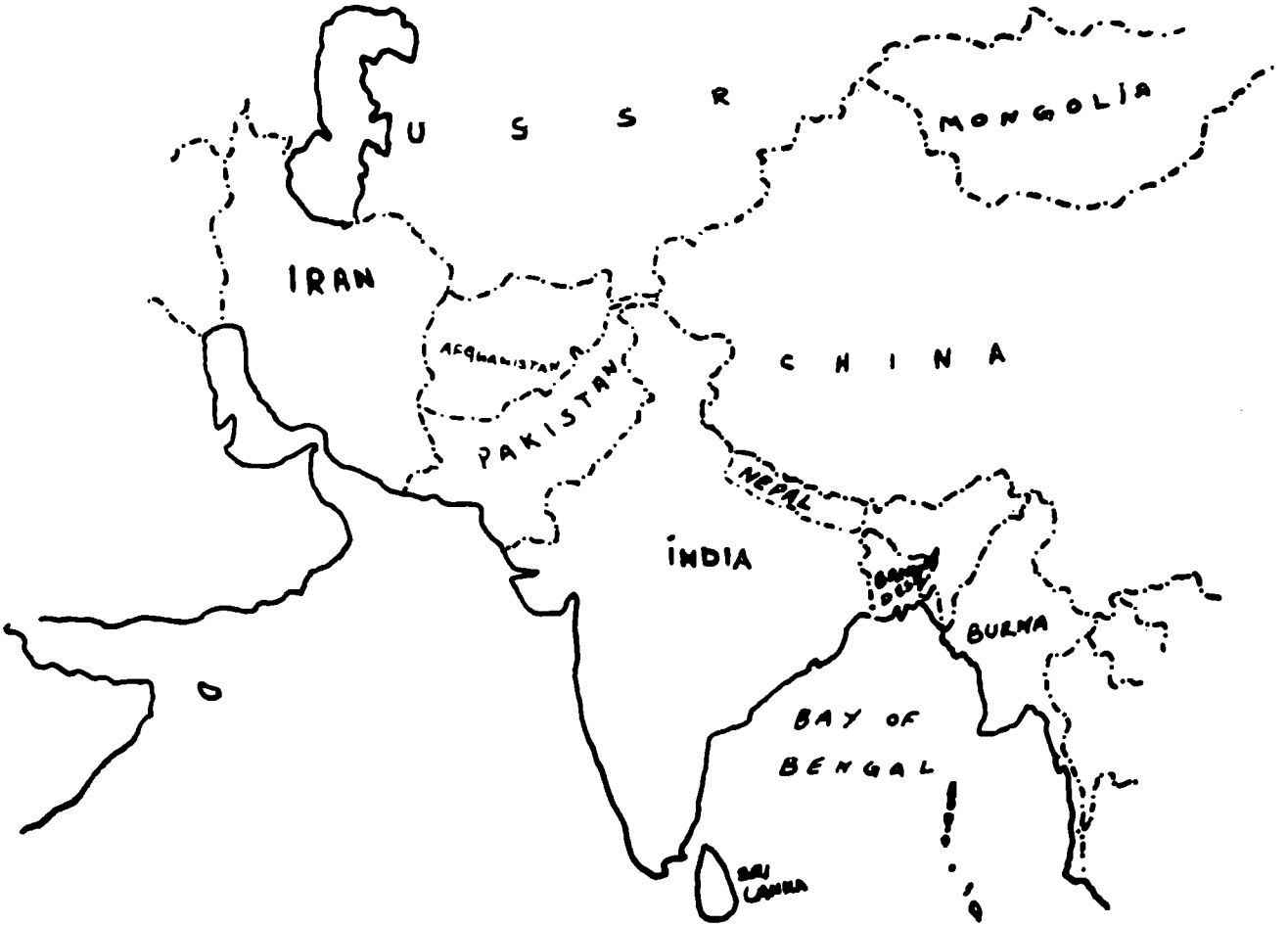

Kashmir and adjoining regions.

CENTRAL ASIA AND WESTERN HIMALAYA

—A FORGOTTEN LINK—

Editor

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To

Professor P. Kachroo

Foreword

The symposium on "*Central Asia and Western Himalaya—a forgotten Link*" is a clear recognition of the links that existed between Central Asia and Western Himalaya from time immemorial. The two regions not only share the socio-cultural traditions but also have phyto-geographical relations. The loess succession of Central Asia indicating the climatic changes during the Late Quaternary period are also expressed in the loess deposits of Kashmir.

This volume incorporates a number of articles written by eminent scholars belonging to different disciplines from history to geology.

The extensive work on the Neolithic sites of Kashmir (Burzahom and Gufkral) has provided a large body of inter-disciplinary data on this important stage of socio-economic development in the Kashmir Valley. This stage marks a big technological breakthrough in the form of domestication of plants and animals. This was the first settled stage of early man. Thanks to the recent work of Buth, Kaw, Shali and Saraswat large number of domesticated plants have been reported from Burzahom and Gufkral. This mid-Holocene period is also marked by a climatic amelioration and the first major interference of man in the natural ecology. The PRL team's work has shown that in the mid-Holocene the marginal areas of the Dal lake were being used for agriculture as indicated by the steep rise of *Cerealia* and *Plantago* pollen at the cost of aquatic plants. The Valley was dotted with extensive Neolithic settlements during this period. It is therefore obvious that this mid-Holocene climatic amelioration was accompanied by a significant population increase. Further work on palaeodemorgraphic changes in the Valley will prove very exciting from this point of view.

The importance of the Neolithic of Kashmir has naturally received due importance in terms of several articles that have been written on the Neolithic phase in these proceedings.

Though considerable work has been done on the Neolithic and later periods of Kashmir, the Stone Age periods have not been studied in detail so far. The PRL team has already shown that there is a distinct blade and burin industry in the Valley, reported for the first time by it, which has an Upper Palaeolithic affiliation. Probably this industry belongs to *c.* 18 000 B. P. when a palaeosol developed on the loess in response to the climatic amelioration in the Valley. This microlithic tradition should have continued even later into the Mesolithic times. Kashmir University, the Archaeological Survey and PRL team are working now on these aspects.

As a result of the joint efforts of the universities of Delhi, Garhwal, Gujarat, Kashmir, Lucknow, Punjab and BSIP, GSI and PRL, a broad profile of climatic changes in the Valley during the last four million years is available today. These palaeoclimatic and palaeoenvironmental changes have now to be related to archaeological succession in the Kashmir Valley. Once this task is completed, the two sequences of Central Asia and Kashmir, can then be inter-compared.

In this task, I am happy to record that the Department of Botany of Kashmir University under the leadership of Drs. Kachroo and Buth is taking great strides by using palaeobotanical and archaeobotanical data to study palaeoenvironmental and socio-economic changes in Kashmir.

I am sure, after a few years another symposium will need to be organised, perhaps somewhere in Central Asia, to compare the new research results of the two regions which have such vital links from the geological to historical times.

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Preface

The social and cultural links between Central Asia and Western Himalaya are well known and the bearing of this link on history, culture and religion of Kashmiris is a recognised fact. The recent impact on geopolitics is no doubt disappointing. However, this cultural aspect is also cemented by geobiological and related aspects.

Often we consider this intimate association as recent, but links between the two regions are prehistoric. Consider for example the Neolithic era. The 2-3m B.C. Hissar neolithic culture of Soviet Central Asia and our own neolithic culture of Burzahom and Semthan in this valley are contrasting if not similar in many an important respect. For example it is still held that wheat was not a cereal crop in the valley and some even doubt its presence in our neighbourhood, notwithstanding the presence of wheat or wheat-like grains at Semthan along river Jhelum. It is a significant discovery made by a team of workers of this university and the Physical Research Laboratory, Ahmedabad; but on reflection could it not be the Aegilopsis found in South Tajikistan. There are indications in both the sites i.e. Semthan and Central Asia, of what may be called 'incipient food production' or a preliminary period of sedentary seasonal settlement.

Little is known about the cultural exchange in the Vedic period, though most of us are agreed that the Aryans descended into the region from the heights or was it valleys of Central Asia. Thus when we come to the recorded history we find the sway of Budhism and at a later stage that of Islam and both in

of the number of regions which possess exceptionally large number of varieties are Central Asia, India, southwestern Asia, etc. In Central Asia, Caucasus represents the peak. The Central Asian Centre of origin of cultivated plants includes northwestern India (Himalaya), Punjab, Pakistan, Kashmir, Afghanistan, Soviet Republics of Tadjikistan and Uzbekistan and western Tan Shan. The uniform ecological conditions and the uniform wild flora of northwestern Himalaya and Soviet Central Asia further support this view. Our apricots, pear and almond have come from this area. The quince, cherry, barberry etc. of Kashmir have come from the neighbouring near-eastern centre of origin, i.e. Asia Minor, Trans-Caucasia, Iran and Turkiministan. Such is the importance of this region and interplay of culture and science through the ages.

This book is based on a symposium held in the University of Kashmir, Department of Botany in 1983. Professor P. Kachroo then Head, was intimately associated with the symposium which he initiated and provided necessary guidance throughout. In view of his contributions in the botany of Kashmir, this book is affectionately dedicated to him.

