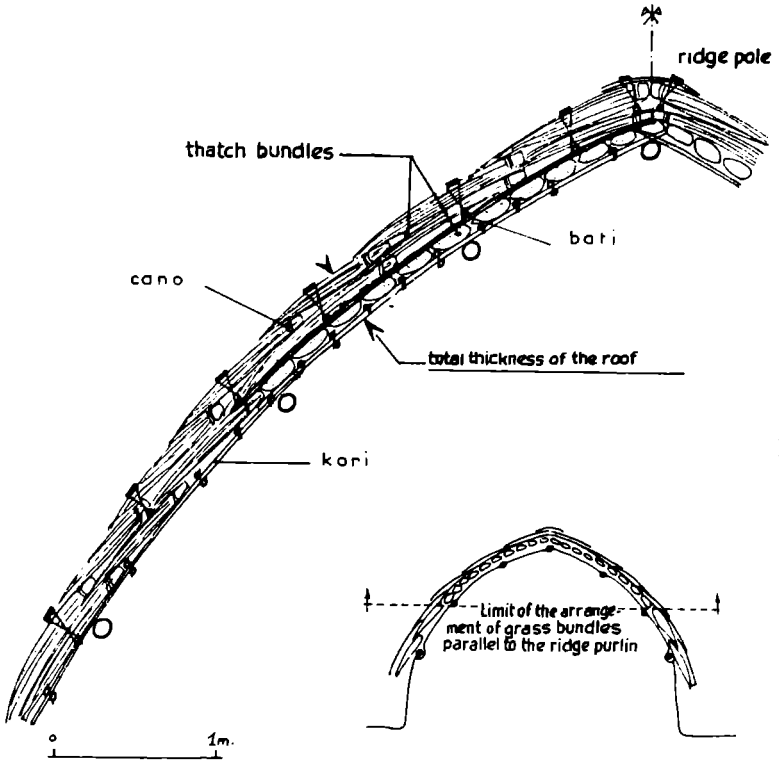


Fig. 10 — The roofing

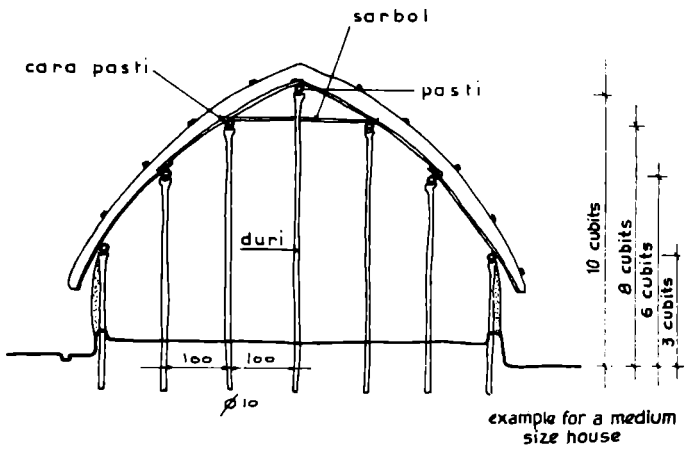
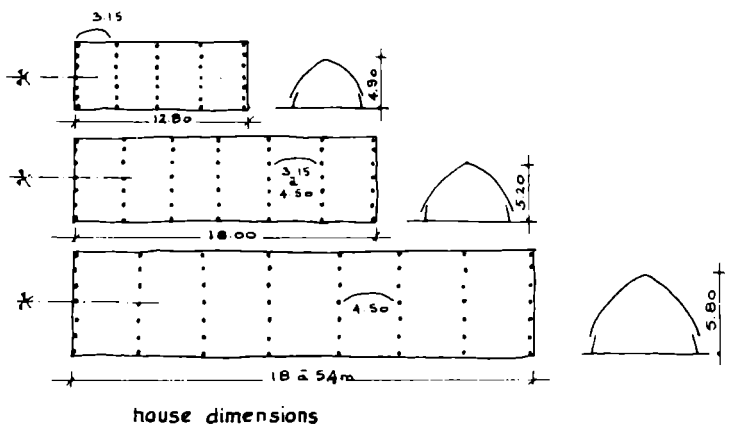


Fig. 11 — Frame and house dimensions



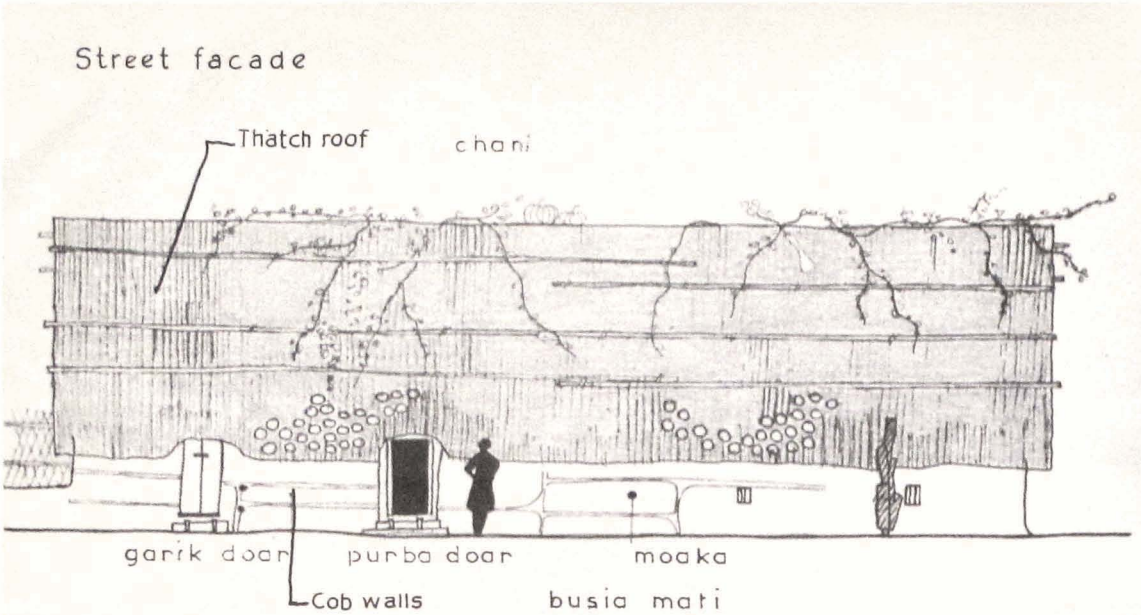


Fig. 12 — House elevation

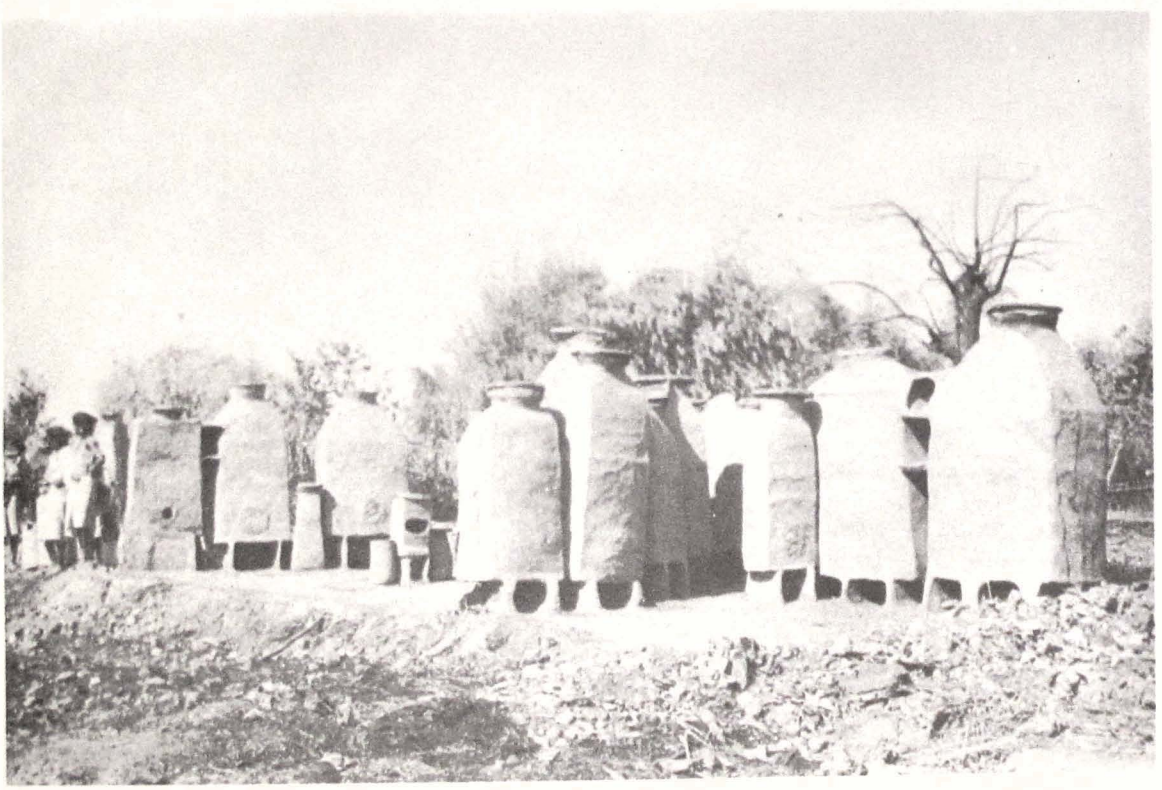
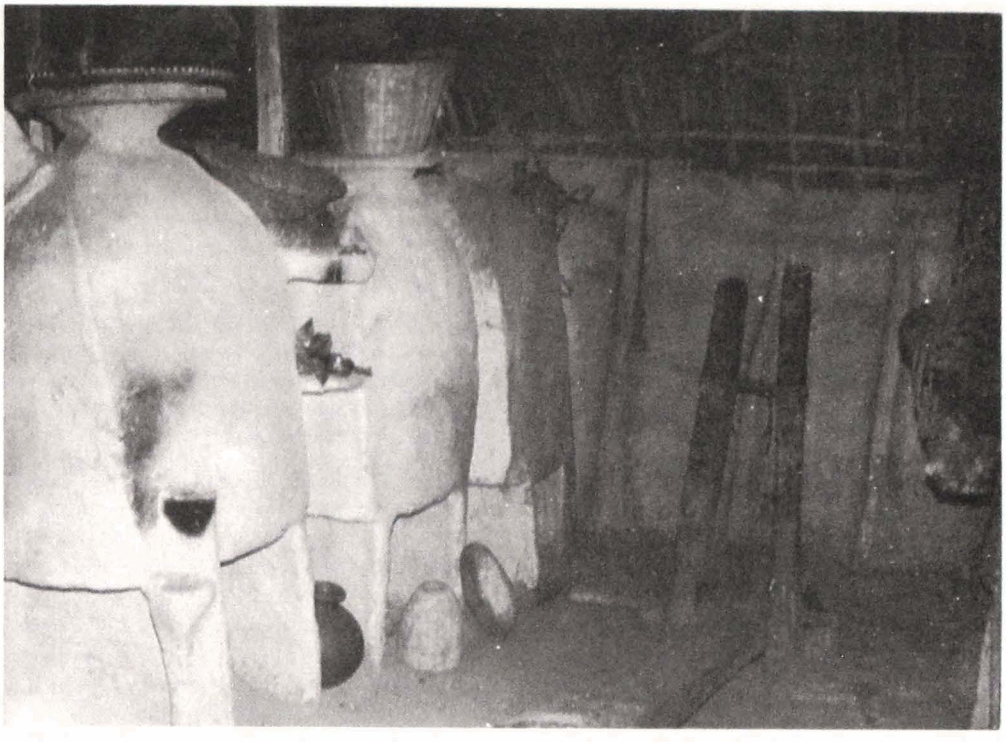


Fig. 13 — Remains (silos) of the house after a fire
(Cl. M. Gaborieau)



↑ Fig. 14 — Space reserved for the preparation of grain with the help of a husking pounder (Cl. C. Milliet-Mondon)

↓ Fig. 15 — Tharu woman with her baby next to the fire place. (Cl. F. Meyer)

occupies the entire width of the plot, an enclosed courtyard and a kitchen garden. The open spaces in front of the dwelling building communicate with each other but the courtyards and gardens are approached through the house and are enclosed by 2 cactus hedges 1.50 to 2 m high and bamboos planted at the end of the garden. A passage provided for gives the family direct access to the fields.

The village has two communal oil crushers.

The sacred place, 'bhuinhar', hidden by a bamboo grove, is situated in the north-west of the village. It is demarcated by a hedge of bushes and is divided into two equal parts. The first part is used at the time of religious festivals. The deities Cabahwa and Daharcandi who form a couple are represented by carved wooden figurines driven into the ground. A series of wooden nails indicate the orientation and a stake symbolises the plough. The second half forms the community cemetery; because of a shortage of wood, nowadays the Tharus bury their dead instead of burning them.

The 'than', built at the foot of three neem (n) trees, is situated some 250 m to the north of the 'bhuinhar' (t). This small rectangular building is covered by a thatched roof and is the place where sacrifices are made to the spirits invoked by the priest at the time of performing rituals.

The Dwelling Unit

On the basis of data collected from 14 villages of the Dang Valley and taking into account a large number of houses, we can conclude that dwelling units are of identical design. The pattern of construction is the same though the building size can vary according to the number of inhabitants or following a scheme which we will define later. One of the dwelling units of the Gaurigon village will form the basis of our study of the Tharu house.

Description and Organisation

As in the case of all the dwelling units in the village, this dwelling unit consists of three distinct zones and a building which includes the cattle shed and inhabitation area. Separate activities are assigned to each zone.

The main construction is preceded by an open space demarcated partially on all sides by a cactus hedge. This space, 'garik-ang-na' covers an area of 3.20 m^2 and a rectilinear passage running across it links the building to the road. A portion of the space is reserved for the animals and the area in delimited with the help of wooden posts. It also includes a pigsty as pigs are not allowed to stay under the family roof. After grazing, the cows and buffaloes are kept in this zone for several hours before they return to the cattle shed. Straw and dung are stocked in the 'garik-ang-na' (t). After grazing, a part of the area is used for the drying of grains and vegetable products. The oil crusher 'kad' (t) (nep: 'kol') is placed near the space reserved for the animals. This big wooden machine consists of fixed mortar, 'bria' (t) which is driven into the ground for 2/3rds of its length and a movable pounder, 'jat' (t) which when operated in a circular manner crushes the mustard grains placed in the mortar.

During the dry period, the zone which is in front of the main entrance of the dwelling building is used to rest and receive guests at the end of the day. Members of lower castes, specially artisans, cannot cross this area.

The second space outside the dwelling unit is situated at the back of the main building. To reach it, one has to go through the width of the building. It forms a small courtyard enclosed by a partition made of branches. Access to the kitchen garden is possible by means of a narrow passage allowed for in the barrier. The courtyard is used to perform domestic tasks requiring an abundant supply of water such as washing of large vessels, cleaning with ash, personal washing (for this purpose a basin is dug in the earthen floor to collect the rain water) and for the preparation and sorting of vegetables picked from the kitchen garden; as also for temporary activities such as basketwork, weaving, manufacture of ropes, fishing nets and alcohol. It also serves as a place of rest. A wooden bench, 'patra' (t) and a bed with carved legs are placed under the shade of a bower, 'daranga' (t). Next to the courtyard is a store, 'chapra' (n) where wood, agricultural and fishing implements and vessels used for distillation are stored.

The kitchen garden, 'bari' (n) is enclosed by hedges. A path running through it connects the house to the fields. The family garden is used for growing vegetables for daily consumption: peas, yellow lentils, radish, gourd, onions, chillies. Banana and guava trees are also planted. A rice husk grinder, 'payra' (t) is placed close to the bamboo. The dried dung cakes 'gugi-tak' (n) are also piled up near by. A circular earthen surface is used for the drying of pottery ware and vegetable products.

The dwelling building is located in the centre of the settlement on the right hand side of the main road coming from the north. A distance of about 6m separates it from the building at the side and 35 m from the building facing it. Running parallel to the road, its longitudinal axis is orientated north-south as is the case of all the village constructions. Traditionally, one of the facades under the roof should face the east to bring prosperity to the family. In this case, the main facade which gives on to the road is orientated towards the east.

The building was constructed in 1960 by the eldest son of the family. Prior to this, they lived in a smaller building situated on the same plot which belonged to the father and before him to the grandfather. In 1973, the building was inhabited by nine people: father, mother, unmarried son, his wife and small child, two sons, two unmarried daughters. They jointly cultivated an area of 4 bighas for the benefit of the Thakur jamindar. The family herd comprised 3 buffaloes, 5 cows and 3 pigs. They owned 4 hens and a cock.

The building is rectangular in shape 17.15 m and 6.50 m wide and has a surface area of 111 m^2. Built directly on a slightly raised platform, its total height is 5.20 m. The two sharply inclined slopes (35°) 'chani' (t) of the large thatched roof almost touch the ground leaving very little height for the walls. The main facade includes two doors and 3 small openings. Three circular apertures are made on the facade which overlooks the courtyard. The north and south gable ends are pierced only below the ridge.

The building is divided into 6 bays and comprises three distinct zones from west to east: the cattle shed, the entrance hall and the dwelling area.

A double door, 'garik doa' (t) connects the cattle shed, 'garik' (t) to the 'garik ang-na'. The shed covers two bays of the building which are separated by a movable barrier, 'ghara' (t). The first space is reserved for the adult animals; the second for the young animals. All the floors are covered with litter. Fodder is stored on an elevated platform 'garik atwa' (t). The cattle shed shelters the animals at night but is unoccupied during the day except at the time of births.

The entrance hall, 'bahi' (t) covers a single bay of the building. Situated between the cattle shed and the dwelling area, it regulates the layout of the house. Two doors, absolutely opposite to each other, open into the exterior; the eastern entrance door, 'purba doar' (t) faces the road and the door which opens into the courtyard, 'pachin doar' (t) leads to the back of the building.

A circular place dug into the soil is provided for the game, 'paska' (t). After work, the men of the family and their guests gather around it. The young boys grill skewers of rats caught in the bunds of the rice fields. In his moments of liesure, the father relaxes on a wooden bed near the entrance door to smoke his water pipe in peace keeping an eye on the household and the neighbourhood. After the maize harvest, a large silo made of bamboo mat rolled into the form of a cylinder is temporarily placed near the courtyard door on a platform which acts as a separation from the ground and rodents.

At festival time, guests are received in the hall which is also used as a guest room. But its main function is to protect the dwelling area—the "private" domain of the family.

The dwelling area is separated from the hall by a partition which is half way below the ceiling. Access to it can be had by a double door. An axial corridor disposes six cubicles, which are spread over three bays. Grain silos in the form of large bottles act as vertical partitions. The height of the partitions does not exceed 2 m leaving a lot of space beneath the roof. This allows good ventilation and keeps the place cool during the hottest periods. The cubicles receive little light. Light is diffused on the floor by means of small openings made in the facade walls.

Three kinds of activities take place in the cubicles: preparation and taking of meals; sleeping; family worship.

Cubicles 1, 2, 3, (in part) are used to perform the first kind of activity.

Cubicle 1, 'bitar' (t) is the innermost room of the dwelling. No outsider is allowed to enter it. It is used for the preparation of meals and is equipped with a central stove, 'stulaha' (t) consisting of 3 fires. The grinding mortar, condiments, earthen receptacles containing cleaned rice, corn or wheat flour and salt are placed nearby. Crockery and cooking utensils are arranged on a shelf built against the wall. The daughter-in-law is responsible for the cooking of meals.

In the house under study, meals are taken in the 'bitar' (t). The whole family assembles here except women during their periods of impurity. At such times, they take their meals in cubicle 3, 'kunte-roa' (t). In the cases of large houses, this cubicle, situated near the entrance, is the family dining room.

Cubicle 2, 'cara kunti' (t) which is next to the kitchen is kept for stocking and handling of water and liquids such as rice alcohol, beer, mustard oil. Large spherical jars placed on the floor contain water drawn from the wells by the women in the morning.

Cubicle 4, 'daikuari kunti' (t) is used for all work related to grains. A large machine for husking, 'daiki' (t) (nep: 'dhiki') takes up the central space. Rice is husked several times a week, early in the morning. The women sort out daily the lentils, peas, corn and prepare flour with the help of a circular mill made in stone, 'cakia' (t).

Cubicles 3, 5 and 6 (in part only) are used for sleeping. Each couple is given a cubicle of its own and its privacy is respected by all. Several large baskets, 'ponka' (t) are hung up in which the couple keep their clothes and personal objects. In the evening, woollen or

cotton bed-spreads are spread out on a litter of rice husk. In accordance with tradition, cubicle 6, 'dura kunti' (t) occupies the north-eastern angle of the dwelling building. It is the place of family worship, 'kul deuta'. A large silo, 'pataha dairi' (t) decorated with hand impressions in lime symbolises the ancestral spirits. The evil spirit Goraiya, and the deity Mainyan, the incarnation of good are represented by a wooden stick and a cotton ball attached to the silo and an earthen bowl placed beneath it. The rice in the silo is offered to the deities. The supply of rice is renewed after each harvest and forms part of the heritage that the eldest son will receive at the death of his father. It is in the 'dura kunti' (t) that the family mourns the dead. In this case, the youngest son inhabits the area opposite the altar as is the custom when there are not enough cubicles.

The Tharu house is furnished with certain distinctive fixtures and objects without which daily life would be impossible. Each piece of equipment has a specific function.

The Equipment

Within the dwelling building the water appliances are located mainly in the 'cara kunti' (t) as we have seen before. The kitchen is equipped with a basin, 'daun arya' (t) dug into the floor near the fire stove and an outlet which allows the used waters to flow into the kitchen garden.

A similar arrangement in the courtyard enables the stocking of rain water that flows from the roof.

Two fixed appliances are used for the lighting of fire. The family and guests gather around the fire stove in the hall. To protect themselves from the embers, an earthen fire wall, 'pokti' (t) is built. An open space is left on the top which is covered by a lid 'uka-na' (t) fitted with a handle.

The kitchen has a earthen fire used exclusively for the preparation of meals. It is 22 cm high and 132 cm long, and comprises 3 stoves. Tripods fitted inside allow the air to circulate freely and ensure the stability of the vessels. To introduce the fuel, openings are made in the facade. The fire is stoked by blowing hard or with the help of a bamboo blow pipe. The stove is selected according to the nature of food to be prepared. For fuel, mainly dried cow dung is used. The ashes recovered are used for cleaning the utensils.

For the manufacture of alcohol, small portable fire stoves or metallic tripods are arranged in the courtyard.

For lighting purposes, earthen or brass oil lamps, 'deuri' or 'dia' (t) are used. They are placed on elevated stands, 'kopa' (t) attached to the silo walls. The hall and all the cubicles are provided with one lamp fitting arrangement.

Grain and flour reserves are stored in earthen silos in a fixed order. The largest silos, 'dairo' (t) are 1.6m to 2.2m high and are in the form of a flat bottle with a rectangular base. Another kind of silo is placed on a support of 2 to 3 feet of clay, 'guara' (t) clearing it from the ground. It is closed with an earthen disc, 'barkan' (t), placed on top of the neck. After the silo has been filled, it is sealed. The grain is removed by means of a circular hole made at the base of the silo and plugged with an earthen stopper.

Before being ensiled, the corn ears are dried on poles which form a false ceiling in the dwelling.

Long wooden strips placed beneath the ridge run across the gable walls. They are used to hang several goods such as baskets, drying nets, grass braids, rain hats, soap cakes etc. These objects can also be hung directly on the framework of the roof.

The machine for husking rice, 'daiki' (t) is made of a long beam with a pounder attached at the end and is operated by foot.

Furniture is restricted to a bare minimum and consists of fixed objects such as clay or wooden benches, the kitchen shelf and movable objects like wooden stools or stools made of braided corn leaves, 'bairi' (t) which are hung on to the roof when not used.

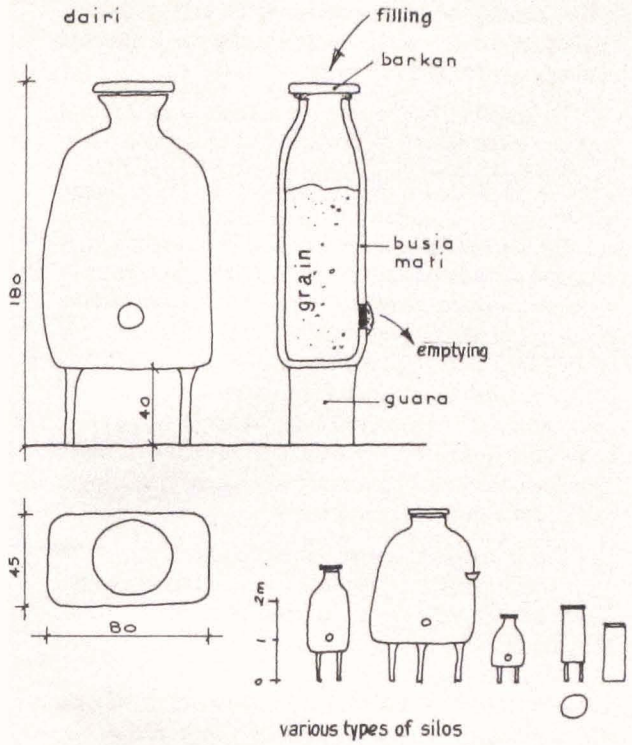
The household objects can be divided into several categories: water containers needed for the transport, storing and consumption of water; receptacles for the manufacture of alcohol; agricultural tools and implements—the most commonly used being the hoe, 'parva' (t) for the men, the bill hook, 'hachia' (n) for the women and the 'mungra' (n) which is used to drive in the stakes and posts; fishing equipment.

Family Activities

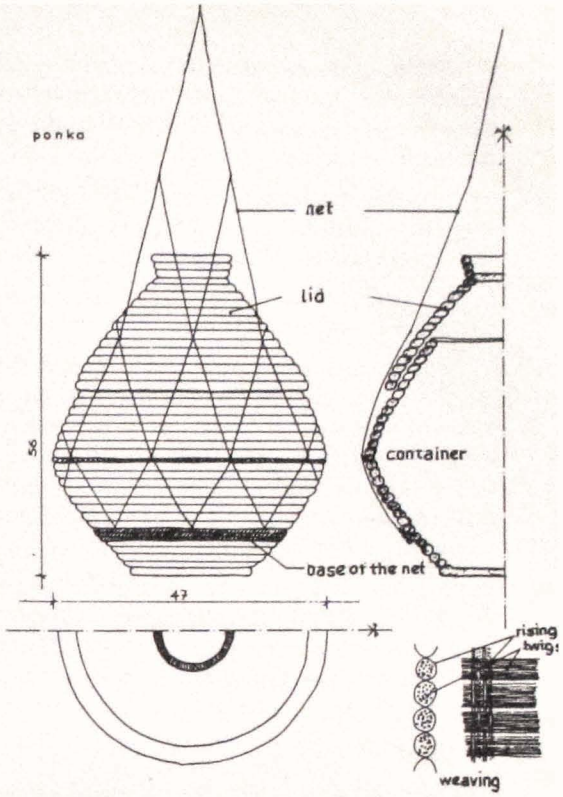
All the family members take part in the performance of the daily work. Tasks are allocated according to sex, age and following the hierarchy.

The young men (sons) do most of the agricultural work: ploughing, getting the rice fields ready, sowing, looking after the fields. The father is responsible for the animals, changing of litter, milking of cows, etc. He cultivates the kitchen garden, makes the mats, nets and ropes, and repairs the implements.

The mother, who is in charge of foodstocks, takes out an adequate quantity of grains from the silos for the day. She feeds the pigs and the hens in the 'garik-ang-na', plucks the vegetables from the kitchen garden and looks after the baby. During her spare time in the afternoon, she is engaged in basketwork or weaving.

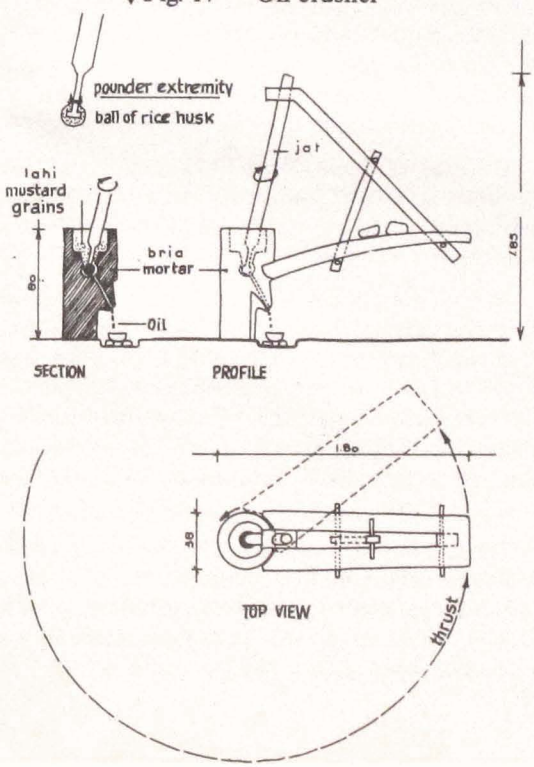


↑Fig. 16 — Grain silos

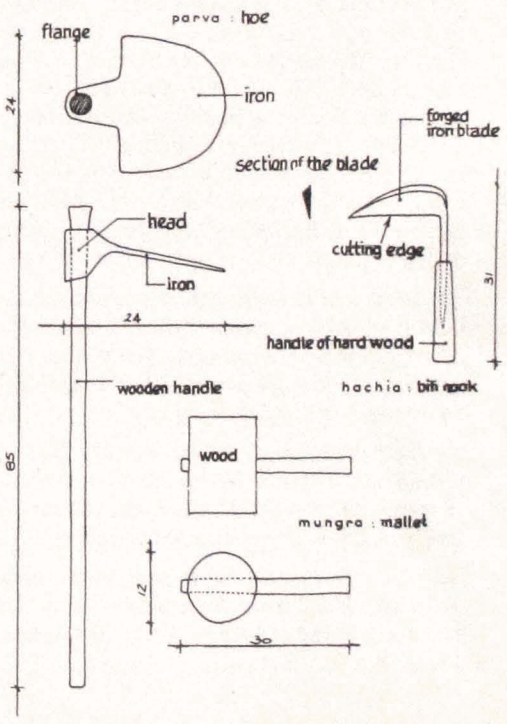


↑Fig. 18 — Basket for the preservation of foodstuffs.

↓Fig. 17 — Oil crusher



↓Fig. 19 — Agricultural implements



The daughter-in-law crushes the grain, presses the oil, carries the fuel, lights the fire and prepares the meals. She washes the dishes and looks after the upkeep of the dwelling.

The two daughters draw and carry the water from the well, help in the cleaning of the grain, do the washing and sort out the vegetables.

At the time of harvest, they are all out in the fields or in the communal threshing ground.

The house is not occupied for the entire day. The dwelling area, in particular, can be closed for several hours as meals are taken only in the morning and the evening and if the women are not in the fields they work in the courtyard. The hall or the threshold—depending on the season—are used only at the end of the afternoon.

The house is very well maintained. The inside is cleaned daily and the kitchen is swept several times a day. Every week, the daughter applies a fresh coat of clay on the floors. Twice a year, the inside, floors, silos, partitions etc., the outside, facades, courtyard floors, annexe buildings are recoated completely.

Construction of the Dwelling Building

The materials used in the construction of the dwelling building are procured from the immediate natural environment: wood, bamboo, grass, soil; as well as material from agriculture and cattle raising—rice husk, cowdung.

The Shorea Robusta[15] forests situated in the southern part of the valley provide the wood, 'gineter' (t) that is used in the construction of the framework of the building. The wood of young trees of sections varying from 12 to 14 cms is used to make the posts and beams. Woodwork, doors and furniture are made of planks sawn from older trees having a wider trunk. Other kinds of wood, obtained from a variety of trees, go into the making of the poles, 'argol' (t) which form the framework of the ceiling and the false ceiling for the drying of maize.

Bamboo is cut within the village. Bamboo stems are used to make the fences while bamboo lathes are used in the framework and the roofing. Small branches form the armature of the walls and cob, 'busia mati' (t) is applied on the partitions and the armature.

The grass used in the roofing belongs to the Gramineae. It has a hollow stem, 'cano' (t), a long rhizome and grows in the alluvium. The straw is cut to a length of about one metre and tied into bundles.

The yellow ochre clayey soil, 'mato' (n) is obtained from the village itself. When mixed with rice husk, it forms a cohesive cement, 'dhan ko bus' (n).

A coating of clayey soil and dried cowdung is applied on the cob walls, the floors and the household equipment: silos, fire stoves etc.

The dwelling building is covered by a large thatched roof supported entirely by several rows of wooden poles; the four walls that enclose the building act as fillings only.

The framework, driven 2 cubits into the ground, is arranged according to a fixed order formed by 7 rows of equidistant poles running across the length of the building and dividing the building into 6 bays, each bay being 3.15m wide. Each row consists of 7 poles, 'duri' (t) placed at a distance of one metre from each other. On either side of the longitudinal axis, the height of the poles keeps decreasing from the ridge pole to the extremities. This determines the inclination and gives both the slopes of the roof a slightly convex shape.

The framework is constituted by the ensemble of poles which support the purlins. The 7 purlins rest on the forked head of the poles to which they are firmly fixed. They are usually made up of 2 or 3 pieces of wood joined together so as to cover the entire length of the building. The 2 upper purlins, 'cara pusti' (t) are kept apart on each row of poles by a horizontal piece of wood, 'sarbol' (t).

The roof is made of rafters, 'keri' (t)—wooden poles—which extend from the ridge to the roof. The rafters are tied to the purlins with the help of plant straps and are placed at intervals of 60 to 80 cm. Bamboo laths, 'bati' (t) are placed on the purlins at a distance of 30 cm parallel to the ridge. Together with the purlins, they from a light frame on which straw is placed. The straw, tied into bales, is arranged in successive layers held in position by bamboo laths.

The total thickness of the roofing is 30 cm. The special arrangement of the bales of straw ensures water proofing in a region which experiences a heavy monsoon.

The cob walls of the facades below the roof and the two gable ends are constructed differently. The two underhung facade walls 3 cubits high, i.e., 1.4m and about 10 cm thick are plastered on the outside over the poles of the framework. Made of criss-crossed bamboo sticks, taken between horizontal laths, this ensemble, 'jakra' (t) is maintained vertically by 2 intermediate poles, 'doasa' (t).

The gables which extend to the full height of the building are constituted by the ensemble 'jakra' (t) taken between the poles of the framework and the other poles, 'biata' (t) which can be seen from the outside. Such a construction gives greater solidity to the whole. The

internal partitions of the dwelling are also made in cob and fill up the empty space between the silos.

Door openings and small windows are provided for only in the facade walls below the roof.

The cattle shed door and the two doors placed opposite to each other in the hall are of identical construction and have the same dimensions. For example, the entrance door, 1.6m high and 80 cm wide, is built between two walls angles penetrating 35 cm within relation to the bare facade.

These doors consist of a wooden framework and two pivoting leaves, allowing a passage 63 cm wide and 150 cm high. The thatched roof is cut for easier access. A padlock is used to lock the door from the outside and small wooden latches, 'kila' (t) are fitted to lock the door from within.

The circular openings, 'moaka' (t) made in the facade walls at the dwelling level enable the lighting and the ventilation of the inhabited area. Having a diameter of about 15 cm they are closed with rice husk at night and during the coldest periods of the year.

Generally speaking, in the Dang Valley, the size of the house is proportional to the number of inhabitants, the dwelling building being capable of sheltering from 4 to 25 people. However, the three dimensions—height, width, length—vary.

The height of the building above the platform is determined by the height of the framework poles placed on the axis. Those of the house under study, which is of medium size, are 10 cubits high, i.e., 4.42m. In the case of a small house, these poles are 9 cubits high, i.e., 5.35m, this being the maximum height.

The width varies according to the spacing of the poles in a single row. Even though the number of poles is fixed at 7, the space in between can vary from 2 to 3 cubits. Consequently, the width can vary from 5.4m to about 7.8m depending upon the pole spacing.

Of the three dimensions, the length varies the most. It is determined by the number of consecutive rows of poles. The width of a bay—space left between tow rows—is more or less constant at 3.15m. The smallest house has 4 bays, the largest 12. The total length of the building thus varies from 12.8m to 54m.

According to the observations we made on the field trip, 4 bay houses are inhabited by 4 to 6 people, 6 bay houses by 6 to 10 people and the largest house can in exceptional cases shelter up to 32 members of the same family.

Generally, whatever be the size of the building, the hall occupies only a single space left between 2 rows of poles whereas the cattle shed can cover one, two or three bays and the dwelling area can occupy 2 to 8 bays in accordance with the number of cubicles that it contains.

The layout of the inhabited spaces and the place where each piece of equipment is kept are always identical. However, the husking pounder can be placed in the hall thereby releasing an extra cubicle for sleeping. In exceptionally large houses, the cattle shed has two distinct zones, one reserved for the animals and the other for the temporary storing of the maize silos. In such a case, the prayer room is used exclusively for family worship.

The Erection of the Dwelling Building

The Tharu family will construct a new dwelling building when it finds that the one inhabited by it is too small to shelter all its members.

Traditionally, the existing building cannot be enlarged and has to be replaced by a new construction which is built on the same plot if space permits. In such a case, the old house is demolished. More often than not, the 'mahatua' and the zamindar allocate a new plot to the family. The 'guruva' is then consulted and he decides the location of the house and the date for the beginning of work. The old house is sold to another family in the village.

All available members of the village community participate in the construction of the new house. They are not paid and the tasks are divided according to sex and age. The men are in charge of cutting, preparing and transporting the wood and the bamboo. They are concerned above all with the construction of the framework and the roof. The women and young girls cut the straw, prepare the cob, the silos, the kitchen fire stove and are responsible for the coating. The elder men prepare the bamboo laths, the grass straps and look after the maintenance of tools. The young boys make the wall armatures and help in the laying of the roof.

Generally, construction takes place during the dry months of March and April. In this period which is favourable to the gathering of straw and cutting of wood agricultural activity is slack. The construction time for an average sized house is 37 days: 16 days for the preparation of the material, 10 days to build the framework and walls, and 14 days for clay masonry and coating. The annexes are constructed afterwards.

Contrary to other Nepali houses, the Tharu house is not built to endure. Simple techniques are employed and the materials are taken from the immediate environment. The house is first and foremost a light shelter, easy to put together and is particularly well adapted to the hot and

humid monsoon climate. It is distinguished by a large thatch roof with steeply inclining sides which allow the rain water to flow down and protect the family from the heat. A single building whose dimensions vary according to the number of inhabitants includes the cattle shed, the dwelling area, the work space and the living space. Stretching parallel to the road and built at ground level, the building is single-storeyed.

The Tharu dwelling is remarkable for its internal organisation. Separated from the cattle shed and protected by the hall—place of welcome and social relations—the inhabited area consists of a series of private cubicles and spaces used exclusively by the family community. The silos having specific shapes and containing the grain reserves for the year, divide the internal spaces and join the prayer room to the domestic activity area.

More than anywhere else in Nepal, the layout of the village itself illustrates the organisation of this society, its way of life, technological level, beliefs and customs. The dwelling units, even though enclosed, are built side by side and lie on either side of the road running north-south. With the threshing ground, the pond, the well and the area reserved for community worship, the village forms a homogeneous whole, enclosed and sheltered by a bamboo hedge beyond which lie the cultivated fields.

Notes

The material presented in this study was collected during a long stay in Dang in the months of December 1973 and January 1974. This work forms part of a more general ethnographic research dealing with the traditional house in Nepal.

1. According to the authors. Is literally translated as "becoming humid" in the North-West Provinces census *Gazetter, 1881*, vol. VI, p. 398.
2. While the Mahabharat chain is continuous in its entire length, the Siwalik chain is discontinuous and rejoins the Mahabharat in some zones; elsewhere, valleys, 'dun' separate the two mountain systems. The Dang Valley is more vast than these interior valleys.
3. Refer to the works of D.B. Shresta, *Ethnic groups of Nepal and their ways of living*, Kathmandu Press, p. 27, and D.B. Bista, *People of Nepal*, 2nd ed., 1972.
4. A.W. Macdonald, "*Notes* sur deux Fêtes chez les Thâru de Dâng," *Objets et Mondes*, t. IX face.1, 1969.
5. S.K. Srivastava, *The Tharus, a study in culture dynamics*, 1958, Agra University Press, pp. 13 and 15.
6. The other Tharus use the term 'mahatua' (t) or 'mehato' (n) to designate the 'padhan', from 'pradhan' which signifies "head" in Sanskrit.
7. From 'ghar' (n) which signifies house in Nepali.
8. Amongst the Dang Tharus, 'Kul deuta' (n) consists of 4 deities: 'Kali Bhagvati', 'Mainyan', 'Parvatiya' and 'Goraiya' venerated by the family.
9. Traditional exposure to the rising sun.
10. It is possible to buy land. Prices are high in view of the limited family resources and the difficulty it experiences in getting together the necessary amount. The price varies in relation to the quality and situation of the land, between 2,500 to 20,000 Rupees for an area of one 'bigha' (n). One Rupee is the equivalent of 50 French centimes, one 'bigha' (n) equals 5/8th of an acre.
11. One 'Kota' equals 1/20th of a 'bigha' (n).
12. Even though slavery has been abolished in Nepal, the status of the Tharus working for the 'jamindars' is very different from that of the other Nepalese: completely exploited, they often fall into the debt trap with the proprietor. In case of inability to repay the debt, they may be purchased by another master who thus cancels the debt contracted originally.
13. The term "house" is used to designate in a general way the material support of community life: territory, buildings, equipment and goods. The term "dwelling unit" designates more specifically the territory of each family and the zones of activity that it includes. The term "dwelling building" is used for the construction sheltering the family. The term "dwelling" designates the private domain of the family, that is the space under the roof inhabited by its members and their deities.
14. A.W. Macdonald, already mentioned.
15. J.F. Dobremez, *Le Népal, écologie et biogégraphie*. Ed. of the C.N.R.S., 1976.

System of Transcription Adopted

The Tharu or Nepali vocabulary was transcribed phonetically on the field and verified, wherever possible, with the lists established by the Summer Institute of Linguistics which were consulted in 1974, but not published at that time, and with *A comparative and etymological dictionary of the Nepali language*. R.L. Turner, London, 1931.

For reasons of graphic simplicity, we have retranscribed this vocabulary according to the phonetic alphabet of the African Institute, except for the occlusal dental consonants, noted 't' and 'd' and the nasal dental consonant noted 'ng'.

Nepali words dealing with habitat are followed by (n), Tharu words, by (t).

Glossary

'bhayar than' (t)	small construction. Place of sacrifice and community worship.

'carkut' (t)	wooden stake fixing the cardinal points
'deurhar' (t) or 'dura kunti (t)	room of the deities. Place of worship of the ancestors.
'bhuinhar' (t)	space within the village used for traditional festivals
'khaliyan' (n)	threshing area
'garik-ang-na (t)	open space in front of the dwelling building
'kaol' (t)	oil crusher
'bria' (t)	mortar (mill)
'jat' (t)	pounder (mill)
'diurik-ang-na (t)	small, closed courtyard
'byen nua' (t)	plank barrier
'ta-ti' (t)	passage provided in the barrier
'patra' (t)	wooden bench
'daranga' (t)	bower
'chapra' (n)	bower
'payra' (t)	rice husk stack
'gugi-tak' (n)	dried cowdung
'son-ki (t)	drying area
'golran' (t)	dwelling building
'chani' (t)	roof
'garik' (t)	cattle shed
'ghara' (t)	bamboo barrier
'garik atwa' (t)	raised floor of the cattle shed
'garil doar' (t)	cattle shed door
'purba doar' (t)	eastern door
'pachin doar' (t)	back door
'paska' (t)	place for the game
'bahi' (t)	hall
'kunti' (t)	cell
'bitar' (t)	kitchen
'stulaha' (t)	mud furnace
'cakia' (t)	stone mill
'cara kunti (t)	cell for the storing of liquids
'kunteroa' (t)	cell situated near the entrance (place where meals are taken)
'daikuari kunti' (t)	cell for grain work containing the husking machine
'daiki' (t)	husking machine
'ponka' (t)	large basket for clothes
'pataha dairi' (t)	silo of the ancestors
'daun arya' (t)	basin dug in the ground
'pokti' (t)	fire well
'uka-na' (t)	cover to put out the fire
'bairi' (t)	stool of woven maize
'babio' (t)	grass
'dairi' (t)	mud silo
'guara' (t)	foot of the silo
'barkan' (t)	circular cover
'bas' (n)	bamboo
'busia-mati (t)	cob
'cano' (t)	roofing thatch
'mato' (t)	clayey soil
'dhan ko bus' (n)	mortar of mud and chopped rice husk
'duri' (t)	pole
'kori' (t)	rafter
'bati' (t)	bamboo laths (roofing)
'pasti' (t)	purlin
'sarbol' (t)	tie-beam
'jakra' (t)	wall component
'doasa' (t)	intermediate pole
'biata' (t)	gable end pole, visible from the exterior
'moaka' (t)	small circular opening in the facade wall
'bari' (n)	kitchen garden
'bari dagar' (n)	kitchen garden path

THE MIDDLE COUNTRY OF INDO-NEPALESE CASTES

THE INDO-NEPALESE HOUSE IN CENTRAL NEPAL
Building Patterns, Social and Religious Symbolism

Marc Gaborieau

The Indo-Nepalese—Hindus organised in a caste society—form the dominant population of Nepal. They spread over the entire mountainous region of the country, 800 km from west to east, between the 12th and 18th centuries (Gaborieau, 1978 a); such a widespread dispersion led to notable cultural and technological differences within this large ethnic group. The same holds true for house construction and I have had the opportunity to record several house types: one in the Mahakali Valley in the extreme west which is reminiscent of the architecture of the Kumaon region in India; another type in the lower valley of Karnali; and yet another type in the upper valley of Karnali whose flat roofs remind one of the Bhotiya house, I will describe the house of central Nepal; Véronique Bouillier will deal with a different type observed in eastern Nepal beyond the Kathmandu Valley. There are certainly many other house types which have yet to be recorded.

The house type taken up in this article for central Nepal is situated in a vast area lying between the Kali Gandaki Valley and the Valley of Kathmandu. It had first been described under the label of Gurung house (Pignède, 1966, pp 82-88). It is possible that the Indo-Nepalese borrowed this architecture from the Gurungs just as they have borrowed elsewhere from other tribes; but the inverse is more likely as Philippe Sagant has recently demonstrated with regard to the Limbus (Sagant, 1976). In the present case, it is impossible to establish a relationship for to do so one would have to go back to the 16th century, a period for which there is no documentation available. We must work on the basis of recent observations: this house type is used by almost all the populations of central Nepal: the vast majority, namely the Indo-Nepalese belonging to all castes, a minority (about 20%) of tribals mainly Gurung and Magar as well as by the small Curaute community (Muslim glass bangle makers). Nepali, the language of the Indo-Nepalese, has a complete terminology to describe the entire residential complex and each one of its parts; we shall refer to it as the Indo-Nepalese house of central Nepal.

The Nepali word for house is 'ghar'; like the Sanskrit term 'grha' from which it has been derived, its meaning is determined by the context. 'Ghar' signifies a residential complex where the master of the house and his family live permanently. The residential complex includes not only the house but also a courtyard and possibly a cattle shed and a garden. The main portion, which lends its name to the whole, is the dwelling building. In order to be called 'ghar' the building must be an elaborate construction built on stone walls with a verandah, a ground floor and a first floor. Otherwise, it will be dismissed as a 'jhupro', 'chapro' or 'khopro'—shanty, hovel, small construction comprising a rudimentary framework covered with straw, built on pillars of indifferent quality and on the ground as for instance the constructions built by impoverished widows, lepers and wanderers who have recently arrived in the locality.

The 'ghar' is a place of permanent residence; instead of asking, "Where do you come from?" the question asked is: "Where is your house?". 'Ghar' is opposed to a temporary residence, 'dera', which could be in the city or another village, or a shepherd's cabin (in the high mountain pastures or in the forest which serves as grazing land), 'goth' or cattle shed.

The 'ghar' is the domain of the head of the family, 'gharpati' (Nepali), which literally means master of the house and is the equivalent of the Sanskrit term 'grhasta'; a man is not considered a full adult until he is married and runs his own house which he inherits (if he is the only or youngest son) or which he constructs himself (if he is an elder among several brothers). All those under the authority of the master of the house (his wife or wives, unmarried sons and daughters, married sons who

have not yet established their own household, their wives and children) refer to this residence as their "house", 'ghar'. After marriage, the daughters identify with the house of their husband; the father's house then becomes their maternal residence, 'mait'. The wives are bound to the husband's house till death or till remarriage after divorce or widowhood. As for the master of the house, the house will belong to him till he dies, which is the most frequent case, or till he opts for the third stage of life, the stage of renunciation. The edifice that he builds to lead his life as a hermit is distinct from the family house and no matter how elaborate, it is always referred to by its specific name, 'kuti', hermitage.

The term 'ghar' designates not only the building but also its inhabitants. The question: "How many families are there in this village?" is replaced by: "How many houses are there?" 'Ghar' is then synomous with 'cula', home and hearth. In a more restrictive sense and euphemistically, it designates the wife of the master of the house, who personifies the continuity of the family.

The house is both the family and residential unit in a patrilineal, patrilocal and virilocal society. These lexicographical considerations open up wide areas of study on the Indo-Nepalese house. It is not possible to discuss all aspects of the question in the present article. We will confine ourselves to the most important aspects. We will proceed in two stages: first, we will define the entire residential complex; next, we will concentrate on the dwelling building. In both cases but especially in the second, we will deal with the organisation of space in relation to social and religious criteria.

The Residential Complex

Social and Economic Context

In central Nepal, the houses are dispersed. What is often refered to as a village but which I prefer to call locality, consists of a series of hamlets loosely dispersed in the midst of terraces used for dry cultivation. Each hamlet has been founded by a lineage of land clearers who live alone or have brought with them other affine lineages or unrelated buyers; in both cases, caste membership is generally the same; the houses of the untouchables are dispersed on the edge of the hamlet or are together in separate hamlets.

A hamlet has its distinct territorial limits which till recently constituted an administrative unit and included all categories of land: on the one hand, forest, grazing and wastelands which remain undivided; on the other, cultivated lands which are appropriated by each family and which are sub-divided into flooded rice fields, 'khet', in the heart of the valley, and into non-irrigated terraces on the slope or on the ridge (Gaborieau, 1978 b). Houses are always built on non-irrigated terraces: building plots and dry cultivation lands belong to the same legal category; the same portion of the soil is divided and sub-divided in order to comply with inheritance division, transfer and sale requirements; as families get divided and the population increases, new residential units are built on terraces which were intended for cultivation.

The major or rather the sole occupation of the majority of Indo-Nepalese (the high castes: Brahmins, Thakuris, Chetris and renouncers) and tribals is agriculture. Respectable artisans like the Majhis, boatmen, the Kumals, potters, as well as the Curautes, Muslim glass bangle makers—devote most of their time to agriculture, their craftsmanship providing them with an extra source of income. The main occupation of the untouchable Indo-Nepalese artisans (the Kamis, who are blacksmiths, goldsmiths, carpenters, coppersmiths, wood-turners, the Sarkis, tailor-cobblers, the Damais, tailor-musicians) is their specialized trade but all of them undertake some form or the other of agricultural work on the small plots of land granted to them by their high caste patrons and may own several heads of cattle. Only the two castes of beggar-musicians, Gaine and Badi, the lowest and least populous castes, do no agricultural work whatsoever (Gaborieau 1977 b).

We now have all the data required to understand the residential complex. Installed in the midst of the non-irrigated terraces, it is not only a place of dwelling but also the seat of a farming concern and possibly a cottage industry. In addition to the dwelling building which shelters the family and its movable assets, the residential unit must include a space with annexe buildings for activities related to cultivation and cattle breeding and, if need be, a cottage enterprise.

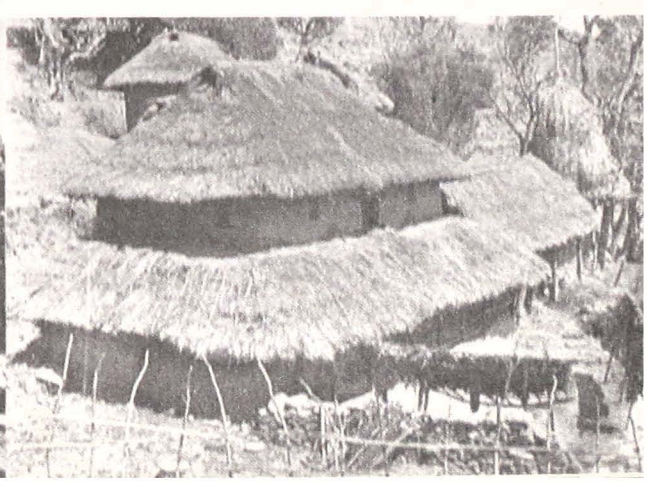
General Layout and Orientation

This problem is resolved by constructing the residential complex around a courtyard. The rectangular house is kept as far back as possible near the slope of the upper terrace; its longitudinal facade faces the courtyard which stretches in front till the edge of the lower terrace and extends as far as possible on the sides. The annexe buildings are built around the courtyard. Ideally, and as is very often the case, each residential complex is clearly separated from the other; the adjacent terraces which generally belong to the owner of the house serve as fields and at least one terrace is used as a kitchen garden. Poverty and scarcity of land can force brothers or cousins to build their houses on neighbouring terraces, one next to the other, at the same level but always spaced apart; the courtyards which lie in a row remain distinct from each other. The terrace immediately above and below is

↑ Fig. 1 — Overview of a hamlet; Samjur village
(Cl. M. Gaborieau)

↓ Fig. 2 — Residential complex. Oval house
(Cl. M. Gaborieau)

↓ Fig. 3 — Rectangular house
(Cl. M. Gaborieau)



avoided as the used waters and waste of the courtyard would fall in the house of the neighbour just below.

All these factors raise the problem of the orientation of the residential complex and in particular of the house. In contrast to the majority of Tibeto-Burmese populations (Sagant, 1976, 169), the Indo-Nepalese do not take into consideration the upstream and downstream categories. The variations in the direction of the river course do not result in any modification in the habitation. The numerous surveys made, bring out the following facts: the cultivated terraces on which houses are built are on the sunny slopes; slopes which face northwards are not cleared and remain part of the forest and the grazing land. On the sunny slopes, the facade and courtyard face full south; the alternative are south-east or more rarely east; south-west or more rarely west. There is no absolute orientation in relation to the cardinal points which are nevertheless located very easily if it is a question of ritual. The conclusion that follows from this is that the inhabitants make the best use of the land configuration to get maximum sunlight on the facade and courtyard; where the orientation is least towards the south, this is generally due to an uneven landscape.

The Courtyard

The courtyard, 'agan', is the heart of the residential complex. It consists of a terrace which is extended as far as possible and is preferably rectangular in shape; its length parallel to the facade is around 12 metres and its width is 4 or 5 metres. The courtyard space is of modest dimensions and the courtyard is always enclosed. When the adjacent terraces vary in level by about one metre or so, the supporting walls form an adequate barrier; otherwise, a stone wall is built which the cattle cannot cross. There is a barrier at the entrance and if a connecting passage links the neighbouring house, two barricades are built. The barrier, 'tagaro', is made of separate horizontal firewood logs which are fixed in the wall cavities or in the holes of the two beams driven into the ground. It marks an important limit; physically, it keeps in the cattle; each family can enclose its own cattle and keep out the neighbour's cattle; but it cannot prevent the goats and fowl from going in or out. Socially, it is the beginning of the private space of the family: being admitted into the courtyard means that one has been received by the family; the master of the house welcomes at the barrier important guests such as his future son-in-law who arrives in procession for the marriage ceremony. Finally, it is a religious limit: the first rites of protection against evil spirits, witches in particular, are performed at the barrier.

The courtyard floor is flattened. It must be hard enough to be able to withstand the torrential monsoon rain; normally a mud floor is adequate; if the ground is loose, a stone filling is provided. This covering is periodically reinforced at the time of threshing or religious ceremonies with a coating of clay and cowdung.

The courtyard is used for several purposes. It is an extension of the house as well as the agricultural and craftswork buildings. It is used all the time. The children play there and in the cold season, when the shade of the varandah is too chilly, the family members warm themselves in the sunshine of the courtyard. Seated on mats made of rice straw, men and women work, chat and discuss here the proceedings of the day. Some domestic chores are performed in the courtyard. In winter, a dead season, the men assemble here and engage in basket work and repairs connected with the house or farm. It is here that the women wash the dishes and sometimes the clothes (for washing the clothes and personal bathing one generally goes to the fountain in order to minimise water transportation). The used waters flow down to the lower terrace through a drain dug for this purpose. A pole placed horizontally on stakes driven into the ground acts as a clothesline.

The courtyard is also used for farming activities. Here, fowl, goats and cattle can frolic as they please. It is used to thresh eleusine, lentils, soya and beans (rice is threshed on grounds specially provided for in the rice fields). After the harvest, in the autumn months and winter, all grains (including rice) are put out to dry in the courtyard during the day on mats made of rice straw or split bamboo under the supervision of an adult or elder child who is armed with a stick to drive away the animals. In winter, the artisans work here when they are not in their workshop or in the verandah.

The courtyard is also a religious and social space. Some of the ceremonies relating to the life cycle are performed here, the rest taking place in the interior of the house: presentation of the child and dances on the sixth day after birth; sacrifices on an altar specially made for initiation and marriage rituals; ceremonies to make the various stages of mourning. The feasts which follow the ceremonies also take place in the courtyard and spill on to the neighbouring terraces if the number of guests is large and if they belong to different castes (Gaborieau 1984; Gaborieau, 1991, ch. 1 and 4). Finally, the higher castes, especially the Brahmins, have, in a corner of the courtyard, a pot in stonework in which basil, 'tulsi', is grown in honour of Vishnu and possibly a bed of flowers which they offer to the gods.

Agricultural and Craftswork Annexes

Annexe buildings are constructed on the courtyard and

adjacent terraces. First of all, those constructed for breeding purposes. In western Nepal, the cattle shed, 'goth', is built on the ground floor of the house; in central Nepal, it is always a separate building and can assume two forms: the affluent villagers construct a 'dhansar' which literally means granary: elaborate construction which rests on wooden pillars or stone walls. The lower level opens on to a terrace lower than the courtyard; it shelters bullocks used for ploughing, milch cows and buffaloes and their calves. One or two sides are left open and the others are enclosed with stone walls. A floor similar to the one in the house separates the cattle shed from the upper level which normally opens on to the courtyard. The upper storey is a well finished construction with a thatch roof having two or four sides, stone walls rough-casted with mud, a small window and verandah; it serves as a granary but can also be used as a bedroom or guest room; only a part of the grain reserves are stored here; the portion left over for those who own this type of granary or else the entire grain stock is stored in the first floor of the house. The less affluent possess only a small construction which is used exclusively as a cattle shed: a rudimentary shelter, it consists of three rows of pillars which support a double sloping roof made of thatch or leaves; the cattle are tied here to protect them from the sun, rain or dew.

The other animals are lodged in the house space where they are better protected at night against jackals and predators. For fowl and goats, a shelter, 'khor', is built which is closed firmly with a wooden door. The fowl shelter is always dug in the verandah platform. The goat shelter is either dug in this platform if it is sufficiently raised or built on the verandah extremity on one of the sides of the house; the same holds good for pigs. The beehives, 'ghar', are made of a hollow tree trunk segment and are hung under the verandah roof or under the eaves. The rare cats and dogs live with the family.

Three rudimentary constructions built in the courtyard or nearby are used to store certain food products that are put out to dry beyond the reach of the cattle. Rice straw, the only fodder reserve for the winter months and spring, is piled up on a platform called 'tauwa'; the platform consists of four pillars arranged in a square which support a grid of firewood logs placed high enough to be outside the reach of the cattle. The rice straw is arranged around a central pillar of greater height. A second platform, 'thakro', is used to store the ears of corn. A third construction, 'kholungo' or 'kholma', a simple lattice work cage, contains the Indian potato and pumpkin reserves.

The heavy agricultural implements can be stored anywhere; their number is in any case very limited: two swing ploughs for the rice fields and non-irrigated lands respectively; a leveller and a harrow with a beam and a yoke. The small tools (sickles, bill hooks and spades) are slipped under the verandah roof or carefully stored in the house. Only two artisan castes using fire build cabins in their courtyard which serve as workshops: a simple thatched roof resting on four pillars without any walls, and where it is impossible to stand straight as the artisans work sitting on the floor or on their heels: these castes are: the 'Curautes', glass bangle makers, who install their furnaces and keep their wood reserves there; the blacksmiths, Lohars, and the goldsmiths, Sunars, both belonging to the Kami caste, whose workshops are equipped with a forge, bellows, wood coal reserves, anvil, steeling basin; the most valuable tools are kept in the house. The Sarkis, tanner-cobblers, have an open air tanning pit near the house; but they do not have a workshop; like the carpenters who also belong to the Kami caste and the Damais, tailor-musicians, they work in the courtyard or verandah according to the season or else in the house of their patrons.

Garden and Orchard

A conscientious house owner keeps a kitchen garden, 'bari', on a terrace near the courtyard on which chillies (other spices are imported) and vegetables are grown. This along with the cereals, lentils and soya cultivated in the fields constitute the basic diet of the people. The vegetables grown in the kitchen garden are: Indian potatoes, cucumbers, radish, spinach and other green vegetables, gourd, pumpkin etc.

There is no orchard in the strict sense of the term. Useful trees are grouped together as close to the house as possible so that is easy to look after them. The fruit trees come first. In every house recorded, some fruit trees—mandarin, banana, lemon, guava, pear trees—are grown, although all the varieties may not exist in one place. The clump of bamboo trees provides material for the house framework, basketwork and the manufacture of bonds. Bamboo shoots are sometimes served as a delicacy on important occasions. Various types of trees whose leaves are used as cattle fodder during the dry season are also planted near the house.

The residential complex is a multifaceted unit. Its visible centre is the courtyard, place of welcome, stay and work; above all, it is a point of intersection which must be crossed to reach any other destination: to go from the house or the cattle shed to the fields, grazing lands and forest or to the artisan's workplace, one has to cross the courtyard and the same holds good when one returns to the house to garner the crops, eat and sleep. We will now focus our attention on the house which is the most important element of the residential complex.

For reasons of clarity, we will deal with construction techniques and social and religious use of domestic space separately.

Construction of the House

The house type used by a large majority of the inhabitants of central Nepal can be roughly defined as a two-storeyed stone building with a wooden framework and roof truss and a thatch covering. It is flanked by a stonework platform, elevated in relation to the courtyard which extends from within the house to the facade and runs along the sides to support a verandah. Such a house can be of two shapes: oval, 'ghumaune', "which turns" or rectangular, 'bangale', in Bengal style (refer to the English word bungalow) and both forms still coexist in villages and hamlets. Apart from this, there is no difference in the mode of construction or nomenclature except for the roofing: the oval roof, a kind of flattened truncated cone, is a continuous entity; the rectangular roof has four sides. The oval house is more difficult to construct as the roof truss has to be evenly incurvated; in the region where I worked, Samjur village and its neigbourhood in the Tanahun district, nobody had witnessed the construction of such a house; and those of this type which still exist are at least a century old. In this article I will only deal with rectangular houses which I have seen being constructed.

There are two variants which we will leave aside: firstly, a developed form having a large surface area. Built by a minority of affluent owners, one or two floors are added and often several balconies are constructed. Such a house is called 'dui tale ghar, tin tale ghar', a two- or three-storeyed house. The second variant is the simplified form of modest dimensions with only a double sloping roof and gable walls. These houses belong to the untouchables; members of the pure castes and tribals would consider it demeaning and below their rank to live in such a rudimentary shelter.

Division of Labour, Materials and Implements

To begin with, let us enumerate the materials and implements used in the construction of a house. The social division of labour on the basis of sex and in some cases caste offers a convenient classification. The division of work between the two sexes is more obvious. The heavy work is done by the men; the women do the finishing work and the decoration; between the two lie a whole range of non-specialised tasks.

Which of the tasks allotted to men require specialisation? The foundations can be dug by anyone and this work is generally carried out by the owner, his family, neighbours or paid labourers. The tools are very simple; to dig, a stick, 'khanti', which has an iron blade at the end and a spade, 'kodalo', are used; pickaxes and shovels remain unknown. Clearing is done with the hands or with a plate of iron or aluminium. All the stones available in the nearby fields, debris of houses and low walls are collected; if absolutely necessary, a quarry is dug in the nearest uncultivated land; the services of a semi-specialised quarrier, generally a Gurung or a Magar, are utilised. He possesses the necessary implements—an iron bar and a sledge hammer. Local stone of whatever quality is used. It is usually not cut; in very limited areas like Parbat and Gorkha districts, the Magars specialise in stone cutting with chisels and hammers.

The walls, 'garo' or 'garho', are made of stone, 'dhunga', assembled with mud which is quite simply the soil, 'mato', of the neighbouring terraces diluted with water. Anyone can perform this masoning work and several unspecialised men do it; but an expert is needed to put into place the vital parts of the building especially the angles; one does not encounter in central Nepal the mason, 'or', belonging to the Kami caste, who is found in westernmost Nepal; however, semi-qualified people are recruited from the Gurungs, the Magars and sometimes from the untouchables. Although the string and plumb-line are not unknown, they are not used in a systematic manner. Thus, the angles are not always completely straight, the walls not perfectly vertical and of consistent thickness. The frames of the openings, beam extremities, floor joists and consoles are fitted in place as the walls gain height and stones and mud are layed around them. When the walls reach the height of a man, a rudimentary bamboo scaffholding is constructed.

The woodwork (openings, pillars, framework of the floor and roof truss) is the most complex and costly element of construction and is carefully preserved at the time of demolition of a building. For the major woodwork, 'sal' (Shorea robusta) is preferred. If this is not available and for minor work, 'cilaune' (? Schima wallichii), 'katuj', somewhat like chestnut (? Castanopsis indica) and 'nidu" (?) are used; at an altitude, coniferous trees, 'sallo', fir trees (Abies spectabilis) are also made use of; bamboo may be used for the roof truss and laths.

Woodwork, 'kath', and bamboo work, 'bas' are exclusively a man's job. Felling, pruning and rough squaring can be done by anyone with the help of an axe, 'bancaro', and a bill-hook, 'khurpa'—implements found in every household. To saw the wood and make the wooden parts the services of a specialist are required. The carpenters, the only specialists involved in the construction of the house, are called 'or', as the masons of western Nepal and belong to the Indo-Nepalese caste

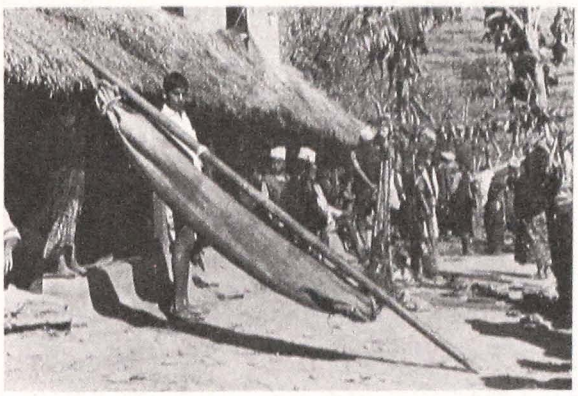
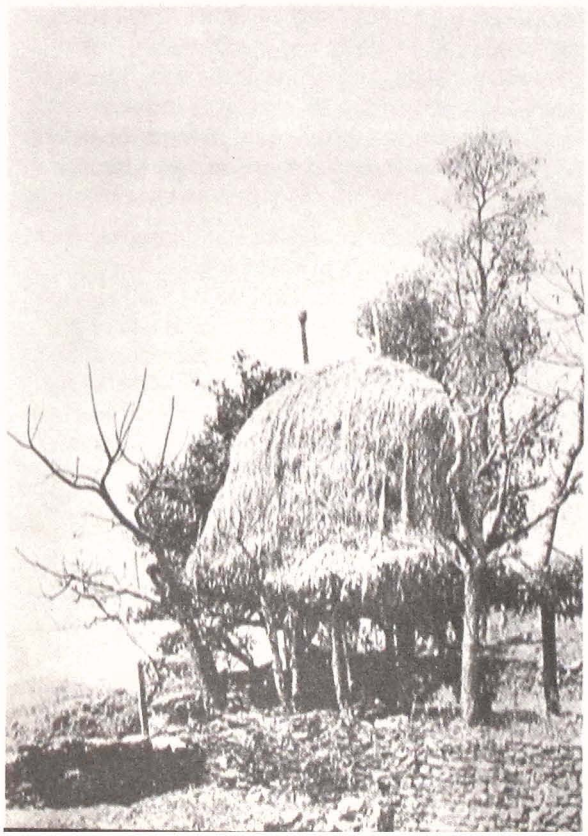


Fig. 4 — Ceremonial use of the courtyard : marriage rules. In the foreground, the palanquin to carry the groom can be seen leaving against the verandah roof. (Cl. M. Gaborieau)

Fig. 5 — Straw of a rich owner. Besides the four traditional pillars, previously existing trees are used to support a long grid. The right end of which may be used. (Cl. M. Gaborieau)



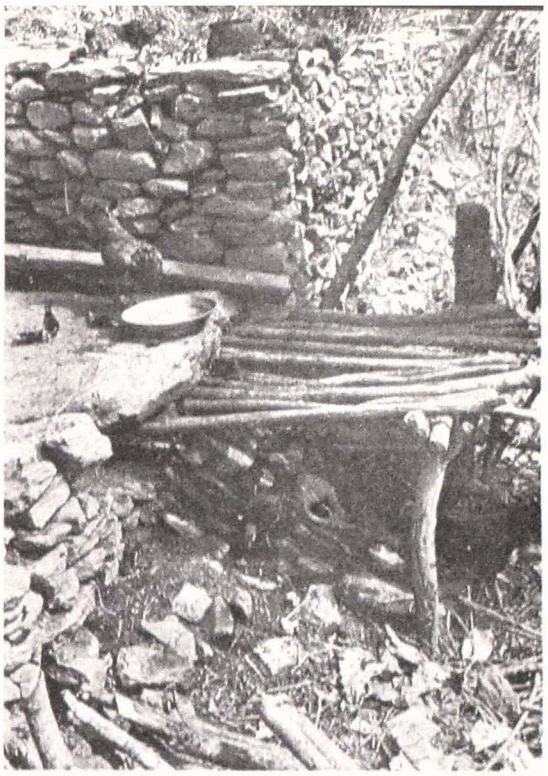
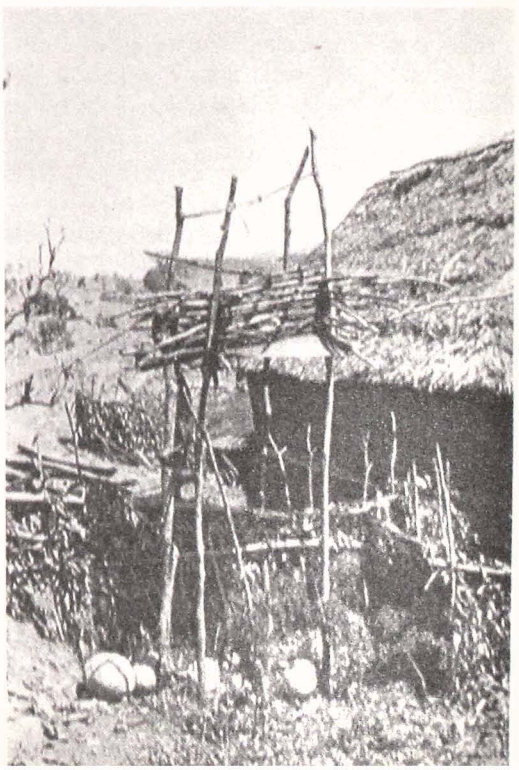


Fig. 6 — Corner of the courtyard reserved for dishwashing : the utensils have been placed to dry on the grid; the waste-waters flows below. (Cl. M. Gaborieau)

Fig. 7 — Cage on stills to store Indian potatoes and pumpkins (Cl. M. Gaborieau)



of the Kamis; Samjur village has two carpenters. Previously, they used only an axe and an adze made by the local ironsmiths; today, the saw, 'karati' or 'karauti', imported from India, is used universally. The carpenter also makes use of a gouge and chisel along with a wooden mallet and sometimes a plane; for markings, he uses a soot string. In some places, Newar carpenters, Si-karmis, who are more skilled and better equipped, provide competition to the Indo Nepalese artisans; Samjur Newar carpenters have not been practising their profession for generations.

The carpenter is only paid for the making and fitting of the most difficult parts; cutting and laying of billets and laths cut with a bill-hook which are used in the framework, roof truss and laths are non-specialised tasks. The same holds true for the preparation of bamboo stems which may be used for the roof truss and laths and the strip bamboo bonds which are used to put the roof together. The bamboo is procured from the village itself where it is carefully cultivated; the bonds are made in advance.

The roof, generally thatched, is also made by the men. In almost all the houses, a grass, 'khar' (? Imperata arundinacia) is used; it grows wild on steep stony slopes which are unsuitable for cultivation of food crops. It is carefully preserved and even sown if necessary. In autumn or as winter begins, the grass is cut with a sickle; it is dried and tied into bundles; the men place the grass on the roof. To equalise the lower part of the stems, a kind of wooden paddle, 'dablo' or 'dabilo', is used. If this grass in not available rice straw is used. However, this is done only in case of extreme necessity as rice straw is a very precious commodity used to feed the cattle and make mats. Slate (genuine or fine shale according to the place) is reserved for the houses of the rich, schools and official buildings. Corrugated iron, the ultimate in luxury, is used exclusively in temples and mosques.

The building does not have any trace of metal; not a single nail is used in the framework. The ironsmith, Lohar, of the Kami caste gets on the job only after the house has been completed. He provides furniture accessories such as nails for hanging objects, chains and padlocks to close the doors and ritual requisites like three-headed nails at the threshold of the door and window supports to drive away evil spirits.

The women have no specific work until the house has been completed. Using their hands, they rough-cast the floors, the inside and outside walls with mud. With a rag, they apply a coat of clay, 'rato mato', and cowdung on the rough-cast. This solid mixture is considered to be a purifier and gives an ochre tint. Rags tied to broomsticks act as paint brushes and the women paint the openings black with a decoction made from tree barks; this same black paint and lime milk is used to draw geometric motifs on the facade and sides of the house.

Tasks which have not been divided according to sex are non-specialised. These include the cutting and gathering of thatch, mixing of mud used as mortar and above all the transport of materials: stone, wood, water which is required in abundant quantities and which come very often from distant fountains. This is a long and painful job as the villagers carry everything on their back with the help of a head strap. The men lend a helping hand sometimes but for the most part these chores are performed by the women.

The noble work, the construction of the walls, framework and roof, is carried out exclusively by the men who may be unspecialised, semi-specialised or, in the case of the carpenter, completely specialised. Women look after the finishing and they generally have to perform the unpleasant chores which theoretically can be performed by either sex.

The Masonry (Figs. 9, 10, 11, 18)

Let us now examine in detail the construction taking into account the different elements. All measurements indicated on the sketches illustrating this portion are based on the measurements of a house belonging to a Muslim Curaute, Bala Din, of Mohoriya hamlet in Samjur which I saw being constructed in the winter of 1966-67. This is a house of medium dimensions—a rich owner could build a slightly bigger construction; a very poor owner, a slightly smaller one. In my case, there are no standard norms; no precise measuring instrument is used. The only standard that the artisans know are their forearms; they measure in cubits, spans and with their fingers.

Stonework, which constitutes the basis of the building, is done first of all. In this area where the rock is just below the surface of the earth, the foundations are shallow: 30 to 50 cm. They form the rectangle of the house, appx. 5.30m by 3.5 m in its external dimensions. The wall thickness is about 40 cm: 45 cm in the house observed; in other constructions and sometimes within the same construction, I noticed variations ranging from 35 to 50 cm. To accommodate the height of the verandah platform, the ground floor and the masoned portion of the first floor as well as the walls are kept 3.50 to 4 m above ground level. These walls, which are of equal height, constitute a rectangle in stonework with openings on the facade: they delimit the modest dimensions of the ground floor and the first floor: 4.40 m by 2.60m or 11.44 m^2.

The platform on the facade and on the sides, a little more than one metre above the level of the courtyard, is then masoned; this is used as the floor of the verandah and is called 'pirhi'. Two or three small steps lead to the threshold.

The Openings (Figs. 10 and 14)

All the openings are made on the facade walls. The only door, which is on the ground floor and which opens below the verandah roof, is generally situated on the right side or sometimes in the centre; then there may be a window or two. The first floor has one or three windows opening beneath the eaves. The side and back walls have no opening except for a tiny hole in the back wall having a diameter of a few centimetres to let some of the smoke escape and to facilitate the stoking of the fire stove.

All openings have a frame made of four pieces of wood joined together with tenons and mortises. The frame is fitted in the masonry at the time of the construction of the walls. The two sides of the double door (1.60 m by 0.75 m) are made of a single plank and have a projection at the external corners which acts as a pivot. At night, the door is closed from the inside with the help of a wooden rod. If one has to go out, the door is closed from the outside by means of two small chains attached to the upper or lower inside corners of the sides and fastened with a padlock to a hook placed in the middle of the lintel. During the day, the door is kept open.

The windows are always of very small dimensions, to protect themselves from robbers, or so they say, and allow only a bare minimum of light and air to enter. They are fitted with two wooden shutters which close from the inside with the help of a rod. The ground floor windows may have a slotted sun blind made of wooden laths crossed at right angles.

Framework and Floor (Figs. 9, 10, 15)

Once the walls reach the height of the floor, construction of the framework begins.

The framework consists of four elements. Two pillars, 'tham', squared off tree trunks or thick square planks (15 cm section in the house observed) are fixed in the ground to form a line which divides the room in two equal parts lengthwise; they are equidistant from the two long walls; there are three equal intervals between them and between the side walls.

A capital, 'meth', appx. 10 cm in thickness, is placed on each pillar. The beam is placed on the 'meth'.

The fourth element are the joists, 'dalin' or 'bharyang'. They are positioned perpendicular to the beam and are supported at their centre by the beam; their extremities are fixed in the long walls, with the help of wall plates, 'nas'. A joist is placed at every 50 cm or so which amounts to about 8 to 10 joists (I forgot to count).

The floor consists of two elements. Firstly, a lathing of small logs, 'cirpat'. The logs are arranged tightly on the joists perpendicular to them; nevertheless, an opening in the corner, generally on the right hand side, is left to have access to the attic by means of a beam with notches, 'lisnu'. Then the rough-cast consisting of a layer of mud about 20 cm thick.

Once the pillars and framework are in place, the ground floor may be filled with stones with a mud coating so that it reaches the same level as the verandah floor. The lower part of the door framework exceeds this level to form the threshold (ethnologists had better be careful or else they will trip!) And so the ground floor is completed with a height of 1.60 m beneath the joists.

Roof Truss and Lathing (Figs. 10, 11 and 12)

The construction of the roof truss along with the lathing is the most complex and delicate part of the work. We will first describe the house truss, the most complex and then the verandah truss which is a simplified version.

There are no general terms to describe the roof of the house as a whole; only the elements are designated: the large sides are called 'pakho', the smaller one 'sekhuwa' (according to central Nepalese pronunciation) or 'sikuwa (spelling given in dictionaries); 'dhuri' signifies the ridge-pole and the meaning is extended to cover the inhabited house; 'dati' are the eaves which extend beyond the walls.

The rafters are placed directly on the upper external angle of the walls. The lower purlins rest on the external consoles, 'twakal', embedded in the wall. The purlins support the eaves and are kept in position by a pin, 'theri'. Three king posts, 'kham', hold the ridge-pole; these planks are about 2.50 m long; their lower end lies on the floor beam; the two king-posts at the extremities are more or less in line with the ground floor pillars; they have a cut or fork on the upper edge in which the ridge pole lies.

The truss has three elements. First, the ridge-pole, a solid bamboo pole, 'bas', from where it derives its name, 'basi', is placed on the king-posts. Then the rafters, 'byalsi', small planks of rectangular section; there are 8 to 10 for the large sides. They are placed two at a time: a hole is pierced at the end of each rafter through which a wooden pin is passed forming a pivot; this joint is placed astride the ridge pole allowing each rafter to fall on its side and find a second support on the large walls; the joint hole is pierced in such a way so that the upper end of the rafter form a fork to receive the ridge purlin enabling it to rest properly.

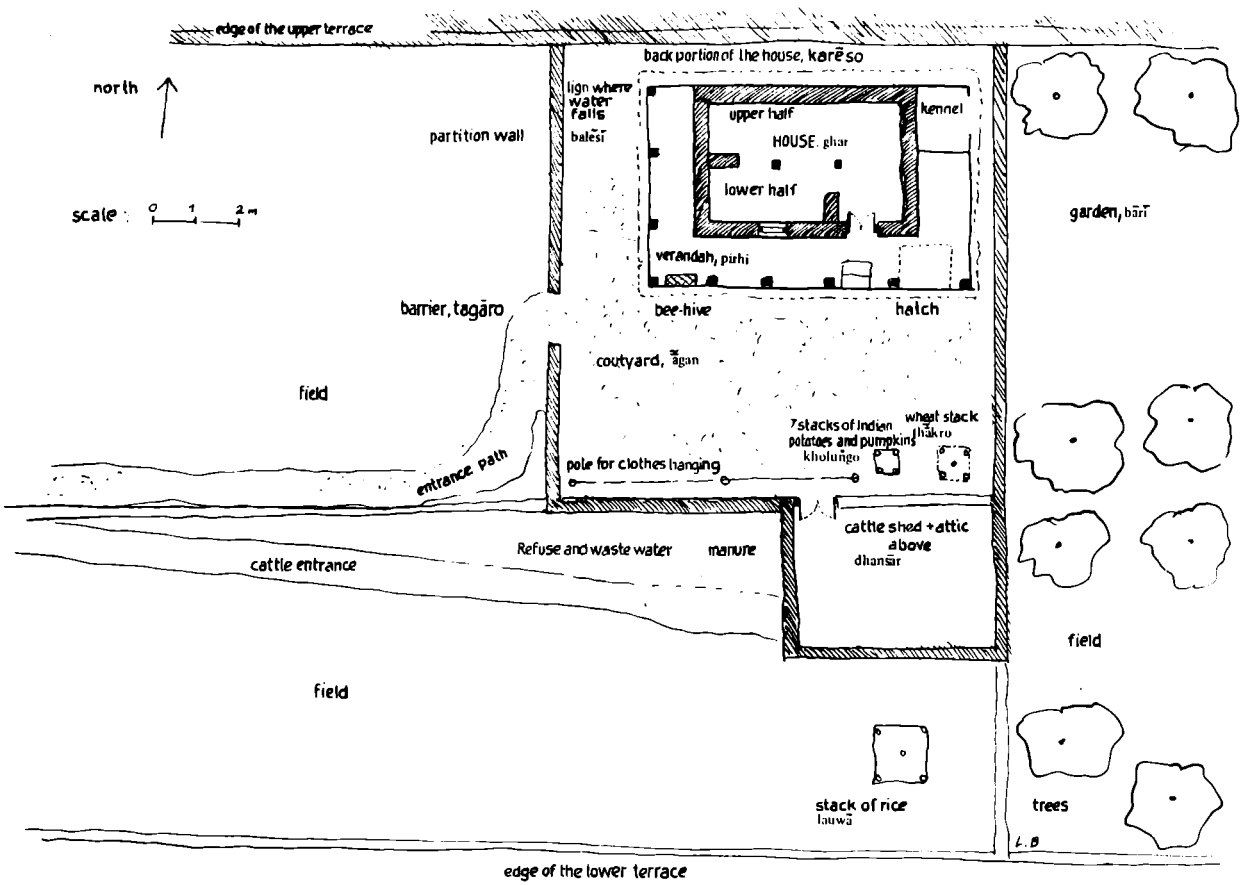


Fig. 8 — Residential complex : overall plan

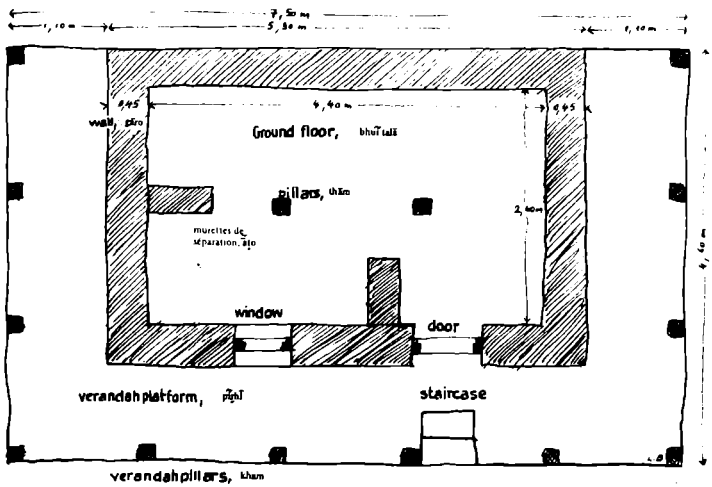


Fig. 9 — Ground floor plan (scale 3/100)

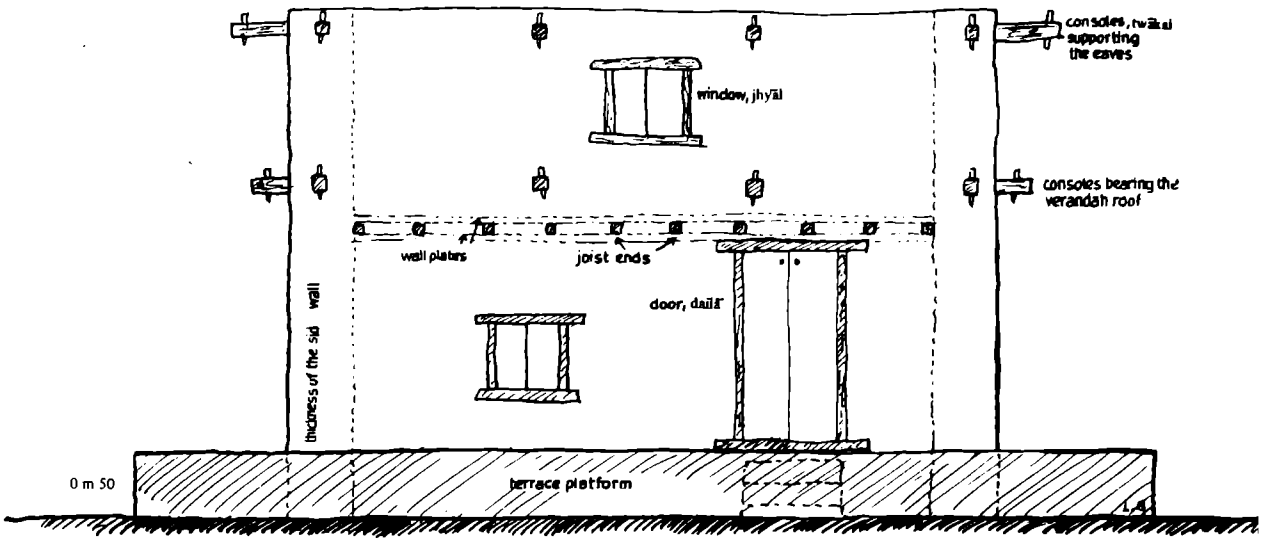
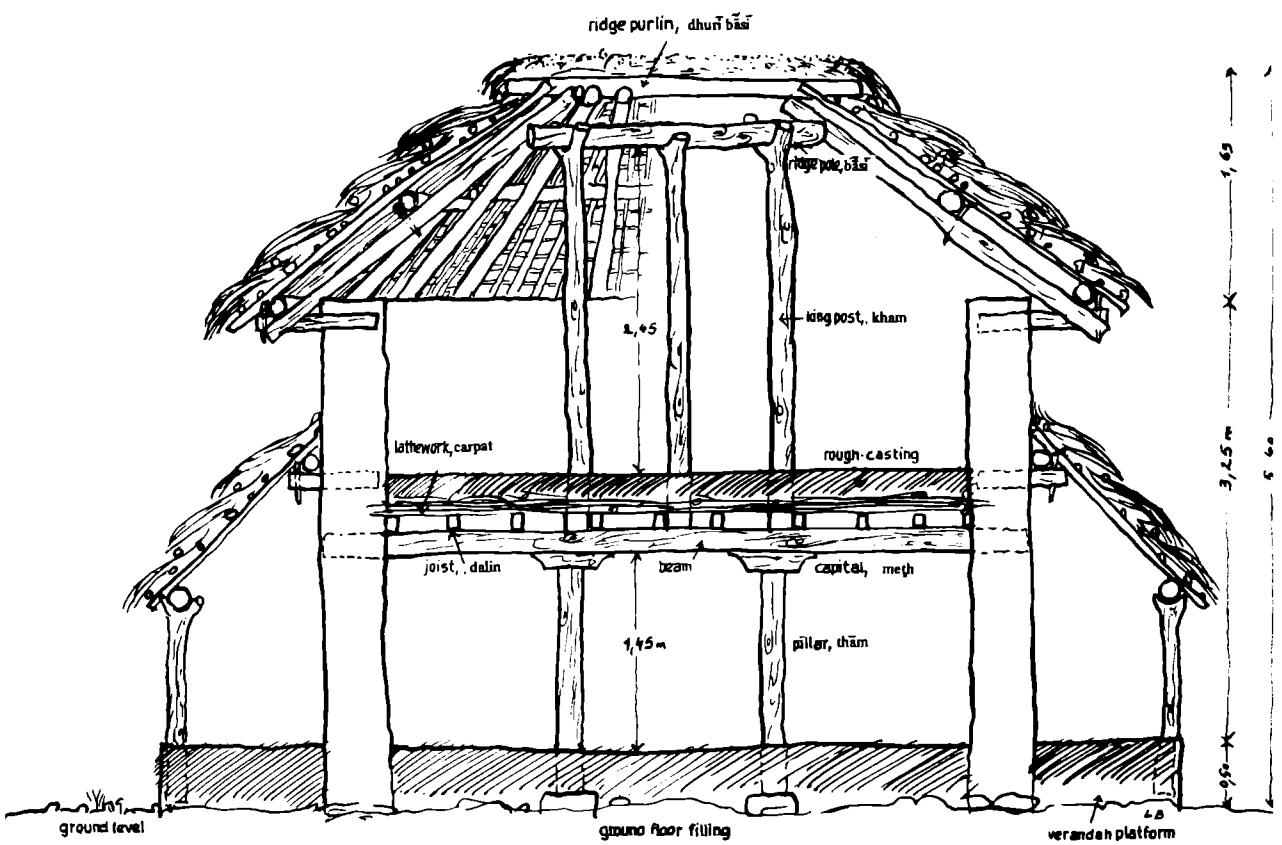


Fig. 10 — Facade wall (scale 3/100)

Fig. 11 — Longitudinal section along the line of the pillars;
the truss of the big walls of the roof is not shown (scale 3/100)



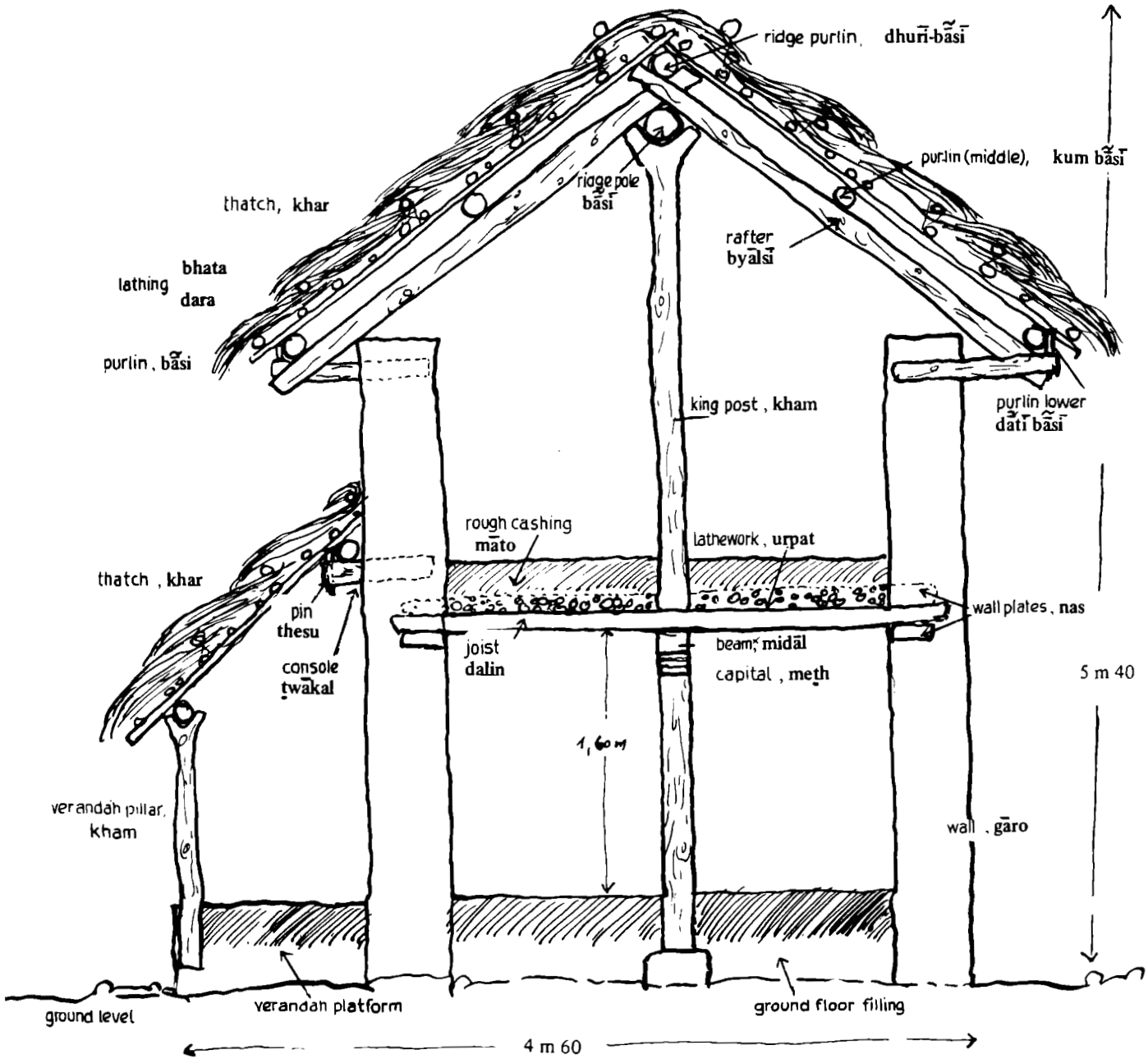


Fig. 12 — Transverse section of the house (scale 3/100)

From this point onwards, the attachment methods used so far (embedding, mortise, pins) which require the services of a carpenter are no longer necessary. Only bonds made of split bamboo are used. They are of two kinds and are made in the following manner (of. Pignède, 100-101): with the help of a bill-hook, the villager removes a strip; he pulls off the bark, keeps the external layer with the bark and throws away the internal ligneous portion. The external layer is again split parallelly to the bark. Thus, one obtains two bonds. The first, 'coya', which does not have any bark, is used to join the laths to the truss; the second, 'bata', more supple, is used to tie thatch. These bonds are not long; a different bond is used for each tying operation. In central Nepal, long bonds are never used for ties in a series.

The purlins constitute the third element of the truss. Like the ridge, they are often referred to as 'basi' and made of bamboo. They are also called 'balo'. The ridge purlin, 'dhuri', 'baso' or 'dhuri balo', is lodged in the fork formed by the rafter ends; the whole (ridge pole, rafters and ridge purlin) is firmly fastened with bamboo bonds. The middle purlin, 'kum-basi' or 'kum balo', is tied to the rafters. The lower purlin, 'dati basi balo' (from 'dati', eaves) is placed on the rafter ends on the outer wall to support the eaves; it is tied to the rafters and rests on the consoles. Thus the truss of the large sides is completed. The same elements go into the making of the truss of the smaller sides but as their construction was not jotted down carefully, it cannot be described here.

The lathing is made of two layers of wooden poles or bamboo laths crossed at right angles to form a tightly knit screen (knots at 20 to 30 cm). The laths which form the first layer are called 'dara'; they are arranged vertically from ridge purlin to the lower purlin and are tied to the three purlins that they cross. The laths of the second layer, called 'bhata', are arranged horizontally, perpendicular to the first layer laths to which they are tied.

The truss of the main roof is thus completed. The first floor room in the house observed has a height of 2.45m below the ridge pole and 1.20m along the walls.

The verandah truss is designated by a specific term, 'pali'. It consists of the same elements as the roof truss but its construction is easier as it has only one slope. There are two points of support: consoles with pins embedded in the wall at a height of 1.90m above the level of the verandah floor; at the outer limit of the platform, masonry pillars similar to the first floor king-posts and having the same name 'kham' are fixed; they also have a fork or notch at the upper end to lodge a purlin; they rise to a height of one metre above the verandah floor. There are six such pillars on the facade including the angle pillars and three pillars on each side. Two purlins, one on the consoles and the other on the pillars are placed and then the lathing with its layers of crossed laths is put into position.

Roofing (Figs. 11 and 12)

The roofing is specifically referred to as 'chanu' or 'chana'; it is sometimes incorrectly translated as roof; but this term only designates the thatch or slate used to cover the roof. It has the same root as the verb 'chaunu' meaning to cover a building. In this article, we will talk only of thatch as the fixing of slates (Pignede, 80 and 86) could not be observed.

The thatch is dried beforehand and tied into bundles which have to be fixed on to the lathing. Five men can do this work in a single day. The bundles are placed with the lower end of the stems facing downwards. Starting from the bottom of the roof, the men arrange the bundles side by side to form a tightly packed first row. They equalize the lower end of the stems with the wooden paddle. This row is fixed in the following manner: a wooden or bamboo lath similar to the one that forms the upper layer of the lathing and having the same name, 'bhata', is attached to the row towards the upper end of the bundles; a bamboo bark bond, wetted in advance, is used to tie each bundle firmly to the new lath and the upper lath of the lathing. A little higher, another row is arranged in similar fashion which overlaps partially the lower row; and the same procedure is used till the top of each side of the house and verandah roof. For the roof top of the house, the roofers place astride the ridge purlin a last row of bundles whose extremities, on both sides, fall on the top of the large slope of the roof and which are fixed by a lath on both sides.

The thatch roofing, if properly maintained, offers complete protection against the heavy monsoon rains. The house eaves, which extend out by appx. 50 cm from the walls and the eaves of the verandah roof protect the walls from the water that trickles down. The water from the roof falls at a distance on the surface of the courtyard; the water that falls forms a visible line. To designate this line, the Indo-Nepalese have created a word, 'balesi' (related to 'baleni' roof edge, roof water); it is this line and not the wall which is considered to mark the separation between the courtyard and the house.

Plaster, Painting, Installation

The men have finished their work. It is now for the women to plaster the walls, inside and outside, and level the floors. After this, they coat, 'lipnu', the walls and the floor with a mixture of clay and cowdung, paint the openings and draw the wall decorations.

The house is now ready. The only work that remains to be done is to equip the ground floor. A masoned fireplace is installed in the inside corner on the left. The platform, where the water reserves are placed on the right hand side of the door, and the small dividing walls, which separate the entrance door on one side and the fireplace on the other from the lower part of the floor, are also masoned. A few shelves, including one above the fireplace to dry meat and fish, are hung onto the ceiling with the help of ropes. Wooden pegs on the walls and nails in the pillars are used to hang objects.

Maintenance

On a daily basis, one only has to look after the upkeep of the floor at the ground level and the verandah floor. This is done by regularly coating them with a mixture of clay and cowdung; a good housewife normally applies such a coating everyday for reasons which are more religious than technical, as the mixture is considered to be a purifier. Exceptionally, they replaster a patch which has begun to crack or repair a leak in the roof. Most of the daily maintenance work is dictated by religious reasons. For festivals which celebrate the life cycle, specially at the close of the periods of impurity which mark births and deaths, the floor and the inside walls have to be recoated.

Once a year, at the time of the Hindu festival of Dasai, in September/October at the end of the monsoon, the local custom enjoins all people (Hindus, Hindu and Buddhist Tribals and Muslims) to set anew the house. Leaks in the roof will be repaired; holes in the plastering will be filled up. Women do a new coating on the floors and on the internal and external surface of the walls. They apply a new black painting on the openings. They make new paintings on the walls.

On a longer time basis, the only recurring maintenance is that of the roofing. In a house which has been inhabited continuously, the smoke preserves the thatch which lasts for seven to eight years; in the granaries built above the cattle sheds, where there is no fire, the thatch lasts for not more than five years; at the end of this period, the roofing has to be entirely redone. The owner of the house plans this work for the dead season, i.e., the dry months from November to April. He makes or has made in advance, the thatch bundles and bamboo bark bonds. With the help of four or five men, he removes the old thatch and replaces it with new thatch in a single day. At this time, he inspects the truss and if required, carries out the necessary repair work.

If the roofing is well maintained, a house can last for generations or even centuries. The stonework, along with the framework and the truss which rest both on the ground and on the walls, linking together the latter, stand the test of time; they withstand the frequent earth tremors and even earthquakes. On the other hand, the walls which support a part of the weight of the floor are masoned with mud—they are very vulnerable to water. If, due to the fact that the owner dies without leaving an inheritor or the owner is away for a prolonged period, the roofing has not been maintained, it starts leaking and the flooded walls begin to break up quickly leading to the collapse of the building in a few years.

In conclusion, the Indo-Nepalese house of central Nepal, made of stone joined with mud, wood, bamboo and thatch is built to endure provided the roof is overhauled at regular intervals. A man builds not only for himself but for his descendants as well; the house normally passes from the father to his youngest son; the elder sons are supposed to build their own house; in my study of Samjur, when I compared the genealogical chart of each lineage with the layout of the hamlet where they lived, by following the line of youngest sons of each generation, I arrived at the oldest house, more than a century old and often of oval design.

Utilisation of the House and Structure of Space

By confining ourselves to the technical aspects, we have reconstituted the physical structure of the house. It remains to be seen how the inhabitants themselves perceive their house. We will proceed analytically; while going over the different parts of the house, from the outside to the inside, we will ask ourselves the following questions: who can enter? In what circumstances? To do what? What is stored? Where are the physical and symbolic limits traced? Within the framework of this article, it will not be possible to give a breakdown of the inventories that I made; I will limit myself therefore to the broad outlines.

The External Space: The Verandah (Figs. 9 and 18)

The limit of the house is, as stated above, the line formed by the water which falls from the roof. Only impure objects, having an evil magical use such as sweepings, food leftovers and in particular nail clippings and hair which an evil sorcerer can put to bad use are excluded; a woman combing her hair in the verandah will carefully clean out her comb to recover all fallen hair which she then places in contact with her large toe and spits on them to neutralise any evil effect before throwing them beyond the line formed by the fall of water.

Between this line and the walls or the threshold, stretches the external space, 'bahira', of the house. It is divided into two unequal parts. The space behind the back wall, the latter never being built against the slope, is inauspicious and is designated by a specific term, 'kareso'; on this side, a part of the smoke escapes from a

Fig. 16 — Door of the house (Cl. M. Gabor

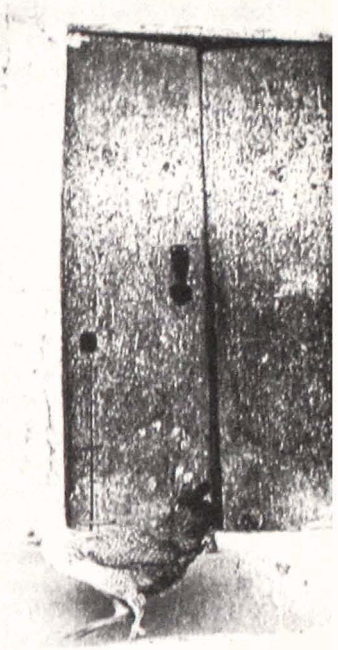


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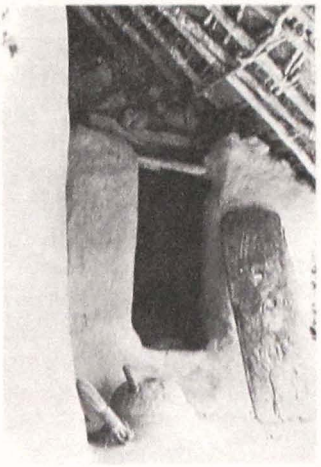
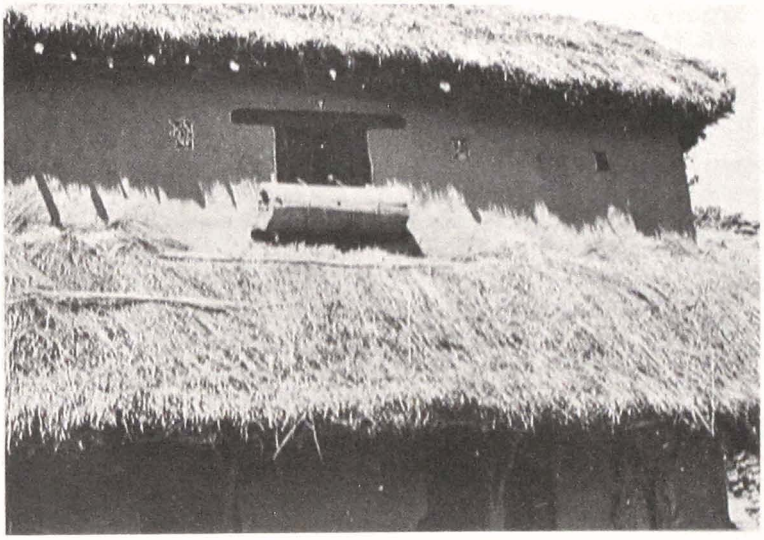
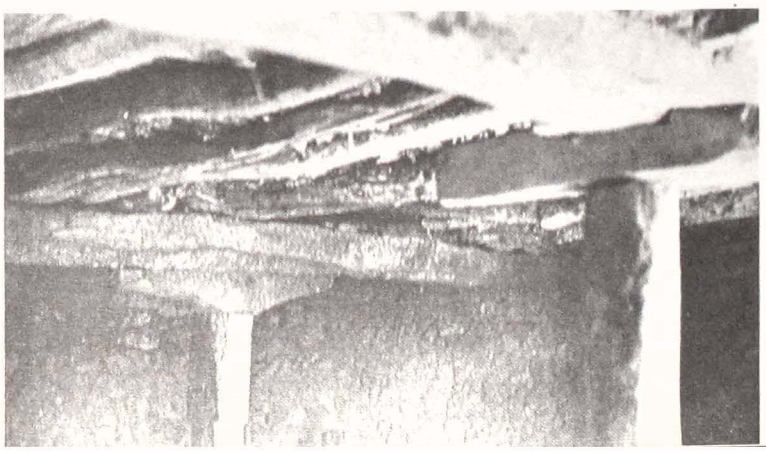
Fig. 13 — Goat shelter on the extreme left of the verandah. The plank on the right is used as a door. In the foreground a hand mill with a small broom to collect flour.



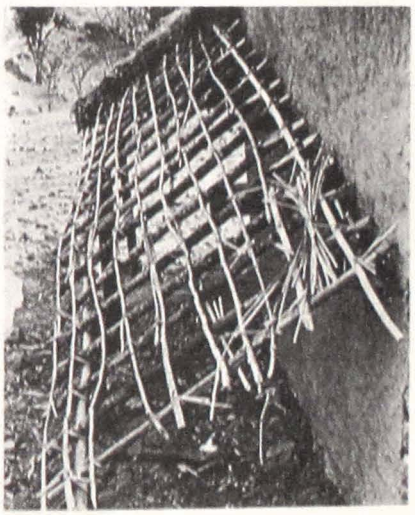


↑ Fig. 14 — Facade wall and opening (Cl. M. Gaborieau)

↓ Fig. 15 — Frame floor (Cl. M. Gaborieau)



↓ Fig. 17 — Purlins and latheworks of verandah roof (Cl. M. Gaborieau)



hole in the wall. It is visited only to perform magical or obscure rituals which one does not want others to know of. It is here, for example, that the Muslims perform certain Hindu rites which their religion forbids in principle.

The second part, which is larger and runs along the other three walls, forms the verandah. It is designated by the name given to the platform, 'pirhi' which constitutes the verandah floor. The verandah has several uses. It is the first part of the house which is the most accessible; no one is denied entrance, not even the untouchables, who during the hot season, sit in the shade to discuss business with the master of the house or to work; the more respectable guests are welcomed here and according to their status and proximity to the family, they settle themselves permanently in this verandah to rest, eat and sleep (the ethnologist is generally confined to this area); or one waits temporarily in the verandah before being invited to the ground floor for ceremonies, meals and to sleep. During the day, if there is nothing to do inside, one sits out in the verandah; family members and guests normally seat themselves along the facade length on the left hand side of the door. The verandah is also a place of work; women carry out their tasks on the right hand side of the door; the pounder operated by foot is placed on the right hand side of the house; it is here that women husk the rice; before sunrise, they crush the cereals in one or several hand mills for different grains placed along the length of the facade.

Agricultural tools are hung at the end of the left hand side wall. Family members sleep the year round along the facade and the left hand side wall; this portion is sometimes closed with planks forming a kind of bedroom.

The Ground Floor—Lower Portion (Figs. 9 and 18)

The ground floor is the most important part of the house; for this reason it is often identified with the house; "Come into the ground floor" is often replaced by "come inside the house" or "come inside", 'bhitara', as opposed to the verandah which is the external portion of the house. If one wants to clearly differentiate the first floor, 'tala' from the ground floor, then the ground floor is called 'bhui-tala', storey at the ground level.

The threshold, 'thelo', along with the walls constitute the line which separates the varandah from the ground floor. It is firstly a magical limit: three-headed nails are hammered in the threshold and the window supports to drive away evil spirits and witches. It is also a social limit: ordinarily, the untouchables cannot cross this limit; if they do so, in case of work or if they have to help with a delivery, the house must be purified afterwards. The impure but not untouchable castes (butchers, Muslims, ethnologists considered to be Christians) can cross this line only as an exceptional favour; even then their access will be limited to a part of the ground floor.

The ground floor, which apparently consists of a single room, is actually subdivided into various sections. It is first of all divided lengthwise into two equal parts by an ideal boundary which follows the alignment of the pillars and separates a lower portion on the facade side from a higher portion along the back wall.

The lower portion is further subdivided into two. First of all the entrance, in the extension of the door, with a masoned platform on the right, 'panauto', to keep the water reserves, 'pani', stored in copper or earthen pots. The presence of this water, which is vunlnerable to pollution, explains partially the exclusion of the untouchables.

The larger surface of this lower section, often isolated from the entrance by a low separation wall, 'ato', constitutes the second sub-division; it is called either 'majheri', meaning central part (archaic word related to the architecture of Western Nepal) or 'tallo ochyan', meaning lower bed, and is considered lower than the other sections of the ground floor for several reasons. First of all physically it is nearer to the door and the floor is often lower by a few centimetres. In religious terms, impure activities and temporarily impure family members excluded from the higher section, are confined to the lower part; it is here that the mother and her new born are confined till the purification ceremony; also confined here are women during their menstruation period; before their initation ceremony, children generally take their meals and sleep here; a hole in the floor acts as the fire stove where food considered impure and likely to pollute the main stove is cooked. Consequently, as the social hierarchy is based on criteria of ritual purity, guests considered to be less pure than the family, i.e., members of castes lower than that of the family, are restricted to the lower section; such visitors eat and possibly sleep here (if they have not been settled in the verandah). Other than these specific uses, the lower section forms the free space of the ground floor where family members get together to talk over things during the winter evenings and children and the youngest members sleep if they can find no place elsewhere.

The Ground Floor—Higher Portion (Figs. 9 and 18)

Crossing the line formed by the pillars, often indicated by a small step, generally on the side of the fire stove, one enters the higher portion, which in contrast to the lower section, is the pure zone. No impure activity is performed here and persons considered to be impure as listed in the preceding paragraph are not allowed

entrance, at least while food is being prepared, at meal times and during the performance of rituals.

To put the same in positive terms, this higher portion is reserved for those belonging to the same or to a higher caste than that of the master of the house, as long as they do not suffer from any temporary impurity.

The higher portion is further subdivided into two by a line which is very often imaginary. The first subdivision, generally on the right hand side, is the 'mathillo ochyan', upper bed, which is normally reserved for the master of the house; if he chooses to sleep on the first floor, it is kept for the eldest married son living with him. The newly-weds spend their wedding night on this bed.

The second subdivision, the most sacred place, forms the nerve centre of the house. It is called 'cula', fire stove (term which is also loosely used to designate the entire higher portion) or 'cauka', platform which serves as kitchen and altar; it is often raised in relation to the rest of the ground floor; it is generally partially isolated from the "lower bed" by a small partition wall. Its most visible use is to serve as a kitchen; it includes along the length of the side wall the main stove where, taking great precautions, the mistress of the house cooks food for family members and guests of a good caste. This second sub-division is also used as a dining room where adults in a state of complete purity take their meals; after washing themselves, they sit or squat in a circle around the fire stove to eat their food which is served directly from the cooking pot or frying pan on a brass dish that is used as plate. This portion is finally the most sacred place of the house and the family deities are kept in a recess in the wall or on a small altar. They are venerated regularly. It is here that the most important marriage ceremonies are celebrated.

The ground floor, with its four sub-divisions, is thus extremely complex. It is the most important part of the house and also the most sacred. It includes a meeting room, a dining room, a kitchen and a temple. It is also used to store goods of daily use; firstly, furniture items: mats, mattresses and covers (the most affluent having carpets) which serve as seats and beds; crockery and sets of kitchen utensils—an assortment of brass, spun copper and iron utensils, which, leaving aside the jewels, constitute the most precious assets of the family; old oil lamps now replaced by petrol lamps, clothes for day to day use and daily provisions—oil, clarified butter, salt, spices, etc.

The First Floor (Fig. 19)

The first floor, 'tala', is much simpler than the ground floor and is used for two purposes of equal importance. It is above all a granary where the entire food reserves or, if there is another granary above the cattle shed, a part of them are stored. The cereals (eleusine, buckwheat, wheat, barley) are contained in vertical cylinders called 'bhakari', made of tightly woven split bamboo mats, rolled up, tied together and placed on the floor; lentils are contained in smaller cylinders, 'kota', made of rice straw mats; maize ears, if not stored on an outer platform, are heaped in pile on the floor. Precious objects are also kept on this floor: jewellery, ceremonial costumes, important papers such as tax receipts, debt acknowledgements, etc; they are traditionally put in a wooden box, 'sanduk' or 'sandus'; nowadays tin trunks, 'bakas' (from the English word "box") imported from India or manufactured in Nepalese cities are more commonly used; both are locked with a padlock and the owner—male or female (women may also own clothes and jewellery)—wears the key around his neck. The food reserves and precious objects do not occupy the entire area of the first floor; they are very often dispersed all around, leaving a free space in the middle (foodstocks are placed near the side facade, precious objects along the back wall); they are sometimes kept along the facade length to keep the back portion of the room uncluttered.

The free space fulfils the second subsidiary function: if there is not enough space on the ground floor, the first floor can be used as a bedroom, preferably for the most senior family members who shift up to make space below for a married son; in a polygynous household, the eldest woman can sleep upstairs.

The foregoing rules illustrate the status of first floor. In principle, it is accessible to everyone. In contrast to the higher portion of the ground floor, there is no social or religious taboo. In effect, however, only a few people enter as guests and visitors are never taken here and the ethnologist has to ask permission to visit it. Within the family itself, those not fully trusted are kept away: the young bride who has just joined the household is not allowed to enter till she proves herself; her mother-in-law may fear that she will steal something. The first floor is above all an attic where family treasures are stored; and the valuables will be all the safer if access is limited.

Special Arrangements

We have described till now the most frequent kind of utilisation of the house which functions, as a single entity belonging to a nuclear monogamous or polygamous family or to a joint undivided family where parents and married son (s) live together; resources are held in common; everyone eats from the same kitchen and the space is shared by family members.

In Samjur, however, I noticed some arrangements which differed from this type; but we cannot term them

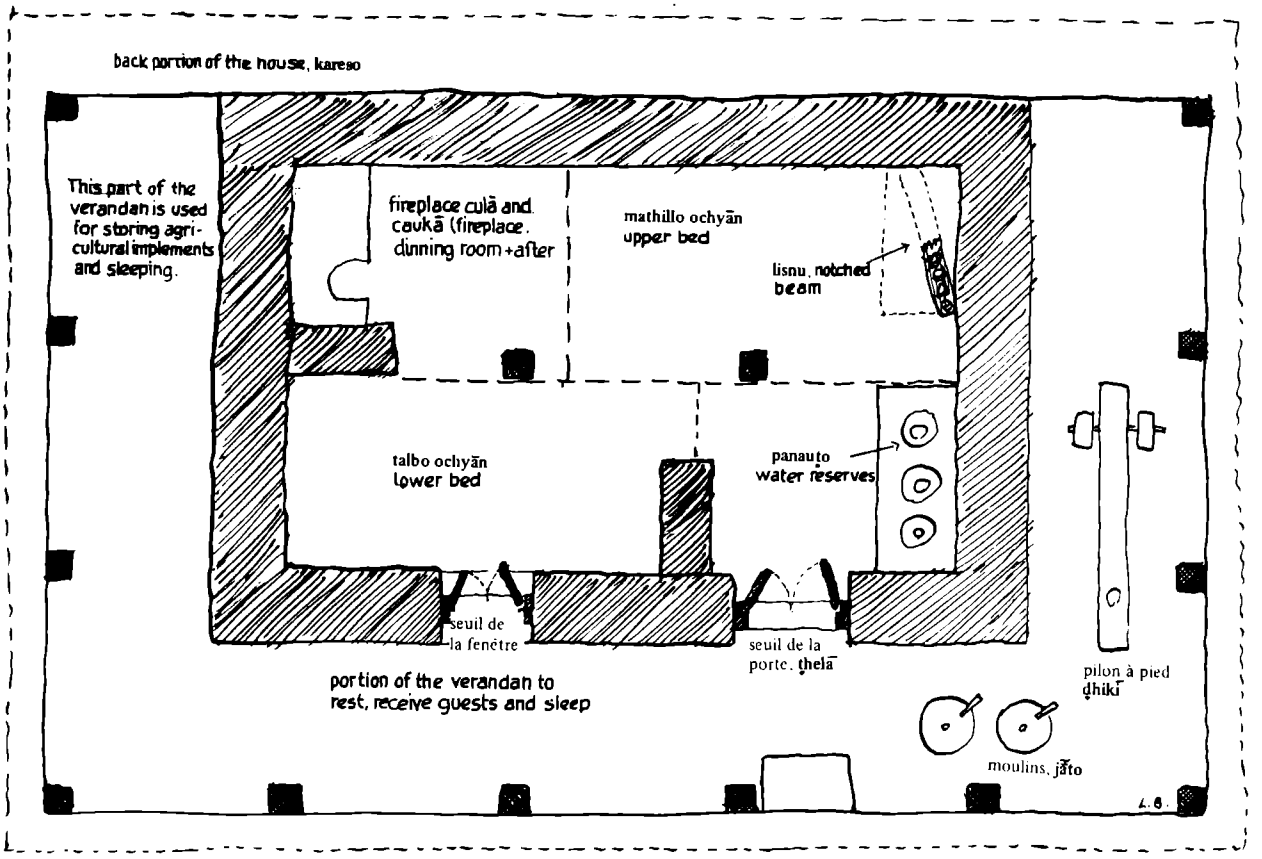


Fig. 18 — Space utilisation on the ground floor
(scale 3/100)

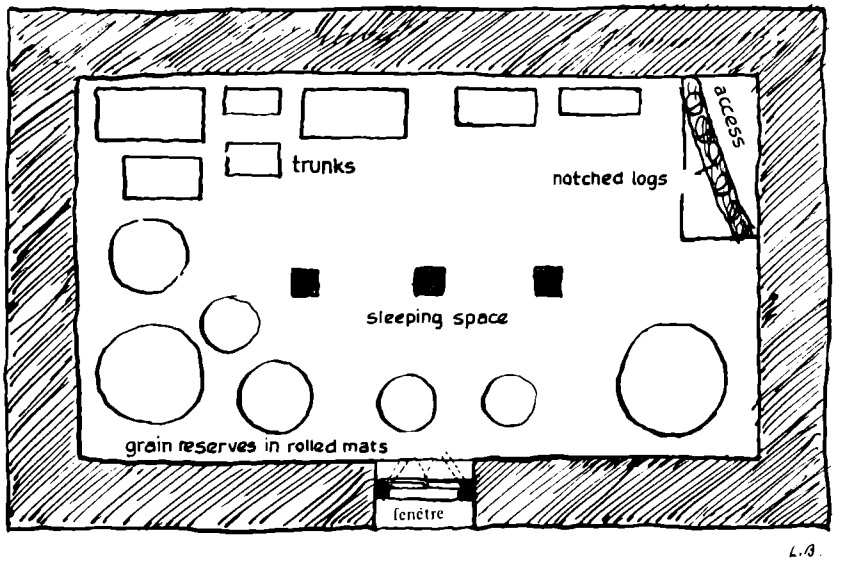


Fig. 19 — Space utilisation on the first floor
(scale 3/100)

as abnormal as custom allows for such arrangements. The ground floor is divided widthwise by a wall and there are two distinct entrance doors. This is most frequent in case of polygyny; if two women cannot get along, one of them will have a separate space pompously called 'khopi' (as is the women's apartment in a princely house), which is smaller than the other part of the house where the rest of the family lives; she will cook and sleep here.

More rarely, the house is divided into two equal parts, parents in one portion, son and wife in the other. This is a temporary arrangement, as on the death of the parents, the son will get the entire house. But, in Central Nepal, I never came across a house divided between brothers, a kind of arrangement common in western Nepal; in central Nepal, they either live together in an undivided house or the elder sons build an independent house, which they will in any case have to do as the paternal house is inherited by the youngest son.

In conclusion, the description of the house reveals a well structured space which can be reconstituted by applying three sets of criteria, from the barrier of the courtyard till the first floor. The first set of criteria are profane. Progressing through the courtyard, the verandah, the ground floor, one approaches the intimate family zone where the most precious objects are kept. Its visible symbol is the padlock which is securely fastened at the door. This progression culminates in the first floor, neutral in religious terms but where the family treasures are stored; access to this space is limited to trusted family members. Magical considerations constitute the second set and they delimit three concentric zones which are increasingly protected from supernatural dangers: the courtyard, surrounded by walls and closed with a barrier, the line where water falls from the roof and finally the walls of the house with the door threshold and the window supports. The third set, the most important, mixes religious and social criteria that are used to determine the organisation of space in accordance with the rules of purity; they are applied exclusively at the horizontal level, the first floor being excluded from such consideration: the courtyard and the verandah form an initial neutral zone, accessible to all without distinction of caste; the second zone includes the lower portion of the ground floor; untouchables are not allowed to enter this second zone and people permanently or temporarily less pure than the master of the house are confined to this area. The third zone consists of the upper portion of the ground floor and culminates in the fire stove, a place reserved for pure activities (ritual and cooking which is a kind of ritual) and for pure persons; as the door is generally at the right hand side of the facade and the fire stove in the inside left hand corner, one has to cross the entire ground floor diagonally to reach this religious and social centre of the house.

General Conclusion

In this article, I have given a general overview of the Indo-Nepalese house of central Nepal, placing it in its economic and social context. I have described the utilisation of the house in order to reconstitute the Indo-Nepalese perception of their domestic space. I had laid special emphasis on construction techniques as there is a gap in our knowledge: the Indo-Nepalese house has never been described and the terminology remained unexplored: about a third of the technical terms reproduced here cannot be found in a dictionary or have not been defined with enough accuracy.

This study suffers from certain deficiencies. Firstly of an economic nature: I could not calculate construction costs in terms of labour used and money spent. By studying data collected from elsewhere, it can be estimated that the construction of a house represents two to three months work for four to five persons (Pignède, 84; Sagant, 1976, 143). Wages, material and food amounts to about 2000 to 3000 Rupees (1968 value) which is the average annual income of a five-member family; a considerable expense no doubt, but a non-recurring one as the house is often inherited and construction is not frequent; in addition, the cost is reduced by using the material from demolished houses and free help is provided by family members and neighbours.

There are also gaps in the exploration of the symbolic universe in which the house is placed. My study was limited to magical protection rites and to criteria of purity. But construction rites which mark every stage of work from the choice of the site to the completion of the building have not been dealt with; working mainly in the Muslim context where such rites have been obliterated (without being totally absent), I could not reconstitute them with enough accuracy to draw conclusion. It is possible that a detailed study will reveal a new symbolic dimension of relations between human space and the universe of the gods, as has been shown in another context (Sagant, 1973).

Let us end with some comparative data. We will leave aside Newar and Bhotiya architecture which involves completely different conceptions. In the layout of the residential complex, the Indo-Nepalese house of central Nepal has three distinctive characteristics: the cattle shed is not a part of the house; the facade with the entrance door is on a long side; the verandah is an outhouse added to the exterior. The first characteristic distinguishes it from most western Nepalese houses; the

Fig. 20 — Turned wood containers (Cl. M. Gaborieau)

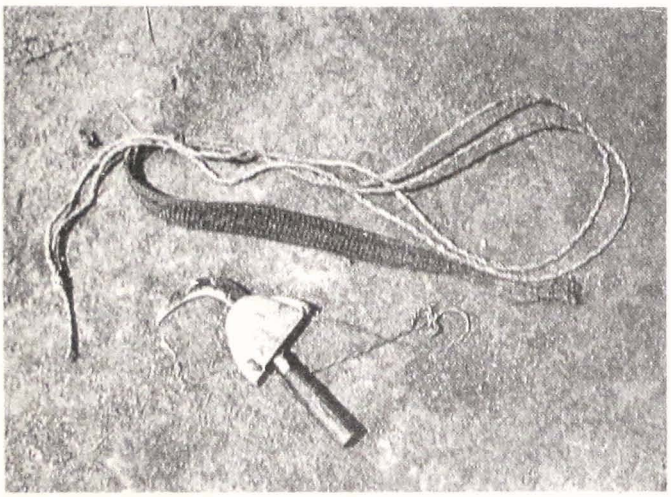


Fig. 21 — Porterage band and sickle
(Cl. M. Gaborieau)

Fig. 22 — Agricultural implements
(Cl. M. Gaborieau)

Fig. 23 — Baskets
(Cl. M. Gaborieau)

second from most houses in western Nepal and all eastern Nepalese houses, which without exception, and here we come to the third characteristic, have a verandah integrated with the house on the small side which acts as the facade. The central Nepalese house is of medium size; it seems the further one moves towards the east, the more spacious the houses are. Tribals seem to take inspiration from the Indo-Nepalese of the region where they live in the construction of their houses.

The dwelling described here resembles most the "house with stone walls" of the Gurungs (Pignède, 81-87) which appears to be a variant of this type: the only difference is the double sloping roof with two gable walls (nevertheless, in Samjur the Gurung houses are identical to the Indo-Nepalese house in every respect, having a roof with four slopes). Pignede's notations on construction techniques and space utilisation are too vague to stretch the comparison any further.

If we leave aside the variations in the layout of the residential complex and consider only the construction techniques, the house described here is less original. We lack information for western Nepal but the remarkable study of Philippe Sagant on eastern Nepal reveals almost identical data: walls, framework, truss and roofing are made in the same way; the terminology in Nepali is essentially the same. Unfortunately, we do not have accurate technical data for other regions of Nepal which would have allowed a substantial simplification of the classifications.

As far as space utilisation is concerned, the Indo-Nepalese house of central Nepal provides certain categories which can be found elsewhere. In spite of a different layout, zones of intimacy and purity arranged in increasing order of importance exist in other areas: in particular, the gound floor is divided into a lower portion which is less pure and a purer higher portion. The study that I undertook stops here: the distinction between the front, in the extension of the door and the backside situated in the inside left hand corner where the fire stove is placed is empirically valid although it was never expressed by the informers. It would be forcing the issue to make a second widthwise separation; the domestic space appears to be less structured than in far Eastern Nepal (Sagant, 1976, 166-185), at least amongst the Indo-Nepalese and the Muslims; studies of the tribals will perhaps reveal finer categories.

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FROM THE FOUNTAIN TO THE FIREPLACE
The Daily Itinerary in Domestic Space among High Indo-Nepalese Castes

Véronique Bouillier

The aim of this article is to provide a simple description of the house as a lived-in space. No attempt to systematize or generalize has been made; the attention of the reader is simply drawn to the different sections of the house in relation to the activities for which they are used. As discrete observers, we will gradually move towards the centre of the house and the heart of family relationship.

Within the framework of this article we will discuss a characteristic house type. It is clear that this model was elaborated after studying several examples and that in relation to the house type presented here, there are several variants of which we will indicate only the most important. Nevertheless, this type of habitation recurs sufficiently to enable one to talk of a house typical of the high Indo-Nepalese castes living in the hilly regions of central eastern Nepal (Kabre Palancok District, East No. 1). The village being studied is located at an altitude of 1400 m appx. on the southern slope of a rather steep valley, perpendicular to the course of the Sun Kosi. The region is rugged and arid as it has suffered from intense deforestation. The northern slope, covered with undergrowth, lies fallow and the southern slope yields crops: rice, if irrigation is possible, maize, wheat, eleusine, buckwheat. The most fertile rice fields are on the banks of the river nearly a two hour walk for the villagers.

The house type selected by us is inhabited by a joint family. Governed by the father and the mother (as far as domestic affairs are concerned), it includes married sons with wives, children and unmarried daughters. Families may be polygynous but (once their sons are married,) it is rare that the wives continue to live under the same roof; the family unit thus gets split into two (or more), the father dividing his time between the various households. The distribution of domestic tasks varies according to the number of daugthers-in-law and unmarried daughters in the household; the custom is that the most tedious chores be assigned to the youngest daughter-in-law (i.e., the wife of the youngest son, whatever the age of her sisters-in-law may be). Daughters living in their paternal home are more free to express their wishes and often grumble when asked to do certain work. As for the men, the house is not their domain, even though they do participate in a few domestic activities which are an extension of their agricultural work.

The Fountain

The watering place, 'dhara', spring or fountain, can be considered as the furthermost extension of the house. Every morning, the chain of domestic activities begins here, but the fountain is also a place for people to gather and is thus intermediate between the house and the village. For the women, the fountain is the daily point of contact with the outside world.

Even before daybreak (between 4 a.m. and 6 a.m. depending on the season), the youngest daughter-in-law, peremptorily awakened by her mother-in-law, takes her 'gagri', a narrow-necked copper jar, and puts it on her left hip, goes towards the fountain which is often located quite far from the house and may thus entail an hour's walk. The fetching of water is a daily part in the life of the women and from a very early age, the young daughters help in this task, carrying smaller jars better suited to their smaller stature.

Once at the fountain, the young woman washes herself as will the other family members when their turn comes: she splashes some water on her face, hands and feet, brushes her teeth energetically with her fingers and gargles several times. This morning wash is much more thorough for a woman on the fourth day of her menstruation. Before sunrise, she must have a full bath including a head bath and wash her clothes, something which in the middle of winter is certainly not very pleasant. It is also at the fountain that the first invocation of the day is pronounced. Every adult member scoops up

some water in the palm of his hands which he raises towards the sky and then sprinkles on the ground while murmuring the 'mantra' that he learnt at his initiation.

Even though no one is inclined to linger there at sunrise, the fountain is, during the day, the meeting place of women who come to fetch water or, as soon as the sun is warm enough, to wash the family clothes which are soaked in clay or copper washing vats 'kopara'. Ashes and soil act as detergents. Soap is rare and is used mainly for the weekly Saturday wash. The women do not have a paddle but beat the clothes against a big stone. The washing is rinsed with running water and stretched out to dry on the nearby bushes. However, if their houses are far, the women take the clothes (back) wet.

Despite the physical effort involved, women enjoy going to the fountain as this gives them the chance to relax a little, to chat with their neighbours without neglecting their domestic duties. The fountain is also a place for romance; as in our folklore, many Nepalese songs revolve around the theme: "On the way to the fountain, I met the one I love."

The Mills

The mills, another area of collective activity, are relatively far from the house. The water mill, 'ghatta', is situated on a lower level by the side of the river and to reach it the villagers have to walk for nearly two hours. This is a true expedition which involves a few women and takes up the entire day. The women carry to the 'ghatta' mainly the maize to be ground: millers receive one 'pathi' for 1 'muri', i.e., 1/20th of the maize.

The oil press, 'kal', is located in the village and is of a type commonly used in the hills: in a wooden mortar grains are crushed by the rotation of a vertical pounder which is attached to a horizontal beam turned around the mortar by one or two people. Each family may use the oil press or choose to engage the services of specialised day labourers to press mustard and peanut seeds.

The Kitchen Garden

Here one is entering into private territory. Contiguous to the house, the kitchen garden is reserved for the growth of vegetables used for daily consumption. Like everything else concerning the kitchen, the vegetable garden is under the direct supervision of the mistress of the house who plants, weeds, waters, monitors the degrees of maturation and picks the produce. In the hot season, a large variety of vegetables are grown: sweet potatoes, cucumbers, pumpkins, different types of gourds, green peas, tomatoes, chillies. In winter, one has to make do with a few potatoes, onions, radishes, whose leaves, 'sag' are also eaten. All green vegetables eaten with rice are called 'sag' but more often than not 'sag' means mustard leaves which the cook cuts before each meal from the kitchen garden, in the quantities required.

Fruit trees are also grown around the house: mango, peach and pear which ripen during the monsoon period. Guava, kaki, banana and citrus fruit trees mature later. Fruit is never eaten with meals and fruit gathering is never done on a systematic basis except for grapefruit and lemons which are crushed in a kind of wooden press. Their juice, reduced by cooking, is used as vinegar in the preparation of condiments. Fruit is picked any time of the day and is offered to the gods, to visitors or distributed amongst the children. It is not preserved or cooked in any way.

Different kinds of flowers required for the daily religious ceremonies, 'puja', are also grown in the kitchen garden: poinsettia, 'lalpate', French marigold, 'saipatri', small orange chrysanthemums, 'godavari phul'. Every morning, one of the children brings a bowl full of flowers mixed with some leaves to offer to the gods or to weave into garlands.

The Cattle Shed—Hayloft

Slightly down the hill from the house and parallel to it is a double-storeyed rectangular building without any windows, called 'matan'. The walls are made of stones roughly joined together with a mud mortar; they are not coated and are light ochre in colour. The roof is a double sloping thatch roof. On the facade, an external staircase leads to the first floor where the fodder reserves are stored: rice or wheat husk, maize leaves, hay cut from the fallow lands.

The cattle shed, 'goth', on the ground floor houses the animal at night. Cattle breeding plays an important role in the domestic economy of the region and the sale of butter is a major source of monetary income. A well-to-do family owns three to four cow-buffaloes (the males generally sold), a pair of bullocks necessary for the yoking of the swing plough, one or two cows more for their ritual than economic use, as their milk is indispensable for the performance of 'puja'. Curiously enough, the milking of the cow-buffaloes—a task which must be done by any member of the family if he or she so wishes—has no fixed schedule: several "attempts" are made. Generally, the cow-buffaloes are milked twice a day, each animal thus giving six to eight 'manas' (3 to 4 litres) of milk. For milking, one squats, pulls the teats alternately and directs the milk flow diagonally into a wooden or bamboo bucket, 'dhungro'. At night, all the animals are kept in the cattle shed and are tied to wooden stakes arranged along the length of the wall. They are taken out in the morning; the buffaloes are tied in the courtyard of the cattle shed, and the bullocks and cows are brought to graze in the uncultivated lands or fields

which have just been cut. Grazing of animals is the task of young children who get together to jointly tend the cattle or take turns at watching the animals.

Women devote a large part of their time to the upkeep of cattle. Early in the morning, at around 8 o'clock or so, after the animals have been taken out, the cattle shed has to be cleaned. Cowdung is carefully picked up and mixed with litter after which it is piled up in a corner of the courtyard to be used as manure. This work is normally done by one of the daughters-in-law. Once the cattle shed is cleaned, she gets busy around a small fire stove set up between two stones in a corner of the room. On this fire she places a large cast-iron cooking pot with two handles, 'kharkulo', in which she prepares the 'khole', a kind of clear soup made with bran, 'bhus', or crushed nettles, 'sisno', which in winter completes the cattle diet.

During the day, the buffaloes are given 3 to 4 armfuls of fodder, leaves or grass which the women cut everyday from the pathways, fallow lands or uncultivated slopes. They go in groups of two or three, generally after the first meal, a sickle, 'hasiya', in hand and carrying their baskets, 'doko' on their backs. Two hours later, one sees them coming back bent under the weight of their baskets which are supported with the help of a head strap; "ghas katne", or "cutting the grass" is a difficult task which along with the collection of fire wood, 'daura', is generally the responsibility of the young daughters-in-law or unmarried daughters.

The cattle shed and the animals are included in the ritual entity constituted by the house. The cows highlight the presence of Laksmi and are honoured everyday after the morning puja. The officiant brings a brazier to the cattle shed courtyard, walks around each cow sprinkling incense on each one and then applies a vermilion 'tika' on their forehead. On the day which marks the celebration of Gauri and Gosain, gods who protect the cattle, all the animals and buildings are held in honour. Inside the cattle shed, the gods are represented by stones and receive numerous offerings—plant or animal (sacrifice of cocks). The men of the house—or of the lineage if it is the main house of the lineage—go around the cattle shed three times, releasing symbolic arrows to scare away the demons and burn juniper branches to get the protection of the gods. A special 'tika' is applied to each animal. If an animal is ill, perhaps due to the intrigues of an evil spirit, just as in the case of human sickness, a 'janne-manche', "one who knows" is called so that he may pronounce the necessary sacred formulas. The prosperity of the cattle and that of the house is indissolubly linked and the ruin of one announces the decline of the other.

The Courtyard of the House

The cattle shed courtyard is used only by those concerned with cattle breeding. However, the courtyard of the house, 'aghan', contiguous to the building is the centre of many activities. It is surrounded on three sides by a small stone wall around 80 cm high; the facade of the house constitutes the fourth side. A short entrance path, generally parallel to the 'aghan' and either an opening or a few steps built in the low wall give access to the courtyard.

The 'aghan' is certainly the most frequented area of domestic space. Anyone, whether a member of the family or not, can sit in the courtyard which is not subjected to the same ritual requirements as the house. The courtyard is neutral ground and everyone can use it. When, as stipulated in their annual contract, the Damais—untouchable tailors—spend a few days in the house of their employers to mend old clothes or sew new ones, they settle themselves in the courtyard. There also visitors are invited to sit out in the sun on a mat made of rice husk, 'gundri', woven by the women on a rudimentary loom. The men get together at one of their homes and sit in the courtyard around the 'hukka', the traditional water pipe or more commonly today, smoke their 'bidis' and cigarettes. The women too, when they have a little free time after the morning meal, sit down here to oil and comb their hair and to take out lice from each other's hair. The young mother gives her baby a mustard oil massage and then puts him in a kind of conical tent made of a piece of cloth placed over three sticks to protect him from the sun and the flies.

But the courtyard is not merely a place of rest. Here are carried out most of the domestic economic activities, which vary according to the season.

In this region, rice is threshed not in the threshing area but in the 'aghan'. After the harvest, the men let the bundles dry for two or three days in the fields and then bring them to the courtyard where they are threshed against the ground. This is referred to as "aghan ma kutnu", "threshing in the courtyard". Such bundles are piled up in a corner and form a stack 'kunyun'. Fifteen days later, the stack is dismantled and the husk is sprinkled on the ground to ensure perfect threshing; two bullocks yoked together tread the husk for several hours. Then the men and women winnow to collect the grain. The paddy is put out to dry on mats in the courtyard and is subsequently stored.

Just as in the case of rice, sheaves of wheat are brought to the courtyard and threshed; this task is performed by the male members of the family. The women take part in the winnowing and look after the

drying, spreading out and turning over of grain in the sun. For buckwheat and eleusine, the stems are spread out in the courtyard and beaten with a stick, 'lathi'. This tedious job is generally performed by the women who also have to winnow the grain and put it out to dry.

Paddy is husked in the courtyard according to needs where the 'dhiki' or pounder has been fixed. The women operate it and to use it at least two people are required, one person (sometimes two) to operate the pounder by foot and the other to put the grain in the hole dug in the ground where the pounder strikes the grain, and then to remove the crushed grain and winnow it. The operation is repeated once or twice to clean the rice.

Other than for cereals, I have seen the 'dhiki' being used to crush radish leaves before they are fermented, to grind the spices required for making 'acar' pickles (the women takes turns, wearing a turban, their eyes reddened by the stinging chilli dust). The 'dhiki' is also used to crush mustard seeds or peanuts before they are taken to the oil press, or to press the tobacco leaves mixed with molasses. This mixture is burned in the 'hukka'.

During the day, the few goats belonging to the family stay in the courtyard. There are tied to a stake and like the buffaloes, are fed with grass and leaves. The kids are left free and are irresistibly drawn towards the grains which have been put out to dry. The hen and chicks do the same and the family has a difficult time driving them away from the mats. These chicks are usually kept under an upside-down basket and are fed with crushed maize, bran and cooked rice.

A kind of truncated pyramid, ochre in colour is placed in a recess in the low wall surrounding the courtyard, and basil, often a little dry, is grown on this. The pyramid is called the 'tulasi ko math', "the altar of tulasi" or basil. The basil, a sacred plant, is a plant form of Vishnu, according to popular Nepalese tradition whereas the Puranic texts hold that it represents Lakshmi. On the eleventh day of each fortnight, a woman fasts, i.e., does not eat rice and performs a 'tulasi' puja. She goes around the altar three times, sprinkling it with pure water, 'cokho pani', lights an oil lamp and throws rice reddened with vermilion powder while invoking the name of Vishnu. On the eleventh day of the waning moon fortnight in the month of Kartik, the ceremony is more solemn and represents the marriage of Vishnu and Lakshmi. For this occasion, the altar is recoated, first with "red earth", 'rato mato', then with cowdung, 'gobar', and finally with line, 'kamero', after which it is decorated with floral garlands, painted with colour dots and topped by a kind of canopy of leaves. The puja is performed by a Brahmin who, at the foot of the 'tulasi ko math', draws with rice flour a diagram, 'rekhi' in which the symbols of the different divinities are arranged. Despite all this, the basil plant does sometimes wither away or as I was told: "the rats ate it." In such a case, puja is not performed for a year.

In villages located far from the river and therefore from the cremation platform 'ghat', those about to die are made to lie down near the 'tulasi ko math'. The protection which Vishnu gives to the dying on the 'ghat', is received here through proximity with the sacred basil.

The 'aghan' is also the venue of nearly all the other ceremonies for which a detailed enumeration is not possible at this point. To put it simply, whether they concern rites of the life-cycle, annual festivals or big pujas which are optional, some ceremonies take place obligatorily in the house, others in the courtyard and the venue of some depends on the wishes of the officiating priest. Very often one part of the ceremony is performed in the 'aghan' and the other in the interior of the house. Such is the case at the time of marriage: the initial rituals are performed in the courtyard; the couple and the close family then move into the house for the rites of the "gift of the young girl" and for the entire duration of the latter part, the ceremony takes place in the courtyard around the 'jagge', ceremonial space decorated with palm leaves and bamboo; such a space is demarcated a few days before the ceremony both in the boy's and the girl's house.

The House

The Bahun-Chetri house is rectangular in shape. Here it stretches parallel to the slope from east to west but the location of the village is such, on the hillside on both sides of the pass, that it leads to a difference in the orientation. On the eastern slope, the houses with their back to the pass, face the east; inversely on the western slope, their facade is orientated to the west.

The houses have two storeys. The walls are made of stone, coated both inside and out with 'rato mato'. The upper part of the walls is coated with lime, except for an ochre band around each window. Houses are repainted each year at the time of the big festival of Dasai, unless there has recently been a death in the family. The roof is double sloping with a slightly outward small overhang and is made of thatch or in the case of wealthier houses, of tiles. It is completed by a narrow canopy which covers the entire length of the facade on the second floor, thereby sheltering the small terrace which opens on to the first floor.

The Verandah

The ground floor is preceded by a verandah, 'piri', covered by eaves resting on wooden pillars. The verandah, 1.50 m deep, stretches along the entire length

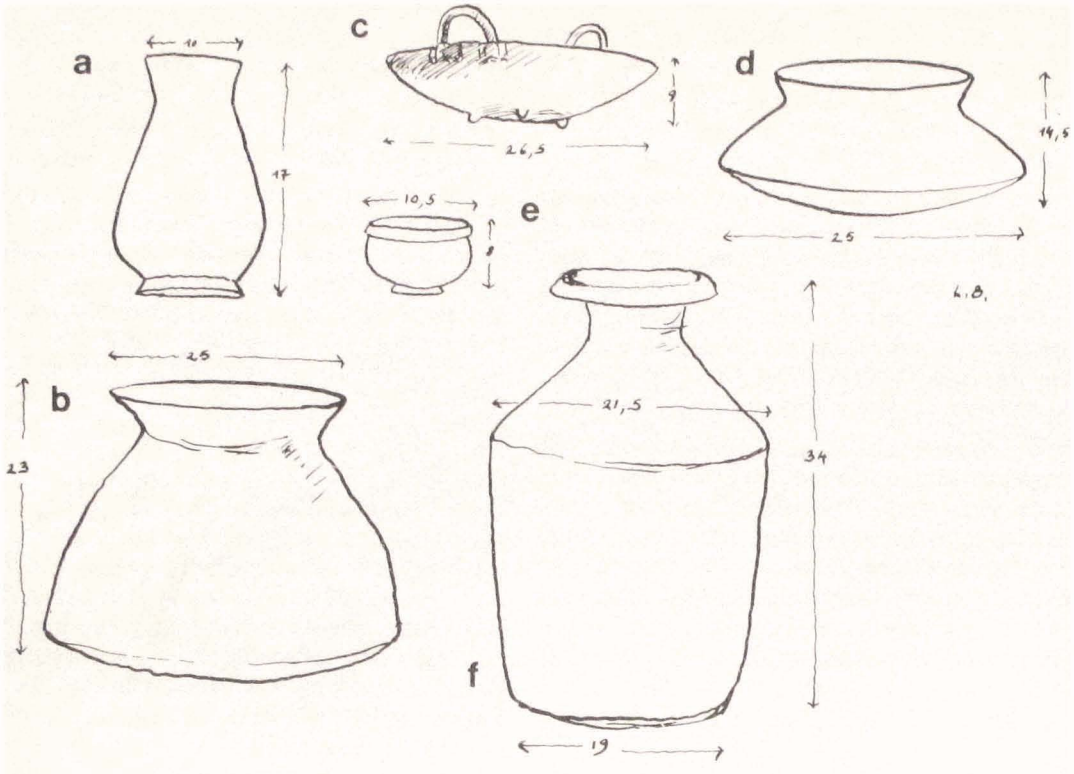

Fig. 1 — Cooking utensils and containers, a) ankhora—b) bhyanjo—
c) korai— d) kasandi — e) kacaura — f) gagri

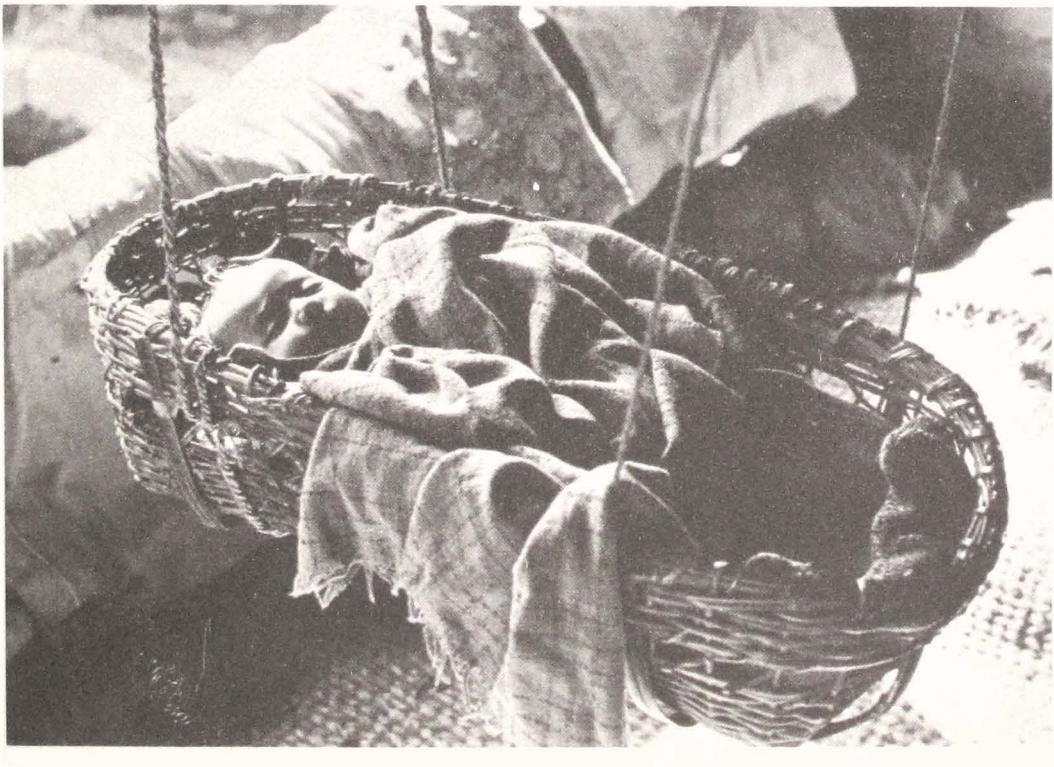

Fig. 2 — A cradle beneath the eaves; the first house (Cl. V. Bouillier)

Fig. 3 — The house of a well-to-do Jaisi Bahun family : two storeys, a terrace, tile roof (Cl. V. Bouillier)

Fig. 4 — Husking of rice with the help of a dhiki. The operation is repeated after winnowing to separate the grain from the husk (Cl. V. Bouillier)

Fig. 5 — The aghan : after the clensine has been threshed, the women winnow to separate the grain from the chaff One of the woman uses the wind-force to sweep ahead the lightiest particles; the other two separate the grian from the husk by vigorously shaking their winnowing baskets. The house made of bricks is of modern construction, following the patterns of the official building (Cl. V. Bouillier)

Fig. 6 — Preparation of the spices necessary for the vegetable stew; tarkari. The young woman crushes ginger, garlic, cumins, spices on a millstone, 'silanto' (Cl. V. Bouillier)

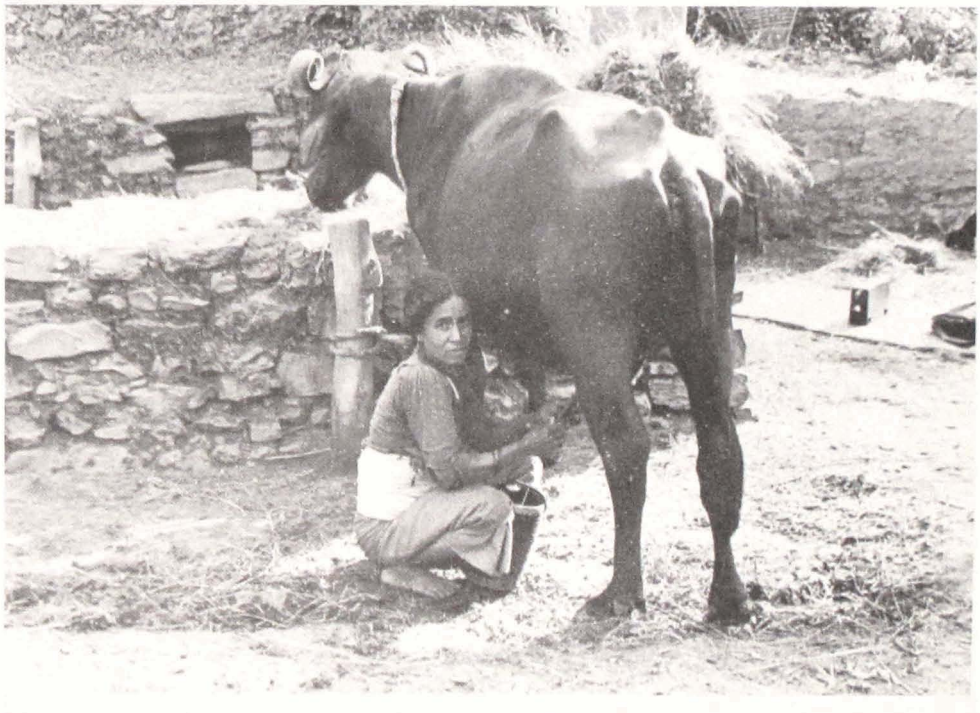

Fig. 7 — During the lactation period, a cow-buffalo gives between three to four litres of milk per day. On the mat, a transistor, an outward sign of wealth. (Cl. V. Bouillier)

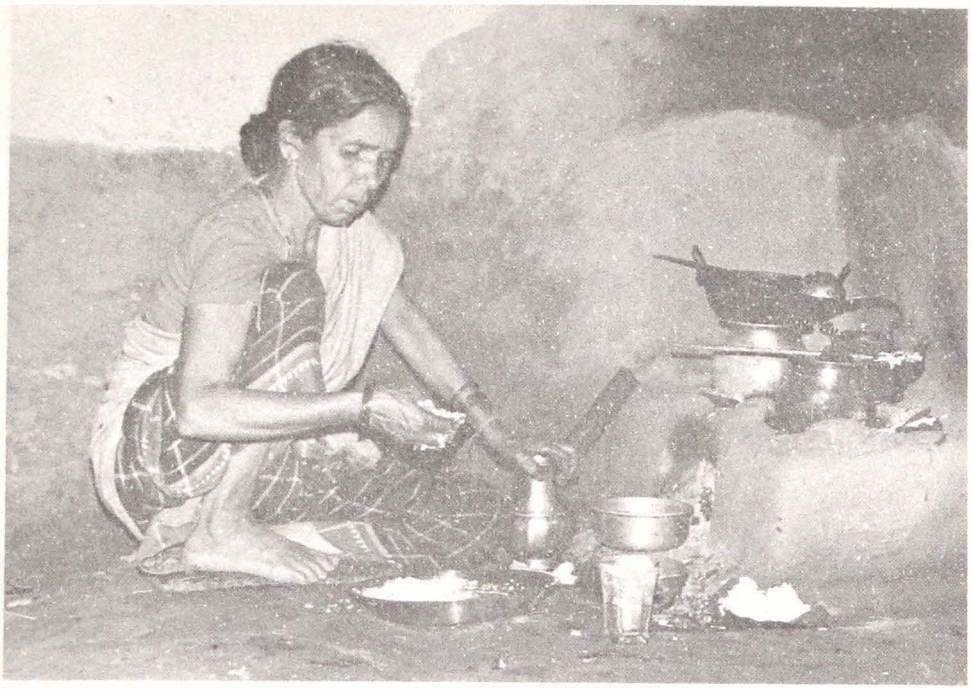

Fig. 8 — The cook cannot leave the fire-place. She serves the food and ensures that everyone gets their portion (Cl. V. Bouillier)

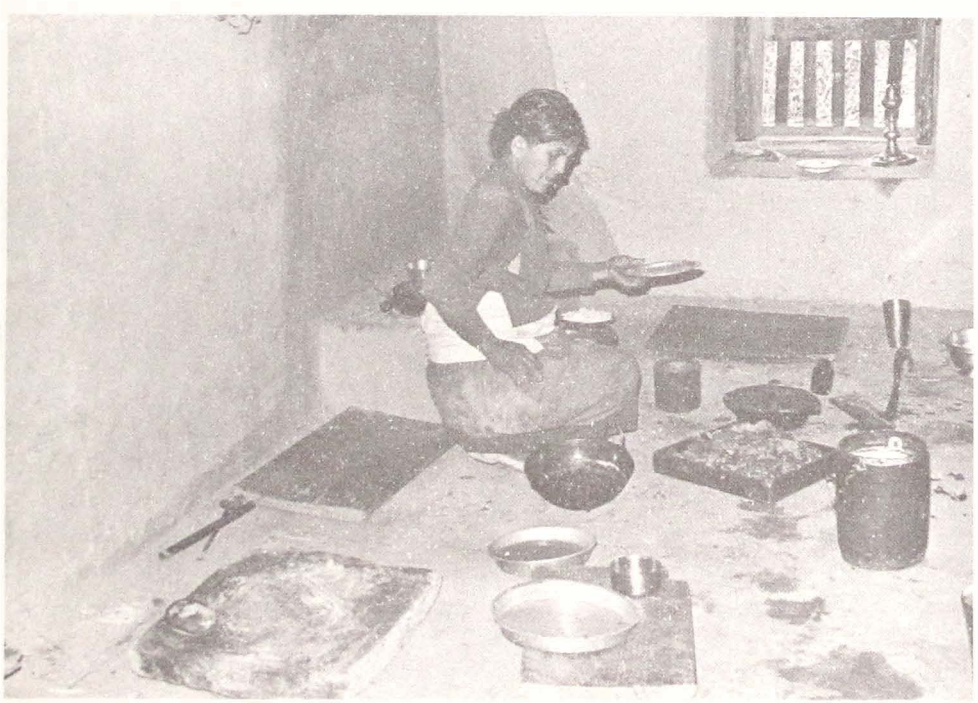

Fig. 9 — The foremost duty of the mistress of the house is to prepare the meals. The rice removed from the fire is ready. The green vegetables, 'sag', are washed s-ent and will be fried in a deep cast-iron frying pan, 'karai'. On the right, a bucket of milk, on the floor, a grindstone for the spices (Cl. V. Bouillier)

Fig. 10 — The domestic after t
youngest son makes the daily
offering. On the wall Indian
chromos of the deities (Siva
and Parvati, Sarasvati, Bhagva
(Cl. V. Bouillier)

of the facade. The pillars divide it into three parts: one extremity, closed by a balustrade where there is a wooden bench, the centre corresponding to the entrance of the house and the other extremity where the grain mill, 'jato' is placed. The 'jato' is made of a fixed circular stone socle of 40 cm diametre on which turns a movable millstone. The millstone is pierced in the centre thus making a cavity in which the grains to be crushed are poured. The millstone is turned by rotating a wooden handle alternately in one direction and then in the other. In contrast to other regions of Nepal, in this area every house still has its 'jato' and the grinding of the two millstones one on the other is amongst the first sounds to be heard in the morning. If nobody has been to the water mill for a long time, the maize grains have to be crushed in the 'jato'. A coarse flour, 'cyakhla', is obtained and is used to make porridge which is eaten at both daily meals. Buckwheat, eleusine and sometimes even wheat are ground in the 'jato' and the flour obtained is used to make pancakes. To work the 'jato', the woman sits on the floor, one leg stretched out near the millstone, the other bent and turns the handle either with both hands or with (alternately) each hand. The flour falls on the floor, around the mill. It has to be sifted, 'calnu', either with a loosely woven winnowing basket or an iron wire-mesh.

The verandah like the courtyard is a place of social interaction where one sits or receives guests during the day on a bench sheltered from the strong sun and rainfall. Anyone can use the bench and children feel as free to sit on it as the adults, men as well as women, provided the latter are of an age or position in the household which gives them some free time. Like the courtyard, the verandah is not subject to caste restrictions and here are served the meals to the artisans of the lower castes who come to help in the domestic work or carry out specific tasks. The artisans do not cross the threshold of the house and for their meals the mistress of the house puts their plates on the ground which they wash themselves afterwards (generally, they are well fed, because as they go from house to house, they can make or undo the family's reputation for generosity.

The Threshold

The door which opens on to the verandah, 'mul dhoka', is the main door. The threshold, doors and lintel are made of wood; the double door is closed from the inside with a wooden bar which slips into two handles fixed at mid-height on the two doors.

The threshold is of great symbolic importance: crossing it means penetrating into family intimacy, something no one will do without being invited. Every morning, before the household activities begin, the daughter-in-law has to coat, 'lipnu', the threshold with loose red mud mixed with some cowdung. Only on ceremonial days is the clay floor of the house recoated entirely. Ordinarily, purifying the threshold is the symbolic equivalent of purifying the whole house.

On to the external side of the lintel, a picture representing the Nagas, the serpent gods, who are the dispensers of rain and protectors of wealth, is glued using cowdung and a vermilion 'tika' is applied to it. During the Nag 'pancami', every year in the month of 'Saun', a new effigy painted by the Newar artisans of the Kathmandu Valley, is put above the door to protect the house. On the lintel, one can also find small, rather faded yellow circles which are often arranged in groups of six: these are the marks which have been made at the time of certain pujas so as to keep count in the house of the mantras recited.

The symbolic value of the threshold is also manifest in the marriage rituals, particularly when the young bride enters the house of her in-law for the first time. The sisters-in law block the threshold preventing her from entering and agree to let her in only when the young woman promises to give them gifts. But her free access to the house is still not easy; from the threshold to the kitchen, a series of small lit candles and rice piles trace the path that the bride must follow. She has to overturn these with the lower part of her sari before bowing to her mother-in-law who is standing near the fire stove.

The crossing of the threshold in the opposite direction, i.e., from the interior to the exterior, is solemnised on the eleventh day after the birth of the child. It is the first outing of the newborn and his introduction to the universe. For the mother, it marks the end of her confinement, away from the sunshine, where she was obliged to stay during her period of impurity. A small and slightly hollow heap of cowdung is shaped on the threshold in which a blade of grass, 'dubo', is placed and milk is poured over this. The young mother carrying her child then crosses the threshold, going around the cowdung on the left side. Once outside, she lifts her child three times towards the sun. This constitutes one of the elements of the 'nwaran' or name-giving ceremony which marks the first social recognition of the newly born child.

The threshold, so intimately linked to the purity of the house, cannot be polluted by contact with a corpse. If someone dies in the house before having been carried near the 'tulasi', it is not possible to remove his body through the main door. This has to be done through an annexe door or if there is not any, through a window. The family may even be obliged to throw the body from the first floor.

The Ground Floor

On crossing the threshold, one is struck by the lack of light on the ground floor. Called 'chiri', it consists of a single room which has very few openings: the 'mul-dhoka' where most of the light comes in from, sometimes a second lateral door, two or three narrow windows fitted with solid iron rods (stories about robbers are almost as numerous as ghost stories).

Three wooden posts, 'tham', placed in a straight line divide the room lengthwise into two parts; such a division is a constant feature of the Bahun-Chetri house but the positioning of the different parts varies from one half to another; thus the kitchen, 'bhancha', separated by a low wall, perpendicular to the lateral wall, is always situated in the inside corner of the room but can be either on the left or the right, the north or the south side. Just as for the threshold, the base of the posts has to be coated with mud and cowdung every morning.

The first part of the ground floor which is closest to the threshold includes on one side a kind of pen, 'khor', which may or may not be delimited by a low wall where the goats and kids are kept during the night; on the other side, a steep wooden staircase leads to the first floor and can be closed by a trap door 'bharyan'. Near the staircase, water is stored in large copper jars 'gagri' or earthenware jars, 'gagro' placed on a small clay platform, 'gagreto'.

In the section opposite the kitchen there is an empty space, sometimes slightly raised, of both social and ritual value. It is here that the visitor, who because of kinship ties, neighbourly relations and purity of caste can enter the house, seats himself. Often in the evening, relatives or friends come over after the last meal which is taken at sunset and chat around a small brazier where they warm their hands in winter. In ritual terms, the status of this area is ambiguous. It is favourable for the holding of ceremonies as it is here that the Brahmin draws the 'rekhi' and presides over all the rituals that take place in the house. Nevertheless, it is to this area of the ground floor that family members suffering from temporary impurity are confined: the woman delivers her child here and along with her baby she remains in this space for a period of eleven days after childbirth (in other regions of Nepal, the woman is kept in a separate room. But whatever the case she is forbidden to go to the first floor). As soon as they return to the house of the bridegroom's parents, it is here that the young couple spend their wedding night. The sons along with the family priest must stay in this area during the 13 days which mark the period of mourning for their parents. At such times, they are in a state of impurity, 'jutho', and access to the rest of the house is not permitted. This space is used only in cases of extreme impurity, sanctified by accompanying rituals. During her menstruation period, even though a woman is impure and has to keep away from the kitchen, she is not confined to any one place. She can go to the first floor, where she simply sleeps at a distance from the others.

Before a low wall making the kitchen area one can see a hole dug in the ground which is used as secondary fire stove, 'agyanu'. All food that is not for the two main meals (prepared on the central stove) is cooked here. It is used to heat the milk obtained from the animals, sometimes the 'khole' for the cattle and all snacks during the day: soya, maize grain, beans, peanuts, grilled in a narrow necked copper or earthenware cooking pot (called 'handi'). All foodstuff which is not for immediate consumption is prepared on this stove: 'acar' (pickles), all sweet dishes, specially 'kurauni' (sweetened milk boiled till it solidifies), cakes necessary for certain ceremonies, etc.

If at the evening meal, 'rotis', a kind of buckwheat or eleusine flour pancake, are served, these are made in the 'agyanu'. The whole family gets together around the fire and everyone helps do the cooking. This annexe firestove is used for informal cooking to which the strict rules of purity required for the preparation of rice are not applied. Any family member can cook on the 'agyanu' and it is not rare to see men help out in the preparation of special dishes: cooking meat on slow fire, for example.

The main fire stove, 'culo' is built in a corner. It has the shape of a parallelepiped. It is about 50 cm high and is made of bricks covered with mud, and has two burners, circular openings on which the pots are placed directly. Two separate holes in the base enable one to introduce the wood. There is no chimney but often a simple hole in the wall above the firestove allows part of the smoke to escape.

The cooking of a meal is an extremely long and complex activity which involves all kinds of prohibitions aimed at preserving the purity of the food consumed and thereby of those eating it. Cooking is the responsibility and the pride of the mistress of the house: only such a wife whose caste is equal to that of her husband's and who has been married with all the rites can prepare rice or anything cooked in water. She must of course be suffering from no personal impurity: during her periods she cannot cook for four days, after delivery for twenty-one days (sometimes thirty). Co-wives in whose case marriage rituals are often simplified, and unmarried daughters are excluded from cooking. In principle, boys who have not yet been initiated and unmarried girls are not supposed to enter the kitchen between the low wall and the back wall. But even though the formal entry into

kitchen is still a part of the initiation ceremony, the children nowadays eat at the same place as the adults. The various pots and utensils required are within easy reach of the cook and are stacked against the wall or placed in a recess in the wall which acts as a shelf.

The two main meals are taken between 9 a.m. and 10 a.m. in the morning and 5 p.m. and 7 p.m. in the evening depending on the time of the year. The composition and quantity consumed remain unchanged. The same operations are carried out in the same way twice a day (except for the days—not too often—when pancakes are made for dinner).

The vegetables are first washed and cut. In wealthy houses two kinds of 'tarkaris' are prepared for each meal, e.g., in winter, 'sag' and a mixture of raddish and potatoes. One of the daughters chops the unpeeled vegetables with a 'culesi', a kind of vertical blade fixed in a socket. During this time, the cook prepares the spices. She uses a grinding stone called 'silauto', a slightly hollow stone slab on which the seeds are crushed with a round stone called 'lohoro' (or 'silauto ko bacca', "baby of the grindstone "when it is used for certain fertility rites). The grinding stone also plays a part in marriage rituals where it symbolizes durability: "May our union last as long as this stone," says the bridegroom while touching the toe of his wife when she places her foot on the grindstone. It is used daily to crush garlic, salt crystals, ginger as well as cumin, fenugreek, mustard seeds and cloves which are added according to the dish being prepared.

The fire is then lit and water is put to boil in the 'bhyanga', a large brass cooking pot. While the water is boiling, the cook pours in the flour, 'pitho', of maize or maize crushed in the 'jato', 'cyakhla', to obtain a porridge, 'dhido', that she stirs from time to time with a flat ladle, 'puniu'. In this area, there is not enought rice for all meals, so maize is always added to it. The porridge is not a very welcome dish and the proportion of rice and 'dhido' served depends on the status of the family member; the head of the family eats only rice. The rice is washed three times and the water used in the third washing called 'chaulani', is kept aside. The rice is prepared in a brass cooking pot, 'kasaudi', and is removed from the fire only when the water has been absorbed. As in the case of the porridge, rice is cooked without any salt or oil.

The 'karai', a deep frying pan made of cast iron with two handles, is used to cook the 'tarkari'. The ghee is heated, a few chillies are thrown in and then the vegetables, crushed spices and turmeric powder, 'besar', are added. Turmeric powder is insipid in taste but gives to the vegetables a yellow colour which is highly appreciated. Finally, the 'caulani'—the water that had been kept aside during the washing of the rice—is poured in.

When everything has been cooked, the mistress of the house presides over the serving of the food. Sitting, cross-legged near the firestove, she cannot move till all the family members have eaten as any walking around could be a source of pollution. Sitting closest to the fire, the father takes his meal first on a round mat 'cakati' or a board 'pira'. Before sitting down, he takes off his shoes, possibly his leather belt and purifies himself by washing his fingers and mouth with water taken from a jug, 'amkhora', placed at the entrance of the kitchen for this purpose. His sons and grandsons often share his meal; when school schedules have to be adhered to, the rule of precedence is not strictly observed. Using a flat ladle, the mother puts a large quantity of rice in a big brass dish, 'thal', which she places before her husband. With a hollow ladle, 'daru', she then pours in the same plate the 'sag tarkari' which has a lot of gravy. Next she serves the seasonal 'tarkari' but this time in a brass bowl, 'kacaura'. If 'acar' is taken, it is served separately on a leaf. Meat is eaten very seldom and only the meat of animals sacrificed for the ceremonies—chicken or goat—is consumed. Meat is never roasted but like the 'tarkari', it is cooked in gravy. Before eating, the father throws a few grains of rice on a leaf, sprinkles the floor with a few drops of water, thus offering the first part of his meal to the gods. He uses the fingers of his right hand to eat. Only the cook can touch the dishes. She regulates the quantity to be served on each plate and gives rice, porridge or vegetables accordingly. The children mainly eat porridge with buttermilk on top.

As soon as a person finishes his meal, he gets up, leaves his plate on the floor, washes his fingers and rinses his mouth. After the meal, one of the daughters takes all the plates outside and washes them together, throwing the leftovers to the animals. Dirty dishes and leftovers are impure but women are not polluted by the food left in their husbands' plates. The husband may, as a sign of affection, leave something good for his wife which she is supposed to eat directly from his plate.

When the daughters and daughters-in-law have finished their meal, it is the turn of the cook to eat. Without moving from her place near the firestove, she takes whatever remains. After she has finished, while the other women wash the dishes in a corner of the courtyard, she coats the kitchen floor with a purifying mixture of muddy water and cowdung.

Only that amount is cooked which is strictly necessary for each meal. Nothing can be prepared in advance as unconsumed food is considered impure even if completely untouched.

As an offering to the 'kuldevata', the gods of the lineage, the mistress of the house lights an oil lamp in a small recess above the firestove every morning and evening except when the house is in mourning.

The first floor

Only those of equal or higher caste to the occupants of the house are allowed to enter the kitchen. Even though it does not have the same symbolic importance, access to the first floor is also restricted. A stranger is invited to the first floor only in exceptional circumstances, e.g., a bedridden head of family having to receive a guest. The bedrooms, situated on the first floor, are not used during the day though family members make brief visits in case they require a personal belonging. In the less affluent houses, there is no partition and all the family members sleep in a common room. However, this is not the case in a more well-to-do family where every couple along with their young children is allocated a separate room and in polygamous families, every wife has her own room. Separated by thin wooden partitions, the rooms are small and have no furniture except for a wooden bed, 'palan', reserved for the father. A thin cotton mattress, 'ochyan', and a pillow, 'takiya', are placed on the bed along with a quilt, 'sirak', stuffed with cotton wool by the Damai artisans of the village. The other family members have to be content with a wooden board or a mat spread directly on the floor, on which a cotton mattress and quilt are spread. Several people share the same bed or mat, mothers with their young children, brothers and sisters without distinction of sex till the age of twelve or so. Sleeping alone in a room is unthinkable and even frightening. Clothes, textbooks, valuable documents may sometimes be kept in a cupboard but each one tries to have his own trunk or drawer which is carefully locked with a key. Family members are wary of each other and every member jealously guards his or her possessions. Young girls lock up their make-up, the women their clothes, jewels, money, and the children, their school things, their marbles, which they consider as their "treasure," and sweets. So obsessed are the inhabitants with the thought of theft that at night, even though the doors and windows are padlocked, all the crockery and utensils are brought up to the first floor for fear that someone may break into the ground floor.

The walls are decorated with Indian colour prints representing all the deities of the pantheon, with photos of the king and the queen and yellow, tattered pictures cut from old magazines. Photos of the family members are carefully pinned up and sometimes framed. If a person has died, a 'tika' is applied to his photograph. Snapshots are generally taken at a studio in Dhulikhel or Kathmandu. To show their prosperity, the family poses, resplendent in its finery, against the background of a painted cloth.

Wherever possible, the family altar, 'khatiya', is kept in a small room where puja is performed every morning. The altar is a kind of low wooden table on which several black stones of unequal size are placed representing the various deities. In the house where I lived, there were eight stones Seti Devi, Vishnu, Mahadev, Ganesh, Bhagavati, Mahalakshmi, Sarasvati and Bhimsen. In front of the stones is found a copper plate with five 'saligrams' (ammonite fossils, symbol of Vishnu). On the altar is found a bell, 'ghanti', a conch, 'sankha', which only the men can blow into, and 'argha', a small vessel on a tripod to make water offerings, 'pancapatros', small copper pots, filled with water, a 'pancapalo', dish where incense is burned and wicks soaked in oil. The officiant, generally one of the children, begins by sprinkling pure water, 'cokho pani', on the deities. He then fills up the 'pancapatros', lights the wicks and decorates the flower pots which bougainvillea and French marigolds. When this is done, he prepares in the 'thali' (puja dish) the necessary ingredients: husked rice in the centre, with incense, 'dhup' around it, vermilion, 'abir', wicks soaked in oil, a red coloured juice, 'srikhanda' (obtained by rubbing sandalwood, 'candan', on a flat wet stone, 'canauto'), grains of barley. The officiant smears the stone deities with vermilion and sandalwood juice, throws the rice grains and burns the grains of barley in a small brazier, 'makal'. While ringing the bell, he recites the mantras or reads certain ritual books like the "Candi ko kitab" or the "Swasthani brata katha". When he has finished, he applies a tika on his forehead and on all those present and gives them a few flower petals, fruit and some milk as 'prasad' (all that is offered to the gods and distributed afterwards to the devotees as a blessing).

It is in this room that milk is churned just after the 'puja'. After milking the buffaloes, the milk is boiled and curdled for one day in big wooden pots, 'theki'. To this curdled milk, 'dahi', half its quantity of hot water is added and churned, 'mohi parnu', for a quarter of an hour. Milk is churned by one or two people (this work can be done by anyone and often it is the children who churn the milk). Sitting on the ground, they alternately pull the ends of a rope, 'neti', tied around a wooden churner, 'madani', which has four blades. The churner is put in the 'theki'. It is held in place by a wooden ring, 'ghurro', tied to the wall with a rope. After fifteen minutes, butter, 'makkhan', forms around the churner. Then what is left, the buttermilk or 'mohi' is served at meal times along with the porridge. Butter is not consumed but sold outside.

When the churning is over, the mother brings a small brazier with a handle, 'dhupaura', on which incense is burnt and a few drops of buttermilk are sprinkled as an offering to all the gods.

Depending on the type of house, a number of variants are possible at the first floor level. In the most simple case, the first floor opens on to the facade through two relatively large windows which overlook the eaves. The eaves are often used for drying purposes: drying of vegetables, clothes, etc. In another house type, the first floor ends in a small sheltered terrace where cereals and vegetables are dried. In particular, pumpkins are often left out for several weeks and are very often eaten up by rats. In a third kind of house type, the first floor has a gallery similar to the verandah on the ground floor.

The Attic

Entry to the attic is by a wooden staircase, closed with a trap door, identical to the one which joins the ground floor to the first floor. Very often the trap door is padlocked (with a small iron padlock purchased from the bazar) even during the day and the key is always in the custody of the mistress of the house who wears it around her neck or attaches it to her belt. It is a symbol of her responsibility and privileges, for the family food reserves are stored in the attic. Maize ears which have not yet been husked are piled in the centre of the room. Big earthenware jars, 'ghyampo' or baskets, 'bhakari', placed along the walls, contain, paddy, wheat, barley, buckwheat or eleusine grain depending on the season or state of reserves. Rosaries of chillies, garlic, maize ears and 'gundruk' (fermented leaves which are put out to dry before being eaten as 'tarkari') hang on the windows or on props.

Before every meal, the cook goes up into the attic and collects in a small basket, 'dalo', the cereals and spices required for the meal and then carefully closes the trap door. One goes up to the attic only to store cereals or to take the required food. In certain houses, the family altar is kept in the attic.

Conclusion

As has been observed, this kind of inhabitation is relatively spacious. The different sections of the house are clearly differentiated and correspond to specific spheres of activity. There tends to be fewer divisions in the homes of poorer families. Then there is only one floor without any partition. A single room acts as the common dormitory and granary. And sometimes the cattle shed is nothing more than a rudimentary shelter. This is generally the case of houses belonging to members of the artisan castes, situated at the periphery of the village.

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THE KATHMANDU VALLEY:

THE NEWAR WORLD

URBAN SPACE AND RELIGION
Observations on Newar Urbanism

Gérard Toffin

Taking advantage of their favourable location along the trade route between India and Tibet, the Newars of the Kathmandu Valley built between the 13th and the 18th centuries a highly developed civilisation unparalleled in the Himalayas for its richness and sophistication. Essentially urban in nature, it grew in cities that were both important political centres—seats of small kingdoms or local fiefdoms—and prominent centres of art from where spread what is today referred to as the "Nepalese" culture. As for their architecture and religious symbolism, these cities borrowed heavily from India, a country with which the Kathmandu Valley has been in almost continual contact for over the last two thousand years and from which the Newars have drawn upon substantially for their culture. Conquered in 1768-1769 by Prithvi Narayan Shah, who made it the political centre of his kingdom, the Newar region was subsequently integrated with the modern polity of Nepal, the new Nepalese state.

Regardless of their size—whether large like Bhaktapur, Patan or Kathmandu or small like Chapagaon, Kirtipur or Sankhu—the Newar cities are of considerable interest to the architect and the ethnologist as, over the last two centuries, they have managed to preserve their traditional structures. Protected from invaders by the Himalayan foothills, they have in many ways remained more faithful to the principles of traditional Hindu architecture than Indian cities, especially those in the North which were profoundly influenced by Islamic culture and are now in the process of modernisation based on the Western model. In architecture as in many other areas, the Kathmandu Valley has acted as a conservatory of Indian civilisation. Is it not a fact that today Nepal is the only surviving Hindu kingdom?

During the last few years, several studies have been carried out on the Newar urban areas. A major study was conducted in Bhaktapur, the third largest city of the Valley, by a German team which took part in the restoration of the main religious monuments of the city giving rise to a programme of urban development. Two members of the team, an architect N. Gutschow and an orientalist B. Kölver, published in 1975 a significant book entitled *Bhaktapur. Ordered space concepts and functions in a town of Nepal.*[1] As the title indicates, this book deals with the concepts and functions of urban space. In choosing Bhaktapur, the authors decided to study a mainly Hindu city in contrast to Patan or Kathmandu where Buddhist elements play an important if not predominant role. As Bhaktapur is no longer situated on the main trade route, it has been less affected by the urban transformation of the past few decades than the other towns. To the visitor, the city gives the impression of an agglomeration frozen in time, belonging to another age and implacably alien to the values of Western modernity.

Though it does not exceed 59 pages, N. Gutschow and B. Kölver's book is teeming with ideas and throws an entirely new light on the city. The authors begin by attempting to reconstitute the history of the city's development. Contrary to the original legend which attributes the city ex-nihilo to king Anandadeva (12th century), Bhaktapur must have been created after several independent villages merged gradually to form a single agglomeration. Such a process is not confined to South Asia alone. Gutschow and Kölver remind us that the Sanskrit name of Chittagon is 'sapta grama' meaning seven villages. The Royal Palace, situated today in the Western part of the city must have been built originally in the eastern side—the Tacapal area. The authors do not substantiate their thesis with historical documents but concentrate on the toponomy of this area, which has retained royal names or names evocative of royalty, and on its architectural richness. The change of palace must have taken place in 1452 when Yaksamalla built the present palace at Laska dhoka. From 1455 to 1769, the

city must have experienced a period of "planned growth" towards the west. This seems to explain why the western quarters of the city are often cut by a main road, running north to south and joining the main east-west road. The east-west road must have been an old trade route which played a determining role in the structural development of the city.

Gutschow and Kölver go on to give a general definition of the Newar city on the basis of the Bhaktapur example. This chapter introduces basic religious concepts like those of Asta Matrika, Asta Bhairav and 'pradaksina patha'. The Asta Matrikas are the eight Mother goddesses at the periphery of the agglomeration who protect the city from external danger. The Asta Bhairav, i.e., the eight forms of Bhairav, constitute another formation of eight shrines (the authors do not state clearly whether this formation is different from the preceding one) situated around the city. The 'pradaksina patha' is the procession route taken by the chariots and palanquins carrying the city deities at festival time. These three belts encircle the city separating it from the non-structured, non-urbanised surroundings. In other words, Bhaktapur is isolated from the neighbouring uncivilised world by ideal frontiers, essentially religious in nature, not very different from the medieval European city walls or having at least the same symbolic value. In this regard the authors remind us that the Sanskrit word 'pura' is used to designate both wall and city and that the Hindu city was defined basically in relation to its walls. The second part of the book deals with the Taumadhi-Masanghat north-south axis which joins the centre of the city to the Hanumante river. After giving a detailed description of the religious monuments and zones, Gutschow and Kölver establish a relationship between social hierarchy (caste hierarchy) and space. From this perspective, the Taumadhi Masanghat axis, sloping steeply from the centre to the river, has been well chosen. It seems as if the local topography has been so utilised as to express the hierarchical order of the different social groups. The houses of members belonging to the upper castes are built at a height near the centre, those of lower castes are situated below at the periphery. The Chathariyas, members of the high ranking Kshatriya caste (the old Newar Kings belonged to this group), live next to the Brahmins around the Nyatapol temple in the centre of the city. On the other hand, the low Pode caste of fishermen-sweepers live in the south, on the banks of the Hunumante river. The authors point out that the colonies of the impure fishermen-sweeper and butcher castes are located on the left side of the procession route, outside the sacred space of the city proper.

This is followed by a few brief observations on the role of relgious processions and festivals in spatial symbolism. Gutschow and Kölver analyse the most important festival of the city, the Bisket jatra, which takes place in April at the time of the Nepalese New Year. During this spectacular festival, two chariots, one carrying Bhadrakali and the other Bhairav, are taken in procession through the city in an atmosphere of ineffable joy and gaiety.

Three elements of the ritual are noteworthy:

First of all the erection of a very high pole with a banner at Yahsimkhel in the lower part of the Taumadhi-Masanghat axis, demarcated above. This pole, 'yomsi' in Newari, is sometimes referred to as 'linga' by the Bhaktapur inhabitants. The small promonontory on which the pole is fixed is considered to be the 'yoni', i.e., the female half.

This is followed by the combat of the two chariots at Gah hiti; Tantric priests assert that this battle symbolises the union between Siva (Bhairav) and his feminine energy, 'sakti' (Bhadrakali). For the authors, the ritual aims at recreating the primordial procreation, the union of 'sakti' and the male deity being considered as the origin of the world.

The third element, the most important for a proper understanding of the notion of space, is the battle between those living in the upper city and those living in the lower city around the chariot of Bhadrakali. Ropes are tied in front and at the back and the two groups living in the upper and lower areas respectively line up on either side of the chariot, each group trying to pull it towards its side. This ritual takes place at Gah hiti immediately after the coupling of Bhadrakali and Bhairav has been mimed. This space occupies a special position in the city. It is situated on neutral territory at the frontier of the two constituent halves of the city; the upper city (Newar: 'thane') and the lower city (Newar: 'kwane'). From this, the authors presume that the aim of the combat is to pacify the city, recreate its unity, by giving ritual expression to latent conflicts. A judicious interpretation to which I would gladly subscribe, although this line of thought has not been substantiated and the authors omit to gloss over a number of converging facts which could have emerged from the analysis of other festivals of the Kathmandu Valley.

Amongst the other findings of this book, one must mention the definition of system of wards (Nep: 'tol'; New: 'twali'). Bhaktapur is divided into 24 wards, 10 belonging to the lower city and 14 to the upper city (pp. 26-27). In a Newar city, a ward is always centred around a large courtyard which acts as a drying ground or a

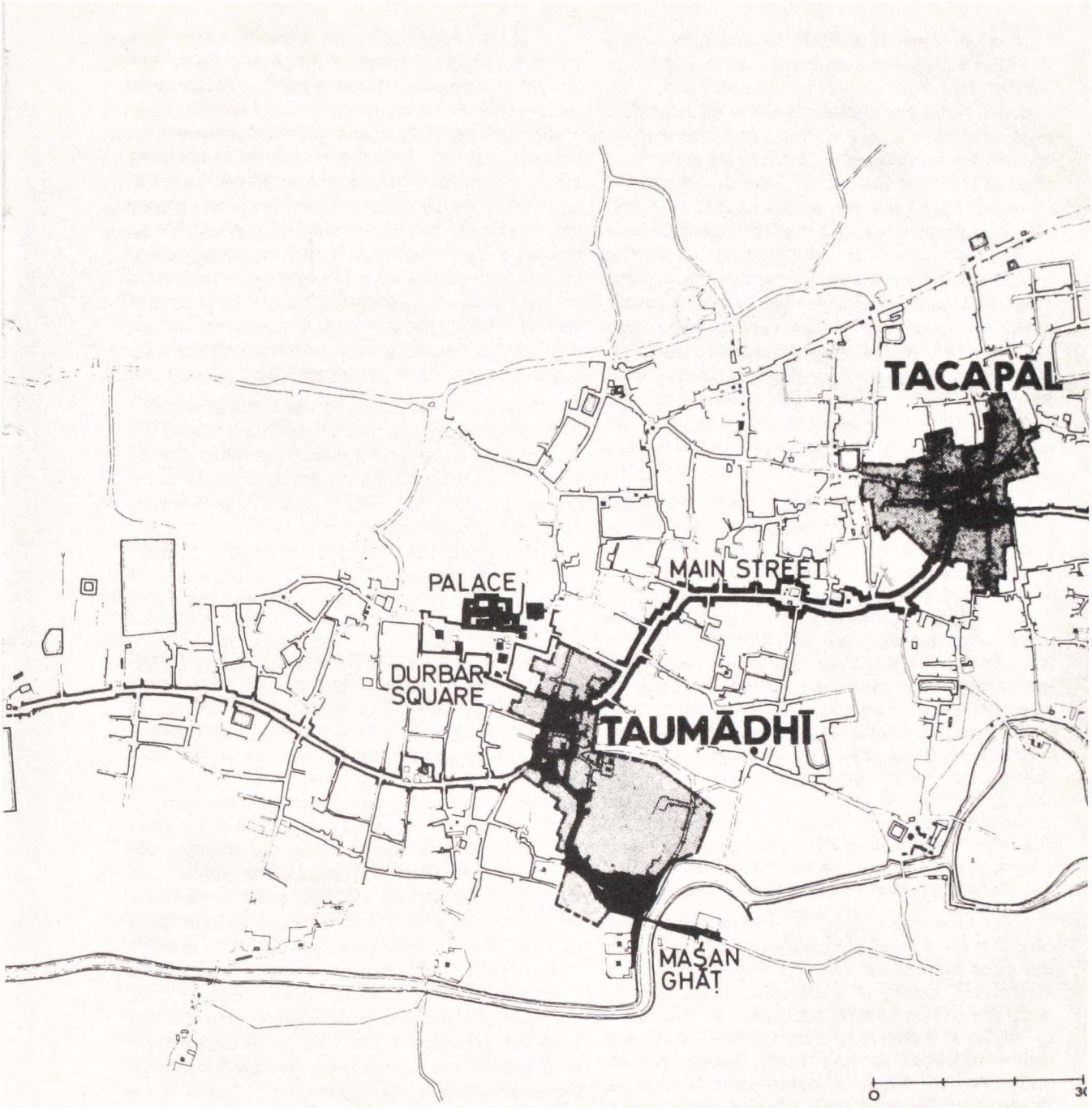

Fig. 1 — City of Bhaktapur
(Extract from N. Gutschow, 1975)

commercial centre. It provides the inhabitants with a well, and arches where religious music is played at nightfall. However, what gives to this area its tangible unity is a number of holy places where the inhabitants regularly place offerings. In Bhaktapur, every ward has two temples: one dedicated to Ganesh, the god with an elephant head, and the other to Nasa dya, the god of music and dance. Gutschow and Kölver indicate that the funeral processions are used to periodically delimit or reaffirm 'tol' frontiers. Each ward has its own "funeral route" to carry the dead to the funeral pyre. These routes mark the boundaries of the wards and highlight the tripartite division of the city, each division being associated with a particular cremation ground. This point is important as in this case spatial expression takes precedence over the caste division of society. We will come back to this later. According to the authors, the funeral routes must be as old as the history of Bhaktapur itself.

We must repeat that this study offers an entirely new analysis. Although very brief in parts, it never fails to surprise by the freshness of its approach and the richness of its subject matter, namely the Newar cities. In fact, the book breaks new ground for two reasons—by its subject matter, of course, but also by the research method and interpretation techniques and used. This work is the fruit of a close collaboration between an architect and a specialist on Indian civilisation. If one of them is an expert on spatial organisation, the other restitutes the symbolic sense and value of these spaces. It would have been difficult if not impossible to arrive at the same results independently. In addition, the book contains a number of clear and precise maps which enable the reader to follow easily what the authors wish to demonstrate. And at the end is a complete list of castes compiled by R. Levi, anthropologist at the University of San Diego (California) which is of great use indeed.

This book underscores the predominant role of religion in urban space. It is impossible to define or even talk of an architectural unit of a Newar city without immediately thinking of a religious concept, deity or ritual. It would almost seem that space was "instructed" by religion as it derives its coherence from elementary notions of Hindu thought. These findings are not confined to the Nepalese context alone but have a significant bearing on the study of Indian civilisation as a whole and should encourage other research scholars to undertake comparative studies or to analyse in depth a specific area of study. In a recent article (G. Toffin, page 73, 1979), I have tried to show how Newar cities could be viewed as cosmograms. Bhaktapur, Patan and Kathmandu are miniature reproductions of the universe, sacred diagrams—'mandala' (or 'yantra') which express the profound unity of the cosmos.

This unity and close relationship with the comos are the most striking features of the Newar town. Any attempt to differentiate between political and religious factors would be unrealistic, as political considerations always refer implicitly to symbolic religious values. To quote the authors: "At first glance, Western observers are inclined to view concepts such as 'pradaksina patha' as a part of the history of religion and ideas. We are however of the opinion that Hindu thought makes no distinction between political history and religion; or to put it in more general terms, between the sacred and the profane." (page 22)By encircling his city with statues of the divine mother goddesses, the king achieved the twin objectives of sanctifying the city as well as demarcating its territorial and thereby historical limits.

Undoubtedly, *Bhaktapur* is a landmark in the study of the Nepalese civilisation. Nevertheless, I believe that the authors have been rather cursory in dealing with the position of the palace in the city and the definition of the city in relation to the village. In this regard, I have something to contribute on the basis of a study that I undertook along with my architect colleagues, V. Barré and L. and P. Berger in the small town of Panauti; its scope was gradually enlarged to cover the entire Kathmandu Valley.