We are also thankful to Prof. Shah Manzoor Alam Vice-Chancellor and Prof. Wahidudin Malik (the then V.C.) for their encouragement; and to the University Grants Commission for financial assistance.

Jan. 20, 1986 **G. M. Buth.**

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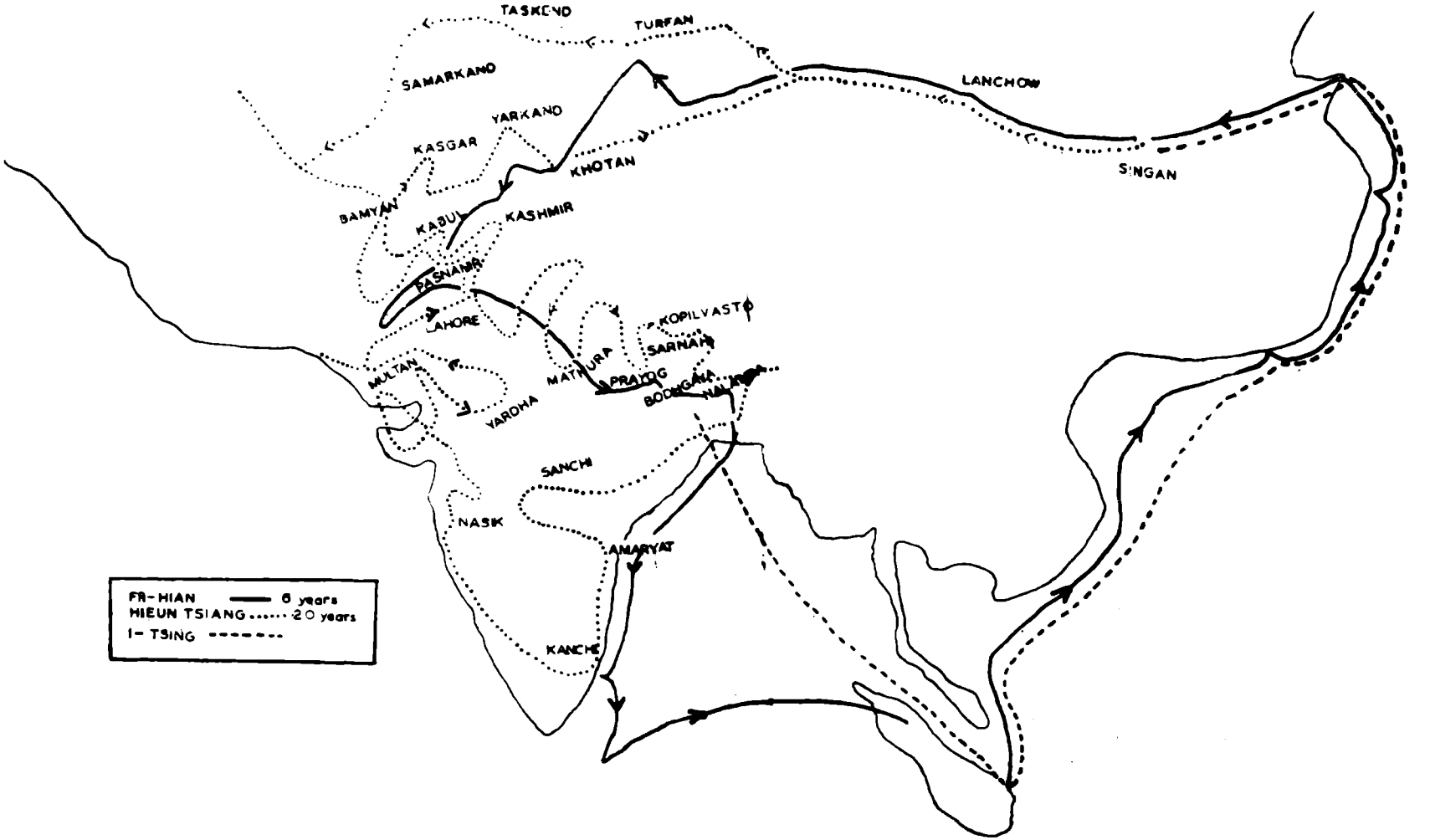

The Silk Route.

CENTRAL ASIA AND KASHMIR

S.M. Ahmad

During the last 150 years, the map of Central Asia and South Asia has considerably changed due to the political upheavals taking place in these regions of Asia. Politics changes the history of a nation and sometimes it also changes its geography. What were once the Khanates of Khiva, Bukhara and Khokand until 1924 are now the Soviet Socialist Republics of Tajikistan, Uzbekistan, Kirgizia and Turkmenia. Other parts of Central Asia, namely, Kazakstan and Azarvaijan are also to-day Soviet Socialist Republics. All these States form a part of the Soviet Union. Besides these, for our historical and cultural studies, we also includes Mongolia in Central Asia which though a socialist country and aligned to the Soviet Union, is outside the Soviet Union. Then, what the political scientists call Eastern Turkestan or Sinkiang which encompasses the famous torons of Tarkand, Khotan and Kashgar, are now a part of the People's Republic of China. Similarly, Tibet forms a part of China to-day. We also include in our study of Central Asia, Afghanistan and Iran. As for the regions of South Asia, it has changed its political map and three countries have appeared in the present century, namely, India, Pakistan and Bangladesh. With the change in the political maps of Central Asia and South Asia, the destinies of the people inhabiting these regions have changed and so has their

relationship with each other—political, social and cultural, economic and commercial.

I shall not dwell upon the past history of these nations as it does not fall within the scope of my present paper. I shall simply try to highlight the most significant aspects of the socio-cultural and commercial contacts of Central Asia with the western Himalayan regions and specially with Kashmir as they existed until mid-nineteenth century. Historically speaking, at times, some parts of the two regions formed parts of great empires like that of the Kushans or of the great Mughals. The socio-cultural and commercial relations of the two regions, however, continued to exist until the modern times and were snapped only recently. For anyone who wishes to study the relations between the two regions, historically, there is considerable amount of source material and data available in Sanskrit, Pali, Arabic, Persian, Tibetan and in modern European languages, especially Russian and English. Researches in geology, geography and archaeology and in bio-sciences have also been providing fresh evidence of an extremely interesting nature and throwing new light on the pre-historic periods and on different aspects of similarities, commoness and affinities.

An important factor that should be considered first and foremost in respect of the relationship and contacts is the gradual growth of land-routes, since times immemorial, by man who searched for new avenues and traversed the untrodden path in search of water and fresh pasture lands for himself and for his cattle. One of the causes of the movement of man from Central Asia to the south, has been droughts and famines. The shrinking of the Gobi desert due to the gradual disappearance of vegetation as a result of its consumption by the indomitable goat, has been offered as one of the reasons of this movement in the 7th century. Perhaps this was also one of the causes of the expansion of the Mangols in the twelfth century in other parts of Asia. The same theory is offered by some historians in regard to the nomads of Arabia, who, in the early days of Islam, spread out of the Island of Arabia and

conquered lands to its east and west, reaching Central Asia as far as the borders of China in the beginning of the 8th century.

The roads thus carved out by man since pre-historic times played an important role in the dissemination of one's people culture to the other. By the ancient and the mediaeval periods, we find a large network of main and connecting roads throughout the civilized world which connected Central Asia with India and China on the one hand and Europe and West Asia, on the other. The most important high way was the silk-route. It connected China with Europe and West Asia and with India, from the north-eastern side. Other roads that connected India with Central Asia passed through its north and north-eastern regions. Central Asia was also connected with Tibbet and with the Valley of Kashmir through the north-eastern regions, and these were connected with the silk-route. Al-Masudi, an Arab historian of the tenth century describes two main roads linking Samarkand with the gates of the Great China Wall, one passing north of the Gobi desert and the other crossing it which was more arduous and difficult. As for the main roads linking Kashmir with Central Asia, we know of three main roads : one in the north-west passing through Baramula to Muzaffarabad, an ancient road through which many missionaries and travellers entered the Valley. Al-Biruni the well known Muslim astronomer-scientist, describes this road leading from Kanaug into the valley in great detail. He also mentions the road leading from the valley Tibet, though in general terms. Roads also led from the valley to Mansura, near Hyderbad (Pakistan) and it would be of interest to note that Kashmiri merchants sailed down the Indus from the Jhelum as far as the delta of the Indus in mediaeval times. The other road that passed from the valley to Central Asia, was via Gilgit and Chitral; and lastly, the important road that connected the valley with Tibet and Sinkiang, was the one that passed through Leh and Kara korum mountains. This was the most traversed road until modern times. The last caravan that entered Kashmir

from Sinkiang was in 1956. The emigrants who accompained the caravan have now disposed in various parts of India. During my travels to Central Asia last winter, I came across a Sarai Hinduwan in Bukhara which is now deserted; the Tashkent Sarai is now a plain field. In Srinagar, we have the Tarkand Sarai. All these sarais are indicative of the flourishing commerce and trade that Kashmir had with Sinkiang and Rajiskistan and Uzbekistan in the mediaeval period. But although the roads exist in good or bad condition, human activity along them has come to a standstill and to-day, one has fly to Moscow, then travel south in order to reach Tashkent, Samarkand or Bukhara; to go to Beijing, in order to reach Tarkand Kashgar or Khotan.