Though most of N. Gutschow and B. Kölvers' observations on Bhaktapur hold true for other Newar towns, in one aspect they are unique to this city. In Kathmandu, Patan or Panauti, the old Malla palace is situated in the centre of the city whereas in Bhaktapur the palace has always been located at the periphery. If one goes by the Sanskrit texts, there is nothing unusual in these differences which only reflect the numerous options possible in ancient India. For example, the *Mayamata* recommends that the palace be situated in the west (X, 71-75) whereas according to the *Arthashastra* the palace can be situated both in the centre and the north (II, 4-7). The *Mayamata* prescribes that the palace of a 'Cakavartin', i.e., of an emperor should be located in the Centre; that of a king 'adhiraja' south of the eastern part, the palace of a 'parsneya' in the western part and that of a 'narpati' in the east (XXIX, 1-3). As we can see, there is no unanimity of opinion in the classical Hindu texts. Certain texts give a typology of the royal cities on the basis of the nature or sphere of influence of the king. It is nevertheless possible that the differences between Bhaktapur and the other Newar cities (for the lesser known towns, further analysis is required) are due to the fundamental opposition between Hindu cities or cities that have been influenced by Buddhism. In Bhaktapur, Hinduism is the dominant religion and judging by the limited number of monasteries (11, of which two are in ruins) it would seem that Buddhism was of secondary

importance. On the other hand, Patan and Kathmandu are for the most part Buddhist in character and specially in Patan, the layout of Buddhist monuments plays an important role in spatial symbolism.[2] The Buddhist concept of royalty is more sacred and more centralised than that of the Hindus. Hinduism places the Brahmin priests above the Kshatriya kings and makes a clear distinction between religious authority and political and military power. It is possible that the different types of spatial organisation correspond to these theological divergencies. With the help of a quotation, we will see how the two basic texts of Buddhist literature, the *Svayambhu purana* and the chronicle translated by P. Wright describe the creation of the first city of the Kathmandu Valley: "After having emptied the lake at the end of the basin, the bodhisattva Manjusri built for his devotees a vast city between the Svayambhu and Guhyesvari temples. The city was surrounded by high walls. Eight doors faced the eight directions of the universe. In the centre of the city, Manjusri constructed a palace and the four golden doors were set with precious stones and decorated with the symbols of the eight signs of good fortune, 'asta mangal'. In front of the palace, he erected a crystal palace on top of which stood a golden lion. He named the city Manjupattan after himself and installed a king: Dharmarkar" (D. Wright, 1966, page 51). In these few sentences, the main elements of the traditional royal Newar city have already been enumerated: a palace in the centre, a city surrounded by ramparts, 8 doors in the 8 directions of the universe. Such a description cannot be found in any Hindu chronicle.

What do we find in the centre of Bhaktapur? A five-storeyed temple, the Nyatapol, dedicated to a tantric goddess (Siddhilakshmi) who is supposed to have been the 'istadevata'—goddess chosen by a Malla King. On the one hand, this has reference to the Hindu texts which generally allow for a temple (of Brahma) in the centre of the city and on the other, to the King through the intermediary of the goddess. Without going into details, it is not difficult to recognise here the importance of Tantrism in Newar religion and the special relationship that exists between the King and the female deities (G. Toffin, 1979 and 1980) (cf. also Post-scriptum).

It is rather unfortunate that Gutschow and Kölvers' analysis of the notion of town is not of the same standard as the rest of the book. The city of Bhaktapur is predominantly rural in character—80 per cent of its income comes from agriculture and agricultural castes constitute 60 per cent of the population.[3] The authors have neither given these figures nor commented on them. A comparative study should have been undertaken to fill this gap. But almost nothing has been said about the other cities and villages of the Kathmandu Valley. A comparative analysis would have allowed Gutschow and Kölver to conclude that from a morphological point of view, there is very little difference between the urban and rural inhabitations. In both cases, the houses are similar, except for a few extra decorations and greater use of stucco in the cities. The layout is also identical; all Newar agglomerations—rural or urban—have the same regular alternation of blocks and streets. The localities are always centred around Ganesh and Nasa dya temples as also around courtyards. In other words, it is not possible to distinguish between a rural agglomeration and a city on the basis of construction pattern or layout. The same division between the upper and lower part, i.e., between upstream and downstream are found everywhere and the same festivals and religious processions recreate at regular intervals inter-communal unity. How do we thus define the characteristics of a city?[4] By its economic resources? Certainly, here as elsewhere, commercial activities are an important part of urban life. A city without a bazar, a shop from where the hinterland villagers buy their provisions is unheard of. Patan, Bhaktapur, Kathmandu were all built along trade routes and must have originally developed around a communication network but economic factors cannot be solely responsible for the creation of a city. As we have seen all Newar cities have wards which are rural in nature and till today towns are largely dependent on agriculture; inversely, the Kathmandu Valley and its neighbourhood have a number of micro commercial centres where trade is the exclusive activity and yet it is not possible to term them as cities.

In order to qualify as a city, an agglomeration must have both "political power" and "religious expression". "Political power" refers to the power which the king exercises over his subjects and on the neighbouring villages. It assumes concrete shape in the form of a palace and high walls. In a certain sense the city is defined above all as the royal residence. The "religious expression" desired by the local royal power is the setting up of certain sacred edifices like the circle of the eight mother goddesses or a series of four stupas around the city and the construction of a temple in honour of Taleju near the palace. This dual imperative has been clearly expressed in the chronicles. They always attribute the foundation of a city and the construction of its principal religious monuments to a particular king (for Kathmandu, cf. infra). Above all, the city corresponds thus to an idea, to a concept. An increase in construction activity is not enough to create a city. What is required is the application of a model which tries to reproduce within the walls of the agglomeration the image of the cosmos as sanctified by the gods. The

religious monuments serve as landmarks and refer to the universe.

The chronicles mention in particular the names of two kings who excelled in the structuring of urban space. The first, Sivadeva the Suryavamsi founded the city of Deopatan which was divided into nine localities, 'tol' each colony being provided with a statue of Ganesh, the god with an elephant head. The king built four temples in honour of Bhairav and the same was done for Nrityanath, Mahadev, Kumari and Khandita-Buddha. A statue of the goddess 'devi' was placed in each of the nine directions of the city. The chronicle adds "wherever necessary", gates, wells and canals were built (B.J. Hasrat, 1971, pp. 40-41). Construction on such a vast scale suggests that the layout of religious monuments must have been decided in accordance with a town plan or at least with the basic elements of urban planning.

The second king, Gunakamadeva (942-1008) was the founder of Kathmandu. After having built the present capital in the shape of a sword, 'khadga', he constructed a cremation ground in the west. A statue of Chandesvara was placed in the centre of the city and in the east, a representation of Nila-Kali locally referred to as Lomri could be found. Sanctuaries of Nava Durga Gana were built in "the interior and exterior of the city". A temple for Pachali Bhairav was constructed in the south and the sanctuaries of Lallipitha and Manamaijupitha were located in the north (B.J. Hasrat, 1971, p. 46).[5]

It thus becomes clear that one must discard Eurocentric notions as far as possible: in Nepal, the creation of a town, the passage from rural to urban housing do not in any way imply an abrupt change in construction patterns or a significant difference in economic systems as was the case in the west at the same point in time. In its traditional form, the Newar city is a royal site, consecrated by a King on an ancient commercial site. Let us be clear about the "traditional form", as during the last thirty years the cities of the Valley have changed in a manner which is likely to add a new dimension to the urban phenomenon in the not-so-distant future. But this is a different topic altogether.

N. Gutschow has recently published two very useful articles which highlight the relationship between urban space and religion in the Newar setting. By focusing on Kathmandu, these articles have the further merit of broadening the scope of the previous study. I think it would be useful to give here a brief summary of these valuable works.

The first article written in collaboration with M.B. Bajracharya is entitled: "Ritual as mediator of space in Kathmandu". It deals with the sanctuaries 'sakta pitha' devoted to the goddesses, more often than not to the divine Mother Matrika. As we have seen, it is these Matrika temples which define urban space. Like Bhaktapur, Kathmandu is surrounded by a series of eight divine Mother temples, each temple being located in a particular direction of the universe. What is special to Kathmandu is that beyond this initial precinct, lie two other series of eight Matrika sanctuaries, the first corresponding to the limits of Kathmandu valley and the second to the approximate limits of the ancient Malla kingdoms. The twenty-four holy places form three imaginary 'mandala' diagrams. Whereas in Bhaktapur, the Asta Matrikas are venerated mainly by the Hindus, in Kathmandu Buddhist priests, Gubhajus are responsible for their worship. During the course of the year, the priests must go to all the twenty-four holy places by visiting two places a month. This pilgrimage corresponds to a certain number of Mahayana theological concepts whose full significance can only be grasped by the initiated. The 24 Mother goddesses symbolise first of all the 24 elements, 'tattva' which form the human body and the world. The three octagonal circles also represent the three bodies (Trikaya) of Buddha, as well as the different nervous systems, 'chakra' of the organism. The outermost circle expresses the Nirmanakaya (lit: "the changeable body") or the body of transformation which is made manifest in the human Buddha. This circle corresponds to the head. The intermediate circle symbolises the Sambhogakaya (lit: "body of tranformation") or decorated body represented by the five Buddhas, and corresponds to the throat. The third circle, which is the innermost circle, expresses the Dharmakaya (lit: "body of the law") which stands for wisdom—essential, permanent and unchangeable. This circle corresponds to the heart. By going around the three circles, the Newar Gubhajus traverse the body of Buddha and seek to attain perfect control over their being. The journey is a veritable voyage in the cosmos and within the psychic body.

The second article is entitled; "Kathmandu: Historical development, spatial structure, social and ritual topography" (1979).[6] I will discuss only the major points.

Legend has it that Kathmandu was founded in the 10th century by King Gunakamadeva following the prophecy of the goddess Mahalakshmi. Gunakamadeva must have also constructed a certain number of temples in the city (Pachali Bhairav, Indreni-Lutiajima, Bhadra-kali, Asokavinayak) and established several festivals including Seto Machendranath and Indra jatra. But N. Gutschow believes that the original centre of the agglomeration must have been developed long before, along a trade route stretching from Kirtipur to Sankhu and joining India to Tibet. The author thus highlights at

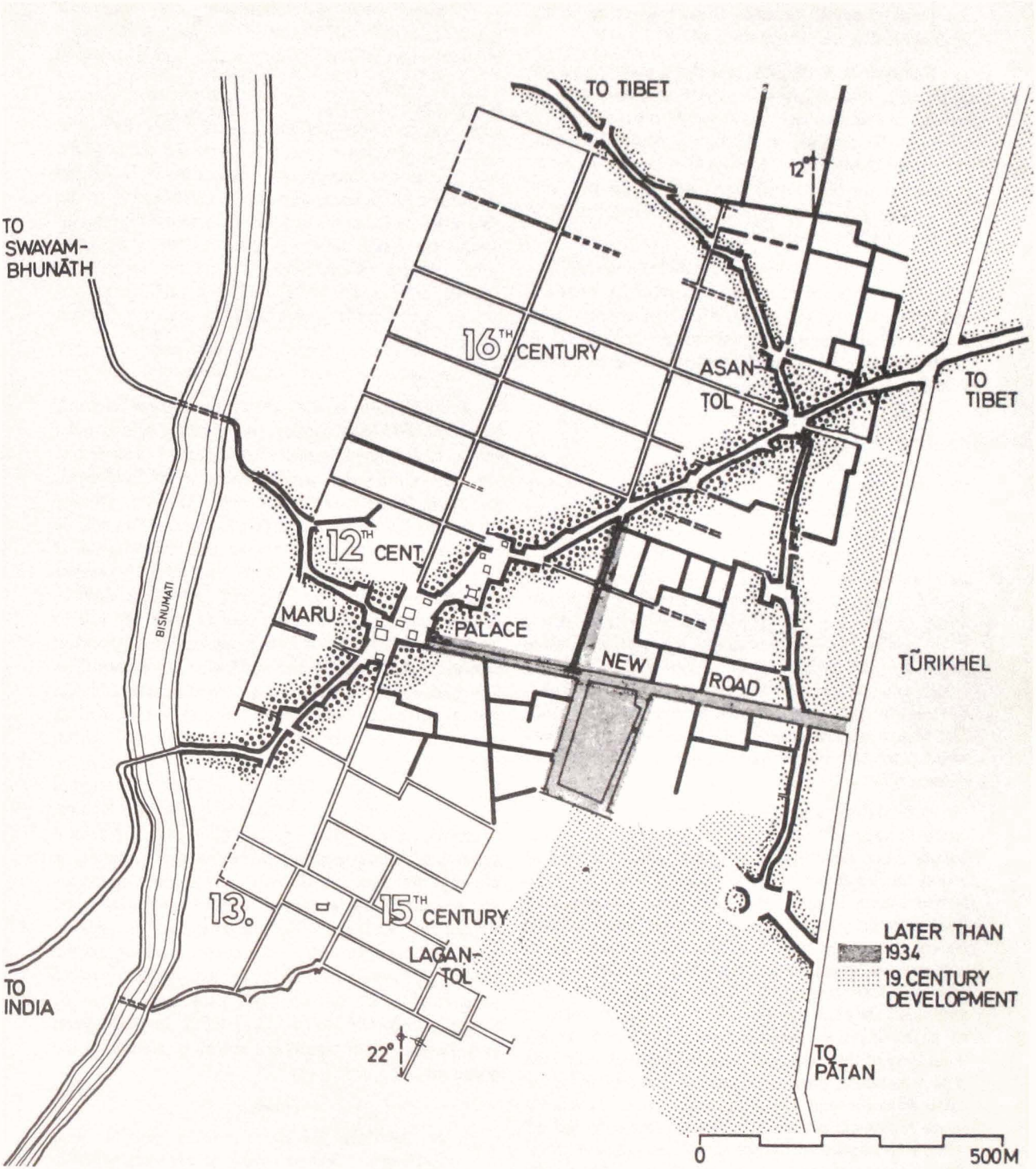

Fig. 2 — Development of urban network of Kathmandu
(Extract from N. Gutschow, 1979)

the outset the role of trans-Himalayan trade in the development of the Newar civilisation.

Kathmandu is divided into three main parts: the upper city, 'thatwa", the lower city, 'kotwa' and the middle or central city, 'dathutwa' where the palace is situated. The central part, the oldest, dates back to the 10th/12th centuries. The agglomeration stretched southwards in the direction of the lower city, and between the 15th and 17th centuries grew in the north, in the direction of the upper city.

The city is further divided into eighteen wards 'tol', defined in relation to three religious elements: a Buddhist Monastery 'vihara', a Ganesh temple and a Nasa dya sanctuary. In contrast to Bhaktapur, in Kathmandu Buddist monuments play a major role in the internal structuring of the city.

N. Gutschow highlights the religious importance of the centre. In Kathmandu, the centre, i.e., the palace, is: "the meeting point of all major processions," (p. 250). The pillar 'yomsi', erected in front of the palace during Indra jatra, the main festival in the month of September, represents the holy centre of the city and the 'axis mundi' which unites heaven and earth. As I have shown in a previous article, at the time of this festival held annually, the King seeks to renew his royal power by asking the living goddess Kumari for her benediction (G. Toffin, 1979, p. 62). N. Gutschow draws attention to a rather suggestive indication which I had not taken into consideration: according to certain traditions, Kathmandu have been founded during the Indra jatra. The festival can therefore also be viewed as a ritual which provides recreation of the city as well as a return to the origins.[7]

N. Gutschow's article on Kathmandu (1979, p. 250) seems to suggest that "urban space has a cosmological quality", but the cities of the Kathmandu Valley also reveal the fundamental importance of territory in the Newar society from a sociological point of view. And finally, territory, whether urban or rural, transcends the Newar lineage or caste ties. The wards appear to be autonomous spatial units. All castes (except for the untouchables) worship the same god Ganesh; to burn their dead, they take the same funeral route, irrespective of caste. At the time of festivals, all the deities, regardless of their status in the pantheon and their links with a particular caste, are taken around the city in the same direction and along the same route. When the urban settlement is divided into two constituent halves, when it lies between two poles, one associated with the Brahmins and those who renounce the world and the other with the Kshatriyas, elaborate rituals are performed at regular intervals to reaffirm the original unity of the city.

Territory acquired this dimension only because it has a centre and this centre is one way or the other invested with political power: whether it be a king or a local chieftan. The agglomerations constitute an organised coherent unit only because they have been in some way predetermined by political power. Except in Bhaktapur, the palace always occupies the centre of the city. The king creates the city, determines its limits and shapes the religious configuration with the help of the Brahmins. By financing and presiding over the important communal rituals, the sovereign reconstitutes the unity of the territory and maintains its integrity. Amongst the Newars, urban space is definitely a royal attribute and the concept of territory is defined essentially in relation to local power.

Post-scriptum

B. Kölver's article, "A ritual map from Nepal", published in 1976 reached me too late to be able to make use of it for the purposes of this study. The article discusses a religious map of the city of Bhaktapur, painted about fifty years ago by a 'Chitrakar' (Newar painter) under the direction of a Brahmin. The map is interesting as the goddess Tripurasundari has Bhadrakali and Bhairav by her side and not Nyatapol (Siddhilakshmi) who figures in the centre. Tripurasundari (who does not play an important role in local cults except for Dasai) is thus considered by certain priests as the ritual centre, symbolic of the city. The principal deities of the city, in particular Asta Matrika and Asta Bhairav are arranged around her. B. Kölver points out however that this arrangement which corresponds to the geographical reality cannot be explained by classical Indian tradition and that there is no link between this goddess and the two deities, Bhadrakali and Bhairav who surround her. The central position of Tripurasundari must be due to her antiquity in the city: the chronicle *Gopalaraja vamsavali* mentions that Ananda Malla, the founder of Bhaktapur established a royal city "endowed with Tripurasundari". In Panauti also, Tripurasundari occupies a central position but the sanctuary of the goddess is situated just by the side of the what remains of the old royal palace (V. Barré, P. Berger, L. Feveile-Berger, G. Toffin). In Kathmandu and Patan, Tripurasundari worship seems to be unknown.

Notes

1. N. Gutschow has also published, with A. Auer (architect), a German version of this study, differing slightly in places, entitled: *Bhaktapur. Gestalt, Funktionen und religiose. Symbolik einer nepalschen Stadt in vorindustiellen Entwicklungstadium* (1974).
2. The case of Panauti poses a problem. Even though the site near Namuda has played a key role in its history,

this small town has today an 80 per cent Hindu population as is the case in Bhaktapur. None the less, the old royal palace is situated in the centre. My hypothesis will thus require slight modification or clarification which only local history can provide.

3. Cf. *Kathmandu Valley. The preservation of physical environment and cultural heritage prospective inventory*. Vol. I (1975).
4. In Newari, there is no clear terminological distinction between city and village. Undoubtedly, the Newars use the Nepali words 'gau' (New: 'ga') for village and 'sahar' or 'nagar' for city, but they generally use the word 'des' (deh) which can be applied to both categories of agglomerations.
5. In their recent book on Newar art (1979), A.W. Macdonald and A. Vergati-Stahl cite an oral tradition which dates the religious structuration of Bhaktapur back to Jitra Malla, a 17th century king. This could be confirmed by the construction dates of the main Sivaite temples which establish the cosmological image of the city (1979), pp. 94).
6. Extract from: *Kathmandu City*. Innsbruck (1979).
7. From this period onwards, N. Gutschow has turned his attention towards a comparative study of the urban spaces of the three large cities in the valley: Kathmandu, Patan and Bhaktapur. Two publications of his which have appeared recently in the review *Aarp* are "Ritual chariots of Nepal" (1979) and "Functions of squares in Bhaktapur" (1980).

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TRADITIONAL NEWAR BUILDING PRACTICES IN THE KATHMANDU VALLEY

Marcel Le Port

Foreword

As part of the *Encyclopedia of Professions*, brought out by the Fellowship of Duty Workmen, an authoritative work spanning over 10 volumes devoted to frames and construction in wood is under publication. Volume I throws light on the Humanism of the carpenter and a series of studies discuss the great wood civilisations of the world. Of special interest are: 'Traditional Wooden Architecture in Japan' by Professor Kenji Hirose of the Musashi Institute of Technology at Setagaya-Ku; 'Ancient Wooden Constructions in China' by Professor Mo Tsung-Chiang of the Tsinghua University in Peking; 'The Frames of Southern India and the Hinduised States of Cambodia and Indonesia' by Dumarçay.

The present study is a part of this endeavour. We felt it would be useful to give an account of it in order to supplement the data already available on East, South and South-East Asia.

The multifaceted character of Newar architecture in the Kathmandu Valley convinced us that the study of this particular form of architecture was very much in line with the kind of work we wished to do. After getting in touch with the Embassy of Nepal in Paris, we were to meet Corneille Jest, formerly in charge of the G.RE.CO Himalaya at the C.N.R.S. and Gérard Toffin, member of this team and author of a work on Pyangaon, a small Newar village of the Kathmandu Valley.

Much as we would have liked to collaborate with a Nepal specialist, given the difficulties in doing so, we decided to study the traditional techniques of that country ourselves.

The present article is the result of the journey we undertook. Unlike the other studies belonging to this series, it is the work of a Carpenter Companion of Duty.

Introduction

It is difficult for a foreigner, however well versed in carpentry he may be, to grasp immediately all the details of the frames of a country other than his own. This is obvious to a Frenchman, for example, when he examines a German or British frame as such frames are a reflection of the skills acquired by a professional group in a specific context. If this holds true for our immediate neighbours, it is all the more so when one changes continent and moves from Europe to Asia, a universe far apart with its ancient civilisations and infinitely rich architectural heritage.

The subject may be dealt with in two ways: one can choose to give a factual account, i.e., a simple description of the principles adopted or provide an indepth study, requiring detailed analysis of the principles applied, their functions, uses and if possible, the changes, alterations and improvements carried out over time.

The latter procedure is made all the more complex in the present case as here frame making does not constitute an isolated, self-sufficient technique: it is linked to masonry and joinery and supports the roofing. These three crafts, by virtue of their specificities, require special framework arrangements. Besides, the frame is conditioned—at least in certain parts—by the manner in which space is used. This is particularly true for the Newar houses in which the attic, favoured spot of the women, acts as a kitchen and common room where meals are taken. The edifice to be constructed, its dimensions, the materials available, climatic factors, etc. have a considerable bearing on the design of the different elements built. Finally, when an individual has to work with a given material, he chooses layout and uses assembling techniques that will protect the building from misshaping and help it keep its original shape and condition for as long as possible.

Moreover, a Western carpenter does not reason in the same way as an architect; both receive a training specific to their profession, which lead them to observe different phenomena or perceive things differently.

In addition, our knowledge of the general history of Newar construction in the Kathmandu Valley extremely limited and our inability to understand the various languages spoken in the country along with English prevented us from being able to read the few works written on the subject. Finally, reasoning like Westerners, we can grasp only the functional aspect of the patterns used, their spiritual and religious dimensions escaping us completely.

Aware of the scope of the subject and the gaps in our knowledge, we decided to divide the study in five parts. The first part dealing with the materials used—mainly bricks and wood—describes the manufacturing process, the varieties of trees used and their most frequent usage. The second and third parts pertain to construction techniques and deal with the way in which materials are used in ancient monumental and domestic edifices as well as in contemporary habitat. We have concentrated in particular on traditional methods though the positive aspects of some modern solutions (e.g., use of reinforced concrete) have been mentioned, others which seem negative to us (corrugated sheets for roofing) have not been discussed. The fourth part describes part of a royal building and a Hindu monastery. The edifice or the building chosen for this purpose was the Basantapur Tower constructed in the Hanuman Dhoka Palace, Kathmandu. The Jangam caste monastery is located in Panauti, a small city situated 25 kms form Kathmandu. Even though Indo-Nepalese priests reside here, it was constructed entirely by Newar artisans and it is for this reason that we are studying it. The fifth part deals with various aspects of the life of a Newar carpenter: his training, tools and methods of work, so different from ours.

We would like to thank in particular Corneille Jest and Gérard Toffin for their help in the publication of this work. They told us all that they knew about Newar construction techniques in the Kathmandu Valley, put us in touch with people who could be of help to us and gave us all the information that we required. We would like once again to express our gratitude to them for without their help we would have probably never gone to Nepal and this work would have been written.

Materials Used

As one enters the Kathmandu Valley, it soon becomes clear that crude or baked clay bricks are the most frequently used construction material. However, it does not take long to realise that wood also plays a vital role, especially in the joinery and framework. In the ancient edifices, impressive by virtue of their size, it is rather difficult to distinguish these two materials as they are used in close association even for the construction of walls.

Bricks

The bricks are made of clay extracted with a hoe from a field which has been rented for the harvest period and situated at the immediate periphery of the village or city. The clay is watered and kneaded by hand in the form of a ball and then packed into a wooden mould which has been previously coated with a yellow powder so that each brick can be easily removed from the mould.

The bricks are of standard size and often measure 24 x 12 x 7 cms. But they can reach 21 x 14 x 5.5 cms and it is quite possible that their original size was 21 x 14 x 7 cms. The bricks are then piled up, covered with straw and dried for three days in the sun. When they are used for the construction of sheltered inner walls or modest houses, the bricks are used in their natural state.

However, if the bricks are to be baked, they are piled one on top of the other, forming an oblique parallelepiped about 5 m high and 6 m wide. Charcoal or peat is inserted at regular intervals and two to three openings are made at the base to feed the hearth. Bricks have to be baked for 48 hours, requiring a large amount of wood; as a result they are rather expensive and this explains why crude bricks are still widely used.

Wood

Unlike clay, construction wood has become a scarce commodity in the Kathmandu Valley. It would not be wrong to say that following the recent clearing of forests and extension of cultivated area—necessary because of population growth—this part of the country is currently facing an acute shortage of wood. The main varieties used are 'ograth' (Shorea robusta), 'gwaisasi' (Schima wallichii), 'salla' (Pinus roxburghii) and 'utis' (Alnus nepalensis). The first preference is a very good quality red tone wood, hard and rot-proof, obtained from the Terai. The other three varieties grow on the hills surrounding the Kathmandu Valley. The 'ograth' is used for external woodwork and the exposed parts of the frames (such as the columns of the peristyle). The 'gwaisasi' is also a hard variety of wood but its quality is inferior to the 'ograth'. It is used for joisting, rafters and sometimes for the frame as a whole. 'Salla' is a pine species, used to make joists and staircases. 'Utis' is the Nepali name for alder; due to the prevailing scarcity, this wood, despite its mediocre quality, is used in the form of joists crudely squared with an axe.

The varieties mentioned above are used without any protective treatment. Such treatment is not required for the first two varieties in any case as they are unalterable or only slightly alterable. On the other hand, the other two are attacked by deathwatch beetles, apparently the only xylophagous insects in the valley. The wood section is generally a square: 8 x 8 cm; 8 x 10 cm; 12 x 12 cm; 12 x 15 cm; 15 x 17 cm. Long sections are rarely available. In their previous form they were squared with an axe or a small adze which the Newar carpenters wield single-handedly with remarkable skill.

Currently, although both the old methods are still made use of on a regular basis, wood is cut with a long saw by the artisans, or with a mechanical saw by the merchants. The current in the valley is not powerful enough for the carpenters to use machines in order to cut extremely thick wood. They therefore buy beams which can be cut later on with the help of a long saw.

To transport the wood from the timberyard to the place of utilisation, the beams are hung with ropes on four or five sections of bamboo which eight to ten people standing in two rows carry on their shoulders. This extremely slow method of transportation requires perfect coordination and this is what hinders the economic development of the country.

The beams are lined off with the help of a string covered with a black powder[1] and wedged in a triangular brace placed on the ground while the transoms are clamped with two pegs which give them the desired slope. In addition to this method of supply and cutting of wood, the peasants living in the hills at the outskirts of the Kathmandu Valley buy squared wood in the winter months.

Construction Techniques used in Monuments

Newar monuments are of various types; for the purposes of this article, we have chosen temples with superimposed roofs to study the particularities of monumental architecture. Numerous sanctuaries of this kind can be found in the Valley but the oldest only date back to the 15th century, the majority having been constructed between the middle of the 17th century and the 18 century.

Greatly influenced by Indian architecture, the Newars were none the less able to make use of construction techniques which though not indigenous are quite original. If we have reservations in this regard, these are on account of the masonry and the integration of the joinery in the walls, though the joinery itself is an extremely elaborate work.

Newar temples are mainly in the form of square towers, with a brick body having several superimposed roofs (generally an odd number). As the towers rise, the number of roofs decrease. A rather large portion of the roofs juts out and this is supported by diagonal ties the base of which is blocked in the coping of the cornices, which along with the sculpted ends of the joists form a peripheral frieze on each level.

The Masonry

The masonry consists essentially of the building foundations and the elevation of the walls. We have nevertheless mentioned the problems raised by the use of modern braces to stiffen the very thick walls and increase their resistance to collapse, and the boring of openings.

The Foundations

As a general rule, the edifice is built on a solid mass of stonework footing which forms a raft comprising several levels. Symbolically, this is supposed to raise the edifice and from a technical point of view, the weight of the upper construction is distributed over a very wide area. It is possible that this solution has been used due to the fact that the Kathmandu Valley is an alluvial plain where the hard ground is at such a depth that it is neither possible nor necessary to dig that far down. On the other hand, in regions where it is possible to hit rock easily the constructions are built on foundations. Depending on the size of the building, the raft is either built of bricks and the step edges lined with stones or wood, or it is made of drafted freestone, at least the external facings and the flooring.

The Walls

The walls of the tower consists of several layers and they may have a thickness of two metres. In the centre is a room that houses the image or the statue of the deity to which the temple is dedicated. As a general rule, these walls rest on the upper platform of the raft and the outermost wall reaches below the first roof after having been interrupted by the frieze and cornice situated at the level of the first joisting. The slopes of this roof stop against the wall which constitutes the second layer of the edifice. This layer in turn touches the next roof and the process goes on till the highest wall, with reduced dimensions which allow one to build directly on the last joisting (fig. 1).

In addition to this type of construction which may be considered as the purest form of the Newar temple, there exists another form which differs in the way the first layer is dealt with and which is far more interesting for the carpenter.

In the second kind of design, the external wall is interrupted at the level of the first joisting and wooden

pillars reach the upper platform of the raft. A peripheral peristyle is thus built around the building and it is the second wall which forms the outer wall sides of the room where the deity is placed. The framework of the various roofs is similar to that of the other edifices but the construction of the peristyle has led the Newar carpenters to choose extremely interesting arrangements, in particular at every angle of the edifice (fig. 2).

Wall building techniques differ perceptibly according to the size of the edifice as they are related to the weight of the whole edifice and are conditioned by the fact that the resistance of the walls decreases as and when their length and height increase. In the case of small or medium sized buildings, only baked bricks joined by clay are used to construct the walls. The bricks are placed at the parting of the joint (fig. 3a) but the joints are rather fragile due to the degradation caused by rain water that splashes at the base of the walls. To overcome this problem, the Newars thought of bricks opening out towards the exterior in such a way that borders of the neighbouring bricks touch each other and the joints are completely hidden and protected against inclement weather (fig. 3 b). This solution gave rise however to an even greater defect as the pressure exerted on the walls produced uneven settlings in the facing. The mortar, more supple than the bricks, settled towards the inside of the walls whereas on the external side the brick borders were in contact with each other. The continued pressure made the facing bulge out after disuniting it from the body of the walls. In order to overcome this shortcoming, bricks widening out symmetrically were manufactured but their use seems to be quite restricted (fig. 3 c).

In large edifices built in the form of an unequal sided quadrilateral, such as the Basantapur Tower, in the Hanuman Dhoka Palace at Kathmandu, the fact that only clay was used to join the bricks did not enable the Newars to build sufficiently resistant walls (due to earthquakes ?). But in this the Newars are not alone as the ancient Mesopotamian civilisations encountered the same difficulties and made use of the same procedures. These consist of building an extremely resistant skeleton composed of beams assembled and joined together with transoms and girders acting as an armature for the brick walls, somewhat like steel which serves as an armature for the cement used nowadays (fig.- 4.). The introduction of such an ossature is also favoured by the fact that the red shade of the wood used goes very well with the colour of the bricks. And the genius of the Newar people has enabled the elements necessary for wall resistance to act as supports for the carved motifs that decorate the external facings, that smooth surface is certainly not designed to receive the profusion of mouldings and carvings that can be seen elsewhere. Thus the undulating figures of serpents stretch across the girders raising their heads at the end of the transoms superimposed at each extremity.

Stiffened in this way, the walls acquired stability. Nevertheless, probably due to the reduced foundations which did not rest on firm ground or to ward off the danger of the longitudinal walls yielding—their greater length (in relation to the transversal walls) being the reason for their low resistance—the Newars made use of the joisting on each floor as ties designed to keep a constant distance between the walls. Till the arrival of cement, this role was fulfilled in our country by plank beams and the tie beams of the frame trusses.

The Openings

Apart from the way in which the masonry is carried out, the borings provided for the window and door openings always pose a problem with which the mason has to deal. In the Kathmandu Valley, this problem is greatly simplified as the windows are fitted before the masonry and the bricks are shaped in conformity with the specifications of the frames already fixed. If the edifice is of reduced dimensions, the windows at the first level are restricted to a single work in which the door is eventually incorporated. This work is placed directly on the paving of the upper platform of the raft, facing the deity housed inside the temple so that is possible to perceive it from the outside. In larger edifices, it is common practice to place a window of reduced dimensions in the middle of each of the sides of the building. In such cases, the frames are fitted when the masonry has attained the desired height. One or four windows are fitted on successive floors in the same manner.

The desire for a certain amount of natural light within the building and the need to release space in order to accommodate the flaps of the doors naturally led the Newars to provide for splays in the masonry which is often of a great thickness. The solutions adopted are the carpenter's responsibility as the splays are made of two or three wooden frames which increase in size towards the interior of the edifice, and of lintels placed by the side of the high transoms of these frames. Once again, except for the frames, the solutions adopted are the same as those used in regions lacking good quality stone that could be used to make monolithic lintels or drafted archestones.

The Framework

While examining the different aspects of the framework of Newar edifices, we will begin with roof frame, move

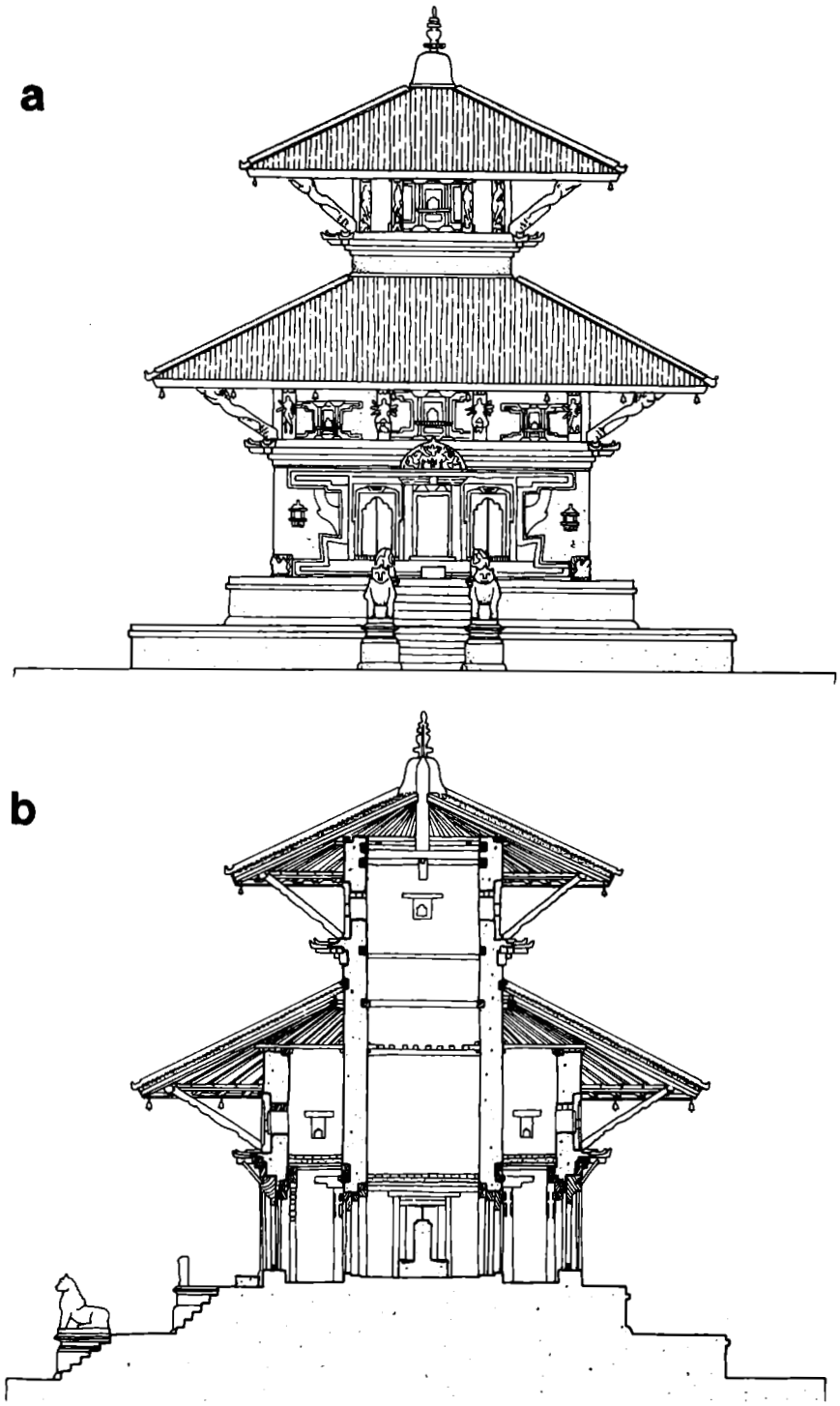

Fig. 1 — Car Narayan Temple at Patan (XVIth century) (W. Korn, 1976)
a. front view; b. transversal section

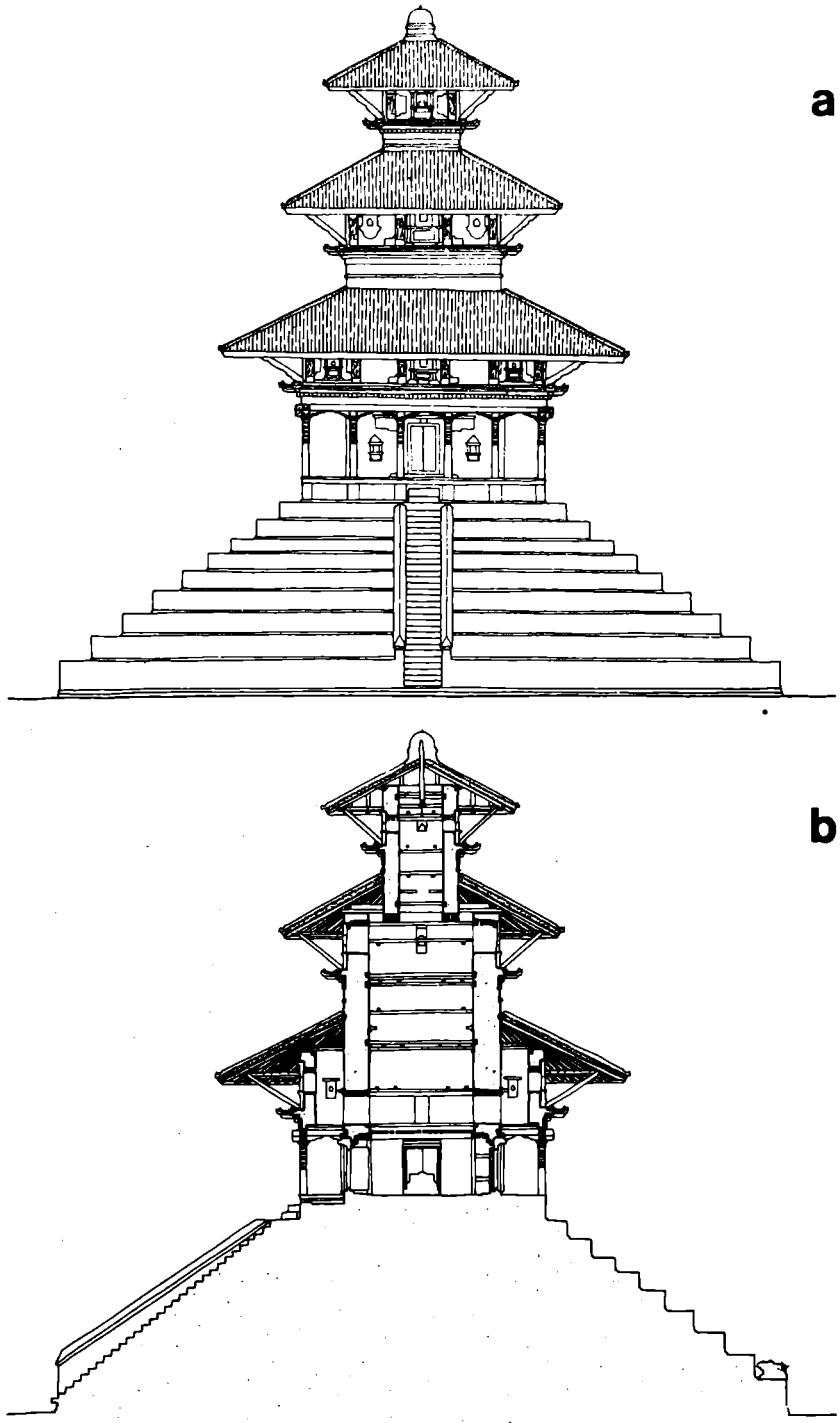

Fig. 2 — Maju Dega Temple in Kathmandu (XVIIth century) (W. Korn, 1976)
a : front view; b : transversal section

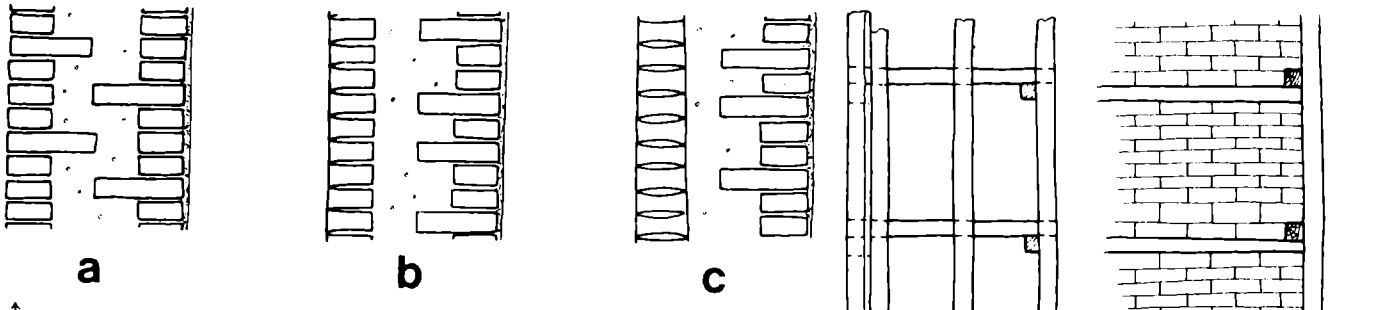

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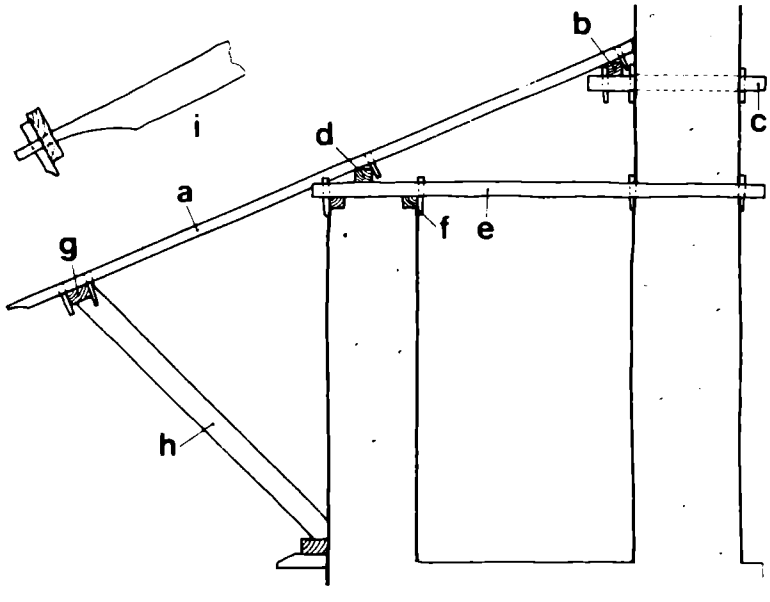
Fig. 3 — Brick masonary : a) bricks with parallel faces; b) bricks opening out to the exterior and principle of wall deformation;c) bricks opening out symetrically.



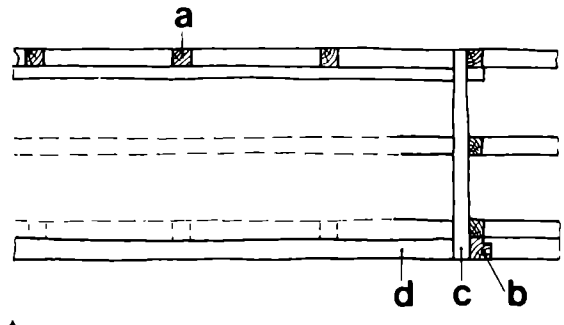


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Fig. 4 — Wooden armature to stiffen the thick brick walls — a : pole; b : door-frame-pole; c : transom; d : girder

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Fig. 5 — Section showing frame principle of one of the temple roofs — a : rafter; b : ridge pole; c : Bracket; d : wall plate; e : transom; f : girders; g : wall plate; h : diagonal bond; i : blockage of the string-course by a peg.

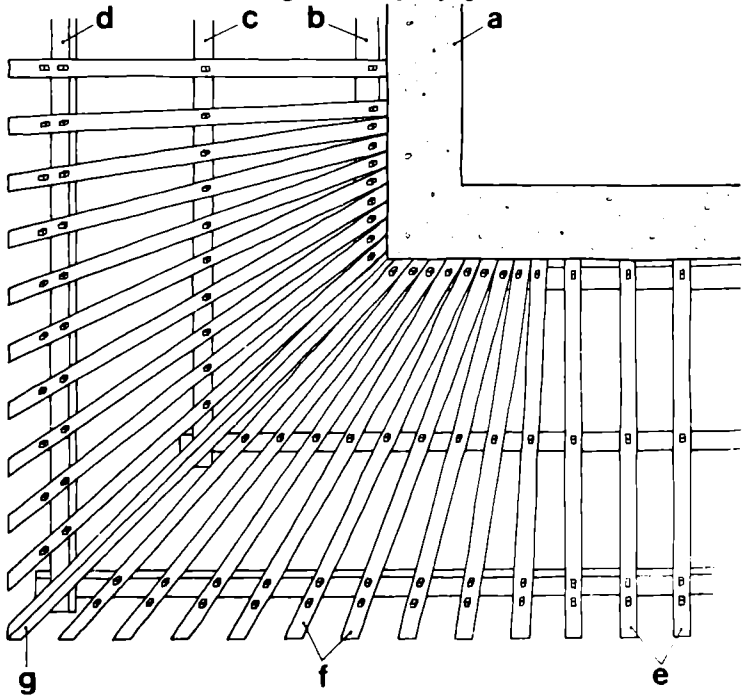

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Fig. 6 — Positions of the rafters in the angle of an edifice — a : wall; b : ridge pole; c : purlin; d : wall plate; e : perpendicular rafters; f : spread out rafters; g : hip rafter.

on to the floor and finally the peristyles built at the periphery of some temples. In addition, as a few openings of some edifices are fitted with columns, we will discuss the patterns they form as well as the peristyles.

The Framework of the Roofs

The framework of the different peripheral roofs found at every floor of the temples is very simple in its principle. The walls which form the successive layers are never very far from each other and the rafters can often stretch from their upper support up to the extremity of the projection without it being necessary to use parlins and trusses.

As a general rule, though here also there are slight differences the framework consists of a ridge pole supported by wooden brackets placed at a distance of one to one and a half metres from other. The brackets go right through the wall and the two extremities are fixed with wedges which exert pressure on to both sides of the wall.[2] The ridge pole is pegged on the brackets and in turn, the rafters are pegged on to the ridge pole.

A wall plate placed at the base of the wall rests on pieces that could be termed as tie beams, but as they do not receive the roof rafters, we prefer to call them transoms. The transoms, arranged at the same distance as the ride pole brackets, are fitted in the two parallel walls and extended by 15 to 20 cm beyond their sides. Here again, one finds the same clamping by means of tightly fitted reinforcing pieces on both sides of the wall. The transoms rest on the girders which form a series of peripheral clamps of the outside wall, and provide them with a more regular support than the face of a row of bricks. Besides supporting the wall plates, the transoms probably join the two walls as well. The rafters are wedged on both sides of the wall plates with the help of reinforcing pieces; they are extended at the extremity of the projection where they are supported by a wall plate placed at a slope against their under face.

The wall plate is supported by thick diagonal bonds, admirably carved and generally inclined at an angle of 45°. At the head, these bonds comprise a cut under the wall plate as well as a burr[3] behind it, in order that it may be maintained in its exact position, whereas at the foot, the bonds are provided with a level cut which rests on the coping of the cornice as well as with a perpendicular cut applied against the face of the wall. There is thus no kind of sealing in the masonry and it is only through the load transmitted by the roof that they are blocked into it.

The rafter ends are shaped like the mouthpiece of a flute so that their height can be reduced to about 3 cms and they may thus receive—by tenon and mortise joint—the string course intended to stop masoned layer of earth used to seal the tiles of the roofing. Eventually, a nailed metallic ribbon circles the string course and keeps it attached to the rafters, but this arrangement is rather recent. In fact, it has come to substitute another, more ancient and far more in keeping with the carpenter's tradition which consists of blocking the string course with pins (fig. 5).

In the angles of the edifices, whether square or in the shape of an unequal quadrilateral, the slopes of the roof meet to form a hip rafter. The latter are designed to act as rafters but they are chambered on the upper face so that the support of the roofing rests on a flat surface.

The horizontal components, like the ridge pole and the wall plate are joined together with halved joint notches and, at the angles, they extend beyond the joints. Placed as they are, the making of such joints does not present any particular problem. On the other hand, the wall plates, due to the fact that they are placed at a slope and the bonds situated in the angles, could have created problems far harder to solve especially in the case of the cuts to be executed at their ends as well as the fixing of the section of the bonds.

However, the cuts made at the point of meeting of wall plates rarely stick together in a perfect manner and we can assume that they have been shaped without referring to an exact drawing. Similarly, it is frequent that the bonds intended to relieve the roof angles preserve a rectangular section at the base and at the top, while they are sculpted along a significant portion of the length. It is thus highly probable that they were made without the help of a diagram which would have enabled chamfering, determination of length and tracing the cuts which they have at the base and at the top. If they are straightened with the other bonds this is simply due to the fact that their edges are situated at the angles of the horizontal plans the sides of which determine the base and the top of such bonds. However, the drawing of the hip rafters must surely belong to the Newar carpenter's repertoire as the components situated at the angles of some openings are diagonal in both directions.

To get back to the general frame layout, it has been noticed that the running rafters, i.e., those placed at right angles to the eaves of the roof, stop near the top of the hip whereas the others spread out somewhat like a fan all the while maintaining a visibly regular spacing between themselves in the alignment of the string course (fig. 6). There are thus no jack rafters of the kind we find in our frames and the outline of the hip cross-beams which enables the determination of their length and cut is not necessary for the Newar carpenter.

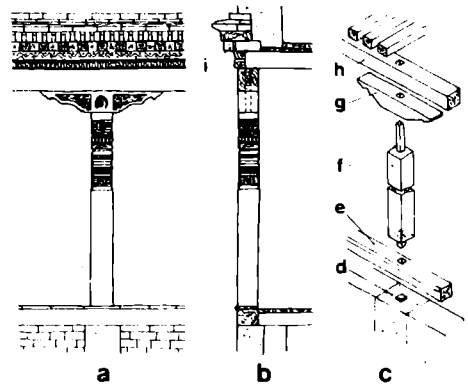
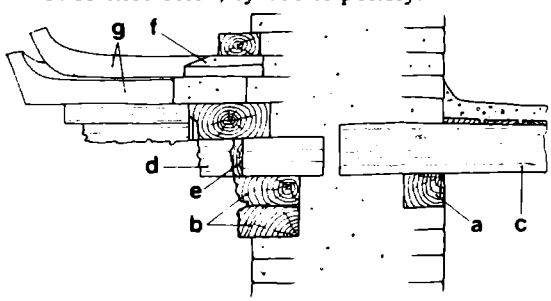


Fig. 8 — Simple colonnade peristyle — a : front view; b : section; c : exploded perspective; d : stone dado; e : beam; f : column; g : sub beams; h : architrave; i : frieze

↓ Fig. 7 — Detail of a frieze situated at joist height. a : girder; b : moulded pieces; c : joist; d : pieces representing the joist ends; e : joggled cache-moincaux; f : cornice brick; symbolic poltery.



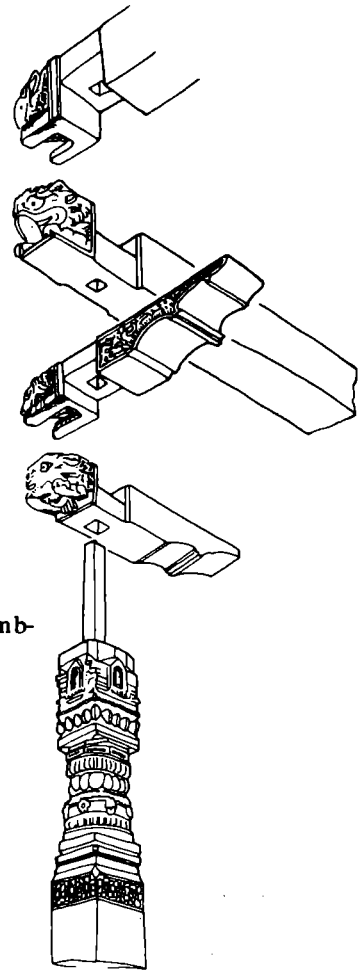
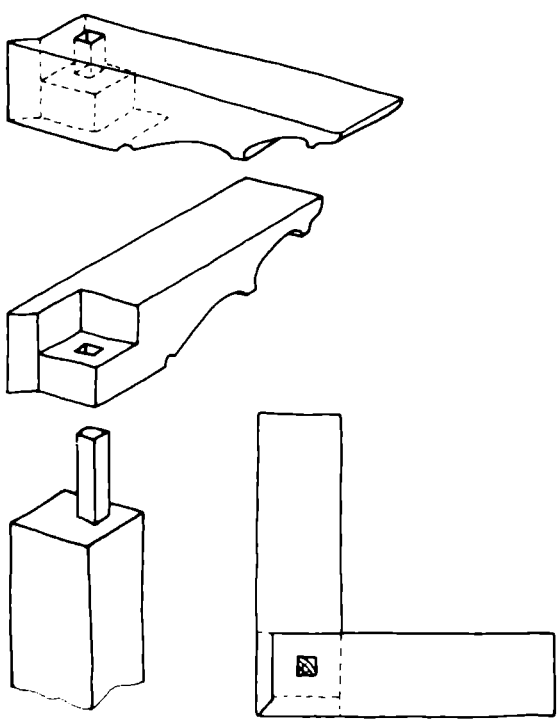


Fig. 9 — Most common-form of assemblage at the peristyle angle.

Fig. 11 — Double colonnade in its most simple form — a : stone dado; b : column; c : abacuss; d : sub-beam; e : principal door; f : joisting; g : wall.

↓ Fig. 10 — Another form of assemblage at the peristyle angle.



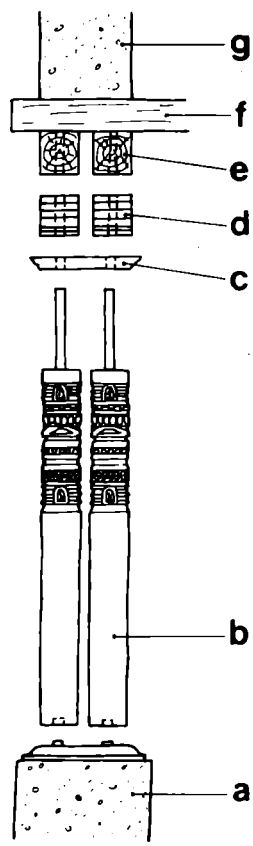
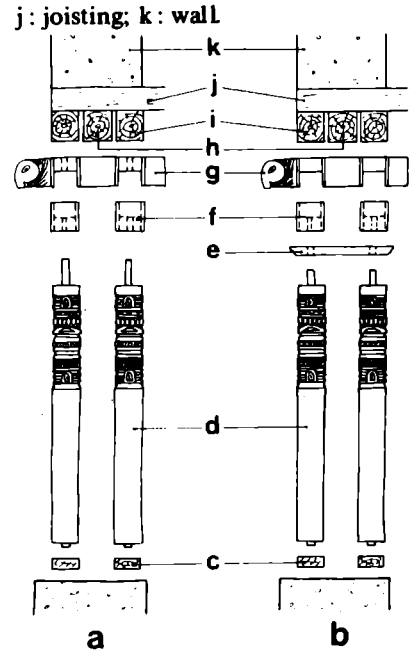


Fig. 12 — Double colonnade adapted to thick walls — a : colonnade with abacus and strut; c : pole plate; d : columns; e : abacus; f : sub-beam; g : struts; h : intermediary beams; i : breast summer; j : joisting; k : wall.



The fanlike arrangement of the rafters placed in the frame angles can be found all over Southern Europe; in France, this stops at the department of Ain but there also it is a case of the shortest rafters. Taking into account the considerable size of the projections of these temples, the arrangement opted for is logical as it translates the desire to see all the rafters resting on three consecutive supports thus conveying a reduced load on the wall plate and making the angles of the roof more resistant.

The frame of the square or rectangular pavilion constructed at the top of the temple has the same general arrangement as the preceding parts. In the case of a square pavilion, a king post is blocked at the base of the last joisting and the hip rafters maintain it in a vertical position. The intermediate rafters are spread towards the centre of the frame, but this is interrupted as soon as it becomes necessary to make oblique cuts on the two vertical faces of the rafters so that they can be extended up to the king post,[4] or if this has already been done, the operation is not executed with a great deal of precision. The king post overshoots the upper portion of the rafters quite considerably and acts as a support to a masonry pinnacle the most common form of which is that of a bell. When the edifice is in the shape of an oblong, the two hips and the two ends of the long section are treated in the same manner as in the previous case. Between the two king posts at the extremities a ridge pole is also placed as a support for the top of the rafters. It is none the less frequent that another king post is placed at the access of the building and this mainly to support a third pinnacle.

The Floor

The floors are made of joists; the distance between them is slightly greater than their thickness, i.e., appx. 15 cm, for 11 x 16 cm sections. These joists are placed edge-wise on girders the face of which touches the wall and in which one out of every four joists is fixed by means of joggles. On the joists either planks in the space between two joists are pinned[5] or terracotta tiles are placed so as to receive a masoned earth form on which the floor should be laid with tiles.

In the case of an edifice which is in the shape of a square and which has several layers, the joists go from one to another of these layers and some extend to the interior and exterior of the edifice where they are blocked by reinforcing pieces so as to reunite the wall between them. In each angle they are arranged in a radial pattern as in the case of the rafters, and four of them, stronger than the others, are placed in the bisector of each angle. In the rectangular shaped edifices, as in the case of the Basantapur Tower at Hanuman Dhoka, the floors form circulation levels and not ceilings as in the temples. In such a case, the joists are placed perpendicular to the two longest sides till just near the angles, where they are also in a radial pattern. Beyond the angle and perpendicular to the smallest sides joists may also be found starting from the external wall and carrying along till the internal wall.

The layout which differentiates these types of edifices pertains to the middle wall, constructed parallelly to the longest walls on which the ends of the joists rest. Here again, the joists are separated from each other by a value which is slightly higher than their thickness, and it is likely that this pattern owes its origin to the fact that the edifice is rectangular in shape as the joists cross each other on the internal partition wall where they are applied practically one against the other.

The manner in which the joistings and the frames are carried out gives one the impression that Newar carpenters did not have thick long pieces of wood at their disposal or perhaps they did not deem it fit to use such wood. Thus it is rare to find beams arranged perpendicular to the largest dimension of the plan. It is the middle walls or lintels supported by rows of columns which support the joists whereas in France beams or transversal joint lines are used.

In the first case, the structure of the floors is thus solely made up of joists, whereas in the second one finds beams and subsequently joists which are placed parallel to the facades preventing any type of linking between the latter.

The comparison between the two principles of construction emphasizes first of all the difference in reasoning when it comes to the problem of the division of space. It also stems from two very different situations. In fact, when walls are made of bricks it would be clumsy to use beams which would place very heavy concentrated loads and might bring about imbalance. On the other hand, when walls are made of stone or when they are formed by a frame ossature, transversal beams may be used without any risk, rather they might even become indispensable for the stability of the whole of which they form working elements and not only bearing elements.

In the Kathmandu Valley it is rather frequently observed that the joists are interrupted at the access of the peripheral walls of the buildings. Along the height of the joist, and on the external face of such walls, a wooden frieze acting as a support for the bricks which constitute the coping of the cornice may be found. At times however, the joists extend to the exterior to form an overhanging intended to support the closed galleries through diagonal carpentry work which go up right up to the rafters of the roof. The overhanging of the joists is

thus relieved by a wall plate supported by the wonderfully sculptured small bonds, the liaison amongst the different elements being ensured by the reinforcing pieces (fig. 13).

It is quite probable that at the outset the joists extended towards the exterior of the edifices either to receive the coping of the cornices or, on a larger scale and still in practice, to form overhangings. In the first case, which has more or less become obsolete, the joists rested on girders placed outside the walls and the vertical space between them was closed by 'cache-moineaux'[6] at the joggled ends. On these joists and still on the outside of the building other longitudinal pieces intended to support the row of bricks constituting the coping of the cornices were placed. Today it is observed that in most of the temples this original arrangement has been somewhat modified as an independent construction forms the peripheral frieze. One nevertheless finds the frieze having the same elements as before, except for the joists which are replaced by other elements which have no more than a decorative function. Besides, at each angle of the edifice, the longitudinal elements intended to support the coping of the cornices are so extended that they provide support to specific and symbolic pottery. (fig. 7)

Such a change must have probably taken place a long time ago; one imagines that it is due to the desire for simplifying construction as well as for aesthetic reasons.

The radial pattern of arranging joists in the angles led to their being diagonally cut and this brought about a progressive widening of their half-wooden, visible extremity. At the level of construction, the neophyte could well ask why some joists seem thicker than others. Besides, as all the extremities of such joists were sculpted with animal motifis, the artist was confronted with different volumes thus making his work all the more complex. Finally, the laying of the 'cache-moineaux' between the joists were also more complex and required a very high degree of precision if a perfect alignment was to be maintained.

For all these reasons, the Newar carpenters must have decided to separate the frieze from the joists and to construct an independent whole, in which specific parts are intended to represent the extremity of the joists but are always perpendicular to the walls.

The Peristyle

The peristyles are galleries made of isolated columns on the one hand and the walls of the edifices on the other. This is precisely the arrangement that has been adopted for some Newar temples where the first peripheral wall is interrupted by a cornice on a wooden colonnade while the second descends to the upper platform of the raft. Similarly, the large openings made on the ground floor or storeys of other buildings are provided with colonnades which are very similar to those encountered in the peristyle. Let us study them now.

In accordance with the size of the edifice, which determines the thickness of the walls, the columns may be arranged in one, two or three successive rows so as to support all the beams which form the breastsummer or the architrave of the cornices. Similarly, in accordance with the number of lines of columns or simply in order to find other technical solutions, the arrangements encountered also differ.

In the temples, and in their simplest forms, the arrangements adopted are the following (fig. 8): the dados in stone, the face of which touches barely the ornamentation of the last notch of the raft, are placed vertically along each column. Horizontal beams provided with a projection similar to that of the nosing of a step are placed on these dados. The columns are joined to the beams by means of thick wooden studs; at their upper extremity, they receive sub-beams so as to reduce considerably the bearing of the architrave on which rests the frieze of the cornice. Here once again, strong square tenons are made at the ends of the columns; they cross entirely the sub-beams and the architraves.

On each side of the edifice, the architrave is made of a single length beam, normally extending beyond the angle columns. In such a case, the sub-beams placed at this spot are less extended, and the extremities of such parts are generally sculpted in the form of dragon heads. To the right of the angle columns, the sub-beams and the architraves are joined by means of a halved joint notch assemblage. Miter cuts of a depth of about 3 cms are made along the notch assemblage so that the withdrawal of wood may not be apparent on the faces of the assemblages (fig. 9).

Even though this is the most resistant arrangement and thus the most satisfying in terms of construction, it is not always necessarily retained. In fact, at times, the sub-beams and beams constituting the architraves are interrupted at right angles to the angle columns (fig. 10). They are then joined to each other by halved joint notch assemblages provided with a projection and a miter cut so as to hide real form of the joints and the end of the beams, thus the wood seen from the end, would seem to the eye as being a material of a different type.[7]

These two forms of joints are particularly interesting as they are used in France in similar cases to carry out very meticulous works. It may be noted that despite the thousands of kilometres which separate them, men

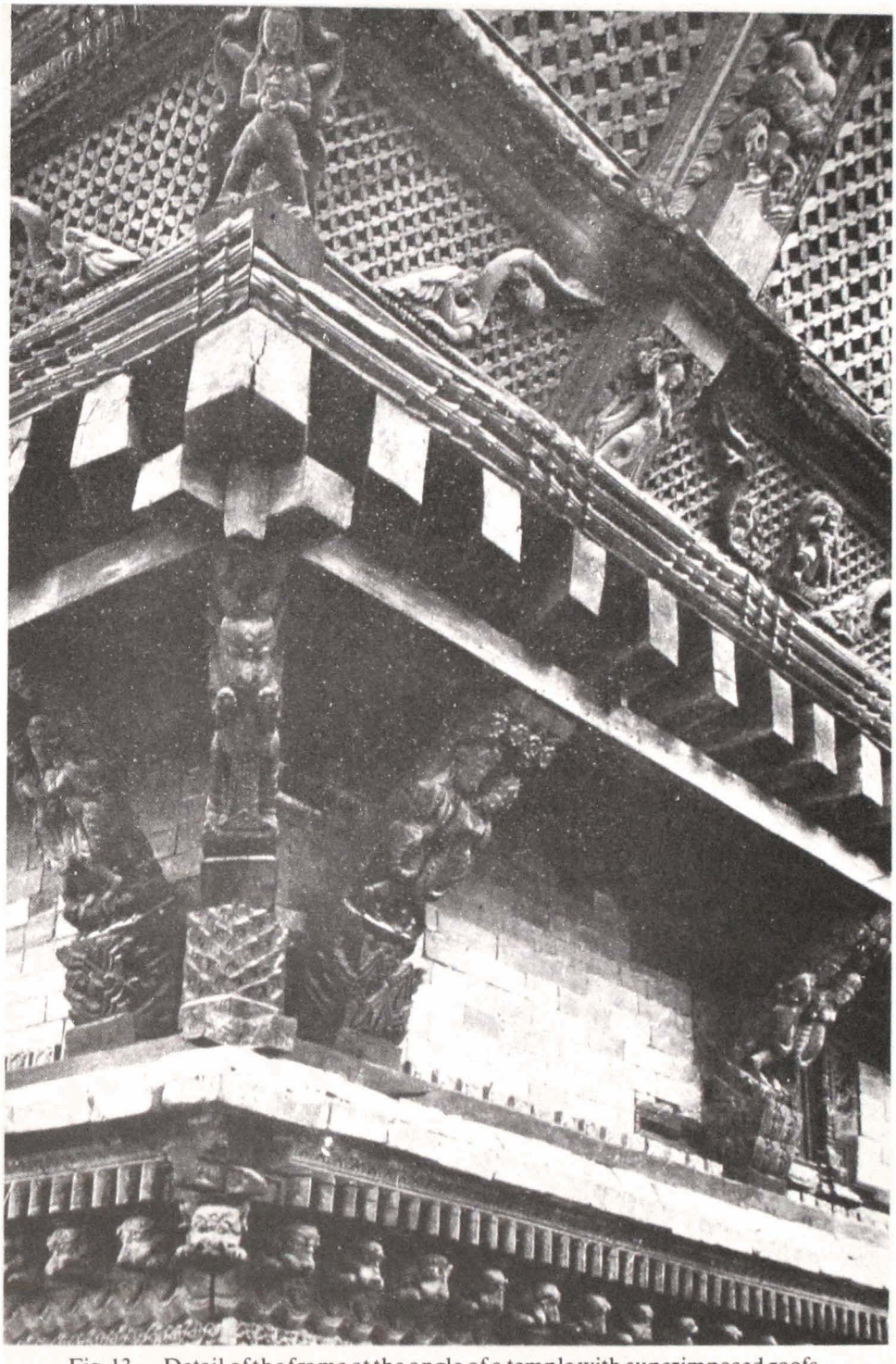


Fig. 13 — Detail of the frame at the angle of a temple with superimposed roofs.
(Cl. M. Le Port)

confronted with similar problems and materials have adopted the same aesthetic and technical solution in order to solve such problems.

When the walls are thicker, the columns are arranged in pairs and separated from each other so that their external facings are vertical to the ornamentation of the walls. Thus, they lie on a dado common to each pair so that the foundation behaves in the same way for each of them. At the foot, they are maintained by a stud, and the head, they are joined to each other by an abacus, a kind of thinnish plank, to prevent gap widening between the two columns under the effect of varying pressures that the two faces of the wall may transmit to them. On this abacus rest the sub-beams as well as the breast-summers intended to support the masonry (fig. 11).

This arrangement, adopted when the thickness of the wall is not very much greater than that of the columns, gets more complex when a large void occurs between the columns. In such a case, the bricks placed in the internal part of the wall also require support from the beams which in turn have to find supports at right angles to the columns. Rather than multiply the number of the latter, the solution retained consists of giving to the abacus the same squaring as the sub-beams, or to use a brace of the same section to be placed on the abacus, which maintains in that case the dimensions of a simple plank (fig. 12). The abacus carrier of the internal beams (or the brace which fulfils this function) is situated at the same level as the sub-beams and these parts are joined together by halved joint notch assemblages provided with miter cuts as in the angles shown in fig. 10.

Lastly, when the walls are very thick, let us say about 1.30 m, the columns may be arranged by groups of three but the same position of the abacus carrier or the brace will be observed.

The Construction Techniques for the Dwelling Unit

As in the previous case, we shall start with a general description of the house and then talk about the masonry and the frame. The solutions here are simpler, given the more modest amount of money at the disposal of people and because it is no necessary for a dwelling unit to last as long as a temple or a palace.

The Newar house is generally made along the elongated rectangular plan. Its main characteristics can be found in practically every house and that is why it will be right to speak of a model subject to minor adaptations taking into consideration the land, family needs and economic means and desires of individuals.

Above the ground floor, the house normally comprises two floors and an attic. In agglomerations, it is constructed parallel to the road and between common gable ends, its ridge pole standing in line with those of the neighbouring buildings. It is separated from the road by a raised continuous threshold.

The elongated rectangle of the plan is divided into two bays by a longitudinal internal partition wall which takes on the arrangement of the edifices of the same general form. Here, however, the wall does not normally exceed the level of the ground floor and beyond it is replaced by rows of superimposed columns which rise to just under the ridge pole of the attic. Besides, the lower storeys are divided by transversal walls which do not carry and the upper storeys by wooden partitions or by partitions of bamboo coated with earth.

Communication between different levels is ensured by staircase situated in the front right bay. At the first and second storeys it opens onto a landing (optional) which serves as a passage to a large room (situated next to the road) and to two smaller rooms (on the opposite sides). It also opens on the attic where the fireplace is found (fig. 14).

The composition of the main facades generally facing the road enables one to understand the specific allocation of rooms obtained by the distribution of the internal space of the house. The ground floor, treated with economy, often opens on the road via a sparsely decorated portico. It contains a shop, a workshop or a shed but they are not very different from each other.

The first floor, with its few and small windows closed by wooden grills, further highlights the substructural and defensive character of these two parts of the house. The second floor on the other hand constitutes the dominant element of the facade.

It has large square windows or a triple window 'jhya' with a drawing inspired from a religious motif of the Buddhist trinity: Buddha, Dharma and Samgha, the Buddhist equivalents of Siva, Brahma and Vishnu of the Hindus. These windows are projected far beyond the facade wall and comprise boards for sitting and are closed with wooden grills which are put down, thus enabling a discrete look at public or semi-public space.

They bring out the residential and private character of this floor reminding one of the loggias and the moucharabiehs of the Mediterranean countries.

Above these windows a canopy is sometimes found which runs along the entire length of the facade but generally, the wall is extended till just under the roof, and this significant spilling over supported by bonds or brackets keeps rain water away from the masonry. In the houses situated at the end of the road or those which are isolated, such projections are often turned along the gable end and remind one of the provisions made in the monumental edifices.

In the city, the attic of the Newar houses is often provided with a skylight "à la capucine", i.e., provided with a hip above their facade. They are situated on the side of the road or on the side of the courtyard and sometimes constitute the only opening in the attic.

The Masonry

As in the case of monumental architecture, we will first deal with the foundations and then with the walls and openings. Some pieces of wood are still used as ties with the masonry but we will mention them with the joistings. On the other hand, the ossature required to increase the resistance of the walls to crumbling have been done away with as they have become useless.

The Foundations

Contrary to the temples, the dwelling units are constructed on longitudinal foundations made of masoned stone blocks in trenches 0.60 m wide and 1 m deep at an average. Such foundations are supposed to carry the weight of the buildings down to hard ground, but, taking into account the thickness of the layer of earth, this is rarely the case. Similarly they should have exceeded the ground by about 0.45 m in order to preserve and protect the base of the brick walls from running water but more often than not this rule is not respected and they stop below the level of the ground. The bricks thus come into contact with the waters that flow on the surface, and the heterogeneous character of the foundations does not allow them to face the rising — by capillarity—of underground water nor to be able to deal with the differential settling which causes vertical cracks in the walls.

Reinforced concrete which has been introduced of late and is mainly used in the foundations has allowed one to overcome these deformations and a bituminous felt (or a plastic film) opposes the rising of seeping water.

The Walls

The thickness of the walls varies from 0.40 to 0.50 m. Their nature differs considerably depending on the place and the resources available.

In the city, when the means are available to the people, the walls are constructed in bricks of baked clay whereas in the countryside or when the means are more modest, the sheltered walls and the internal facings are in crude mud bricks. Finally, if resources are very modest, all the walls are constructed with crude bricks.

Bricks the size same as those used for the construction of monuments are also raised to a jointing break with mortar of glazed earth to which water has been added and which has been crushed by feet for a long time. The two facings of the wall are constructed in this way and the internal space which separates them is crowned with a very crude bonding of recovered bricks and mud, without very efficient bonds being provided to join them.

As soon as the foundations emerge from the ground, the door frames are put into place and when the masonry reaches the height desired to receive the windows, the frames are also placed. This practice which is still used in the case of traditional habitat has obviously been abandoned in the construction of buildings made entirely of concrete. One can thus easily imagine the new problems that arise from the regularity of the dimensions of the openings, the height of the supports and the fillisters, all these being elements of detail which have only been imperfectly mastered. Similarly, no water proofing device is placed between the masonry and the frames to counter seepage.

Each story is marked by brick cornice which is slightly projected from the wall above the joists at the extremities which are generally visible from the exterior. However, in old well maintained houses, a profiled plank is fixed to the end of the joists so that they may be hidden and so that the frieze found on temples may be reproduced. In other constructions which are also very old, the joists are cut so that they retreat from the facing of the walls and, at that level, one or two rows of bricks moulded in a geometrical motif are placed so as to reproduce the wooden frieze (fig. 15 a). Finally, in the construction of the beginning of the century, the friezes are in white stucco or cream colour, the walls being entirely sheathed. In the so called modern buildings, this form of decoration inherited from traditional architecture has disappeared.

Another motif that is often very frequently encountered, particularly at the last level, is formed by three rows, one on top of the other, of bricks. The first row forms cusps, one of the two bricks being projected over the wall by about 5 cm. The second produces a motif in rafters by the ends of the bricks placed at 45°, the third is constructed with the help of chambered bricks that have already been used at the other levels (fig. 15 b).

The scaffoldings used for the elevation of walls are made of bamboo sticks driven into the ground and connected to the masonry by transoms placed at the desired height. These transoms, meant to receive the planking, are blocked from the interior of the walls, when the masonry has exceeded their level, and the holes which have been provided for them are not closed after usage like the putlog-hole which may be found in the old French stone constructions.

The Frame

In order to present the dwelling unit frame we have decided to respect the order in which the different parts are carried out. We shall thus first see the joistings, then the frame of the attics and staircases. These shall only be mentioned here because they are of a very simple workmanship.

The Floor

When means permit the purchase of regularly sawed joists on all four faces, the space between such joists is generally closed by terracotta tiles or planks on which a surface of tamped earth is masoned so as to receive the tiling which shall constitute the floor of the dwelling. On the other hand, when resources are modest, the joists are squared with a hatchet. In such a case, they have a somewhat irregular form and preserve sapwood (and sometimes even the bark) on all their ribs. Perpendicular to the joists split bamboo or meagre branches are arranged on which the surfaces of earth is spread which directly constitutes the ground. Depending on the principle of construction adopted, the joists are separated by 20 to 25 cms to 40 to 50 cms. Similarly, their section varies from 9 x 11 cms to 15 x 15 cms, and this is further dependent on the distance which separates their supports.

Just before reaching the height of the joistings, girders are placed on the last row of bricks in order to tie the facade walls and the internal partition walls in their longitudinal direction and to obtain a regular support at the joist end. For reasons of practicality, these girders have a thickness and a width equal to those of the bricks. When their length is less than that of the construction, the different elements of which it comprises are joined together by dovetailing.

Such girders are not however very useful when it comes to opposing the longitudinal traction or the vertical shearing. The first type of effort results from the setting of one of the angles of the construction, and causes, at a weak point in the wall, a vertical slit wider above than below. Because of such an effort, the girders are taut but, after the drying and withdrawal of the wood, the dovetailings carried out at the junction of different elements have an action whereby no form of resistance is offered any longer. To this form of joining, it would be certainly preferable to choose the "a traits de Jupiter" type, to the extent however that the reinforcing piece is made of hard wood with a feeble withdrawal (fig. 20). The second stress, due to the setting of the ground in any point of the length of the wall, causes a vertical lowering with lateral sliding of a part of the latter. Normally the girders will not resist the deformation, but they continue to join two parts of the wall because breaking is a rather remote possibility unless the deformation occurs perpendicular to a joining.

With the introduction of reinforced concrete foundations, stronger than those made of stone masonry, the girders have practically no mechanical role to play. They continue none the less to be used as they enable an easy adjustment of the joists. However made of fresh alder, and with three sides covered in masonry they might well get heated and rot quickly. It will be necessary to use wood of better quality as this will enable the joists to fulfil their function as transversal ties of walls.

It is on such girders that the joists are placed. One out of about every four joists is joined in the preceding piece by studs 3 cms on the side or by the pins, intended to join the three walls together. In the upper storeys, where the middle wall is interrupted, the joists rest on a beam supported by columns (or by poles as they are not sculpted) on which sub-beams with cut profiles are placed, and resting on the lower joisting through the intermediary of girder flanges. Here once again one joisting out of every four is provided with pins which go right through the beam. Heneeforth these pins are not only used to tie the walls, but also to maintain the beam and columns in their vertical position.

The Attic Frame

In the Kathmandu Valley, the slope of the roofs varies between 20 and 30° representing a rather weak slope. Taking into account the reduced width of the houses, the rafters are not very long. It is thus sufficient to relieve them by a course of purlins placed under each side between the ridge pole and the wall plate so that they do not bend, to the extent however that the elements used for supporting the purlins are themselves sufficiently resistant. In such frames, the most often used technical solution is midway between filling in material where the load is directly borne by the horizontal and vertical elements, and setting up the triangular rigid beam.

In fact at about every two metres one can find structural elements used to support the purlins (fig. 16 a). These elements are made of king posts situated perpendicular to the columns of the lower storeys and of the roof rafters inclined in accordance with the slope of the roof, without being parallel to the rafter. In accordance with the same principle as that for the columns, the kings posts rest on flanges and support sub-beams intended to increase the support surface of the ridge pole. Sometimes these sub-beams are replaced by capitals placed perpendicular to the ridge pole and provided with notch assemblages in which the ridge pole

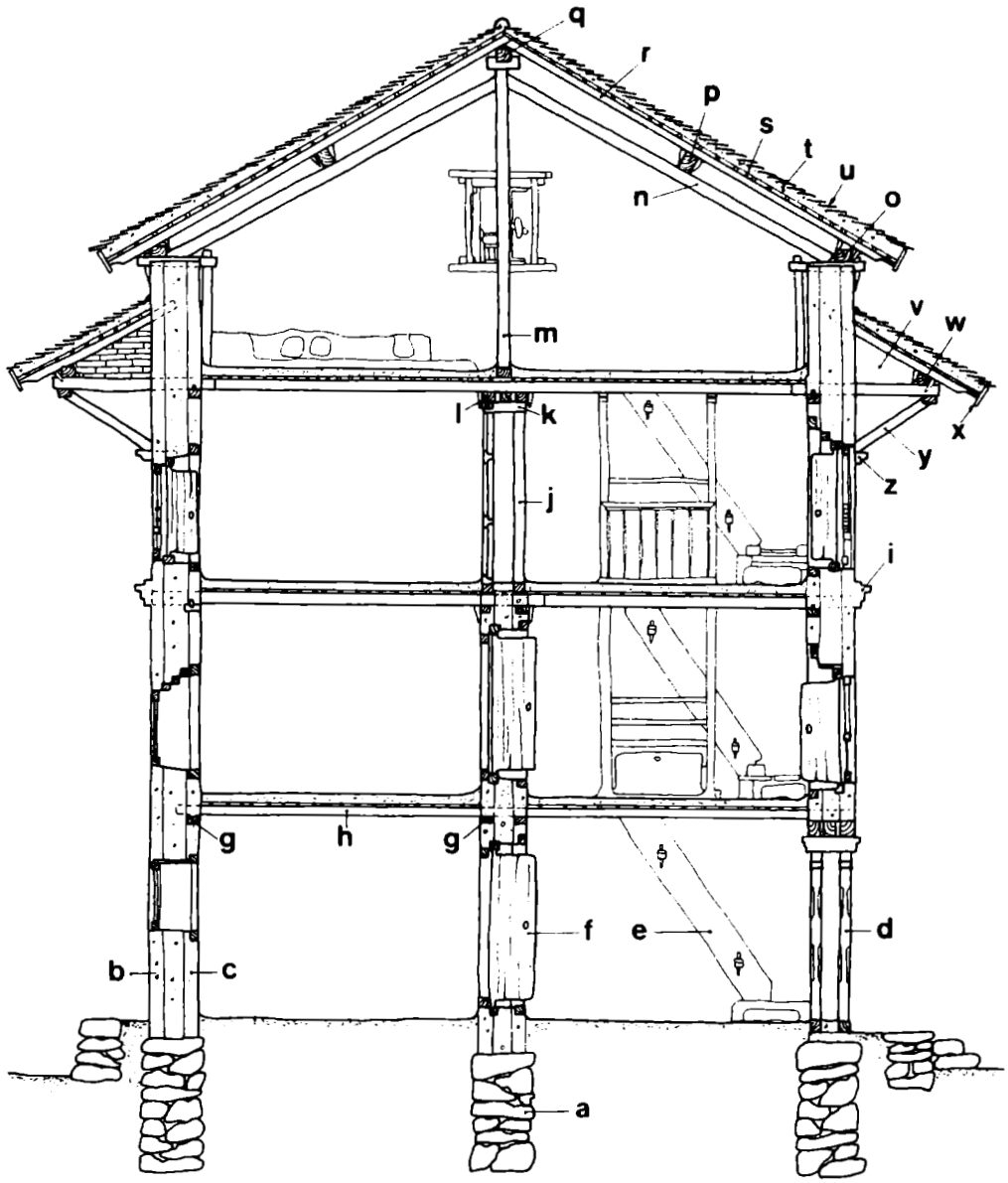


Fig. 14 — Section showing the various elements of the dwelling unit. a : foundation; b : external face of backed brick walls; c : internal face (and internal partition wall) in unbaked bricks; d : portico; e : staircase; f : door; g : girders; h : yoist; i : decorative frieze or clamping; j : column; k : abacus; l : beam; m : frame pole; n : roof rafter; o : wall plate; p : purlin; q : ridge pole; r : rafter; s : lath; t : masoned earth; u : tile; v : eaves; w : wall plate; x : string-course; y : bonds supporting the eaves; z : bracket (V. Barre, P. and L. Berger and G. Toffin, 1980).

is placed. The roof rafters are joined by tenon and mortise in the kings posts, and rest through a level cut on flanges (placed on the walls) which exceed by 20 to 30 cms the upper portion of the ground), but they are not relieved by any auxilliary room.

The purlins, which are acted upon to a large extent by the weight of the roofing, transmit heavy loads to the roof rafters, which in turn bend and sometimes break. At such times, it is necessary to replace them or, simply, to provide relief to those in need of it by means of props which are laid on the ground. Given the extremely important function of the attic and its reduced dimensions, it is easy to understand why the Newars did not arrange auxilliary rooms in already limited space. On the other hand, when the attic in used solely as loft this fact is even more surprising.

The principle adopted is not intrinsically bad, as the roof rafters act above all as inclined beams resting on two level supports. Thus, they do not translate any kind of thrust to their supports, only vertical pressure. The very precise form that is given to the joints at the head of the roof rafters proves that the Newar carpenters have intuitively understood this principle of construction. Rather then following the slope of the roof rafters, they have made square tiled revetment walls at the throat/ neck of the mortise joints. Such revetment walls thus become supports and the joints no longer act through the thrust of their butt ends, as in the case of triangular trusses.

Taking into account the deformations that they present, it shall be nevertheless necessary to replace the trusses used by trusses on struts—as the walls are raised in relief (fig. 16b). These will enable one to do away with the king posts at the bottom and will prove very efficient in relieving the roof rafters. Besides, the general positions can remain the same, as far as the spacing of the trusses is concerned in particular, and the sections used (of about 10 x 12 cms to 12 x 16 cms) can be maintained. The only significant modification pertains to the joints but they are practically all the same, i.e., by tenon and mortise, 3 cms thick and 8 cms deep, maintained by a peg 16 mm in diameter (fig. 16 c). The only special joints are those intended to ensure the linking of the struts and the props, as they have to bear the tractive effort. It is then necessary to extend the tenons beyond the struts and that the pegs have a diameter of about 25 to 30 mm (fig. 16 d).

The triangular trusses are not that totally unknown to the Newars; but we only found one frame which has provided with it (fig. 17). In this frame, the trusses are made of two joint roof rafters, at the foot, in a joist of the floor, which also acts as a binder and, at the head by a halved joint notch assemblage. The roof rafters extend up to under the lathing and to both sides of this joint in order to maintain the ridge pole which has been placed at their ends.

These trusses, both simple and resistant, are of particular interest, as they are known the world over. In France, they were used very frequently from the twelfth century to the beginning of the twentieth practically all over the country. However, in France the roof rafters are always relieved by angle braces or a raised binder.

On the wall plates, the purlins and the ridge pole rest on rafters. Separated from each other by about 30 cms, they have a section of about 8 x 8 cms and are maintained by pegs situated on both sides of the carrying elements.

When the building is provided with a canopy that runs across the entire length of the facade, the projection of the rafters is about 30 cms (fig. 14). In the absence of such a conopy, the rafters extend beyond the wall on a length of about 80 to 90 cms. Three different arrangements are thus adopted in order to relieve them.

In the simplest arrangement, the rafters are maintained by a wall plate supported by the diagonal bonds placed on the brackets and separated from each other by appx. 1.30 m (fig. 18 a). In the more complex version the bonds and the wall plates are still to be found, but under the wall plates horizontal pieces are placed for apart from each other as it was in the case of the joists of the floor. To the right of each bond, one of these horizontal pieces acts as bolster of a console as it is wedged on both sides of the wall to reinforce the projection. Finally, a wall plate is blocked on these horizontal pieces so as to relieve the rafters which still extend by 30 cms appx. (fig. 18 b). In the last version, it is the pieces which act as the overhanging of the joist which extends beyond the wall plate while the rafters are interrupted below the wall plate intended to relieve their end (fig. 18 c).

Despite the enormous quantities of wood used in making these projections, they remain one of the weak points of the Newar frames. Their faulty design and lack of maintenance often lead to their breaking at right angles to the walls and running water damages the walls. In order to avoid such defects, it would be necessary to replace the diagonal bonds by real consoles joint by tenon and mortise (fig. 19 a). The original arrangement shall require very little modification and the solution offered requires no extra material than which the carpenters of the Kathmandu Valley already have. On the other hand, if horizontal pieces are used to stimulate a joisting in the overhanging, it is a somewhat more delicate task to suggest appropriate means of improvement.

In fact, the extremity of the pieces should be relieved by a wall plate which in turn should be supported by bonds. However, the weakness of the device is due to the blocking of the wall plate by simple pegs as well as the absence of a link between the bond and the horizontal piece which acts as a bolster.

Once again, the most judicious solution to our mind, would be to effect a bossage behind the bond so as to enable a tenon and mortise joint of the latter with the bolster (fig. 19 b). Besides, if the projection is closed by planks, the space between the pegs could correspond to that of the horizontal pieces and the wall plate placed on these planks may thus be eliminated.

Finally, as these projection are very heavily loaded at their two ends by masoned edges and brick fillings, it would be necessary to provide for two consoles very close to each other.

Outside, planks are often fixed on the bolsters to hide the underpart of the rafters and to form a sort of a coffer the triangular ends of which are closed by bricks. As the case may be, the rafters or the bolsters are sculpted like the mouthpiece of a flute so as to allow the tenon and mortise joint of the string course. As for the temples, the string course is intended to raise the first row of tiles and to stop the masoned layer of earth on which the tiles are sealed.

The longitudinal pieces which constitute the external wall plates are joined together by means of scarf joints with double cusps which are tightened with crowns and which we call "the trait of Jupiter of the carpenter" (fig. 21).

Was this kind of elaborately formed joint, also found in ancient temples, thought up by the Newar carpenters or did it come from India? We do not know. However, with those realised in the beams at the angles of the temple peristyles, the perfection of these three joints is not quite in consonance with the somewhat summary solution found elsewhere is the frames. Thus, the pegging used to block pieces one against the other cannot withstand any wrenching force. Nails are missing and this is the result of the chronic defect in the metallurgy. Moreover, the fact that the diagonal bonds are simply placed on brackets and applied against the wall—rather than being joined or sealed—would have us believe that strong winds are very rare; had the winds been strong, these would certainly have required smaller projections or more satisfactory technical solutions.

The Staircase

Different types of staircases have been found but the most frequently encountered ones are steep and narrow flights of steps with seven to nine steps. The height of a store rarely ever exceeds 2.10 to 2.20 m (fig. 21). In the joisting of each storey a hearth cavity of reduced dimensions is made and this almost always requires to lower oneself while descending.

Initially, a wooden landing or a solid mass of masonry is constructed on which the foot of the staircase is blocked whereas above it simply rests against the trimmer joist. As a general rule, such staircases will not have a bannister; a rail provided with a full panel or turned balusters can be found at the hearth cavity of the side and there is the danger of falling.

The steps have a height of about 24 cms for a total width of about 18 to 19 cms. They are generally separated by risers placed obliquely in order to increase to the maximum the horizontal width of the steps without the nosing of the steps overlapping too much. There steps and risers are joggled by 25 cms in stringers which are tightened by two wooden crowns.

These are made of a head of a stop, a rod and a tightening pin. In ordinary staircases, the crowns are very simple whereas those of edifices generally have their head sculpted with floral motifs which make them rather beautiful. Similarly, for the ordinary staircases, the upper portion of the step is smooth whereas for the larger staircases it is often provided with rectilineal notch assemblages which make a diamond shaped drawing so that the steps are less slippery.

On each floor, the opening is surrounded by a grooved frame which forms the last step and stops on the ground or the tiled floor and receives both the shutters of the door which can be locked so as to prohibit access to the upper storey.

The Woodwork

The external woodwork constitutes the predominant element of the traditional architectural decoration and is part of a very strictly adhered to composition where the function and the situation of the opening give rise to decoration which is generally rather elaborate. It seems not to have developed very much since the beginning of the century thus explaining the homogeneous character of ancient facades and the difficulty of dating them. With the development of the "Rana" style[8] the older type of windows have become rare and much sought after as owners willingly place old salvaged windows in the new buildings.

After a period of significant decline in external woodwork, which could have proved fatal to this key element of Newar architecture, carpenters resumed this activity while restoring building or for decorating public buildings. This latter opportunity is of special interest as it enables permanent employment of highly qualified

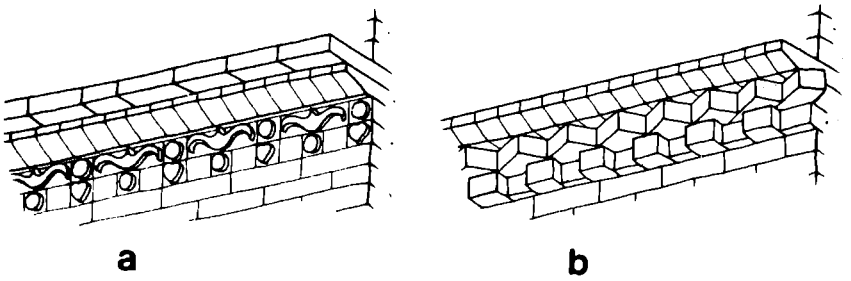


Fig. 15 — Various brick motifs — a : moulded brick frieze; b : bonded brick cornice.

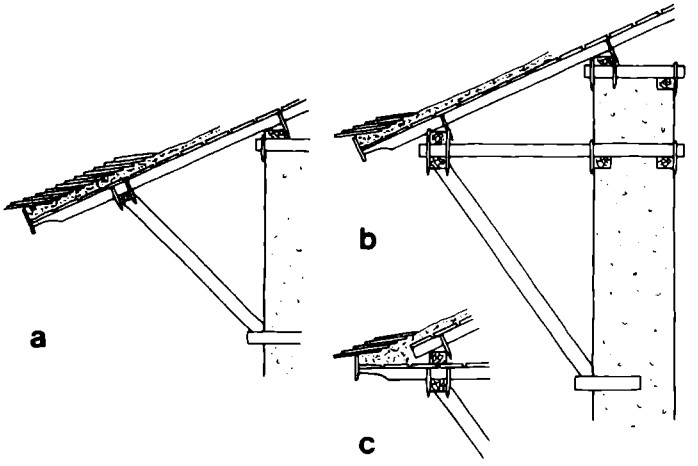


Fig. 18 — The various aspects of the roof projections — a : projection supported by a wall plate and bonds; b : projection with simulation of corbelling of yoisting; c : extremity of pieces simulating.

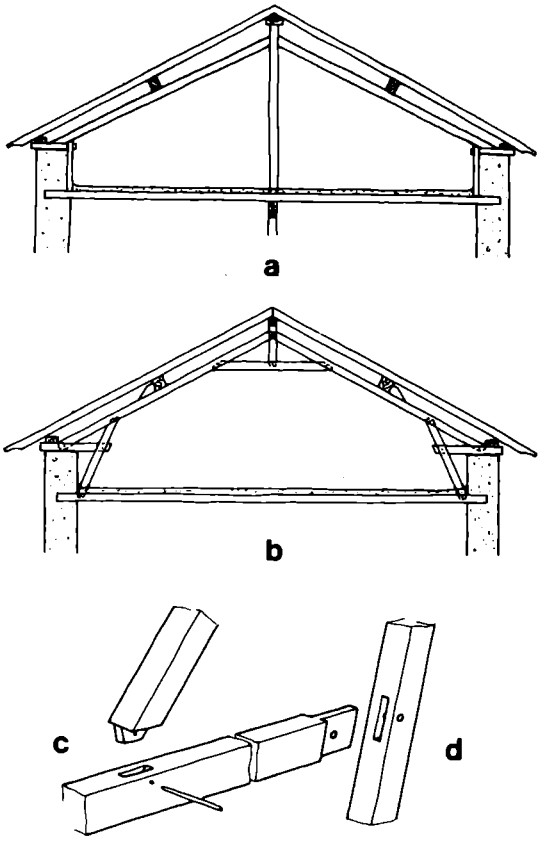
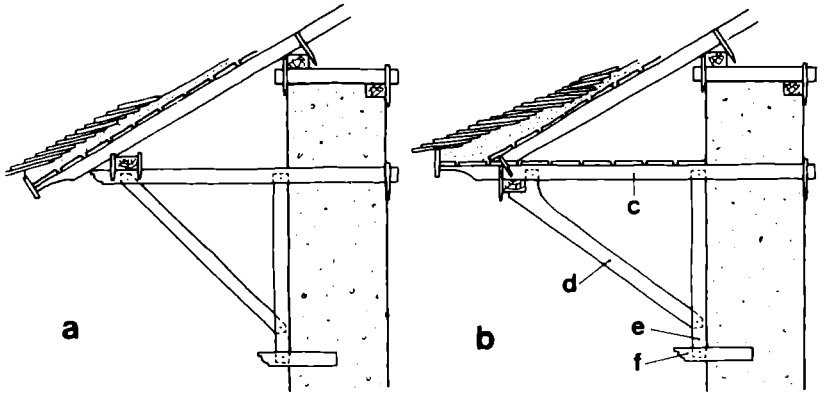


Fig. 16 — Examples of trusses : a : traditional truss used by the Newar carpenter; b : truss on braces which can replace the preceding one, tenon and mortise assemblage; d : tenon and mortise assemblage to join the brace to the prop.