From ancient times down to the later mediaeval period, waves after waves of Central Asian tribal people migrated into India and settled down here. The Aryans are said to have been the earliest race to enter India. They belong to Central Asia but their place of origin is still disputed. They may have lived around the regions of the Caspian Sea, or around the Caucasus. The late Professor Suniti Kumar Chatterjee discovered in Lithvania that the peasants still spoke a language that was akin to Sanskrit. The Indo-Aryans, probably replaced the Mohenjo-Daro civilization whose traces have now extended to Lothal in Gujrat and Atranji-Khadi in U.P. were they Dravidians or belonged to some other ethnic group is still a moot point. The ancient-most original inhabitants of India, I believe, the Adivasis, called in the Rgveda. A branch of the Indo-Aryans migrated into the Kashmir Valley but in time other ethnic groups from the north, from other parts of Central Asia to whom the generic term "turk" or "Turaska" is applied, continued to enter the valley. These include the Cushanas, Epthalites, the Tajiks, the Uzbeks, etc. We learn from the Arabic accounts pertaining to the ancient period that the Kashmiris have a mixture of blood with the Turks and this explains the beauty of the people. We learn on the authority of Al-Biruni (11th century) that due to the incessant inflow of the foreigners (mlechchas), the rulers of the Valley completely

shut it out of the foreigners. In earlier days, he says, occasioned Tewish traders were allowed in but by his time even the Hindus were not allowed to enter, let alone the Muslim traders whose last point of visit was Rajauri. Whether the Semitic races like the Jews and the Arabs entered the Valley is a moot point. But there is a strong oral tradition in the Valley that the lost tribe of Mases, the twelfth tribe wandered into the Valley and settled down in Bandipurah. Similarly, some theories are put forward by some historians, though too incredible to be believed that Jesus himself, after the crucification, travelled to the east and died here at the age of 70 or so. This is que of the projects that our Centre of Central Asian studies, may take up in future. However, if one observes carefully, one can occasionally come across features which resemble people from Uzbekistan or Kirgizia. It must be admitted, however, that the Valley has preserved original physiognomy of the people either due to for peculiar geographical reasons or for reasons of isolation.

The greatest cultural impact that India and specially Kashmir had on Central Asia during the ancient period was the spread of Buddhism. The impact lasted from about 300 B.C. to 800 A.D. for over a thousand years. The great Asoka was responsible for introducing Buddhism into Kashmir just as he had sent emissaries to Syria and Egypt to propagate the new philosophy, the dhamma. Thus, although Buddhism was introduced in West Asia a thousand years before the rise of Islam and seemed to have influenced Christian religious practices also, Buddhism spread in Central Asia and China through the efforts of Scholars of Kashmir in the early centuries of the Ghristian era. Before the impact of Buddhism, Central Asia and many parts of West Asia followed Zarathushtra's religion who lived about 1000 B.C. The Achaeminian and the Sassanian empires covered large tracts of Central Asia & North West India and Western Asia, spreading between Xephon (Madain) near Baghdad to Sogdiana near Samarkand, Zoroastrian cultural and religious influence was wide spread. The deep impact of Buddhism on Central Asia brought about a

fundamental change in the socio-religious life of the people. Throughout this period, Kashmiri scholars and missionaries continued to visit Central Asia and spread the message of Gautama Buddha there. The influence spread as far north as Mongolia from the time of Kublai Khan, one of the grandsons of Chengiz Khan. Buddhism had such a strong hold on Mongolia that it lasted until modern times and is present there even to-day, though slightly. Along with the religions and philosophy, Buddhist culture and all that goes with it spread in Central Asia. The giant statues of the Buddha in Afghanistan and other archaeological evaidences are a witness to it. The Soviet archaeologist have discovered the remains of a Buddhist university (vihara) along the banks of the Oxus and when I visited the National Museum in Dushanbe, I was over-whelmed by seeing a portrait (coloured) of Buddha in his middle age which was discovered in this university. There must have been several viharas established in Central Asia from the 6th century onwards. The Arabic and Persian historians of the ancient period describe a "temple" near Balkh (Afghanistan) called "Nau-Bahar". It was commonly believed until recent times that it was an Iranian five-temple. The priests of this temple were known as "Baramika" in Arabic, who migrated to West Asia during the 7th century and later, during the 8th and the 9th centuries played an important role in the government and administration of the Arab kingdom of the Abbasids after converting themselves to Islam Sayyid Sulayman Nadui, has, however provided ample evidence in support of the idea that "Nau-Bahar" was actually a Buddhist vihara and that Baramika (Ssk. : pramukh) were, originally Kashmiris. In Arabic moral and philosophical literature we come across anecdotes which point to their Buddhist origin.

When Islam arose in Arabia in the beginning of the 7th century, the last great emperor of the ancient period, namely, Harshavardhana, was ruling India. Islam spread rapidly in the west and in the east and by the first decade of the 8th century, it reach Tran oxiana (between the Oxus and the Jaxartes) in Central Asia. Although the Arabs had conquered Sind about

the same time, they were unable to march southwords into Kashmir due to the mountain barriers of Tien Shan. However, gradually Islam spread in Central Asia and quietly replaced Buddhism. Buddhism with its enlightened philosophy and liberal approach to life was able to encourage arts, sciences and philosophy. But with the rise of Brahmanism in India it suffered elimination; from Arabic and Persian sources, we know that traces of Shamaniya (Sramana) existed in India and Central Asia until about the 8th or the 9th centuries.

Islam and Muslims or Arabs from Sindh must have reached the Valley of Kashmir much earlier than the Sufi missionaries of the 15th century. However, Islam in the form of Sufism was introduced from Iran and other parts of Central Asia by the sufis, notably by Mir Sayyid Ali of Hamadan in the early 15th century (786 A.H.) to Kashmir. It spread gradually and peacefully over the centuries spreading the message of love, tolerance and peace. It was not brought by the conquerors or the dogmatic 'ulama'. The special feature of Islam in the Valley to-day is that it is an ecclatic religion in which the teachings and practices of Buddhism, Hinduism and Sufiism have merged together. The founder of Islam in Kashmir is buried in Khattalan in Tajikistan.

The subsequent history of Kashmir is the history of the various socio-cultural, influences emanating from various parts of Central Asia, on the life and thought of the Kashmiri people. I may add here that from about the 11th century Central Asian influences began appearing in northern India and continued to do so for centuries to come with the result that Indian and Central Asian cultures, after mutually influencing each other gave rise to a new secular and composite culture in India in the growth of which the Mughal emperors, notably Akbar, played a prominent role. We may say that while in southern India, the Arab influences continued to excert their impact in northern India those of Central Asia became wide spread. This to a certain degree happened in Kashmir also. In the sphere of language, Persian or Tajik became extremely popular besides being the court language. Kashmir

produced a number of eminent writers and poets in the mediaeval period. Urdu that grew in the mediaeval period as a result of the admixture of Turkish, Persian and Hindu, is now the official language of the State. It must be emphasized that it is the Persian of Tajikistan that we adopted in India and not the Iranian form of it. In the field of education, the curricula adopted at the Nizamiya College Baghdad in the 11th century, was introduced in northern India first and later, adopted by all the Madrases all over India and in Kashmir as well. The first city where Muslim culture with a heavy Central Asia bias took roots was Muttan; later, Lahore developed and finally Delhi and Lucknow and other towns. The scientific and philosophical knowledge to which the Muslim scientists and philosophers had made considerable contribution in the mediaeval period reach India as well as Kashmir during this period. In the fields of art, architecture handicrafts also Central Asian influence is recognizable. In music, for instance, we find Central Asian instruments and the architecture, the dome and the minaret in absent; instead, a Pagoda-type lower is common. It is said that handicrafts like wood-work papier-mache, and other forms of handicrafts were introduced during the reign of Sultan Zainul Abidin.

Lastly some food-habits, dress and even tea-making pot called Samawar originated from Central Asia. Anyone visiting Tajikistan, Uzbekistan even to-day, will notice resemblances in these spheres of cultural life.

THE NEOLITHIC OF KASHMIR : AN APPRAISAL

Purushottam Singh

The archaeological excavations conducted inter-mittently during 1960-65, 1968-69, 1971-72, and 1973-74 at Burzahom by Khazanchi and colleagues placed Kashmir on the Neolithic map of India. No doubt this site was known to the archaeologists since 1935 for its megalithic remains (De Terra & Paterson, 1939); yet at the time of its discovery, this culture seemed to be an isolated and local phenomenon as the only site having some sort of a nebulous neolithic culture was Kile Ghul Mohammad near Quetta city (Faireservis 1956). The spurt of archaeological activities in recent years both in the Kashmir valley and in the adjoining regions and the excavations at Mehrgarh in the Kachi plain in Baluchistan, at Gufkral in Kashmir (Sharma, 1979-80), at Koldlhwa and other sites on the northern fringes of the Vindhyas (Sharma, 1980) and Chirand in the lower Ganga plain (Verma, 1970-71) have brought to light neolithic assemblages unknown hitherto. An assessment of these discoveries in western Asia was reviewed by Singh (1980), and in the present paper the subsistence pattern of the Neolithic folk of Kashmir alone is dealt with.

Evidence regarding the subsistence pattern of the Kashmir Neolithic comes from the recently excavated site of Gufkral (dist. Pulwama rather than from Burzahom. In fact, little is known about the subsistence of the neolithic Burzahom people

and it appears that hunting played an important part in their economy. The absence of seeds is a negative evidence of the cultivation of cereals. However, the presence of grindstones in almost every house (Allchins, 1983 : 112) indicates that cereals fromed an ingredient of their diet. Animal bones from the kitchen middens suggest that hunting and fishing was practised. Remains of pigs, wagner (Kashmir stag), *nilgai* and domestic sheep have been found from the period I and bones of dog, sheep, goat, humped cattle and buffalo in the period II—all of the domesticated variety. The wild animals include the wolf and the Kashir stag.

Excavations at Gufkral have yielded more evidence of the subsistence pattern of the Neolithic man in Kashmir, such as remains of an aceramic stage, unknown so far from the Indian sub-continent though its presence at Burzahom had been suspected ! (Agrawal, 1982 : 103). The inhabitants of the aceramic stage were either collecting and/or had started cultivation in a limited area. Some grains of wheat, six-row barely, lentil, and a kind of weedy plant have been obtained by floatation technique and are still under study (Sharma, 1979-80 : 21). However, Sharma stated that in Kashmir valley wheat, barley and lentil had much earlier antiquity that rice which is the staple food of the Kashmiris today. The latter crop may only been introduced in period II (Megalithic culture) at this site. The faunal remains from the aceramic stage (Period I A) indicates that the inhabitants were primarily dependent on wild game and domesticated only a select breed of sheep and goat. The hunted animals included wild sheep, wild goat, cattle, red deer, wolf and Himalayan ibex.

Period I B at Gufkral was marked by the introduction of handmade pottery and witnessed a sudden spurt in domestication of animals like sheep, goat and cattle. Wild sheep, goat and cattle continued to be hunted but in far lesser percentage. There was a marked reduction in the percentage of bones of wolf. However, the presence of bones of red deer, ibex and bear indicates that hunting was still the main source of food.

All the grains of previous sub-period continued in period I B as well and the common pea was added to the menu.

The domestication of animals was complete in period I C at Gufkral. The entire herd of sheep, goat and cattle were domesticated. Besides, two important new species, namely, pig and fish made their appearance. All the grains found in the preceding sub-period were recovered from period I C also.

Discussion

Some scholars hold that Burzahom Neolithic was a "relict culture in a refuge area" (Randhawa, 1980) largely because it until recently, was an isolated site located in a remote valley, quite unrelated to the well-defined Neolithic cultures in different parts of this sub-continent. However, this need not necessarily be the case since exploration in the Kashmir valley itself have brought to light nine other sites of Burzahom Culture in the terraces of Jhelum river between Anantnag and Pampur (Agrawal, 1982) and the excavation of at least one of them (Gufkral) has yielded corroborative evidence obtained earlier from Burzahom. Besides explorations conducted by Mohaptra (1978) have brought to light 15 sites yielding stone celts, ring-stones and grinding stones. These sites are located in Jammu sub-Himalaya, Kangra valley and in the Nalagarh—Pinjore *dun* in Himachal Pradesh, in the Hoshiarpur Siwalic Range in the Punjab and on the outer slopes of the Siwalik Frontal Range near Chandigarh. These sites have been grouped under the "Siwalik Neolithic Culture" by Mohapatra. None of these sites has been excavated so far, but probably the Allchins (1983) are right in holding the view that the Kangra group also belongs to the Neolithic Culture of Kashmir.

As noted earlier Gufkral has yielded an aceramic stage of Neolithic culture and its existence had been suspected at Burzahom. Apart from several sites in western Asia (Singh, 1974) where such a stage has been well documented the nearest parallel comes from Aq Kupruk in Afghanistan and Mehrgarh in Baluchistan. Aq Kupruk is located in the hills south of the famous town of Mazar-i Sharif. Here, the sequence of Neolithic

cultures includes an aceramic complex followed by a ceramic complex. The aceramic level has been further sub-divided into phases A, earlier and B, later. A similar situation obtains at Mehrgarh on the Kachi plain (Jarrige, 1980). However, the radio-carbon dates of both Burzahom and Gufkral are very late as compared to the dates proposed for Aq Kupruk and Mehrgarh. Thus, the chronological position of the Kashmir Neolithic and indeed that of the whole sub continent does not fit in the general pattern of such cultures either in western Asia or south-east Asia. The only high radio-carbon date of Koldihwa in the Vindhyan range needs corroboration from other sites in India and Pakistan.

NEOLITHIC GUFKRAL

A.K. Sharma

Two seasons of excavations at Gufkral by the Prehistory Branch of Archaeological Survey of India have brought to light a wealth of information so far unknown about Neolithic settlers in Kashmir valley.

Gufkral (lat. 35° 54'N, long. 75° 60'E) is situated 41 km south east of Srinagar (J. & K.) near the Tehsil town of Tral. The site has brought to light five main periods of occupation :

Period IA—Aceramic Neolithic
IB—Early Neolithic
IC—Mature Neolithic
II—Megalithic (it is better to call it as Menhir period)
III—Historical.

The most significant finds were the following.

I. Presence of a well defined Aceramic Neolithic level, top layer of which goes back to 2,470 B.C. as per C-14 dates, the earliest Neolithic level recorded anywhere in India.

II. Recovery of wheat (*Triticum Aestivum*, barley *Hordeum vulgare* Linn. var. *hexastichum*, lentil (*Lens esculenta* Moonch.) common pea (*Pisum arvense* Linn.) and appearance of rice (*Oryza sativa* Linn.) towards the close of the Neolithic period.

III. Faunal assemblage dominated by wild animals in the lower

levels, slowly leading almost exclusively to domesticated ones in the middle and upper levels of the site.

IV. Evidence of structural remains, both similar to those found at Burzahom and those unique to this site.

The *Aceramic period* alone accounts for more than one third of the total habitational deposits at the site. In this period, three phases of constructional activity have been noticed. Apart from shallow and deep circular dwelling pits; rectangular dwelling pits, huts in the open with rammed earth platforms were also built. Floors were treated with kankary lime. Mud plaster with reed impressions have also been recovered. Stone artifacts recoverd include adjes, slicers, pestles, pounders and points. Maximum number of bone tools have been obtained from this level and are mostly points. A beautiful bone needle, harpoons both of bone and stone, barrel shaped bone and paset beads are other noteworthy finds. Among the animals, bones of sheep, goat, cattle, Red deer, wolf, Himalayan Ibex, etc., have been identified. Sheep and goat were being domesticated and account for the highest percentage followed by cattle. Cultivation of plants had duly started towards the mature phase. Grains of barley (*Hordeum vulgane* Linn. var hexasti, wheat (*Triticum* C.I. *aestivum*) lentil (*Lens esculenta* Moonch), pea (*Pisum arvense* Linn.), clover (Trifolium sp.) and alfa-alfa (Medicago sp.) have been identified. This shows that though the Aceramic Neolithic settlers did not make pottery, they did cultivate selected varieties of cereal grains. As per C-14 dates provided by Birbal Sahni Institute of Palaeo-botany the top most layer of this period has been dated to 4420 ± 110 B P (BS 435 dated 19.7.83).

The aceramic period was followed by *Ceramic Neolithic period.* In period IB hand made rough grey and dull red ware made their appearance. Apart from mat impressed bases, decorations in the form of reed and straw impressions and pinched designs are common. A potters kiln having a diameter of nearly 1.70 m with inner side and bottom well plastered and with a mouth was the noteworthy find. Presence of thick floors made of compact clay mixed with 'Chunam', post holes,

chunks of burnt clay with deep and wide reed impressions indicate open air housing pattern. Apart from this a deep dwelling pit cut through the rammed earth and natural soil and having a muc lined circular entrance with steps, in one corner of the pit (unlike those found at Burzahom), shows that people in the period made arrangements for winter months and preferred open air dwellings in fair weather. The artifacts of the period include stone and bone tools. Ring stones, make their appearance. Two beads of semi-precious stones, one of which is of carnelian are the important finds. The period witnessed increase in the percentage of domesticated animals. All the grains of the earlier period continued. C-14 date for this period is 3980 ± 20 B.P. (B.S.359).

In the mature phase of Neolithic period burnished grey ware and black burnished ware were quite predominant along with thick dull red ware and wheel turned black burnished ware. Few sherds of red gritty ware are also found. Decorations include mat and cord impressed bases, pinched and incised oblique designs and knobed designs in the neck region and few sherds with graffiti marks. The period witnessed substantial structural activity in the form of circular dwellings and storage pits cut through the thick rammed earth, circular mud walls and muc and rubble walls. A number of post holes surrounded the structures. The pits were probably covered with removable conical thatched roofs made of reed and thin branches of willow tree as no post holes were found around the dwelling and storage pits. Among the artifacts, apart from bone tools, stone points, one stone harpoon, spindle whorls, ring stone, celts, two carnelian beads and cowrie shells were recovered. Copper made its appearance in the form of antimony rod and pins towards the closing phase of the period. By this time domestication of animals was fully achieved. Pig made its appearance from this period. Apart from all the grains of earlier period continuing, rice was introduced in closing levels of this period.