↑ Fig. 19 — Solutions proposed to strengthen the projections — a : simple console; b : console whose bond includes a bossage to enable it to be joined to the corbel; c : corbel; d : bond; e : small-post; f : bracket.

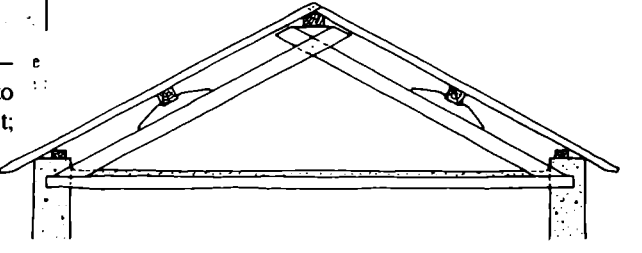
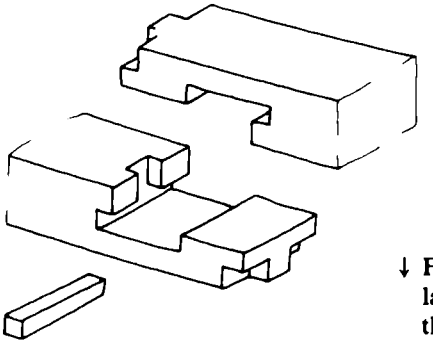


Fig. 17 — Example of a triangular truss used by the Newar carpenter in the Kathmandu valley.



↓ Fig. 20 — Carpenter's trait de Jupiter notch assemblage to join the different elements which constitute the wall plate.

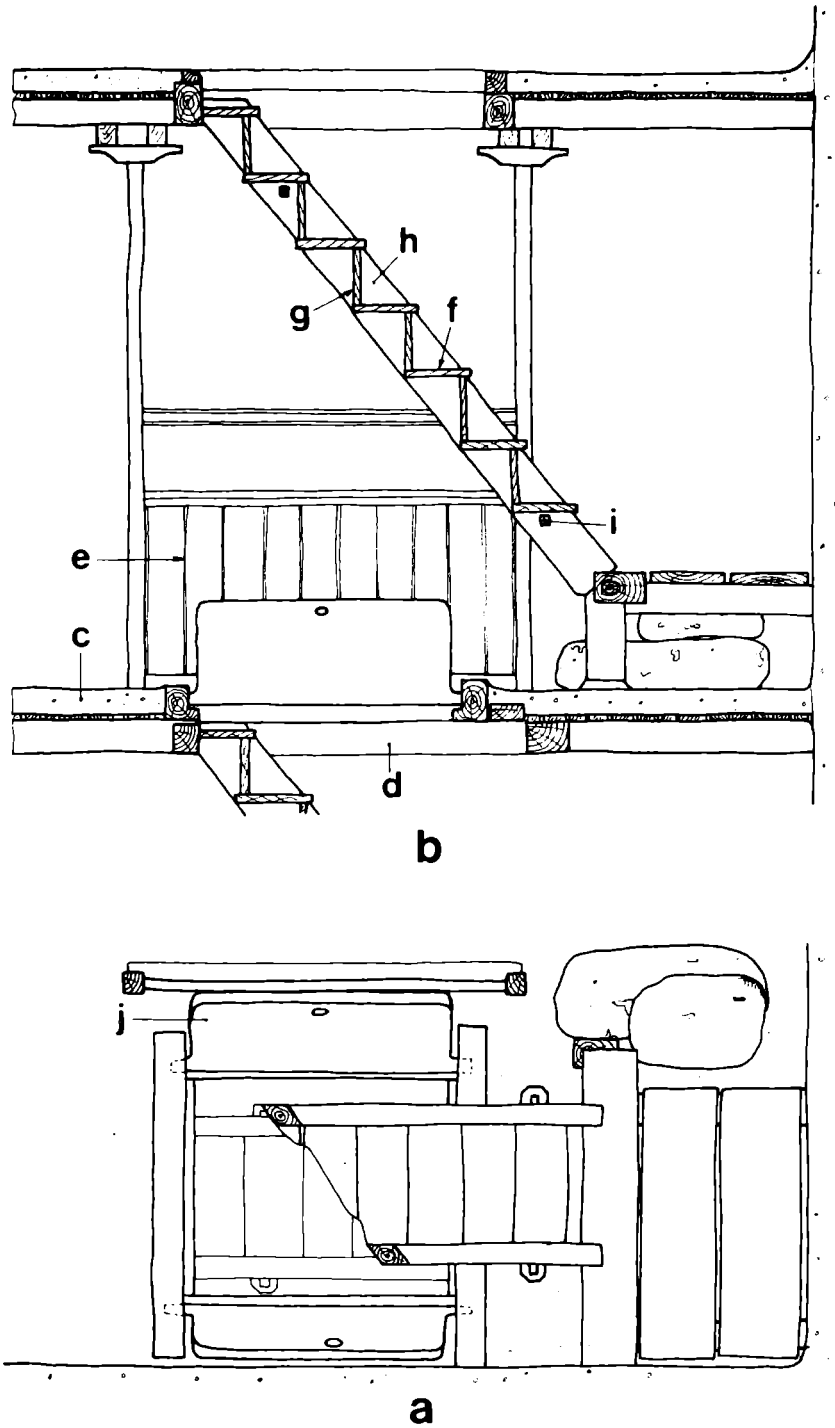


Fig. 21 — Most common type of staircase in the Kathmandu valley.
a : bird's eye view; b : vertical section; c : landing; d : trimmer joist; e : guardrail; f : step; g : user; h : stringer; i : wedge key; j : door (V. Barre; L. and P. Benger and G. Toffin, 1980)

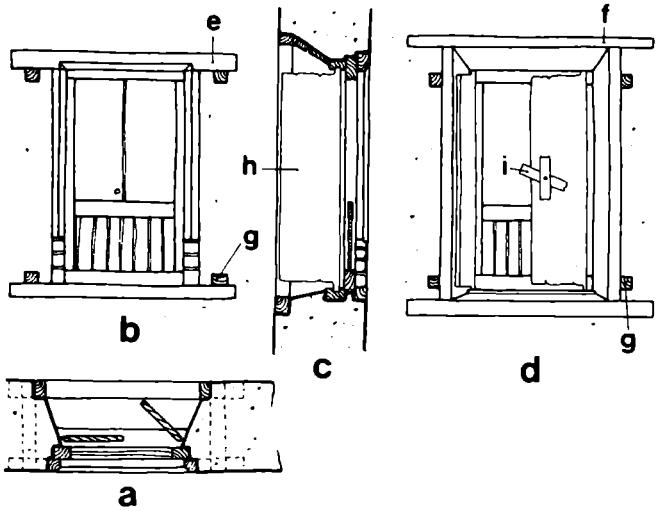


Fig. 22 — Detail of a traditional window — a : horizontal section; b : external face; c : vertical section; d : internal face; e : external frame; f : internal frame; g : brace; h : leaf; i : latch.

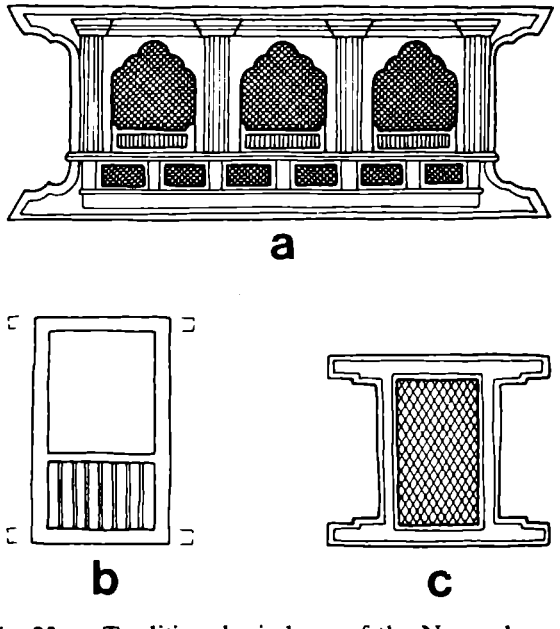


Fig. 23 — Traditional windows of the Newar house — a : window with three-cusped openings; b : rectangular window; c : square windows.

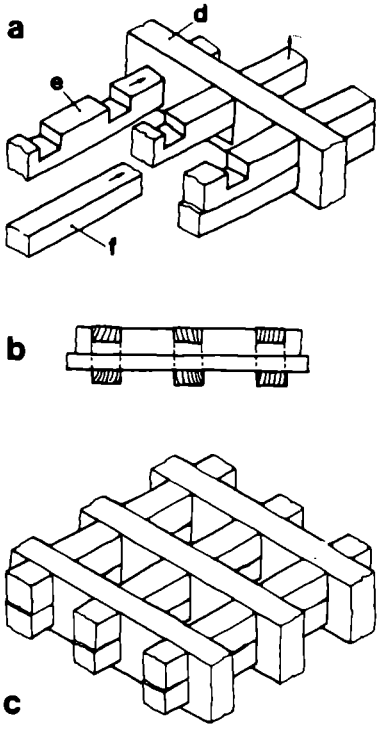


Fig. 24 — Detail of opening canage — a : exploded, perspective; b : transversal section; c : perspective of assemblage elements; d : main frame; e : secondary frame; f : wedge key.

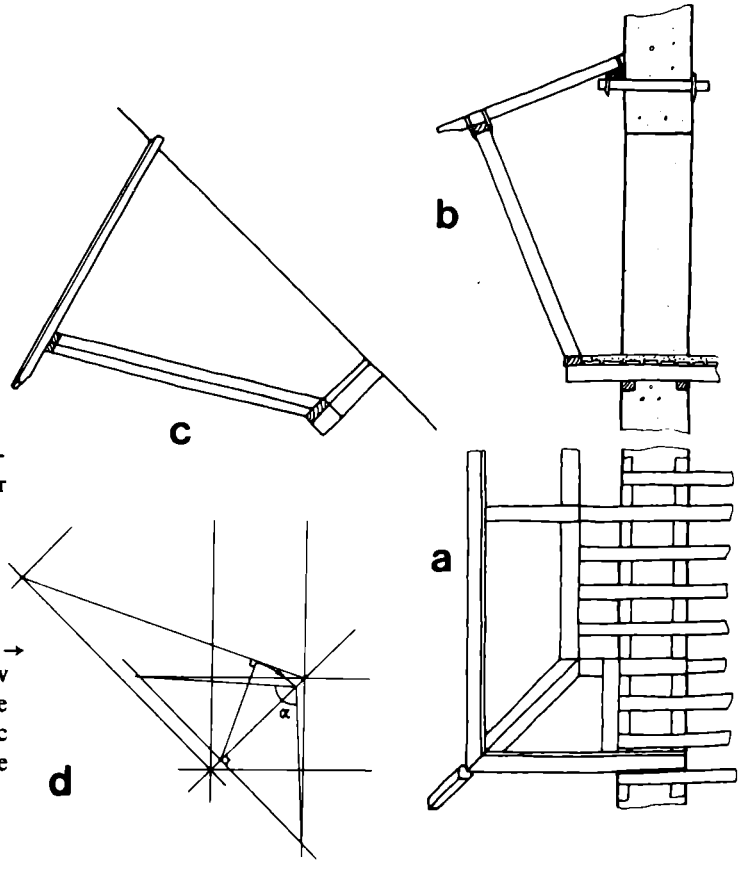


Fig. 25 — Drawing tracing the stiles situated at the window angles — a : bird's eye view; b : elevation of a stile commonly used; c : elevation of an angle stile, geometric plotting enabling one to locate the trimming angles of the stiles.

labour which would otherwise disappear.[9] In fact, in current construction work the woodwork is far more sober and the workmanship is quite often crude.

From the point of view of construction, the frame of the doors and windows has the property of being made of a double framework with tenon and mortise joint following the thickness of the wall and joint together by struts, the extremities of which appear in the facade (fig. 22). The internal frame is larger than the external frame so as to form a wide embrasure where one can sit and the opening is minimum on the exterior. The upper and lower rails largely exceed the frame and are ensconced in the masonry. The jointing is at times reinforced by a sculpted capital visible from the interior. These motifs seem to be at the origin of the decoration of monumental doors of the temple as well as some windows and false recesses.

Windows of three types may be found in the traditional houses (fig. 23). The most noble and the rarest is the trilobed which as we have already seen is assimilated to a religious trinity. It is situated on the upper storeys in a central position. The second and more frequent type of window is the railing window with two rectangular shutters. When the first type is not found, this second type of window may be decorated and rounded, occupying the best position in the facade. The latter, which is not by any means the simplest, is the wire-meshed window, square in shape and situated in a lateral position on the lower storey. Its hurdle is made of a sort of wooden "canework" which is extremely delicate (fig. 24), kept in place by the frame of the window or a pivoting frame from the top.

If indeed, the Newar carpenters knew how to trace the hip rafter they used this technique mainly for the making of windows of the first type. In fact, some of these windows have a facade and two returns, the upper parts of which are projected to a large extent, towards the exterior.

At each angle of such windows, one can find diagonal stiles in two directions as if they were hip rafters and frames of trapezoidal forms. These diagonal styles have a diamond shaped section so that the external faces are included in the same plan as the facade and the return. In order to obtain the exact form of such a section an empirical procedure and a geometrical tracing exist.

The former (fig. 25) consists of representing the plan of the windows and tracing the elevation of normal stiles as well as that of the angle. On the latter is presented a piece of wood with the tracing so that after being sawed it has the desired slope. It is subsequently placed on the "step" of the stiles placed in the angles and the required pairing is marked out on the four faces. This having been accomplished, the real form of the stiles is obtained; they may thus be shaped.

The geometrical trace known as "seen from the edge", is in fact the procedure by which the plan angle of a dihedral is traced. In France, this procedure has been known to carpenters since the 15th century in the frame of the Langeais castle constructed in 1460 (Indre et Loire) but it is most evident in the frame of the Saint Merry Church (1515 - 1552) where the pieces are most similar to the stiles of such openings.[10]

It is difficult for us to say if the Newar carpenters also knew of this practice. Nevertheless, the manner by which the stile angles are given desired form is only one aspect of the more general trace of the hip rafter. In fact, that this form should be obtained through empirical means or by a geometrical trace means that the elevation of the hip rafter itself is required in the first place.

To obtain the exact dimensions of the frame in the form of a trapezoid, it is possible to use the trace of the diagram or assemble the whole frame and take the measurements of the latter. Once again, nothing is there to indicate which method was used but it is highly probable that the simpler method has been adopted.

The windows of the Rana style houses as well as some of those of recently constructed houses are, contrary to tradition, rectangular, vertical and of similar dimensions on all storeys, i.e., around 0.80 x 1.50 m. They descend till the floor of the room and remind one of door windows. The balconies are made of wood, cut mechanically, with complex and repetitive decoration patterns. Their frame is not apparent.

Most of the constructions recently undertaken, modern in style, have large rectangular windows of about 1.5 m x 1.2 m arranged horizontally and subdivided into two or three opening parts. They no longer have a double frame and the lintel is replaced by a plank laid flat. They have rails in turned or cut wood or, for the most part, in forged flat iron of mediocre quality with floral solar or geometrical decoration or perhaps the initials of divinities.

The old entrance doors are provided with a richly worked frame. The latter is linked to the internal frame—which is very simple—by struts; both are provided with a low rail forming a threshold to keep rainwater and reptiles away. The doors are equiped with two shutters in heavy wood, joint at the threshold and the lintel by means of swivel pins. A wooden latch (inside) and a lock (outside) are intended to lock them.

In contemporary constructions as in those of the 19th century, the frame of the doors are as simple as those of the windows. As for the shutters, these are real

feats of woodwork, with stiles and rails jointed by tenon and mortise, and flower panels joggled in the grooves. Such modifications came about in the woodwork after the introduction by the British of handled instruments from India.

The Roofing

The most commonly found roofing is made of flat tiles (11 x 24 side). These tiles are sealed on a masoned earth form on a lathing, on lathwork of branches or terracotta tiles placed on rafters. Each tile is provided with a longitudinal neck having a semi-circular profile, made on one of the sides of its upper face, and a rim the form of which is more or less inverse on the opposite side of its lower face (fig. 28 a). At the time of laying the roofing, each tile clings to the other by means of such turnings to make horizontal rows. In the direction of the slopes, the rows are diagonal, as the tiles are placed obliquely in accordance with the direction given by a string. They cover each other to a great extent, the visible portion of each being reduced to about 6 cms and have a very slight slope, with no relationship to that of the roof.

The linings of the roof valleys are made with special elements with two lateral wings which are applied on the slopes and which cover the tiles (figs. 28 b and c). This solution, simple, light and efficient, is also found in a very unexpected form on the hip rafters. At the lower end of these, a pottery in a form of a bird is sealed against which the tiles of the hip rafter rest. These are identical in shape to those used for the roof valleys but they are placed edgewise and at right angles to the link slope instead of being applied flat on the slopes (fig. 28 b). On the ridge poles, more often than not, one can find semi-circular profile elements sealed on the tiles of the slopes; it is possible that this is a recent feature in the Kathmandu Valley as is the case for mechanical tiles imported from Northern India in the beginning of the 20th century.

These traditional roofs are fragile and have to be cleaned every year, as plants take root in the clay and raise the tiles. If badly maintained, they deteriorate quickly and their considerable weight causes the crumbling of the edges of the roof.

Examples of Construction

The Basantapur Tower of the Old Royal Palace of Kathmandu

The Basantapur Tower that we have chosen to study was constructed in 1770 during the reign of the king Prithvi Narayan Shah, the man responsible for the unification of Nepal. Integrated to the monumental whole of Hanuman Dhoka, this tower is one of the most important buildings of the Kathmandu Valley and consequently of Nepal.[11]

Standing between two buildings which abut on one side till the second floor and on the other till the fourth, this tower does not possess the architectural purity of the big superimposed roof temples, like that of Nyatapola at Bhadgaon. We have however decided to study this because it is easily accessible—it is open to the public leaving one free to observe it whenever one pleases—as well as because of the construction proinciples which have been used here (fig. 26).

This edifice (fig. 27), the rectangular plan of which measures 12 x 8.4 m, rests on a stone bed 0.8 m high. It has nine storeys and is 31.90 m above the ground of the inside courtyard. On this side, a staircase made of stone allows one to reach the monumental door through which one enters the tower, while across, a single window provides very feeble lighting to what we by convention shall call the ground floor (fig. 29 a). In reality, this level is made of two longitudinal clearings of a width of 1.19 m crossed by a third of 1.57 m facing the door; it has a single wooden staircase which allows one access to the first floor. The walls of the facade are 2.05 m thick, the partition wall 1.92 m and the two gable ends 1.95 m thick. Thus, on a ground surface of about 100 m^2, 75 m^2 are occupied by walls making the construction seem like a powerful fortress.[12]

The first and second floors are also rather sober in appearance. Towards the courtyard, each one is lit by three windows arranged symmetrically in relation to the vertical axis situated at the middle of the door. On the side overlooking the road, each storey has two windows but one of them on the second floor is much bigger than the others. This is the rarer and nobler form, with its three interlaced windows, and which in the present case form a construction independent of the vertical walls raised outside the works on the overhanging of the joists, extended to this effect. Besides, the second floor differs from the first by virtue of the big and strong diagonal bonds which, from the coping of the cornice, support the wall plates, which are intended to support the large overhanging of the joisting of the upper floor.

With the third floor (fig. 29 b), the construction pattern changes, as the thick and sturdy walls of the storeys are reduced to their minimal dimensions. Thus, the facades are pierced with openings 4 m long and 2.4 m high, the lintels being supported by two rows of triple columns. Similarly, the gable ends are pierced by four doors, and their masonry is limited to the ends of three longitudinal walls not more than 1.25 m thick external wall for and 1.47 m for the partition wall.

Through all these openings, one has access to a gallery found on three sides of the tower, the fourth side being integrated to the building which touches it to the

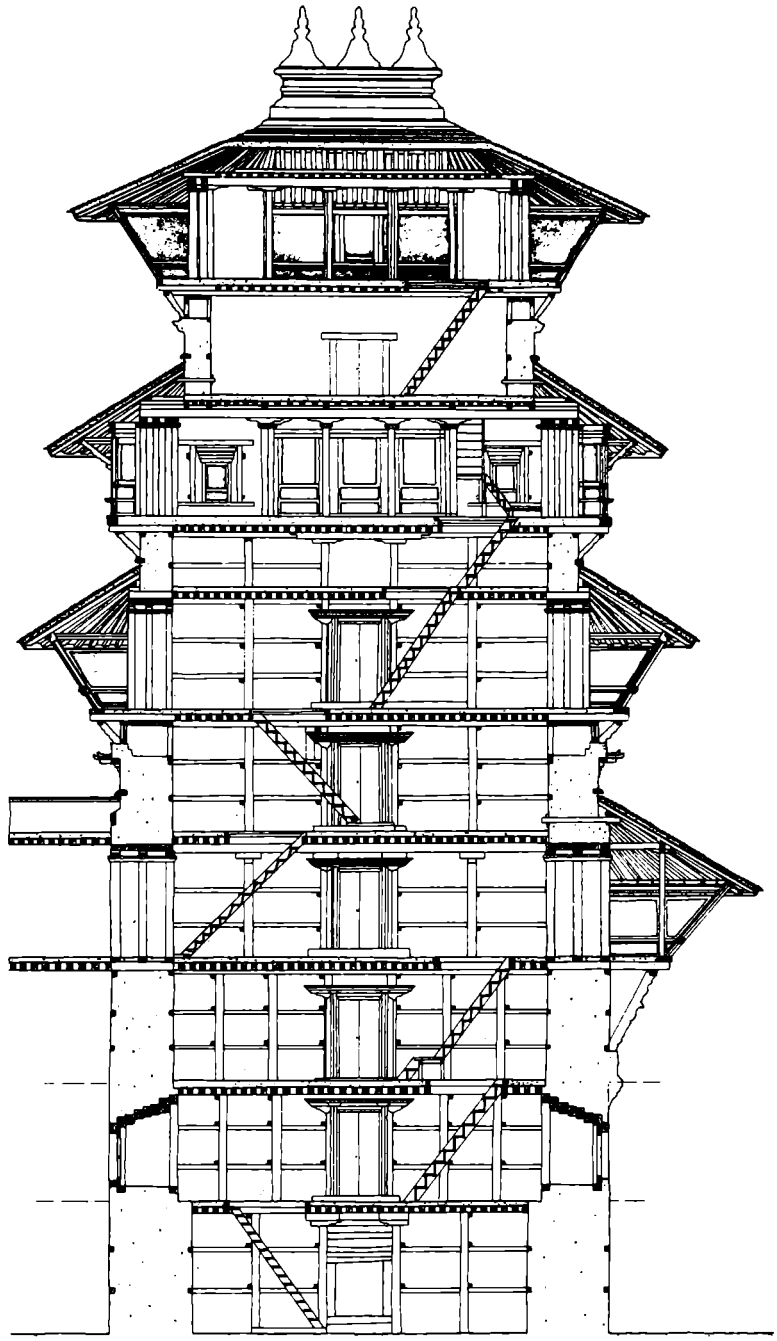


Fig. 26 — The Basantapur tower built in the Hanuman Dhoha Palace in Kathmandu longitudinal section.

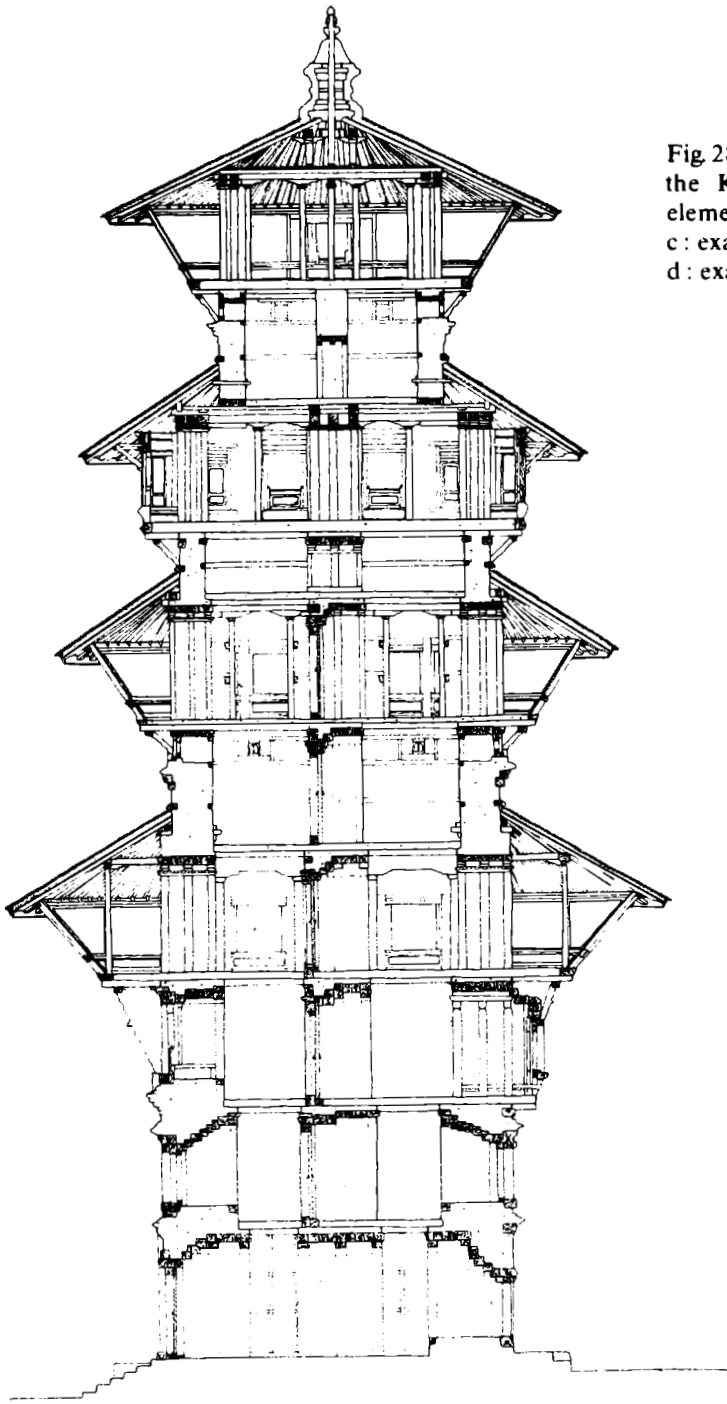
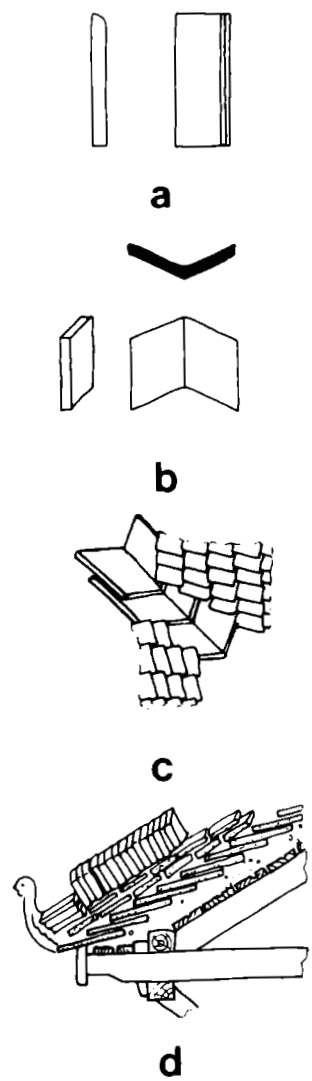


Fig. 27 — The Basantapur tower : transversal section

Fig. 28 — Traditional roofing elements in the Kathmandu valley — a : tile; b : element of roof valleys-hip rafter; c : example of laying in a roof valley; d : example of laying on a hip rafter.



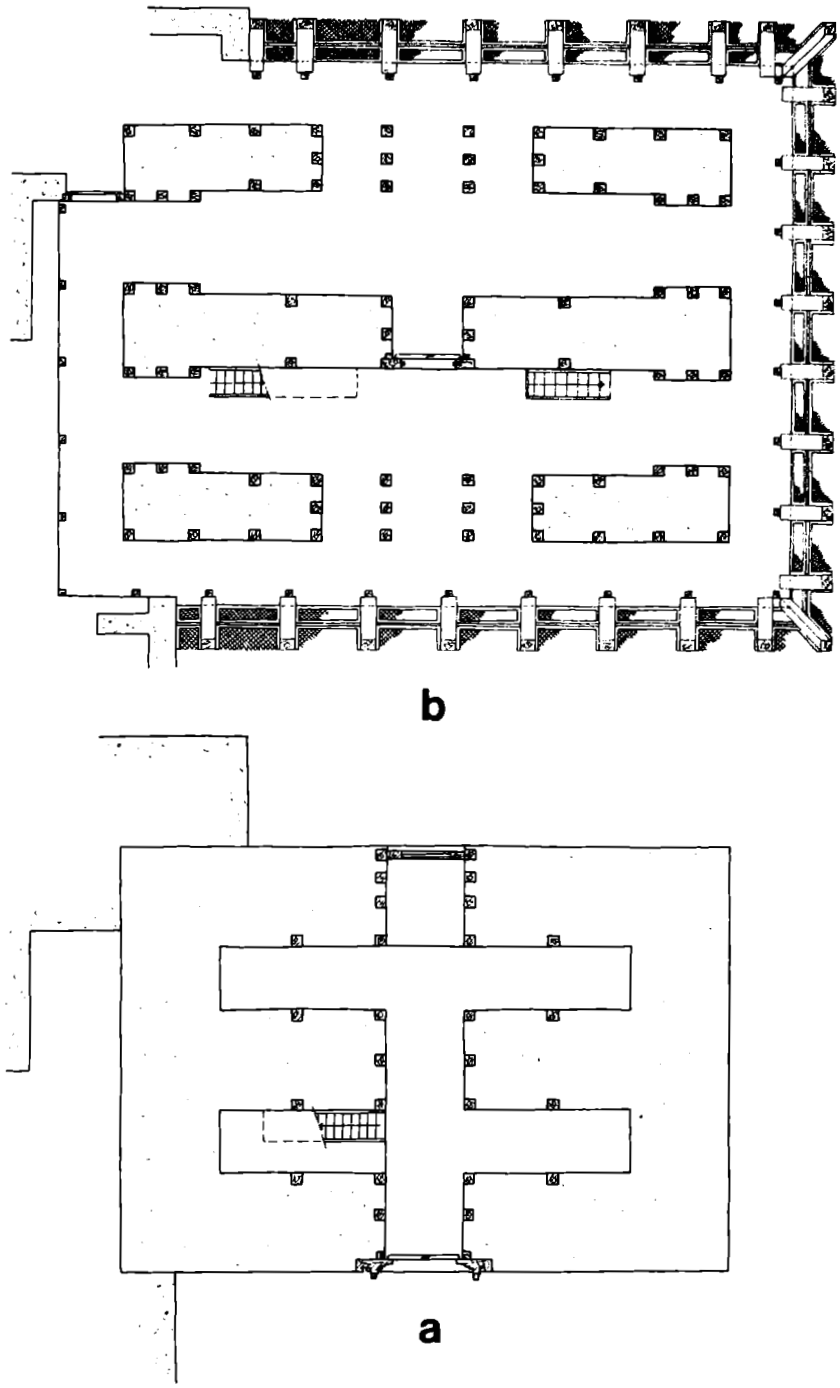


Fig. 29 — Birds eye view of the most characteristic storeys of the Basantapur Tower — a : ground floor plan; b : third floor plan.

east. Constructed on the overhangings of the joists, this gallery is about 1.30 m wide. Its volume is, in fact, much larger, as it is provided with diagonal windows which are closed by wodden screens which from the tiling reach just under the rafters of the first roof, like a lean-to roof, of the edifice.

In the angles formed by the meeting of those parts of the gallery situated to the south and to the north with that situated to the west, provisions of particular interest have seen adopted in particular as far as the dimensions of wood pieces is concerned. The overhanging of the joists, the projection of which is equal to the wood of the gallery, is supported by wall plates kept in place by diagonal bonds of section 25 x 40 cms. In each angle one joist wider than the others can always be found as this allows it to receive the crown intended to block the wall plates, and a bond of 40 x 40 cms tiling in which a mythical animal has been sculpted.

The stiles situated in the angles of the windows—as always in such a case—have a diamond shaped section and are bordered by a trapezoid frame. Between the ground and the windows, the fixed frames form a sort of rail crowned by a support piece placed at a slope. The elements which form the latter are joint by tenon and mortise in the stiles. At their extremities these elements have bossages which pass in front of the stiles to enable the continuity of the cast with which they are equiped.

Because of the special section of the stiles placed in the angles and the position given to the support piece, the joints required to join these different elements to each other are rather delicate to make even with the help of a very precise drawing. However, they are perfectly adjusted and the perfection of execution presented by the works in their entirety would have us believe that the 18th century Newar carpenters had a very a developed knowledge of the art in question. The remaining part of the frame of this gallery—i.e., the frame of the roof trussing so to say—is rather simple. In fact, from the ridge pole to the wall plate which crowns the frame, the rafters have a length of 3.6 m, an 8 x 10 cms section and are separated from each other by 25 cms. In order that they may not bend, they are relieved by purlins placed at right angles on fine columns, the distance between two axis being about 1.60 m. To gather the frame to the walls, horizontal transoms 10 x 13 cms are pinned on wall plates and ensconced behind the wooden taff-rails which reinforce the masonry.

From the third level onwards, the nature of the storeys is alternated. Thus, the fourth storey is lit by very small windows whereas the fifth is once again very open. The sixth, with its 1.6 m height, is in fact a false storey which is devoid of all lighting windows. At the level of the eighth storey, the external dimensions of the masonry, which till now had been very close to those of the base, have become considerably reduced and the walls rest on the joisting. This is a very highly masoned floor, intended to support the crowning of the edifice.

In fact, the construction system adopted is the following: on a very strong masonry base, which reaches till the third storey, a large open level is laid. This would require the masonry to be as reduced as possible, ensuring at the same time that a base, capable of receiving the walls of the fourth level, be constituted. This constitutes a stable course in masonry which is practically full, on which the joisting of the fifth floor shall rest. Thus, by starting with a base which has been reduced to the essentials, one has gradual access to what Newar art is best capable of expressing. The relationship with the plant element—the strong tree which soars to dominate the forest—also seems to be one of the dominant ideas of the edifice. The bare smooth trunk which shoots from the ground is gradually provided with widespread foliage—reflected in the overhanging roofs—and supported by powerful diagonal bonds, these being the symbols of branches which move away from the trunk.

The Jangam Monastery at Panauti

The Hindu monastery that we have decided to describe belongs to the members of the Jangam caste living in the small town of Panauti. It was built forty years ago in a style both pure and traditional, by a carpenter named Heranasi, head of the Newar carpenters of the neighbouring town of Banepa. Constructed at the end of a vast religious complex in the middle of the which may be found a temple dedicated to the god Shiva, its plan is L-shaped. Both its external facades establish a limit between public and private space. We have retained it in our study for the quality of its architecture and the form of its roof trussing, equiped with an angled truss with hip rafter and valley (fig. 30a).

The wings of this building measure 15.30 x 5.20 m and 13.75 x 5.95 m respectively. One can enter the building through a door situated on the smallest facade. This door opens on to a corridor which in turn opens on to a vast angled gallery, limited by columns and where the staircase to the upper storey and the attic may be found. On one side, this gallery is closed by a masonry by a dwarfed wall on which is placed a railing whereas on the other side it enables direct access to the garden included in the internal courtyard. Two walls at a distance of 1.77 m and 1.68 m as well as columns to separate the clearing created by the gallery from the portions reserved for living and the manger. These walls, like the external walls, are about 50 cms thick. They

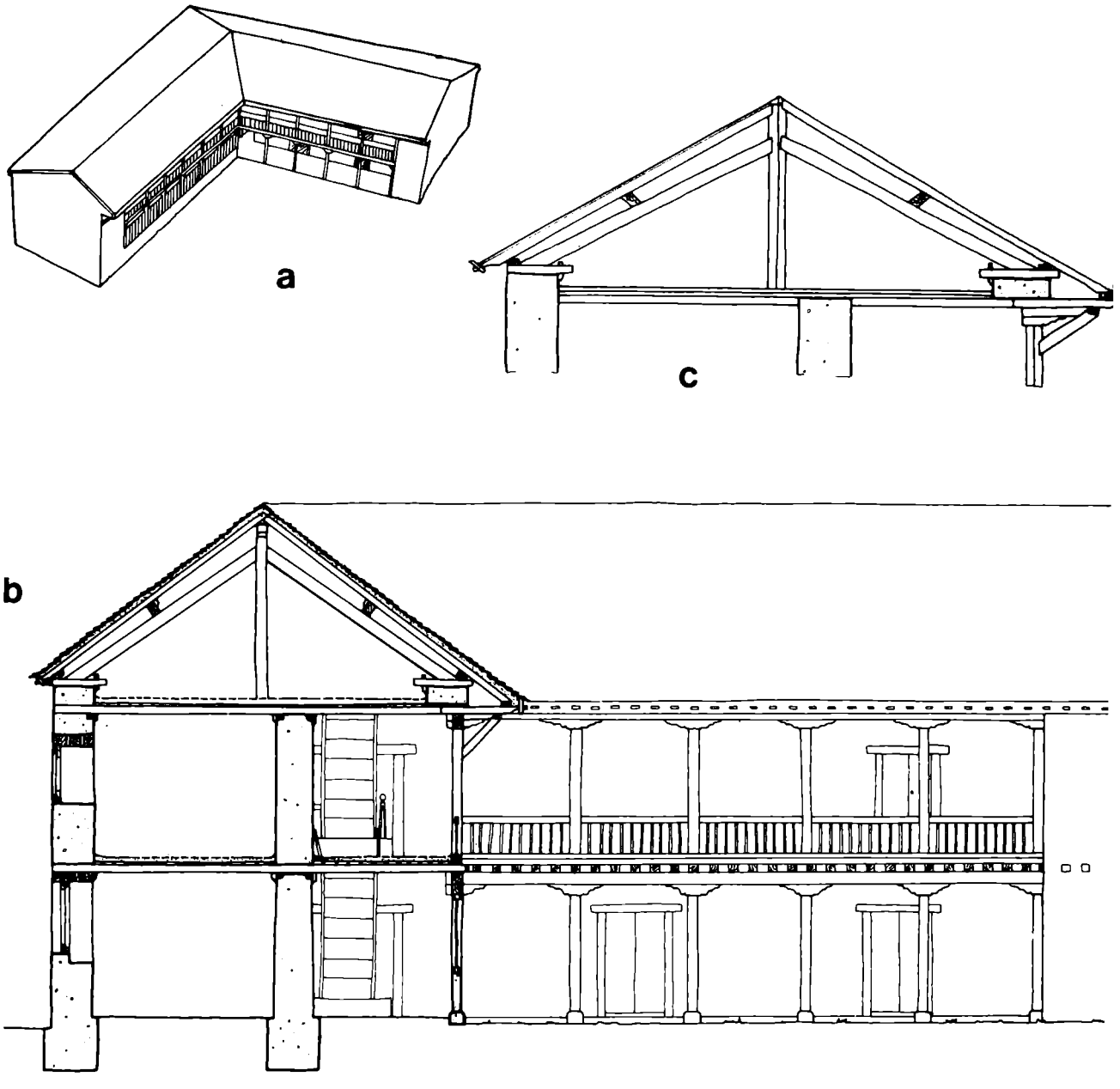


Fig. 30 — Jangam Monastery built in Panauti.
a : view in perspective of the building
b : elevation of a facade and transversal section on the other wing
c : trans angle elevation

support the joisting, on which a lathing of branches to receive the masoned earth and tiling of the storey is arranged. The ends of the joists rest on lintels supported by columns. These are arranged in the usual manner. With a section of 12 x 12 cms, they are separated by 1.32 m from their axis. At the base, they are supported by stone dados of 24 cm side, which exceed by 6 cms the level of the inside ground. At the head, they are covered by sub-beams 70 cms long, so as to reduce the free span of the lintels placed edgewise (section: 11 x 15 cms). On top of the joists, the end of which is free at this spot, a longitudinal piece is arranged against which the tiling of the upper storey is stopped. At the angle where the two parts of the gallery meet, the arrangement of the joists could have been problematic. This is not the case as the staircase opening made at this point allows for dowing away with a horizontal timber in which the joists would have been joined in a herringbone pattern.

The first floor is also arranged ostensibly in the same manner as the ground floor; it is also provided with an angled gallery. From the side of the void the latter is limited by a ballustrade 46 cms high, to protect one from falling.

This ballustrade is no doubt a little low in comparison to the 1 m height stipulated in France, and this even for the Newars who are generally not very tall, but it is in consonance with the other dimensions of the building. Thus, the distance included between the ground and the underneath of the joists is only 1.80 m, and the doors taken from the top of the threshold to the underneath of the high rail is rarely more than 1.32 m whereas the width of the passage is 66 cms.

The frame of the attic (fig. 30 b) is supported by an angle truss and fifteen normal trusses, spaced unevenly apart—1.15 m to 1.80 m—even though the most frequently found distance between two trusses is about 1.60 m. These trusses are made of a pole 1.65 x 11.5 cms side and two roof rafters of 10 x 12 cms. The poles rest on pole plates which are supported by the joists and give support to the ridge pole through the sub-beams. The roof rafters are joined to the beams by means of tenon and mortise joints 3 cms long, which, at the neck, have level revetment walls. Very much in the middle of their length, they support a course of purlins (section 9 x 12 cms) per slope, and at the foot, they are joined on pole plates sunken in the summit of the walls. The latter form an upsweep of 30 cms in relation to the ground; the wall situated at the side of the gallery is directly built on the joisting. The rafters, 7 x 8 cms section, are kept 33 cms apart from each other. They rest on the ridge pole as well as on the purlins and the wall plates laid at a slant on the external angle of wall, and are cut level on other wall plates placed on the capping of the consoles and on the pieces placed in the distance between the joints, in order to support the roof slopes and enable the jointing of string courses. Towards the exterior, these pieces are relieved by longitudinal pieces situated at right angles to the wall plates which are supported by diagonal bonds joined in each column.

The angle truss (fig. 30 c) is designed on brace lathes.[13] The hip rafter and the roof valley are placed face at right angles, and are jointed by means of 'enguelement' against the faces of the king post. The purlins rest on these elements only.

The rafter of the hip rafter and that of the roof valley are continuous starting from the end of the projections till the summit of the king post.

That of the hip rafter is placed with its face at right angles. It receives the jack rafters by double sloped cuts as, contrary to habit, these jack rafters are at right angles with the wall plates. That of the roof valley is placed at a slope such that the jack rafters of a slope have visibly stud cuts, whereas those of the other slope are provided with burrs. However, none of the cuts required for the jointing of the jack rafters nor those required for the 'engueulement' are perfectly stuck.

This frame has thus been sculpted on the spot, without the help of a diagram and this would tend to prove that, despite his undeniable qualities as a craftsman, the carpenter who executed it knew nothing about traces.

Some Aspects of the Life of the Newar Carpenters

In the Kathmandu Valley, the carpenter is referred to as 'sikami', from the work 'si' which means wood. At a very young age, he participates in a very wide range of activities and helps the workers on the construction site. In principle, the apprenticeship begins at the age of eleven years and generally the son learns his craft from his father. Nevertheless, a farmer's son may also take to the job of construction. Such is the case of the carpenter whom we met. He helped his father till the age of sixteen and then he learned his craft in a workshop. Carpentry is also taught in a professional school run by the State.

The enterprises are generally small in scale; they include one or two workers, the owner and the apprentice. However, the owner often works on his own; in which case he engages workers or peasants to help him according to his needs and the season. There are quite a few enterprises, 50 to 60, in Patan alone, which has a population of 60,000 inhabitants including 300 workmen carpenters.

In 1978, the workmen carpenters earned rupees fourteen per day, i.e., 5.6 francs which is envidently far too little. However, food was provided to him by the owner for whom he worked. Besides, he generally owned one or several fields or gardens where he grew the vegetables required throughout the year.

Although he does not pay anything by way of social security, he is in no way protected against illness, accidents or unemployment. He works for ten to eleven months in a year; the rest of the time consists of holidays on which religious and family festivals are celebrated.

From what we have been able to gather, it seems that the carpenter's knowledge of his profession is more practical than theoretical. He has a thorough knowledge of the materials that he uses according to traditional principles which although simple are always rational. His theoretical knowledge is somewhat limited for the moment. Thus, if he knows how to draw the diagram of a truss, he knows nothing about the drawing of hip rafters and hip cross beams and he certainly knows nothing of those diagrams which enabled his ancestors to trim wood. The joint use are few in number and not always very resistant. As metallurgy has not been developed to a high degree, the scribers and etches are imported from India (this being a rather recent development) at high prices. Their use is thus limited and it is clearly why joints by wooden pegging for joining the superimposed pieces are used. Besides, the peggings have a square or rectangular section which would lead one to believe that the piercings required had been made with a wood chisel, as augers of a large diameter were not available. In addition to the two reasons previously mentioned, bolts are inexistent.

Even though they use their hand tools with a lot of skill, these are few in number; in fact, they are rather crude, especially when locally made and are badly sharpened, especially the hand saws.

The tool box of the Newar carpenter comprises nail-drawer hammer, a mallet and a pair of pliers, an adze, a hand saw and a long saw, a plane, a 'galere', a two-part 10 mm rabbet plane, an 18 mm rabbet plane, a chisel, 30 mm and 10 mm, a heading chisel 10 and 5 mm, one or two gouges, an auger of 30 mm, a brace and bits, a gimlet and its bow, a triangular file, a t-square, a marking gauge, a string and a bubble level, a folding foot. To these worksite tools may be added the tools used in the workshop and rabbet planes of various profiles (fig. 31).

The hammer is locally made; its efficiency to pull out nails is very limited due to the somewhat simplistic form of the slit intended to carry out this job. The mallet, square in section, is shaped like a single piece of wood, one end of which is thin enough to form a handle. The adze, also locally made, is made of a very thick piece of steel thus avoiding having to shape an eye at the upturned ends; this procedure would have ensured the maintenance of the tool handle. The handle is very short, as the tool is generally used by only one hand. The blade of the hand saw is about 30 cms long, and its teeth are inclined in such a manner that the cut is made by pulling on the tool rather than pushing it as is the case in France. This is a particularity of Asia. But whereas the Japanese have thought up several varieties of blades and teething adapted to different kinds of work, the Newars only have one type. Besides this is badly sharpened: the French workman would probably call it a mason's saw, if it is true that the Newars are perfectly aware of the rules of sharpening chisels, adzes and plane irons, they know nothing at all of those pertaining to the maintenance of saws.

The long saw is the only frame saw available to the Nepalese. This tool is very widely used. The frame is 1.2 m long and 55 cms wide. The blade, placed at the axis of the transoms, is maintained by two straps; corners slid between the straps and the upper part of the transoms give the blade the required tautness (fig. 32). The stock implements like the plane, the rabbet plane, etc. were introduced in the Kathmandu Valley about 50 years ago. The plane and the 'galere' are generally provided with a cast lugg on the stop so that it may be used by two workers particularly to thin down the roughly sawn pieces. The chisel, heading chisel and gouge are locally made and resemble those used in France.

The same tools when used by sculptors have much smaller dimensions and are made by blacksmiths or the sculptors themselves. They are very simple and are special to the extent that do not have a wooden handle. The auger, the braces and the bits, the triangle file, the t-square, the level and the folding foot stool are imported from India and are manufactured in that country or imported by it. The gimlet and the bow, the marking gauge and the string are made by the workers themselves.

In the workshops, portable machines are practically non-existent and fixed machines are rare and not very powerful. Thus, in the workshop we visited, there was only one circular saw on a frame, and it was used only to deal with wood whose width was maximum 10 cms, the electric current not being of regular intensity.

Traditionally, the Newar worker has no knowledge of the workbench. This is also true for the carpenter, the cabinet-maker, the sculptor, the lockmaker, etc. The piece to be worked is thus placed on the site at the level of the ground. The worker sits on the piece or on a mat

placed next to it. He holds it in place using his toes, as he normally works barefoot and makes the shaping with the help of tools. This habit which surprises Westerners, is however common to practically the whole of Asia, Japan and Korea, i.e., three-fourths of humanity.

Conclusion

To conclude, we would like to express our own ideas about the traditional construction of the Kathmandu Valley. This construction has certainly inherited much from an old tradition, and is very rich in certain aspects like woodwork and sculpture. On the other hand, the masonry, roofing and frame are till today not very well developed.

From the second half of the nineteenth century, the development of the Rana style seems to have taken the traditional knowledge of the artisans on the wrong foot. The masonry and the frame have not gained anything from such change but the woodwork and sculpture have almost disappeared under its influence. Besides, cut off from the rest of the world till 1951, the Newars of the Kathmandu Valley have accumulated a technological backlog in the field of construction and building.

However, like most people all over the world, the Newars are confronted today by two different sets of problems: to protect, conserve and restore a unique heritage of religious edifices; and to construct a habitat which is better adapted and in which symbolism shall be maintained. The architectural wealth of the Kathmandu Valley is enormous. The religious edifices and the traditional constructions of very high quality are countless. However, if the former are, in principle, protected, the latter have begun to disappear very fast, through decay, lack of maintenance and sometimes, even under the impact of the Newar dynamism. For the Newars are a very active and industrious people, and their cities give the impression of being immense sites where traditional constructions are destroyed to be replaced by so called modern buildings, which are often of rather doubtful taste.

To the extent that it is possible, the operations related to the religious edifices should be considered part of the respect to traditional methods, unless modern type solutions remain invisible. This is the case of the foundations and the clamping in of reinforced concrete which—while being hidden by brick masonry—considerably increase the resistance of the buildings. The frame and the roof do not pose any specific problem as what exists has only to be reproduced and the men belonging to the profession have preserved the knowledge acquired for the construction of such works. On the other hand, in the field of woodwork and sculpture young skilful artisans must be trained so that their work be integrated in the existing complexes.

The construction of new dwelling units poses several problems to the extent where new trends have begun to influence the attitudes of people. However, in limiting oneself to the technical aspect of the problem, several suggestions come to mind. Thus, with the introduction of reinfored concrete used in the foundations and of cement in the joints, masonary has progressed in a very interesting manner. All the more so because cement is produced in the valley. The frame, on the other hand, is still very much closed in outdated procedures, which must be overcome through the adoption of better triangle systems, but using, to the extent that it is possible, joints without metallic parts (these shall have to be imported). It is none the less a delicate problem. Even though very modest, the proposals that we can make in this study only take into account the physical and mechanical aspects of the constructed systems. We know nothing about the symbolic meaning given to the designs adopted by the Newars, i.e., the meaning they carry. Thus, even our suggestions might seem more rational, they run the risk of being in disharmony with the Newar culture. That is why, it is important to specify that these are only suggestions and that we have no desire to impose anything whatever.

For the woodwork, the problem is also complex, because there are considerations of economy. In effect, it is materially impossible for the Newars to make domestic habitat having woodwork similar to that of the past centuries. It is thus necessary to adopt other solutions and these cannot be improvised overnight, Besides, all woodwork requires a minimum number of machines and energy. But the minute you talk of machines, you talk of imports and hydroelectric equipment.

For the roofing, the problem seems simple as the material is at hand. However, and under the influence of fashion, corrugated sheets are imported from India and the Chinese have constructed a factory with mechanical tiles which might not necessarily be in conformity with traditional architecture. The flat tile, as it is placed in France, might provide an interesting solution. By its aspect, this material is very similar to that used by the Newars; it has the additional advantage of being more resistant and lighter.

It is our wish that the Newars today carry the work of their predecessors through in a spirit which is faithful to traditional custom and techniques which very fortunately, are still alive. We hope that we have succeeded in showing that by using some modern

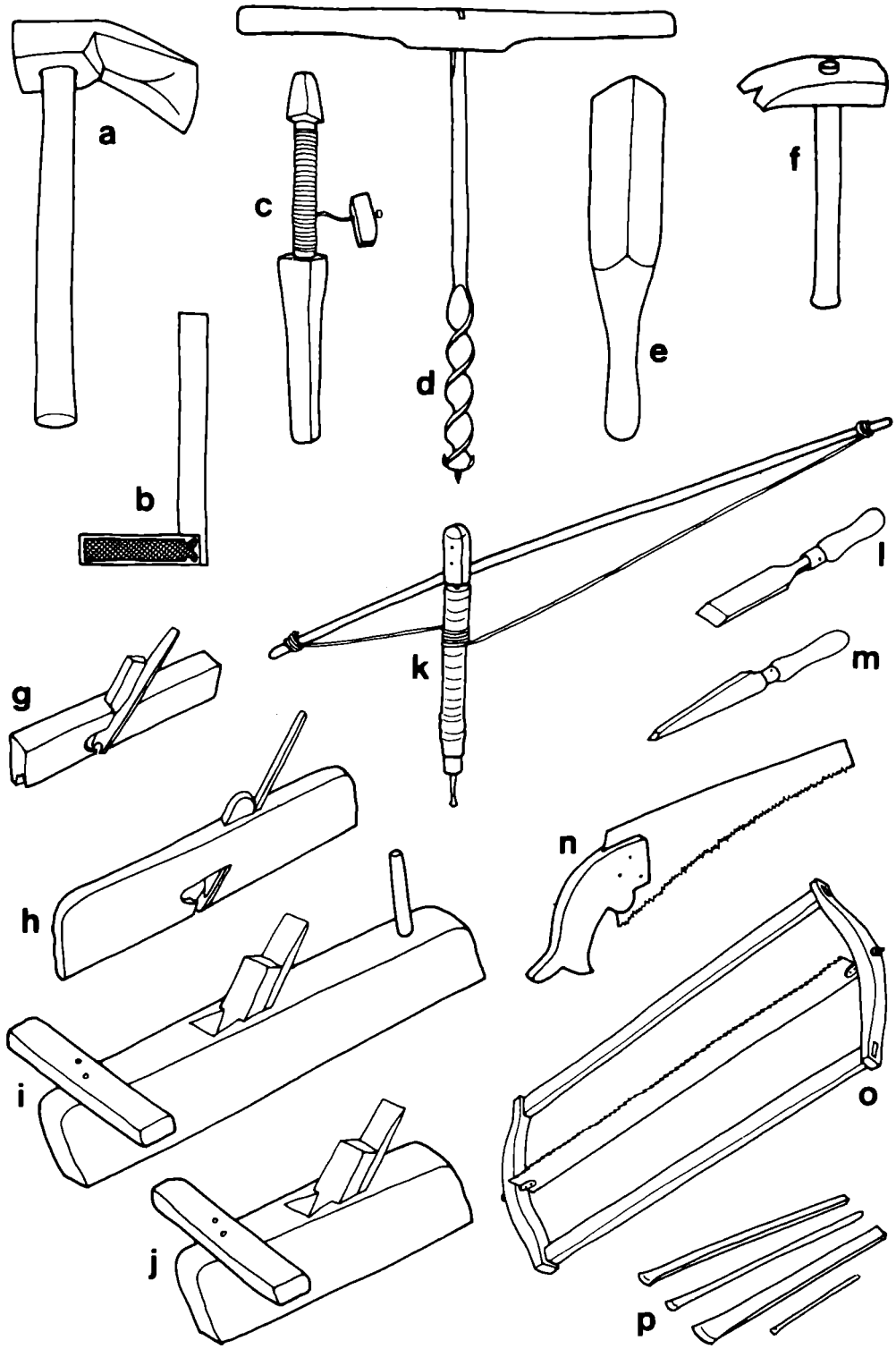


Fig. 31 — The look of the Newar carpenter

a : adze	e : mallet	i : galire	m : heading chisel
b : t-square	f : nail drawer hammer	j : plane	n : hand-saw
c : string	g : rabbit plane	k : gimlet	o : long saw
d : auger	h : rabbit plane	l : chisel	p : sculptor's chisels

↑ Fig. 32 — Carpenters at work
(Cl. J. Sanday)

↓ Fig. 33 — Construction of a window
(Cl. J. Sanday)

Fig. 34 — Laying of traditional tiles on a temple roof
(Cl. J. Sanday)

procedures the Newar edifices constructed in our time can still remain in harmony with the customs, the climate, while benefitting from better resistance to conditions of existence specific to the Himalayan Valleys.

Notes

1. The same procedure of drawing lines, i.e., wood tracing with the help of a black coated string course was used in France from the beginning of the 13th century till the end of the 19th when the black coat was replaced by the white powder currently used.
2. This manner of assemblage by a crown or pegging is undoubtedly the most widely used by the Newar carpenters, as it can be found in frames or floors to gather or maintain all the pieces which are superimposed.
3. The butt end is the part of the wood which extends beyond the cut made at the top of the bond and which is applied behind the wall plate.
4. 'Déjouter': obliquely sculpt the two vertical faces of the rafters so that they may extend up to the king post.
5. The space between two joists.
6. 'Cache-moineaux' are vertical plank joins between joists to close the gaps between the latter and prevent birds from entering the building.
7. Because of the building plan, the reflex angles which lead to the making of the roof valley are very rare. They do exist none the less and the technical solutions adopted are directly inverse to those used in the case of the salient angles.
8. The Rana style has been inspired by neo-classical architecture. It developed in the Kathmandu Valley after 1860 under European influence after a trip made by the Prime Minister at the time to Europe.
9. An an example, a window 1.23 x 1.32 m is made in one month by three workers.
10. See the study devoted to the historical development of the frame in France, in Volume I of *l' Encyclopédie de la Charpente et la Construction en Bois.*
11. This building complex has been magnificently restored in 1974 under the supervision of the English architect, John Sanday and the Department of Archeology so that the crowning of H.M. Birendra—the present King of Nepal—be held there.
12. These enormous brick walls are reinforced by poles 22 cms wide linked together by two levels of transoms and lierne ribs, following the principle illustrated in fig. 4.
13. An element of structure placed in an angle is said to be 'on brace lathes' when a space necessary for allowing the purlin to pass is made between the hip rafter or the roof valley and their rafter. On the other hand, when the hip rafter or the roof valley directly support their rafter and the purlins are cut and nailed against the faces of the element of the structure, this is called 'on lierne rafters'.

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THE PODE HOUSE
A Caste of Newar Fishermen

Gérard Toffin, Vincent Barré, Laurence and Patrick Berger

The traditional Newar house, with its high walls surrounded by terraced habitations, tiles that sometimes turn green due to humidity, reddish bricks, polished in the more affluent houses, three or four levels, each level being associated with a specific function, stands out immediately as a highly distinctive dwelling. The richness of its carved wood decor on the facade sets it apart from the abodes of the other Nepalese populations. This kind of house is well known today. Its vertical dimension, which integrates the economic, social and religious functions of the residential unit, has been highlighted for long.[1] The elements of the decor, the composition of the facades, the carvings on the doors and windows have been the subjects of detailed and well documented studies to which the reader may refer.[2] The unity of the habitation has also been underscored: we know that from a morphological point of view, there exists a remarkable similarity between the urban and rural Newar house.[3] In both cases, the traditional dwelling[4] corresponds to a single cultural model, widely followed by the pure castes of society. The profound unity amongst the countryside and the cities in this regard is without doubt one of the basic characteristics of the Newar civilisation.

This article deals with another type of abode, more modest in appearance and having a more rudimentary structure, which can be found amongst the lower levels of the Newar society, in particular amongst the untouchable castes. The house of an untouchable is called 'che' or sometimes 'chapro', a word borrowed from Nepali designating an extremely crude habitation, almost a hut and often temporary in nature. Little is known of such houses which apparently belong to another morphological and cultural type, different from the common Newar house. It is to this dwelling that we would like to draw attention. The task is made all the more urgent by the fact that, as we will see later, the general development of the economy and society is leading to the rapid disappearance of such a dwelling. We will begin with a study undertaken in the Pode milieu, a caste of Fishermen-Sweepers, settled in the small city of Panauti, situated to the east of the Kathmandu Valley,[5] as well as in other Newar agglomerations.

The Podes (New: Pwo; honorary name: Dyola) represent a community of around 500 households in the Kathmandu Valley, i.e., 1.3 per cent of the Newar population of this region.[6] They are mainly concentrated in the large urban agglomerations such as Kathmandu, Patan and Bhaktapur, as well as in the small towns.[7] The Pode caste is an impure and untouchable caste; the Fishermen-Sweepers occupy one of the lowest rungs of the hierarchy. Only two castes are below them: the Cyamkhalaks (or Cyame; honorary name; Kucikar) who are Sweepers and Cesspool Emptiers, and the Hala Hulus, also Sweepers, who are the descendants of inter-caste Pode-Cyamkhalak unions. Their extremely low status is due to the fact that they were previously executioners[8] and the profession they practised obliged them to have frequent contact with impure substances.

Despite the official abolition of the caste system in 1963, the Podes continue to be subjected to a large number of restrictions. They live in separate colonies, situated at the outskirts of the agglomerations, and do not use the same watering points as those of the other castes. In principle, they are not allowed access to the administrative buildings (school, post-office, bank) or to the inner areas of the temples dedicated to the purest deities. If they wish to drink a cup of tea, they have to stand outside the shop and wash the cup later with water that has been placed specially for their use. They are also prohibited from entering the house of a member of a pure caste. The young, influenced by modern ideas, are trying to fight against these forms of ostracism but very often they meet stiff resistance from local dignitaries opposed to any form of change. In Panauti, for example, Pode

Fig. 1 — The location of the Pode quarters in the city of Panauti

children are not allowed to attend public schools. The Panchayat of the locality decided in 1977 to build a special school in a Fishermen-Sweeper colony, meant exclusively for the children of this caste. However laudable the decision may be, it nevertheless only goes to further confirm caste prohibitions.[9]

The Podes derive the major part of their resources from fishing. They fish in rivers, ponds, irrigation canals and even rice fields when they are flooded. As implements, they use a casting net, landing net or fish hook.

In Kathmandu and Patan, a section of the Podes are employed by the local municipality or the administration to clean the roads and public buildings. The salaries range from 60 to 100 rupees per month (1 rupee: 0.35 franc). The Fishermen-Sweepers specialise in two other economic activities: they breed ducks (and pigs, like all untouchables) and do basketwork. The extent of these activities varies according to the agglomeration. In the villages and small towns, the Podes are often employed as agricultural workers, casual labourers or work hands. We are thus dealing with an extremely poor group, living at subsistance level. In the present case, religious hierarchy (caste hierarchy) and economic hierarchy coincide closely.

The Podes—and this is particularly significant as regards their position in the caste system—also live on begging (Nep: 'phonegu'). They settle themselves in the temple courtyards of their locality and beg for grain or money at the time of certain festivals. In Panauti, these collections take place thrice a year: at Gokarna ausi (Bhadau new moon, August-Sept.), at Tij (third day of the Bhadau waxing moon) and at Mata tirtha ausi (Baisakh new moon, April-May). In this locality, every Pode family has in addition one or several benefactors who make them gifts at regular intervals. The benefactors belong to the high Hindu or Buddhist castes. The fishing community considers them as its "patrons" and uses the term 'jeman' (from the Sanskrit word 'Yajamana') to designate them. The relationship is hereditary and is transmitted from father to son. A Pode may let other members of his caste have a few of his benefactors (against remuneration) and the 'jejman' cannot oppose such a deal. The gifts in kind are made at the birth and funeral ceremonies of the "patrons" as well as at the time of eclipses[10] and festivals which are held only once in every twelve years (examples: Machendranath jatra at Bungamati; Makar mela at Panauti). The Podes also receive the clothes of the dead and the rice dishes offered to the spirit of the departed soul seven days after cremation. In return, the Fisherman has to give to the family of his benefactor basketwork containers and in some cases, duck eggs offerings.

Like all Newar castes, the Podes have ritual functions vis a vis the Newar community as a whole. These functions are of two kinds. The Fishermen-Sweepers guard the divine Mother Matrika temples, always situated at the periphery of the agglomerations. This obliges them to sleep in turn in the temple of the goddess or to live next to the temple. As guards (New: 'dya pala'), they are authorised to take the offerings that the devotees make to the deity. In certain localities such as Panauti, the Podes rid the city of the dead cows. This task, which is performed by the Tanner-Cobblers, 'Sarkis', in the hills, is highly polluting. It only reinforces the permanent impurity attached to the Podes. In this locality, it is the Fishermen-Sweepers who are called upon to clean the two or three private latrines of the agglomeration. Such impure contacts relegate the Podes to the lowest rung of the hierarchy.

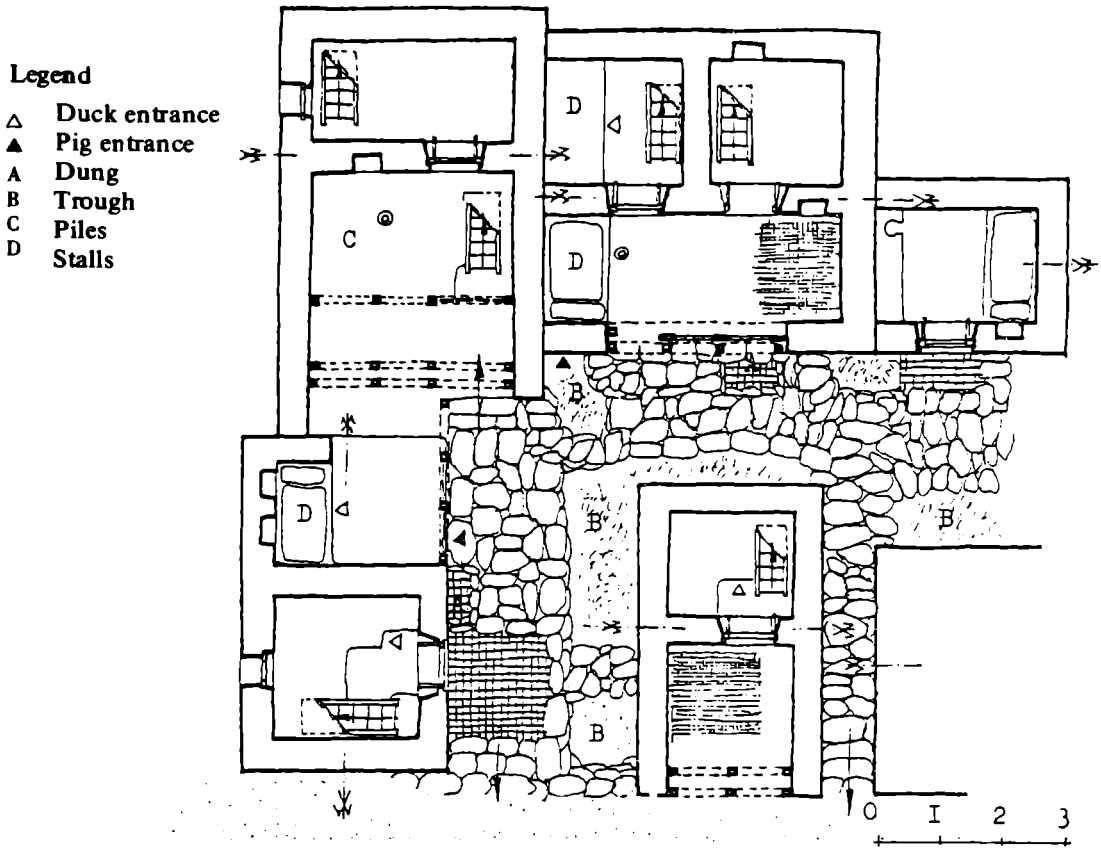
In the rural milieu, the Podes have a third function: they are obliged to light the brick furnaces that the agricultural castes and sub-castes have in their gardens in order to construct their houses. Burning the earth is considered an impure and dangerous activity; only an untouchable can take such a risk. The lighting of the furnace is preceded by the sacrifice of a chicken to the Agni Mata deity. The Pode then receives beer, rice flakes and a portion of the cooked food.

In Panauti, there are 145 Podes living in 33 houses (1977 figures), i.e., 5 per cent of the total population of the agglomeration.[11] The average number of occupants in a single house is 4.38, a figure substantially below that of the higher castes (ex: Sakyas or Bares: 7.18—Chathariyas: 6.22). The Fishermen-Sweepers constitute the least affluent group of the locality and their standard of living is the lowest. Weighed down with debts, the Podes hardly have any land: constituting 5 per cent of the population, they own only 1.48 per cent of the cultivable land of the city. Only one of their members has been able to cross the poverty line and buy an adequate amount of land. With 29 'ropanis' (1.5 hectare), he is looked upon as a rich landowner.

In order to procure grain and vegetables, the Panauti Podes sell their fish, basketwork and ducks. In winter, from December to March, they migrate southwards to the Panckal region (altitude: 550 m) and barter the fish they have caught in the local rivers for rice. The exchange rate is fixed: two 'paus' (0.500 kg) of fish for one 'pathi' (2 kgs) of rice. They also bring with them their ducks in large open-work baskets and exchange duck eggs for grain. This winter migration is a regular feature and mobilises more than half of the Panauti Pode population. At Panckal, the Fishermen-Sweepers live in huts, 'chapro', made of branches and covered with leaves.

Fig. 2 — A Pode house in Panauti; one of the crudest
(Cl. A. Koenig)

Fig. 3 and 4 — The Pode quarters in Panauti
(Cl. A. Koenig)



↑ Fig. 5 — Construction isle in the Pode

↓ Fig. 6 — Mahila Dycla's house

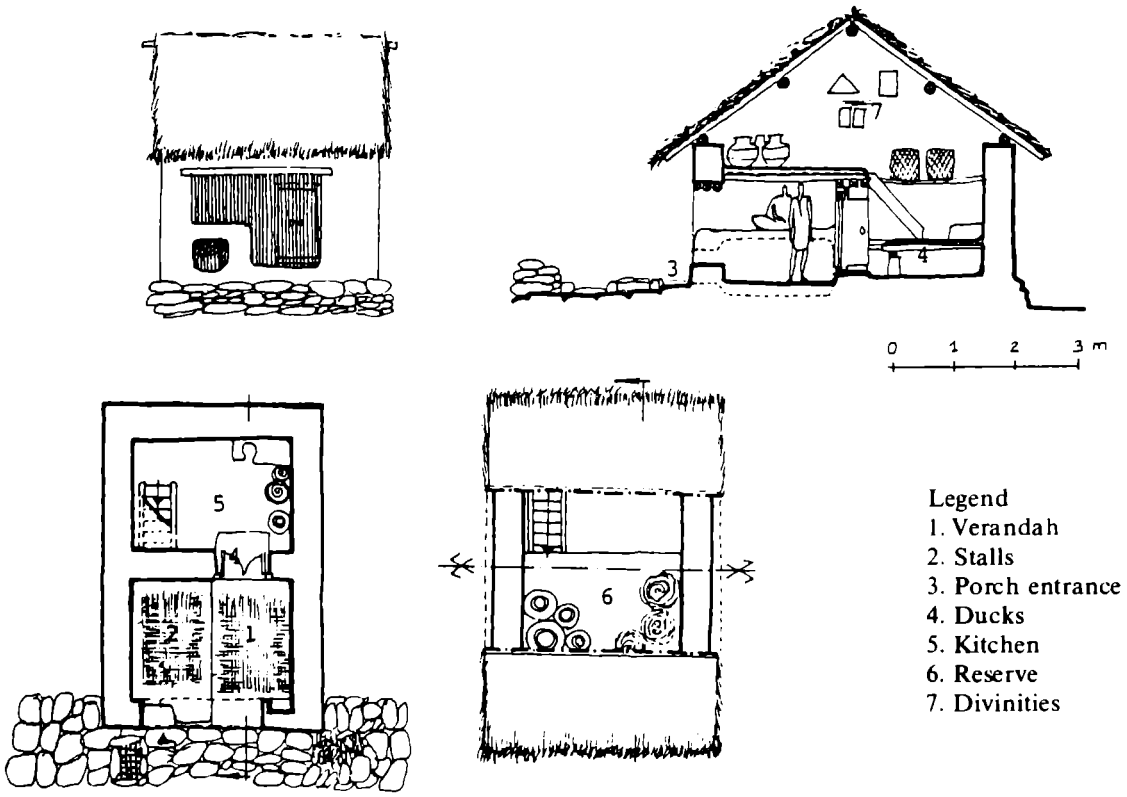


Fig. 7 and 8 — Cluster of Pode houses in Panauti
(Cl. A. Koenig)

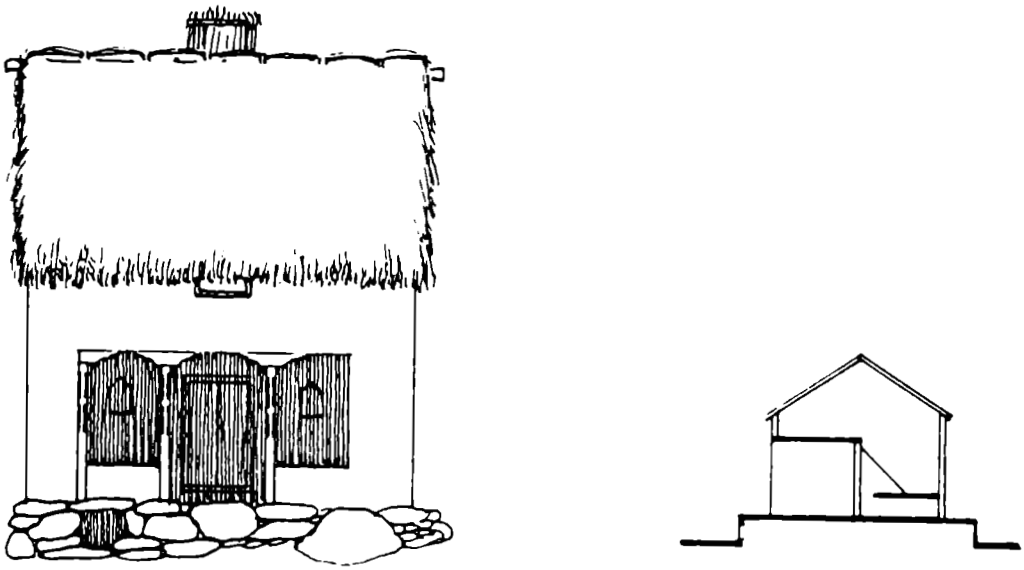


Fig. 9 — Pode house

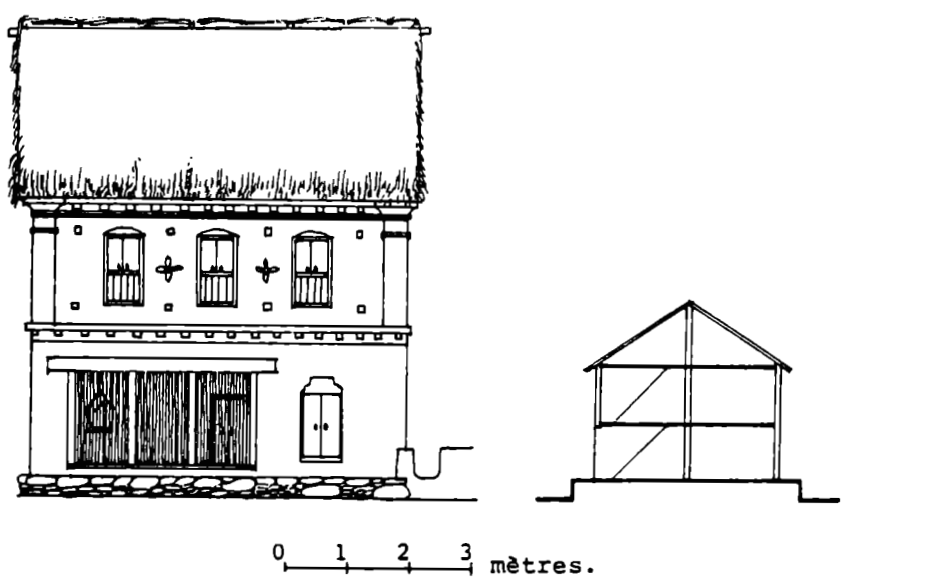


Fig. 10 — Recent modifications of the Pode habitant

This house, constructed in 1971, has an ornamented focade. The verandah has been replaced by eaves equiped with a portico. The roofing is made of thatch.

As in the other Newar agglomerations, the Podes are grouped together in the same colony (called Pode tol), situated at the periphery of the city. In Panauti, this colony is situated in the north-east between the Indreswar Mahadev temple and the Brahmayani temple, outside the walls of the city.[12] The houses are arranged in groups of two or three habitations, orientated south-north or east-west, often at a distance from the road. They form small distinctive blocks in sharp contrast to the strong corridor structure of the traditional Newar settlement. The fabric is sparse, broken, reminding one of the settlements of the "hill" Indo-Nepaleses. Each family has a small garden behind his house which serves as a rubbish dump. The shabbiness and insalubrity—due mainly to the pigs that roam about freely on the streets—of the Pode colony distinguish it from the colonies of the pure castes.

The Podes have only one holy shrine: it consists of a raw stone fixed at the side of the road, which symbolises 'Nasa dya', the deity of dance and music. This fact is all the more interesting as the Podes hardly play any music. They sacrifice a pig to the deity during the full moon of Jeth (May-June). Contrary to the pure castes, the Fishermen-Sweepers do not venerate the elephant god Ganesh every morning before starting their day's work and do not have a Ganesh temple in their colony.

The external aspect of the Pode house is far more crude than that of the traditional Newar house. It is a small construction of rectangular shape, made of unbaked brick walls and has only one storey. The double sloped roof is covered with thatch, as till recently Nepalese law prohibited the Fishermen-Sweepers from using tiles.[13] A verandah, which opens out to the exterior for the most part, is built on the ground floor facade wall. The Newari language has no specific word to designate the verandah; the Podes use the word 'cheli' (New.), which is applied to the entire ground floor, be it open or covered. They never employ the Nepali word 'pidi', which specifically designates the verandah. A double door gives one direct access to the back portion of the house. The attic floor is supported in front by a rudimentary wooden portico and in the middle by a central partition wall. The frame consists of purlins, rafters, a lathing of split bamboo. The chimney is a simple skylight open at the ridge pole. Access to the first floor or to the attic can be had from the inside, by means of a poor quality ladder, more often than not wobbly. Windows, if there are any at all, are barely decorated and reduced to their simplest expression. The gables and facades are sometimes ornamented with false brick windows, a feature which can be found in the Newar dwelling of the middle and upper castes.

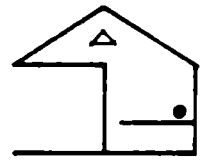
Let us now describe the house of Mahila Dyola, typical of this settlement (fig.6). The house was built in 1955. It is only three metres wide and 5 metres deep. For a family of three, the living space is 30 m^2. The entire front portion of the ground floor, exposed to the south, opens out to the street. It is here that parents and children generally settle down during the day. The complex is kept very clean. The floor, plinths, wooden partition are colour-washed every month with clay, whereas the recesses, pillars and ceilings are coated with white earth twice a year. The wooden partitioned room is a place of rest and work: men repair their nets; women patch up old clothes and delouse their children. The pigsty is located under the left part of the verandah.

The door provides access to a cramped room, 2 by 4 metres in size, which occupies the entire back bay. The room is slightly raised in relation to the ground level. It rests on a board beneath which the ducks are shut during the night. The fire stove is situated at the far end to the right. A few containers, an oil lamp, a blow lamp are arranged next to the furnace. The agricultural implements (hoe, sickle) are hung on to the ceiling. Two worn mats act as beds for a part of the family after nightfall.

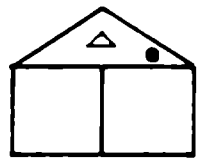
The attic occupies only the front portion of the house, situated above the verandah. Old baskets and chipped pottery are stored here. Food reserves are conserved in terracotta jars. A small recess in the inner wall of the northern gable shelters the stone symbolising the goddess Lakshmi.

The small garden situated behind the house is a dumping place, practically inaccessible from the street. No specific function has been assigned to it. On the other hand, the front of the house is frequently used by the family as it forms the natural extension of the house. Mats are spread out to dry cereals, to sit on or to repair the nets. Clothes are dried on the window balusters and gable walls.

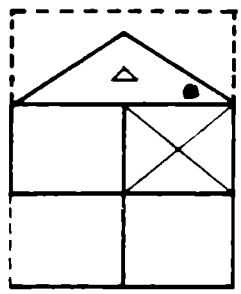
It was not possible for us to make a detailed study of the symbolism of the Pode dwelling. Nevertheless, it can be stated that from the religious point of view, this house is clearly not as rich as the high and middle caste houses. It has neither the threshold god (Kumar) nor a lineage deity. Only Lakshmi, the goddess of wealth and prosperity, is represented in the form of a pebble. The Podes consider Lakshmi the only deity worthy of regular worship. She looks after the welfare of the family and symbolises the hope of attaining some day a better standard of living. She is honoured with much fanfare during the Dasai (September-October) and Tihar (October - November) festivals.



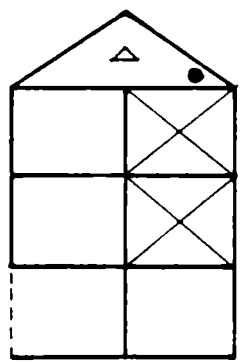
1 — Fisherman's house (and other untouchables)
—mediocre construction
—permanent verandah
—fire place not under roof
—outdoor life.



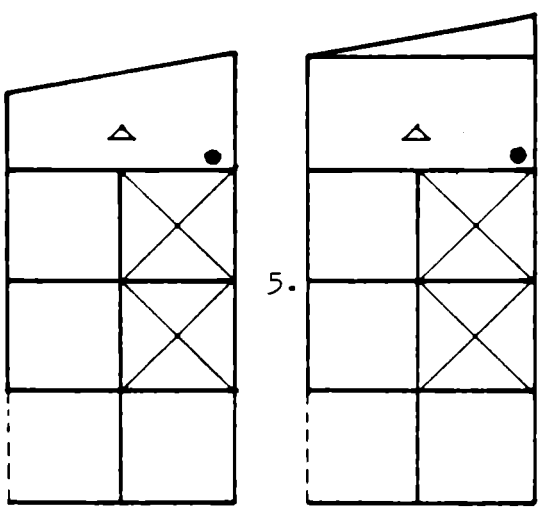
2 — Low house
—mediocre construction small, but ement closest to the traditional house
—fire place under roof
—indoor life



3 — Crude transition house
—permanent construction; provisional roofing
—adaptation to the traditional mode (fire place, store, shop)



4 — Traditional Newar house
—Permanent roof
—fire place and divinity under roof
—maximum specialisation of storeys dues bays
—hierarchies between interval space
—indoor life
—symmetrical well ordered facader



5 — Modern house
—modern construction
—increase of span and height
—internal organisation similar to traditional house, more privacy
—horizontal division
—feeble hierarchy in the allocation of rooms
—facades banals, with expression of modern values

Legend : Δ divinity
• fire place
X store

Fig. 11 — Newar houses : dynamics aspects.

The Pode house as described by us more or less characterises the houses of the other untouchable Newar castes: Hala Hulu, Cyamkhalak and Dom.[14] We found such a house in the Dom colony of Sankhu, to the north-east of the Valley, and in the Cyamkhalak colony which borders the Vishnumati in Kathmandu. The verandah is sometimes replaced by a closed room, but on the whole, the structure of the dwelling is identical, its crude and rural character remaining unchanged.

The Pode dwelling is being rapidly improved upon. The abolition of the caste system, the increased wealth of families, thanks to new sources of income, the general change in attitudes, have enabled an increasing number of untouchables to transform their houses. In Panauti, for example, 14 out of the 34 Podes households have replaced their thatch roof covering with tiles in the course of the last twenty years. Some families have even gone further: they have walled the verandah and raised their houses by adding one or two storeys. These improvements are invariably accompanied by a growing concern for the composition and ornamentation of the facade. The Pode house is thus fast disappearing. It is losing its distinctive morphological features and resembling more and more the traditional Newar house, which is considered as the ideal reference type. What remains to be seen is whether the gap has bridged definitively or whether the pure castes will be able to conceive of another house type which will distinguish them from the untouchables.

This article would be incomplete if we did not mention the existence of what may be termed as an intermediate house, between the Pode house and the house of the pure castes. This refers to two or three level dwellings, covered with thatch and built of unbaked bricks. They are generally situated in the suburbs or zones undergoing rapid urbanisation and are inhabited by people having a low social status or new arrivals with extremely limited resources. Such a house is clearly distinguished from the Pode dwelling by the absence of a verandah as well as the fact that the fire stove has to be necessarily located in the attic. However, both have a generally crude appearance and use similar quality construction material (thatch and unbaked bricks). The most striking feature of these houses, as in the case of the Pode dwellings is that they are often just the first stage in the construction of a big and beautiful traditional houses. As soon as they have the necessary means, the inhabitants try to raise the level of their dwelling in order to conform with the "noble" model. Or further still, they try and renovate their houses on modern lines, with a flat roof and a cement coating on the brick walls, following the dictates of current trends. We believe that the malleability and dynamics of the house have not been emphasized enough. Amongst the Newars of the Kathmandu Valley, we have a typical case of several types of habitations which when examined from a diachronic point of view, represent in reality the various steps in the construction of a single model, referred to as "noble" or which is simply in fashion. The transition from one house type to another takes place at the time of a social promotion, sudden acquisition of wealth or following a change in customs. But let us make no mistake on this point; it would be wrong and even improper to consider the Pode house as an elementary form of the traditional Newar dwelling. Such a house belongs to a completely different cultural world, the origins of which must be sought amongst the low Indo-Nepalese hill castes. We have only tried to show, that subjected as they are to the influence of the dominant model of the pure castes, the Podes can easily transform their houses into a "respectable" residence and that the different types of Newar dwellings constitute a dynamic chain, endowed with a logic of its own.

Notes

1. Cf. W. Jacobsen, "Landsby i Nepal", Arkitekten, 5, 1969, pp. 89-114. More recently see for example: W. Korn, *The Traditional Architecture of the Kathmandu Valley*, Kathmandu, Ratna Pustak Bhandar, 1976, pp. 18-23; G. Auer and N. Gutschow, "Domestic Architecture of Nepal" in *Art and Archeology research papers*, 12, London, 1977, pp. 64-68; G. Toffin, *Pyangaon, une communauté néwar de la vallée de Kathmandou: la vie matérielle*, Paris, Ed. of the C.N.R.S., 1977, pp. 137-160.
2. See in particular S.B. Deo, 'Glimpses of Nepal Woodwork', *The Journal of the Indian Society of Oriental Art;* new series, vol. III, Calcutta, 1968; M. Lobsinger-Dellenbach, P. de Chastonay, "Artisanat népalais. Construction d'une fenêtre", *Archives Suisses d'Anthropologie générale'*, XIX, 1954, 2, pp. 90-196; as well as V. Barré, L. and P. Berger, 'L' espace d'une ville newar (Népal Central)', *Créteil*, Paris XII, 3rd cycle thesis, not published, 1977, pp. 197 and following pages.
3. Cf. specially Auer and Gutschow, op. cit, p. 65.
4. By traditional habitat, we mean here habitat that has not been influenced by Western models.
5. Study undertaken from 1976 to 1978 within the framework of the Greco Himalaya-Karakorum (C.N.R.S.). G.Toffin undertook the ethnological study; V. Barré, L. and P. Berger were responsible for the architectural portion.
6. C. Rosser, "Social, mobility in the Newar caste system", in C. Von Fürer-Haimendorf (Ed.), *Caste and Kin in Nepal, India and Ceylon*, London, 1966, p. 86.
7. A few Podes also live in the hills outside the Kathmandu Valley, especially in the Pokhara region.

8. Cf. for example H.A. Oldfield, *Sketches from Nepal*, Delhi, Cosmo Publications, 1974, (1880). p. 188 and pp. 238 sq. Also see R.L. Turner who says about the Podes: "Executioner, the public executioner in Nepal (belonging to a very low caste)", *A Comparative and Etymological Dictionary of the Nepali Language* London, 1931, p. 391. We know that the dust on the streets — trodden upon by the most impure part of the human body (the feet) and by the members of all castes—is highly polluting.
9. On the current situation of the impure castes in Nepalese society, see A. Höfer, *The caste hierarchy and the State in Nepal. A Study of the Muluki Ain of 1854*, Innsbruck, 1979, pp. 204-205. Unlike the Indian untouchables, the Nepalese and Newars untouchables are not protected by law and receive no special attention from the State.
10. Such practices exist in India as well; in this regard, cf. S. Stevenson, *The Rites of the Twice-Born*, London, Oxford University Press, 1920, p. 351. According to the Indian tradition, the eclipse is brought about by a demon called Rahu who tries to swallow the moon or the sun. However, the shadow of a demon is as polluting as contact with an untouchable, making impure anything on which it falls. Thus, on this day, the Podes are given food likely to have been polluted during the eclipse.
11. When referring to the high Newar or Buddhist castes, the Podes of Panauti (like all other low and impure castes of this locality) use the word "Newar" as if to exclude themselves from this group whose language they none the less speak. To make things clear, one should distinguish between the Newar castes and the castes who speak the Newari language.
12. In Patan, the Podes are divided into 4 wards, situated in the four orients of the city: according to tradition, each ward had a gate which was defended by the Fishermen-Sweepers (personal study, 1974). We know that Patan is also delimited by four stupas as well, which are also located in the four orients. On the spatial organisation of the city, cf. N. Gutschow and B. Kölver, *Bhaktapur; ordered space concepts and functions in a town of Nepal*, Wiesbaden , 1975, and G. Toffin, "Les aspects religieux de la royauté néwar au Népal", *Archives de Sciences Sociales des Religions*, 1979, 48 (1), pp. 68-74.
13. For the Code of Jaya Sthiti Malla, cf. for example: D. Wright *History of Nepal*, Calcutta, 1966 (1877), p. 124. The Podes did not have the right to wear a hat, shoes or gold jewellery (idem. p. 124). The comparison between the roofing of the house and headgear is interesting; it can be found elsewhere in Asia.
14. The Doms (honorific term: Badikar) have been mentioned neither in the Code nor in the ethnographic literature. They nevertheless form a separate caste, distinct from the tailor-musicians who are of a higher rank. They play the drum 'dholak' at the time of festivals and ceremonies marking the various phases of the life cycle. They also guard a few Hindu and Buddhist temples; Bajra Barahi, Bajra Yogini, Surya Binayak, etc. Cf. in this regard: G. Toffin, "Intercaste relations in a Newar community", in *Himalayan Anthropology. The Indo-Tibetan interface*, ed. by J.F. Fisher, The Hague - Paris, Mouton, 1978, p. 477.

THE TRIBAL HILL ZONE

WITH HEAD HELD HIGH
The House, Ritual and Politics in East Nepal

Philippe Sagant

Among the Limbus, with the exception of Dasai, the blessing of seeds, the struggle against hail, and the new festivals of the Nepalese calendar, there are very few "village" festivals. On the other hand, there are many important domestic rituals. The house, within the system of representations, seems to carry considerable weight. The notion of "village" is as loose, badly defined and inconsistent — at least, before administrative Nepalization took place—as the domestic space, the house, well-anchored at its four corners, is heavy with significance, packed full of symbols. The village is, already, almost the forest. The house, extremely well-ordered, opens wide upon the disorder of the forest.[1]

The house: sanctuary of the cultural order, and, beyond it, almost nothing. If we assume that the hypothesis is well founded, we should be able to verify it. Everyone is aware of the importance of ritual in organizing society. Elsewhere in Nepal, when it takes place within the kingdom, it contributes to legitimizing the power of the king.[2] But what if it is, above all, domestic? Does it, in that case, confer power to the head of the household? Where does the king stand in ancient Limbu society? And who were those "chiefs" who stood up, in 1774, against the Gurkha conquest?

The purpose of this paper is to try and establish a relation between domestic ritual and political life. Let us begin with the sacrifice of a chicken to the goddess Nahangma. It takes place inside the house. It is carried out in the name of the head of the household, for whom it has an important consequence: it is said, at the end of the ritual, that his "soul has risen", 'Sam phungma', that his "head is held high again"; can such a fantasy have had any real influence in founding the very concrete substance of power?

The Sacrifice to Nahangma

Nahangma is a warrior divinity. 'Hangma' has, more or less, the meaning of "queen", or, at least of a mighty woman. Besides, the word 'hang' repeatedly recurs during the ritual: 'hang sit lang', the central pillar of the house; 'tumia hang', the head of the house; 'yet hang', the eight founding kings, one of whom is the ancestor of the sacrificer. Although it is very rare, it would seem that Nahangma can appear in dreams. She is a very beautiful woman. She is armed: a bow, a sword, a shield, sometimes a helmet. It is said that she sits in a bright and elevated place, East of the Other World, 'Co lung', atop a snowy mountain actually existing in the region. Approaching her kingdom, there are springs of great purity, different ones for priests and for laymen, which meet together at one point, 'sum lamdoma'. There are also huge stretches of flowers. Each flower stands for a human destiny. It is a life's "vegetal-twin", its double, its external soul its "flower-soul", 'phung sam'.

In principle, each household head, 'tumia hang', offers up a sacrifice to Nahangma twice a year, once at the beginning of the "rising season" and once at the beginning of the "declining season". In 1966-71, these households were nuclear, or conjugal, ones. They grouped together from four to six persons. The ritual could start around three o'clock in the afternoon and end around midnight. Apart from the people of the house and the neighbours' children, there were few other participants. The cult involved Nahangma, but also the ancestors (Theba Sam, Lumaeppa) and the gods of the lineages (Manguenna). Nahangma is also present elsewhere in Limbu country.[3] Her cult seems to be very ancient. But it seems to have given precedence to the cult of Yuma, who has become the greatest of Limbu divinities. To tell the truth , in the myth, Nahangma and Yuma tear one another to pieces when they meet. Perhaps this is not just an accident.

Let us recall the main outlines of the ritual.[4] The "tribal priest", the 'phedangma', directs the feast. Through a shamanistic type of journey he will establish contact between the world of human beings and the

world of the gods. But first, at ca. 3 p.m., he erects altars in a terraced field situated a bit lower than the house. He faces the river. He starts by offering left-overs to the spirit of the Monkey: thus he has had his share, let him remain quiet! Then he invokes the Buzzard and the Wild Cat, sorcerers of the Other World, always in quest of blood, and who run up as soon as a human being starts sacrificing a beast anywhere: let them go back where they belong and stay there! Lastly, he offers an egg or a chicken to each of the great masters of the fallow lands: the Spirit of the Forest (Tampungma), the Spirit of the Crests (Toksongba), the Spirit of the Waters (Warokma) etc... so that they also should not come and disturb the feast. All this can happen in broad daylight and last one or two hours. At the end, the altars are destroyed. It is said then that the way to the house is closed, 'lam sakma', and its access forbidden.

The sun has disappeared behind the crest, darkness has spread over the valley. Night is here. The priest takes his place on the verandah, near the main door. He offers incense to Yuma. She should not be cross, she should not be jealous. A very beautiful invocation introduces the summons of the masterspirits, 'guru', — or the auxiliaries — who will assist the priest on his journey: "To the North, the yak's baby has fallen asleep, the marmot has fallen asleep, etc. In their homes, the Tibetans are sleeping. Now is the time, Masters, to start the sacrifice. It's time for you to get up". The long recitation is repeated from the beginning for each of the cardinal points, then for the place where the shaman is sitting. At the end of the summons, the central pillar of the house has become the centre of the World. The four corners of the house coincide with the four orients of the Universe. The house, whose entrance has been shut since afternoon, is raised up/'tho', compared to the space around it.

The priest enters. The ancestor's altar, that of Manguenna, and that of Nahangma are built against the crest—or summit—side wall. Nahangma's altar is the nearest to the main exit, towards the East of the Other World. Among other items, it bears the decorated arms of the head of the house, which are the same as those of Nahangma: the bow, the sword, the shield. Five ritualistic sequences are going to take place within three or four hours. They alternate between the cult of Nahangma and the cult of Manguenna. The ancestor's cult will take place only afterwards.

The priest first sings of the appearance of the divinity and of the ten kings, the eight warriors and the two priests, founders of the group, in front of Nahangma's altar. He remains constantly seated, cross-legged.

He next takes up his place in front of Manguenna's altar. In the same manner, he sings of the Ten Kings' migrations on the Tibetan plateau. One of them is the head of the house's ancestor. It is for the household chief's benefit that a sacrifice is being offered tonight: his name, his clan name, the name of his hamlet are mentioned; his filiation to one of the Ten Kings is recalled.

Back, in front of Nahangma's altar, the priest starts his journey to the Other World. He carries with him the soul, 'mukumasam' of the sacrificer, "like a yak carries its load". The long voyage begins at the central pillar. It leads to the Junction of the Three Roads, at the meeting of the Three Springs, 'sum landoma', where the fields of flowers stretch out endlessly. The gestures made at this point inside the house must be emphasised: they correspond to the actions undertaken in the kingdom of Nahangma.

The priest approaches the head of the house, who is standing in front of the altar: he gives him the sword. For an instant he places the live chicken on the layman's left shoulder, then on his right, on his head and feet, in back and in front.

Several acts of divination are carried out: the tossing of stones which either split or not; the examination of the flower soul, 'phung sam', symbolising life in the Other World: is it faded, is it withered? Which way does the chicken go when it is released on the beaten earth of the house in front of the altar? Will it go to the left or to the right, like a priest? Or straight ahead, like a warrior? "There are many people in the 'co lung'. You must fight for your place. The chicken picks at people's feet so that they should move aside. If you can't make room for yourself in the 'co lung', you die". Because of the chicken, the layman's soul, 'mukuma sam', lies for a while in the realm of Nahangma. The man still stands before the altar. With the point of his sword, the priest traces a circle around him on the earth. The head of the house then starts to howl, stamping his feet on the ground. He rends the air with his sword. He beats his chest. He jumps up and down, stamps his feet, whirls around several times.

The chicken is killed with one blow of a club on the spine: there is no blood, except for a few drops from its beak falling on two banana leaves. "Has blood flowed?" cries the anxious family. "It has!" answers the priest. They read the oracles in the creature's appearance.

Some feathers are pulled out: from the tip of the wings and the tail, from the feet, from the neck of the chicken, and placed upon the altar.

The chicken is emptied. Again the inspection of the

entrails involves divination. The offal are roasted and shared among the assistants, beginning with the head of the house. This is the first communion meal.

After a pause, the priest finishes the ritual of Manguenna.

Another pause and it is the end of the cult of Mahangma and the journey back. All through this long sequence, the priest has held in his hands the turban of the sacrificer. At the end, the head of the house, standing in front of the altar, receives Nahangma's dish in his left hand, the sword in his right. His head is bound with the turban. The priest slips one of the chicken's feathers between the folds: this is the "pennant", 'nisan', the mark of power. For one moment, he imposes Nahangma's pure water on the layman's head. Once more, wearing the turban, the head of the house stamps his feet, shouts and jumps up and down. It is said then that the soul has entered, 'sam lingma', that its primary force has been restored.

The chicken is cooked. Rice has been ready for a long time. All participants take their meal together. This is another communion. As for the gods, they receive the "smoke of the meal", 'thok mikhu', "the smoke of the meat", 'sa mikhu'.

At the end of the ritual, it is said that the priest has made the head of the house's "soul to rise", 'sam phungma'. The Nepalese expression 'sir uthaunu' is commonly used: the man "holds up his head again".

With Head Held High: a Complex Religious State

Before looking into how the sacrifice tends to establish the power of the head of the house, let's stop for a brief discussion of some of the themes of the ritual. Two aspects never cease to be impressive. First, the great complexity of the beliefs which surround the notion of living with one's "head held high". Next, the parallels which appear between Limbu ideas and those of many other populations of the Himalayan sphere, and even beyond.

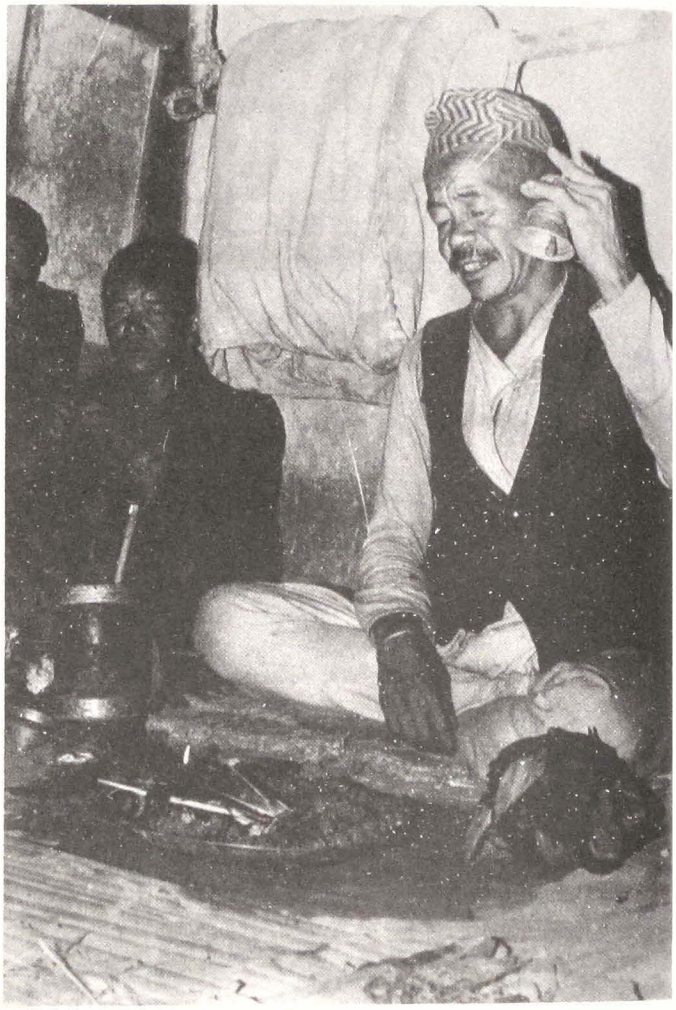
The Head

First, the head held high. When defining in their language the effects of the sacrifice, the Limbus do not mention the head at all. For them it is the "soul", 'sam', which rises, which is raised, 'phungma'. Of course, when translating, they currently use the Nepalese expression 'sir uthaunu'. Word for word, this means "make to raise" or "raise again". It seems to have its equivalent in ancient Tibet where "the image of sovereignty", as Stein writes, [5] "is the powerful helmet, 'dbu rmog btsan', or the head held high, 'dbu phangs mtho' ". But is there really community of thought? We think so. For, though the Limbu expression 'sam phungma' does not explicitly mention it, the importance of the head, throughout the ritual, is constantly reaffirmed. It is on the head of the household's skull that the shaman imposes for an instant the live chicken. It is in the turban brought back from the Other World that resides the "energy", the "soul", the "vital force", 'mukuma sam', restored to its primary force. It is by putting this turban on his head that the head of the house, stamping his feet, expresses this renewal of vitality. Finally, it is on the head that the shaman imposes Nahangma's pure water. At the end of the ritual, it is said that Nahangma sits on the top of the head of the house's skull. The same idea is present in ancient Tibet.[6] And, is more, the Nepalese expression 'sir uthaunu' can be found among other populations of Nepal, among the Rais, for instance,[7] to designate the sequence of a ritual very much like the Limbus. It contains the same major themes: the sword, the chicken on the head, the couple squatting side by side (who appear in the Limbu cult to Manguenna), the shouts, the way of killing with one blow of the club, the flower under the turban, the head and the house which are "high" because of the sacrifice, etc. Thus, beyond the diversity of languages—Nepalese, Tibetan or Rai—, conceptions seem to be related. And for the Limbus also, it is a question of walking with one's "head held high".

The Powers Conferred

It could be objected that the Tibetan expression concerns only the king, that it has no relation to a household head. We are confronted here with the critical problem of the nature of powers. It must first be said that in Nahangma's cult, they have a way of conceiving sacrifice which A.W. Macdonald, once again, recently stressed.[8] Neither Hinduism nor Buddhism have left their mark on Limbu sacrifice. And yet, the ideas are related. First, there is the boundary drawn around the sacrificial area. Here, among the Limbus, it encircles the house, whose four corners correspond to the four orients of the Universe. Elsewhere, in Hindu or Buddhist ritual, they are the frontiers of the realm, or the eight monasteries on the edge of the territory.[9] Next, a centre is planted to allow the contact between human beings and gods to be established. Here we have the central pillar of the house, an accurate counterpart; where it is a fortified castle, a mountain or a 'stupa'. And then an action takes place which somehow recalls the "creative dismemberment" and its double movement. Here, the sacrifice of the chicken takes place during which feathers are torn out from the tips of its feet, wings, tail and neck. Elsewhere, among the Sherpas, the sharing out of a yak's carcass[10] or among the Daflas,[11] the body of the killed man which is used as a standard to evaluate the compensations ending a vendetta; or, yet again, among Buddhists, the "murder"

←Fig. 1 — Phedangma performing Yama ritual
(Cl. P. Sagant)



↑ Fig. 2 — Sam Lama in the house of Tongoli,
Ongukma Phedangma calling his guru
(Cl. P. Sagant)

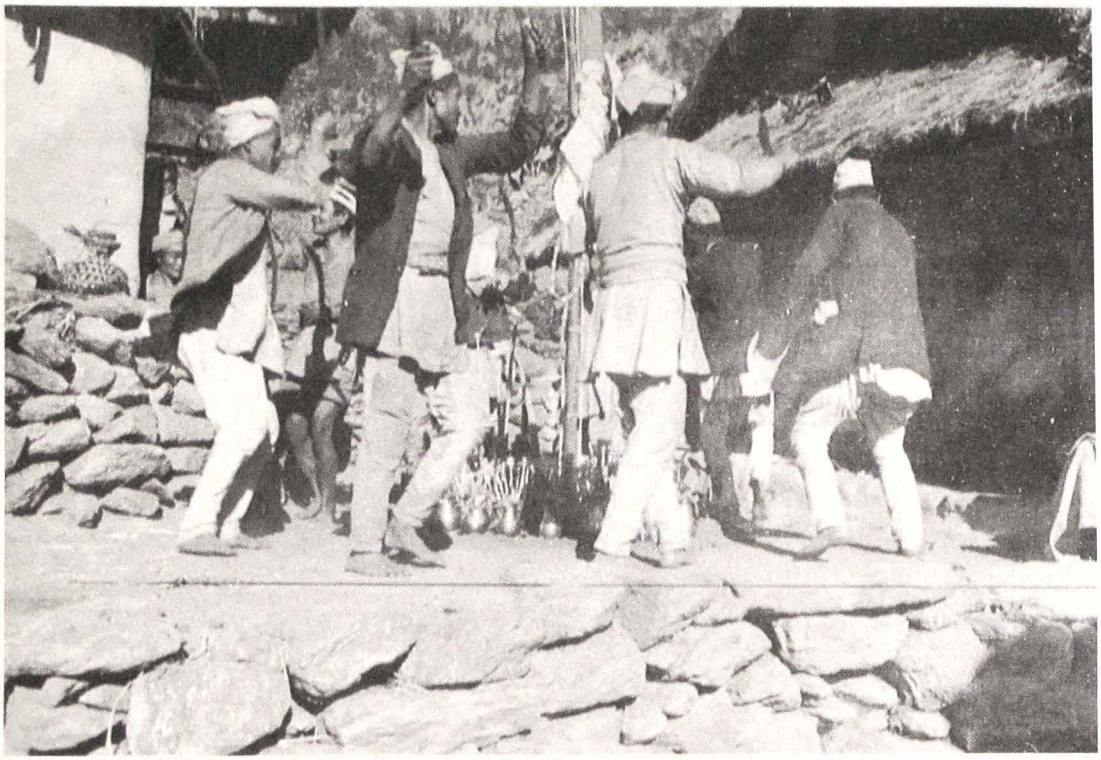
←Fig. 3 — Kansima playing his drums-yama ritual
(Cl. P. Sagant)

Fig. 4 — Horing the club for killing the pig (Cl. P. Sagant)

Fig. 5 — Carving the pig
(Cl. P. Sagant)

→

Fig. 6 — Phedangma chanting prayers after sighting the pigs liver
(Cl. P. Sagant)



↑ Fig. 7 — Limbu Priests (Cl. P. Sagant)

↓ Fig. 8 — War dance after the sacrifice around the altar (Cl. P. Sagant)

of a she-devil, etc. This creative dismemberment, in one way or another, regulates society. Here, among the Limbus, it organises domestic space,[12] imposing the distinction between high and low, blood relations and affines, between receivers and givers of women. Elsewhere, among the Sherpas, it establishes relations between the clans. Among the Daflas, it restores peace and establishes the alliance between two important families; for Buddhists or Hindus it is at the origin of a society stratified into four distinct orders. Finally, and here we are at the heart of the matter, the act of sacrifice — or creative dismemberment — founds a power. Here, perhaps, the power of the Limbu head of the house. There, the power of a Hindu or Buddhist king. This "Asian" percentage — as Paul Mus would have put it— in the conduct of the sacrifice is not without implications when trying to define the nature of the powers at the end of the Nahangma ritual. After the Gurkha conquest of 1774, some of the Limbu chiefs were, henceforth, considered kings by the Hindu State of Nepal. They were called 'subba', which come from a Nepalese word. By a skilful twist, their authority grew from the four corners of the house to the four orients of their District ('amali', nep.). And the Dasai feast became for the 'subba' what Nahangma was for the household heads. But in both cases, the same ambition remained: to go with one's "head held high". In both cases the symbols of authority—flag or feather — are called by the same name "Pennant" or "standard" ('nisan nep'.). In both cases, the effects of the ritual are the same. Thus, "to lift one's head up" for a Limbu, whether "king" or head of house, is to obtain the same, identical powers.

Nahangma, A Warrior Divinity

It should be noted that Nahangma, the Limbu divinity, seems to be rather closely related to those gods, 'dgra lha', of the "nameless religion" of the ancient Tibetans.[13] Like them, she is named "by a term which means chief of king". This word, 'hang', used by the Limbus, cannot fail to remind us of the Naga king of the same name, 'hang', the Chinese sovereign, 'wang', the Tibetan power, 'dban'. Nahangma sits on the top of a mountain, and, in ancient Tibet, "the sacred mountains are also war gods".[14] This mountain — of the Limbus' — is luminous, recalling the mountain of the first Tibetan king, "dissolving in light".[15] Nahangma gives the head of the house access to a parcel of ancestral land. In Tibet, writes R. Stein, "each small land has its own mountain...".. They are the gods of the land ('yul-lha') or the masters of the locality, 'gzhi-bdag', 'sa-bdag'. Like Nahangma and Manguenna, "they are intimately connected to the founder of the lineage".[16] And, as in the Limbu ritual, "their war-like character... and their link with the clan and its ancestor, are expressed... through the feasts which are dedicated to them". In East Nepal, as in ancient Tibet, "the ritual is composed of two elements joined together, a god (mountain, rock, tree) and a goddess (lake, spring, river)." In Libang, as in Dolpo,[17] the mountain is associated with a lake. The description of the Manguenna ritual would bring other similarities to the fore. The Tibetan conception of a man's gods 'pho-lha', and of a woman's gods, 'mo-lha', is not foreign to this cult. And Tibetan vitality 'srog-lha', presents a certain analogy with the "energy" or the "soul", 'mukuma sam', of the Limbus. To lift one's head up, for the Limbus, is primarily to make sacrifice to gods who are not unrelated to the ancient Tibetan gods of the residence.

Gods of the Body and Gods of the Locality

The parallel can be extended further. In ancient Tibet "the microcosm of the inhabited place... and the human body, that other microcosm... are looked upon as belonging to the same model". "Man has within himself no less than five or sometimes six protective gods, 'go-ba'i lha'. One of them is precisely the god of the land, 'yul-lha': he resides, as he should, on the top of the head... On the shoulders live the war-god, 'dgra-lha', and the man's god, 'pho-lha'.[18] Tucci notes the same, sometimes contradictory, data, in detail, among ancient authors: "the powers feared by the Tibetans... have their seat in all places: in his right shoulder, 'dgra-lha', in his right armpit, 'p'o lha'; in his armpit, 'mo-lha'; in the heart, 'zan-lha' ".[19] To these Tibetan conceptions correspond those of the Limbus. At the end of the sacrifice, as we have seen, Nahangma lies at the top of the skull. At the end of Manguenna's ritual, it is also said that the god of the man's lineage rests on the right shoulder, the god of the woman's lineage on the left. Some of the their ideas about the heart, the armpits, and even the sole of the foot, are not unrelated to Tibetan conceptions. For Limbus and for Tibetans alike, "the souls are hardly any different from the gods".[20] Between 'mukuma sam' and Nahangma, hardly any difference is made. And for the Limbu, to hold one's head up high is to restore the presence of the gods in the human body.

The Sacrificial Blood

The blood of the sacrifice seems to us to be an important theme. But the way the chicken is sacrificed to Nahangma, by a blow of a club across its back, raises a problem. For the blood does not flow, or just barely. For the outsider looking on, it appears that the Limbus have two main ways of carrying out animal sacrifices. The first one consists in neatly slitting the throat of the beast with a knife. The blood flows on the floor. The second one is a series of different methods: killing with a club, as is the case here; piercing the heart with a spear, or else

extracting it. These different methods have a point in common: the blood does not run, or very little. V. Elwin has drawn our attention to this type of sacrifice. It can also be found elsewhere, he says, among the Daflas of the former NEFA, who strangle their mithans; and also among the Nagas, the Abors, the Tibetans of Amdo, [21] etc... It is an archaic method. It is described in the Veda. It is said there to be characteristic of the Kiranti ethnic groups. It is also attested among other Nepalese populations.[22] In Tibet, around 1900, the 'ga-ra' butchers slaughtered pigs in the same way as the Limbus, by piercing the heart with a boar-spear.[23] As we understand it, killing by piercing the heart is liberating the breath, 'sokma', which rises towards the gods. And if the blood does not run in this world, it's perhaps because it's being saved for the Other World. Whatever the case may be, blood appears to play a major role in the Nahangma ritual. It is blood which, according to certain informations, allows the flower-soul, 'phung sam', to be refreshed. Its importance is recognised in the ritual: "has the blood run?" asks the family. The rare drops spilled allow them to predict the future. And all the omens, in all the houses where we were present during the ritual, are directed to the same things: wealth, harvests, cattle, money. Nothing else. Here we have yet another example of an idea belonging to the Himalayan sphere, the relation between blood and prosperity. It climaxed with the ancient Nagas' head-hunting.[24] It is present in the sacrifice to Nahangma. To hold one's head up high is to make blood flow in order to ensure the prosperity of the household.

The Flower-soul

The flower-soul, 'phung sam', in Nahangma's sphere, is primarily an individual concept: each human life has its own. Nevertheless, the idea of a collective representation is not absent. The first fields of flowers which the shaman meets during his travels to the Other World, symbolize the lives of children; he next meets those of women, then of men, grouped, it is said, by clans. During the marriage rituals, the priest bases his auguring on the appearance of the two newly-weds' flower-souls. This notion is constantly present in the Tong Sing ceremony. Besides, it is felt powerfully. A teenager becomes very ill when he knows that his father's flower-soul is smothering his own.[25] Only when his father has died can he regain his health. This representation of the vegetable double is fairly widespread elsewhere in Nepal. Höfer has described it for the Tamangs,[26] though their beliefs seem to be quite different. It's rather the tree-soul, 'bla sing', which, among the Tamangs, seems to correspond to the Limbu flower-soul, 'phung sam': "every individual is linked with a particular kind of tree which symbolizes, so to speak, his spiritual backbone". Höfer establishes a relation with the Tibetans' tree-soul, 'bla shing'. In fact, this notion of a vegetal twin or double is current in Asia. It can be found in Siberia as well as in South-East Asia. "In Tibetan thought", notes A.W. Macdonald, "an individual or a group of men may possess several souls or external lives".[27] The same is true of the Limbus. For instance, on the grave of a still-born child, a banana tree has been planted; when the tree grows and is ready to bear fruit, it is cut down. The mother is relieved. The still-born child's soul will no longer come to torment her. Another example: the Tokpe Lake can be compared to the lake-soul, *bla-mtsho*, of the ancient Tibetans,[28] etc. Stein establishes a relationship between the gods of the place, the gods of the body and the external souls: "the soul, or the life-force", he writes, "resides... both in the body and in an external object... Such an object can be the external soul or the seat of life, 'bla-gnas', of an individual, a group of men or a country". It seems to us that the flower-soul of the ritual to Nahangma is a comparable concept to that Tibetan seat of life, 'bla-gnas', 'srog-ngas'. And to raise one's head up, for the Limbus, mainly means restoring the freshness of the flower-soul, at this seat of life.

The Vital Force

Restoring the freshness of the flower-soul enables a man to recover the primal energy of his "vital force". I.S. Chemjong, himself a Limbu, has described the relation between the flower-soul, 'phung sam', and the vital force, 'mukuma sam': "an expert priestess sings or recites the whole story of the creation of flower... and compares such inanimate objects to human life in such a way that she particularises the mentality of a certain man to that of the stage of that particular flower... When the priestess refreshes the flower, the man also would regain his energy and become fresh and active again".[29] It would seem that the Tamang ceremony of the quest for the tree-soul, 'bla sing' has a similar aim. The effect of the ritual, writes A. Höfer[30] "is called 'che wangur', from Tibetan 'che', life, " 'dban skur ba', to confer power". This idea of power is doubly present in the Limbu notion of a "vital force". In everyday life, only the expression 'mukuma sam' is used. 'Sam' means "soul" in general. Chem Jong translates 'muk' by "power",[31] 'mukuma sam' by "the most powerful spirit".[32] Martine Mazaudon reminds us of the kinship of the word with 'mukhya', meaning "village chief" in Nepalese. Yet, in the ritual to Nahangma the expression 'mukuma sam' is constantly associated with the expression 'hangemba sam', according to a process of reduplication frequent in religious language.[33] Concerning the doublet, 'hangemba sam', it is with Tibetan, this time, that a comparision can be drawn, because the Limbu 'hang', as

we have seen, parallels the Tibetan 'dban' (power). This "power-soul", 'mukuma sam', 'hangemba sam', this "energy", this "vital force" of the Limbus, is thus the one which Nahangma, a warring goddess and hunter, dispenses to every man who can sacrifice to her. Moreover, it is Nahangma herself who is present in every man, to the point, as we have seen, that informants often confuse 'mukuma sam' with Nahangma when designating the "vital force" which, at the end of the ritual, sits at the top of the skull of the household head. The nature of this force, specifically male, is entirely oriented toward hunting and war. Chem Jong has drawn our attention to the relation with hunting.[34] As the war, it is constantly present in field-data. "When the red flag, 'nisan', is out, you strike: 'mukum' (manifests itself); when nothing is to be seen, you strike; blood must flow". This "vital force," peculiar to the Limbus, would thus appear somehow linked to the Naga "soul force", as described by Guha: it is present in the body, says he. It gives Vim and Vigour to the individual. In a locality or a community, at any given time, a given quantity of it exists. If this amount decreases, the harvest will be poor, illnesses will appear. In order to be protected from such calamities, "additional soul force has to be procured".[35] Hence the implications concerning head-hunting, conservation of skulls, etc. 'Mukuma sam', the Limbus' vital force, also seems to be connected with the ancient Tibetans' vital force, 'srog'. Stein writes[36] that it is primarily linked to blood. Tucci says that it is a sort of life impulse, the breathing of a vital soul coinciding with life itself. Further analysis of the concepts compared should be undertaken. We think, however, that similar ideas prevailed when the various concepts typical of the Limbus, the Tamangs, the Nagas and the Tibetans were first formulated. And that to raise one's head up for the Limbus, is, in the last analysis, to recover the life force that enables a man, when hunting or making war, to spill the blood which ensures prosperity.

Ritual Purity

As to the notion of ritual purity, it has its importance in the sacrifice to Nahangma. It's at the junction of three pure springs that the shaman settles down, in the Other World, to officiate. The first spring, on his left, belongs to the priests 'ya'; the second, on his right, belongs to the 'phedangma'; the third, in the middle, belongs to the laymen, 'tumia hang'. From his journey, the priest brings back Nahangma's pure water. He'll place it for a moment on the head of the household chief. To raise one's head up, is to rediscover a vital force closely associated with a state of ritual purity.[37]

Thus, when the ritual to Nahangma comes to an end, the household chief's head is "held up high". This is a complex religious state. Essentially, it ensures powers. Its outer sign is the pennant or the banner ('nisan' nep.). Royal or domestic, these powers are of the same nature, a vitality restored in its purity and primal energy, entirely concentrated upon the act of letting blood, whether in hunting or at war, and so ensuring prosperity. This "vital force", 'mukuma sam', resides at the top of the head. It is none else than Nahangma herself, the warrior divinity, incarnated in the human body. Shamanist techniques allow one to make the blood of sacrifice flow in the Other World. The head of the house's flower-soul, 'phung sam', then recovers its freshness. This flower-soul, vegetal twin of a human destiny, is a "seat of life", external to man. Restored in its brilliance, this flower-soul enables the "vital force" to recapture the full extent of its power.

"Losing Face": From a Religious State to Patterns of Social Behaviour

To the "head held high" corresponds a state which can be described as being its reverse, something like "losing face" or to "have one's head down". In their language the Limbu say, 'sam mumma', "to have one's soul shaken, anxious".[38] They also employ the expression 'sirin mumma', because this anxiety is located in the head and can be felt physically in the temples, 'sirin'. In Nepali, as among the Limbus the expressions 'sir tolinu', 'sir khasnu', are currently used. The first can be translated as "being prostrated, upset, incapable of action". As for the second, it implies the idea of a fall, a slip, a failure. In both cases, the head, 'sir', is involved. Shame, 'saram', is often associated with it. Be they in Nepali or Limbu, the four expressions, 'sam mumma', 'sirin mumma', 'sir tolinu', and 'sir khasnu', seem to have a similar meaning. In all four cases, at any rate, there is only one remedy: to find a way "to raise the head up", 'sir uthaunu', 'sam phungma'. If that can't be achieved, there may be danger of death. And even if the person survives, he will find himself in one way or another rejected by society.

Losing face can occur in various circumstances: dishonour, impurity, offence, wrong or indignities incurred. Equally, there are ways to "raise one's head" which no longer only consist in sacrificing a chicken to Nahangma. In other words, this state of "head high" until now defined as religious , appears to be closely related to all sorts of social behaviour, to a sort of code of *savoir-vivre*. And these behaviour patterns, although they may very well concern very different domains — kinship attitudes, political conflicts, norms of alliance — nevertheless seem to correspond to very precise rules, which are more and more generally accepted, or at least which once were. Some accounts collected in the field

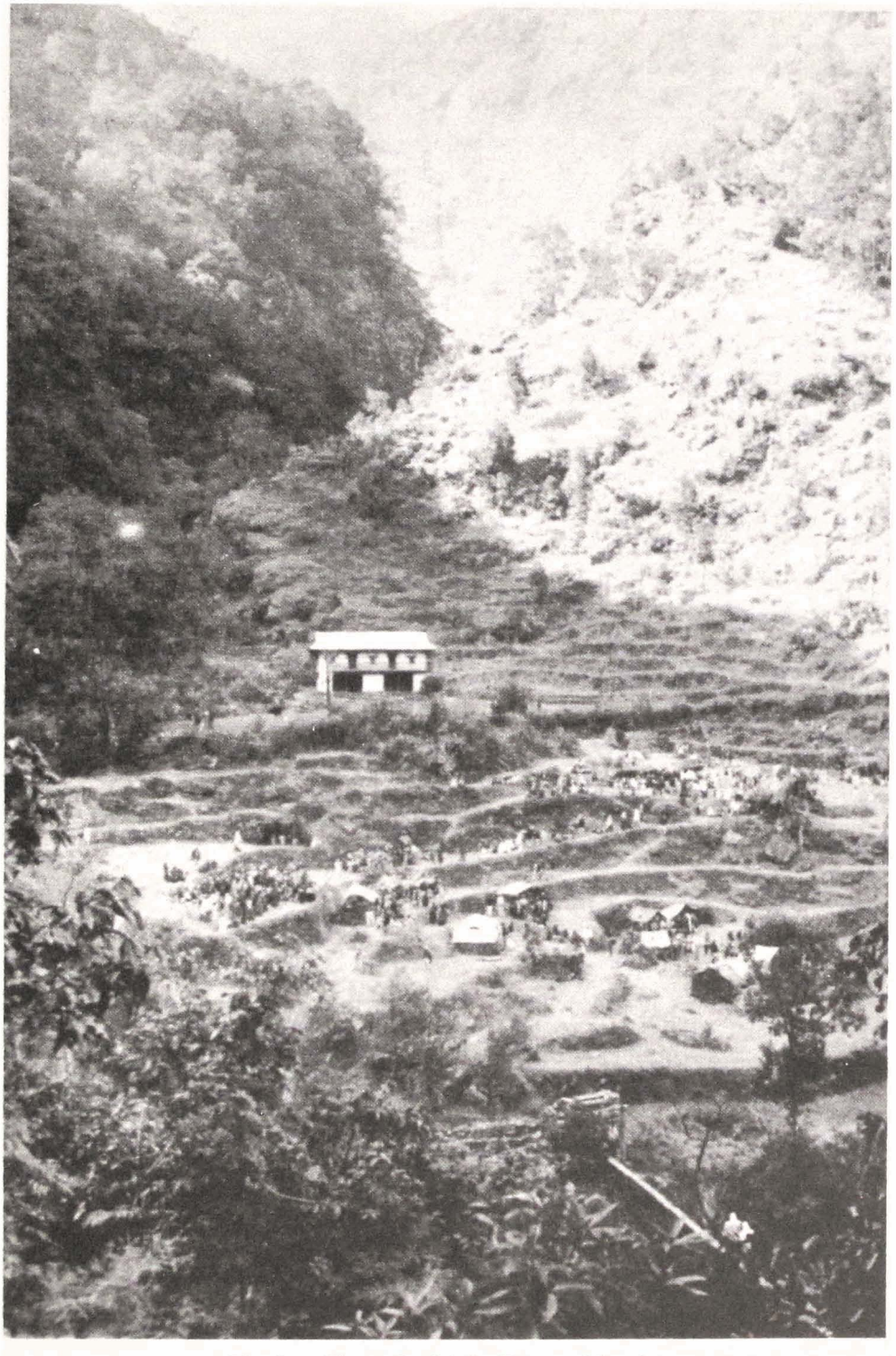


Fig. 9 — View of a fair in Eastern Nepal
(Cl. P. Sagant)

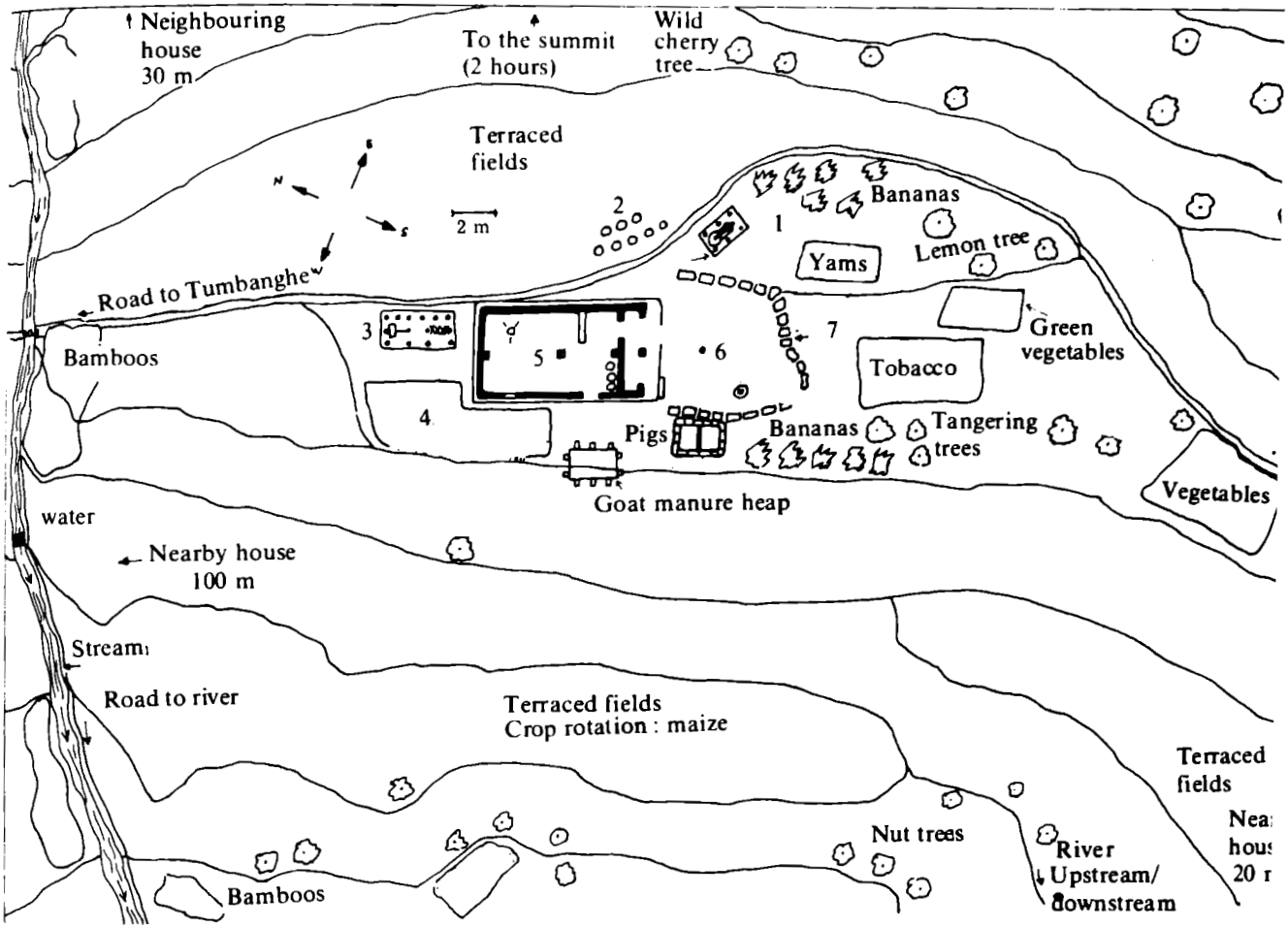


Fig. 10 — The Limbu House and its surroundings

1. Machine to blanch grain
2. Flowers, Medicinal products
3. Bovine manure heap
4. Tomatoes, hot peppers, tobacco, marrows
5. Hearth, central pillar, water, porch roof
6. Inside courtyard; bamboo mats, baskets (for chickens), chickens
7. Dry stone wall

will perhaps allow us to understand this close relationship between a religious state and social behaviour.

Mortal Dangers

Toward the sixties, in the little valley where I was working, two chiefs, 'subba', who were brothers, were locked in political struggle. The first and eldest, had given up local action. He wanted to be free so as to achieve "national" status. The second one, his younger brother, had jumped on the occasion to fill the place left empty. He sat in justice ('amal'), extended his powers, was growing rich. He was accused of over-extending himself with regard to the rights that the Nepalese government still accorded at that time to the Limbu chiefs. People complained that he sometimes held hostages, made use of violence, imposed excessive fines, settled affairs that required capacities superior to his. A coalition of plaintiffs ended up by banding together against him, counselled behind the scenes by the elder brother, aware of the danger. Several complaints, some of which were signed by Sherpas or low-caste people, were lodged against him at the local tribunal, 'adalat'. Trials ensued. It was the time when the "prefects", 'anchaladhis', were being installed all over the country. The Regional prefect, to penalize the Moubi chief, finally took him to Lungthung, in the next valley, where his head office was installed. He cut him down to size: he sent him to Walungchung to supervise the collection of taxes on Tibetan trade. Unluckily, a very old feud existed in Walung between the chief of the bhotiya line, ('go-ba' tib.) and the family of the Limbu chief: no doubt, he was made to pay dearly in consequence. For when he came back to his village he wasn't the same. He was a broken man. "Sir toliyo", people said of him. He had lost his great vitality of yesteryear. A few months later, he was bitten by a snake and died. His death surprised no one. One cannot remain with one's "head down" for a long time with impunity.

Thus, "to lose face" involves, in the long run, danger of death. When came the rising season, Oktoke, a very old but nevertheless very vigorous neighbour, refused, in his house, to sacrifice to Nahangma. Since birth, said he in substance, he had seen all he wanted to see under the sun, and he was tired of living. He aspired for death. In such a case, he explained, there is no better means than to refuse to "raise one's head", 'sam phungma'.

A Collective State

"Losing face" is also a state which can collectively affect the relatives of the same lineage in a locality. For example, one story recounts the failure of a marriage by elopement. It happened between 1935 and 1940. A villager tells the story: "This local boy hankered after a girl from the next valley. One of the women of this valley, married in the village, had been given the "price of her trouble". She went for a few days to her father's. When she came back, she had concluded the contract. The much-desired girl was there. She had come accompanied, as "travelling companion". That evening, she was invited to dance. The aspiring lover danced a long time with her that night. He ended up by declaring his love. "But", he added, "if you don't want to, we won't get married". — "Why not?" she answered laughingly, "let's get married!" And the boy repeated, "Let's get married, yes, let's get married!" Kapoba, (the chief of the lineage), took the situation in hand. A hundred-pound pig was slaughtered, and a goat; rice was prepared. The girl pretended to consent, but in fact she didn't. The sun came up. She played for time. She asked for beautiful clothes, and someone was sent to the bazaar at Dhule, at the entrance of the valley, to buy cloth. She wanted music, and everything was done to get the Damai orchestra together. Time went by. The afternoon drew out. Everything was ready. "I'll get dressed at the spring", she said, and she was given a cake of soap. As soon as she reached the spring, she rushed downstream. She arrived at the river-bank. She crossed the swinging bridge. She started running again once on the other bank. At the village people were waiting. "Wait a bit!" they said, "she'll come back! She's at the spring". Finally Kapoba exploded in anger, red as a lobster, the veins of this neck stretched to bursting. Women were sent to the river. There was no one. There was only a basket, turned upside down, a copper pot and a cake of soap. All the men started to search for her. They whistled everywhere, they shouted over the terraces. At the bridge there was a fisherman. "A girl dressed like so and so? She crossed over a long time ago! She was running fast, you are not likely to catch up with her! What's your clan?" From the bridge the men fanned out, running down all the paths which led to the next valley. They searched all night. At dawn, they finally came home one after the other. Kapoba was worried. "Do you have her?" he asked incessantly. No one had her. In the early morning now, they all assembled. The faces were gray. "What should we do?" they asked. "Shall we start looking for her again or shall we get another girl?" *"Sir hasiyo! Sir taliyo!* If all this gets to be known, it's shame on us!" — "No", answered Kapoba. "The first thing to do is to "raise our head" 'sam phungma'. And that very day, all the members of Kapoba's lineage sacrificed to Nahangma. "You must understand", continued the narrator, "that when a Pangbo gets married, we avoid spreading the news to the Lungkhimbas, the Penbasongs and the Naidembas. If the girl escapes, it's better not to tell the whole village about it. In fact," he added in a lower tone, "this kind of thing always gets around. For the other

clans it's a great joke! Very painful", he concluded, smiling.

Impurity

"Head low" is also a state which can be brought on by impurity. During the three or four days following a birth, the household lives in a state of quasi-retirement. The neighbours, the female neighbours, mainly by solidarity, nevertheless come to enquire after the health of the mother. They don't come into the house. They ask their questions from the varandah. They are answered through the closed door, shouting from the back of the house. If they did come in, they would risk having their "souls upset" 'sam mumma', "their temples shaken", 'sirin mumma'. The same thing is said about a hunter who, before setting out, receives food from a woman who is menstruating. He loses strength. He won't kill anything. His flower-soul, 'phung sam', withers. This idea of menstrual blood causing flowers to wither is found elsewhere. [39] As for the idea about the warrior or the hunter, it is very widespread.[40] Bird-droppings falling on the shoulder of a traveller apparently have the same effect. A short ritual, may, perhaps, "uplift the soul".

Incest's Child

There are people who can never walk with their head held high. Their's is not an enviable fate. During the census preceding my fieldwork, an elderly villager, alone with his daughter in a small house, declared he belonged to the Hebeng clan. It was strange. In the hamlet there was no one else of that clan. "Hebeng?" exclaimed the shaman, later, laughing, "if he's a Hebeng, I'm American!" No doubt, the villager was a child of incest. It took years before his story could emerge. When incest occurs, all the village is threatened. The wind rises. Hail falls, destroying the crops. The bear turns round in his lair. The tiger roars very near, in the forest. If nothing is done, lightning strikes, the earth gapes open, the ghost of the pig appears. The incestuous couple has to be separated as quickly as possible. Sometimes the man is expelled. Sometimes he flees with the woman. In the past, purification, reintegration in the bosom of the community was possible. A new clan was created. Today, changes no longer allow this. The child of incest drags his misfortune with him. Everywhere he goes and settles, he is a threat. As did Piripa, he changes villages, and says he is a Hebeng. He goes into exile near the Assamese border, even if this means leaving everything behind, going yet deeper into the forest, when the wave of Limbu migrants reaches him. For him, there is no possible respect or prosperity. No way to right a wrong. Piripa's daughter was seventeen. She danced like the others, she got married, or at least she thought she did. But never did her "husband" bring the customary gifts. Normally, the "clan" brothers would stand up and demand reparation for such an offence. No such thing happened for Piripa. Incest's children have no clan brother, because they have no "clan". Incest's children have no land, because they have no ancestors. They are at the mercy of spirits and men. When genealogies are drawn up during fieldwork, their name is never mentioned. That's because they die young, it is said. And if they live old, it's no better. They cannot prosper, because they cannot sacrifice to Nahangma. To be able to sacrifice to Nahangma one must have a clan, and the child of incest has none.

In the past, did the sacrifice to Nahangma alone erase an outrage? Nothing is less certain. Anyway, there are other means in case of an offence to "lift one's head up". Under Nepalese law, the Limbus could resort to purely judiciary methods.

The Offended Father

A man was returning from the field with his sister. He had been drinking and his father, back home, flared up at him.

"Is it me you're shouting at?" asked the son.

"Who else? Have you seen the shape you're in?"

"You have nothing to say", said the son, "while we toil in the fields, you take it easy here".

"Shut up. Behave yourself, I am your father. How dare you raise your voice to me? You think perhaps that you have things to teach me?"

"I might", said the young man, however lowering his voice.

The father rose up, his fist in the air. The son wanted to brush him aside. The father, already old, received a clout on his shoulder and fell awkwardly. The affair grew. One of the most powerful chiefs of the village was sent for.

"Did you curse him?"[41] he asked the father. "If you did I can do nothing".

"I haven't cursed him", the old man answered, "but for sure that I will, if I don't get damages".

Accompanied by three of his men, the chief climbed towards the hamlet. Kapoba was one of the men. "Hitting one's father", he said at the opening of the trial, "is the same thing as hitting the gods". The 'subba' and his men come to the decision that the son should be fined a hundred rupees which he should give to his father. "What do you mean, a hundred rupees?" said the old man. "It's I who make the money here. You want do compensate me with money from my own till?" Some other solution had to be found. The father lived on the

first-floor, the son and his wife on the ground-floor. The furniture had been shared between them. It was finally decided that the son would give his father a large copper pot. His wife silently put the pot on the terrace. The son bowed before his father and deposited the pot at his feet, along with a bottle of alcohol. The old man took the pot. He was softened and satisfied.

"Right", said Kapoba. "But the punishment remains to be settled. How much does it cost to beat one's father?" he asked turning towards the chief.

"Yes, how much?" the chief repeated, addressing the assistants.

One could have heard a pin drop. Kapoba spoke again, and suggested four hundred rupees. "The family is rich", he said. "Each year they migrate to Sikkim, carrying winter tangarines". For a while there was talk of two hundred rupees.

"No way", said Kapoba. "The chief would never allow it. A doctor must be paid if medicine is to take effect. The punishment must be severe to prevent it from happening again!"

"But I am not about to do it again!" said the son. "My father would curse me! He would ruin my hands, my eyes, my mouth! My wife would die! My children would die! My lineage would become extinct!"

He had taken out two hundred rupees. He had to bring out a hundred more. Then the bottle of alcohol was opened and each of the persons present had his share. The way this affair was settled stems from the Nepalese conception of justice. The three hundred rupees claimed by the judge stand for the "penalty", 'danda', (nep.). The bottle of alcohol is called 'sabha suddho', (nep). It ensures "purification"; sharing it indicates that things are back the way they should be. As for the copper pot, it was the contribution allowing the father to "raise his head up again". And in fact, this was called 'sir uthauni', nep.[42]

The Beaten Elder Brother

Another affair illustrates the official side of such a legal settlement. This time it is not a father's shoulder, but an elder brother's head that is at stake. During the ceremony ending the mourning period for their father, two brothers came to blows over a question of inheritance. Outside, the feast was going full blast, but in the house, the elder brother was hurt in the face. He went to the chief of the hamlet and demanded justice. The younger brother was summoned and refused to pay the compensation, 'sir uthauni', which would allow his elder brother to "raise his head up again". The chief, at the end of his tether, turned to his powerful neighbour, the same man who was mentioned in the former case. Five men were dispatched to catch the offender. He was brought back to the chief. He was questioned. This time the younger brother was afraid. He finally bowed down before his elder brother and deposited twenty rupees and a bottle of alcohol in front of him. This first compensation was called 'sir uthauni'. In addition, the man was heavily fined (800 rupees). Since he had no money, he signed over to the chief an I.O.U. guaranteed by the mortgage of his best rice field.

The overlapping of Limbu and Nepalese facts makes it difficult to sum up. At best, we feel we have only begun to approach the question. "Losing face" results from several different situations: ritual impurity, something connected with "dishonour", a wrong, an insult. It can be individual or collective, religious or social. It contains mortal dangers. Under Nepalese law, a court-trial allows one's head to be raised up again.

To define the "head held low" in religious terms, we only have a few clues. The menstrual flow withers up the hunter's flower-soul, 'phung sam': it becomes impossible for him to exert his vital force, 'mukuma sam'. He is thus incapable of killing game. As long as a new clan has not been created, the child of incest cannot sacrifice to Nahangma. Thus, he is forbidden to go with his "head held high", to know prosperity. To hit a father on the shoulder, an elder brother on the head, is like striking at Nahangma and Manguenna who reside in their bodies. The gods are outraged. Man loses their support. In all three cases, even if insufficiently explained, religion is at the root. "Losing face" only exists in reference to its opposite, the "head held high". And this is, above all, a religious state.

At the same time, "losing face" is a social condition. The child of incest who cannot go with "head held high", is also someone excluded from the community. To beat one's father, to show a lack of respect for him, is contrary to traditional kinship attitudes, known and accepted by everyone. Between the social and the religious, the link is indissoluble.

What appears important here is the type of relation which exists between religious beliefs and social behaviour. Under Nepalese law, when a Limbu has been wronged, he appeals to his chief, the 'subba', to whom have been delegated the royal powers in the name of the Gurkha State. He lodges a complaint. He awaits restitution is terms of justice. What is the aim of such a step? "To raise one's head". Judiciary action is undertaken in the name of a religious ideal. But what was the institution like in the past, before Gurkha law was established in Nepal? What were the Limbu institutions which ensured reparation in case of an offence? Did the same type of relationship between the religious and the social hold at that time?

Raising One's Head: A Few Political Carry-overs

Inspired by Nepalese institutions, the courts of justice, 'amal', of the Limbu chiefs, 'subba', — mentioned above —, were set up between 1820 and 1827.[43] They were abolished in 1966. However, the Gurkha administration took a long time to really establish itself in the north of the country. And, until recently, the Limbu offered passive resistance to the reforms. Long after the conquest, old practices remain: as far as the Gurkha State is concerned, these are illegal. They reveal a resistance of a political nature. But they belong to Limbu history and can therefore not be ignored. In order to try and understand the old-time practices, we will summarize the significant tales collected in the field. One of them concerns a case of polygamy, in which the first wife is spurned; another deals with adultery; the last is about how a murder was dealt with.

A Spurned Wife and a Ritual Combat

When a man takes a second wife, — at least this was the case until the seventies —, the first wife doesn't attend the wedding. At the end of the ceremony however, her friends come to fetch her. "We must carry out our customs", they say, "You must come". She finally gives in, showing none the less a lot of reluctance. In front of the small assembly, the younger, newly married woman bows to the older one and lays at her feet a gift of five rupees "in order to raise her head up high", 'sir uthauni'. "There", the elder woman is told, "your head is high, now! You are tall again!" The woman picks up her rupees and leaves. In addition to the younger woman's submission, this also guarantees that she won't be abandoned. If the contract were not fulfilled, the older woman would "lose face". And the insult affects the men of her original "house" as well. Her brothers stand up to demand damages.

The following episode took place in the twenties. Mundunghe was one of the "chiefs" of the village of Tumbangphe. He had married the daughter of a famous man from Longbang, at the mouth of the valley. A few years after his wedding, he went dancing in a nearby valley. He brought back a second wife, much younger than the first. He settled down with her in a separate house. He neglected the older wife: after several violent shows of opposition, she ended up by running away to her father's home in Longbang: "Your son-in-law took a second wife... He refuses to share the resources...".

The men from Longbang and the men from Tumbangphe met at the market at the entrance to the valley. The spurned wife's brother, Tekpa, picked a quarrel with Metamba, Mundunghe's main mercenary, 'tilinga', nep. The two men came to blows. People rushed to the rescue on both sides. But it was a put-up job. Some thirty men belonging to Longbang routed about ten men from Tumbangphe.

Mundunghe was informed of the deliberate affront. He linked it to his eldest wife's fate. He summoned his relatives from near and far. A good number of them came, from all over the valley and belonging to different clans.[44] After the meeting of a council, 'cumlung', it as decided to challenge the men of Longbang. A messenger was dispatched. The challenge was accepted: "You, sons-in-law, come one and all... you'll be less cocky at the end of the fight".

The meeting was to take place in the market place. The market was in full swing. In the afternoon, the groups formed and lined up on two terraces. On each side, there were about a hundred men. Tekpa, the wife's brother, began to speak: "You have defied us... you still have time to run". Metamba, in Mundunghe's name, answered in the same vein. Insults. The two men advanced and fought. It became a free-for-all. A club struck Tekpa on the head. The combat ceased immediately. The participants fled. Metamba came nearer and spoke. Tekpa got up and slashed at his hip with a sword. Metamba avoided the blow, but the soles of his feet were badly cut. The men of Tumbangphe protested.[45] Mundunghe, standing at a distance was informed of this. Metamba was bandaged up with his turban. He was brought back to the village on a stretcher.

A few months later, Metamba's wound had healed. Mundunghe once more challenged his father-in-law. And, once again, their men fought it out in the market square, to the indignation of the Newar shopkeepers who complained to Kathmandu. These line-ups were repeated ten to twelve times over a period of several years. Each time, the battle stopped at the first drop of blood. [46]

Mundunghe's wife intervened to stop the "war". A chief from another valley, allied to both parties, acted as mediator. A meeting between Mundunghe and his father-in-law was arranged on neutral ground. The eldest wife bowed in front of Mundunghe and presented a compensation of five rupees and one bottle of alcohol: Mundunghe promised to share his wealth between the two wives, the eldest and the youngest. Then it was his turn to bow at his father-in-law's feet and he, too, presented five rupees. This contribution was called 'samban' in Limbu. Peace had been restored.

A Matter of Adultery

A man who has been abandoned by his wife also loses face. In the past, the Limbus had their own form of divorce, 'najong khemjong'. The decision could be one-sided. Thus, a husband couldn't refuse a separation if the wife wanted it. A few stories were contracted by me

concerning such situations. The woman is described as taking the golden ring out from her nose, bowing in front of the man, placing the ring at his feet as well as a sum of twenty rupees. This compensation allows the man to "hold his head up high", 'sir uthauni'. It's a friendly solution. Another one also existed. Until 1966, the Gurkha State in Limbu country authorized a wronged husband to get hold of his wife's lover, and to levy the price of adultery, 'jari uthauni'. In fact, this type of situation led to a razzia, though watered down by a few legal prohibitions.[47] In the past, compensation, 'samban', was the traditional means to "straighten up one's head".

The story took place in the thirties. Mundunghe's third son was fourteen. He was to marry the daughter of a household chief from Panchthar, a three-days' walk away from the valley. The wedding had been arranged by the parents. It consolidated a political alliance. Mundunghe, at this time, was at the zenith of his power. In his home, fifteen to eighteen "slaves," 'Yog', were charged with the material chores; some thirty strong men, 'tilinga', were permanently at his side, and ensured his armed guard.

The woman was twenty-five. She had a lover whom she met at the market, at the entrance of the valley. She ended up by running away with him to his native region, Panchthar.

Mundunghe's son was tending his father's herd. Mundunghe came to meet him in the pasture. They talked man to man in the hut, 'goth'. The father joked a little. "What are you going to do about it? Your wife has left. There are two possibilities. Either you don't do anything. Or else we levy the price of adultery". The son took counsel from his friends. He had his father tell that he intended to take his revenge for the offence.

Mundunghe summoned all the "men" who were "his" from everywhere in the valley, "rapid and strong". All in all, practically a hundred and fifty people came to him. The expedition was prepared. Mundunghe, contrary to his son, would not take part in it: it was to be led by his brother Metamba, chief of his army.

From the Mewa valley to Panchthar, the journey takes three days. Metamba, on horseback, led an imposing troop. To foreigners who, on the way, asked questions, it was answered that the group was migrating towards Sikkim for the transport of tangerines. The fourth day, Metamba and his fellows hid in the forest, not far from the village where his wife and her lover had taken refuge. Information was obtained about the set-up at the place. The lover was on his guard, fifteen to twenty persons were with him, ready to help.

At nightfall, the house was encircled. They waited until everybody had gone to sleep. The guards in the courtyard were neutralized. They were tied with their own turbans to the long beam of a plough. Metamba entered the house. The main room, on the ground floor, was empty. The couple was on the first floor. He hadn't had time to pull up the notched ladder. The man was there waiting, sword in hand. If he resisted, this might mean death. Metamba and his men got hold of him.

Early in the morning, the troop set out, now leading twenty captives, among whom was the couple. The trip back was marked by several incidents illustrating the mythical content of the narration. The armed troop, defying Nepalese law by having taken hostages, neutralized a police station which attempted to stop them. The arrival back in the Mewa valley was a triumph. In the village, Mundunghe had sacrificed a buffalo. The feast was on.

The lover was shackled to the 'thenro'.[48] The wife was kept under guard. The other captives were freed. The wait began. Almost immediately, the prisoner's household had contacted several important men in Nalbu and Khamlung in the Mewa valley. These men were allied both to Mundunghe and to the people of Panchthar. They came to see Mundunghe, and acted as intermediaries. They went over the whole affair from the beginning. The principle of a ransom or compensation, 'sambam', was accepted. It was the amount which was the problem. Mundunghe wanted ten thousand rupees. "Don't bother to come back without the right amount", he said. "I will keep the man as a "slave, 'yog' ".

For six months, the Panchthar household tried to collect the funds. In Tumbangphe, the lover was treated as a "slave". He fetched wood, replanted the grain, fetched water. The woman was treated in the same way. At no time had the negotiations been interrupted. After six months, a meeting between the two parties was held at Mundunghe's in the presence of the mediators. For three thousand rupees, the hostages were freed. This was the compensation, 'sambam'.

How a Murder was Settled

Here, the facts are more recent. The market was in full swing. The chiefs who control the valley, four or five of them, had gathered at a little distance from the crowd, honouring and complimenting each other mutually. The one from Yungsa — it is his territory —, was doing the entertaining. At the other end of the market, a fight broke out over a woman. A man from Thangma slashed a gash in the face of someone from Yungsa. Four "clan" brothers rushed to his side, and the man from Thangma was cut down with one blow of a sword. His body was dragged out from the market place. The four murderers left it near the bridge and took to the hills.

The chief of Thangma was the first informed. His first move was to leave the market immediately. Kebong, Mundunghe's son, was next informed, and he proposed, before leaving, to take the affair in hand. In the twinkling of an eye, the market place was deserted.

The next day, the chief of Thangma, accompanied by fifteen men, arrived in Tumbangphe.

"Can you really settle the matter?" he asked Kebong.

"Give me two days", answered the latter. "Meanwhile, wait for me here with your men".

The evening before, the dead man was buried as a 'sogha' (victim of a foul death) on the edge of the river, "deep in the forest". A priest, 'yaba', had come to dance. Nepalese law allows seven days to declare a murder. Since 1820, it's been the Regional Court of Justice, 'adalat', exclusively, which is competent to try such a case.

While Thangma's men settled themselves at Kebong's, the Yungsa chief, the leader of the murderers arrived in a nearby house, surrounded by a dozen men. The head of this house is a sworn friend, 'mit', whom the man of Yungsa asks to be introduced to Kebong. "Not possible", he was told. "Thangma's men are installed up there". In the evening, though, a secret meeting could take place. "Can you settle the matter?" the Yungsa chief now asked. Kebong didn't answer him directly. "Don't stay here. You have killed a man... I'll let you know very soon what has been decided".

Kebong had dispatched messengers to all the important chiefs of the valley. The next morning, all seven were present, at a Council which took place in Tumbangphe. Several themes were broached. If the matter was to be settled according to Limbu custom, everything had to be finished "within the seven days following the murder". One of the participants was in favour of appealing to Nepalese justice: "This man has killed once, he'll kill again, he is a threat to all of us". All the others were for observing the Limbu traditions. On the side of the murderers, an agreement was reached about the principle of paying a compensation, 'samban' and the argument of a possible repetition of the crime was refuted

Consecutive and parallel meetings were then held between Yungsa and Thangma with Kebong among others, as mediator. The murderers were shackled to the 'thenro'. They had received assistance from their households and allied houses. Each of the latter had contributed three hundred rupees. Yungsa declared that he was prepared to give ten thousand rupees in all. Thangma asked for twelve thousand.

The payment of the compensation, 'samban', was made at Tumbanghe. An accident declaration was sent to the Nepalese administration. Police investigation obtained no results.

Are those three examples typical of ancient Limbu institutions, those which existed before the Gurkha conquest? The use of money, the interference of the chiefs, 'subba', organized by the Nepalese state, prevent us from thinking so. It is clear, though, that the facts described are illegal according to Gurkha law. They are survivals of Limbu customs. But these survivals have already been subjected to syncretism. Nevertheless, they shed some light on traditional practices.

In the first two examples, the religious concept of the affront is present. The abandoned wife, the betrayed husband, "loss of face". This notion appears outside Nepalese institutions, as it appeared in several tales told before, significant of Limbu tradition: relatives confronted with the failure of an abduction; the father struck on the shoulder; the chief brought into line; incest's child, etc. Under Nepalese law, one engages in legal action in the name of religious beliefs. In the ancient Limbu society, the same ideas led to political action. Today, as in the past, a comparable type of relationship between the religious model and social behaviour exists.

With Head Held High: A Religious Model for Political Action

D. Snellgrove has stressed the difficulty, for a Westerner, of understanding a Tibetan. The reason for this difficulty, as he remarks,[49] is no doubt the great intricacy of religious facts, but, even more so, the simple fact that the Tibetan *believes* in his religion. It's the same with the Limbus. It is impossible to understand their political institutions without entering the field of religious ideas; both are closely linked. And this relationship has consequences. The vital force has only a domestic existence. It expresses itself through political violence. Its symbols are prosperity and power. It explains social mobility. The religious model ensures social order. Everywhere, the reference to the vital force is present.

The Vital Force and the Power of the Household Chief

The religious concepts concerning the "head held high" establish primarily the power of the Limbu household-chief. There exists no political solidarity, for the Limbus, other than that of the household. In the ancient society, there was no authority superior to that of the head of the house.

The vital force, 'mukuma sam', is, first of all, a religious concept. It appears during the sacrifice to Nahangma. It stems from a complex and coherent set of various beliefs: the gods and the body-souls; the "masters of the place", to use the terminology of Tibetologists; the blood spilled during a ritual; the flower-soul; purity; "the emboxed worlds", where the Universe, the house and the body, for a moment, coincide; shamanist techniques, etc. It's in relation to a specific religious context that the vital force acquires the power to emerge through violence, in war or when hunting. The "head held high" makes reference to these powers. The important thing to understand here is that the vital force can only exist in specific contexts. It is re-vitalized in the space outlined for the sacrifice. It is limited to the area defined by the four corners of the house. The vital force is a religious notion which concerns the household alone.

Of course, defining what such a household was for the ancient Limbus raises a problem. In Nepal, between 1966 and 1971, the dwelling, in general, is the conjugal family's unit of residence. But the vital force, "mukuma sam", finds expression within three distinct social units. The first is indeed the conjugal household. It is made up of from four to six persons. Each house sacrifices to Nahangma twice a year: this is the ritual which we have analysed in this article. The second household is larger, i.e., the local lineage. In this modern era, its members are scattered in several houses. Every three years, the chief accomplishes the big Tong Sing ritual.[50] This ceremony, among others, involves the cult of Nahangma. It takes place in the chief's home. But all the the members are present. And it's the whole lineage, ultimately, which has the "head held high". Third and last, is the clan segment, larger still, and which, moreover, includes a non-Limbu immigrant clientele. Its unit of residence is the district territory, 'amali'. At its head, the only chief accredited by the Nepalese authorities, is the 'subba'. The clan segment's vital force manifests itself on the occasion of the Dasai feast. Here, the sacrifice is not accomplished in Nahangma's name, but in Yuma's and the Devi's. It is carried out each year in each 'subba' household. Putting aside the clan segment, we can try to understand what the ancient Limbu household was like. The clan segment resulted from the establishment of Nepalese institutions and seems not to correspond to any reality of the ancient society. It even seems to be diametrically opposed to it. Thus, only the lineage and the conjugal family remain. In the World of the Dead, 'khema phangphe', the remotest ancestors are described as inhabiting one big house. In ancient times, it is possible that the big house was the unit of habitation of the Limbu lineage. In it, each conjugal family is supposed to have enjoyed a certain degree of autonomy. Whatever the case, just one remark: whatever its composition may have been in the past, the house is defined by the unity of its vital force.

Due to the "emboxed worlds" concept, the vitality of the house and the vitality of its chief coincide. For the Rais[51] as well as the Limbus, it is the house, together with its chief, who hold their "head up high" at the end of the ritual. The same goes for "losing face". On the religious level, this state involves the entire household, as we have seen in the tale about the aborted abduction. Or else, if it only concerns the chief, it nevertheless has repercussions on all the inhabitants, as in the case of the children of incest. Or yet again, it may only concern one of its members, but all the house is hit, as in the example of the abandoned wife's brothers. On the other hand, from the moment they reside elsewhere, blood relatives keep their "heads high" even if one of them has "lost face". Religious states involving the vital force do not hit the clan in its entirety, or even the village; the houses only are affected.

From a sociological point of view, it is the same thing. The idea of a widespread political solidarity does not obtain, because the religious expression of the vital force exists only on a domestic level. Adultery, for example, does not affect the clan as a whole, nor the village, but only the house. The wrong, recognized as such by custom, only has a domestic definition. Even today, the more members there are in a house, the stronger it is. But to assure its security, its head has no other support than that of the members of the household. In case of an attack, the house must defend its members and its property by itself. Of course, if a war breaks out, affines, sworn friends and political allies are called to the rescue. Thus, one's living forces are increased. Nevertheless, in case of a razzia or a battle, the two household heads are the first to fight it out; the two households are settling their affairs. There is no political solidarity beyond the house and its allies.

Equally, in conflicts between houses, there is no interference from any superior authority, clan or village. From the beginning to the end of a political action, from the "loss of face" to the compensation which restores peace and harmony, only the household chiefs meet face to face. The men who offer their services as mediators have neither the power to judge nor the power to punish. They are household chiefs as well. No one, in the ancient Limbu society, can punish criminals, settle a quarrel, judge a wrong. The right to make use of violence in order to "raise up one's head", which belongs to each household chief, is incompatible with the Hindu notion of royal justice as established by the Gurkha State, to the

subbas' advantage. When the 'subba' appears, he alone, within the district limits, has the right to dispose of an army; for he alone possesses the royal privilege of the pennant and the drum.

How did the 'subba' manage to impose himself on the household heads of his district? Equally, how could the first Tibetan kings come to exist, imbued as they were with the symbolism of the "head held high"? These historical questions bring to light the importance of religion in political matters, and more specifically, the importance of the sacrificial area. When the ritual which concerns the vital force is limited by the four corners of a house, the society is indivisible: there is no room for a royal power, no authority beyond that of the chief of the house. On the other hand, if the sacrifice takes place in a broader setting, it means that, already, in one way or another, within this new territory, the household chiefs no longer dispose of all the might that used to be theirs. Thus, on the political plane, the ancient Limbus, those who lived before the conquest, resemble other Himalayan populations which up to the Second World War, and even after, had preserved similar practices of razzia, battle and compensation. These are the populations of the old N.E.F.A. and, among them, more especially perhaps, the Mishmis, the Daflas and certain Miri groups. Did they hold the same ideas about the vital force?[52] Indeed, for the Limbus, it is a religious idea, determining the unit of political solidarity, the household, and the only recognized authority, that of the household chief. It is the vital force which founds the entire and indivisible power of each household head, by permitting him to resort to armed violence in case of a wrong. The first visage of vitality is thus primarily domestic.

The Vital Force and Political Violence

Violence is the concrete expression of a religious concept, the vital force, for each household chief. It is that part of Nahangma, the war goddess, which each man has within himself, in his right shoulder or on top of his head. It is the stamp of the divine in man, the clearest sign of his humanity. Violence is life. In social life, the forms this violence takes have apparently become institutionalized. There are three ways to obtain the same effect, socially speaking: spilling blood, compensation and enslavement.

In the examples given above of political carry-overs, blood is spilled during a battle, and, naturally, when a murder is committed. It could also have been spilled during a razzia, when the lover was captured. On the religious level, this close relationship between the vital force and the power to spill blood probably comes from very ancient conceptions "typical of a warring and hunting society."[53] The capacity to spill blood appears to be the expression of the vital force. It is apparently very highly valued in Limbu culture. As far as I was able to judge, the act always seemed to be accompanied by a very strong emotion.[54] And this feeling, according to me, is neither an accident nor passively submitted to. On the contrary, it is perhaps thought of as positive and actually sought after. But, at the same time, this violence, deeply ingrained in the cultural fabric, is closely controlled by society. It can only be given free rein on rare and specific occasions, very precisely defined by custom and limited by the institutions, somewhat like (in a different context) the trance.

What indeed is surprising in the Limbus's daily behaviour, is their extraordinary self-control. The blood in the chicken sacrifice to Nahangma, or the pig sacrifice to Yuma, scarcely runs at all. Yet it is accorded great importance. It's the same with political action. The battle ceases at the very first wound. During a razzia, in the first moment of confusion, there is in fact danger of death for the man who resists. But the danger seems lesser for he who allows himself to be captured.[55] And, as soon as a murder has been committed, social groups immediately interfere to offer solutions and break the chain of vendettas. Blood is too precious. As soon as a drop has been spilled, the vendetta is stopped, at least among the Limbus. Be that as it may, it is blood, in the ritual to Nahangma, which enables the household chief to "raise his head up again". And it is that blood, spilled by a house in murder, ritual combat and razzia, which cleanses the offence.

The reparation of a wrong can also be obtained through the payment of a compensation, 'sambam'. The principle of it is simple. The household which has been wronged assembles its own forces and calls in its allies. It "rises". A razzia is organised. Its aim is to seize the captive who will be taken back to the village. The man is shackled to the 'thenro'. And then the wait begins. The hostage's house intervenes straight away. It brings into action mutual allies—matrimonial or political—to offer their services as mediators. Negotiations take place. Oaths and ordeals seem to be fairly frequent. Compensation is a complex institution. Compensation is equivalent in value to blood spilled — at least as far as the outcome is concerned. It leads to the liberation of the captive. It restores peace. Mainly, it founds a new alliance between the two warring houses. Often, it establishes hierarchies. Always, it increases the prestige of the mediators. Finally, it represents, in Limbu politics, what the contribution 'sir uthauni' was to Nepalese justice: it enables one to go with one's "head held high."

When the compensation 'sambam' is not paid—and

the reasons for a non-payment are very interesting—the shackled man becomes a slave, 'yog', in the home of his captors. The word is Tibetan.[56] It has a connotation of social stratification. But this idea has no relation to a society hierarchically organised into four orders. This institution survived for a long time in matrimonial alliances. After a marriage, if the "bride price" wasn't paid up, the children of the union became slaves, 'yog', in the mother's home. Attached to the chief of this house, they are dependent on him for shelter, clothing, meals, marriage, etc. They belong to his house; they do menial tasks. This institution differs from Indo-Nepalese slavery, 'kamara'. It seems to have been prevalent in the past. It went well beyond the limits of matrimonial institutions. All kinds of wrongs gave rise to the search for compensation. Thus, all kinds of circumstances could lead to slavery if the compensation was not paid: adultery, blows and wounds incurred at a bend in the path, epidemics, etc. The slave, 'yog', too, enables one to go with "head held high".

Thus, the vital force, a religious concept, finds expression in the violence of the razzia or battle. But the recourse to violence in political matters is defined by custom. It can be given free rein only on specific occasions: the settling of a conflict following a wrong. It is subject to rules: stopping the battle at the first injury, guaranteeing the hostage's security if he doesn't resist, the captive's status, the complex procedure of negotiations, etc. It ceases when one of its goals has been attained: blood spilled, the compensation, the slave. The vital force's second visage in social life is the aptitude for political violence. But a violence which is recognized by law and whose forms have been institutionalized.

The Vital Force and Prosperity

A close connection exists between the "head held high"—a religious state—and the most obvious signs of wealth and might. Yet, the society is neither dominated by the strongest nor abandoned to confusion.[57] That is because the violence blessed by the gods can only be productive of wealth, under certain conditions.

The society is indivisible on a political level, but it is not egalitarian. Social mobility is powerful. Some houses prosper, others don't. Prosperous: due to their crops, the importance of their livestock, and also the political weight they carry and their social influence. A household chief's power shows. First of all, he is feared. He will demand large compensations when wronged. Whereas his poorer neighbour asks for two hundred rupees, he obtains eight hundred or a thousand for the same wrong. "His" men can be found in the four corners of the valley and even further away: they will rise at his call. The surest among them are affines. The alliance with the patrilateral cross-cousin implies, over several generations, the renewal of the ties between the two houses, their strengthening. It's the "bridge of gold and silver". The powerful man multiplies the number of marriages. He rarely has less than several wives. In the old days, when the country was fairly empty, and land available, it meant labour, real wealth. He who dominated was always at the head of a numerous household. Hence, his plentiful livestock, his abundant crops. The strong man is open-handed. He redistributes his wealth to show his power. The logic of the feasts of merit is just round the corner. He is powerful also through the number of slaves he owns: the young ones tend the herds, the adults are fighting men, his armed guard. How many dominators are there in a valley? Six or seven, perhaps, at the summit of the pyramids of alliances. And all these men of power have a point in common: the fact that their political strength, and even their wealth, depend on their allies. In this society, alliance is primordial. It is the source of all influence. It is the standard for the measure of social mobility. It leads straight to prosperity.

Is the prosperity of the dominator always founded on brute force? No indeed. From violence, to which religion has attached great value, to alliance, the sign of social success, there isn't far to go, but the difference is an important one: the respect of customary rules. Let us try to follow this channel which leads from religion to politics, from violence to prosperity.

Take the example of marriage. An abortive abduction, as we have seen, damages the vital force. One must then sacrifice to Nahangma, to "raise one's head up again". On the contrary, a successful elopement is highly valued. The kidnappers' gestures are the same as those of the head of household's, when sacrificing. They stamp their feet on the ground, beat their chests with their fists, shout, jump, prance around. Their "head is high", then. The violence of the abduction, like all violence, is the expression of vitality. We are on religious territory.

Nevertheless, the vital force of one house always manifests itself to the detriment of the vital force of another. If the ravishers "hold their head high", it's because somewhere else, in the girl's house, they have just "lost face". This violence "blessed by the gods", creates a fissure in social life. It is always at the origin of a conflict. Even in recent times, after so much change, there are love stories which can only be understood in the light of these facts. Two centuries after the conquest, the durable strength of these behaviour patterns is extraordinary. The following story took place in the sixties. A girl ran away with her lover towards Assam. She was caught by her father and his followers. The lover

slipped away alone, as if beaten by their number. The young woman gave in and went back home, miserably unhappy. The father put out bunting. This story is a real puzzle for the foreigner! Mainly, what is it that can induce a man to track down his daughter's lover? Couldn't he simply stay at home and wait to be sent the price of the bride? It's a tragedy, in fact. Each person is a prisoner of the logic of his own role. But on other occasions the lover and the father don't meet face to face. The meet here represents the ancient Fates, the doing of the gods. One must understand the father's position. The abduction of his daughter, even if she was agreeable to it, makes all the household "lose face'. The prosperity of the cows is at stake, and the state of the flower-soul, the strength of the vital force; all are threatened. One risks death by remaining in this state. It's (perhaps) less a question of psychology than of religion. The father's behaviour is founded on the authority of religion. He has no option but to take the plunge in order to raise his head up again. And it is the same for all kinds of other matters. The expression of vitality leads to conflict. Because of religious ideas no one can escape this truth.

Let's consider the social side. After an abduction, two solutions are available. The first consists in acknowledging the wrong inflicted upon the other household. As soon as the wedding is over, the kidnapper's first care is to prepare a small contribution of meat and alcohol, which a messenger will carry to the young wife's home. This modest present is called 'yog thowa'. It's a promise: their duty towards the wronged house will be carried out according to the rules, the offence will be compensated for by the price of the bride. The first meeting between the two houses takes place two weeks after the wedding. It is true that it is an extremely stormy one. The father-in-law is enormously angry and this manifests itself in all sorts of accusations; "wife-thieves!", etc. All through the ceremony, he considers himself an insulted man. He is ready to resort to arms. But he doesn't, because of the little gift received the first day. In fact, a lot of diplomacy is required to make him accept the price of the bride. Yet, in the end, he accepts to share the meat; it's the basis of the alliance between the two houses. Both houses beginning with the son-in-law's, win out in this affair. Thus, conflicts are inevitable, but one had better recognize one's wrongs and observe tradition. For every settled conflict is not only a return to peace, it is also the birth of a new alliance. From violence, through peace and tradition, the way leads to prosperity. And it is the same with political as well as matrimonial situations.

The second solution has an opposite effect. After the abduction, the kidnappers do nothing. No bride price, no contribution 'yog thowa'. Pure violence, so to speak, faithless and lawless. In the girl's house, people are worried. The chief delegates "his" men to look into the disappearance. Sometimes it's the father himself who, furious, wanders around the village, looking for his daughter.[58] If the price of the bride is not paid, the violence of the kidnappers ends up by backfiring. First of all, they lose the support of a solid alliance. They also unleash the thunderous rage of a man who has "lost face." The offended house rises to "raise their head up again". It always wins. It obtains increased prosperity. The children of the illegal union will belong to their mother's house, increasing the number of "slaves". They strengthen a political power. There is thus no one to enforce the social laws, but they are not transgressed with impunity. Prosperity is at stake.

Thus, the Limbus do not believe that a man's freedom ends where another's begins. Rather, they think the contrary is true. The vital force of one house always finds expression to the detriment of the vital force of another. One holds one's "head up high" when someone else, nearby, has "lost face". This society which preaches violence, is logical: social life is founded on conflict and he who refuses it risks death. This society is at the same time subtle: it accepts that there be rich and poor. It accepts violence at the root of prosperity. But there is one condition: to become powerful, one must go through with the conflict, put an end to it. And, in order to keep one's books straight, there comes a moment when one must apply the rules and acknowledge the wrong one has inflicted. Only then, can one win an alliance and advance on the road towards wealth. A house can very well show the most virulent vitality, it will never become powerful if it doesn't submit to tradition. No one can constantly flaunt the law. This would unleash formidable coalitions. Thus, it is neither chaos nor the survival of the fittest. Prosperity is the third face of the vital force. On condition that one respects the law. For a Westerner, this society is almost a work of genius: the most unbridled violence has given birth to social order.

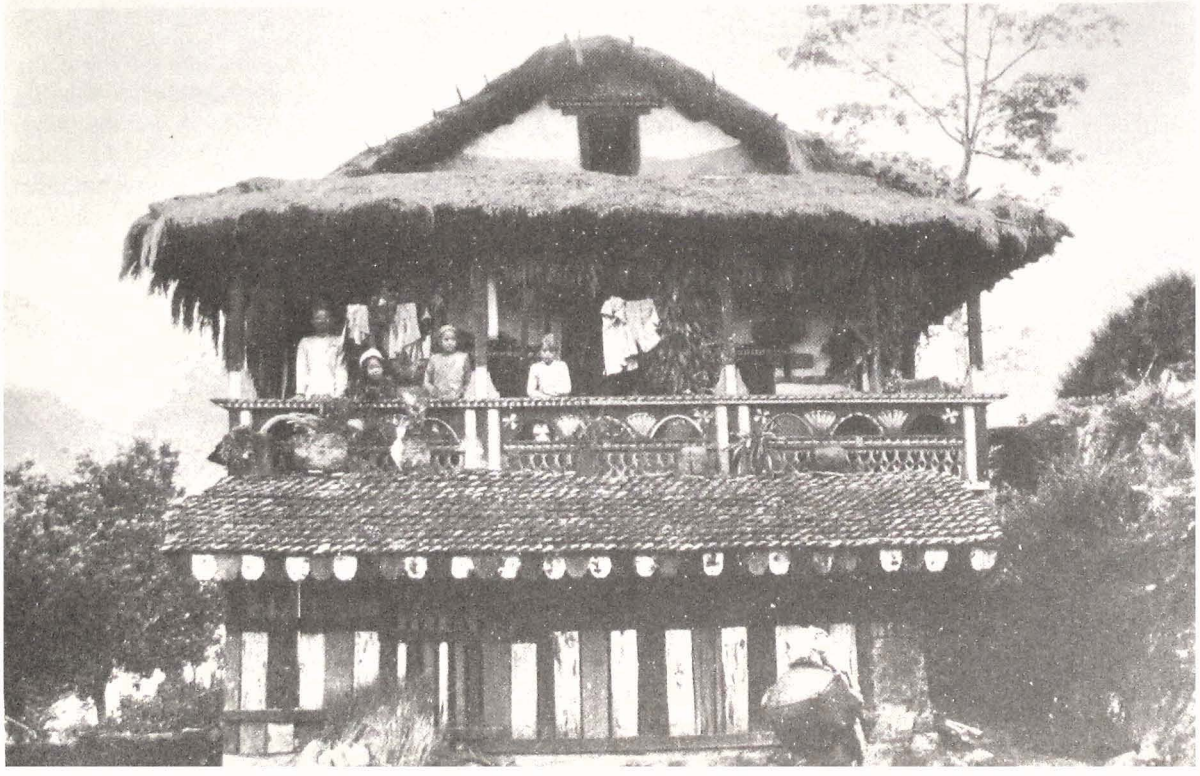
Conclusion

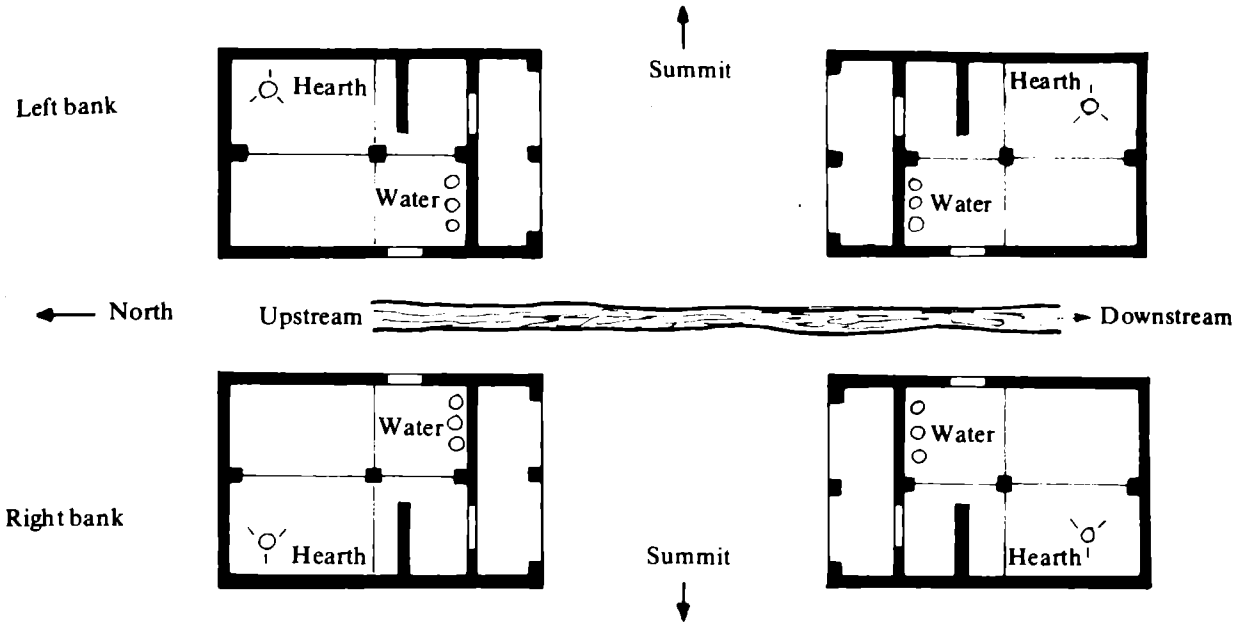
"With head held high": this state is connected to the vital force, 'mukuma sam'. The notion is at the heart of the old way of life. It only exists within the four corners of the Limbu house to which it lends its pre-eminence in the old social organization.

The state of the vital force belongs to each house, showing itself very concretely. To carry one's "head high" (how can this be said in Western terms?) means to be at the top of one's form, audacious, full of a happy aggressivity. You become successful in everything. Fearlessly, you throw yourself into political action.

↑ Fig. 11 — Limbu house

↓ Fig. 12 — Village chief's house (Cl. P. Sagant)

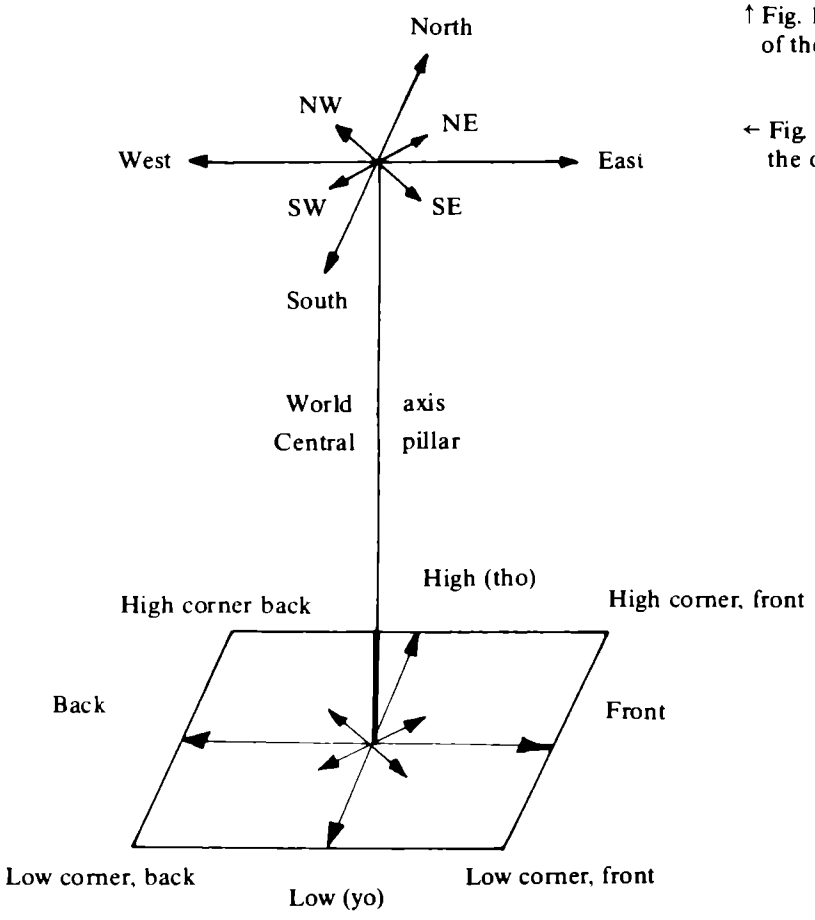




↑ Fig. 13 — Internal organisation of the house

YET LAMDONA
(The eight roads of the other world)

← Fig. 14 — The house and the other world



HOUSE

When hunting, the game springs up at your feet. In any case, you prosper, you are influential, well supported by your allies, powerful and feared. In your shoulder, on top of your head, you feel the gods' violence ready to break out. At the same time, your neighbour, even a very close blood relative, may have "lost face". He is paralyzed, full of shame, incapable of action. A buzzing at the temples, he seems on the edge of dread, sick of living. He wounds himself when hunting. His crops and livestock fail, he has become a social outcast. He smells of misery and death. His misfortune, however, doesn't affect you. The gods are close to the ancient Limbus. The signs of their favour are immediately tangible. But their presence is limited to the house. The state of the vital force differs from one house to the other.

Inside a household, the vitality has its highs and lows. It changes with time. It's not for nothing that the sacrifice to Nahangma occurs at the end of a three-year cycle, or at the beginning of the rising season and the declining one. Doubtless, the vital force has, by then, been used up. It must be renewed. The body, the house, accord themselves with the rhythm of the seasons, the coming and going of Nature's cycles, the forces of the Universe.

The vitality of a house also varies according to that of another house. It's the thing in life the least fairly shared. The gods, when they force a house to express its own vitality, accept that at the same time this should mean that another house's vital force be damaged. They introduce an imbalance, a fissure, a conflict in the world of men. In turn, the wronged house throws itself into action, to "raise up its head again". This see-saw game could be never-ending and prevent all social activity. On the contrary, it is its very foundation. The prosperity of one house comes from its capacity to surround itself with allies. It is in your own interest to acknowledge the wrongs your vitality has caused to another. For conflict generates an alliance between two houses, even though they start off by fighting. Every rupture is a promise of prosperity, on condition that you know how to make peace. It is the play of political conflicts between households which ends up by weaving the web of social relations. Of all social mechanisms, alliance is by far the most important. The balance is less precarious than it would appear. In such a society, the powerful are the best integrated, socially. Their wealth depends on stability. They use their influence to ensure the respect of the laws. They are not the most violent. They are, rather, the most cunning, politically. Social order depends on the game of vital forces. And on this chessboard, there is only one kind of piece: the house.

But let us return to our first question. The religious ideal of going with "head held high" founds the political power of each household chief, consisting in the ability to use armed violence when he has "lost face". From the four corners of the house to the four orients of the Universe, there is no village border, no realm-frontier. The house opens wide on the disorder of the forest. It is the basic unit of a society dominated by the political principle. The Limbu chiefs, at the time of the Conquest, were neither petty kings, nor heads of principalities, as in west Nepal. They were household chiefs like the others, but at the pinnacle of their power, at the summit of the structures of alliances. That is because all their life, Nahangma has filled them, more than others, with one exclusive ambition: to go "with head held high".

Notes and References

1. For the organization of space in the Limbu house, see Sagant, 1973
2. This article owes a great deal to A.W. Macdonald's teaching at the University of Paris X. In his *Introduction au domaine himalayen*, he insisted, in 1980, on the relationship between ritual and politics.
3. The data were collected in the north of the country, in the Taplejung District. Nahangma's cult is mentioned elsewhere among the Limbus by Chemjong, 1966, p. 22, 40, 79, and Campbell, 1940, p. 600. Nowadays, it no longer seems to exist in the south, where Caplan, 1970, and Jones, 1976, worked.
4. This ritual, in its relation to the religious calling, was described by Sagant, 1976, p. 76-85. We have summarized some of its most striking features here.
5. Stein, 1962, p. 171, 186
6. Stein, 1962, p. 173.
7. Allen, 1976, p. 135, 1974, p. 547.
8. A.W. Macdonald, 1980.
9. For ancient Tibet, Tucci, 1970, p. 240, also mentions the four corners of the house. For the relations between the space of the sacrifice and the royal power among the Newars, see, for example, Toffin, 1979, and Vergati-Stahl, 1980.
10. A.W. Macdonald, 1980.
11. Fürer-Haimendorf, 1955, p. 163.
12. Sagant, 1973.
13. Stein, 1962, p. 173.
14. Stein, 1962, p. 170.
15. Stein, 1962, p. 169.
16. Stein, 1962, p. 187.
17. Jest, 1975, p. 43.
18. Stein, 1962, p. 187.
19. Tucci, 1970, p. 239.
20. Stein, 1962, p. 192.
21. Elwin, 1961, p. 10: "The bull killing sacrifice and the killing of the mithun in the Naga Feasts are done almost in the Vedic manner, in each case the animal being killed by a sharp stake of wood which pierced its heart". Also see Srivastava, 1962, p. 34-35, for the Gallongs, Fürer-Haimendorf, 1954, for the Myniongs, etc.

22. For example among the Rais: "The really traditional way of killing pigs is to shoot them with bow and arrow, not to behead them with a kukri", Allen, 1972, p. 89. Equally, the Rais sacrifice the chicken in the same way as the Limbus: "The fowl are killed by a blow on the back", Allen, 1976, p. 135. For the relations between blood, heart and breath, see Stein, 1962, p. 191, Tucci, 1970, p. 245. For the method of killing the pig among the Limbus, see Sagant, 1980.
23. D. Mac Donald, 1930, p. 168: "The method of killing is cruel and barbarian. The animal is first tied up, then thrown down, and finally its heart is pierced with a blade." Also see Kawaguchi, 1909, p. 233.
24. For the relation between blood and prosperity, see, among others, Elwin, 1961, p. 11, Fürer-Haimendorf, 1969, p. 95, Bonerjea, 1927, p. 233.
25. Sagant, 1976, p. 64.
26. Höfer, 1974, p. 171, 177, 182. For the notion of the vegetal twin or double, elsewhere in Asia, see, for example, Condominas, 1957, p. 150, Morechand, 1968, p. 113, Lot-Falck 1974, p. 95.
27. A.W. Macdonald, 1967, p. 57.
28. Stein, 1962, p. 192, Nebesky-Wojkowitz, 1956, p. 482.
29. Chemjong, 1966, p. 26.
30. Höfer, 1974, p. 182.
31. Chemjong, 1961, p. 214.
32. Chemjong, 1961, p. 358.
33. The process has been described by Allen, 1978, among the Rais. Among the Limbus, it is identical.
34. Chemjong, 1966, p. 97.
35. Guha, 1953. One may well wonder if, in the ancient N.E.F.A., the whole set of ideas concerning the vital force, following various developments, was not at the origin of very dissimilar facts such as the judgment of the Dead, signs of "wealth", ritual money, war, hunting and sacrificial trophies, feasts of merit, the right to polygamy, etc. See, for example, Needham, 1900, Roy, 1960, p. 141, 147, 156, 157, Shukla, 1959, p. 68, Srivastava, 1962, p. 14, Robinson, 1836.
36. Stein, 1962, p. 191, Tucci, 1970, p. 245.
37. Fürer-Haimendorf, 1967, p. 49, has noted that the notions of ritual purity differed from the Hindu conceptions. Höfer, 1979, p. 145, made the same remark concerning the Gurungs and the Sherpas of Nepal; Watters, 1975, p. 126, notes that the criteria of Hindu purity only appeared at a recent date among the Kham Magars.
38. Chemjong, 1961, p. 217, translates 'mumma' by 'hallaunu' in Nepali. For 'hallaunu', Turner, 1931, p. 633, gives "to shake, to move, to shift, to trouble, to strike terror into". Limbu informants have frequently insisted on the importance of shame associated with this state.
39. Gorer, however, 1938, p. 92, seems to doubt it for the Lepchas.
40. Stein, 1962, p. 187, notes that a black turban around the head or the touch of an animal's carcass on the shoulder make the protective gods, who sit in these parts of the body, impotent. Also see Sinha, 1962, p. 95, for the Akas.
41. 'Sarap' in Nepali.
42. About these contributions, see Sagant, 1978, p. 94.
43. See Sagant, 1978.
44. For battles in North-East India, see, for example, Mills, 1922, p. 110, among the Lhotas, Dutta, 1959, p. 22, among the Tangsas, Hutton, 1921, p. 110, among the Angamis, Fürer-Haimendorf, 1962, p. 113, among the Apa-Tanis, Srivastava, 1962, p. 93, among the Abors. For Tibet, see Desideri, 1932, p. 317.
45. The combat must cease at the first wound, whence the protest.
46. See Das, 1902, p. 20. In Limbu country, at least in the north, these combats continued up to recently, or their memory persists.
47. Vansittart, 1915, p. 111, notes that in olden times, the husband would kill the lover. He seems to be referring to an ancient Nepalese law rather than to Limbu custom. See Höfer, 1979, p 73-80, Adam, 1936, p. 535.
48. See the photograph of a Dafla prisoner shackled among the Apa-Tanis in Fürer-Haimendorf, 1962, p. 71.
49. Snellgrove, 1957, p. 123.
50. This Tong Sing ritual seems very comparable to the Rais' as described by Allen, 1976, p. 134-135.
51. Allen, 1976, p. 135.
52. Speaking of the Daflas, Fürer-Haimendorf, 1967, uses expressions such as 'losing face', p. 59, "restoring prestige", p. 55. The chief of the big house is the "head", p. 55. etc.
53. Tucci, 1970, p. 239.
54. Let us note, however, to our embarrassment, that Fürer-Haimendorf 1967, p. 113, reckons it is the contrary when talking of the Nagas.
55. Fürer-Haimendorf, 1967, p. 60, remarked the same thing among the Daflas.
56. 'Yog', in Tibetan 'g-yog po', means "servant".
57. Fürer-Haimendorf's remarks on the Daflas (1967) are at the origin of the idea developed in this paragraph.
58. Sagant, 1970, p. 90.

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HOW I BUILT MY HOUSE
An Account by Sarkiman Majhi, Fisherman

Corneille Jest

Sarkiman is a 'Majhi' (Kuswar)[1], member of the Fishermen-boatmen caste. The 'Majhis' live in the Terai and the middle Himalayan valleys along the largest waterways. They were until recently in charge of plying ferries. Although close to the Indo-Nepalese populations, they have their own traditions. Today, they speak Nepali, the national language of the country.

Sarkiman lives in Parsel, a village situated on the right bank of the Sun Kosi, to the south-east of the Kathmandu Valley. His ancestors ran the Patswarghat ferry.

Sarkiman is a link between most of the authors of the current volume, as for the last fifteen years he has been looking after the practical organisation and porterage for researchers conducting outfield work in Nepal. Displaying an inquisitive bent of mind, he has been part of the surveys undertaken, and it is often thanks to him that the ethnologist gets the correct answer to his question.

He has just returned from a short visit to France during which he took part in the construction of a sheep pen; one lesson followed the other and the comparison emerged very naturally. It is not our intention to describe to you how he views French habitation, but to present a summarised account of the observations he made on the construction of his house, keeping as close as possible to his easy style of narration.

* * *

The construction of my house began in the month of 'pus' 2030 B.S. (in January 1974) and went on for three months.[2]

The head of the masons, 'dakarmi', Indra Bahadur Shingali, a Magar from Parsel who happens to be a construction expert and myself together selected a flat surface in the fields which belong to me. The building shell and the frame cost six thousand rupees including the material supplied and the food for the workers.

I decided on the dimensions of the house; Indra Bahadur then asked me how many openings I wanted. I specified: a door, 'dhoka', and a small window, 'jal', on the ground floor. I did not want any 'libi' (opening of small dimensions fitted with bars) nor did I want a large number of windows, as all this is very costly. My Tamang neighbours, imitating the city dwellers, nowadays build houses with many windows; personally, this does not appeal to me.

In the Timal Danda region, the habitation always has a rectangular base. The dimensions are given in cubits, 'hat'.[3] Thus, a house may have:

7 x 13 cubits: it is then called 'sat/tera'

9 x 15 cubits: it is then called 'nau/pandra'

9 x 17 cubits: it is then called 'nau/satra'

11 x 22 cubits: it is then called 'eghara/bais'

Besides, a distinction is made between two different kinds of measures: 'pakka' and 'kacha'. 'Pakka' equals the sum of two cubits, plus two phalanxes of the middle finger, plus the width of the thumb, and 'kacha' equals two cubits only.

My house measures seven cubits by thirteen. Two inner posts support the construction. For the larger houses, four posts are necessary. The total height is around thirteen cubits; the ground floor has three cubits, the ceiling of the first floor one, the attic ceiling three and the roof height five. The height of the main post corresponds to the inside width of the house. For my house, which has a 7/13 relationship, the height is thus five cubits.

We began by gathering the stones required for the construction. Each time we returned from the fields, we brought back one or two stones in the basket.