Period II which is associated with the arrival of Menhirs witnessed extensive pit activitities in the site. Numerous floor

levels of this period have been recorded. Percentage of wheel made pottery increased and wheel made dull red ware was introduced. Vessels with channeled spout came into vogue. Apart from stone and bone objects, noteworthy is the advent of iron in the form of points and rods. A commo shaped stone pendent, bone handles and a copper bangle are the other finds. Rice was cultivated in abundance. Hunting had almost come to a close. Only ibex continued to be hunted or captured. C-14 dates for this period are around 1700 B.C.

Period III, the early historical period had not yielded any noteworthy structural evidence except for thick compact floor made of whitish clay running throughout. Hand made pottery continued but was dominated by wheel made light red ware. Among the noteworthy artifacts are bone tools, stone points, one terracotta female figurine, decorated stone handle piece, bangles and rings of shell, terracotta, copper and iron, carnelian and copper beads, pestles and ring stones and one circular heavy copper coin. All the grains and animals of the previous period continued.

It is now well established that the Neolithic people settled down in the valley around middle of third millennium B.C. and continued to flourish for nearly 1,000 years. In the initial stages though they did not possess the knowledge of pottery making but they had started cultivation of certain cereal grains. Hunting and capturing of wild animals in the surrounding hills was their main source of food. It is amazing that right from the time they settled down and occupied Loessic tops, they excavated and built different types of huts, the floors of which were decorated and plastered with red-ochre paste, a devise to ward off white ants. The Neolithic settlers of the valley had contacts with alien elements (probably with Harappans) around 1600-1700 B.C. as indicated by the recovery of paste and carnelian beads and a copper hair pin.

Study of animal bones has revealed marks of various human activities like butchering, skinning, dismembering, filleting, gnawing etc. Various marks produced by scavanging animals have also been noticed. Chemical analysis of bones has shown

that there is some increase in the flourine content from Neolithic period than from Historical and Megalithic periods. There is not much variation in the phosphorus content. Organic carbon and nitrogen contents indicate the preservation of the organic matter in these due bones to cooler climate of this region. There is much variation in the calcium carbonate content.

Horizontal excavation of the site is likely to give us complete picture of habitational patterns of different period and various socio-economic practices of the inhabitants of different periods.

Grains were studied by Dr. M.D. Kajale and chemical analysis of bones was done by Smt. A.A. Kshirsagar, both of Deccan College, Pune.

NEOLITHIC CULTURE IN KASHMIR WITH REFERENCE TO CENTRAL ASIA

S.L. Shali

Central Asia, as a whole, is the region characterised by major dessication and cyclical climatic changes as we come across in the valley itself. The immense territory of Central Asia is held to include Iran, Afghanistan, Pakistan, North Eastern regions of China, Tibet, Manchoria and parts of southern and eastern Siberia. The size and diversity of the region makes it necessary to establish its basic geographic divisions. It is only with the romance of the spade that we can establish inter-relationship of each region and make up for the lost links. Its geographic set-up has been of paramount importance for trade and cultural exchanges. Here races have met from other parts of the world and fought for power, the result was giant migration not only of the people but of cultures and religions as well.

Kashmir which forms one of the geographical units of these regions did not remain isolated from the political, social or cultural influence of Central Asia. In fact from time immemorial out history has been colsely interlinked in one way or the other with these regions.

Archaeological finds reveal common cultural links of the past and many previously unknown ancient settlements and new trends of cultural exchanges have been traced. Recent

discoveries have revolutionized our understanding of the origin and early history of man.

The archaeological research conducted in recent years have revealed astonishing similarities that existed between Kashmir and these regions of Central Asia in the neolithic period over 4,000 years ago. This is obvious from the excavations conducted at Burzahom near Srinagar and at Gofkral near Tral and also the exploration work conducted in recent years by the Centre of Central Asian Studies Kashmir University and the Scientists of Physical Research Laboratory, Ahmedabad, and by various agencies and archaeologists in other parts of Central Asia. The exploration conducted have revealed in the valley, so far, neolithic settlements located throughout the length and breadth of the valley. All the sites have yielded the ceramic and the tool industries of the period which mark the appearance of a new phase towards the development of common cultures between the people inhabiting these regions. The settlements have been found at Kanishpur near Baramulla and Huin a village 8 km below the same town and at Lar and Kijpora in the Sindh valley. Both these routs are of great historical importance; the former followed closely the course of river Jhelum and crossing over Urusha (Hazana) reached North West Frontier Province of Pakistan (ancient Gandhara) and further to Persian, Afghanistan and to Central Asia. It is through this route the Western gate of the Kashmir, that Chinese pilgrims Hieum Suang and Fahein entered the valley. The later route crossing over the Zojila leads into Leh and then to Tibet, thence to yarkand and other parts of the Central Asia. This route was followed by the great adventures like Rinchana (14th century) and Mirza Haider Douglat (16th century) on their visits to the valley.

The cultural importance of the prehistoric period is known from the detailed excavations carried out at Burzahom. The structural evidence at the site of the neolithic levels is marked by the presence of Dwelling Pits, oval, rectengular or square in plan. These are provided with post holes meant for supporting the superstructure to cover these houses with birth bark,

reeds and hides. Hearths were located on the periphery of the circular pits and in the centre of the other types of dwellings. The walls of the dwellings were constantly plastered inside. In the succeeding phase of this period, the structural activity is represented by mud walls and different floor levels. The presence of hand made pottery, use of polished stone tools are represented by axes, sdzes chisels, sling balls, mace heads, small and large points, hoes, double edged points, querns, pestles etc. The most significant and unique collection is that of bone tools consisting of needles with or without eyes, awls, pins, arrow heads, harpoons, double edged points, daggers, beads, perforated havestors, and few other composite tools. The finds indicate that the main economy of the people was hunting and fishing. The animals hunted were primarily stages, ibex and wolves. Besides, sheep goats and cattle are reported from Gofkral. It is also confirmed from the carved figures on a stone slab—the significant discovery of its kind encountered in Period II of the neolithic phase. The dog was the main helper. The figure on the stone depicted dog and two symbols of sun (probably rising and setting sun) at the top register and the bottom register depicts two hunters—one male and the other female killing the deer with a spear and an arrow head. One arrow head in the front and the end of a spear at the back have already struck the prey. In Kashmir, it gives the earliest form of representational art in which the hunters are mostly concerned and which formed the basis of their supply of food and the ways and means adopted by them in catching and hunting the animals.

Rock drawing chipped by neolithic people on granite locks of Karelia on the eastern shore of lake Onega (USSR) show among other things human figures as hunters. The signs carved are connected with the cult of sun and moon. Some of the figures show hunting of the animals with weapons represented by spears, bows, arrows and daggers. These people buried their pet animals with the masters—the tradition whereof appears to have taken place even from pre-neolithic periods. The use of the dog in hunting of the animals is vividly shown.

In one of the burials, the dog was shown buried with his master at Burzahom. At Ang Hsi site Manchuria, the neolithic villagers buried their dead under heaps of earth near their settlements. About 144 km from Samarkand, the excavations at the cave site of Teshic Tash, a burial of 8 year old child was partly surrounded by five goat skulls besides the bones of other animals. The late 'goat culture' of the neolithic site at Darra-i-Kur in Afghanistan shows international goat burial (one in association with the fragmentary skeleton of one or two children) which according to Louis Dupree relates to first two phases of neolithic culture of Kashmir.

The noteworthy features of the burial custom is that these (both human and pet animals) were buried within the habitational levels and in case of a secondary burials of humans, the bones were sprinkled with red ochre. At the ancient village of Pan Po Tsun in northern China also the people buried their dead in the settlements near the houses. The example of red ochre over the bones of the dead is known from the Neolithic cemetry on Olen Ostrov in northwest part of lake Onega. More than 170 graves were opened in 1936-8 and a bright red colouring matter was noticed to have been sprinkled over the corpses also at Malta in Siberia. In the USSR numerous borrows (copper and bronze ages) show that the skeletons in the graves are usually in cintracted position (their kness drawn up) and the great part of the body was smeared with red ochre. It is believed that the corpse was smeared with red ochre. It is beleived that the corpse was smeared with red ochre which had the cleaning effect of fire. As the flesh disappeared, the colouring remained on the skeleton. Apparently the neolithic people of these regions believed red to be a symbole of blood and vitality and hence of immortality.

The purposed burials of the domesticated animals in Central Asia suggest the love and regard these early settlers of Kashmir had for the animals who helped them in their day to day occupation. In one of the burial pit Period II neolithic levels carried numerous skulls, limb bones of dogs, wolves and stags which is presumed to be a sacrificial altar. These men had to

depend upon animals and in course of time they believed that these animals are for their benefit and this gave rise to religious feelings for them. This tradition also represents the earliest stage of fertility rites for the sake of crop harvest and most probably for their success in the hunting. Altogether these graves are most unusual in the Indian context and affinities are found in Central Asia. Obviously when the man started to cultivate crops he began to herd his own domesticated animals and this attitude resulted in an almost universal aspect of culture. The presence of bone harpoons at Burzahom and similar prototypes in stone recently found at Gofkral suggest that these men were adept in fishing as well. The fishing in view of the nearness to waters had become the most important branch of their economy as is also true of far flung areas of neolithic remains in Siberia, shores of Lake Onega and at Dzhanbas Kala in Khorzem valley, and other regions of western Himalaya.