Fig. 1 — Sarkiman's house in Parsel (Temal)
(Cl. C. Jest)

I covered the entire village in search of shell wood, rare and extremely expensive. I was able to buy a tree, 'sal', and a neighbour sold me some pine beams, 'salla'.[4]

With the help of seven masons, Indra Bahadur started the construction by digging a perimeter for the foundations, 'jag'. The foundations were two cubits wide and three cubits deep. This initial work over, Indra Bahadur burned some incense. He offered a coin, and lit an oil lamp. To whom exactly this offering was made I really don't know. He then placed an alignment string on the ground to regulate the dimensions of the house. It was shifted as and when the building rose. The line was cut as soon as the masons had finished their work and the workers had been paid. Till the line is not cut, the house is considered to be a public shelter, 'pati', that is to say a place which belongs to all.

Stones joined together with a mortar made of mud were used to erect the walls, 'garo'. At the time of erecting the walls, Indra Bahadur asked my mother where the recesses, 'kopra', were to be placed. He provided for four recesses in the ground floor of which two were close to the fire stove; they are rectangular in shape.

The casseroles and cooking utensils were then arranged on the recesses. (The shape of the recesses tells one who built the house walls; a Tamang will make a rectangular recess, a Magar, a rounded one). Indra Bahadur took great care while building the parallel internal and external sides of the wall, as this is the weak point of any construction.

The wooden elements were made by the nearby carpenter and fitted into the building at the appropriate time.

When the wall had reached a height of three cubits, the two posts, 'tham', of 'parim' wood, were placed, each one standing on a flat stone called 'baitak', to prevent the base from rotting; at the top, two capitals, 'meth', supported the master beam, 'nidal', at a height of one 'bitta', i.e., the distance between the tip of the stretched out thumb and middle finger, placed along the longitudinal axis and fixed into the gable walls; the joists, 'dalin', are placed from the outside load-bearing walls to the master beam with a one 'bitta' gap between each joist. The master beam is made of cherry, 'payu', the joists of 'sal'.

Indra Bahadur sacrificed a cock at the foot of the first post, the main post erected, and then placed the blood, a little incense, vermilion and few rice grains on the capital.

The floor of the first storey, 'majh-talo', covers the ground floor; it consists of a bed of joists on which wooden splinters of pine, 'cirpat', are crossed; this is covered with clay.

When the level of the rafters is reached, the brackets, 'ba', are inserted, which exceed the wall by a cubit; they have a notch and are placed at a distance of one cubit all around the house. Inside, a master beam, joists in succession and the other elements of the floor are placed. The walls are further raised the length of a fore-arm, fist closed, 'kute-garo'; the tops of the walls are then equalised with clay. The toughest work is thus over.

Every male member of the family participated in the laying of the four-sided roof.[5] The main post, 'dhuri-khamba', was erected as an extension of the post along with the three principal rafters, 'kumbe balo'. These three elements are fixed together onto the ridge pole with wooden pegs. The same structure is built on the other end of the roof. Two intercalary roof rafters are placed half way between the gable walls.

The ridge pole, 'dhuri', rests on the king post which is forked at the end. The eaves purlin, 'pani balo', is fixed on the brackets, 'ba'. Then purlins, 'darampati', are placed at two intermediate levels. A series of rafters, 'dara' are inserted between the ridge purlin and the eaves purlin; the batten are tied to the rafters with bamboo. The three principal rafters, two at the angles and a third on the longitudinal axis, form the framework of the small side called 'sikuwa'; the opening at the peak of this side allows the smoke to escape.

Such a kind of roof has a steep slope, 'karale', due to the nature of the roofing material used, namely thatch. Had the slope been gentle, the rain water would have rotted the thatch. If tiles are used, only a mild slope, 'tali', is required; such is the case in the houses of the Kathmandu Valley.

The roofing, 'chana', is made of grass straw, 'khar'.[6] The stems, about two cubits long are cut in the month of 'pus', dried and tied into bundles, 'mota', with a 30 cm diameter. The bundles facilitate the laying of the roof. This sheathing is placed on the lower edge of eaves purlin, the top of the stems pointing upwards, and then around the four sides of the roof. A bamboo stick, 'basko bhato', tied to the battens, is attached to the grass covering. When the surface upto the first purlin has been covered, work only continues on the two large sides. Once the peak has been reached, the stem ends are gathered in small bundles and intertwined. These stems are then covered by grass packets, tied to the sheathing of the roof sides with rope moulding. The entire roofing work required the labour of four men working over a period of ten days. I think the roof will last for fifteen to twenty years.

A staircase of pine allows one to reach the first floor; it is built towards the end of the operation. The ladder beam, 'ekkute bareng', is also of pine. It always has an uneven number, 'bijor', of notches. On three sides, i.e., the principal facade and the two gable ends, a stone platform, 'peti', is built, one cubit high and one cubit wide.

The walls are coated on the external side from the base till a height of two cubits with a red coloured mud plaster. Above this, white earth, 'kamero', is applied. This coating is refurbished every year for the 'dasai' festival. (The Bahuns prefer red, the Tamangs, white.) The same holds good for the interior of the house. In addition, every morning a female member of the household prepares a mixture of red earth, cowdung and water, and coats the entrance door, the window frames and the site of fire stove. This constitutes a purifying ritual. Every week, the house floor is coated with a mixture of fine earth and cowdung.

As soon as the construction of the house was completed, the four men who had laid the roof attached four small thatch bundles which served to decorate the peak. My mother had prepared rice pancakes and a tasty meal. The masons had the rice pancakes slithering from the roof top till the floor, and then everyone ate and drank.

I did not not add a verandah, 'pali', to the principal facade; the reason is simple: a house with a 'pali' always attracts the neighbours who come to take shelter, chat and smoke. And with smoking there is always the danger of a fire breaking out, something which I wanted to avoid.

(Coming from Sarkiman, this sentence seemed a little surprising given the fact that he himself is a heavy smoker.)

The Arrangement of the Interior

When the house was completed, my mother inspected the interior specifying the position of the fire-place (delimited by stones and dug slightly to avoid the ashes from scattering) and of the shelf, 'gagreto', for the water containers.

She fashioned a small clay support that was fixed in the wall at man height, above the fire stove. In it she placed a lamp, 'sajhko batti', which is lit everyday at twilight and continues to burn till night. It is this light that establishes the link between night and day.

The Consecration of the House

On an auspicious day fixed by the astrologer, a Bahun began by offering a 'puja' to the god Narayan inside the house; he then celebrated a purificatory ritual, 'karanga', with a series of offerings to the fire. He sprinkled the various parts of the house with a lustral water composed of water, cow urine, whey and a grass, 'kus'.[7] On that day, I invited all my relatives and friends to eat and drink. Whenever the fire is lit for the first time, Tradition demands that an excellent meal be prepared.

The astrologer selected the propitious day and hour on which the family, represented by mother, would take possession of the house. Houses are the concern of women; as the dictum says:

"Men do not have houses, women do not have clans".

It is the woman who stays in the house, rules it and not the man, who is required to travel frequently. On that day, my mother transported the protecting deity, 'kul', from the old to the new residence. This clan deity is represented by a basketwork receptacle containing rice, vermilion, dried flowers, coins, a fraction of what existed in the family house. The receptacle, on which a lighted lamp had been placed, was brought to the new house and put in a corner of the first floor. As the annual 'puja' has to be celebrated in secrecy without the women seeing it, it is imperative that the 'puja' takes place at a level where there is no danger of a fire. The ceremony, 'kul', is held on the day of 'nawami' during the series of 'Dasai' festivals.[8]

The Occupants

Amongst the Majhis, as soon as the house has been built, the souls of the dead, 'pitr', come to reside in the upper portion. There is a space in the first floor where only family members can go. As soon as a girl gets married, she is not allowed to approach this area as she is no longer a part of the family. The head of the family or a relative is obliged to offer food at every important festival or event, while reciting the names of all those who have passed away. If even one name is forgotten, he risks death. The death provoked by a discontented 'pitr' is almost instantaneous, like poisoning.

When my father got married some fifty years ago, he had to leave the ancestral home to his younger brother, who is the rightful owner according to tradition. He decided to settle down in the village of Parsel, at the side of the Sun Kosi. He continued to make offerings to the 'pitr' in the new house. My father's brother remained in Tsap, in the ancient house built seven generations ago. Not knowing the ritual, he made no offering to the 'pitr': he lost his entire family, and finally he left for India where he became a watchman in Delhi.

The Tamangs and Bahuns are sometimes tormented

by the souls of the dead; on the other hand, if they approach the area where the 'pitr' reside in a Majhi house, they could lose their lives; they spit a little blood, become unconscious and die.

Following his misfortunes, my uncle sold his house to a Bahun; the latter saw all the members of his family departing one by one. He abandoned the house which crumbled soon after. One could fall sick simply by passing in front of the ruins. A Tamang recovered the site, dismantled the house stone by stone and used the stones to make terrace walls...

The Prohibitions

One must never whistle inside a house or else the grain and money reserves get depleted very quickly, "the essence of things disappears".

The house is polluted if a woman about to deliver resides there. She is kept in a corner, like a pig or a dog, as she is untouchable till the ritual has been accomplished. Strangers to the family do not enter till after the ceremony. In the course of the ceremony, the walls are sprinkled with a mixture of cow urine, milk, curdled milk, clarified butter, mustard oil and water. This mixture is called 'gaut.'

If a member of the family dies, the house becomes impure. The purificatory ritual is the same as that at the time of birth. On the thirteenth day after the death, the Majhi 'purohit' performs the ritual which marks the end of the mourning period; he sprinkles the house with 'gaut'.[9] If by misfortune, a member of an impure caste, Damai, Sarki, Kami, Badi, Gaine, enters the house, the house becomes impure. This is indeed a very serious matter. In such a case, the roof has to be dismanted, the ridge pole removed to enable the sun to light the ground floor. And the 'purohit', who can only be a Bahun in this specific instance, must perform the 'karanga' ritual.

The Protection of the House

In Timal, we have a priest called 'piri laune jogi' who is responsible for the protection of the dwellings. He is a member of the 'jogi' caste: there is one 'jogi' for every small region.

From the month of Kartik (October/November) onwards the 'piri laune jogi' goes from house to house in the dead of night (when there is no moon), circles the building, blows into a horn that produces a mournful sound and chants a magic formula to drive away harmful spirits.

As in every other large community, Timal also has a 'katuwal', a member of the Damai caste.[10] The 'katuwal' plays the oboe, 'sahanai' to give the signal for the start of work in the fields and the growth of maize, in the month of 'chait' (March/April). On the day of the full moon of 'saun' (July/August), he passes by the village once again to announce the end of the work with the hoe, weeding hoe and the plough. After this day, it is prohibited to turn over the earth.

Three months ago, my house was threatened by the demons. This was manifested by frequent illnesses in the family. I called the 'jhakri' who isolated the house by "joining the four corners". Outside each corner, he fixed a cherry stake on which was driven in a three-headed nail, while chanting a series of religious incantations, 'mantra'. From that day on, it appeared that the danger had been warded off.

A good omen came by way of a couple of "swallows", 'gauthali', who built a nest in the house and hatched three eggs (of which one hatching did not grow). After the 'Dasai' (in October), the couple and the two little ones flew away towards the city of Kasi (Benares). Custom has it that the two parents die by the side of the Ganges and the young ones return to the place of their birth; as for the third egg, it represents an offering to the gods.

Notes

1. See C. Jest: "The Kuswar of Chaithali (Central Nepal)"-*Contributions to Nepalese Studies*, vol. 4, 2, June 1977, pp. 1-45, phot., biblio. pp. 44-45. One should also refer to the work of V. Bouillier; *Naître renonçant. Une caste de Sannyasi villageois au Népal central* - Nanterre, 1979. The ethnological observations were made in the same ecological and human milieu.
2. "In the Timal region, houses are built from the month of Kartik (October/November) to the month of Baisak (April/May." Sarkiman.
3. Measures used:
   - 'hat': cubit, unit of reference (45 cm appx.)
   - 'bitta': distance between the extremity of the thumb and the middle finger, outstretched hand (2 'bittas': 1 'hat').
   - 'kuri': maximum distance between the thumb and the index finger.
   - 'auta': length of the first two phalanxes of the middle finger.
4. Species used for construction in Timal:

'salla' (Pinus roxburghii)	staircase, beam ladder
'sal' (Shorea robusta)	rafters, joists, beams
'parim' (Eugenia sp.)	poles
'payu' (Prunus cerasoides)	master beam
'jalma' (Celtis tetranda)	master beam
'bakahainu' (Melia azadirach)	crown post

Sal and pine are very often attacked by xylophagous insects.

5. The cattle sheds, 'goth', have a double sloping roof.
6. 'Khar'; grass of the Penistum variety.
7. 'Kus': Saccharum spontaneum, used in the rituals.
8. The Tamangs place the 'kul' deity in the 'buiga', on the second level of the house. The annual ceremony in honour of this deity is held outside.
9. Amongst the Majhis, the domestic priest, 'purohit', is not a Brahmin but a member of the family, if possible the daughter's husband.
10. 'Katuwal'- the counterpart of the town crier. The post is hereditary and remuneration is given once a year by the members of the community.

HABITAT OF NEPALESE TRANSHUMANT PASTORALISTS

Philippe Alirol

Amongst the agricultural Nepalese populations, cattle breeding is of great importance even though the returns are often quite low. Right across the country, from north to south, animal husbandry is practised in its various forms, adapted to the widely differing natural environments and deeply marked by the cultural heritage of the different groups that have taken to this activity. For reasons that are both historical and cultural, resources are raised in a number of ways depending on the requirements of the ethnic groups.

The Indo-Nepalese populations are principally rice growers. For them, owning buffaloes, zebus, goats, sheep is a marginal economic activity, which is none the less indispensable as animal waste is their only source of field manure. Even though every family tries to have a cow—an animal venerated by the Hindu religion—under their roof, the number of animals per household is low and there are hardly any large herds. The herds never graze on the upper portion of the high mountains (altitudes higher than 3300 m) and in the course of their daily or annual transfers never go beyond the upper limit of the forest. As they move within a limited space, they do not require a specialised habitat.

On the contrary, cattle breeding is an important activity for the Tamangs, Magars and Gurungs who have settled on the southern slopes of the high Himalayan chain, where maize and eleusine are grown. Apart from the buffaloes and zebus, from which the family gets its milk supply and which are needed in the fields, transhumant breeding of sheep and goats is practised on a large scale. Sheep are raised primarily for wool, without which clothes cannot be stitched, whereas goats provide meat, consumed especially at the time of major festivals which heighten the life of the village communities. The herds move over a wide area (altitudinal and geographic), summering in high altitude pastures (bet. 4000m and 5000m), sometimes at a great distance from the village of origin, and spending the winter months in the cultivated zone of village lying in the middle valleys (bet. 1000m and 1500m).

For the populations of Tibetan orgin, Sherpas included, settled in the north of the country, whose small agricultural holdings are situated in the upper lands suitable for cultivation (above 2200m), cattle breeding is a traditionally favoured activity. The yak hybrids (cross between a yak and a zebu) allow one to make more extensive use of the different ecological stages than pure yaks which cannot adapt easily to "lower" altitudes (less than 3000m) and are thus confined to the highest zones. Such transhumant breeding is intended for the supply of dairy produce as the milk obtained is converted entirely into butter or dry cheese, either for self-consumption or sale at the market place. In summer, the herds are taken to pastures situated either on the southern slopes of the high chain, or to the north in the interior valleys beyond the Chinese border on the Tibetan plateau.[1] The animals spend the winter in the lower forest regions (mountain side oak groves) or in villages where winter fodder reserves are used to feed them.

The different forms of transhumant breeding have led the Nepalese sheperds to adopt constructions which are well adapted to the environmental constraints and meet the technical imperatives specific to the genetic type while blending in with the traditional model of village construction. Settlement, orientation morphology, materials used, organisation of internal space: it is these characteristics, specific to such a construction, which represent the optimal solution of the breeders in a given environmental and cultural context.

Settlement, Location, Orientation

All settlements require a watering place nearby and a steady supply of firewood. Water and wood, which are indispensable in the domestic life of the herdsmen, are required in larger quantities for breeding hybrid or pure yaks. While sheep and goats need only a limited amount

of water, large animals require a lot of water everyday; besides, the techniques used for producing butter and cheese from the milk of the hybrids (or yaks) require large amounts of water and wood.[2] Some high mountain pastures, either too far away from the upper limit of the forest or not having an adequate supply of water are consequently visited only by sheep and goats. During the monsoon however, water is rarely a problem: in the absence of a watering place (source or waterway) in the immediate environment of the grazing space, a hole is made in the ground to collect rain water. Sometimes, bamboo drainpipes running along the edge of the roof of the shelter enable water to be collected in a large wooden barrel. Shelters are therefore located preferably near the forest, close to a watering place.

As far as possible, shelters are constructed on sites which are relatively flat, away from very humid locations (according to the shepherds, goats fear humidity the most). The raised course of the shelter provides efficient insulation from soil humidity. Drains or channels dug around the shelter facilitate drainage. In the high mountain pastures, the shelters of hybrid breeders are often situated on a small open courtyard covered with slabs of shale. It is here that the animals spend the night and are milked in the morning and evening. In the forest, the pastoralists build their shelter in the glades. The shelter is sometimes surrounded by an enclosure made of rhododendron branches to prevent the goat and sheep from moving out at night and becoming easy prey to bears and panthers. The location does not change from year to year.

The orientation is variable. The longitudinal axis of the shelter is always perpendicular to the line of the slope and the only opening, used as an entrance, more often than not looks downwards.

Typology, Morphology and Materials

It is to be recalled that this text is dealing with the habitat of transhumant pastoralists. As grazing pastures are often small in area and relatively dispersed, the herds have to move quite frequently in the course of the annual pastoral cycle. There are two main categories of constructions: mobile shelters used all year round and fixed shelters used on a temporary basis.

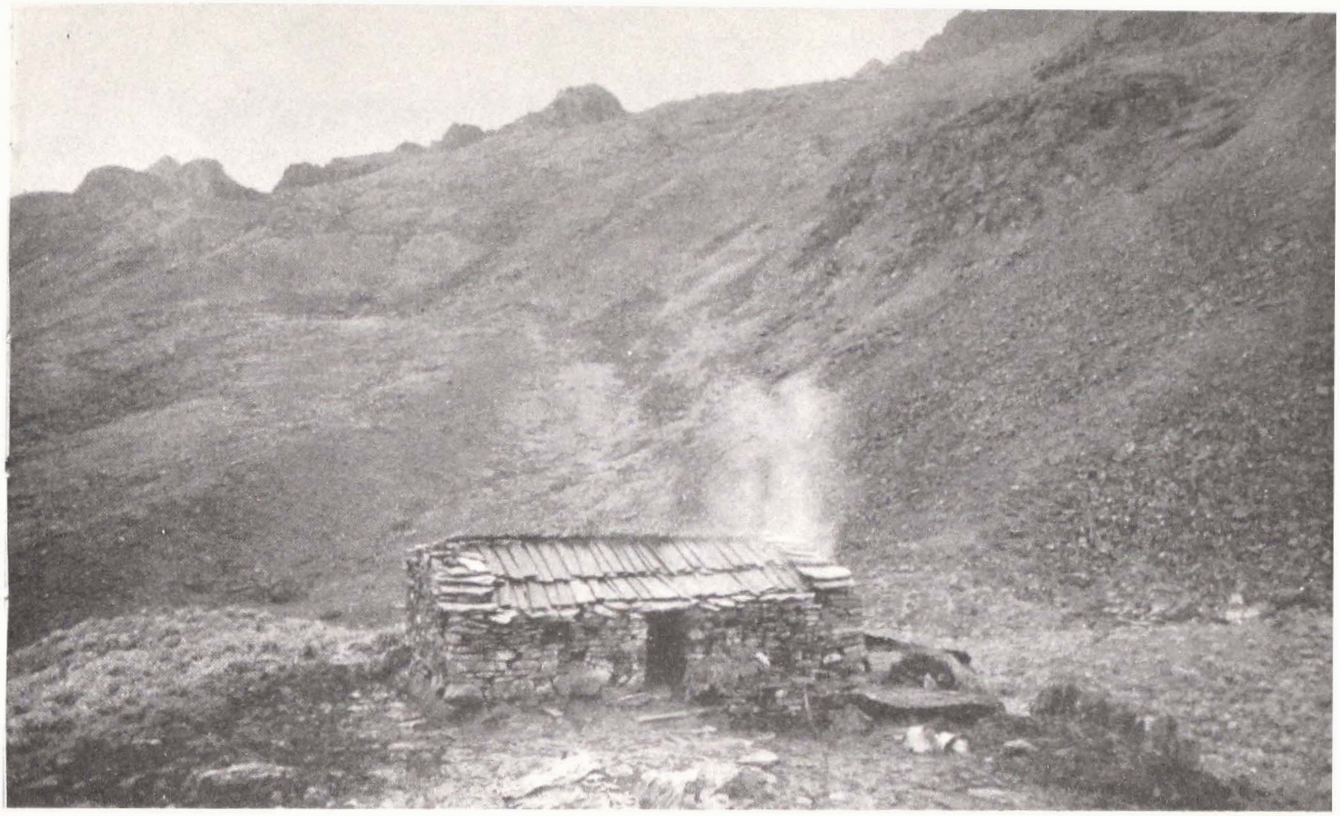
The mobile shelters have a semi-cylindrical shape. The wooden framework, which is nothing more than a ridge pole and a few stakes driven in the ground, supports the roofing made of bamboo mats, 'bakhari',[3] held in position with flat heavy stones at ground level. The hermetic semi-cylindrical shape (a chick constitutes the only opening and this is pulled down at night or when it rains) makes the construction resistant to wind and provides effective protection against the cold. The vertical inner walls are of basketwork, of rhododendron or juniper branches, or of rough stonework. When the herd moves towards another pasture, the shelter is dismantled; the basketwork is rolled up and transported along with a part of the wooden infrastructure to the new place of pasture where it is reassembled. The dimensions of the bamboo mats used hardly vary from region to region (2.4 m x 1.6m); as such, the height and breadth of the shelters are more or less the same throughout the country. On the contrary, the length is extremely variable; it ranges from a few metres (5m on an average) for the shelters of the shepherds to 25 metres for the shelters of yak or hybrid breeders (the transformation of milk into butter and cheese and the need to shelter the calves at night require a larger habitability).

A second type of mobile shelter can be found only north of the high chain, amongst the breeders of Tibetan language and culture, practising transhumant breeding. The tent, traditional dwelling of the Tibetan Drog-pa nomads, is their customary shelter. Bands woven from yak overhair and stitched together constitute the canvas supported by two poles and held in place by runners also made of yak overhair.

Unlike the mobile shelters, the fixed shelters, 'ghiang', are used on a temporary basis. A double sloping truss constitutes the roof. The two sides and the ridge pole, wedged into the walls, rest on two vertical beams. Depending on the material available from the immediate environment, the walls may be of raw stones obtained from glacial fallen rocks, pine shingle or even basketwork. The roofing could also be of single or roofing stone, simply placed on the frame. At the beginning of autumn, when the herders leave the high pastures for the forest below, the shingle roofs are dismantled to prevent them from crumbling under snow; the shingles are stored nearby. Such construction, more vast than the preceding shelters, are generally colder.

Arrangement of the Interior

Apart from the Drog-pa tents, there is very little variation in the internal organisation of the different types of shelters. The entrance, which more often than not constitutes the only opening, gives on to the grazing zone. The interior is divided into two rooms; one enters directly into the inhabited room; the ground is covered with a pine floor that has not been fixed (fixed shelter) or juniper branches. The inhabitants of the shelter spend the night near the fireplace dug in the floor, lying on bamboo mats or animal skins (calf or sheep skins); wood is stored in a drier above the fireplace. The inhabited space is also a place of work: the churn and milking buckets are kept here; the different containers and utensils are arranged on the recesses in the wall (fixed shelters) or placed near



↑Fig. 1 — Fixed shelter (stone walls)
(Cl. P. Alirol)

↓Fig. 2 — Tent of the Drog-pa herdsmen
(Cl. P. Alirol)

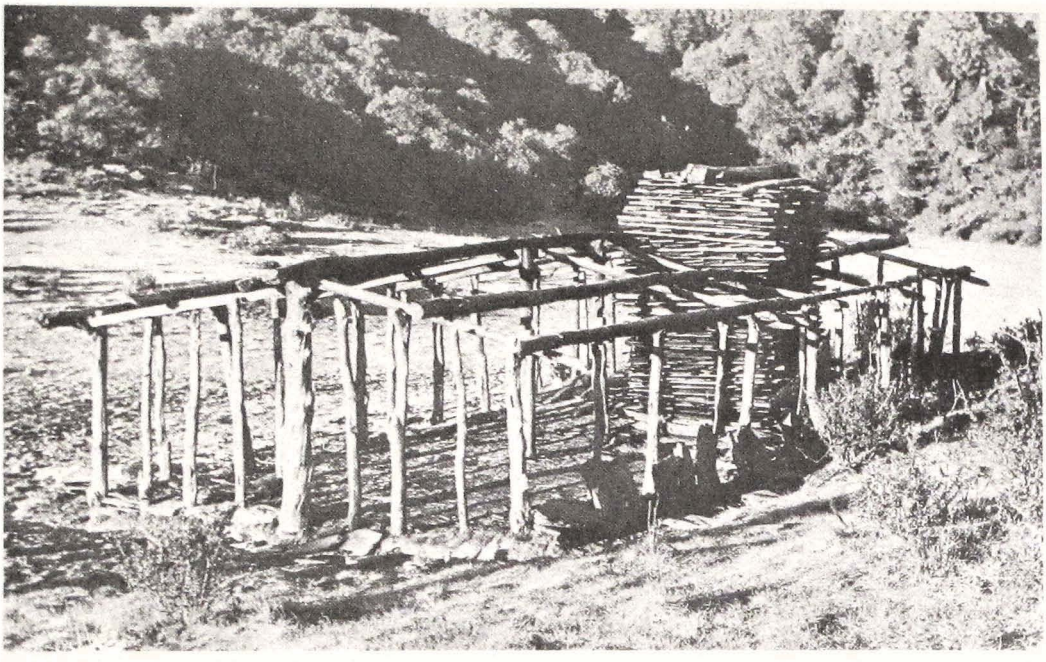


Fig. 3 — Construction of a fixed shelter
(Cl. P. Alirol)

Fig. 4 — Finished construction
(Cl. P. Alirol)

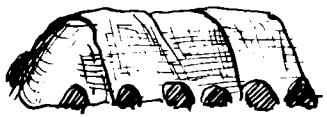
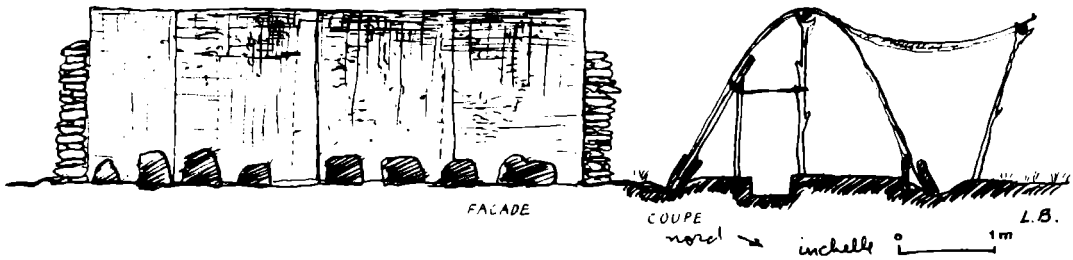
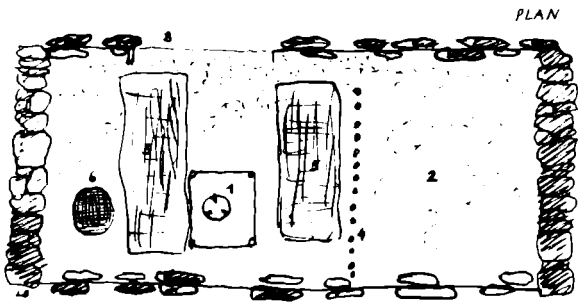
	type	situation	period of utilisation	user	remarks
	movable	1000/4900 m	Throughout the year	Shepherds Tamang Gurung Sherpa hybrid yak breeders	
	movable	700/2800 m	winter and spring	shepherds	open seasonal form used mainly in winter and at a low altitude
	movable	below 3500 m	throughout the year	Drog-pa herdsman	traditional habitat of nomadic Tibetan herdsmen from the northern part of the high chain
	fixed	3200/4300 m	summer months	yak, hybrid yak and cattle breeders	localised habitat in accordance with the malerials available from the high mountain pasture environment

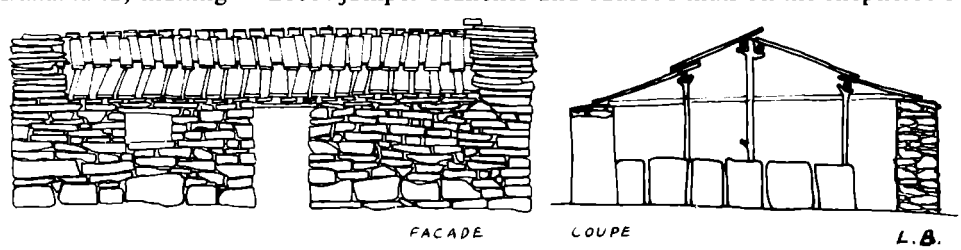
Fig. 5 — The different types of habitat of the Nepalese breeders

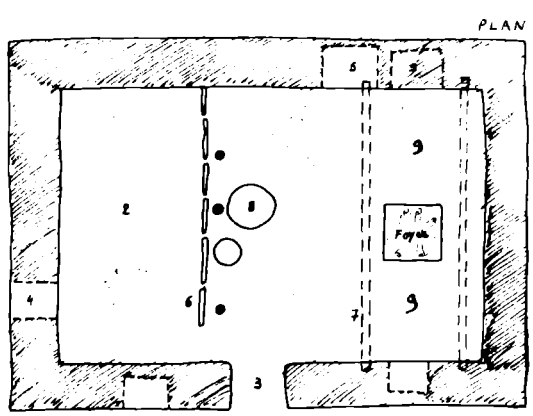




1. fire place
2. lamb and kid litter
3. entrance opening formed by a roofing mat raised in the form of a canopy when the weather is pleasant (section A)
4. thin rhododendron branch separation
5. shepherd's bed
6. closed basket to protect belongings from humidity
7. drying shed

Fig. 6 — Shelter of Kimstang shepherds. Chau Kharka mountain pastures (4700 m) Characteristics :-lateral walls : drafted stones — infrastructure : Juniper (*Junniperus indica*) ridge pole — oblique stakes in rhododendron (*Rhododendron arboreum*) — roofing : bamboo (*Arundinaria*) matting — floor : juniper branches and bamboo mats on the shepherds beds





1. fire place
2. calf litter
3. entrance
4. evacuation opening (soiled litter, dung)
5. storage shelves
6. vertical stones calf litter of the inhabited section
7. drying shed
8. churner
9. shepherd's beds

Fig. 7 — Shelter of Gandlang cowherds. Jesor mountain pastures (4200 m) Characteristics — lateral walls : drafted stones — frame made of Juniper (*Juniperus indica*) beams — roof : double row of unfixed fir shingles (*Abies spectabilis*) — floor : flat stone slabs fir floor around the fire place (calf better consists of juniper branches covered with a layer of grass

the fireplace on a shelf at ground level. The calves (yak hybrid breeding) or the lambs and goats (ovine/caprine breeding), spend the night tied to a rack in the second room. The ground is covered with a litter of pine or juniper branches changed regularly (every three days or so).

Method of Work: Activities of the Herdsmen

The shepherds and cowherds spend their day tending the herds, milking the animals, manufacturing milk products as well as performing various domestic tasks. For them, far removed as they are from their village, isolated in the high mountain pastures flooded with monsoon rain, the shelter constitutes an indispensable fixed point around which their activities revolve, a place where, when evening falls, they find a little comfort and warmth.

We will describe a day in the month of August at Dumkeur (4030m), high pasture situated on the southern slopes south of the Himalayas, north-east of Kathmandu, spent with Sonam's herds (26/08/78).

Ributi Sherpini, the wife of Sonam from Khartal, is living in the high mountain pastures. There she will stay for the whole year with her herds of goats and hybrid yaks. She hardly ever stays in the village. She is 45 years old and lives with her two daughters, 12 and 8 years old respectively, and her two sons, one 10 years old and the other six months.

It is 5 o'clock in the morning. Outside, morning has almost broken. A huge cloud formation settles in a corner of the valley, several kilometres below, covering the cornfields which surround the village, situated at a day's trek. The dog frisks around the calves, at the spot where he spent the night. Ributi, probably awakened by the morning chill (5°C in the shelter), emerges from her woollen blanket, fully dressed. Her first concern is to rekindle the fire. Sitting cross-legged near the hearth, she uses a bamboo blow torch on the glowing embers which can be seen through the scattered ash. The dry sticks in the hearth immediately catch fire and start crackling. The little girls and the elder son, Nim Sona, disturbed by the noise, toss about under the blankets and finally get up. The baby continues to sleep in the bamboo cradle.

Morning has broken (5.30 a.m.). The temperature begins to rise. The mist of clouds lifts slowly and covers the nearby pine forests. The hybrid herd is dispersed around the shelter; some animals are given the driest spots to sleep and only the calves sleep inside the shelter. Conscious of the proximity of their mother, they pull and tug at the rope attaching them to the rack. The eldest daughter takes the plastic jerry can and goes to fetch water from the source, situated on the ground at a distance of a five-minute walk from the shelter. The younger daughter cradles the baby who has started to cry. Nim Sona and his sister raise the barrier at the entry of the goat shelter, letting them out whereas the young ones remain inside.

The mother cleans the area surrounding the shelter: the dung collected by hand is piled up near 'Berberis' bushes; the children help their mother and then leave to herd the hybrids.

It is 8 o'clock, time for milking the animals in the morning. Ributi washes her hands, ties a small leather bag containing salt around her neck, takes a rope woven from yak overhair, picks up the milking bucket and calls the animals outside the shelter. Nim Sona unties one of the calves which immediately rushes towards its mother and starts suckling. Ributi allows it to do so far a minute (just about 30 seconds), then forcibly pulls it away by its rope collar and attaches it to a stake near the entrance of the shelter. She gives a handful of salt to the mother who begins to lick her calf. With the help of a rope, she immobilises the hind legs of the animal, then squats, the wooden bucket placed between her knees and starts to milk, her head resting against the side of the animal.

The milking over, she unties the mother, makes it move away and then releases the calf which laps up whatever little is left of its mother's milk. Ributi then goes into the shelter and pours the contents of her bucket in one of the huge copper cauldrons that has just been washed by one of her daughters. She goes out again and calls another female animal: "Naptema, che che!".[4] The animal responds to the call and approaches, bleating. Nim Sona unties the second calf. Milking is carried out in the humid mist which will persist for the rest of the day. The order in which the animals are milked does not change from day to day and some animals seem to understand this and come automatically when their turn comes. All the while the two little girls milk the goats. One of them holds the animal by the head to keep it still, while the other, in a squatting position, milks the animal between its hind legs in order to collect the small quantities of milk in a white metal can.

It is 8.45 a.m. and the milking is over. The younger daughter adds wood to the fire as Ributi and her elder daughter place the heavy cauldron on the trivet of the fireplace after having added a few ladles of water (about a litre) to the milk. While the milk is being heated on a slow fire, the mother breastfeeds her baby. As soon as the skin forms on the surface of the milk (some twenty minutes later), the cauldron is removed from the fire. In order to facilitate fermentation, Ributi adds a ladle of buttermilk of the previous day. Once covered, the cauldron is put at the back of the inhabited space.

Ributi then prepares the morning meal while the children bring back the calves one after the other and tie them to the rack. The elder daughter goes out to fetch water, the younger one cradles the baby as the cornflour gets cooked on the stove. Ributi grinds salt and pepper in a mortar; the meal is ready and the mother serves her children.

The meal is taken sitting cross-legged near the fire place, the cooked cornflour is eaten not with a spoon but with the right hand, out of an aluminum bowl. A soup spoonful of curdled milk completes the meal; each one then washes his plate and puts it on the shelf near the fireplace. Ributi takes the baby who has again started to cry. After breastfeeding the child, she lays him down in the cradle and covers him with a blanket, after which she goes out to collect her herd which she will guide to the forest. The animals are guided with the help of different kinds of missiles (stones or lumps of mud) thrown in the direction of those that linger on. The herd of goats, shepherded by the little girls, has to move in the direction of the steep cliffs, inaccessible to the hybrids. The elder daughter spends the day with the herd of goats and will return in the evening with a basketful of hay or bamboo stalks for the calves. The hybrids are left untended;[5] Ributi comes back to the shelter, takes her 'khukri' knife and goes to cut wood with her son; the baby is still sleeping near the fireplace.

It is 12 o'clock. Ributi and Nim Sona have come back, each one loaded with a heavy burden of moist wood; the wood is stored in the drier. Nim Sona unties the calves, which browse, dispersed around the shelter.

The younger daughter has come back. She deposits her basket of fresh grass near the litter of the calves, places some of it on the rack and stores the rest so that it is out of reach. All this while Ributi transfers into the churn that had been washed earlier the milk obtained the day before (in the evening) which has curdled. She then pours the milk obtained in the morning, carefully cleans both cauldrons and throws the rinsed water in the churn. Taking the beater kept at the joint of the roof, she fits it on the supports and starts churning. The younger daughter returns with water which she puts to heat in the cauldrons and then stokes the fire one again. Ributi continues to churn at a sustained pace, stopping occasionally to recover her breath (the beater is normally turned thirty times per minute). The first grains of butter appear on the surface. The elder daughter then pours in from time to time ladles of hot water (60° appx.) on the inner wall of the churn and on the lower support of the beater.

It is 2.30 in the afternoon. Ributi removes the beater (churning has gone on for 45 minutes) and then washes her hands. She collects the grains of butter which are floating on the surface and deposits the butter on a large wooden ladle. The lump of butter thus formed is put in a small pan filled with cold water. Once the beater has been cleaned, it is put back in place under the roof. Ributi collects the grains of butter still floating on the surface of the buttermilk and uses them to oil her hair.

A part of the buttermilk is kept aside for the evening meal; the rest is emptied into the copper cauldron and put to heat on the fire. The younger daughter once agains adds wood to the fire. The butter is stored in a wooden box kept in a corner of the inhabited space. The buttermilk proteins begin to coagulate on the fire (after 20 minutes of heating). Ributi slowly lowers a wicker basket into the contents of the cauldron; the whey that penetrates in it is removed with a ladle into a pan and then kept in a wooden barrel. This operation is repeated till only the coagulate is obtained which is drained in a basket and stored in a wooden pail. Meanwhile, Nim Sona cleans the litter of the calves, arranges the pine branches on the ground and spreads the fresh hay brought from the pastures.

Ributi continues making cheese: she deposits the coagulate in a square shaped canvas that she had dried in the morning. After having joined together the angles of the canvas, she squeezes it and makes a knot. She then places the canvas with cheese outside, pressed between two large flat stones. The next day she will remove the cheese from the canvas, cut it into small cubes and put them to dry in a basket hanging above the fireplace for this purpose.

It is 3.30 p.m. The younger daughter and Nim Sona who have gone to search for the calves will bring them into the shelter. They will distribute to them the whey that is till warm before tying them to the rack. Ributi will feed the dog a mixture of whey and cornflour placed in a small wooden trough.

At around 5 o'clock in the evening, it begins to rain. The elder daughter returns with the herd of goats and the hybrids return on their own from the grazing lands. Nim Sona and the younger daughter leave in search of those who got left behind. Ributi is in the meanwhile distributing whey to the females that were the first to come in, and the elder daughter releases the kids which had spent the day in the shelter.

It is 5.30 in the evening. Time for the evening milking in the rain. As in the morning, Nim unties the calves, one by one, but this time he will only tie them back after their mothers have been milked.

Milk is put to heat. Outside, night has fallen (6.30 a.m.). Ributi removes the milk from the fire and places

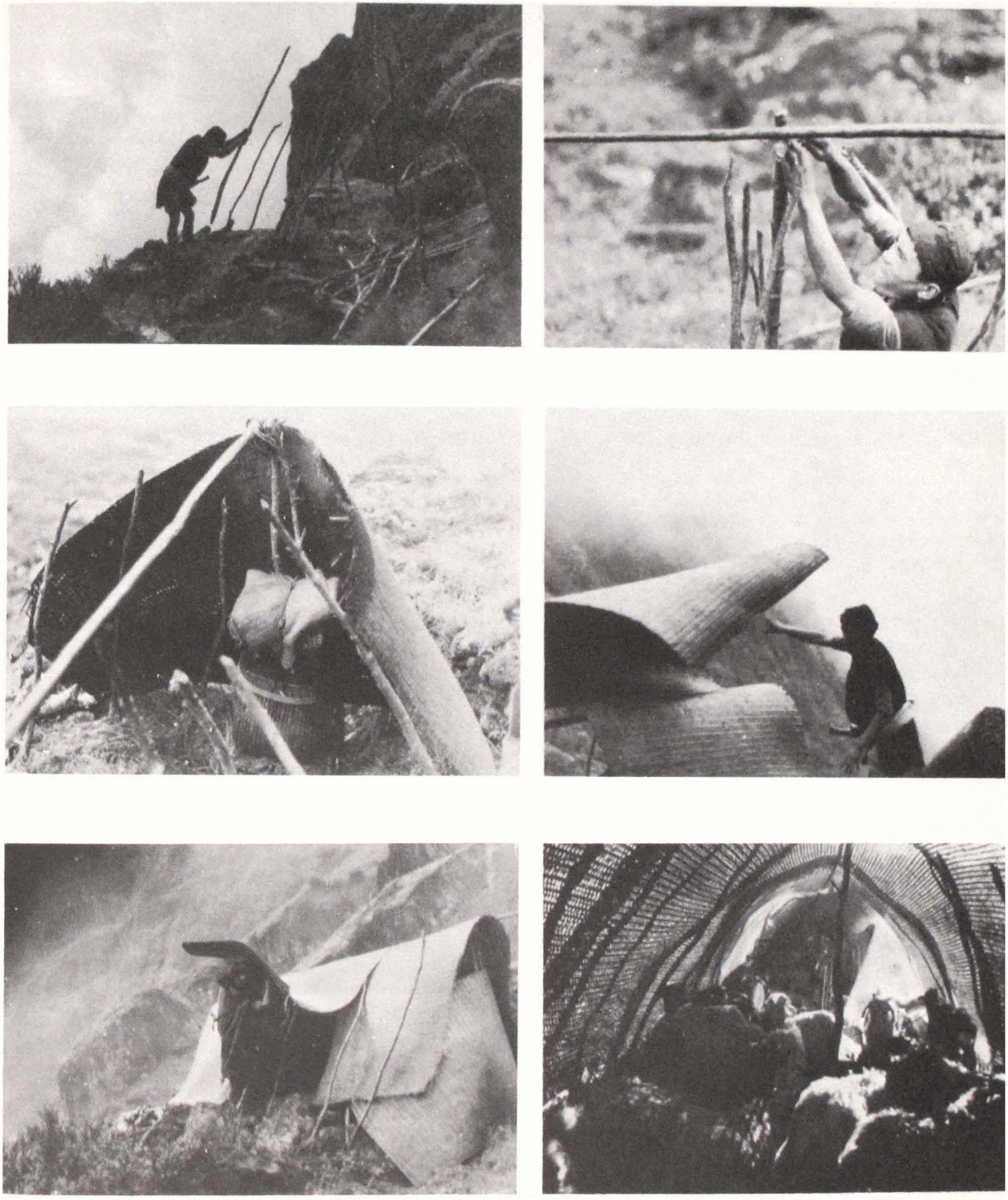


Fig. 8 — Pitching of a goth
(Cl. P. Alirol)

Fig. 9 — Inside of a shelter : around the fire place
(Cl. P. Alirol)

the cauldron in a corner after having added a little buttermilk and covered the vessel with a lid.

Cornflour with a little curdled milk constitutes the evening meal. The day is over. The family gathers around the hearth and spend the evening watching the fire die out slowly.

The day's activities take place between the rising and the setting of the sun. During the monsoon, the sun rises at 6 o'clock and sets at 6.30 in the evening. The sunshine is dependent on the cloud covering which in this season is permanent; during this period, the inside of the shelter is plunged in darkness for the most part. Pastoral activities set the rhythm of the day. In the evening, the hybrid herd often assembles on its own around the shelter, reminding the inhabitants with clockwork precision that the time for milking has come. Most of the people living in the high mountain pastures do not have a watch but tell the time by looking at the position of the sun, when it shines.

It must be noted that the daily occupations of the shepherds are different from those of other herdsmen and this for two reasons: contrary to the yaks and their hybrids, goats and sheep require to be watched over continuously; moreover, the milking of goats and sheep is only a subsidiary activity and milk technology only has a small role to play in the shepherd's schedule.

The Concept of 'Goth'

In general, each breeder is the owner of his shelter. Sometimes, the owners of small herds group the animals together under the direction of a single herdsman (they then share the cost construction and domestic equipment on a prorate basis according to the number of animals owned).[6] Shelters belonging to the village community as a whole do not exist. The word 'goth' means much more than just a simple shelter. Owning a 'goth' implies that one has a herd, is a breeder and can thus identify with a cultural group (Sherpa, Gurung, etc.) known traditionally as breeders. Sherpa women are acutely aware of this fact as they spend practically the whole year with their herds in small huts. They never stay in the village even though their families own a house in the village which is far more comfortable.

Notes

1. Bilateral agreements between Nepal and China on the use of Tibetan pastures situated on the border by Nepalese herds have expired in 1980.
2. After milking, the milk, to which an equal proportion of water is added, is heated to 60°. After acidification, the milk is churned to make butter. The buttermilk is heated till the coagulation of the whey, which when drained, squeezed and dried, forms the dry cheese.
3. In the last few years, some breeders have been using plastic sheets, purchased from Kathmandu. These are placed on top of the roofing and provide better protection against heavy rainfall. The bamboo mats last for about three years and are heavier to transport. The plastic sheets melt very fast on account of the smoke from the fireplace and have to be replaced every year. As there is no draught, the smoke cannot escape and staying inside the shelter is harmful for the eyes and the bronchia.
4. "Naptema, come, come!"
5. If the animals are not watched over, they tend to move very far away from the breeder's shelter and sometimes fail to return at the evening call; they come back on their own after spending a day or two in the forest.
6. An average of Rs. 1500 (1600 Francs, 1979) is required to buy the materials and utensils which form a part and parcel of the breeder's habitat.

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SETTLEMENTS AND HOUSES IN THE THAK KHOLA

Francis Morillon and Philippe Thouveny

Situated in the upper part of the Kali Gandaki, centre-west of Nepal, the Thak Khola is a land of transition separating regions subjected to strong monsoon humidity from the high arid lands of the Tibetan plateau. This part of the valley, orientated south-north, is swept by a dry, fierce wind, blowing from the south. It falls between two widely contrasting ecological zones: south of Tukuche, the region is extremely humid and covered with oak, rhododendron, pine and birch forests. In the north, steppes, cypress and juniper forests cover the valley.[1]

Thak Khola is also at crossroads of two different cultural worlds: to the south, there are the Indo-Nepalese and Gurung and Magar tribal cultures; and to the north, the culture of the Tibetans. The inhabitants speak a Tibeto-Burmese language, Thakali[2] and are divided into two endogamous groups:

1. The Thakalis of the Gauchan, Tulochan, Serchan and Bhattachan clans, concentrated mainly in Thasang (Thak) or Thak Sat Say (Nep.), "the seven hundred Thakali houses", between Ghasa and Tukuche.
2. The villagers who reside principally in Yulngha (Thak) or Panch Gaon (Pac Gau, Nep.), "the five villages", Marpha, Thini, Syang, Chimang, Chairo, between Tukunde and Jomoson (Fig. 1).

The following members of the artisan castes also live in Thak Khola: Damai tailor-musicians, Kami blacksmiths, Sarki cobblers; Bothiyas, originally from the group of twelve villages or Bara gaon (Nep.); as well as Tibetan refugees who have come since 1959.

For their livelihood, the inhabitants depend both on agriculture and cattle breeding. Barley, wheat, buckwheat, maize, potatoes and beans are grown on terraced fields. Cows, sheep and goats are raised, making full use of the rich grazing lands in south-east Dhaulagiri and southern Nilgiri.

Most of the inhabitants are traders as well. The Thakalis have a longstanding tradition of trade and this explains the preponderant role played by the Kali Gandaki valley in commercial exchange between India and Tibet, especially from 1860 onwards. After the Chinese government started maintaining checkposts on their borders with Tibet, the Thakalis and the inhabitants of Panch Gaon established themselves in the markets of the Middle country and south-west of Nepal. Some settled in the middle valleys, in Dana, Baglung, Beni, Bhairava, Butval, Pokhara, Kathmandu. Every winter, several families from Panch Gaon emigrate to the lower hills and return in spring to look after their crops.[3]

It should also be noted that over the last twelve years or so, Thak Khola has become a favourite tourist "trekking" spot. Taking advantage of this, the extremely enterprising Thakalis have opened a number of rest houses from which they earn a substantial income.

The religious practices have been derived mainly from Buddhism. The temple or monastery 'gompa'[4] is always an important element in the social and ceremonial life of the village. Ancient local cults are also very strong: in case of illness or in order to venerate their elders, the Thakalis call upon intercessors, 'drom' (Thak).[5]

Today, the Thak Khola inhabitants are trying to model their culture on the pattern of the upper Hindu castes of the Middle country and they attach great importance to the Hindu notions of purity and impurity.[6] This has resulted, as we will see later on, in their adopting a few deities of the Indo-Nepalese pantheon. However, Hindu and local practices are not distinct from each other but display a deep syncretism.[7]

Thak Khola Villages

The villages and agricultural lands are scattered in a series of small blocks, which may have anything from a dozen to a hundred habitations, established along the Kali Gandaki and its tributaries.

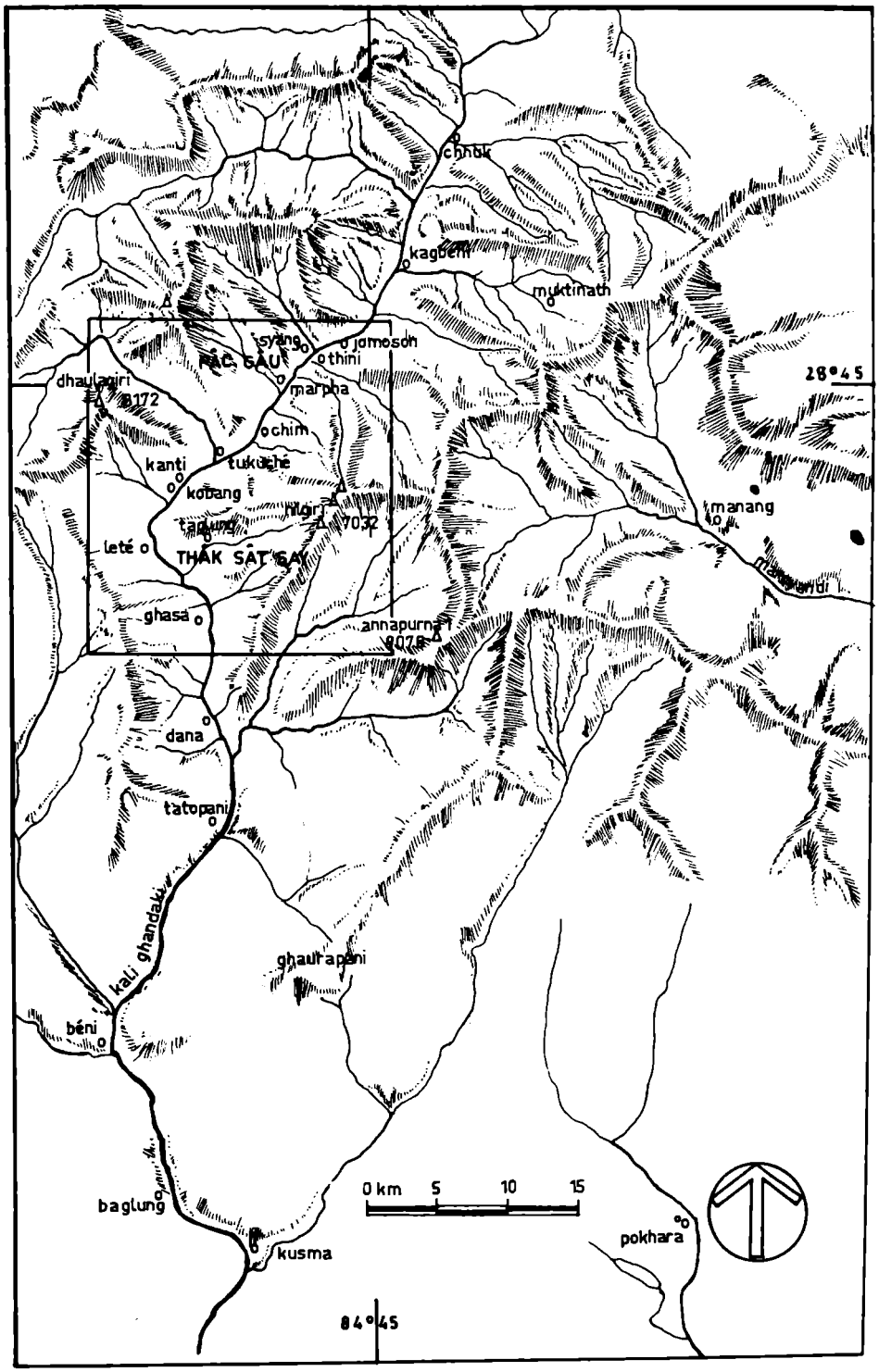


Fig. 1 — Map of Thak Khola

The cultivated areas are located on cramped sites, such as alluvial terraces or lakeside deposits, arranged to facilitate irrigation for agriculture. The terraces are generally below the habitations, on deposits which overlook the alluvial floor of the Kali Gandaki.

The villages consist of parallel settlements of flat roofed, terraced houses masoned with stone. The house's internal space is articulated around a courtyard and they generally face the river.

A massive door, 'kakani', or a stone wall, 'mani' (Thak) always demarcates the entrance to the village. The temple, 'gompa', is generally situated above the village. The importance of the temple is brought out by its size and the paintings on its facades.

Nevertheless, every village has its particularities. We have chosen the examples of:

a. Taglun and Kuncho—for their agricultural character and privileged relationship.

b. Kobang, for its morphological structure.

c. Marpha, for its houses density and the dimensions of its habitations.

Taglung and Kuncho (Fig. 2)

These two villages, at a distance of 250 m from each other, are situated at an altitude of 2650 m on a alluvium deposit overlooking the tributary of the left bank of the Kali Gandaki: the Pangbu Khola. Situated outside the main route Tatopani/Jomoson, they have retained a primarily agricultural character. Even though the two villages belong to separate administrative units ("wards" 5 and 6 of the Lete Panchayat), they maintain a privileged relationship. The inhabitants inter-marry and make use of the same 'gompa'; the children go to the same school; a part of the fields are cultivated in common. Taglung, the upper village, is above the common fields which separate it from Kuncho, the lower village (Fig. 3). The soil in this zone is quite rich and the terraced gardens are irrigated.

Taglung and Kuncho are composed mainly of habitations linked by streets covered in place by attics with shingle roofs or by individual terraces.

In May 1977, Kuncho included 31 Thakali houses (Serchan, Tulachan, Bhattachan clans) and 11 non-Thakali houses (Damai, Kami, Magar).

The Thakali habitations face the river (to the south), whereas those of the Damais, Kamis and Magars, at some distance from the main settlements, are orientated to the north.

In Kuncho, the southern and eastern entrances are marked by two small temples, one in honour of Namchung, the other in honour of Lakshmi.

To the east of Taglung stands a small temple dedicated to Machumbra as well as a small sanctuary of white stones above which juniper branches have been placed, dedicated to Bhumi, deity of the earth. To the west, two fountains used respectively for household and cattle needs may be found. A 'gompa' overlooks the extreme west of the village.

Contrary to what happens elsewhere in Thak Khola, the terraces of the Taglung houses do not include a prayer pole.

Kobang (Fig. 4)

Kobang is situated at an altitude of 2500 m, on the right bank of the Kali Gandaki. The valley has expanded considerably from Dhumpu and the vegetation has become increasingly arid. Almost all the terraced fields are on the alluvial floor of the Kali Gandaki.

The cultivation of cereals is less developed than in Taglung but mustard, raddish and onions are grown here. The inhabitants of Kobang trade during winter, mainly in the Pokhara region, where along with the Tukuche traders they enjoy a complete monopoly.

Kobang is one of the oldest Thakali villages. It includes 16 Thakali houses (Serchan, Gauchan, Tulachan and Bhattachan clans), two houses inhabited by Puntans from Murpha and seven non-Thakali houses: two Kami, two Damai, two Magar and one Gurung.

The large track that runs from Baglung to Mustang crosses the village from the south-west to the north-east (fig. 5). The entrances are marked by stone walls. Other habitations have been built on a path bordering a torrent.

At the south-eastern extremity, a 'gompa' overlooks the river and the irrigated terraced fields. In the north-east, two other temples dedicated to the deities of the Serchan and Bhattachan clans jut out over the village. The school, common to Kobang, Khanti and Larjung, is situated in the south-west.

In the north-east, the houses cling to a sudden break in the relief and overlap the main road which is nothing more than a tunnel-like passage, dividing the ground floor of the habitations into two halves. These houses have more ground space than those in the rest of the village and often consist of 4, 5 or even more levels.[8]

In the south-west, the houses are arranged on either side of the road and face each other. Downhill from the track, they often have a second courtyard giving on to the road.

Wood is piled so as to form the border of the roof

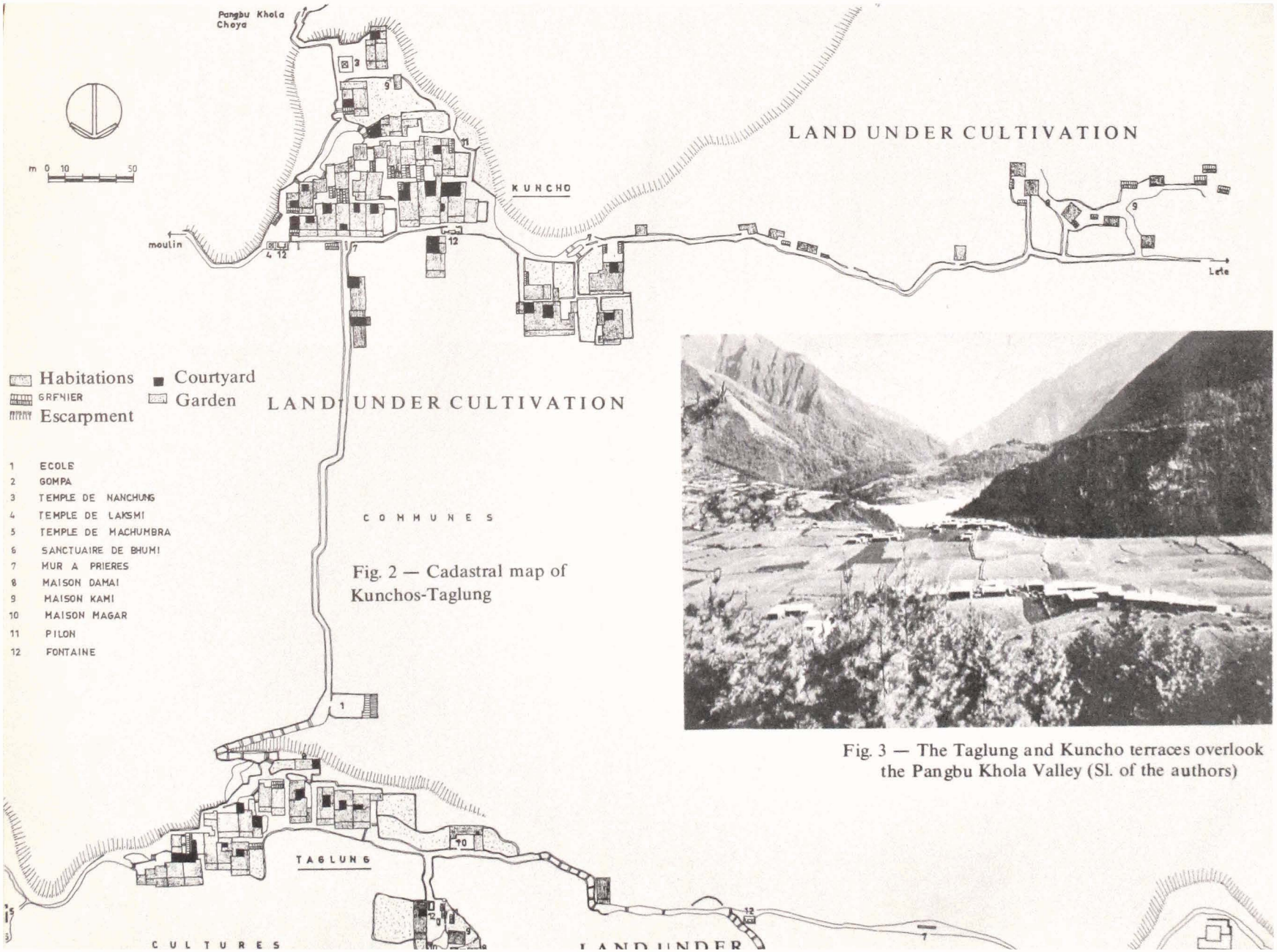


Fig. 2 — Cadastral map of Kunchos-Taglung

Fig. 3 — The Taglung and Kuncho terraces overlook the Pangbu Khola Valley (Sl. of the authors)

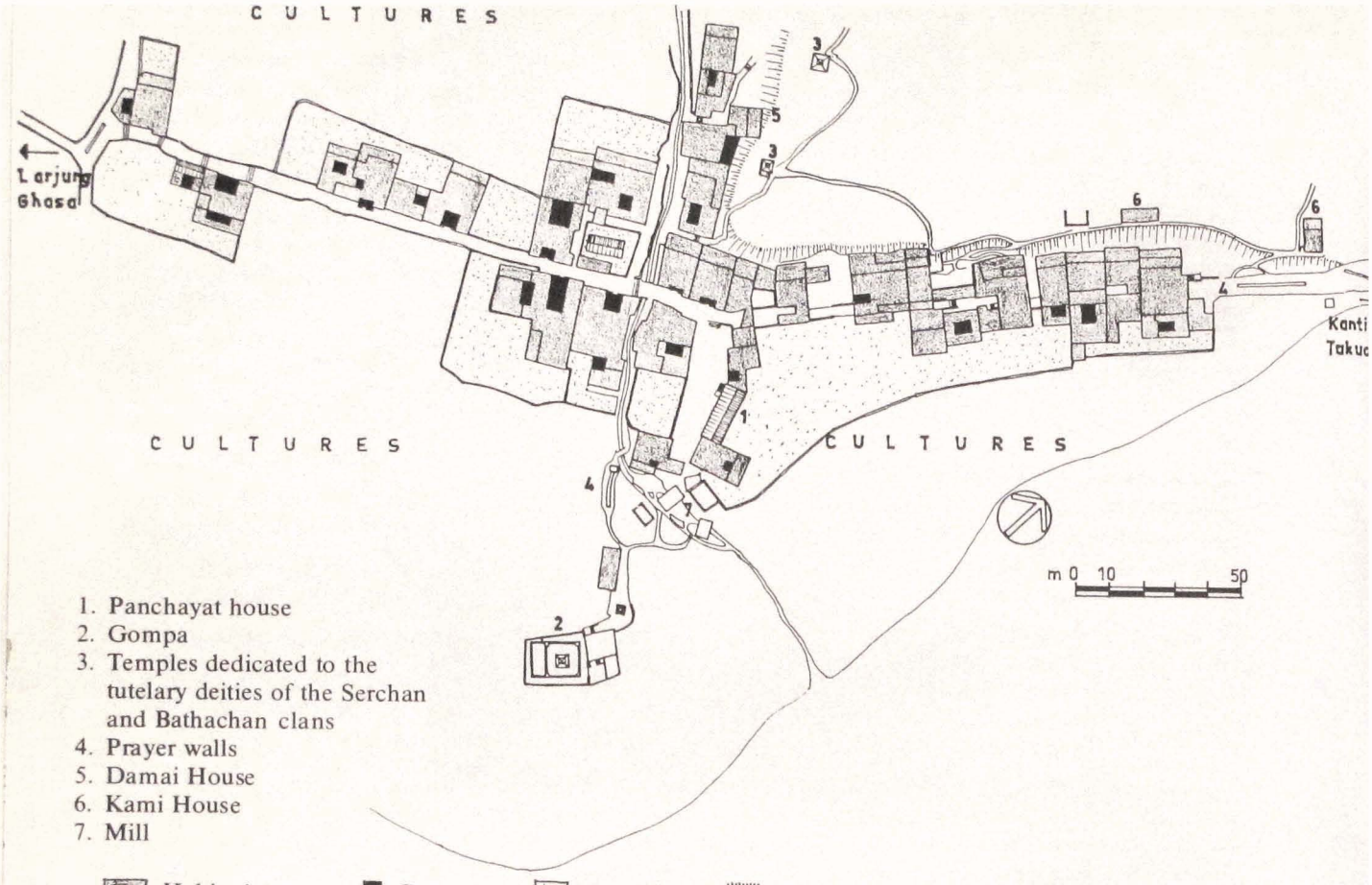


Fig. 4 — Cadastral map of Kobang

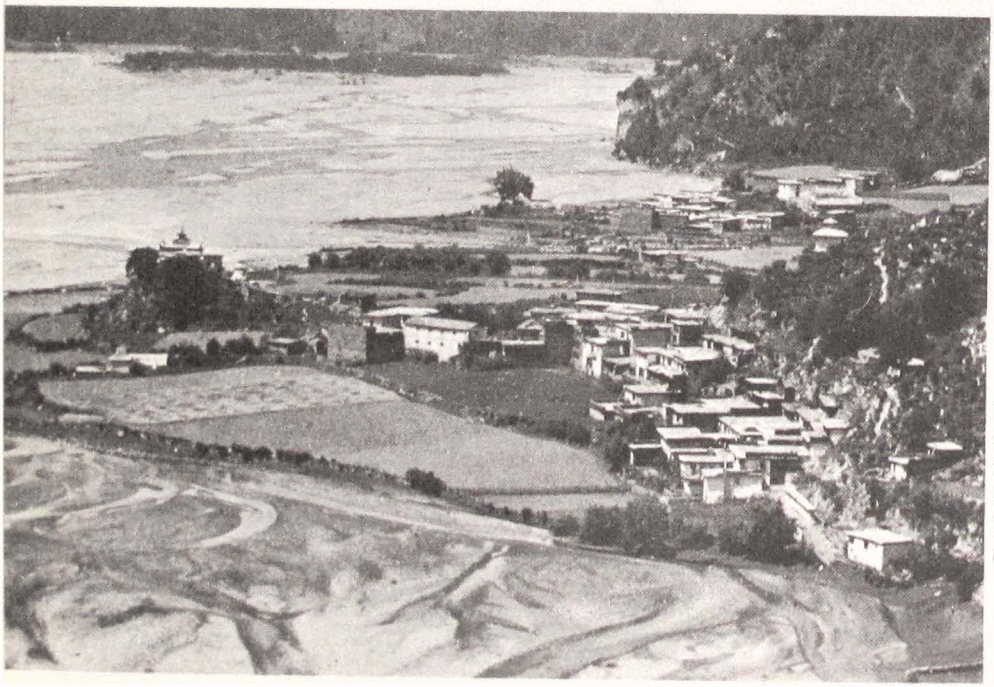


Fig. 5 — To go through Kobang, for some distance one has to pass under the habitations which cling to the relief. The 'gompa' on the left, overlooks the bed of the Kali Gandaki (Sl. of the authors)

which provides protection from the wind. These firewood parapets also mark the limits of the habitation.

Marpha (fig. 6)

With 130 houses, Marpha (altitude 2600 m) constitutes the largest village of Panch Gaon and Thak Khola. Built on a pile of fallen rocks, between two terraces of deeply furrowed lake deposits, Marpha has a compact architecture, spreading out in successive terraces. A temple overlooks the village.

The aridity is more pronounced here than in the preceding villages. The northern slope is covered with forests scattered with cypress and juniper trees whereas the opposite slope is covered with pine forests.

Cultivation and cattle breeding are not enough to meet the food requirements of the villagers throughout the year. To make up for this deficiency, the villagers turn towards trade. From March to September, more than three-fourths of the families in Marpha, especially the young folk, settle with their herds of donkeys and mules in the Middle country or in the Terai, close to the large agricultural markets (Pokhara region, lower valley of the Kali Gandaki, Butwal, Bhairva). They live in temporary dwellings, 'bhatti', which serve as both inns and storehouses.

In 1969, the population of Marpha (624 inhabitants) included 530 Puntans (local population divided into four patrilineal exogamous clans: Hirachan, Juharchan, Lalchan, Panachan), 43 Damais, 33 Kamis and 18 Bhotiyas, from Bara Gaon, Lo, Dolpo.

The original site of Marpha, Dzongkho (2750 m), which has now been abandoned, is located on a high, dry terrace overlooking the Marpha Khola.

The present village limits are marked by doors and stone walls. The habitations, arranged in a single band, have their facades orientated towards the main street which crosses the entire length of Marpha. The street, about 3 m wide, includes an irrigation canal flowing down to the fields below. A huge rock, on which a sacred formula, 'mantra', is painted, overhangs the agglomeration.

Houses of the Thak Khola

The entrance to the Thak Khola region at Ghasa marks a sharp departure from the types of dwelling found in the Kali Gandaki. Ghasa is the last village to have double sloping roofs. Beyond Ghasa, up to the Tibetan plateau, all the houses have terraced roofs. The houses are also larger in size and more closed up. A central courtyard leads to the different levels and outhouses (canopies, extensions, cattle sheds, attics).

Although identical from a technological point of view, the Thak Sat Say and Panch Gaon villages differ in the way their space is organised.

Thak Sat Say Houses

In most cases, the houses consist of three levels, each level being put to a particular use. The ground floor comprises the cattle sheds and stores, the family lives on the first floor and the second floor, the terrace consists mainly of an attic and a threshing ground.

An Example in Taglung

Here, we will describe the house of Bikas Gauchan in Taglung (figs. 8 and 10).

The part of the ground floor towards the street includes a store, 'patha',[9] where alcohol is prepared and where the servants are lodged, and a barn for the hay, 'chikyang'.[10]

Manure for the fields is piled on the paved courtyard, 'kho'. Its perimeter is marked with flat, heavy stones that delimit the space linked with the courtyard. The courtyard is surrounded with porticos, partially closed by the firewood stores.

On the right and left are stables, 'thabil', separated from the hay store by a plank partition, and a canopy, 'khorcha', which provides storage space for a variety of objects.

In the centre, under the body of the main building, a small cattle shed, 'mekho', opens on to two barns, 'yuhnang', which may also be used for the same purpose.

The first floor includes the main unit of the house and an extension which begins from around the courtyard.

The door, protected by a canopy, provides access to the entrance space, 'kha khru kya', where the water pitchers are stored. This is both a means of protection against the cold and the wind, and a threshold. A high partition wall, around 1.6 m, separates this space from the kitchen and a room which serves as a meeting place: 'kuncher'. The hosts and their guests sit together on a low bench coated with red earth and covered with a cloth. A triple window, having a very low sill, lights the room. A pole is erected in the centre, topped by a capital. The pole is centred on a square, painted in red; to tread upon this square is to offend the protecting deities of the clan. A fireplace at the back of the room is used sometimes to prepare the meals in winter.

The kitchen limits are marked out by another step. Meals are taken on a mat around the fireplace. The mistress of the house puts away the kitchen utensils on a shelf, within easy reach. The opening in the entrance

Fig. 7 — Clinging to the relief, the Marpha habitations leave the downhill slope of the village completely free, which is reserved for the crops

Fig. 6 — Cadastral map of Marpha

HABITATIONS COUR ENCLOS ET ETABLES JARDINS ESCARPEMENT

1 — School/2 — Panchayat house/3 — Gompa/4 — Village Gates/5 -- Prayer wall/6 — Mill

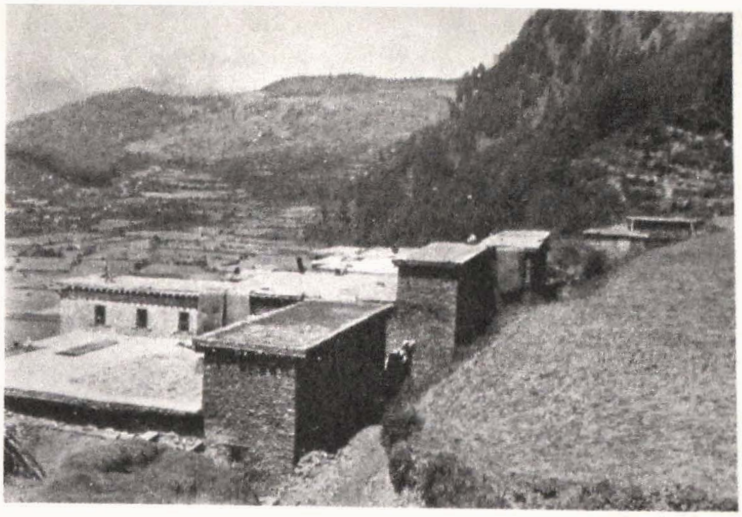


Fig. 9 — View of the Taglung village
(Sl. of the authors)

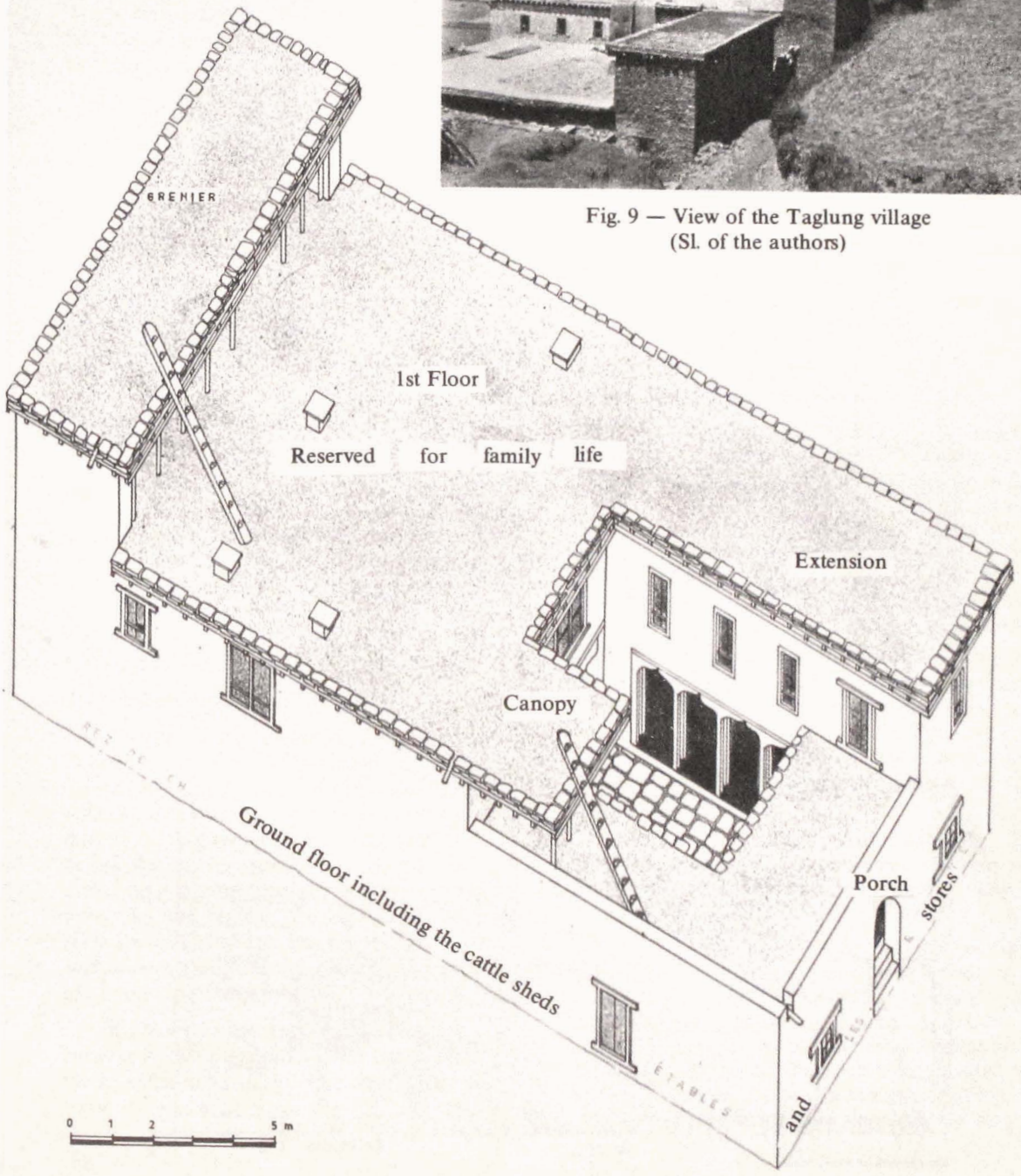
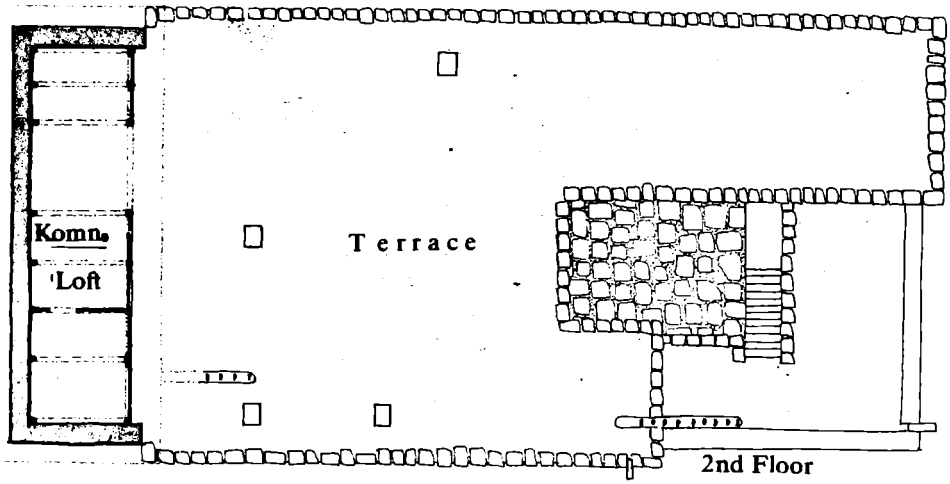
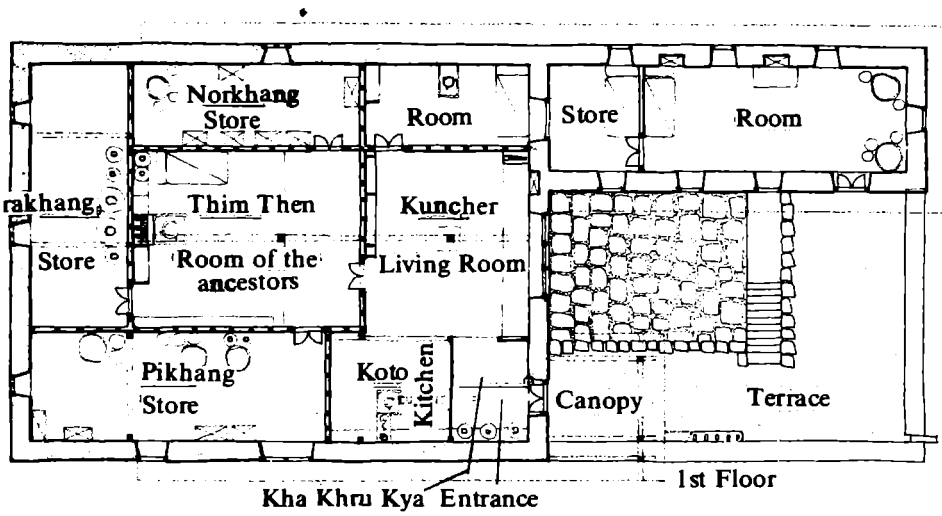


Fig. 8 — Axonometric projection of Bikas Gauchan's
house (in Taglung)





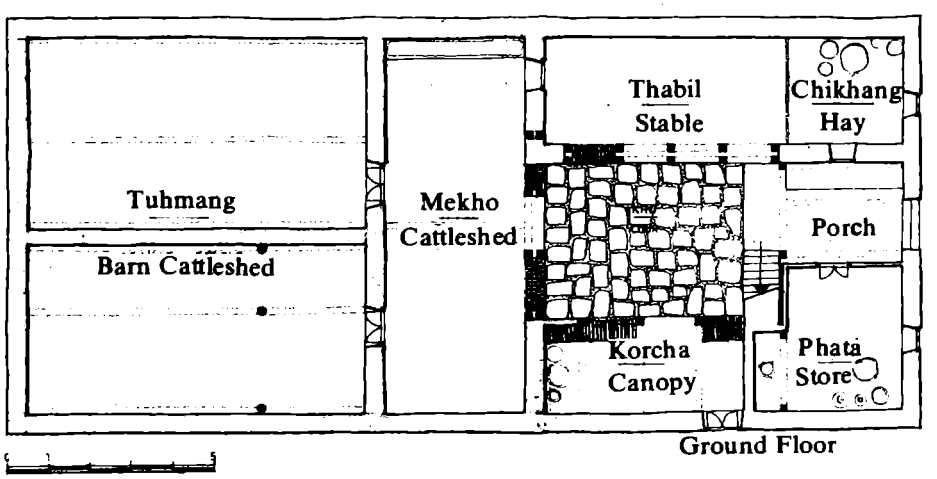


Fig. 10 — Plans of Bikas Gauchan's house (Taglung)

partition wall enables the master of the house to keep an eye on the doorway.

The central room, the most important room in the house, is that of the ancestors, 'thimthen', "the main house". Its back portion is slightly elevated from the central pillar. The horns of the ram sacrificed during the rite marking the consecration of the house are hung on this pillar. A fireplace against the back wall, built of stones and coated with red earth, is used during the worship of the ancestors, 'lha chos',[11] and on important occasions such as marriages. It is to the right of this fireplace that a woman gives birth. Copper vases containing juniper branches are placed next to it. In the right hand corner of the room: water pitchers and an earthenware bowl filled with barley.

The room of the ancestors gives access to three stores. On the right, the 'norkhang' contains the family wealth: jewels, clothes, fabrics kept in several trunks. On the left, 'phikhang', jars used in the making of alcohol, vegetables, fruit and products imported from the lower valleys (rice, lentils, cigarettes, petrol) are kept. Grain and flour reserves are stored right at the end of the room.

In addition, the first floor includes a newly built extension, consisting of an extra bedroom and a small store where trunks and baskets are kept.

A staircase provides access to the terrace. A large portion of the terrace is left empty, and without roofing, for the threshing of cereals at the time of the harvest. A canopy, 'komang', closed on these sides, enables one to store the baskets and tools necessary for threshing. Seasonal labourers can sleep here. The terrace is also used at the time of major village festivals; food is cooked under the canopy.

Typology and Extension Work (fig. 13)

The Thakali house generally has a main unit consisting of eight rooms centred around the room of the ancestors. Sometimes, this unit can make up the house proper along with the entrance door and the triple window giving directly on to the road. A courtyard is usually laid out before the house. Extension work then takes place according to a principle of concentric development both horizontal and vertical. The storage space and cattle sheds are built around the courtyard (figs. 13, 1 and 2). In such cases, the single level house includes a street facade and a courtyard facade.

In houses having two levels, the storage rooms, barns and cattle sheds are situated on the ground floor; the inhabited rooms are on the first floor. Additional construction carried out around the courtyard includes covered projections, extra rooms and storage space. (figs. 13, 3 and 4).

Such houses, found particularly in Tukuche where the richest Thakalis live, have a courtyard facade and a street facade with small openings, a central porche and sometimes, a balcony as main features. The design of the facade reinforces its public character by giving it a monumental appearance. The courtyard is of a more private nature with large, richly ornate openings. The house seems to be turned essentially towards the courtyard, that is to say, turned inwards.

The Thakali house evolves through a progressive pattern of covered and closed areas and vice versa. It also displays a concentric growth of space around the courtyard, thus repeating the structure of the basic unit, where space is centred around the room of the ancestors.

The encroachment of public zones is also a factor in the evolution of the Thakali model of dwelling. The topography can lead to construction in steps of the house. The public area of the street replaces the private space thus altering the layout of the ground floor or of the courtyard (fig. 13, 5) to give public access to the premises (fig. 13, 6); the courtyard facade then becomes the street facade.

Panch Gaon Houses

The dense structure of the Marpha village, clinging to very rough ground, severely restricts the ground space of the habitations. Thus, most of the houses are built on three levels, as is the case with Bhakti Hirachan's house, which we will use as an example (figs. 15 and 16).

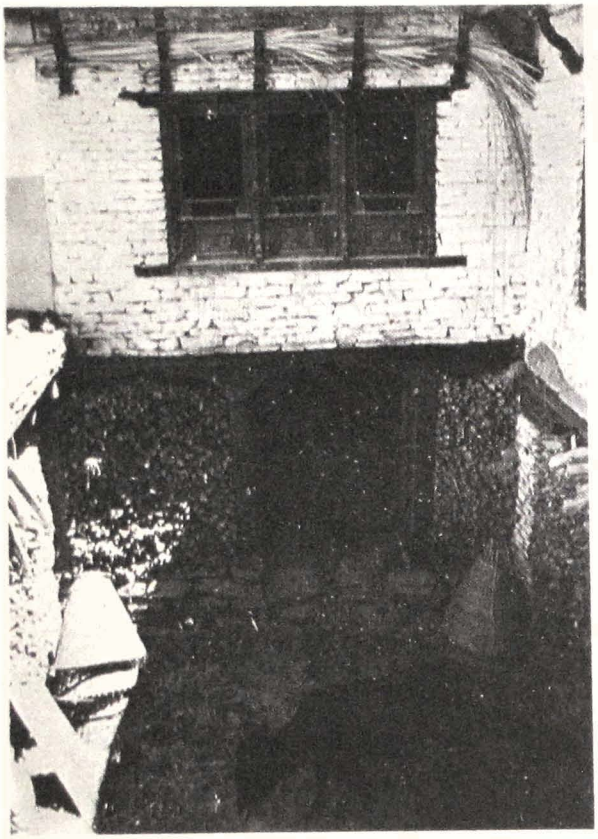
An Example in Marpha

An internal partition divides the ground floor into two equal halves used for completely different purposes and directly accessible from the street.

A door with three openings regulates the entrance to a drawing room, 'thoko lhowa lhya', where friends and guests are received. Festival meals are prepared on the fire-stove of this room. At the end is a storeroom, where alcohol jars, vegetables and products imported from the lower valleys are stored.

A second access leads to a courtyard, 'tang', which serves both as a cattle shed and a stable. A step separates the kitchen, 'tapsang', a storeroom for keeping wood and hay.

The first floor makes up the intimate space of the family. The staircase leads to the room, 'baitak' or 'thin djangba' as also to a storeroom, 'chinang', where clothes, materials are kept, and to a verandah, 'khayonang', which leads to the most intimate area of the family. This area includes: a loggia used as a bedroom and store, and another storage room, 'chinang', where earthenware jars containing grain and flour are stored.



← Fig. 11 — Courtyard of Bikas Gauchan's house in Taglung (Cl. of the authors)

↓ Fig. 12 — Street beneath the tunnel and access to the first floor of the house (Cl. of the authors)

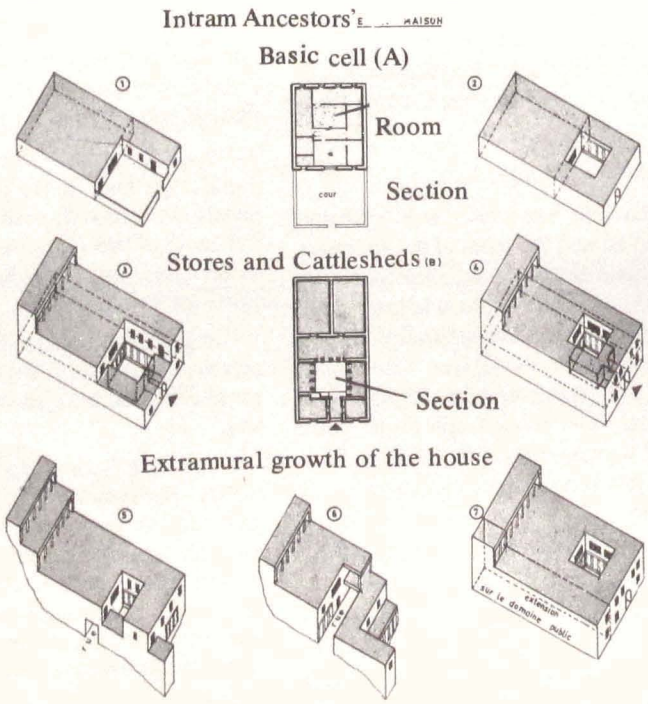
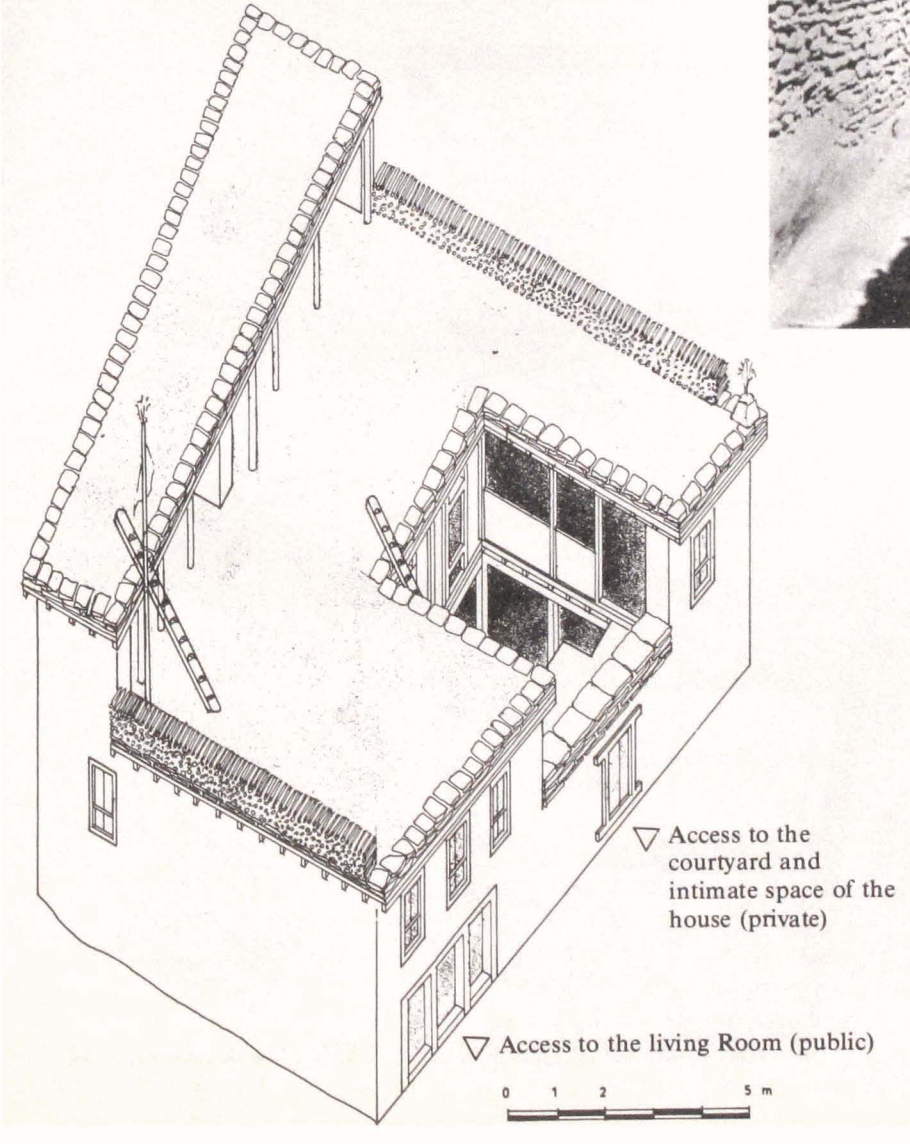
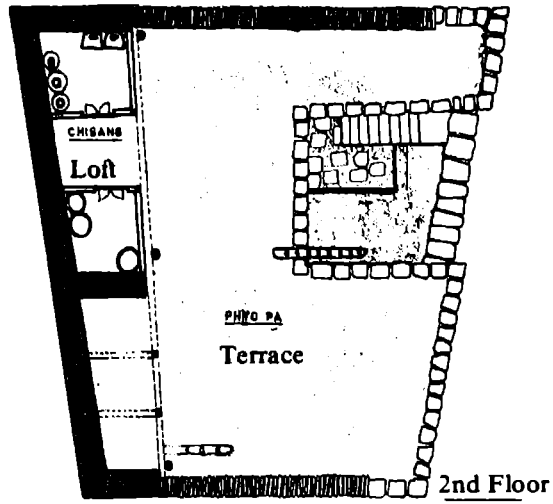


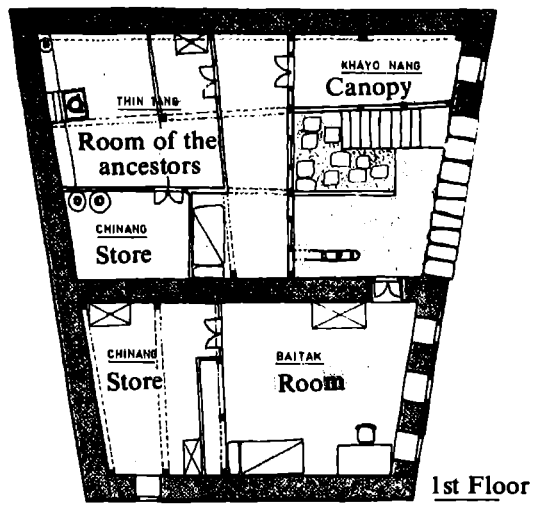
Fig. 13 — Typology and growth of the house of Thak Sat Say

Fig. 14 — Marpha : houses along the main road

↓ Fig. 15 — Oxonometric projection of Bhakti Hirachan house (Marpha)







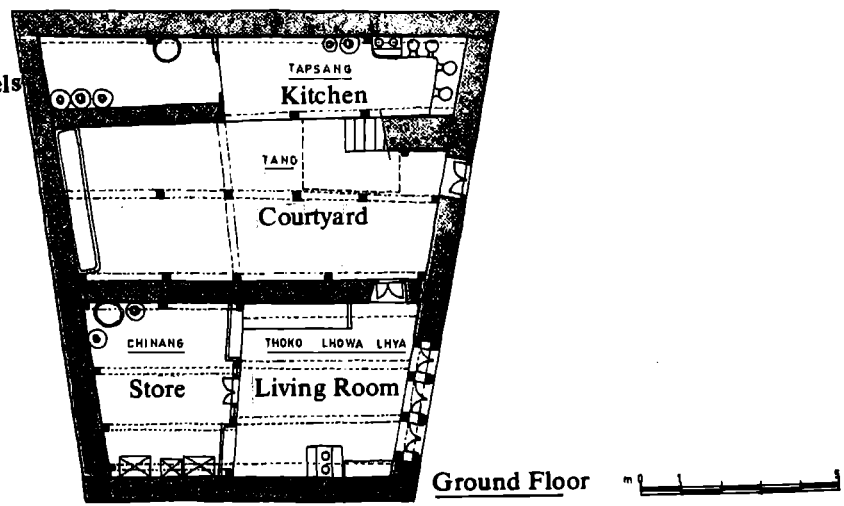


Fig. 16—Plans of the various levels of Bhakti Hirachan's House

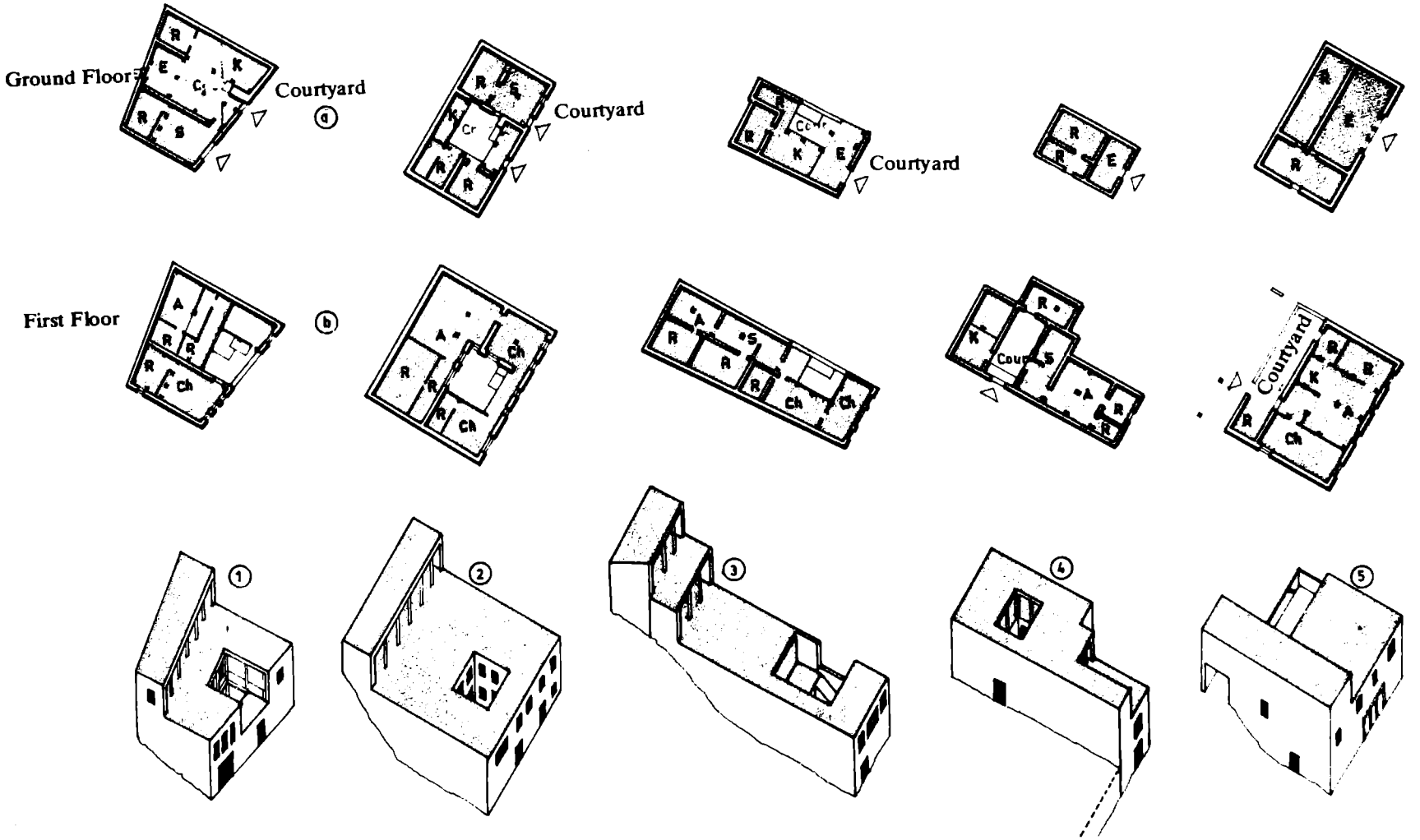


Fig. 17 — Typology and growth of the Panc Gaon habitat

A ladder beam leads to the second floor. At the end of the terrace, 'phyo pa', is a partially closed canopy, 'chisang'; straw baskets and bags of cereals are stored here. A small mound of stones, heaped in a corner during the consecration ritual of the house, is decorated with ram horns, juniper branches and multi-coloured woollen threads.