The inhabitants were not nomads living just on fishing and hunting. They followed various agricultural practices such as digging, sowing and cutting of grains. The presence of harvestors, mace heads and large and small hoes supports this. The grain was ground or pounded on stone querns which were found almost in all of the houses of Period I. Special mention may be made of the harvestors, sometimes winged with one or two perforations widely distributed in the sites at Yang Shoe and Lung Shan in North China. There is also an affinity in the wide range of grains found in neolithic sites here. The sample of the grain found at Burzahom are those of wild barley. Re-investigation of the grains also revealed presence of wheat and lentil also. Curiously enough, rice has been reported from Gofkral from, closing stage of mature neolithic levels datable to 2100 B C. The earliest crops from Anau in Turkeminia or Persia so far reported include wheat, barley and lentils. These crops have been cultivated when post glacial climatic conditions were suitable. These plants are found in West Asia and evidence from Jarmo or other Mesopotamian sites indicate that these spread with the early settled communities in other areas

like Baluchistan, Afghanistan, Uzbekista and Tajikistan and further to east. The neolithic crop in China was millet. Stuart Piggot is of the opinion that the rice appeared in China when it had entered the Bronze Age. The presence of rice at the neolithic site of Gofkral carries special attention in relation to archaeological context in the sub-continent. Study of plant remains from the excavated site of Semthan (early levels) near Bijibehara, Anantnag district reveals that rice cultivation was not a local crop as wild rice is not reported from Kashmir nor such early record its cultivation is available. It is evident that the cultivation of rice spread through the pennisula during the Iron Age presumably by 1,000 B.C.; subsequently it expanded in the gangetic plains which offered a most favourable environment for its cultivation. Further re-investigation of ceeral samples from the both these sites may yield some definite archaeological record. We should be becautious. In fact, Grahm Clark once stated that earlier investigators frequently misunderstood naked barley for naked wheat.

There are other precise parallels from other regions of Central Asia in the form of structural and tool assemblages which at the moment appear foreign to the Indian culture.

CONTEMPORARY NEOLITHIC DWELLINGS

Iran : Neolithic settlements reveals that people lived in pit like depressions but without traces of post holes or roofing arrangements. Bone industry is predominantly marked by needles with eyes.

Pakistan : At Loebnaur (Swat valley) pits were cut into natural soil which were not used as stoage pits but as dwelling houses. Black burnished ware—the delux ware of Burzahom is found in association with these pits. At Sarai Khola (near Taxila) hand made pottery bone and stone artifacts recal parallels from Burzahom. Late extension of neolithic culture in Kashmir has been located at Aligrama in Swat valley.

Siberia : Pit dwellings have been found it Malta.

USSR : In Gagrino valley (ascribable to upper Palaeolithic period) oval shaped Dwelling pits have been located carrying

conical roofs built on poles. These are covered with branches of trees and hides. A large communal house oval in plan was excavated at Janbas Kala south of Aral sea. The superstructure consists of wooden and beams covered by reeds. In the centre was set a large hearth. Flint knives, scappers and arrow heads were found near it. Pottery was often covered with red ochre. The inhabitants were mainly occupied in hunting and fishing.

Turkmenia : At Deijtum north west of Ashkabad, 35 dwelling houses have been located. These are built of sundried blocks of clay which are oval in plan. Stone axes blocks of clay are round. Stone axes, querns, hand made pottery, bone implements including needles are found Domesticating of sheep and goats, cultivation of wheat and the cultivation of wheat and barely, are found side by side. Similar traits are found in Keltminar—a village in Khorzem valley datable to 3000 B. C. Both these cultures have wide distribution in Tajikistan and Uzbekistan. Strong similarities exist with numerous neolithic sites recently spotted in Tajikistan.

China : Ancient village of Pan Potsun of Yang Shae culture represented the neolithic houses which were round, square and rectangular. Inside the floors and walls are plastered with a thin layer of clay like substance. As at Burzahom, numerous types of bone and stone tools occur. The bone tooles are represented by awls, needles, arrow heads, spears, chesles, beads etc. The stone industry is marked by ground and polished tools represented by axes, adzes, rectangular and winged harvestors. Similarly the people of Lung Shan cultures of north east China, the people lived in dwelling houses dug but below the ground level and flight of steps were provided at the entrance. Semi-lunar knives of Burzahom types are the main characteristic features of the tool assemblages in stone. The bone tools are predominantly represented by arrow heads, harpoons, chiels.

Afghanistan : Numerous prehistoric sites have been located at Nad-i-ali, Mundigak, Deh Morasi, Ghundai, Aq Kupruk and far east at Darra-i-Kaur. Mundigak culture has its counterpart in prehistoric times with that of Anua in Turkmenia and the sites of Hissar Tepe and Sialk Tepe in Iran between 300 to

2750 B.C. The cultivated crops were wheat and barley and the domesticated animals sheep, goat and cattle. At Aq Kupruk, the lithic and the bone assemblage of Non-ceramic Neolithic and Ceramic Neolithic kas varied little from each other. The ceramic tradition resemble the two phases of Burzahom and also that of late neolithic culture of South Siberia.

Manchoria. At Lin Hsi cropping tools indicated by stone hoe and reaping knives have been encountered.

AN ENQUIRY INTO ABSENCE OF ANY MESOLITHIC SITE IN KASHMIR

Ranjana Ray & Ashok K. Ghosh

Introduction

For human being the area of habitat must have some congenial characters. In term of geomorphology the region Kashmir cannot be ruled out with its features which made at least minimum provision for living of man. This being the case remnants of early human habitation in the area under consideration is seldom met with. The occupation of the valley at the time of pleistocene is not yet properly, rather perfectly, substantiated. The palaeolithic tools are too meagre in terms of frequency. Naturally, expectancy connot even be hypothesised with conviction. In fact, data based evidences of human settlement come from Neolithic stage. Palaeolithics are too scanty and Neolithic industries are found almost in fullfledged form. The hiatus comes to be marked at intermediate Mesolithic phase. This facts so far found, even with minimum alternations, is quite interesting in the sense that the neighbouring areas in the sub-Himalayan region is also devoid of early Holocene cultural stage. Punjab which lies south of Kashmir has yielded large number of Palaeolithic sites represented by Soanian culture. Even this area is devoid of any industry belonging to immediate post-palaeolithic or Mesolithic stage. In contrast the central Asia, the other (northern) part of the Himalaya, is indicating the presence of lithic industries of not

only Palaeolithic and Neolithic stages but a continuity is maintained with the presence of Mesolithic industries (Ranov, 1964). The problem obviously emerges. Any convincing answer to this query is yet to be found out. In this paper, attemmp has been made to pose the problem in discrete manner and alongwith the same factors have been endeavoured to be indentified, which might have been responsible for uninhabitation. One of the basic reasons which may be proposed is of ecological interference. To decipher the same in the vocabulary of cultural ecology factors of negation have been fixed here. The source for the same are mainly preceding and succeding cultural stages alongwith their basic cultural complexes. Furtherance of the exercise may perhaps be made in accounting for the nearest region which has yielded Mesolithic industries.

Possible human ecology of the region during early Holocene is considered. For this purpose both the present day environmental condition and the palaeo-environmental regime of Pleistocene and post-pleistocene is taken into consideration. Moreover an analysis of prevailing cultural stages found in the area may throw considerable light on the problem concerned.

Broad overview of the environment

The environmental condition of Kashmir is very much different from that of the semi-arid deserts of Central Asia as well as the Alpine region. The region under study represents a typical cold dry temperate condition. Physiographic variations are also remarkable feature of Kashmir, the normal evidence of the same is displayed by the presence of low land to high montane regions.

There are five major physiographic divisions of Kashmir (de Terra and Paterson, 1939, Chatterjee 1965) : a plain land bordering the southwestern boundary, the hog backed foot hills lying between Poonch and Ravi river, Panjal, the vale of Kashmir and the snowpeaked ranges of greater Himalaya. Climatic condition of Kashmir could fall within the monsoon tract. It is largely changed by the presence of Pir Panjal which acts as a watershed.

Attempt in reconstructing broad Palaeo-environment

Physiography of Kashmir was comparatively different and similar was the case with climate during the Pleistocene epoch (de Terra and Paterson, 1939). The area was under the influence of tectonic changes. Gradual rising of Pir Panjal was the most decisive phenomena for influencing the contemporary environment of the area. Several features in the form of fans, cirques, 'U' shaped valley, boulder conglomerate on the slopes of Pir Panjal, and Himalayas; glacio-fluvial deposits along the Indus system are some of the evidence of earlier climate and its change in later times. Above all the great Karewa series in the valley of Kashmir testify the glacial and periglacial conditions in the region during pleistocene and Holocene. Sedimantary deposits and fossils provide important materials for paleo-environmental reconstruction.