Typology and Extension Work (fig. 17)

As in the case of the Thakali house in the Panch Gaon house space is divided up within a given frame. Even though the ground space is limited, various rooms are provided for by permutating them around a courtyard.

One section of the ground floor is directly accessible from the street (fig. 17, a); the other section leads to the covered spaces that it joins together the room of the ancestors and the storage rooms, three elements which constitute the basic structure of the Panch Gaon house (fig. 17, 6).

The ground floor appears to be an undifferentiated polymorphous space. The floor around the courtyard is increased by means of a progression from open zones to covered zones and covered zones to closed rooms.

In some old houses (fig. 17, 5), the living room, centred on a six-pole structure, is called 'thin thang', the room of the ancestors. The extensions are reduced, and the lower floor is reserved entirely for the animals. Such habitations display a number of features common to an ancient settlement recorded on the original site of Marpha: Dzongkho.

Hierarchical Organisation of Space

The Thakali house includes several thresholds linked to the degree of intimacy of friends and strangers who enter the house. The first two thresholds, the porch and the entrance door, provide protection (against wind, for example) and are a sign of ownership. The third threshold consists of a step separating the entrance from the living room. Members of the Indo-Nepalese castes (Damai and Kami) cannot cross it. As for the servants, they are allowed into the living room but cannot enter the other rooms. The last threshold marks out the access to the "secret" area of the house. This is pointed out through a slight unevenness of level which divides the room of the ancestors into two halves. Only members of the master's clan can cross this limit.

In the Panch Gaon house, the thresholds function in identical fashion, but in Marpha, the first two are situated directly on the street.

The fireplace strictly regulates the place of the individuals in the habitation. If there are no guests, or if no special respect has to be shown to those taking meals, the master of the house seats himself in first position, 'thimpa kya'. If the guest is of a higher rank, he sits there and the master of the house at 'thampa kya'. Generally, the members at the highest echelons of the hierarchy are placed to the right of the master of the house, who sits at 'mheri'. The person sitting in the most respectable position is evidently served the first.

In summer, the master of the house sleeps in the facade room close to the living room. The guests sleep in the additional room, if there is one, or in the bedroom, in which case the hosts occupy the room of the ancestors. Young children always sleep with their parents. From the age of sixteen onwards, they shift to the room of the ancestors.

In winter, meals are prepared in the additional room or in the room of the ancestors.

In Panch Gaon, cooking is done in the living room.

The Construction of the House

As in the case of Bikas Gauchan's house in Taglung and Bhakti Hirachan's house in Marpha, the Thakali house is made of flat stone masonry with wooden openings and floors[12] (fig. 18). The owner furnishes the necessary materials and entrusts the construction work to the carpenter, 'shipalu', the mason, 'thimpubo' and his assistant, 'somphim pumba'. The carpenter supervises the work at the site and reports to the owner on the progress of work. The friends of the master of the house take part in the first few days of work.

The workers (Magar, Gurung or Lopa) are lodged and fed. Craftsmen are paid thirty rupees a day (in 1977) and given food as well. Work at the site goes on for one to two months; work is generally started after the barley harvest, in May. The cost of construction is around four thousand rupees (1977). The younger son (or daughter) inherits the house at the father's death.

The walls are erected on foundations 60 cm deep, of large gneiss stones. They are made of flat stones arranged at cross joints with earth mortar, 'prop sa', which had been collected at the time of digging.

The masonry, around 50 cm thick, ensures a part of the spatial division of the ground floor and constitutes the main part of the framework.

The street and courtyard facades are coated with lime. The clamps consist of two wooden beams embedded longitudinally on the inner and outer sides of the wall. The blind walls sometimes have an intermediate clamp.

The space on the ground floor gives onto the courtyard through porticos with poles raised through

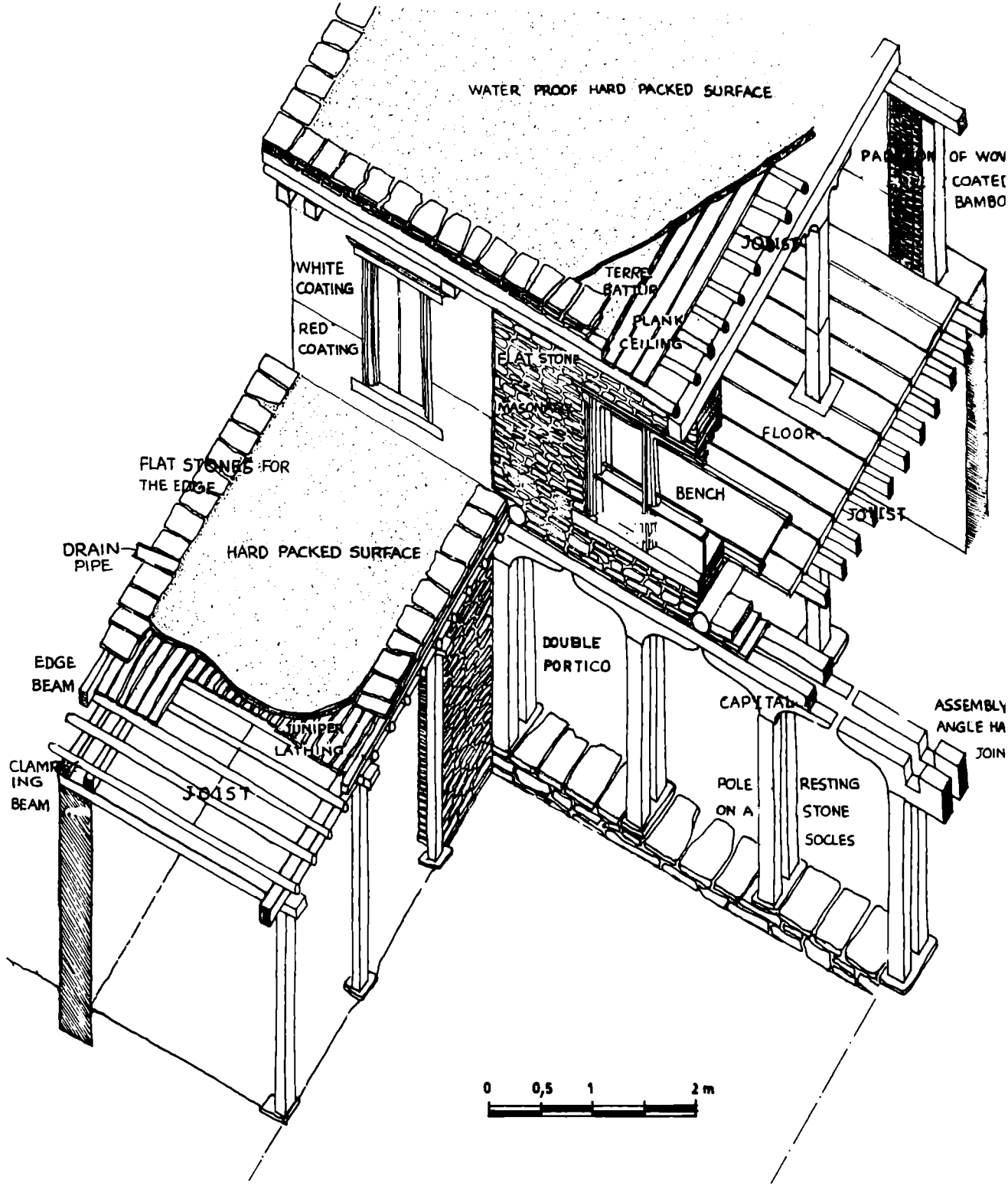


Fig. 18 — Axonometric projection showing the building structure of the Thak Khola house

mortised capitals. The porticos are doubled when they support the load-bearing walls. The poles, beams and joists are of juniper (Juniperus indica), 'Shugi Shing'. For the woodwork (doors, windows, furniture, shelves), floors and firewood, pine is used (Pinus excelsa), 'tang shing'.

The floor of the living room is made of joists fitted into the stonework and covered with nailed planks. The other floors consist of joists on which a lathing of split juniper branches is placed, which is then covered with clay and a few stones used as additive.

Partition walls are used to divide the space on the first floor. They consist of simple poles, set about fifty centimetres apart on which a split bamboo lathing, 'dhenti', is fixed. A woven mat is then nailed on and coated with a mixture of mud and barley flour. A red coating with a clay base is used to paint the lower part of the walls (around 60 cms.).

From Tukuche onwards, the courtyard facades are constructed on the basis of two principles: either masoned walls or fillings of wooden panels and openings between poles constituting a light facade. Pisa masonry, commonly used in Bara Gaon and Mustang, appears from Thini onwards.

The door frames, 'mrakha', and the windows, 'jhal', consist of prefabricated frames, internal and external, completed by two intermediary poles in the wall thickness. The living room window giving on to the courtyard has three openings. It is more finely executed than the windows of the other rooms. The openings can be closed by shutters from the inside.

The joists of the terrace roof rest on a series of wooden clamps and exceed by 50 cms or so the plumb of the wall. As in the case of the floors, chips of juniper branches covered with a mud mortar are arranged perpendicularly. This layer is completed with a water-proof coating, 'sa kher', applied again after the harvest. On the periphery, two or three layers of flat stones rest on the edge beam held in position by joists. Each terrace is slightly inclined to allow the stagnant water to flow towards a drain pipe.

Conclusion

All the habitations recorded in Dzongkho, the former site of Marpha, consist of a line of poles centred around a fireplace and lateral storerooms. A terrace extends in front of the house and protects the cattle sheds. This unchanging structure is comparable to the structure of the old Thini inhabitations.

In Panch Gaon, the typology refers above all to a qualification of the different sections of the room of the ancestors, which is divided into two parts to determine a space for worship and a space for daily activities. The extensions around the courtyard mark the internalisation of the house.

In the Panch Gaon houses, the courtyard is an undifferentiated space. Its centrality stands out only after the construction of extensions on the upper floors (perhaps as in Nyishyang?). In the Thakali house, on the contrary, the courtyard is an inductive space, built from the ground floor and determining the extensions. There is a dual centrality around the room of the ancestors and around the courtyard.

Studies on building models of the neighbouring regions (Bara Gaon, Mustang, Dolpo, Nyishyang) could provide useful information on the invariable elements, such as the courtyard, the centrality, the internalisation of the dwelling, expressions of an identical way of thinking. Similarly, a better understanding of the types of dwellings of the Jumla region would enable us perhaps to reconstitute the origins of the Panch Gaon house and the Thakali house.

The recent references of the Thak Khola settlement are mainly to bring to notice the opening of this region to influences from southern and central Nepal. The importing of new technology, new materials and new tools has modified the traditional types of houses. The transformation has taken place at three levels:

1. variation of daily references of the house (simplification of woodwork and change in its usage, household furniture, etc.).
2. modification of the village through the construction of new types of buildings (schools, Panchayat houses, tourist rest houses), having a double sloping roof and rarely forming part of the village fabric (new design, absence of traditional references, notion of prestige, lack of place within the village).
3. modification of the inner space of the house due to new trades and the transformation of some habitations into rest houses.

Notes

1. Cf. M. Fort (1974).
2. Cf. M. Vinding and S. Gauchan (1977). When speaking amongst themselves, the Thakalis refer to each other as Tamhaang, whereas the other two groups are called Thakali.
3. On this subject, see p. Valeix, 1974.
4. At Marpha and Thini, three houses have a chapel, 'lhakhang', containing the texts of 'Kanjur' and 'Tanjur'.
5. Each Thakali clan has a tutelary deity, whose image is preserved in a temple, 'lha than' (thak). Gauchan Lha-

than and Tulachan Lha-than are situated next to and below Nakung respectively, whereas Serchan Lha-than and Battachan Lha-than are located above Kobang.

6. For a study of the relations between the Thakali community and the Nepalese society organised on the basis of caste, see C. von Fürer-Haimendorf, *Himalayan traders* (1975).
7. At Taglung, one can observe the presence of three small temples dedicated to the Hindu deities. In the Khnati 'gompa', the statue of Shiva is replaced by that of Guru Rinpoche.
8. The structure of Kobang falls between that of the two neighbouring villages, Khanti and Larjung. The former, in the south, clings entirely to the relief and to cross it, one has to go though a tunnel under the cultivated terraces.
9. The local terms and expressions were supplied to us by Bikas Gauchan and Bhakti Hirachan. The abreviations (Nep.) and (Thak.) signify Nepali and Thakali respectively.
10. In some villages, where trade is highly developed, the facade stores are directly accessible from the street and they may be used as a shop.
11. Description of the consecration rite of the house and ancestor worship amongst the Thakalis by C. Jest in "Les Thakali". *L'Ethnographie*, (1964/1965, pp. 27-49).
12. The woodwork accounts for about 10% of the total construction cost.

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THE UPPER HIMALAYAN VALLEYS

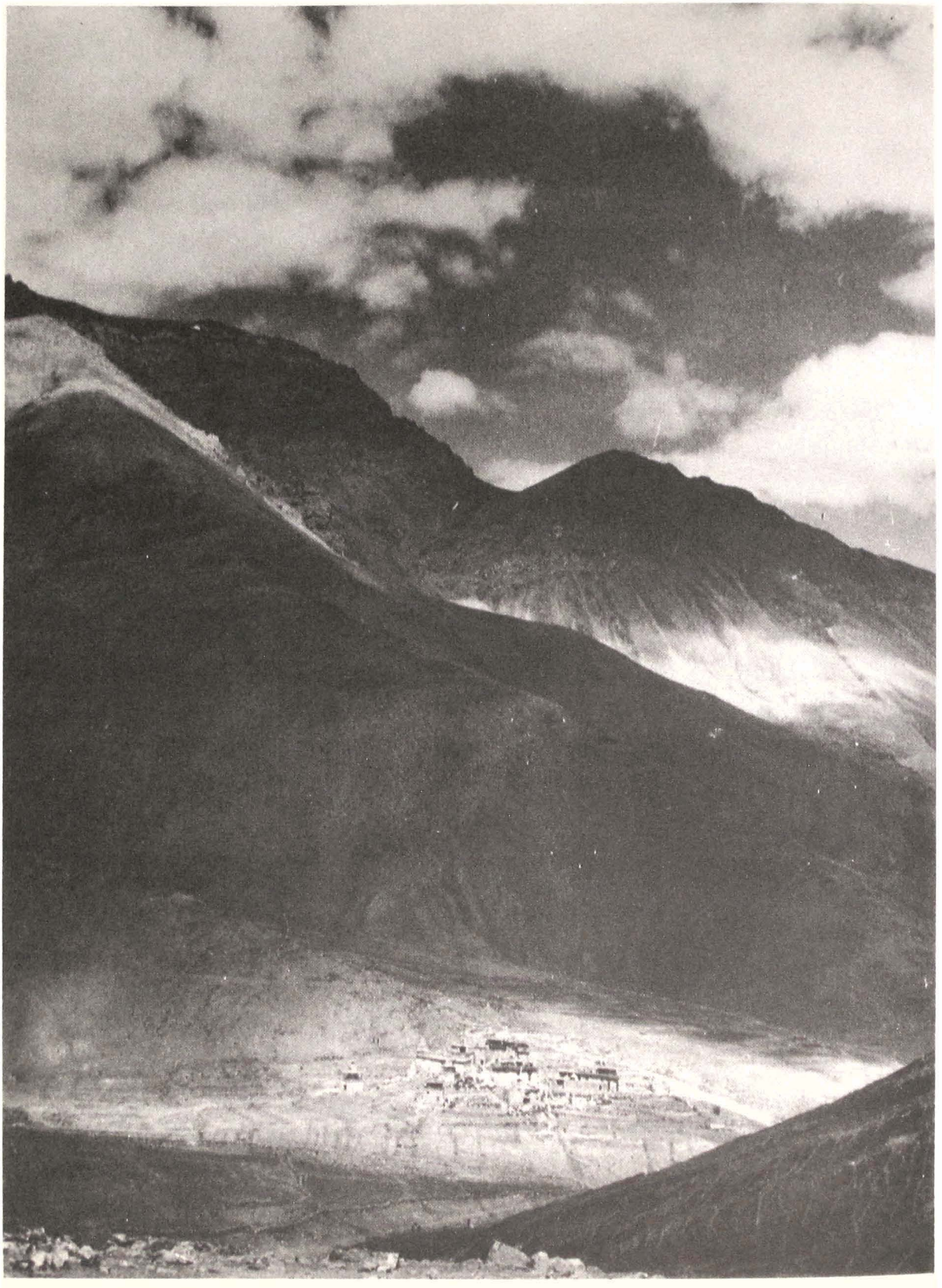


Fig. 1 — The Tarap valley in Dolpo
(Cl. C. Jest)

SETTLEMENTS IN DOLPO

Corneille Jest

"Here is the blessing regarding the door (of the house)
"the lintel is blue, made of turquoise
"the four corners (of the door) are in crystal
"the step is orange, made of gold
"the wooden lock is the colour of conch...."

Dolpo wedding song

In the northern part of Nepal, one can get to see the most interesting and apparently the most contradictory facets of habitat.

Houses designed in the form of veritable fortresses and tents, the fragile shelter of the shepherd-herdsman, coexist in this region which experiences an extreme climate.

It is difficult to describe the setting in which these habitations are located to one who is familiar with our countryside, where trees of rich hues fill the landscape. Nothing could be more dissimilar from the valleys of this area. Here, all one can see is mineral, the plants not being higher than a few centimeters. The houses, almost petrified, are hardly distinguishable from the heap of rocks and appear to melt into the surroundings.

The Physical Environment and Dolpo

In Dolpo, altitude and climate constitute the factors which inhibit the growth of permanent human dwellings.

On account of its geographic situation (28°50 and 29° 40 latitude north, 82°-83° 30 longitude east), Dolpo forms part, along with the Upper Kali Gandaki (Mustang) and Nyi-Shang (Manang) of the least humid zone of Nepal. The high chain reduces the humidifying effect of the summer monsoon and annual rainfall is scarce. The rainfall has been estimated at less than 300 mm; of this, 20 per cent is in the form of snow during the winter. In comparison, the average rainfall in Jomoson in the Kali Gandaki valley (83° 43 east 28°4 north), at an altitude of 2800 m, is 440 mm.

The climate is harsh: the cold is particularly severe and the minimum temperatures vary between +25° and -20°C. Differences in temperature are considerable and may reach 30° to 40° in winter. The ground is frozen till the end of April. A strong wind blows for several hours almost daily.

Dolpo is a steppe-like region in which only a few plants such as Caragana and Lonicera grow. There are no trees to speak of, except in the Namgung and Shimen villages where a few willow trees were planted along the irrigation canals and some birch trees which have survived on the humid rocks near Shimen and Shey. A few juniper trees (Juniperus indica) can also be found near Koma as well as in Lang Chu below. Willow trees grow along the rivers and can reach a height of 2 to 2.5 m (they are used in the construction of houses).

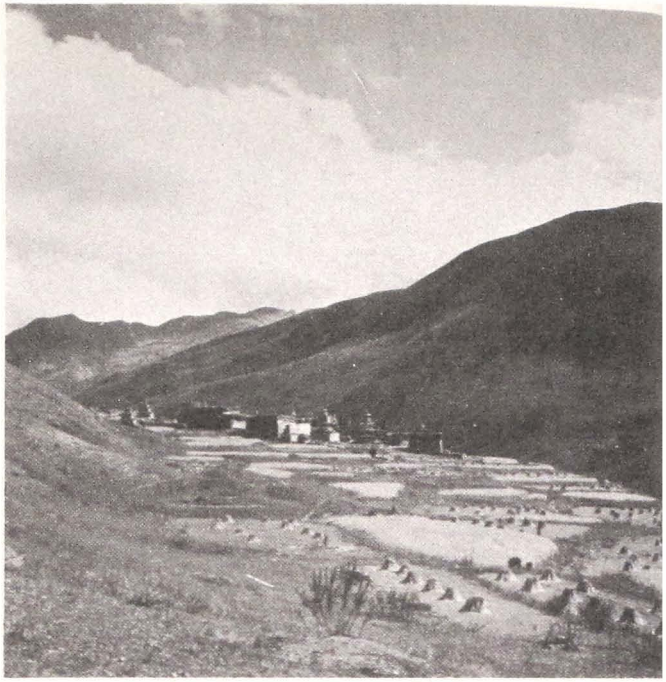
The climate of this high altitude region is not *per se* hostile to all forms of human life. Dolpo is an integral part of the entire Upper Tibet region on account of its structures and population and it is this fact which gives to the geographic whole a number of exemplary features.[1]

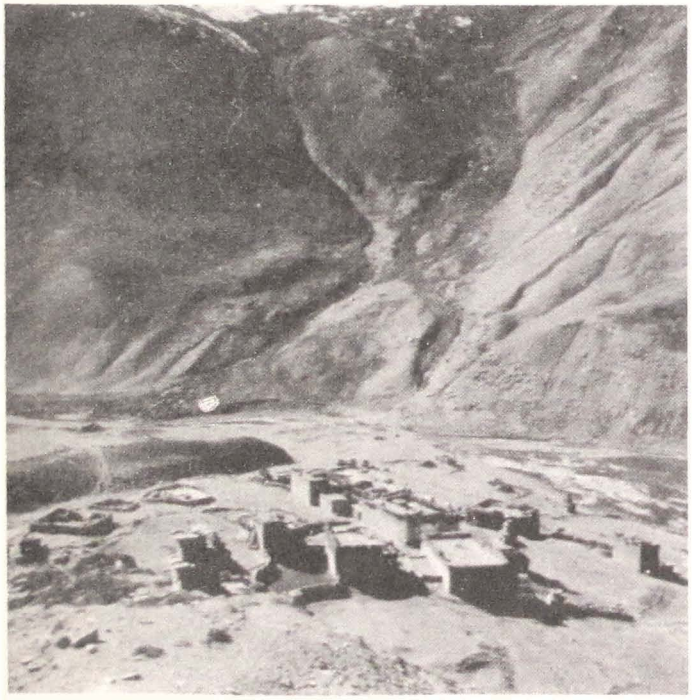
The inhabitants of Dolpo, who belong to the Tibetan linguistic and cultural group, depend for their livelihood on the cultivation of a single crop, barley, as well as on cattle breeding (yaks, goats and sheep) and grain/salt trade, the profits of which are important for their survival.

Water is indispensable for agriculture and all agricultural work is organised in relation to the distribution of water.

As for cattle breeding, the difficulty lies not so much in growing enough grass, especially in summer, as in procuring the labour required to herd the flocks. This results in a very strict and organised division of tasks.[2]

The triple vocation of agriculturalist, transhumant breeder and itinerant trader entails different forms and





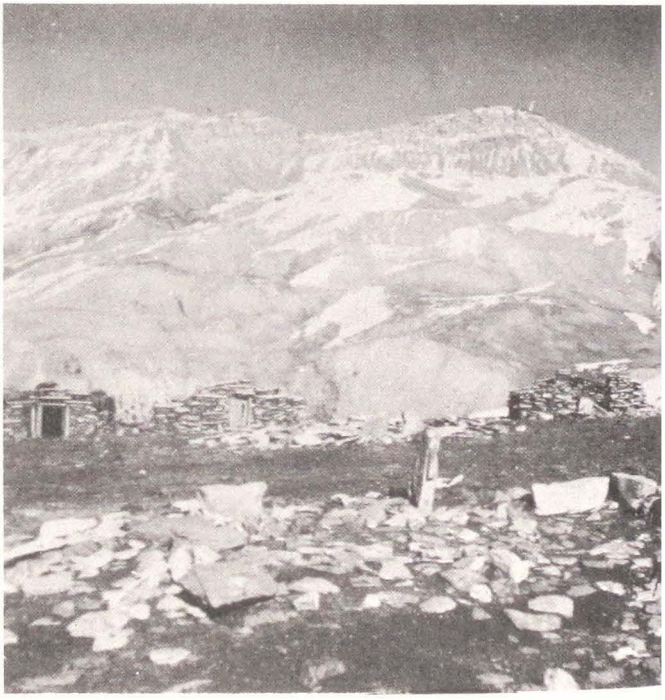


Fig. 2 — Kagar, Northern view
(Cl. C. Jest)

Fig. 3 — Harvest time in Kagar
(Cl. C. Jest)

Fig. 4 — Cluster of houses of Kagar
(Cl. C. Jest)

Fig. 5 — Sheep pen in northern Dolpo
(Cl. C. Jest)

shapes of the habitation — dwellings may be fixed or mobile, the family often making use of both solutions simultaneously.

The House

The Group of Habitations

The clusters of houses lie at the bottom of the valley; the cultivated lands are situated on fairly large terraces and are surrounded by dry stone walls. The network of paths in the inhabited zone is linked to the irrigation canals.

The temples and sanctuaries occupy a commanding position, above all inhabited space, standing on a rocky spur, in a place pure by its very essence, above the human world. It is easy to understand why such a site has been chosen without referring to the fact that must have guided the builder while making his choice: namely, that Buddha is above man and, as a mark of respect for the divine, he is placed above all that is human.

Features of Construction

To say that the function of habitat is to protect man from the elements is perhaps to state the obvious. But at an altitude of 4000m, protecting oneself from the cold and the wind which blows almost without respite is an absolute necessity. Thus, the walls have very few openings and there is only one door which itself is protected by a wall or a surrounding courtyard. Only such materials are used which are capable of insulating and retaining the heat at the same time.

The Construction of the House

While constructing a house, one has to adhere to rules which are both technical and ritualistic in nature. The site is never selected at random; it must fulfil certain criteria: horizontal surface, protection from avalanches or rock fall, free from humidity but close enough to a watering point.

An additional building may be constructed which rests against the walls of the existing building. Large complexes are created in this manner to provide shelter to a joint family. Once the site has been selected, a priest is consulted, who by means of divination, confirms the choice, indicates the orientation of the entrance door, fixes the day on which work is to start, for this day must be a particularly auspicious one.

The Dolpo inhabitant is well acquainted with the rules of traditional construction. In principle, each section of the house should face a particular direction (but in practice this is not always the case). The statue in the domestic chapel, and by the same token, the opening of the room face the east. The lavatories are situated in the south, the south being associated with the god of death. The fireplace opens to the west, a cardinal direction associated with the god of fire. The room containing the family treasures and grain reserves is built in the north under the protection of the god of wealth.

Building a house is an act of great significance; only such a site can be chosen which has neither been consecrated by the residence of an earth deity nor polluted by the occurrence of a death; no previous construction should have taken place on the site. The lama determines an auspicious day for making the divination. The divination having been accomplished, he chooses the day and the time of the 'thig-bzi' in order to delimit the exact site. On the appointed day, lamas and priests trace the direction of the walls with an antelope horn, 'gcod-rus' and make an offering, 'gser-skyem', to the earth deities, 'Klu', and to those of the acquatic world 'sa-bdag'.

After the door has been fitted in its frame, three lumps of butter, 'yer-ka', are spread on the lintel; the same is done when the central pillar is ready. Five "precious stones", 'rin-chen gter-lna', gold, silver, turquoise, coral, lapis-lazuli are put on the fireplace as soon as it is constructed. Immediately, the consecrated house becomes the residence of the deities who grant their protection to it but who may nevertheless get annoyed at the lapses of the inhabitants. The deity of the fireplace resides in the fireplace.

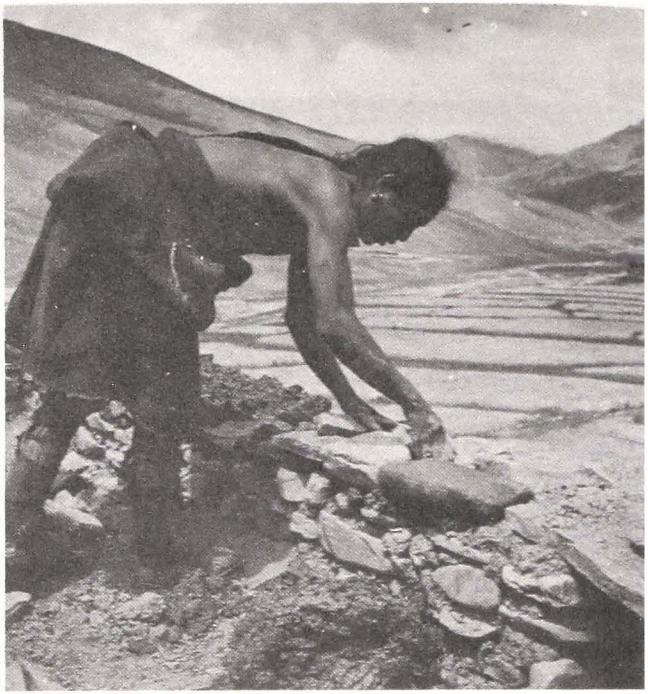
A shelter for the deities is built on the roof-terrace. A 'lha-bsans' fumigation is carried out for the gods.

Once the inhabitants move in, the house excites the lust of all sorts of demons. Great care is taken to avoid whistling at night, for to whistle is to call the demons who may take possession of the house as soon as they are able to penetrate it.

Constraints of Construction

Though mud and stone are available in abundance (stone blocks, boulders, bricks dried in the sun or mud compacted between two planks being used alike), there is a cruel shortage of wood: wood is highly expensive and long distances have to be covered to obtain it. In order to economise it, extremely thick walls are built; however there is always the danger of their crumbling. The staircase between the ground and the first floor is constructed in its entirety and small rooms are limited by bearing walls. These walls become lighter in the upper section of the building and are generally made of rammed earth or unbaked bricks.

There are very few decorative elements; only the window, if there is one, has a carved frame and the lintel has a three-cusped form.



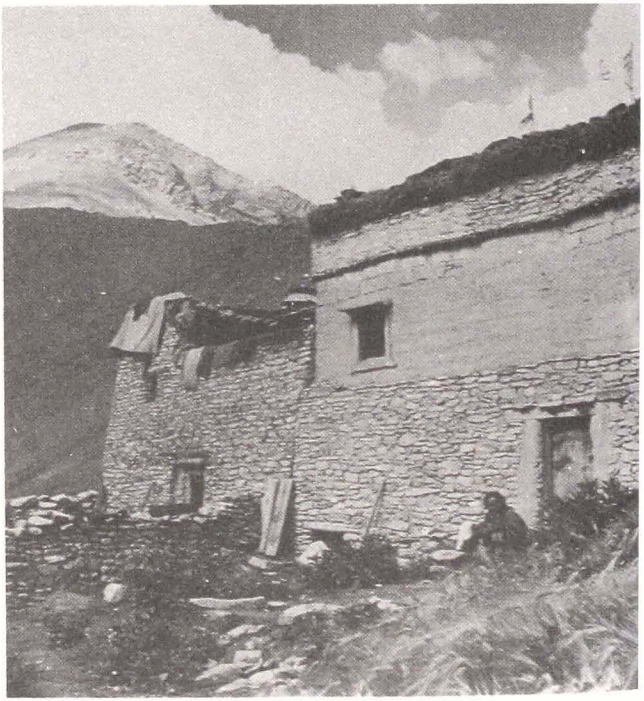


Fig. 6 — Remaking of roof terraces (Cl. C. Jest)

Fig. 7 — Construction of the parapet on the roof terrace (Cl. C. Jest)

Fig. 8 — Once the roof parapet is built, svillow and juniper branches are placed (Cl. C. Jest)

Fig. 9 — Facade of a house (Cl. C. Jest)

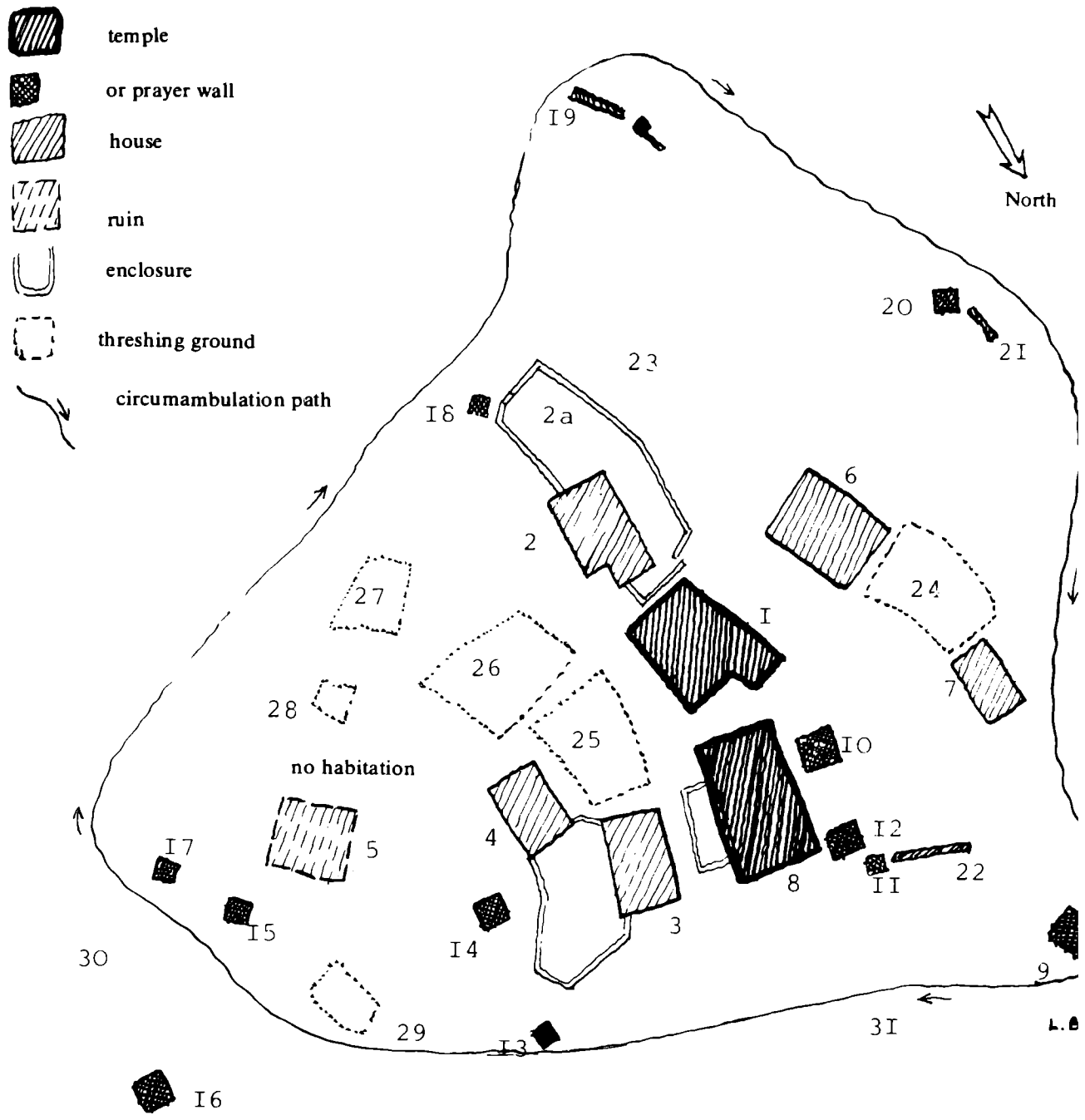


Fig. 10 — Overall plan of the Kagar cluster of habitations
(cf. fig. 4)

The domestic chapel may be decorated with a wooden altar above which is a brightly coloured shelf to keep the sacred books.

Only the houses of a few priests are whitewashed.

The Phases of Construction

Work takes place from March to May, before the rainy season. First, the necessary material such as stones, river boulders, clay for the mortar, bushes used as insulating material are collected. Bricks are made of a mixture of mud, some chopped straw and water, which is placed in a wooden mould and hardened in the sun. At times, wood from an old building is used for the door frames and framework; otherwise it is purchased from the Reng Valley, situated at a lower altitude and rich in fire and pine trees. The Reng inhabitants sell the wood required for the beams, joists, pillars, doors, window frames, skylights, drainpipes, shelves; they are paid in the form of one or two yaks in accordance with a well established rule.

The community has a few experienced men called 'rci-dpon'(lit.: mason) who do the masonry work.

The wooden elements, beams and joists, are fitted in the walls, built on weak foundations, as and when they gain height. Once the central pillar of the drawing room has been erected, before placing the capital, strips of cloth of five beneficial colours are tied to the top of the pillar. Then three lumps of butter are applied to the capital.

Once the site of the fire has been delimited, three stones are arranged at the same distance in the centre to form a tripod.

Once the house has been completed, the priest hands over to the owner of the house the strips of cotton cloth on which religious inscriptions had been printed by him. The owner ties these strips to the poles at the roof corners.

The Lifespan of a House

In Dolpo, there are a few houses which are over two hundred years old.

When a dilapidated building is abandoned, it is not immediately put to another use. The wood is recovered and used in other constructions; walls that have not crumbled can serve as an enclosure.

The house forms part of a complex; it is associated with the enclosures and religious monuments, chorten ('mchod-rten'), doors, prayer walls, 'ma-gdan'.

The Kagar Group of Habitations in the Tarap Valley

In the Dolpo district, houses are built on a single model. The Kagar group of houses are situated on a terrace overlooking the left bank of the Tarap chu (4020 m) at the foot of the Buddha-ri massif. It consists of five dwellings, two temples and numerous small religious edifices: chorten, "prayer walls", sanctuaries of the earth deities. The buildings are separated from each other by enclosures or small fields. The Trangmar temple is its oldest construction. Kagar is a sacred place; riding on horseback is prohibited and the jurisdiction of Kagar is in the hands of the priests.

The location map gives the layout of the various edifices and space, classified according to their use.

Edifices: temples and dwelling units

1. Kagar labrang — temple, habitation and lama's chapel
2. Kagar khangpa sarwa — habitation and chapel
3. Trangmar — habitation
4. Trangmar — habitation
5. Zur — ruins of house
6. Kagar og — habitation
7. Kagar og — habitation
8. Trangmar-deva — temple, caretaker's habitation

Religious constructions: chorten and 'ma-ni-gdan'

9. 'ka-ni, chorten monumented gateway dedicated to Lama'mDo-snags bstan-'jin'
10. chorten of Lama 'Ran-grol' from Trangmar
11. 'bri-phug' chorten
12. reliquary chorten of Lama 'U-rgyan dongrol'
13. reliquary chorten
14. 'klu-khan', sanctuary of the 'klu' deities
15. 'chu-skor', prayer mill worked by water
16. chorten
17. chorten, 'rigs-sum mgon-po'
18. chorten, 'sa-dgra ri-dgra'
19. 'ma-ni-gdan' of Kagar
20. 'ma-ni-gdan' of Trangmar

Space used for agro-pastoral purposes

21. 'g. yul-sa' of Kagar — threshing ground
22. 'g. yul-sa' of Kagar — threshing ground
23. 'g. yul-sa' of Trangmar — threshing ground
24. 'g. yul-sa' of Trangmar and Karwa — threshing ground
25. 'bal-ra' of Kagar — enclosure for weaving
26. 'bal-ra' of Kagar — enclosure for weaving
27. 'bal-ra' of Tramgmar — enclosure for weaving
28. 'chu-mig' "watering point"
29. 'glin-skor'— circumambulation route for the pilgrims

Drinking water for the Kagar agglomeration is taken from a nearby watering point. This is really a torrent which has its source upstream.

The houses of Kagar are built on a rectangular surface and have only one storey. Only small openings are pierced in the walls; the door on the ground floor gives access to the cattle shed and enables one to climb to the first floor: access to the various levels can be had by means of beam ladders. Two houses have a cesspool, 'gsan-spyod', which is a kind of square tower constructed in a corner of the house. To empty it, one enters through a manhole at the base of the tower. The threshing grounds, 'g. yul-sa', which are surrounded by dry stone walls, also serve as enclosures for the yaks. The women spin and weave in tiny enclosed spaces, 'bal-ra', and their looms remain there even when they are not working.

The Trangmar house is preceded by a rectangular courtyard, 50 m^2 in area, closed by a dry stone wall, about 1 m high. It serves as an enclosure for the horses and sheep; the watchdog is tied here in winter to a kennel built in the wall of the house.

It bears the name of Trangmar (map of Kagar No. 4) and was constructed in the spring of 1936 during the fourth lunar month. It has one storey and the external dimensions are 9.5 m by 7.5 m. The walls, whose average thickness is about 0.45 m, are made of stones cemented with mortar; the upper part is made partially of bricks dried in the sun and rammed earth. The walls slope slightly towards the interior, about 5 per cent to the perpendicular.

The ground floor, 'og-khan', access to which is provided by a small door (1.6 x 0.9 m) opening towards the west, is divided into four rooms by the support walls; three of these are sheep pen, 'ra', or sheds for the yak packsaddles, yokes and ploughs. One of the rooms 'chva-khan', is reserved for salt. The ground floor ceiling is 1.75 m high and the floor is made of clay; the dung that accumulates in winter is removed in spring after the animals are taken for grazing.

One can get to the first floor, "the intermediate floor", "bar-thog', by climbing a notched tree, 'skras-pa'. At a given point, access to three rooms is possible: the living room, the granary and the chapel. The first, 'thab-can' (lit: kitchen), where the fireplace, 'thab' is situated, is used as a kitchen, common room and dormitory. Above the fireplace, there is an opening in the roof, 'khar-khun', which allows the smoke to escape and is covered in bad weather by a plank. However, the 'Ri-bo bum-pa' temple can be seen from another opening. It is in this room that the family members take their meals and sleep on the ground on both sides of the fireplace. The family gathers here in the evening either to receive an honoured guest who will be seated to the right of the fireplace or to spin and card wool. Life revolves around the fireplace near which a teapot is always kept hot. The side of the wall behind the fire place is covered by a series of shelves; the fuel reserves and salt box are placed on the left.

The interstices between the ceiling beams are used to store the spindles, awls, sickles — objects which should be kept out of the reach of children. Small clay figurines representing yaks and sheep are hung on to the central pillar. These are supposed to act as a protection against lightning, 'thog-srun', and as good luck charms, 'g. yan'; they remain in place till they crumble and fall.

Access to the room which serves as a warehouse can be reached only through the drawing room; grains boxes, wooden containers for beer, beer mugs in clay as well as winter clothes and clothes worn on festivals are stored here.

The chapel, 'mchod-khan' or 'lha' (lit.: the deities) has an altar on the side with a shelf for the holy books and a seat for the lama; it is the only room to be decorated with paintings.

A beam ladder enables one to reach the roof-terrace through an opening, 'nam-khan'. The terrace edge is closed by a parapet, 'khan-pad' (lit. the decoration of the house), on which willow and juniper branches are placed; these wood reserves protect the wall from any seepage of water. A slight slope in the roof-terrace allows the rain water to flow down; two wooden gargoyles, 'ba-ga', are placed in the wall which crowns it. A clay coating ensures a relative water proofing. A section in the north-east, covered by a canopy, 'g. yab', is used during the summer months. The roof-terrace serves a number of purposes: it acts as a drying ground for grain, fodder (winter hay), vegetables, skins to be tanned. Family members sit under the canopy to spin, cut and sew garments or read the sacred texts.

In the north-eastern corner above the canopy is a small cubic construction topped by a prayer pole. This is the 'bcan-khan', sanctuary of the 'bcan' deity. A pole, 'dar-lcog', to which several printed strips of cloth are attached, is erected in the north-western corner of the house.

The threshing ground, 'g. yul-sa', in front of the house has an area of 110 m^2; it is surrounded by a one-metre high wall. A second enclosure, 'ra', was built between the two Trangmar houses (4 a on the map). When the caravans return, the yaks are tied in this enclosure. Ewes and goats are also milked here in the morning and evening.

A smaller enclosure, 'bal-ra', or 'thags-ra' (29 on the map) is reserved for weaving; it is here that the women, sheltered by a small wall of dry stones, spin and weave and the children play.

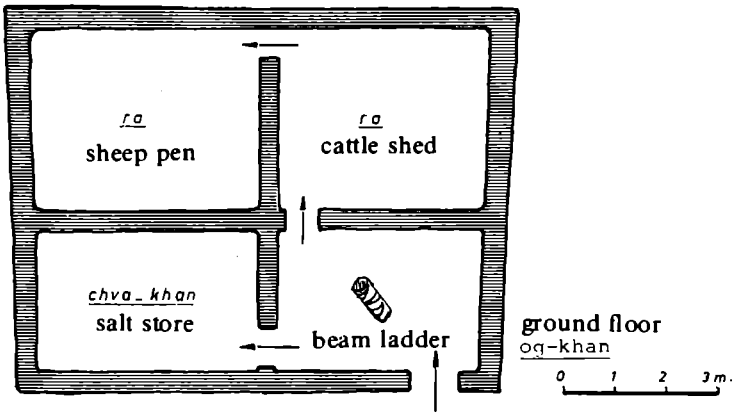


Fig. 11 — Trangmar house, first floor

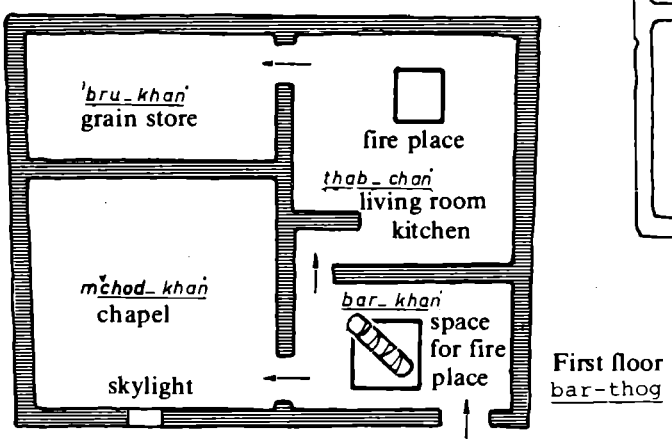


Fig. 12 — First floor

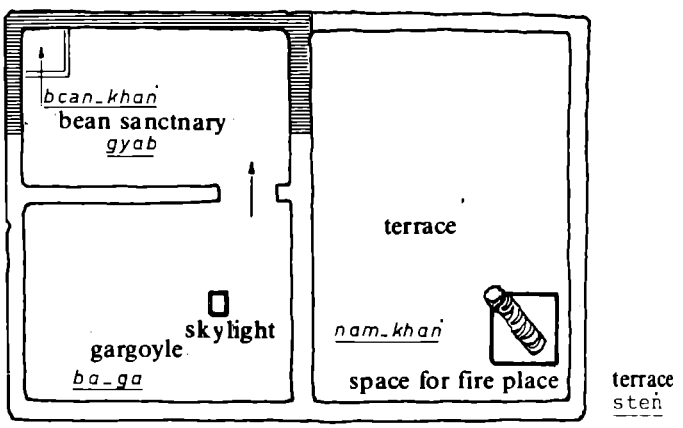


Fig. 13 — Terrace

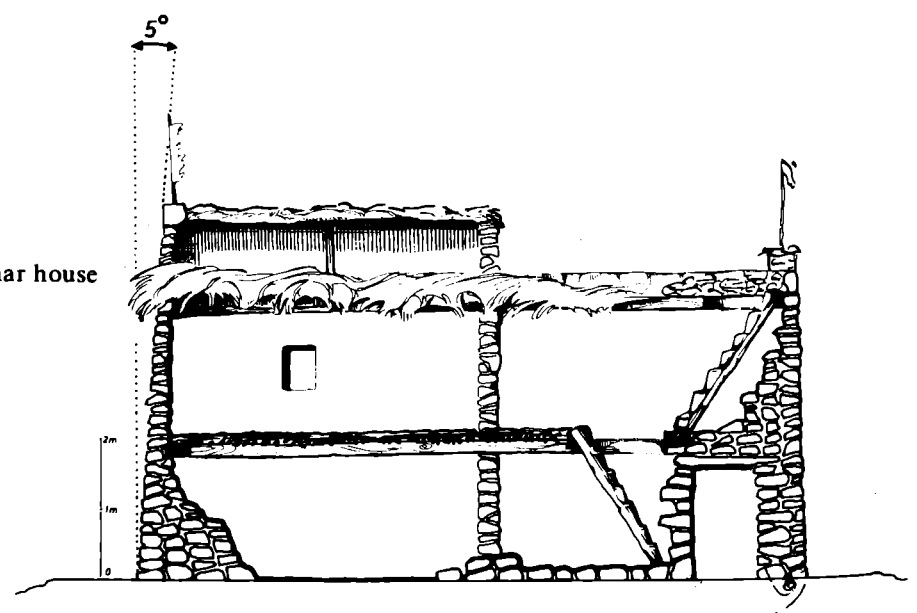


Fig. 14 — Section of the Trangmar house

Fig. 15 — Interior, fireplace
(Cl. C. Jest)

The House and its Symbolism

The text referred to at the time of house construction deals with the tripartite structure of the world, the three stages of the universe, shared between the 'lha', the gods of the upper regions, the 'bcans', the gods of the intermediate spaces, and the 'klu' from the nether world.

Every inhabitant is aware of this structure and division. He will never think of making an offering on the ground floor of the house (at the most, he may burn some juniper to purify the cattle sheds and honour the gods of the nether regions). The purification texts, 'lha-bsans', are read by the priests on the terrace once a year. On this occasion, new prayers are printed on strips of cloth which are tied to a mast. The banner, 'dar-lcog', is replaced on the third day of the twelfth lunar month. This is the time to make offerings to the deities, 'lha'. The 'bcans' are honoured every month; offerings are also made to the earth deities; a lamp is placed in a recess of the ground floor wall. If this prayer is not performed, the family members may suffer from skin diseases.

The Tent

Then tent, the counterpart of the house, forms the dwelling of the herdsman which is easy to dismantle.

From the month of April onwards, before the fields are cultivated, the yaks, sheep and goats are taken to graze at a level higher than the one of the cultivated terraces, between 4100 to 5000 m; to reach this level one has to walk for several hours. As the animals have to be milked twice a day and the milk processed, a permanent presence is required and the tent is used as a shelter. The rotation of the grazing lands also requires a certain amount of mobility: the tent is shifted five to six times in the course of the season.

The tent, similar to the one used in the high Tibetan plateau, is rectangular in shape and consists of two halves — right and left — joined together in the middle, from the front to the back. Each half, of trapezoidal shape, is made by sewing together a number of yak hair widths. The texture of the material appears to be rather loose at first as light is able to filter through it. But once soaked by rain, it becomes almost waterproof. The semi-rectangular tent includes two triangular additions; the back, 'stod', and the front, 'sgo' (lit: the door), joined to the body of the tent; this link is further strengthened by thick bands to which runners are secured. Each half is extremely heavy and is about the weight of a yak. The tent, whose size is determined in relation to the length of the woven pieces, covers a hexagonal surface area between 12 to 28 m^2. The height of the central pole is around 2 m. The two halves are assembled with the help of pegs and buckles in front and behind at the position which corresponds to the poles.[3]

The principle of suspension is as follows: the 1/2 tents are fixed together on two poles and rest on a yak astragal. Then, stakes as high as the tent itself are placed at a given distance to support six runners which hold the tent in place — two in the main axis backdoor and four supporting the angles. The angle runners pass over grooved stakes at three metres from their point of securement to the tent and are tied to the ground at six metres from the stakes. They provide more inside room and enable the structure to withstand strong winds.

The part forming the roof has a fairly large opening which enables the light to come in and the smoke to escape. The inside walls have an inclination of appx. 50°.

The Making of a Tent

Yak overhair, 'rcid-pa', of good quality, that is overhair taken from the sides of the animal in the month of June, is used to make tents. Men do the spinning. The strands have to be closely woven but this is not easy as the very nature of the thread makes weaving difficult. The widths are also assembled by the men for a certain amount of force is required to keep together the various elements of the fabric. The runners and cords are made of yak hair.

A tent may last up to twenty years. The side exposed to the sun wears out the fastest; a worn width is replaced by a new one. It is generally at the start of spring that the owner inspects the various parts of the tent and decides what has to be repaired. The poles and stakes (of pine or poplar) are obtained through exchange with the inhabitants of the lower valleys.

Pitching of the Tent

To begin with, the two halves of the tent are spread out on the chosen site, 'gur-sa', taking care to make the door face the east; the angle runners, 'zur-thag' are stretched and the poles are erected. The position of the high external stakes is verified several times, as it determines the slope of the roof and the inside walls. The sides of the tent are secured to the ground with wooden pegs or goat horns. Big stones are placed inside to fill the gaps between the cloth and the ground. The ground remains unchanged.

Once the tent has been put up, the woman builds the fireplace: she selects three stones and arranges them in such a way that they are able to support a cooking pot or tripod of forged iron which is then sealed with clay. When the fire is lit for the first time, the woman places a few juniper branches as a fumigation, offering to the deity of the fire place, 'thab-lha', and applies butter to each one of the three elements of the fireplace.

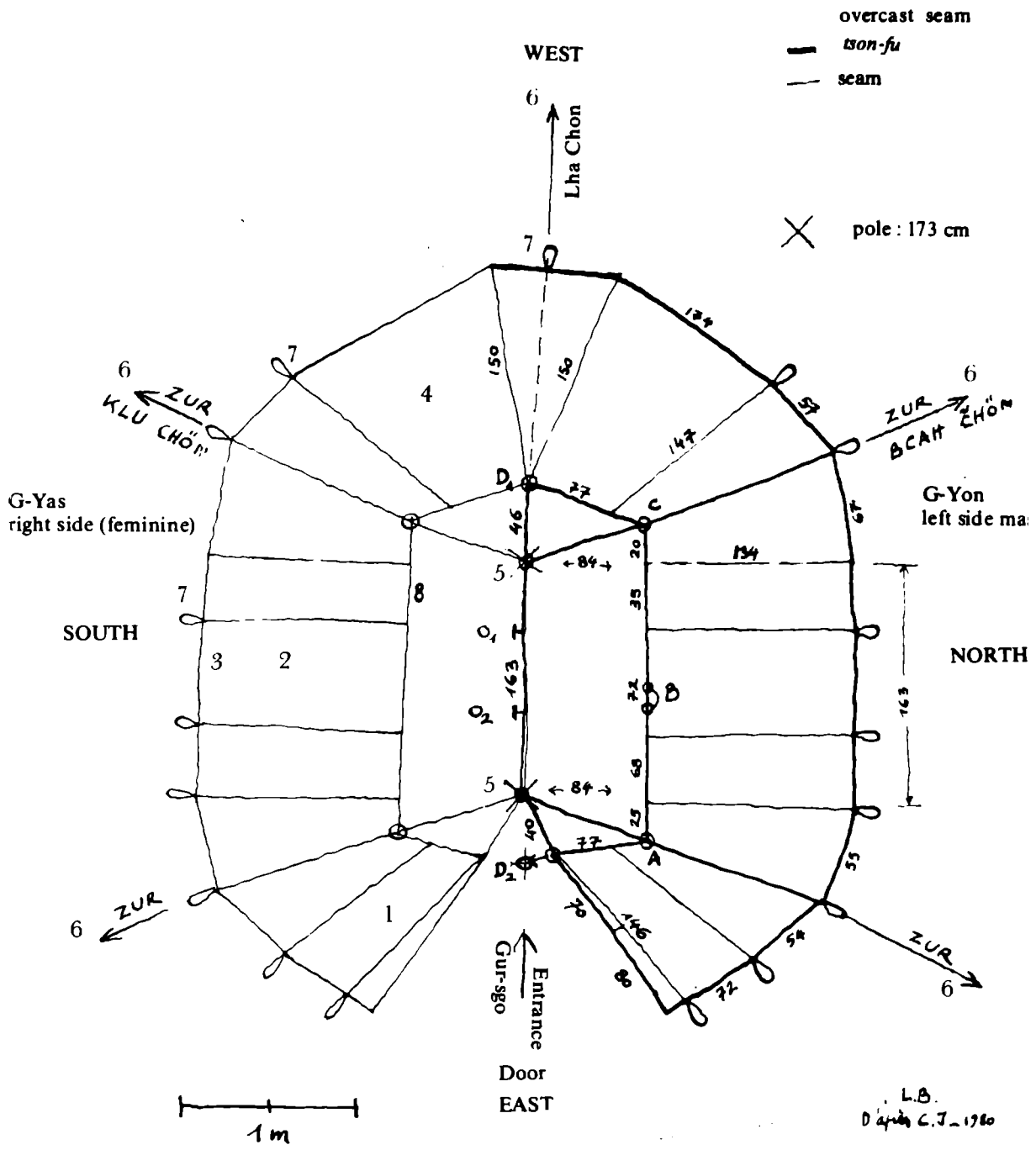


Fig. 16 — Nomad's drop-pa' tent

1 : **gor-sgo,** entrance piece — 2 : **me-lon**, sides — 3 : **gur-zam**, bottom of the tent — 4 : **stod ou rgyab**, back — 5 : **ka-ra**, inside poles — 6 : **chon-phur**, outside poles — 7 : **phur-pa**, strapes — 8 : **chon-gram**, strap work on which the runners are fixed (the runners arc of the following lengths : A : 410 mm — B : 400 cm — C : 415 cm — D_1 and D_2 : 600 cm)

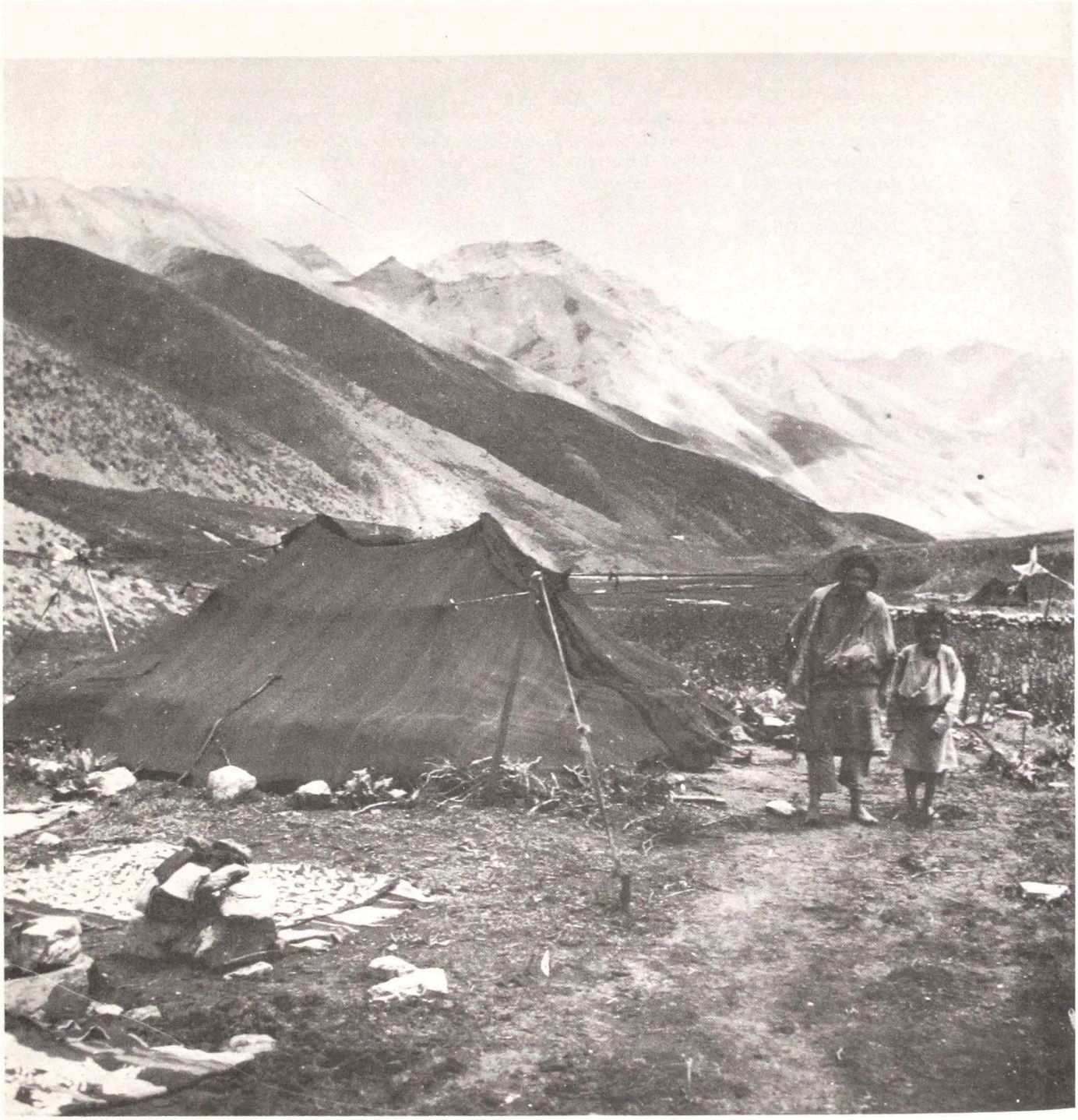


Fig. 17 — Trangmar Tent. Notice the high external stakes
Cl. C. Jest)

A lump of butter, 'yer-ka', is then placed on all the poles and a white cloth on which the "horse of the wind" motif has been printed is tied to the runner of the "top" (back centre of the tent), a red cloth dedicated to the 'bcan' deities is tied to the runner on the left side — the male side — and blue cloth dedicated to the 'klu' deities is attached to the runner on the right side — the female side. The two right and left side runners are joined by a rope to which the "horses of the wind" motifs are tied.

The final stage is the construction of the altar at the end of the tent, behind the last pole, this being considered the dwelling of the 'phug-lha' the deity of the ancestors. The altar is nothing more than a wooden or stone shelf on which a reliquary or holy book is placed and where an oil lamp is lit every evening.

Custom demands that a visitor staying in the tent places his reliquary and religious objects on the altar.

The covered space is divided symbolically into two parts: the left side while facing the entrance from inside is "masculine" and the master of the tent occupies the place near the altar; the right side is the "feminine" side. Why is such a rule respected? The reason given is that when a woman empties a ladle, the back of the ladle always faces the entrance. If the back of the ladle is turned towards the end of the room, it could lead to the death of one of the family members.

The space organised around the tent includes an enclosure made of stones, the area of which varies in accordance with the size of the herd (female yaks, goats and ewes are tied here at night). This space is also used for storing fuel reserves, branches, goat and yak dung and includes an area for drying cheese and wild onions.

The family of Tsering Puntsog of Trangmar, whose house we have described, owns a large herd of yaks, goats and sheep who summer at a high altitude from April to September.

The family tent made of yak skin covers a ground area of 15 m.[2]

As one enters, on the right, one sees stored along the length of the boards fuel reserves, yak packsaddles, skin bags, grain and tsampa. In the centre, between the two poles, an iron brazier fitted on a tripod to burn the yak dung; near the fireplace, aluminum saucepans; on the right, a copper bowl filled with water, the elements of the horizontal weaving loom, a butter churner, various kitchen utensils. At the back, an altar made of flat stones; attached to the entrance pole, a tea churner.

The family members sleep on either side of the fireplace, the head positioned "upwards", opposed to the door.

The Shelters along the Trade Routes

The inhabitant of Dolpo has to travel frequently: to visit relatives in a neighbouring valley, look for animals that have strayed and, on a more regular basis, to trade goods intended for Tibet or the lower valleys.

The journey is broken at the various places of halt which lie along the route: there may be a shelter beneath a rock, a crevice or simply flat space near a river or spring (the areas around a bridge or precipice are avoided however as they are supposed to be haunted by evil spirits).

A rough wall of dry stones is built around the shelter beneath the rocks, 'phug-pa', to prevent the wind from coming in. The luggage is kept on a few flat stones placed on the ground; the fireplace, made of three flat stones is left in its original position.

When there is no natural shelter, a stone wall, one metre high, is built in the form of a circular arc, 'lhas', on which the luggage is stored. The saddles and packsaddles cloth are spread out on the floor.

The shelter along the trade route is not a sacred place. Fumigation, erection of the 'tho-bo', the three stones one on top of the other are only meant to drive away the evil spirits which haunt the paths, crossroads and river banks.

On the other hand, the house and tent are identified with a cosmic structure, a reduction of the world with the three stages devoted to the deities 'lha' (sky), 'klu' (nether regions), 'bcan' (intermediate space), in a vertical direction for the house and on a single horizontal plane for the tent (through the intermediary of the runners (see above).

The deities of the ancestors, 'phug-la', of the continuity of the lineage or clan have their seat in the central pillar of the house and the pole "above" in the tent.

The deity of the fireplace, 'thab-lha' occupies this space as soon as the consecration rites are accomplished, regardless of where they take place.

The preservation of wealth and good fortune depends on the 'nor-lha' deity. This essence of good fortune or growth is retained in a casket, 'g. yan-sgam', where a tiny fraction of the goods sold, namely grain and animal hairs are stored in order to preserve their vital strength.

These offerings are hung in the tent to a cord stretching from the main pole to the back of the tent.

An annual ceremony, the 'lha-bsans', protects the house or the tent. On this occasion, the strips of cloth with "horse of the wind" motif, 'rlun-rta' are changed.

Pollution of all kinds must be avoided especially that of the fireplace. Members of the lower strata, ironsmiths and beggars can enter neither the house nor the tent.

We present in a table the different elements characterizing the specific forms, structures and functions of the habitations in Dolpo

In Conclusion

The various solutions adopted by the inhabitant of Dolpo in dealing with the housing problem constitute his adaptive response to an extremely hostile environment. At this point, it seems appropriate to mention the observations made by a group of physiologists.[4] The Himalayan populations living on a long term basis above 4000 m are subjected to the combined constraints of high altitude and cold. The first leads to a deficiency of oxygen which may be as high as 40 per cent whereas the need for oxygen is all the more acute. There is an enlargement of the rib-cage, an increase in the haemoglobin content of the blood, etc. as well as a decline in the physical capacity to work. The natives withstand the cold well even though the central temperature is lowered in certain cases, night rest, for example. Modifications in the peripheral circulation are observed. On the whole, one can say that the populations of the upper valleys are well adapted to their environment.

The Dolpo inhabitant, in harmony with his milieu, firm in his beliefs, lives in a world penetrated by the supernatural, protected by the deities, whose help is assured to him as long as he performs the necessary rites and ceremonies. In this tutelary action, this worship, the founders of the lineage have the pride of place. The permanent or mobile dwelling is conceived as an image of the Universe with three hierarchised levels. The marriage rituals, pilgrimages include visits to consecrated edifices, imparting to space its life and meaning. The rough structure of the building reflects the paucity of materials, the harshness of the climate and the courage of people deeply rooted to what is probably one of the most difficult regions of the world to live in.

	Materials	*Social aspects*	*Religious elements Resident deities*	*Appropriate ceremonies— Offerings*
House	stones clay frame wood branches	permanence entire family	'thab-lha' 'nor-lha'	annual 'lha-bsans' reading of religious texts twice a year
Tent	woven elements	mobile a few family members	'thab-lha' 'nor-lha' 'g. yaŋ-lha' 'phug-lha'	offerings each time the tent is pitched annual 'lha-bsans'
Shelter	rock crevice favourable terrain away from water	individual itinerant	possible presence of evil force	fumigation to drive away harmful forces erection of the 'tho-bo'

Notes

For the Tibetan terms, we have used Pelliot's transliteration; except for terms which are now a part of everyday language such as 'chorten' and 'gompa'.

1. For the ecology of the Dolpo, see: J.F. Dobremez, *Le Népal, Ecologie et Biogéographie*, Paris, C.N.R.S. - J.D.A. Stainton, *Forests of Nepal*, London, J. Murray, 1972.
2. On the way of life of the nomad shepherds: C. Jest, "La Société pastorale du Tibet de l'Ouest, in, 'L' homme hier et aujourd 'hui'. *Tribute to A. Leroi-Gourhan*, Paris, 1973, pp. 435-444.
3. Big tents, 'brog-gur', can be seen in the Changthang plateau. They are supported by six inner poles and sixteen runners. Small stone walls delimit the ground space.
4. Several studies have been carried out in this field, cf.: S.B. Roy, "Circulatory adaptations in Himalayan natives", *Symposium on High Altitude*, Institute of Anthropology, Delhi University, Delhi, 20/03/1971 - S.B. Roy, Adaptation to high altitude and cold stress, *Symposium on High Altitude*, I.C.R.M., New Delhi 6-8/12/1971.
5. In the course of a recent visit to the Autonomous Region of Tibet, we had the opportunity to observe the construction and typology of houses. The house that we saw between Gyantse and Shigatse was built on a rectangular surface, preceded by a closed courtyard. A double door gate gives access to the courtyard; one of the sides is covered by a roof-terrace. The building itself consists of a series of rooms (two being the minimum). The room containing the fireplace serves

as a drawing room and the second room is used as a store. The construction materials used were: bricks and frame wood — poplar or willow. Innovation (in relation to the older houses) is made in the form of larger windows and the introduction of window-glass.

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Tucci, G., Ghersi, E. (1935) - *Secrets of Tibet being the chronicle of the Tucci scientific expedition to the western Tibet* (1933) London and Glasgow, Blackie and Son Ltd, (pp. 25-26, fig 1, house plan in Spiti).

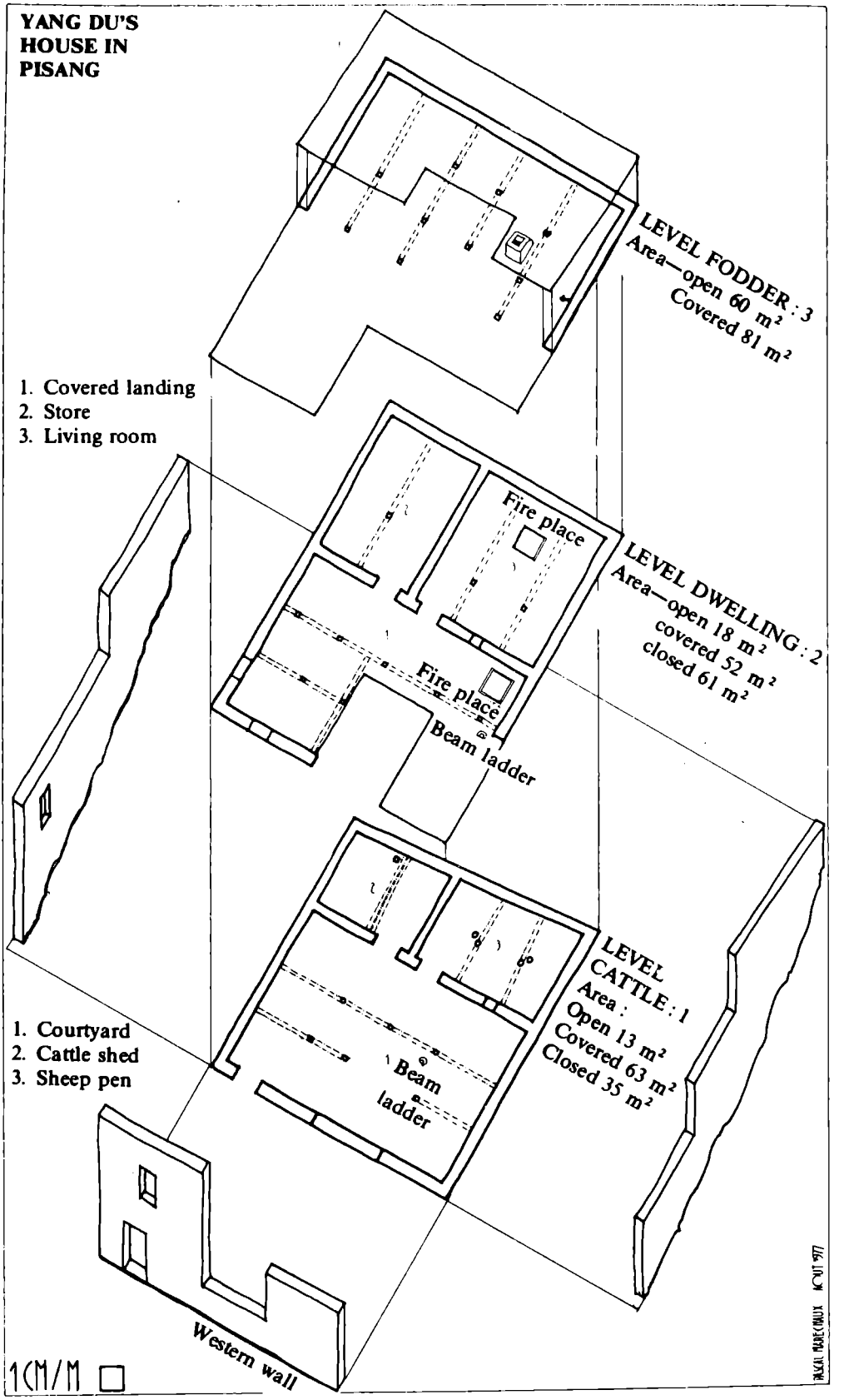


Fig. 1 — Yang-Du's house in Pisang, Nyi-Shang

TWO HOUSES IN THE TIBETAN CULTURAL TRADITION

In Pisang (Nyi-Shang) and in Stongde (Zanskar)

Pascal Maréchaux

Between 1977 and 1979, we made two field trips to the high Himalayan chain. The purpose of the first trip was to study the way of life and habitat of the Manang Valley in Nepal; during the second, we analysed the structure of the Phutgal monastery, constructed on a remarkable site of the Zanskar Valley, situated to the north-west of India.[1]

From our field notes, we have selected the portion dealing with two houses, identical in many respects despite the distance — over a 1000 kms — separating the regions in which they are located. These high altitude steppe-like zones are sparsely populated and fall under the same zone of Tibetan culture. Both populations — estimated at 5000 inhabitants in Manang and 8000 in Zanskar — practise Tibetan Buddhism of the 'Nying-ma-par' order in the case of the former and of the 'Ge-lug-pa' order in the case of the latter.

The House of Yang-du in Pisang, Nyi Shang

The Manang Valley, locally known as Nyi-Shang, is located to the north of the Annapurna massif, in central Nepal (lat. 28° 37', long. 84° 10'). The Marsyandi, a tributary of the river Trisuli, flows through the valley which includes seven villages: Pisang, Ghyaru, Nagawal, Braga, Manang, Tangui and Khangsar. Established on the left bank of the river, these villages are on the favourably situated side of the valley.

The Pisang village ('Bi' in the local language) is built at a height of 3550m, on the slope facing the south. In 1977, it comprised 83 houses providing shelter to around 400 people in the summer months.

Description of the House

Yang-du's house, built in 1975, at a slight distance from the other dwellings, displays all the characteristics of the local habitations; it is constructed on an almost square surface (11 x 13m) and includes three levels (fig. 1).

Level 1: A double door, situated in the western facade, opens directly on to a small inner courtyard which leads to the cattle sheds. Pillars of juniper and pine wood support the peripheral roofing. On the eastern side, the cattle shed is closed in by a wall in which two doors are built. It is divided into two halves: one section is for the cattle and 'dzo' (hybrid of yak), the other, for the sheep (figs. 1, 3).

Level 2: A ladder beam placed in an inner corner of the courtyard gives access to the inhabited floor. It consists of a "U" shaped terrace which serves the entire level. One of the terrace sides is covered — in some houses, it is sealed with a plank partition — and this space serves as the family chapel. A small covered landing leads to the two rooms on the first floor. In summer, alcohol is distilled on an external fireplace built on the landing. The first room is used as a store (figs. 1, 2). The second (figs. 1, 3) constitutes the living room: it is here that the family dwells and the main fireplace of the house is located in the centre of the room. The floor of the fireplace — in clay — is separated from the ground by a wooden frame. A ventilation hatch is situated just above. A large wooden dresser is placed against the back wall. As one enters, one sees the grain box on the left; on the right, there is another box and a trunk in which clothes and precious objects are stored. The tools: sickles, spindles, etc. are placed beneath the ceiling between the beam interstices, outside the reach of the children. The two beams are supported by pillars situated in the vertical extension of the lower floor pillars. In addition to the door, a window is built in the entrance wall. The room is dark; when the fire is put out, a petrol lamp is lit to provide some light.

Level 3: A ladder-beam placed outside enables one to reach the terrace roof. The ladder is generally positioned on the side of the prayer pole to which a white cloth printed with religious motifs is tied.

Grain and fodder are dried on the terrace roof. Another terrace, supported by the extra height of the back wall, the two lateral walls and a series of poles, forms a covered space; this is used to store straw and the family members sleep here in summer.

While noting down the description of the house, we had the opportunity to observe the activities of the household. In the course of our stay, we were able to see a new house being built and given below is a description of how it was constructed.

Construction takes place in summer from July to September, during the period which precedes the October harvests. It takes between ten and twenty days to complete the job depending on the nature of work, the size of the house and the number of people available. Sometimes, instead of beginning ex nihilo, an old house is renovated.

Whereas the initial work is an individual affair, village help is required in the actual construction of the house. Before starting to build, the owner and his family, often assisted by Gurungs hired on a daily basis, gather together the necessary materials, namely stone and wood, and stock them nearby. The doors and windows are made in advance.

Work is divided according to sex. The women prepare the food and beer; they carry the stones, earth and water to the site. The men build the house: they surb the stones, fell the trees, cut the beams, dig the foundations, erect the walls, assemble and install the various structures, pack down the roof earth, etc.

Materials Used

Wood is an important element and is used as much for the walls as for the beams, pillars, doors, windows and furniture.

Generally, a part of the forest is allocated to each inhabitant for his personal use. These zones are situated on the right bank of the Marsyandi, especially in Bratang,[2] upstream from Pisang and in Ongden, between Ghyaru and Brag. For the time being, the restrictive regulations introduced by the Chame administration do not affect the upper valley.

If the builder cannot cut and transport all the wood required on his own, he can get the remaining wood from a woodcutter. When a felled tree is curved, an attempt to straighten it is made at the time of seasoning by installing a cantilever stone weight. The shortage of wood forces the inhabitants to use all the available trees, even those which are crooked. Seasonal Gurung carriers[3] are engaged to transport the wood from the place of felling to the site.

Limestone or lime shale is used in the construction of the walls. Stones are obtained from the banks of the stream or the morain dejection cones; or else, they are taken from the ruins of an old house. Shale slabs from the Ghyaru village are used for the roof edges.

The earth used for the jointing of the stones and the construction of the terraces is generally extracted from within the house, when levelling the ground and uplifting the initial slope horizontally. However, when construction takes place on a flat surface, the necessary earth is obtained from the fields.

Equipment

When work begins at the site, each one brings his tools which are pooled together.

The following tools are used:

Some tools such as the crowbar, sledgehammer, shovel, saw, hammer and nails have been imported only recently. The use of chisels, planes, bit-braces, also

	Local name	*Use*	*Origin, Price*
basket carried on the back	'dokkho' (Nep.)	porterage (stone, dry earth)	made locally 10 Rupees
flat basket		porterage	
wooden trough		wet earth	
axe	'taré' (Tib)	to saw, to cut	Chamé, Manang 15-20 Rupees (ironsmiths are available in Ngawal-Braga)
adze	'chesa' (Nep.)	to dress, to cut	
hoe (pickaxe)	'kodali' (Nep.)	to remove the earth	
yak skin rope		to transport the wood, attach and install the structures	
rammer		pack down the roof-terrace earth	

obtained from outside (India), coincides with the arrival of paid specialists who do not belong to the region.

Construction

The foundations, traced roughly on the ground, consist of a trench, 30 cm deep and 60 cm wide, in which the wall is erected. When the foundations have to be dug in rock, wooden scraps are burnt to soften the rock before using the crowbar. An attempt to obtain a horizontal surface is made before placing the first layer of stones.

The stones are assembled with mixed wet earth. For the laying, one looks for the best seating and if necessary, some touching up is done. The rough assembly[4] consists of two parallel inner walls, filled with earth and small stones. There is practically no vertical jointing. Each time the wall level rises by about 60 cm or so, a wooden bed is placed. It comprises two beams which rest on both the inner walls and are joined by wooden headers. The beams, about 15 cm thick, are squared off with pine. The headers, often prepared in advance, are cut with an axe or saw. Yak horns replace the wooden headers at the base of the wall, on the external facade side (or the inner side for the back wall). The beams included in the wall support and distribute the weight, equalise the seatings and give to the wall a certain elasticity (through compression); they also act as ties and prevent the opening from breaking the wall (through traction). If, in the course of construction, the plumb of the wall appears to be faulty, it is straightened with a sledgehammer or heavy stone while the binder is still wet. The wall is erected with a slight batter, determined by estimation.

The frame is made and the poles, capitals and beams are assembled by a method of superimposition. Positioning is carried out by a successive piling up or attaching the capitals to the beam already fixed in the wall. The backing strips of the floor, placed above, ensure the wind-bracing of the structure. The placing of the weight gives stability. The horizontal wooden elements are made of fire and the pillars of juniper or fir. As for the doors and windows, the notches are prefabricated between the various woodwork elements which are assembled halved joint. Before the construction of the wall, the door frame is kept in place temporarily with the help of intertwined backing strips.

The window, which has no leaf, is always made in advance. It consists of two horizontal pieces of wood fixed in the masonary and two stiles which carry the lintel. The central part consists of a filling delimiting an empty and a filled space either by the intermediary of a wooden crossing or by a pannel of cut planks. The open part is small.[5]

The Roof-terrace

Between the walls, 'bastaings' (beams of non-squared off barked fir which can reach a height of six metres) are placed edge to edge by alternating the base and top of trunk. Above this, juniper chips or the recovered planks are arranged perpendicularly. Birch bark[6] and Carangana or juniper branches are then placed. A layer of mud about 10 cm thick is spread on the latter, which is packed down with a wooden plank. For the roof-edge, the 'bastaings' are sawed out in such a way that there is a slight overhang on which a beam is installed perpendicularly. This part of the roof is given as additional roofing which consists of shale slabs, assembled with mud and wedged with chips.

The terrace roof is given a slight slant allowing the rain water to flow down to the two curved wooden planks which act as gargoyles. At the smoke pit, two oblique parallel mud walls supporting a few branches are erected. This is covered in case of rough weather and in accordance with the draught required. When the construction work is over, by way of celebration people come to dance on the terrace roof which is sufficiently resistant to withstand the weight of the dancers. Besides, this action helps to pack down the earth even further.

Such a system of roofing provides relative waterproofing, which is improved by the smoke and tar deposits that accumulate in the central room. The roofing seems adequate for the summer months during the dry period. In winter, the snow has to be cleared periodically.

The lifespan of the roof depends on its maintenance. In Nyi-Shang, we saw a roof being rebuilt entirely, after thirteen years of use.

Nawang Tashi's House in Stongde, Zanskar

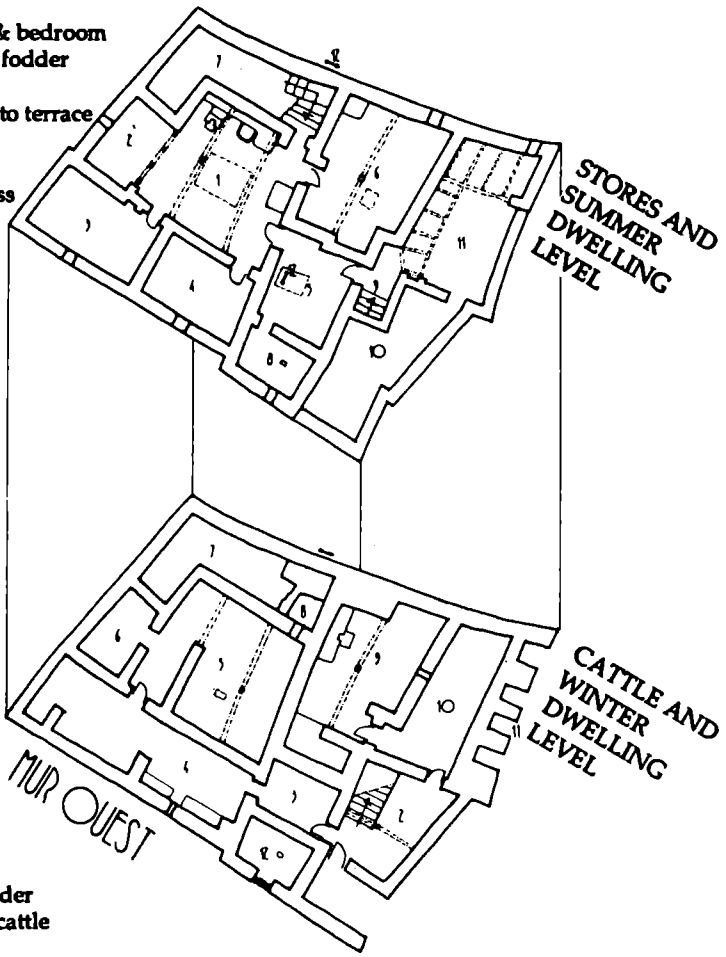
Situated between the Great Himalayan and Karakorum chain, Zanskar belongs to the State of Jammu & Kashmir, which is a part of the Union of India. It is watered by the river Zanskar, a tributary of the Indus. This extremely isolated region is accessible through several high altitude passes: Shingo-lo (5100 m); Bara-Latcha (4650 m), towards the Kulu Valley in the south; Pansila (4400 m) towards the Kargil valley in the north; Singe-la (5060 m) or Chercher-la (5100 m) towards the Ladakh valley in the east.

At an intermediate altitude of 3720 m, the Stongde village (lat. 34° 30, long. 78°55') consists of sixty rather dispersed houses situated near the cultivated zones. The village is a veritable oasis irrigated by the waters resulting from the melting of snow. The population includes 280 inhabitants without counting the 70 monks who reside in the neighbouring monastery. The house

Nawang Tashi's house in Stongde (Zanskar)

B

1 Summer room
2 Storeroom for perishables
3 Storeroom for clothes
4 Storeroom for food and valuable objects
5 Vestibule/hall
6 Adjoining room & bedroom
7 Storage room for fodder
8 Latrines
9 Staircase leading to terrace
10 Terrace
11 Terrace
12 Staircase for access to roof terrace



A

1 Entrance porch
2 Staircase hall
3 Screen
4 Stable
5 Stable
6 Sheep pen
7 Storeroom for fodder
8 Recess for young cattle
9 Winter room
10 Winter latrines
11 Feeding troughs
12 Drainage area for latrines

1CM/M □

Fig. 2 – Nawang Tashi's house in Stongde (Zanskar)

that we studied belongs to Nawang Tashi, also called Amji, on account of the fact that he practises traditional medicine. His house comprises two levels (fig. 2): the first level, slightly sunken, provides shelter to the cattle and room for the winter dwelling; the second includes the stores and summer dwelling.[7]

Level 1 (fig. 2a): On the southern side access is provided through a zigzag trench giving on to a hall (fig. 2, 2) which connects the cattle sheds in the north and the winter quarters in the east. The three cattle sheds are arranged in a row. Beyond a screen (fig. 2, 3), a wide corridor, where the animals may be stabled (fig. 2, 4), leads to the sheep pen (fig. 2, 6) and the large central cattle shed (fig. 2, 5). The latter has only one opening in the form of a trapdoor which opens on to the summer room situated above. Food is passed down through this door from the fodder store (fig. 2, 7) which blocks the north-eastern angle of the house along its height. Straw and hay are garnered from the terrace roof which is reached through an outside ladder.A recess beneath the barn staircase giving on to the large central cattle shed provides shelter to the young animals. When the animals are able to leave, they are penned in an enclosure situated in the south; troughs are fitted in the facade wall.

The winter room (fig. 2, 9) is isolated from the outside by cattle sheds on three sides and by a room (fig. 2, 10) used in winter as a latrine. The smoke from the fireplace is channelled out into an upper area thus creating a buffer against the cold. The fireplace is set against the northern side of the wall, on which there are shelves for the kitchen utensils.

Raddish and potatoes are stored in a small silo dug in the floor. The parents' bed consists of boards, under which the youngest animals curl up, thus generating heat. The children sleep around the fireplace. A small glazed window beneath the terrace of the upper floor lets in minimum amount of light.

Level 2 (fig. 2, 6): A staircase in the entrance hall leads to the upper floor which consists of the main room (fig. 2b, 1), used in summer, and to the stores. The two terraces can be reached by crossing the landing. The large room may be entered through a hall (2b, 5), next to the latrines, and it is from here that one may reach the terrace roof by means of a ladder. The large room is lit through a big opening pierced in the centre. The fireplace, built against the wall, forms part of a series of masoned recesses and shelves. A mud store for the grain is built on the southern wall.

Only one of the two master beams which span the volumes is supported by a pillar.

On the northern side, fuel and barley beer are stored in an alveole (fig. 2, 2). To the west, two stores open on to the main room, of which one is for the clothes (fig., 2, 3), the other, for the food and precious objects (fig. 2, 4). Both stores have a small window protected by thorny intertwined branches.

On the southern side is a scarcely used outbuilding which serves as a shed. The shed includes a grain store and one may sleep here, if necessary.

Fuel reserves, on top of which prayer poles are mounted, are stored on the terrace roof.

The house is made of adobe bricks on a stone seating. Water is added to the earth agglomerated with gravel[8] and mixed vigorously before being set with the help of a wooden frame 38 x 20 x 15 cm. The paste is packed down with both hands whose imprint can be seen. The block is dried for at least twelve days before use. The wall is raised on two parallel beds joint with mud. The rudimentary structure of wooden beams and poles— poplar or willow — does not have any capitals. Often, the window is nothing more than a simple opening. The terrace roof is a superimposition of intertwined wood covered with packed mud.

My stay in both the houses and a certain intimacy with the men and places lead me to compare the techniques used, the beliefs recorded and the social and religious traditional building practices of the two. The Nyi-Shang inhabitant has a surfeit of construction material, namely wood and stone. The inhabitant of Zanskar on the contrary has to manage with earth which he shapes into adobe bricks. It is to be noted that in the Nyi-Shang villages nearest to the Muktinath valley, and perhaps under the influence of the latter where wood is rare, walls made of adobe bricks appear next to wood and stone walls.

The levels and rooms are put to practically the same use in Nyi-Shang and Zanskar. Thus, level 1 is essentially reserved for the animals and fodder, there being however a special winter room in Zanskar. Level 2 consists of the main room which serves as kitchen, drawing room, meeting place and winter room in Nyi-Shang. There are no seats in the strict sense of the term: a skin, mat, sheet or plank is placed on the wooden floor (Nyi-Shang) or clay floor (Zanskar). Small tables to keep the wooden bowls are placed before the guests. Shelves fixed into the wall behind the fireplace, grain boxes, trunks or a bed (a relatively new feature) constitute the only furniture.