It is now agreed that Kashmir experienced a number of glaciations, intervened by three interglacial periods. Though views differ on this, yet this variation in number may be due to inclusion of local minor oscilations. On the whole, the cycle change of cold and warm phases prevailed over the region covering the total time span of the Pleistocene epoch. Sharp decrease in numerical preponderance of fauna and at times presence of only specific types not only point out to climatic degeneration but also suggest that the region was not properly favourable for habitation. Large scale erosion prevailed in a relatively later interglacial period. During an earlier interglacial deposit sufficient evidences found to suggest that there was a tenoerate to subtropical climate, with a flora of pine, oak and cinnamon and fauna consisted of Siwalic elephants and other animals.

There is sufficient evidence on both the sides of the Himalaya to suggest a gradual desiccation process during post-pleistocene. Presence of small terminal moraines on both the slopes of Kashmir valley as well as loamy deposits on the post-pleistocene terrace of river Jhelum testify at least to two glacial advances, probably of the post-pleistocene times.

From the evidences available so far, it is evident that on

the whole Kashmir region was not exactly suitable for human habitation. Probably it attained its most favourable environmental condition during the period which was later than immediate post-pleistocene period which was provided with some vestigeal climatic influence of the pleistocene.

Early human occupation in Kashmir

Evidences of human occupation during Pleistocene and early Holocene is scanty in Kashmir. This is a contrast to the surrounding regions, especially areas north of Kashmir, which has yielded profuse cultural remains. Areas worth mentioning in this respect are the Punjab on the one side and central Asia on the other.

de Terra and Paterson (1939) did not find any palaeolithic site in Kashmir. Although their work had yielded some scanty remains of patinated flakes which they regarded as either derived materials from deposits of last glacial in date or just a handi-work of Holocene man, who were culturally backward. Fruther they suggested that palaeolithic man either did not discover Kashmir until the later part of Holocene or they avoided the high terrian which was not only unfamiliar to them but a scene of constant tectonic disturbances.

Flakes were discovered by de Terra and Paterson from the lowest terrace of the Jhelum which were considered on the basis of typology as late palaeolithic or protoneolithic. Excepting these, the flakes collected from the area were associated with pot sherds belonging to Neolithic cultural period. Mesolithic industries are completely devoid of in this region.

However, Sankalia (1974) has supplied an account of the palaeolithic found from the area; and Massive flakes from boulder conglomerate of second glacial period. These flakes are supposed to be of first interglacial period. A hand axe is also found at Pahlgam at the junction of boulder conglomerate and overlying brown clay. Further two scrapers, three borers and a core were collected from Pahlgam. These are dated from second interglacial to third glacial period on the basis of their mode of occurrence. It is felt that typology of tools was

greatly concerned in the matter related to chronology. Near Sonamarg, the Indus banks yielded a hand axe-cum-scraper, a two edged scraper, a chopper and a scraper-cum-chopper. These are again dated in similar way as second glacial.

These findings are too meagre in relation to palaeolithic in Kashmir. If the tools are to be dated to the respective glacial epochs further intensive research in this area is to be carried out. Otherwise it may be concluded as a kind of cultural backwater of recent time as suggested by de Terra (1939). However these palaeolithics make the problem of absence of man during post-pleistocene in the area more complicated.

Earliest Holocene finds in Kashmir may be attributed to Neolithic cultural phase which prevailed as a stage without any doubt and also flourished in Kashmir region. Burzahom, Gufkral and Martand, all are situated on the Karewa terraces. Pit dwelling, mixed economy of hunting and fishing, developed bone and stone industry and a rich potters craft make up the cultural melieu of Neolithic culture in Kashmir. The ground and polished tools suggest some amount of primitive method of food production. Mode of disposal food production. Mode of disposal of dead suggests improved social and religious life.

Kashmir Neolithic stage could be divided on the basis of stratigraphy and typology into an earlier and a later stage. The tools and pottery of early stage is crude. The latter is not wheel thrown. Cultural sequence does not suggest that there is indegenous development of the Neolithic in Kashmir itself but people from somewhere else migrated into the area and settled. It is assumed that typologically the tools had an affinity to far East probably of China.

Human occupation in the neighbouring regions

Unlike Kashmir sub-Himalayan regions of Sind and the Punjab present a completely different aspect of palaeolithic. These areas had a continuous history of occupation during Pleistocene. The Indus and its tributary valleys yielded large number of Palaeolithic sites (de Terra and Paterson, 1939;

Mohapatra, 1976). On the basis of geo-chronology the cultural stages may be divided into early, middle, late and advanced Soan (Ray and Ghosh, 1981). Thare was a continuous cultural development. The industrial complex rested on core and flake elements. Cultural developed through proto-Soan, early-Soan and middle-Soan which gradually gave place to prepared core technique in today-Soan; and finally gave rise to Mousterian of Acheulian tradition during late pleistocene. All through these stages cobbles and pebbles played a vital role on typo-technology in case of material used for fabrication.

Neolithic in Sind and the Punjab are represented in pure form. Some remnants of chalco-neolithic are found in the area. These had more cultural affinity to western Baluchi hill cultures than to Kashmir. Whatever scanty remains of microliths are found not early Holocene in date or mesolithic in cultural status but of chalcolithic phase.

Situation on the other side of the Himalaya present a completely different picture. The region is rich with pebble-core element. The late Pleistocene cultural remain has a striking similarity with that of the Punjab and Sind remains. Both possess Monsterian of Acheulian type (1974, Ghosh 1976).

Mesolithic in the central Asian region is prolific in sites. This culture dates here around 10,000 B.P. These sites had yielded tools which are dominated by blades and microblades. Besides these, a study of both the cores, blanks and finished products suggests that small pebbles were largely utilised for their manufacture (Amosova, 1982). Here Mesolithic is believed to have got an indeginous origin. Beshkent valley area is important in this regard, as revealed from the tool kit left behind by the Mesolithic evolved, the tools developed and finally Neolithic appeared in the area.

Neolithic is characterized in the Beshkent valley area by two distinct types of livelihood pattern : (a) that of a wondering hunters and (b) that of farmers and cattle breeders (Ranov, 1964). The cultural similarity is drawn to western Asia than to Kashmir or eastern Neolithic thereof.

Absence of Mesolithic industry in Kashmir

Perhaps environmental conditions during the very early Holocene in the foot hills of the Himalaya did not encourage human habitation. The area was not geomorphological suaitable for this prior to Neolithic phase, since no tool have been found either of Palaeolithic or Mesolithic period from this region. The stray finds evoke reservations until more factual materials could be collected; not withstanding evidence of Kashmir palaeolithic which do not even suggest any large scale occupation of the area.

The sub Himalaya including Sind, Punjab and Kashmir is devoid of human habitation during early Holocene. Kashmir was inhabitated by Neolithic people in later times : around C 2,500 to 1,500 B.C. (Sankalia, 1974). Moreover, the culture was completely different from that of the neighbouring rigion. Punjab chalco-Neolithic is of more or less similar date but it has no relationship with the former.

If there was any movement of people towards the end of Pleistocene from Kashmir and other sub-Himalaya region, it probably went into central Asia, perhaps the mountain passes gave them access into the area concerned. However, there is not yet sufficient data to prove the same. The question remains : what happened to Palaeolithic men of the region and why they did not continue to live in the area upto Mesolithic stage? Although for comparison of the Mesolithic of Central Asia, the Russian scholars had looked into the Iranian material, the late Pleistocene Mousterian of the region however have their affinity with the late Soan of Sub Himalaya (Ghosh, 1976; Ray and Ghosh 1981) climatic regimen of early Holocene was much different in central Asia than that of Kashmir. In Kashmir climate gradually changed toward temperate during post Pleistocene whereas the central Asian climate became semi-arid.

However to slove the problem and account for the absence of mesolithic in Kashmir in detailed depth, data on all the major aspects of paleo-environment which is indicative of possible palaeo-ecology of the region are needed.

EARLY QUATERNARY MAN AND CULTURE IN CIS-HIMALAYAN REGION

Ashok K. Ghosh & Amit Kumar Sarkar

Introduction

The present paper is involved with one of the major geographical barriers which was probably overcome by early man even during his primeval form when cultural contents were of relatively rudimentary form vis-a-vis technological attributes were comparatively simple. In terms of culture—historical nomenclature, the concerned phase belongs to Palaeolithic period. The barrier mentioned herein is of the Himalaya and the area in the view is the cis-Himalayan region, precisely south and central Asia is the main.

The two sub-regions within the greater region are separated from each other by the Himalaya, situated in between. Both the sub-region appear to be in isolation as far as immediate cis-Himalayan parts are concerned; yet both the units have their individual expanse in the vicinity areas. In a way, restrictions and reservation are more between southern part of central Asia and northern part of south Asia. Despite greater improbability and lesser feasibility of transmission, reason being the Himalayan barrier, movement of culture probably took place and perhaps migration of Palaeolithic hominids might have occurred. In this area there was a complete change over of the Palaeoclimatic conditions, specially of the Tertiary

period. The main forms include a tropical rain forest and grass land Savanna (Tattersall, 1969). Information in this regard from the northern flank are still scarce. Moreover, no hominoid fossil finds have yet been unearthed from this region, because of (a) that the later area was perhaps unfavourable specially for a dominant ecopressure, and (b) that for the emergence and later movement of early hominoids very few regions acted as foci.