Built on the back wall, the fireplace delimits two distinct zones, the right hand side (when facing the fireplace) being occupied by the men, and the left hand side, by the women. The kitchen utensils, tea churner,

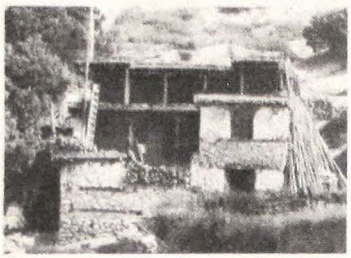


Fig. 4 — Similar type of house in Braga

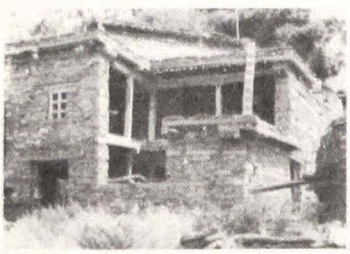


Fig. 5 — Similar type of house in Pisang

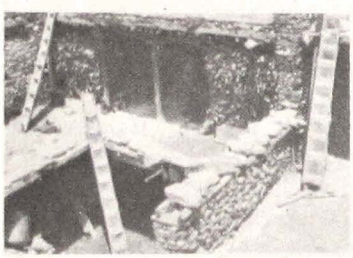
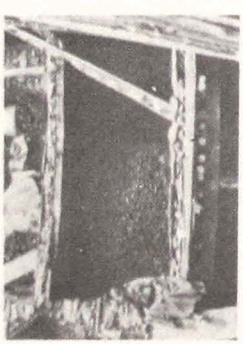


Fig. 7 and 8 — Patterns of terrace uses



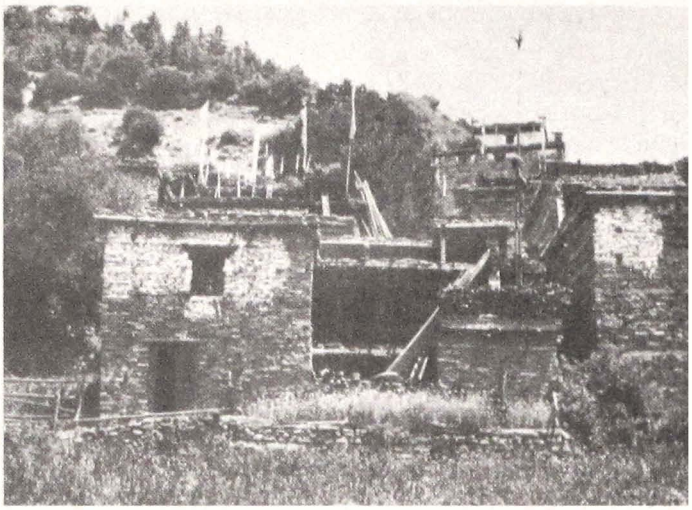


Fig. 3 — External view of Yang-Du's house
(Cl. P. Marechaux as well as all those which follow)

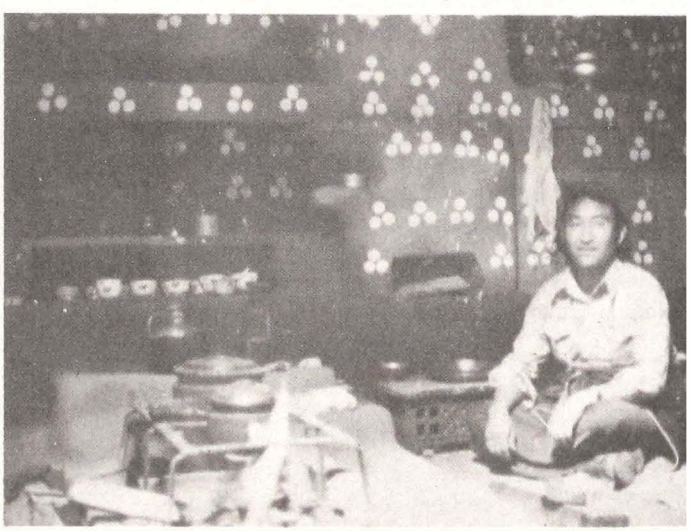


Fig. 6 — Inside view — living room — a main sitting near the fireplace

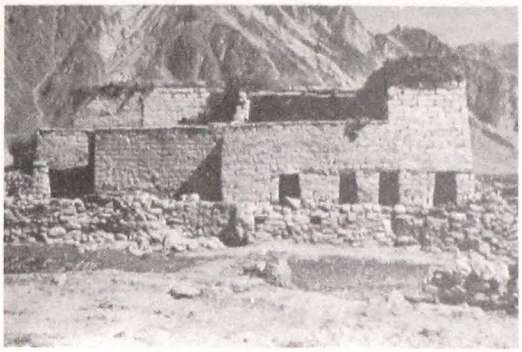


Fig. 9 — Southern facade

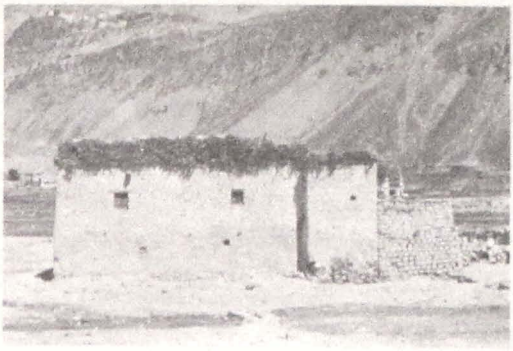


Fig. 10 — Western facade

Fig. 12 — Eastern facade

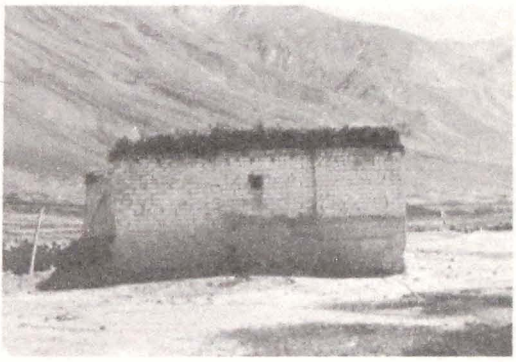


Fig. 11 — Northern facade

Fig. 13 — Summer room (level 2, 1)
northern-eastern wall

Fig. 14 — Summer room (level 2, 1)
southern-western wall

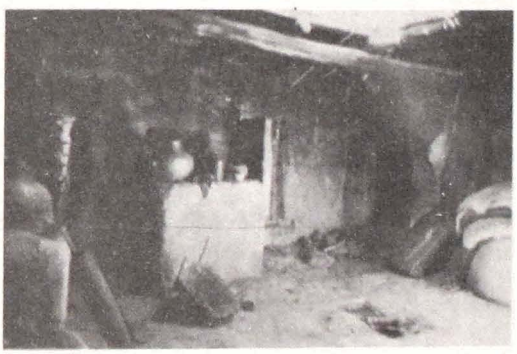


Fig. 16 — Annex room (level 2, 6)

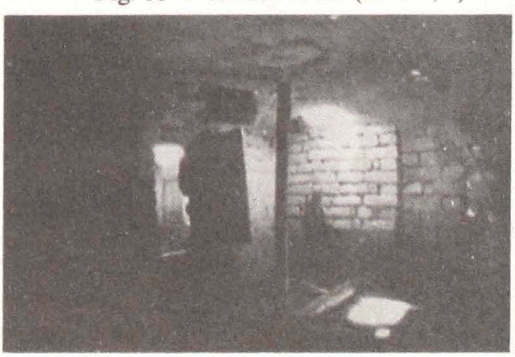
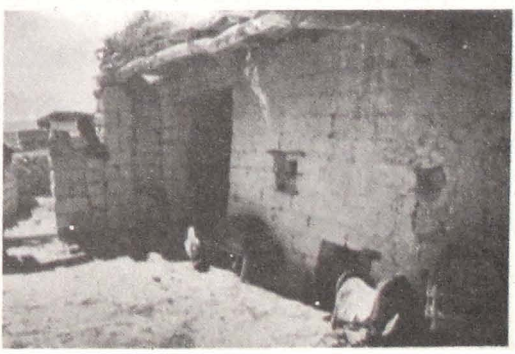


Fig. 15 — Terrace (level 2, 11)



fuel reserves are kept on the left, within easy reach of the woman. At meal time, the master of the house is served first. The guest is seated to his left, followed by the eldest son and the other children in descending chronological order. There is no variation in this seating arrangement.[9] It is however less strict in Zanskar where the family member who returns home first sits by the fireplace, close to the utensils, to prepare the tea or meal.

The smoke hangs heavy in the room and it is only in the lower zone that one can breathe more easily. The ventilation hatch is not big enough to allow all the smoke to escape. Thus, smoke and tar deposits cover the beams, protecting them from humidity. In Zanskar, the use of stove furnaces is becoming more widespread; of Indian origin, tfis device is imported form Manali onwards and sold locally for a hundred rupees or so (1 Rs.: 0.60 F in 1979).

The family altar, situated to the right of the fireplace consists of a series of shelves on which the holy books, statues of the deities and ritual implements used in worship—oil lamps, small dishes of lustral water, double skinned drums, thangkhas—are kept.

Level 3, the terrace roof, whether built or not, is used for drying the grain. People gather together and dance here on festive occasions.

Only the bare minimum standards of hygiene are maintained and the toilets are rudimentary. In Pisang, one bathes on the terrace and urinates on the animal litter at level 1, which is periodically covered with pine needles and juniper branches. When mixed with the animal waste, these elements form an acid compost which is stored in a corner of the courtyard-cattle shed before being spread on the fields.

In Stongde, the latrines are located at level 2; they are installed in a small room (with no door) in which a hole is dug. The excreta is covered with some mud placed in one of the corners, with the help of a shovel. An opening, generally closed with unfixed stones, is pierced in the lower floor, enabling one to recover the compost which shall be spread on the fields once a year.

Large fuel reserves—dried dung and branches in Zanskar, pine wood in Nyi-Shang—are required to meet the cooking needs and combat the rigours of the weather. In Nyi-Shang, the uncut logs are piled up to extend the facade wall. On the dwelling floor, the log piles are aligned along the external edge of the terrace, constituting a kind of parapet.[10] A large heap under the canopy separating the open and covered portion protects and insulates the summer fireplace. Juniper branches are put to dry on top of the heap or between the ceiling beams; they are used for the ritual fumigation and for lighting the fire. Just before winter, when the fuel reserves are at their highest level, a part is kept in level 1, along the walls.

In Stongde, the reserves are piled up on the terrace roof to ensure a better insulation.

A careful organisation of the available space results in a clear distinction between the various parts of the house, with some sections being used in summer and others in winter. Such an organisation is well adapted to the harsh climate which obliges the inhabitants to gather within three to four months all the fuel reserves required to survive through a long and difficult winter. Thus, a sizeable part of the house is kept for storage.

In summer, the house is occupied only at night, the family members being obliged to work in the fields throughout the day, when they are not herding the animals in the high mountain pastures.

The winter/summer separation, strongly emphasized in Zanskar by the division of the house in two levels, is achieved in Nyi-Shang at levels 2 and 3.

Level 3 is used in the summertime when the family members often sleep beneath the canopy with nothing on save for a yak hair blanket, and cook outside.

In Pisang, the storage of fodder on the upper floor helps to provide a good insulation. The slope against which the house is built protects one of the sides (north-east) and lateral supporting walls built to prevent the wind from coming in complete the protection. The proximity of the neighbouring houses reinforces this arrangement. In winter, the house is unoccupied for the most part, as the populations move down to stay in the lower valleys, especially in Kathmandu.

In Stongde, the central room half sunken, is well protected from the cold.

In Nyi-Shang, the newly-weds live in a separate residence. Thus, the husband is obliged to build a new house in the village which he generally constructs very near his father's house.

It is customary for the community to participate in the construction work and the families related by marriage display great solidarity at this time. The only payment that the participants receive is the food offered to them.

Construction work is a major event in the social life of the village; it gives rise to numerous festivals and lays emphasis on the bonds that exist between the various members of the community.

In Zanskar, as in Ladakh, when a head of family weds his eldest son,[11] he bequeaths to him all that he has,

including the large family house, 'khan-chen'. He himself retires to a small house, 'khan-chun', — Nawang Tasshi's house is one such example — or to a smaller independent part of the large house, assuming a status compatible to that of a tenant. Thus the village includes two types of houses: the large houses, about 40 or so in Stongde, and the small houses, around twenty, where the grandparents live.

As for the construction work, the materials and adobe bricks are prepared by the family members themselves. A greater number of people are required however for the actual construction of the house and the members of the 'pha-spun', an association of cousins, friends of a single group bound by oath in accordance with an established rite, are called upon to help. These personalised bonds form part of an elaborate network of social relations which extends to all levels of village life. The village assembly governs in such a way as to avoid all wastage and to make the maximum use of the resources available, without which it would be impossible for the group to survive in this region where living conditions are extremely difficult.

In the Tibetan world, the house is a religious "field" where men and the deities of the three Spaces live together. Thus, the construction of a house is accompanied by a series of protection and propitiation rites.

A lama recites prayers and fumigates the earth on the foundations during the first few days of work. When the wooden frame, wedged with ropes and beams, is put in place, all activity stops. One of the men nails to the joints small pieces of cloth dyed in the five beneficial colours and sprinkles a few grains of barley in the lower corners. The mistress of the house brings the barley beer. The owner applies some butter to the lintel and serves drinks to his companions. This ritual is repeated at the time of fixing the windows. A 'thangka' is displayed at the site during the construction. Every evening, till such time as the house is inhabited, three stones kept one on top of the other, 'tho-bo', are placed at the top of the construction. The 'tho-bo' is built to drive away demons and prevent any evil force from getting past. When the roofing is completed, a cubic construction made of stones is erected for the 'bcan' deities. Shale slabs with religious formula engraved on them, printed papers representing the Buddhas of the Three Times, propitiatory and protective objects, a billy-goat head for protection against the demons are hung at the entrance of the house, above the door.

After the completion of the construction, a priest performs a final consecration ceremony.

One is subsequently required to perform the 'lha-bsans' ritual every year which may be accompanied by a reading from the books, normally kept in the village 'gompa'.

At the time of the Tibetan New Year (mid January/ February) and after the ritual of the expulsion of evil, the mistress of the house decorates the living room walls with various motifs, white points, 'svastika', made of flour mixed in water. This, in order to attract "good fortune".

Just before their departure for the lower valleys towards the end of October,[12] the majority of the Nyi-Shang inhabitants perform a protection ceremony which includes the changing of the prayer flag. On this occasion, a new pole, decorated with a red cloth, is erected, on which a yak's tail is placed. A few grains of barley and a bottle of barley beer to which some butter is applied are placed at the base of the pole. An unction is applied to the top and the fastening stakes, along with an offering of beer. Some butter is also placed on the upper extremity of the ladder beam and the stiles of the door.

The fumigation of the juniper branches should be carried out every morning on the terrace roof. In Zanskar, after the churning is over, a little butter is applied to the central pillar to which the churner was attached.

It is now time to view the house in the village context.

The factors taken into consideration while choosing the site, namely the nature of the shelter required, the proximity to watering points and cultivable lands, shape the way in which the houses are clustered and modify the proportions, layout and extension of the dwelling unit.

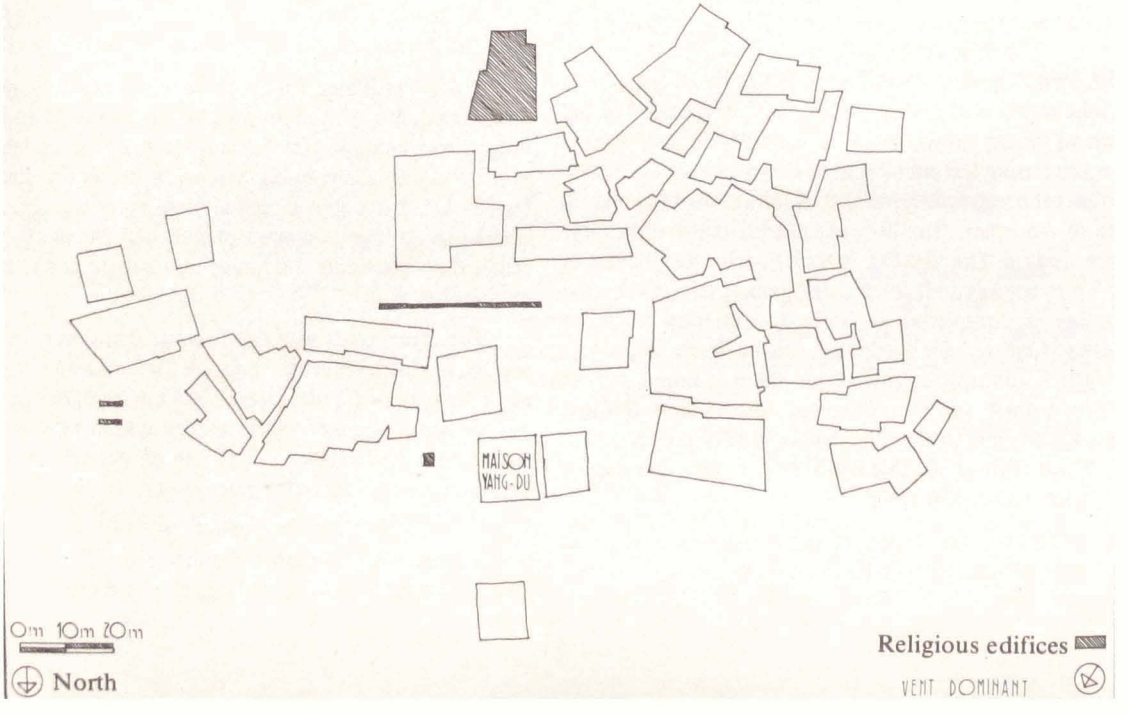
In the Nyi-Shang valley, if the house is situated on a steep slope, the habitations are clustered in steps and the houses rise in tiers. Each house includes three levels, corresponding more to an extension in height than in length. On a flat terrain (an ancient river terrace), the houses are grouped together in a cluster. In which case, rather than extending the house upwards, it is extended lengthwise.

The same holds true for Zanskar. However, in this region, the intrication may be such that in some villages, as in the case of Chade, established on the extrados of a hill, the terraces joined to one another connect the houses like a built-up landscape. The use of the terrace is so common that when one comes down to the houses it seems that they are sunken into the ground.

Beyond the differences between the Nyi-Shang and Zanskar house — the latter is generally more insulated

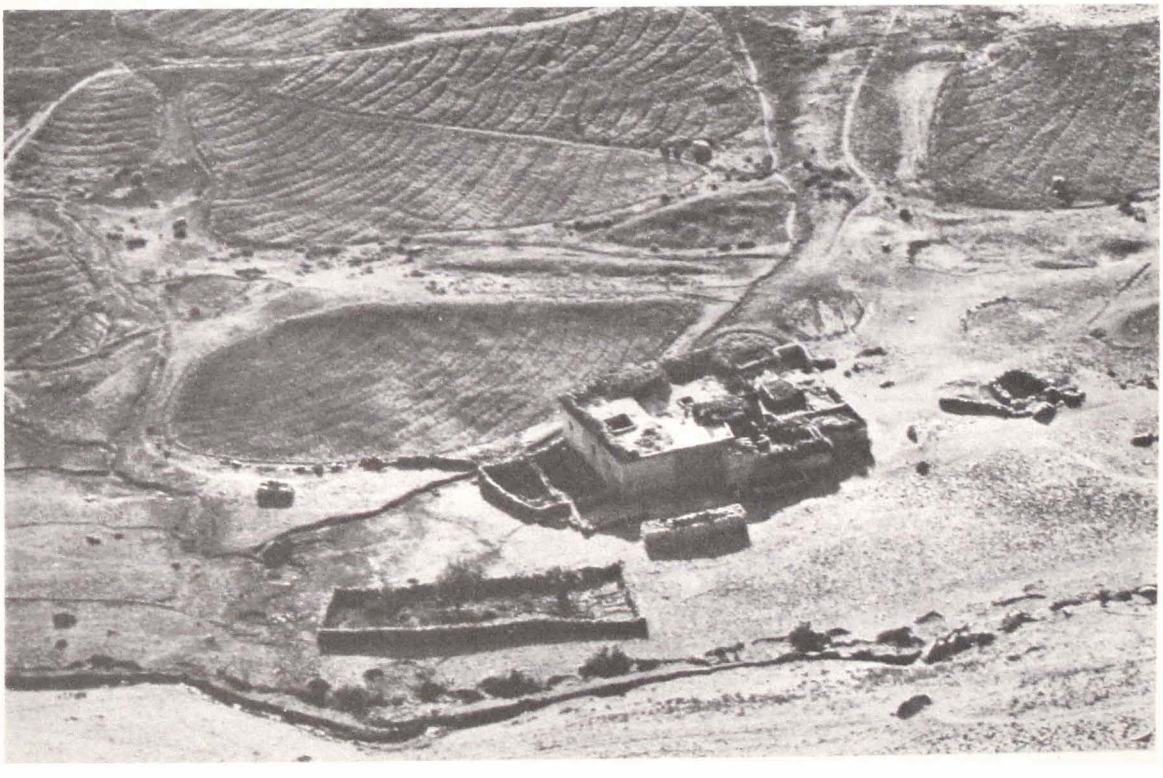
↑ Fig. 17 — The 'gompa' overlooks the Pisang village

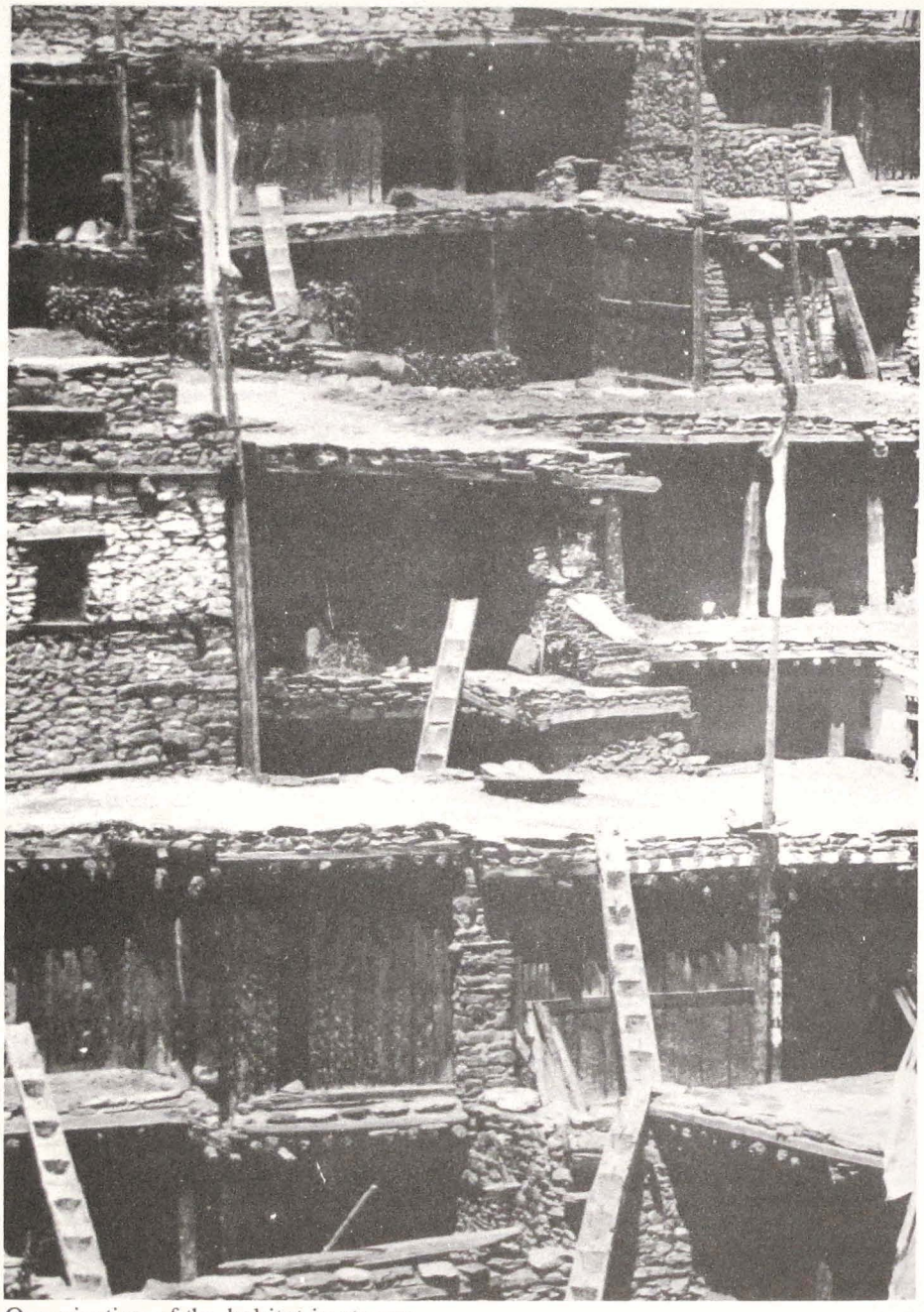
↓ Fig. 18 — Map of the Pisang village



↑ Fig. 19 — General view of the upper Zanskar valley in the Stongde village

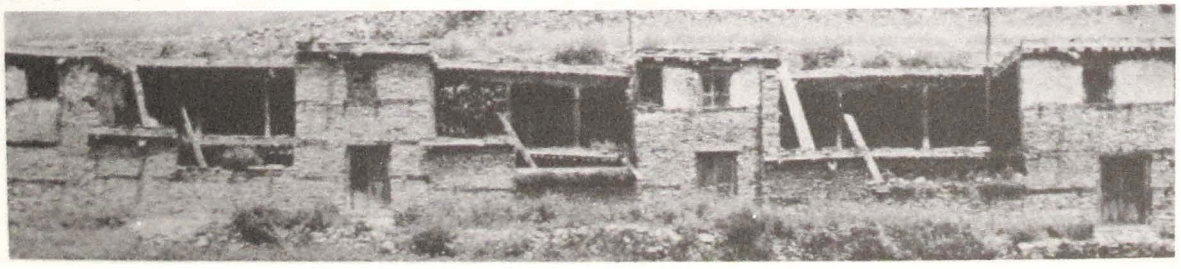
↓ Fig. 20 — The habitations are situated at the periphery of the fields irrigated by the water obtained from the melting snow





↑ Fig. 21 — Organisation of the habitat in storeys superimposed on a steeply sloping terrace, Braga village

↓ Fig. 22 — Organisation of the habitat in a rawon flat terrain Manang village



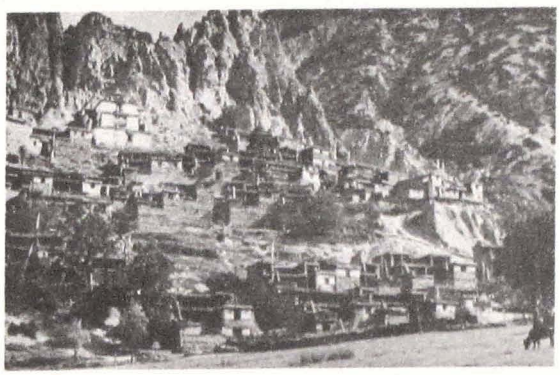


Fig. 23 — Braga village

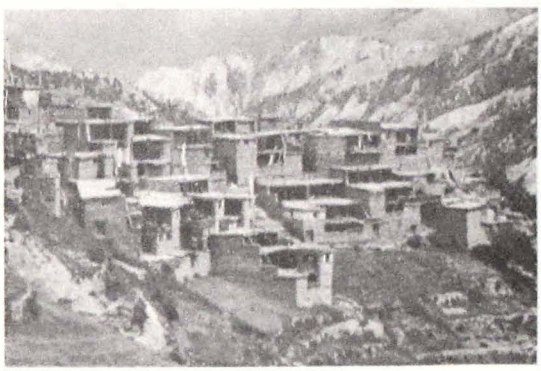


Fig. 24 — Tangui village

Fig. 26 — Manang village

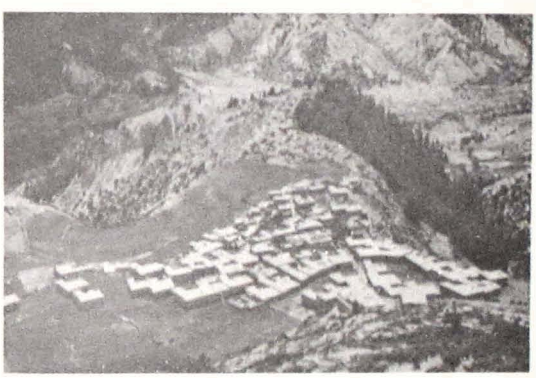
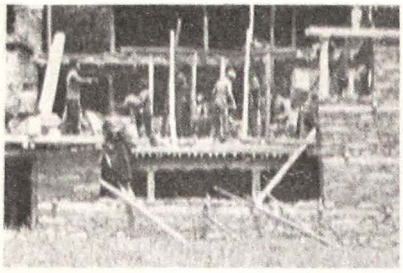


Fig. 25 — Ghyaru village



Construction work

← Fig. 27 — Construction work : the participation of the communi and solidarity between families related by marriage are customary during construction work. This is an important event in the social life of the village.

Fig. 28 — Digging of foundations

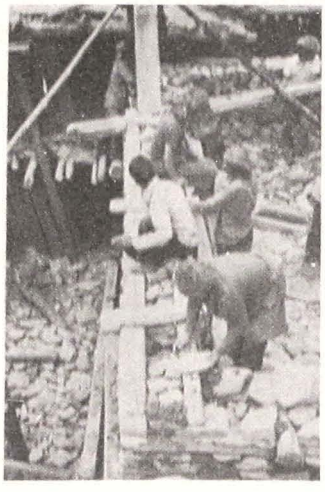


Fig. 29 — Construction of the wall

Fig. 30 — Fitting of the door fra

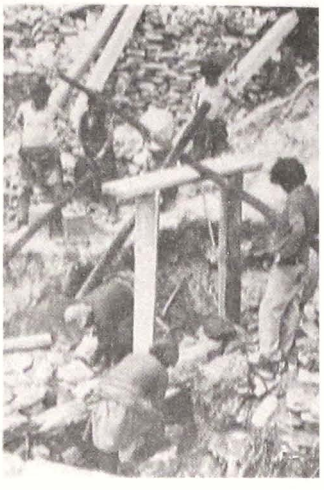
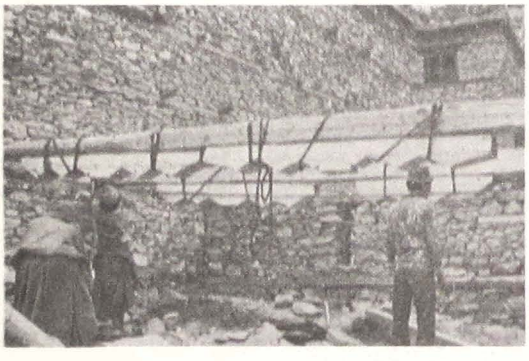


Fig. 31 — Placing of the beams

Fig. 32 — Laying of the bastaings



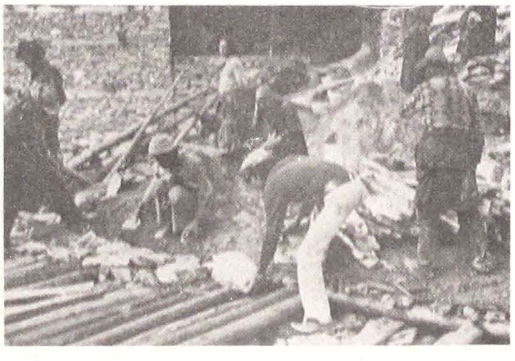
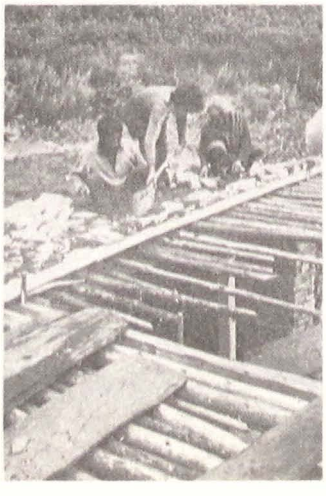


Fig. 33 — Construction of the roof

Fig. 34 — Building of the roof edge

Fig. 35 — Earth for the finishi of the roof-terrace



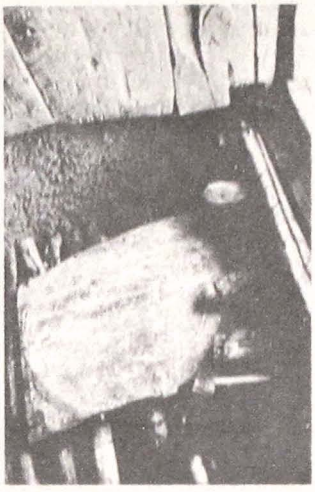


Fig. 36 — Entrance to the house in Edmou (Zanskar)

Fig. 37 — Annual ceremony to change the prayer banner in the Yang-Du's house

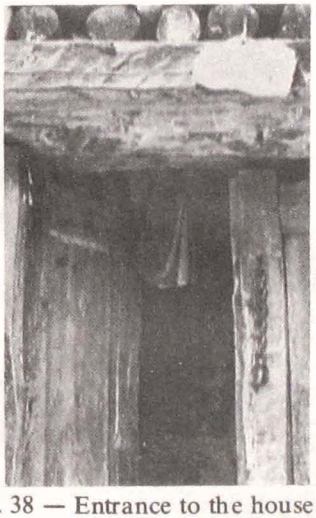


Fig. 38 — Entrance to the house in Braga

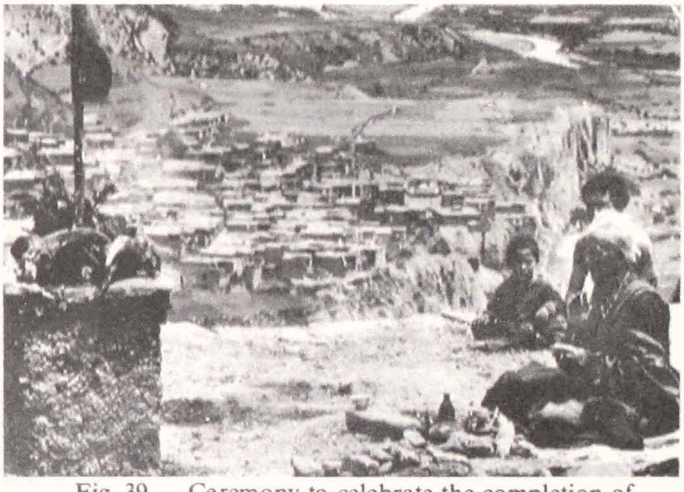
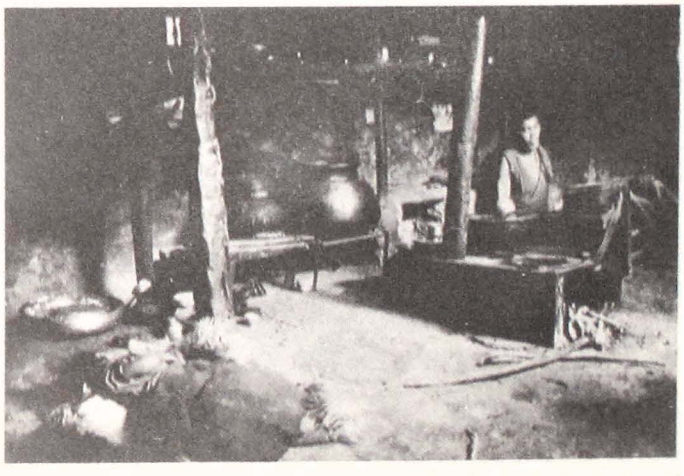


Fig. 39 — Ceremony to celebrate the completion of construction in Tangui

Fig. 40 — Rite performed at the time of fixing the door frame, Pisang

Fig. 41 — A monk reading the holy scriptures in the house. Edmou (Zanskar)



and the exterior is shut tight, with a summer room and a zenithal opening comparable to that of a patio — a single pattern emerges: while being strictly orientated, the house, built on an almost square surface, is closed on the exterior and opens along the centre following a vertical axis.

These two house types are perfectly adapted to the climatic constraints and particularly difficult living conditions with which man has to contend. In addition, both are invested with an internal space, impregnated with deep rooted beliefs that give the inhabitants a feeling of profound security. They are also — and man is aware of this fact — a projection of the religious structures which surround and support today's inhabitant of the Himalayas.

Notes

1. The trip to the Manang valley was made with P. Alirol, ecologist-ethnologist in the summer of 1977. The trip to Zanskar took place during the summer months of 1979 with G. Leroy, director of a film entitled: 'Zanskar, Tibetan Himalaya'.
2. Situated downstream at a half day's walk on an altitude of 2800 m appx.
3. Porterage is of two types: either parallel or perpendicular to the level of the shoulder. In both cases, a band transfers a part of the load to the forehead. Good balance and great strength are required.
4. The house is in a generally poor shape and insufficiently resistant due to a number of structural defects: out of plumb, opening of walls, crumbling. These shortcomings may be attributed to: absence of individual foundations, indiscriminate use of stone, lack of care in the way the filling is done, poor quality and insufficient amount of binding material, absence of measuring instruments to verify the horizontality and verticality of the walls, etc.
5. It should be noted that the influence of the Kathmandu valley can be seen very clearly in the recent window models.
6. Birch: Betula utilis - Caragana b. (local name: 'tipa', or 'muru') found on the right bank of the Marsyandi— Juniper: Juniperus recurva.
7. Nawang Tashi, his wife and their four children aged between 6 and 13 live for four to five months, from end November to March, in the winter room (level 1, 9) and shift to the first floor (level 2, 1) when the weather is milder. In June, the mother leaves with one of her children for the high mountain pastures, at a two hours walk from the village.The family livestock consists of two yaks, three 'dzos', two to three donkeys and about twenty goats and sheep.
   The recording was taken on the 18th of June, 1979; on that day, the maximum temperature was 45°C; the minimum room temperature recorded was 9°C; the range of temperature was between 21 and 17°C. Nawang Tashi began her day at 5.45 a.m. and finished at 10.30 p.m.
8. As it is most commonly found in its natural state in the region.
9. At the time of the religious ceremonies, the tent is divided into two halves: the men occupy the right half, the women, the left. When the protecting deities of the house are worshipped, the women remain on the ground floor, whereas the men gather together on the first floor (in Pisang). If several lamas are officiating in the house, the most important monk sits near the back wall, the others sitting to his left in accordance with their hierarchical position; the small tables placed before them are arranged in decreasing order of height.
10. Besides, this element is also used in the crowning of the temples.
11. Traditionally, the younger sons join the monastery or share the elder brother's wife. This polyandric system, designed to limit population growth in a milieu where resources are extremely limited, is disappearing today with the opening of the valley to the outside world. Nawang Tashi's house is a "small house".
12. In order to trade, the men leave for Kathmandu, India and even go as far as South-East Asia. Only the young and the aged stay behind in the village.

VERNACULAR HOUSE FORM IN LADAKH

Paul Murdoch

Ladakh is a high altitude desert, between 3500 and 4500 meters above sea level, bordered by the 7000 meter Karakorum range to the north and the Zangskar range (to 7000 meters) to the south, lying in the northern Indian state of Jammu and Kashmir. The house to be discussed lies in the smaller region of Ladakh where the Indus River opens to a wide valley, containing Leh, the capital and cultural, commercial, and political center of Ladakh. The drawings and some of the photographs are of a «big house», **kang-chen**, owned by the **rantak-pa** family and located in a dispersed settlement, called Charu, five kilometers northwest of Leh and two kilometers southeast of the clustered village of Gompa. The owner Sonam Rinchan is a farmer who shares the house with his wife and their three children. In its function, expression, and relationship to a community and the landscape, the house incorporates enough elements of the traditional Tibetan house type to be considered fundamentally a typical Ladakhi house. Built in 1976, the house also reflects many of the current changes taking place. Ladakhi house form, characteristic of vernacular architecture, is an evolved response to the culture's inherent forces, in the case of Ladakh a Tibetan Buddhist culture. These cultural forces are themselves responses to the physical limitations of the natural environment.

The Natural Environment

Natural conditions require the practice of agriculture and animal husbandry with the utmost frugality. The severity of Ladakh's six month winter, when temperatures reach - 40 degrees centigrade, causes much inactivity during half of the year. Therefore, the warmer six months are needed as a time to prepare for the unproductive winter. This involves trade with nomads for wool and others for luxuries (metals, sweets, spices), the gathering of dung and wood for fuel, migration to high summer pastures for grazing and the collection of fodder, preparation and storage of vegetables, and any construction or repairs necessary.

Just as time must be used efficiently, so the available resources must be used prudently. This is due to the limitations of both a desert climate and a high altitude. The average annual rainfall is less than 15 cm. In the winter a fine dry snow is frequent, but accumulation is seldom more than 25 cm. Because of this lack of rainfall, irrigation systems, supplied by meltstreams of glaciers and high snow fields, were developed. The locations of habitation are limited to these streams where the scarce water can support an area of cultivation. This is important in determining not only the number of communities in the valley but also the scale of these communities. Other scalar determinants are the crop types and animal species capable of living in a high altitude desert. The soil type, length of growing season, and technology, dependent upon the availability of materials, are other factors of the natural environment which place limitations upon growth. The harshness of the environment makes cooperation a necessary attitude for survival. The remoteness of Ladakh and its periods of isolation,

due to snowblocked passes and hazardous travel, have provided the time for evolution and stabilization of the systems and forms which best respond to these natural determinants. The moderate influx of ideas along trade routes has reinforced these solutions to the point of enrichment.

Economy and Scale

The natural environment's controlling factors demand the economic, efficient and often ingenious use of natural resources, emphasizing the need for the elimination of waste. In a system striving for the economic use of labor and material there is an abolition of the unnecessary and a utilization of as few elements as possible to provide a maximum range of benefits. The economy is based on subsistence agriculture and animal husbandry, with some winter home industry. The main crops are wheat, barley in the highest regions, alfalfa, and some vegetables such as peas, carrots, radishes, and turnips. Apples, apricots, and walnuts can be found in the river valleys. The majority of animals are sheep and goats, with the **dzomo** providing most of the dairy products and the **dzo** and donkey being the valuable work animals. Each family owns some or all of these different animals and must make special accomodation for them during the winter. Each household produces its own food and is, to a large extent, self-sufficient. Farm units are large enough to provide a family's own necessities yet small enough to allow a maximum number of such units to inhabit a village. It has been found that to accommodate an average household of five to six people, thirty kanals (four acres) is enough land for a total production of approximately 120 % of subsistence level. The surplus is usually enough for essential trading. Each household farms its own land and each member does his share, but the community works as a whole on the larger scale. This collective interest has been a significant force in controlling the domination of the village economy by any single landowner. The exception to this is a product of the collective faith of the people, the monastery. The monastery is by far the principal landowner in the village. In such a position, the monastery leases its land in return for a share of the crop, which feeds the monks and helps amass the wealth needed for its art and architectural additions. Through common effort each community builds its own monument, which becomes the symbol of strength, faith, and pride for the village. What few things cannot be provided by the farm unit and by communal effort within the village must be traded for in' the commercial center of Leh.

Due to the limitations of the land, the necessity of communal cooperation is recognized. Both the natural determinants and the communal attitude establish, over time, the optimum size for the household farm. This, in turn, dictates the village size and fabric. The village texture is based on this unit size, and the village scale is determined by the amount of available water, witnessed by the trickle in the canals of the farms in the lowest parts of the village. Thus, the unit of economy is the household farm. It is the requirements of this unit, near self-sufficiency through minimal specialization and reliance upon externals, which dictates the need for a certain unit scale. The size of this unit is then controlled by the physical realities of the environment. The unit scale, being determined, generates, with the quantity of water, the village fabric and scale.

Since the irrigation of a limited source is the only supply of water, the system is carefully controlled by communal interest and maintained by cooperative effort. An individual, **churpon**, is placed in charge of its operation. Through his guidance, in the best interest of the community, the amount of water is carefully controlled, assuring each farmer enough for his needs. Because of the necessary communal operation of some systems each individual has a responsibility to participate. Cooperative labor, **bes**, is evident in cultivation and in the maintenance of the irrigation network, including its series of water mills. Farm instruments and draught animals are often shared and different individuals, in turn, share the duties of caring for the animals. There is property, such as woodland along the stream, summer pasture, or fields, which is communally owned in order to provide payment for village expenditures. The communal consciousness is strong enough to be significant in determining, with inherent physical disciplines, village form. Where there is a shortage of land, homes will be clustered on a hillside so as to maximize the available flat or terraced farmland. Where there is an abundance of flat land, the villages tend to become dispersed, with each household on its

own farmland. In each case the identity of the village community is clear because of its distinct oasis-like character among the desert and because of its unity culminated by the monastery atop a village hill. There is a strong sense of belonging to a community, through its clearly articulated boundary and center and by its economic necessity.

Social Order

The introduction of an economic unit, loosely defined as a household farm, implies the existence of its social counterpart, the family unit. The family exists as a strong entity, but this nucleus of independence also has the property of extending itself into the community. These characteristics are due to a system of polyandry and to another social institution, the **phaspun**. Monogamy and polygamy exist in Ladakh but polyandry, fraternal polyandry in most cases, is largely predominant. Fraternal polyandry is the system whereby the eldest male family member chooses a wife who then becomes the wife for the eldest's brothers as well. They form a group sharing wife, house, and land, although their collective ownership is held by the eldest brother. The offspring from any brother are considered the eldest's children. The group is united in its dwelling place, called a **kang-chen** (big house), so if the bond is broken, the offender loses all rights to the eldest's wife and property. The strength of this system is that it maintains the family property or inheritance and the unity of the fraternal group. This is critical in that the family property remains indivisible. At marriage the eldest brothers inherits all of the property, brothers and parents sharing it as a unit. When grandchildren are born the grandparents take a small allotment of land and living quarters on the property. This offshoot house, **kang-chun** (little house), may also be shared by unmarried dependents. When the family splits and lives in more than one house, often in different parts of the village, the houses are economically linked by the sharing of labor and resources. The house name covers the entire group of houses and is important in identifying a person's family or kinship group. Since there is no subdivision of property the scale of property ownership remains the same, thus preserving the village texture and scale.

Besides keeping the scale of the family property intact, the system maintains a stable population by restricting the amount of child-bearing women. Since all brothers share one wife, the majority of women go unmarried. Another factor in the stabilization of the population is the late marriage age, but a more important factor is a high child mortality rate. There is an awareness of overburdening the available resources so the balance is sought between workhands and mouths to feed. This number is an average of four children. The normal family conceives five to six children, but due to disease and the severe living conditions an average of four survive. The living conditions further control population growth by decreasing the level of coital frequency. With a six month winter of sub-zero temperatures and a huddled life around a dung fire there is understandably little sexual activity during this period. There is little migration to, from, or between villages so this has minimal effect on the population. The last significant factor to be mentioned is the practice of celibacy by the monks. The importance of this abstinence should be emphasized due to the fact that every family strives to place a member in the monastery.

While the marriage system allows some flexibility of living among the village within the family unit, the **phaspun** provides more for the extension of the unit itself. The **phaspun** is a clan of «sworn brothers» scattered throughout the village. They perform the necessary chores and make arrangements for the special events of life such as birth, marriage, and death. This further integration of the family unit with the community is important to the economic and social functioning of the village as a wider social grouping strengthening an interdependent network.

Religion

The socio-economic systems of the family household, cooperative labor, and the **phaspun** establish and help define the identity of the individual as well as his role or identity among the larger context of the community. Such extensions and identifications are further strengthened by the practice of Tibetan Buddhism. Buddhism provides a means of categorization and ordering of the world. It offers a system for identifying man's place in the world complimentary to the

set of values found among the physical, economic, and social disciplines of Ladakh.

The Buddhism found in Ladakh is Lamaism, a form peculiar to Mahayana, or Great Vehicle Buddhism. In Lamaism, the common believer and the literate monk are united through their shared faith in the lama. The monks'central concern with the common believer is the religious intervention necessary for healing, exorcism, helping the dead between death and the next life, invoking good weather, crops, etc. The formal execution of these rites gains its effectiveness only through study and if accompanied by meditation, the essential practice of the monks'religion. In exchange for these services the monks and monastery receive donations of food, clothings, or other essentials. Since the way of meditation is generally beyond the capacity of ordinary believers, their resource is maintaining a deep faith in members of the monastic community and continually improving their karma. The religion provides guidelines for means to salvation and the practice of life according to a proper set of values. It provides an attitude of life, like the natural environment, encouraging the virtues of self-discipline and helps clarify purpose and give necessary meaning to the world.

The religion gives meaning through identifying man and his relationship with the environment. «The environment, or holy place, comprises two matched parts, a god (rock, mountain, or tree) and a goddess (lake, spring, or river). The mountain represents sky and its gods, **lha**, and the lake represents the underground and its deities, **klu**. The sacred mountains are bound up with the coming of the first ancestor and are part of the myths of the creation of the environment». The sacred mountains are «gods of the country» or «masters of the place»... They are regarded as both the «pillars of the sky» and the «fixing pegs of the earth»... If the sacred myth is the central pillar of the world, pillar of the sky, and fixing peg of the earth, these expressions are drawn from the house or the tent and are synonyms of the house's «god of the soil». (R.A. Stein, 1972, p. 210).

The House

The house, as the intimate world for the family unit, is united with the individual and the environment as a larger religious context through its deeply symbolic elements and organization. The Tibetan house type, as a whole world, is often symbolized at the entrance by a gate or balcony containing three small chorten or stones of different colors. These are set up in honor of the gods, **lha-tho**, and their colors ; black or blue, red or yellow, and white are associated with the colors of the three storied world of epic legends. The king and epic hero are each called the «pillar of the sky» and their country called the «navel of the earth». In this country the epic hero combines the three levels of the world : the sky with its white gods, **lha**, the surface of the earth with the gods of the trees and rocks (red, **bstan** or yellow, **gnyan**), and the subsoil with its black or blue aquatic gods, **klu**, (R.A. Stein, 1972, p. 203). The entrance, through its colored symbolism of three small chorten as expressions of the three levels of the epic world, can be seen as an introduction of the analogous three characteristic levels of the house. The house's ground floor becomes representative of the subsoil level, the first floor symbolic of the earth level, and the roof or top floor represents the world of the sky gods. These levels, with their connections, become the small world which acts as the deeply symbolic center of man's existence, from which the world at large becomes an understood, ordered extension.

The subsoil with its black or blue aquatic gods is commonly represented on the ground floor. The windows are small (20 cm by 40 cm) unglazed openings through the thick stone walls and are outlined in black paint. The few openings allow some minimal ventilation and light for the dark space of the lower level. This is adequate functionally since the space is used mainly as a winter stabling, where the heat of the animals must be kept inside, not only for their own survival but also for allowing the warm air to rise and heat the first floor.

The first floor is the main living level. It is entered by first climbing a stone stairway whose run is parallel to and against the front wall of the house. The stairs can be speculatively traced as a site response. Due to the siting of many houses on the side of a hill, the space for building is limited. With the natural orientation of the building facing the downhill side, a stairway connecting the ground to the first floor logically runs parallel to the building wall, thus keeping its

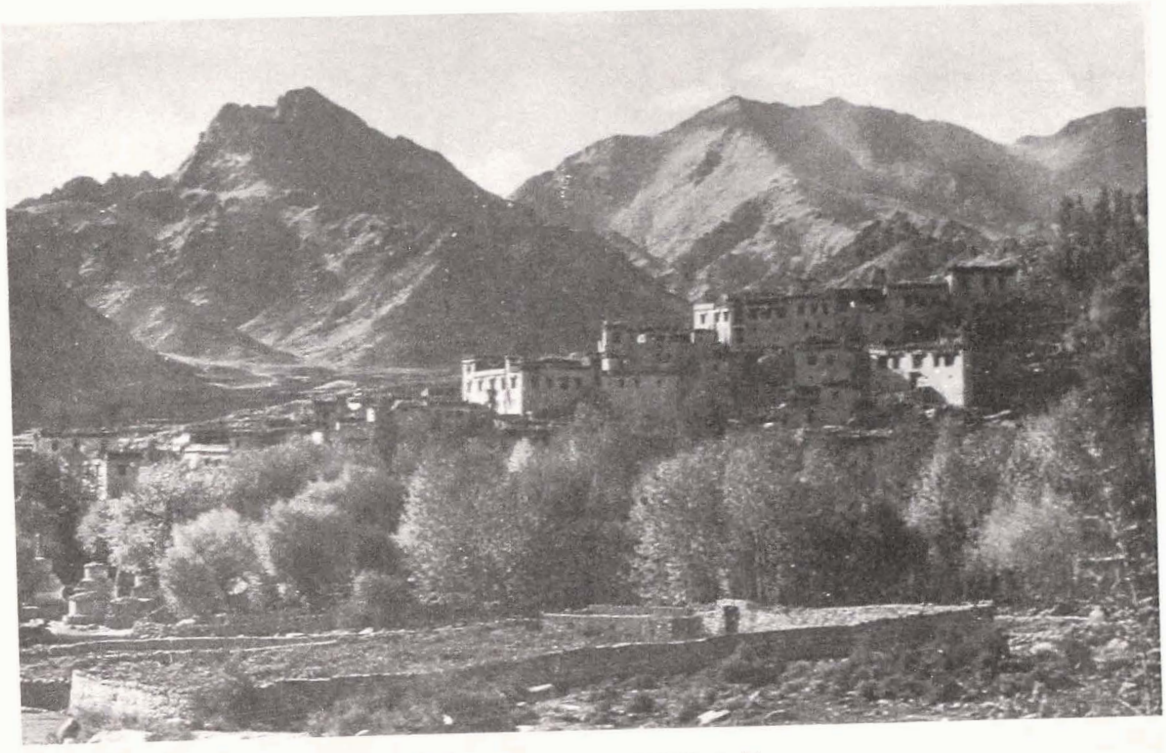


Fig. 1 – Cluster of houses (Cl. P. Murdoch)

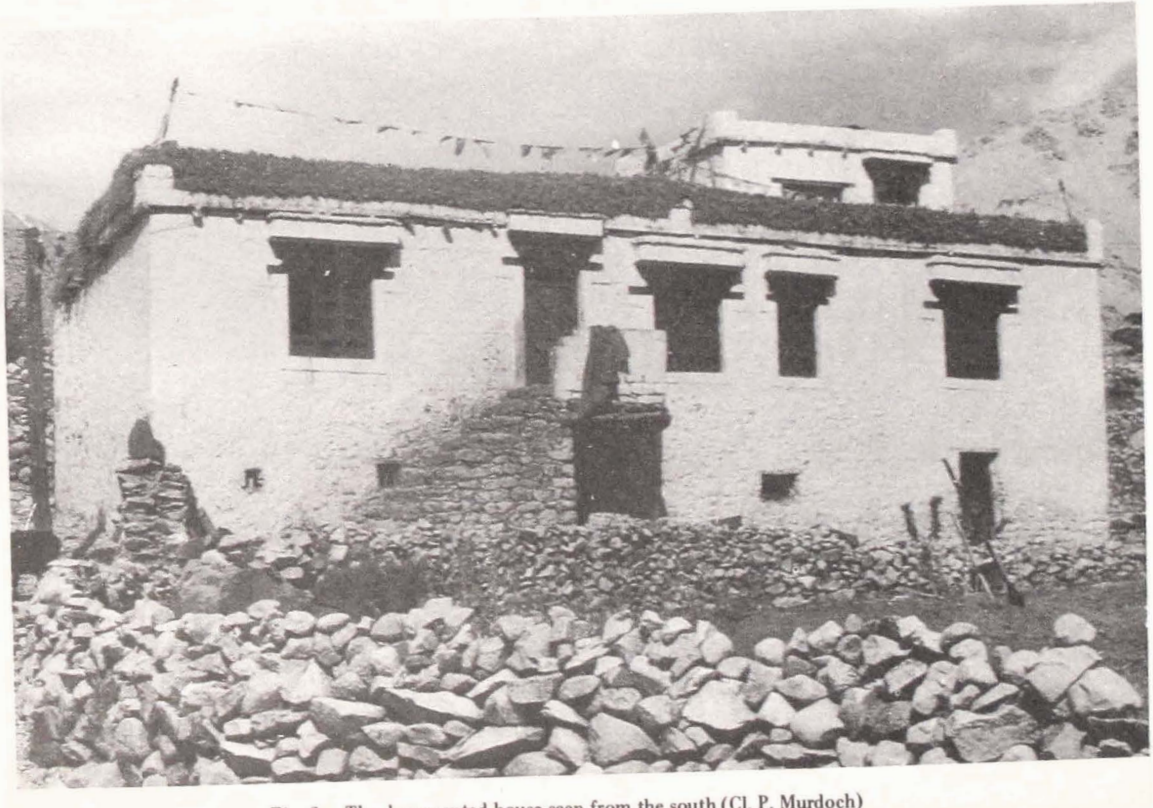


Fig. 2 – The documented house seen from the south (Cl. P. Murdoch)

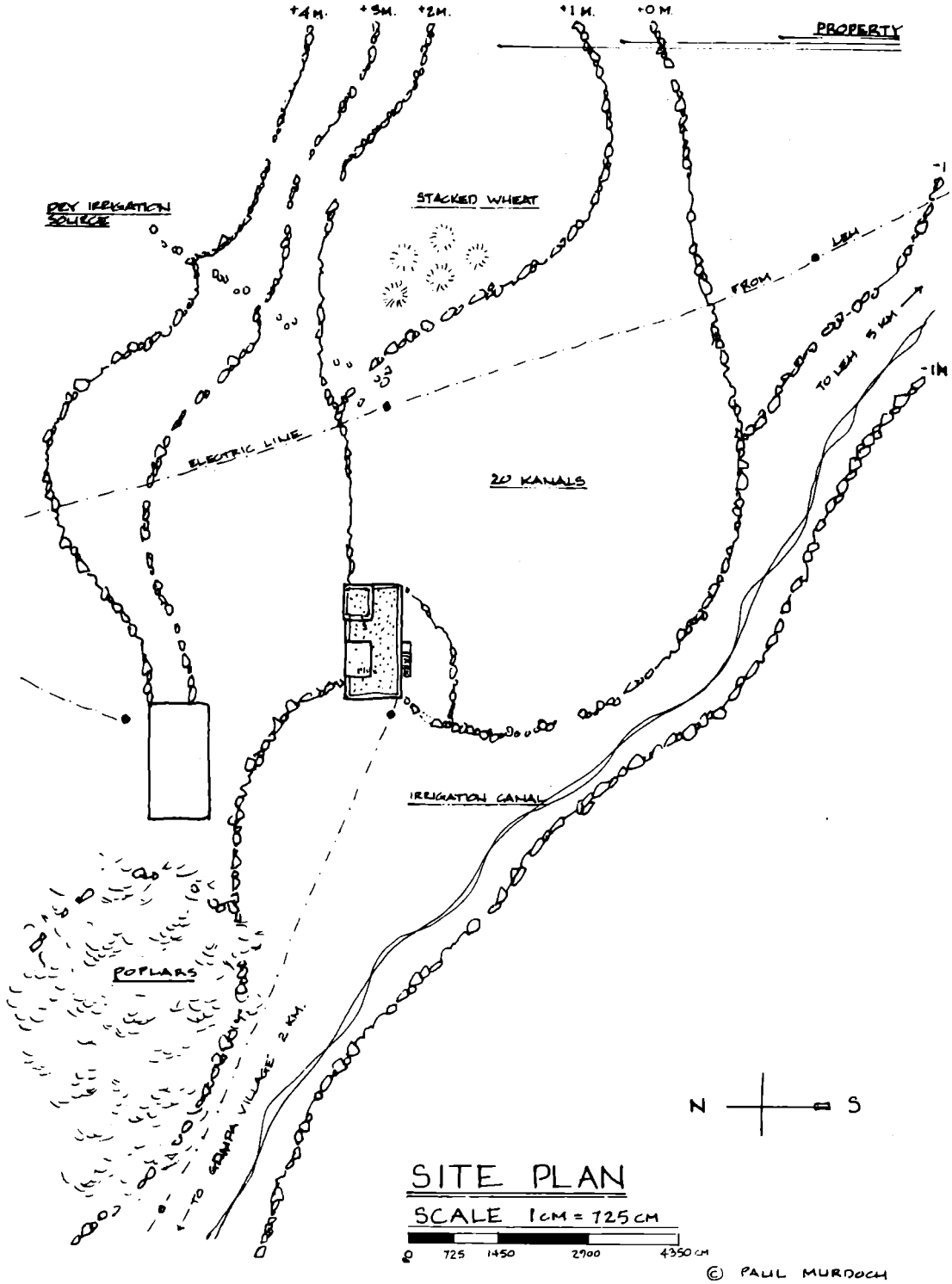
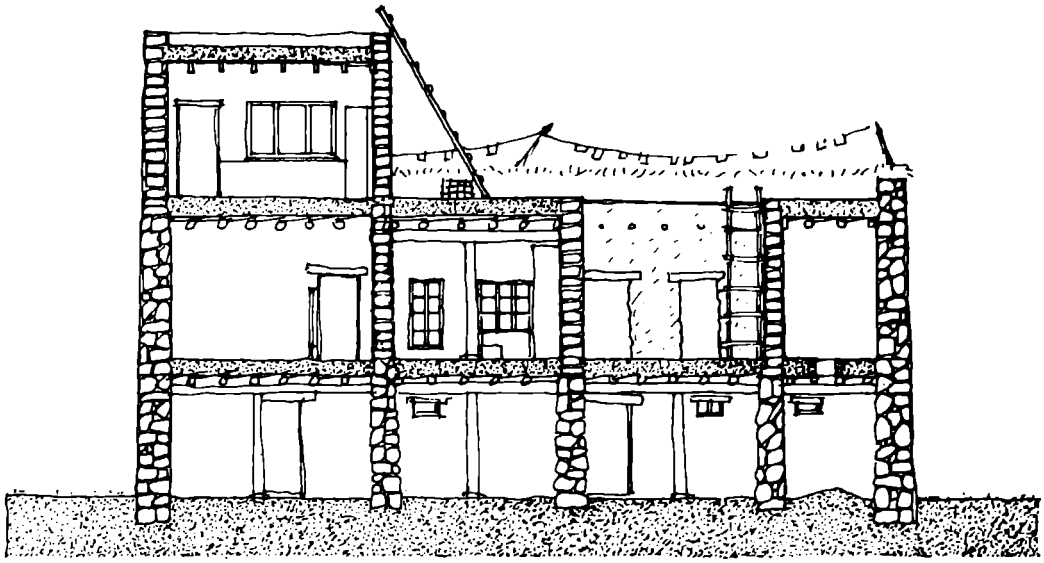
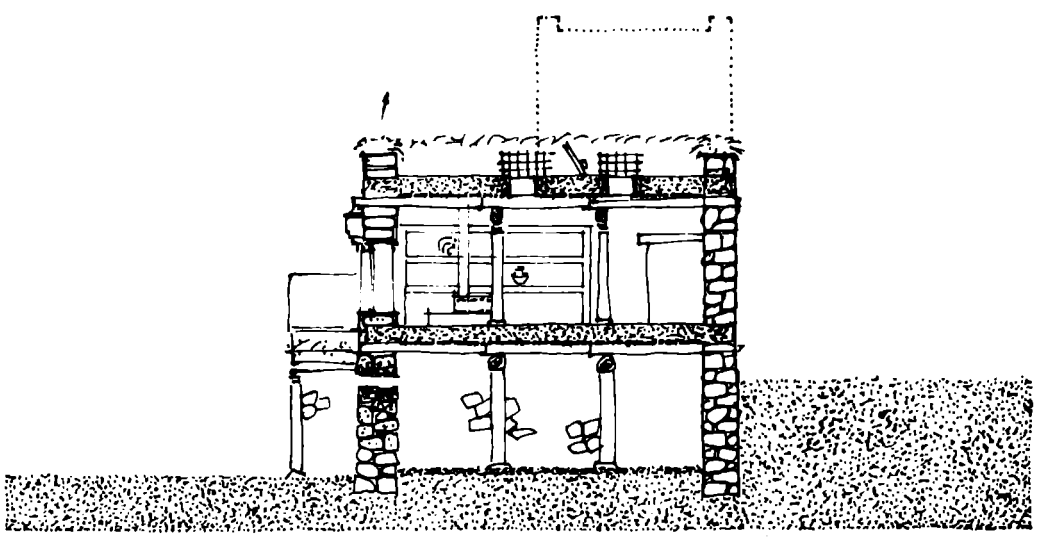


Fig. 3 – Site plan of the documented house



SECTION A-A



SECTION B-B

SCALE 1 CM. = 125 CM.

0 125 250 500 750 CM

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Fig. 4 – Elevations

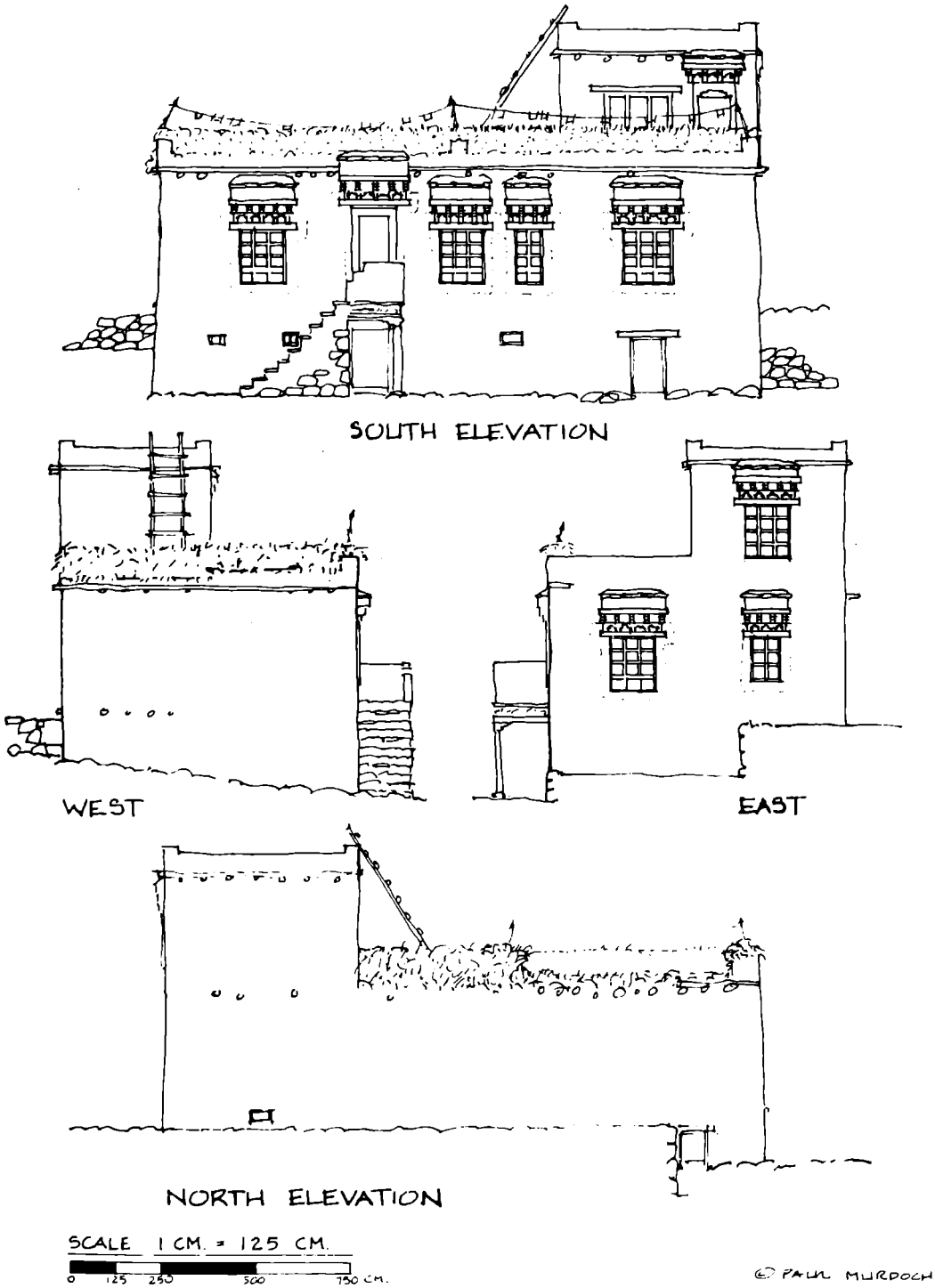


Fig. 5 – Sections

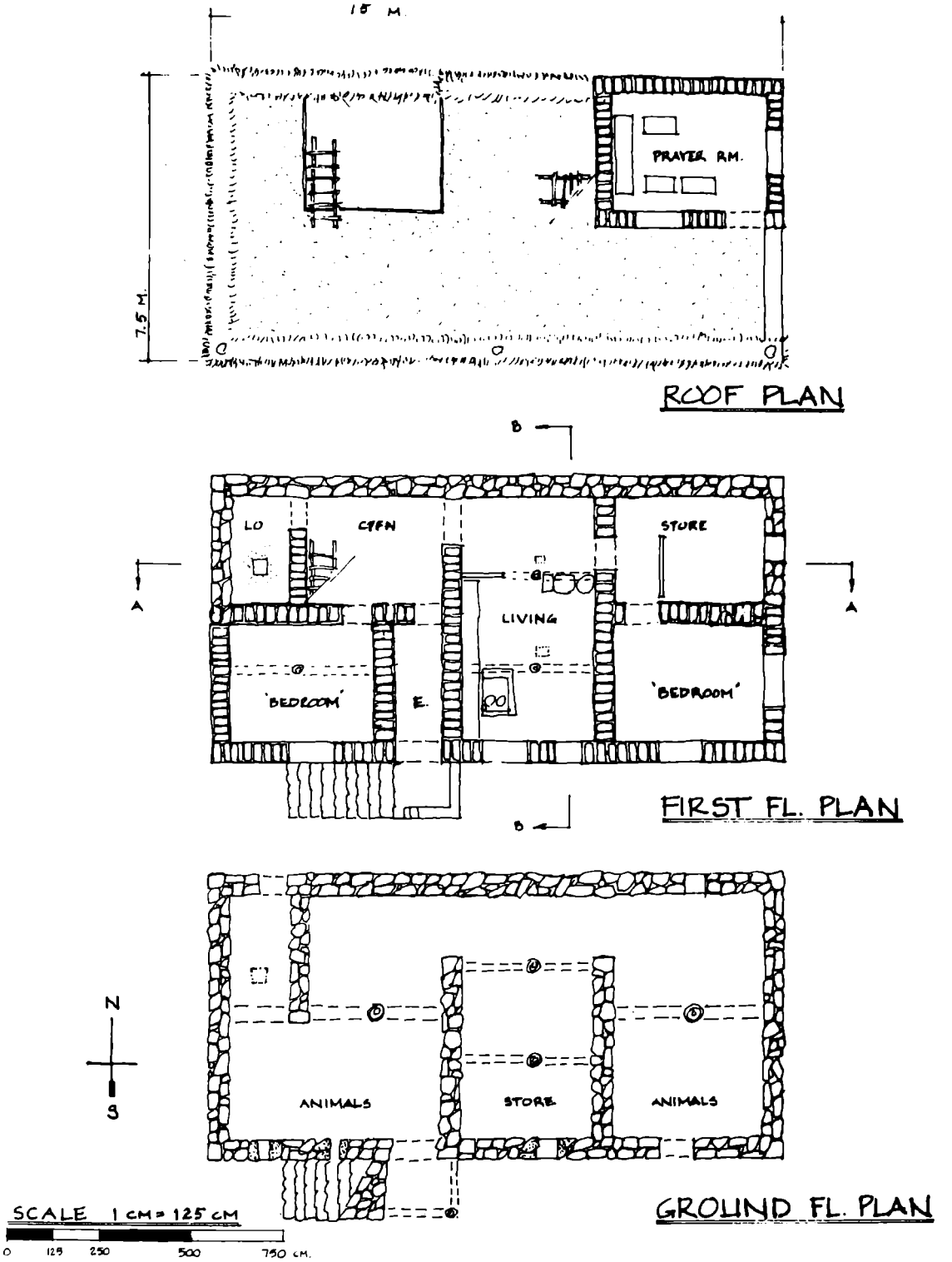


Fig. 6 – Plans of the house

short dimension on the slope. The slope of the hill facilitates rooms below, so access can be attained under the cover of the first floor landing. Stone is an abundant material and is used in the ground floor, where it too is needed for its compressive strength. The stone stairs become an extension of the mountain slope, which is itself important as the principal connecting device between the earth and sky levels.

The stairway not only physically removes the main living floor from the cold ground but ceremoniously transfers the individual from the subsoil level to the more celebrated earth level. This level, is often expressed by marking the first floor height on the exterior wall with a red horizontal band painted over the whitewashed plaster. The red **tho**, symbolic as the seat of the «god of the soil», is the most commonly found color among symbols, which indicates its importance as the main god of the household place. This is evident atop many houses in the form of a red colored parapet. Other red patterns, accompany these symbols and assure the advantage of the gods and protection from evil demons. Sometimes a red painted stone serves the same purpose and is found replacing the chorten tho altar at the entrance. Called a **sundo** it is replaced every month and is considered beneficial, similar to the placing of stones, horns, or bones upon the mani wall or «wind-horse».

The main level is entered by a front door, higher than the window tops and being the only element to break the horizontal line of the continuous wood tie course lying on the roof joists outside the wall. The bracing for the door's poplar planks is joined on the outside of the door, leaving the flush surface for the interior. The ornamentation above the door is similar to that of the windows but is supplemented by carving on each side post. Through the door a narrow covered space is entered which leads to an open court. This court acts as a wash area in warm weather but is more importantly the circulation nucleus providing access to the different parts of the house, including the roof via a ladder, a sleeping / storage room, the main room, and the room for waste removal.

This room contains a shovel, loose earth, and a hole in the floor approximately 30 cm square. The waste is deposited through the hole and then covered with a shovelful of earth. The waste and earth are mixed on the ground floor with the winter accumulation of animal dung. This mix lies until October when it is removed and used for covering the fields. Dung and human nightsoil provide the source for replentishing the soil. The dry system is both sanitary and efficient, however a bit cold in the winter.

The main room is used for cooking, eating, and gathering at all times of the year. In the winter the room is additionally used for heating and sleeping. The stove, being the only source of heat besides the sun and animal heat from below, is the focus for gathering in the winter and always during meals. The stoves are made of clay with a stone base and goatskin bellows. They burn fuel of dung and wood. Mustard oil has been used as fuel but is more valuable as a source of light in lamps. Ventilation for the stove is through an unglazed opening in the roof, which acts also as a skylight. The importance of the stove as a social center is amplified by the symbolic identity of its column of smoke rising to the sky through the roof. This column of smoke is a symbol for the «pillar of the sky» by which the epic ancestors descended. A clay vessel, often found on the roof, is used for burning juniper branches. This form of worship, **bsangs**, serves to worship the gods with its scented
smoke.

The skylight represents the «sky door» and is the hole in the roof through which the inhabitant's soul escapes on a rainbow, symbolized often on the roof by a five-colored ribbon or flag. The stove's column of smoke and the skylight together serve as the axis mundi which connects the earth level with the world of the sky gods.

Besides the stove, with its social and symbolic significance, the most important feature of expression is the kitchen wall, so called because the majority of its display is cookware. Its quality and quantity of contents is the chief internal expression of family status and serves as the house's major decorative element. The main room has the impression of spaciousness but this is due to a sitting position and to the lack of much furniture in the room. A few low tables are used for serving food upon but seats are wool rugs or blankets and straw mats. These are used for sleeping as well, with separate

Fig. 7 – The «wind horse»
(Cl. P. Murdoch)

sleeping rooms for the parents and children during cool months and the roof being sometimes used in the summer.

Due to the close proximity of indoor activity to the floor, the window placement is correspondingly low. The sill height is 20 / 30 cm above the floor and can be used as a seat in the sun. The opening reaches to a height of roughly 1.5 meters above the floor. The proportions of this window placement as seen in the composition of the outside wall would seem awkward, but the climate and technology make a larger scaled opening unfeasible. The problem is solved by building up the window's effective height and scale in the manner described by the typical window detail. These forms probably derive from the way à lintel / parapet detail evolved. It is common practice, since the climate is so dry, to store winter fodder in stacked rows on the roof's perimeter. The fodder combined with willow branches, stored as winter fuel, forms a parapet around the roof's edge. The red tint of the willow ends eventually became more formally expressed by having a red painted parapet band atop each well-to-do house or monastery wall. The parapet is combined with a lintel, cantilevered over the wall edge and built up visually by the exposed ends of the supporting beams. These round exposed ends provide a decorative motif which can be seen around and over the front door as well as the window. The ends serve as ancons supporting the lintel which bears the parapet. The willow is covered with stone, straw and mud plaster (mud and dung) in order to help waterproof and weigh down the stacked material. The window relates to the construction of the cornice while resolving the interior scale with exterior proportion as well.

A decorated communication of construction, the window is also a measure of room height. Besides marking the ceiling, through the exposed beam ends, the smooth outline texture marks the floor level. This band may have come about originally as an artistic solution to filling the gaps created by crude masonry construction around an infill. If the holes are filled with plaster, the suggestion of an outline already exists, so if cleaned up and expressed outright the opening is not only sealed but is made more elegant. Its scale and juxtaposition become less crude in its solid / void relationship with the wall. The treatment of the window, with regard to scale and refinement, is directly expressive of the three levels of the house. There is a progression in opening size and decoration, increasing from the ground floor to the uppermost level. The spaces increase in light quantity as the proportions become less massive. The window element itself can be seen as a symbol of the house's three levels ; in the parts of the outline, most often painted black and sloped upward like the base of a mountain, the opening, and the decoration above the opening, sometimes with a five-colored canopy symbolic of the rainbow and usually with the elaboration of construction recalled in the roof's parapet.

The roof, as the house's place of height, is the location for the greatest communication with the gods and is therefore where the prayer room and the many symbols of the sky gods can be found. The physical connection between the first floor and the roof is a ladder. Originally made of notches in a poplar log, its forms have become varied. Still made of poplar, it is the symbolic manifestation of the **mu** ladder used for transport between the earth and the heavens. It is analogous to the **bsangs** offering of smoke which occurs in the oven on the roof. This offering favors much wealth and few enemies when combined with altars of heaped stones and a flag. Two altars of stone represent the man god, **pho-lha**, and the woman god, **mo-lha**. The symbol of either god assures the continuation of the lineage of males or females respectively. The flag represents the «warrior god», **dgra-lha**, or the «gods of the summit», **rtse-lha**. At the top of a pass or on a **mani** wall and **chorten** stones, bones, and horns are piled in an act of victory for the sky gods. Tree branches or wooden weapons, such as spears or arrows, are set in the piles. On these are hung rags bearing prayers. These flags are called the «wind-horse», **rlung-rta**. The wind is seen as a vital force, so the «wind-horse» acts as a symbol assuring a vital and long life.

The spiritual exaltation through symbol is completed in the prayer room, also located on the roof. The prayer room contains a shrine bearing a deity and offerings of candles or oil lit every morning. There are low tables for further offerings of food or tea and wool rugs cover the floor. On the walls are hung tankas of varied ages, and on the ceiling by the door hangs a cloth bearing the symbolic footprints of Buddha. From the floor to the sill height are poplar planks

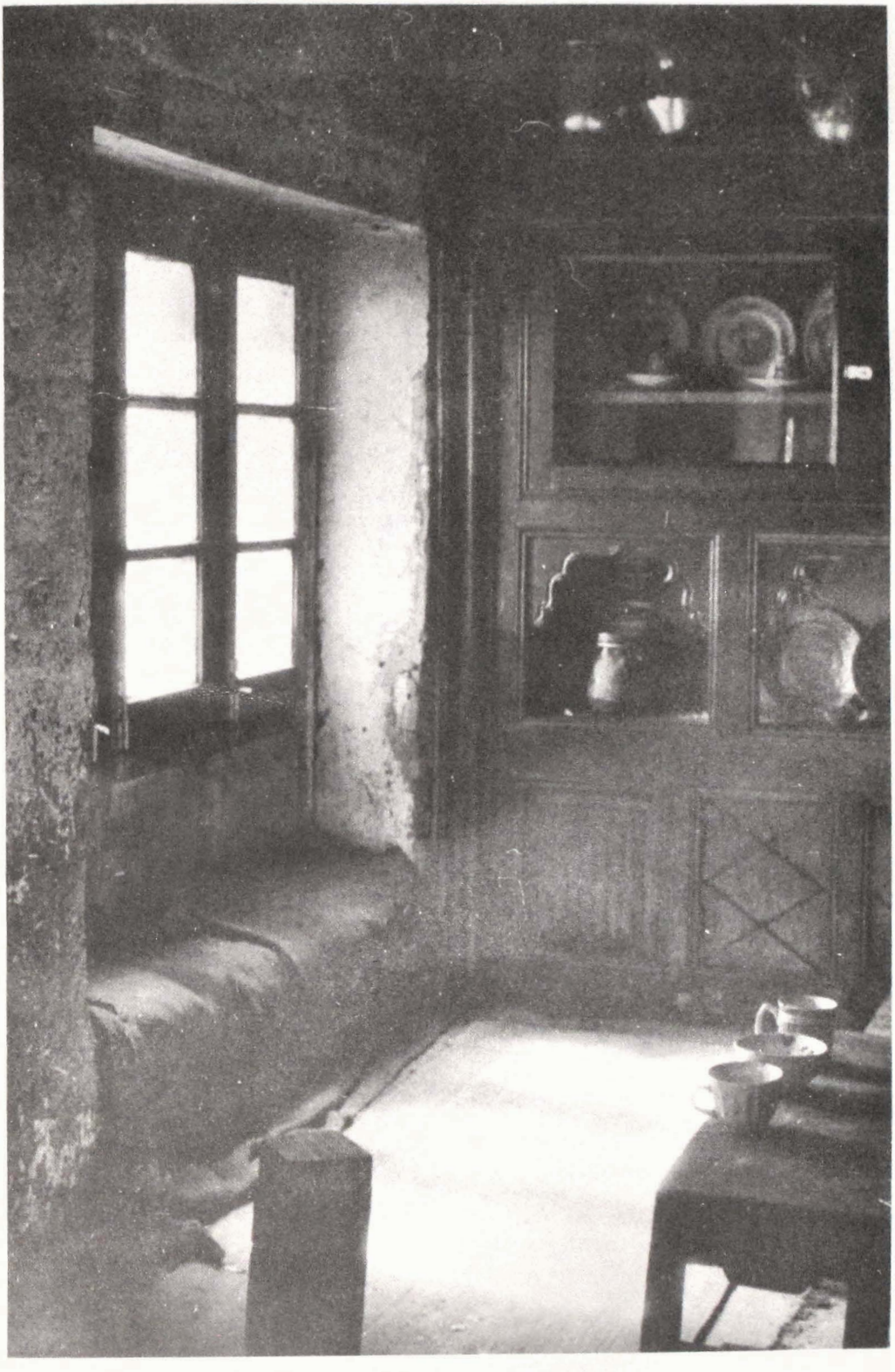


Fig. 8 – Interior with the kitchen wall
(Cl. P. Murdoch)

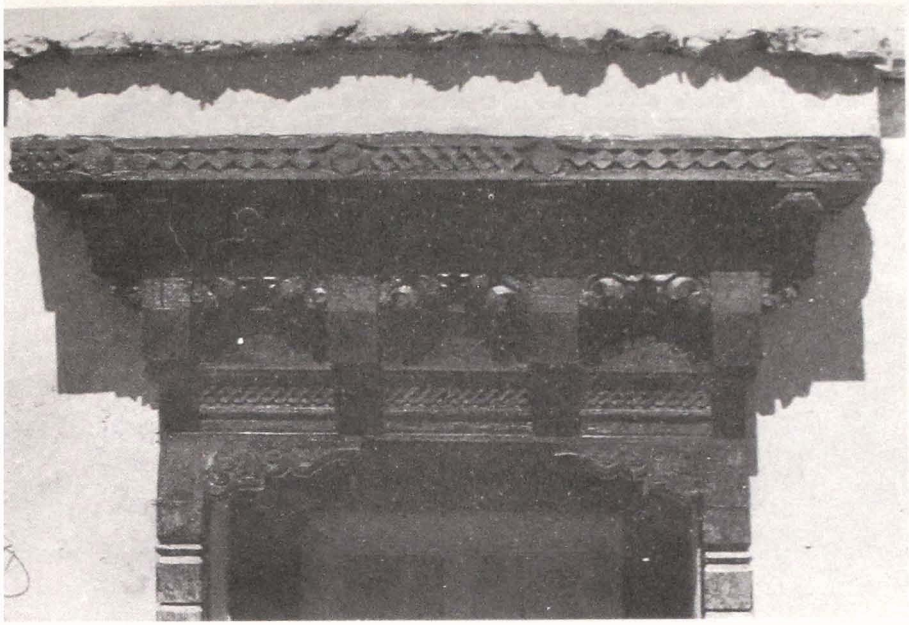
placed vertically over the adobe wall and painted a reddish-brown. A horizontal band of blue over yellow and orange runs the perimeter of the room atop this paneling. A similar band tops the walls, below which is painted a curtain pattern of red and green. The detail of moulding, carving, and the use of more wood of a refined dimension and line create a decorated effect which is consciously more elaborate than the rest of the house. The highly elaborate carving and painting in the shrine, an old heirloom, exemplify this best. The prayer room's south wall bears the largest window of the house. This and a large window in the east wall make the room the brightest and most open of the house. The room's scale is intimate enough to enhance private thought yet large enough to be freer than the rooms below. The space is light, colorful, decorated, and solitary with a feeling of a place close to the sun and sky. The highest level becomes associated with the gods spatially as well as symbolically.

Although the house's elements are deeply symbolic and religiously significant, their ritualization does not dominate, through rigid formalism, over the ease of function and expression perhaps appropriate to a house. The act of introducing at the entrance a more ceremonial level above the ground is simply handled within the humility of a secular building. The formality of this ritual is not overemphasized as indicated by entry off of a formal axis. Entry on such a strong axis is reserved for the temples and assembly rooms of the monastery itself, where symmetry and a frontal axial approach emphasize the monumentality of such special places. The informality of approach in the house is one aspect of a more humanistic, versus formalistic, attitude towards its design.

Instead of using a formal axis as a rigid organizational device, there is more of a general recognition of a proper orientation. There is the realization of a front. Entry occurs on this front wall which is the long side of the building facing south or east. North and west orientations are considered poor. The front wall opens to the southern sun and becomes the building's most decorated elevation. The north and west walls are virtually blank, with the exception of a small window on the ground floor, perhaps for the cross ventilation of the odors from waste and animals, and the door of the toilet for waste removal. The house turns its back to the north and uses the south and east sides for light and its consequential heat, although there is little attempt to keep the heat within the building. Adobe is a poor insulator and passes any stored heat relatively quickly.

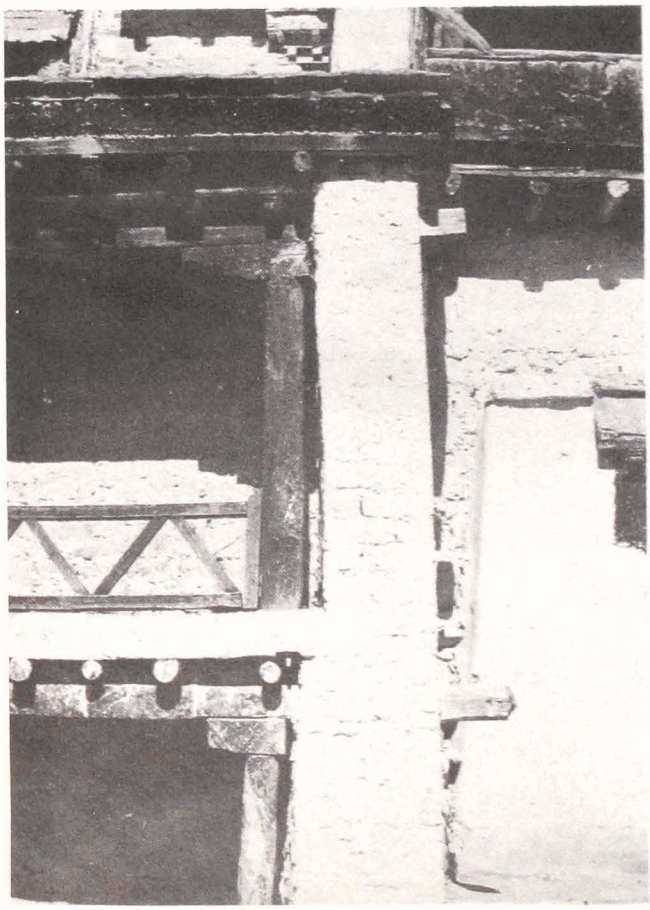
The treatment of geometry, rhythm, and proportion further indicates the tendency towards a humanistic informality. Any numerical generator seems to be simply the module of the materials, such as the mud brick. Instead of imposing a numerical system to determine forms and spaces, the dimensions are evolved responses whose desired effects have been shaped by the spaces' activities. For example, the windows' varied effects became gradually understood. Appropriate sizes became determined relative to the spaces's function, the existing technology, and materials so that eventually they could even be prefabricated, as they are in Leh today. Forms became stable through learned dimension. The pretension of formalized geometry is of secondary importance in the house's design. Although the double square in plan and the golden section in elevation are indicated, nowhere are they so strongly articulated to suggest a primary role of expression. The proportions are based upon human dimensions, physically and psychologically. It is found that a 2 to 2.3 meter ceiling height is high enough to allow standing yet low enough to create an intimate space while sitting and avoid extra space to heat. The proportions, with refinement, become comfortable to the inhabitant because they are based upon his size.

Another dimensional factor determined by human proportion is the module of materials. Stone is used for the ground floor and generally adobe for the stories above. Both materials are of a dimension workable for a man's hands. Similarly, the poplar structural members are of a size manageable for two men. The pliant willow branches holding the packed earth floors are easily applied by hand and the earth is brought by the sack and packed by foot. The material's scale is limited because of a human's physical capability and the building's resultant textures reflect the scale of the human hand. An overriding feature is the absence of severe lines or harsh angles. Everywhere corners are rounded, edges and surfaces are irregular. Beams are usually debarked but left in their natural contour. If sawn, they are planed by hand. They are laid



← Fig. 9 – The head of the prayer room d
(Cl. P. Murdoch)

Fig. 10 and 11 – Lintel and parapet details from Matho monastery
(Cl. P. Murdoch)



by sight so tend to be unparallel. The texture of the mud plaster literally expresses the human touch. Not only is each stroke a measure of how much plaster a hand can hold but the striated texture reveals the application by the hand's fingers. Texture, surface, line form, scale, light proportion, and space combine in a picturesque architecture responding intimately to the human inhabitant and builder. These humanistic qualities are given their deeper significance through their recognized symbolism, resulting in a house which is both comfortable and spiritually meaningful.

Changes

The introduction of the Indian army, central government and tourism, and the end of communication with the ancient institutions of Tibet, are the powerful forces bringing change to Ladakh. These forces of large impact and relative suddenness are responsible for altering the traditional structure of values and responses which has evolved over centuries of time. The polyandrons marriage pattern has been fundamentally important for maintaining a stable family unit whole and for controlling population growth. With the breakdown of this system population is rapidly growing, the family is separating, and the household unit is being subdivided. The farm unit which determined village scale and texture is now falling apart. The already precarious balance between man's needs and the land's resources is being dangerously challenged. The communal attitude, an integral part of the society's response to the land's ability to accommodate, is being replaced by individual desire in the form of competition and specialization. This is occuring mainly in Leh as a response to the opportunity for capitalizing on the new exposure and uncontrolled influx of people to Ladakh.

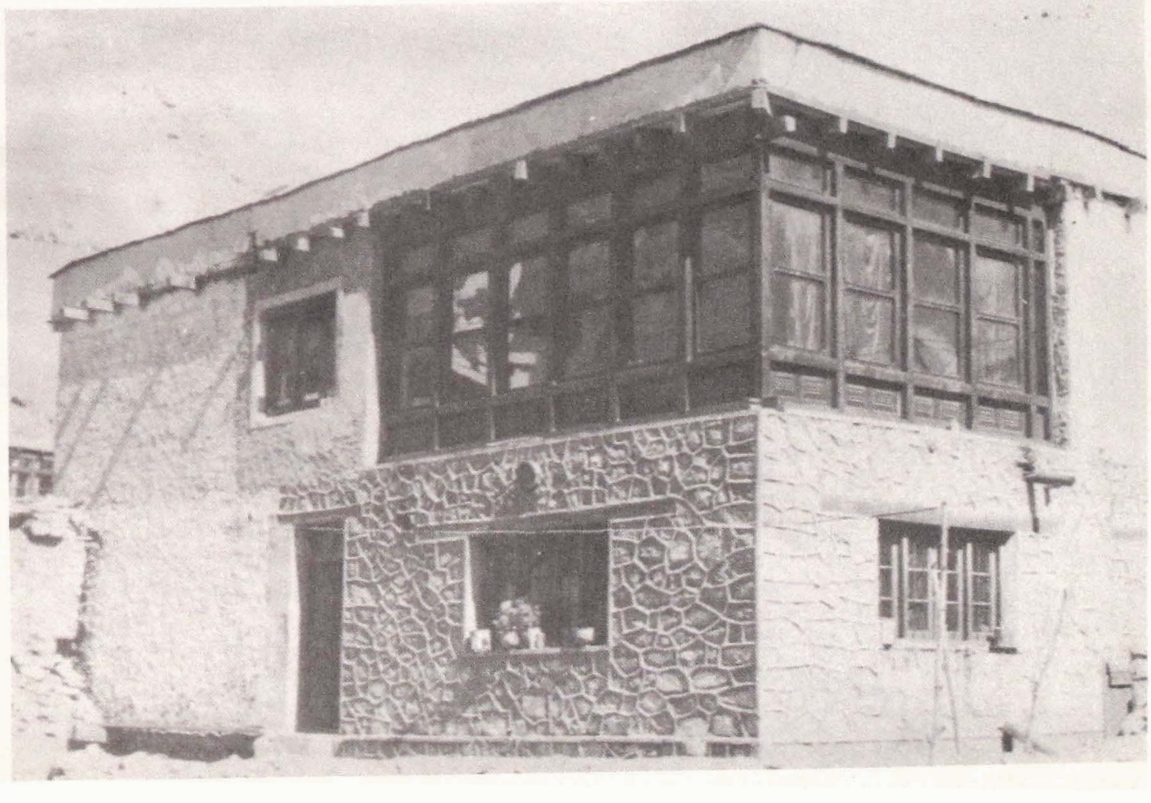
The army, government, and booming tourist industry require new facilities and personnel. The villages are affected because of the migration of people, particularly youth, to these opportunities. The once appealing life of a monk travelling to the educational and spiritual centers of Tibet is being replaced by government education and the assets of the army or government service. The sudden need for many new types of structures places an impossible burden upon the existing human and natural resources. Material and labor must be imported, which makes money necessary and the economy inflationary. The introduction of externals because of rapid growth has caused an increasing degree of specialization. The once gradually evolved communities become, instead, haphazard growth or «designed» developments with no regard for the sun, mountains, trees, or water and segregated lots where the family can no longer raise its own animals or provide its own food, water, or fuel. Whereas before, special services performed by villagers supplemented a farm income, they now replace it with greater frequency and by outsiders. The house becomes less of a personal expression of care by the owner and more a product for which to be payed.

In the documented house there are indications of transformation. For example, the windows were prefabricated and hand milled in Leh. They come with glass panes and metal locks which are provided from outside Ladakh. Glass is becoming a more widely used material as windows are growing in size and abundance. Due to a frequent lack of understanding of proper orientation, the absence of a well insulated window, and the drafty connections of a crude technology the increase of glass use is a growing drain of the scarce fuel. Besides the use of milled lumber for the windows, the prayer room and furnitude also demand the special skills of a carpenter. The adobe and rough wood construction could be assembled by the family and friends. The rock construction was handled by a mason friend, and all of these materials were supplied from the site itself. The straw over the willow branches and under the earth floor and roof comes from the hills nearby. The finished wood, wall paneling and straight-sawn beams in the prayer room, however, were imported from other regions of Kashmir. The prayer room was added in 1978. Despite the nature of the room and the appropriateness of finished lumber within, it is also characteristic of most new construction which is using more and more wood from outside Ladakh for its straighter and clearer grain.

An increase in the use of furniture is also adding to the dependence on imported wood. The cabinet at the kitchen wall of the documented house is an expensive showpiece payed for

↑Fig. 12 – The segragated lots of a designed development near Leh
(Cl. P. Murdoch)

↓Fig. 13 – A new house in Leh
(Cl. P. Murdoch)



by, I believe, the sale of grain to the army. A dresser and a bed in the sleeping room of the parents are further examples of purchased furniture gradually becoming part of the house, both physically and economically. This begins to alter some of the traditional elements. The mud plaster floor is susceptible to damage from the furniture whereas before there were no problems with the soft mats and light tables. Advantageous is the removal of life from the cold floor but the low placement of the windows then makes little sense. This is a problem to be solved in terms of elevation proportions and the composition of the windows themselves. The higher and increasingly larger windows bring more light to the interior. This is supplemented for several hours at night by electricity from a generator in Leh. The house has two light bulbs which are the only users of electricity in the house. This is representative of the houses near Leh. Kerosene is also used for light but is expensive so is more valuable as a fuel. It is replacing mustard oil, dung, and wood, all of which can be provided locally. The kitchen ware, once mostly of clay, is all copper, bronze, or steel. Plastic is also being introduced. The cooking stove too, made of adobe, is now of similar design but made of metal which must be imported. The column of smoke is channeled to the roof by means of a metal flue, which helps solve the problem of a traditionally smoky interior but begins to distort the formally held notion of the element as religious symbol. This is characteristic of the changes now occuring. The sacred elements of time hyphen honored tradition are being modified or replaced by newer technologies of a more practical or luxurious application. The restraints of time and money begin to remove the forms from their original spiritual significance. Changes in style and methods of construction replace the traditional vocabulary as Ladakhi forms are misunderstood. What remains are cheaper copies or simplified remnants of the traditional elements. Instead of being gradually provided locally, these technologies and forms are imported at an accelerating rate, causing an increasing dependence upon forces outside the control and understanding of the Ladakhis themselves.

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POSTSCRIPT

Luc Barré, Corneille Jest and Gérard Toffin

For the past twenty years the Himalayas have been undergoing significant transformations which determine the destiny of the populations inhabiting this region. Thus, is Nepal as in other developing countries, the use of more elaborate techniques, changes in social behaviour and the interplay of political fluctuations alter the acquired equilibrium. The construction of a barrage or major highway, the lure of the city, the increasing popularity of high altitude tourism have consequences both at the ecological level: deforestation, erosion, overgrazing, as well as at the socio-economic level: the destruction, sometimes brutal and without compensation, of forms of authority established gradually over the years and of the traditional work structures.

Socio-economic development was accompanied by an increase in construction activity in the Kathmandu Valley as well as in the 75 district capitals of the country. The administration and army are to be found everywhere. Offices, shops, cooperatives, houses for government servants are built by governmental authorities.

These constructions make use of entirely new materials: cement, iron, corrugated iron, glass, giving rise to architectural forms novel to the local populations. Both these features of modernity — which have a tremendous appeal — will inevitably spread to cover the entire Himalayan region.

This process, initiated not so long ago in Nepal on account of its geographic isolation and special historical past raise two questions far more crucial for the region under consideration than of other developing countries. How does one reconcile the cultural identity of the social groups and their forms expression, in particular their habitat, with a modernism that is necessary today? In what way should the ethnologist and the architect, caught up as they are in the process of development (and becoming volens nolens agents of development), act without destroying this cultural identity, fully aware that it is as easy and satisfying to reproduce images as it is difficult to preserve customs?