In terms of earlier cultural elements similarities between the regions the far-east and south-east are not absolutely remote. The Tadzhikskaya and Uzbekskaya (Ranov, 1965) constitute the former region while the northern part of Indo-Pakistan subcontinent comprise the latter In this area drainage is made by the Sir Dariya and the Amy Dariya system while the Indo-Pakistan area in its north is drained by the Indus system. The overall elevations in both the regions does not very much, with an average of 500m., while the blockade or barrier is provided with the Himalaya with an altitudinal variation between 1,000 and 5,000m. This barrier perhaps created many difficulties with human migration and cultural diffusion. Although the hardle was overcome at times with the help of human efforts and technology of culture.

On early cultures

The sites of different stages of Palaeolithic period have been discovered and explored from the northern as well as the southern part of the Himalayan ranges. These yielded a number of typical tool types belonging to different tool families. All the industries involved may be commonly termed as the Himalayan lithic industry. Marked variations in this are observed on the finds of the two areas as also with the sites within each area The extent data are not exhaustive consequently the interpretations and inferences should be taken as tentative.

Generally the Himalayan lithic industries fall into two categories; northern and southern. Though some amount of inbalance is probably present in both the areas, more so in case of the Lower Palaeolithic stage. In the northern area such

cultural remains are least available and the compensation is made with the problem of dating (Ranov and Davis, 1979; Ranov *et. al.* 1980); and chronology in the southern area is yet to be fully determined although cultural remains (lithic materials) are sufficiently available.

Karatau-I may be taken as a representative site for the Early/Lower Palaeolithic stage. Here chopper is the only genuine type tool among all the lithic materials. But considering total collection, this type has a very low frequency (ca 6.25%) and is not conclusive.

As in the southern area the results already achieved through the analysis of data are promising. Here pre-Soan is the initial industry. This is found to be relatively convincing when typo-technical characters are given proper and due emphasis. Terrace sequence can not be considered as a very reliable parameter for the purpose of dating lithic industries. Any justification of setting aside the pre-Soan stage was not found, although preference was made to label the stage as "Proto Soan" (Ray & Ghosh, 1981.)

The chronological sequence of Soan industry has been shown on the basis of the temporal ordering of the river terraces. Although the industries found on the terraces cannot always vouchsafe that the terraces and the industries are really contemporaneous to each other. For later industries, the makers would not have any difficulty to place the materials on higher and earlier terraces. Again, a specific industry may be found to be associated with more than one terrace and the probability of being mixed up cannot be absolutely ruled out. Consequently, identification of cores from which the Pre-Proto Soan flakes were knapped off may be emphasised. Those cores might have served the purpose of chopper made on people (Ghose, 1969).

For quite sometime the southern Himalayan Palaeolithic industries (more specifically the Soan industries) were considered to be devoid of handaxes; but subsequently the area has

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Mohapatra (1983) has put forward some ralative dates in sense of absolute chronology.

yielded large number of handaxes (Mohapatra, 1976, 1981).

The Achenlian industry or even the technology of the same may be considered as the basic hub of Lower/Early Palaeolithic or Pebble-Core element culture comples, because of the similarity of technological traits. The only difference between chopper and handaxe probably lies with the orientation of flake scars which finally resulted in morphological difference of types and probable functions as well. For the purpose of highlighting the contents of the Lower/Early Palaeolithic industries of the northern area of the Himalayas it would, perhaps, be appropriate to reconsider the concept of Achenlian in the light of the data from different parts of the Old World. The emphasis should be given on typology and technology on the one hand and ecology and chronology on the other. The second complex of chrono-cultural unit is the Middle Palaeolithic phase. This, in northern Himalayan region, has been identified as Mousterian. For the southern Himalayan area almost the same stage has been designated as a composite form of Flake and Flake-Blade elements.

Teshik-Tash (Movius, 1953; Oklandnikov, 1959) is a site in the former area which has yielded profuse cultural remnants as well as hominid fossils. The tool assemblages here have been analysed in terms of technological tradition, such as Leavallois, Leavallois-Mousterian and Mousterian. Ranov (1974; 1976 : 101) suggested that name Moustero-Soanian for the Leavallois Mousterian, although the reason for the same has not been put forward—neither with context and reference not with data and materials. One perhaps fails to account for the influence of the Soan tradition if Ranov's Moustero-Soanian is accepted.

In terms of the Middle Palaeolithic stage, the position of Soan industries is comparatively better. Mousterian complex is not quite clear—either in India or in the southern flank of the Himalaya. The main traits of the so-called Middle Palaeolithic industries are the emergence of bladel in terms of both typology and technology. Denticulates (Ghosh, 1974) also appeared for the first time. Flake element in the final stage of Pebble

Core element and Flake-Blade element emerged at the late stage of Flake element. Further, that if Mousterian is considered as a complex set of culture in the arena of the Old World it appeared quite late in the Indian sub-continent and made accelerated progress within a very short spell and finally gave rise to the Upper Palaeolithic or Flake-Blade element. It appears that the Soan area was probably not the cradle land of the composite form of Mousterian. The emergence of the same might have occurred in an extra-Himalayan region, probably in eastern India or somewhere else. Hence the possibilities of Moustero-Soanian appears to be bery remote.

The Upper Palaeolithic stages are quite clear as far as the northern area of the Himalaya is concerned. In case of the same stages in the southern flank, some amount of ambiguites are noted. These stages are found to be spread with great progressive coverage in the Peninsular India. On this basis the Soan region may perhaps have culturally been cut off from Indian context and the development in that area was rather slow and less progressive. While in case of Central Asia, it had a specific focus.

With time, greater areas were probably covered by the late quaternary people for intens and greater exploitation of the resources materials; consequently some changes resulted in the demographic pattern. The pre-Upper Palaeolithic people were probably forced to intrude into other areas. The two kin bondage of cultural traits gradually got loose and bit relaxed; thereby both northern and southern Himalayan 'regions attened cultural identities of their own. Meanwhile, cultural traits became more stable with multiplicity of techr ology and ramification of tool types. The same helped more to negotiate the local ecological factors.

Concluding remarks

Both similarities and dissimilarities are observed as far as the main traits of the palaeolithic culture comples of the northern and southern Himalayan regions are concerned. Some common tool types are there with the presence of similar

technology as well. The difference, whatsoever, were accentuated with time and consequently at one stage individual cultural identities of the two regions emerged. The similarities may be explained on the basis of common tradition or even the phenomenon of universalism The differences are accounted for in terms dichomotic results, probably for varied needs coming into existence through ecological personalities.

Since the parameters for individual areas are not common and since the same have been described and utilised in different ways, it would be a very difficult task to make any attempt to correlate Palaeolithic industries of the northern southern flanks of the Himalaya. However, an arbitrary and somewhat tentative correlation may be attempted. Such an attempt will reveal that the emergence of lithic industry was earlier in the southern region when compared to the beginning in the northern region. This is one of the basic propositions that points to the diffusion of culture and migration of tool-making population from one area to other. Following this, continuity of Palaeolithic industries was made in both the regions in accordance with the needs, available raw materials, functions and above all, the behaviour of the hominids which is mostly concerned with tradition.

It is indeed essential to make comparative observations and analyses of relevant materials and data with a view to making inference. In such exercises cultural materials and makers of same, i.e. of fossil finds, are to be taken in intergrated ways keeping the background of bio-physical environment. It is also noted that for such work interdisciplinery approach and methodology are to be used. Movement of early hominids and migration of culture are not only pointing towards heritage and tradition but at the same time they reveal the commoness and similarities which might have given rise to one and the same central base.

With discovery of early man and prehistoric culture, attachment is made with the country from where those materials have been found. A trend is also found to be met with pushing down of the date. Simple finds in one locality do not

indicate that those basically belong to the same place. During earlier times, movement and migration were inevitable both with great amount of time and space. There was no concept of country as it prevails today is the most striking feature. In fact, within a large area smaller units contributed equally in human origin and development of culture.

TILE A VITAL LINK

J.L. Bhan

Tiles have been used since antiquity but it reached the highest level of excellence during the medieval period in Persia.

Terracotta tiles have been used in the construction of the Hindu and Buddhist structures in ancient India. Its reference is often noticed in ancient literature but archaeological excavations known so far have not found any decorative brick or tile which may definitely pertain to a period earlier than second century B.C. The earlier references to decorated tiles or brick is found in Sabaras Bhashya or Jaminis Sutras. It says that "the qualification of *Chitrini* and other bricks are auxiliary to the fire and should be connected with details laid down by the Fire Altar". The passage from Taittiriya Samhita are highly significant as it makes references to bricks with figure, bricks with marks of the thunderbolt and well baked bricks. According to Siddhanta (V. 3.7 Sutra 19) it is said that in reality the bricks should be put in the Central hearth because of the direct declaration. These bricks are called Brahmanvati. The Taittiriya Samhita refers to the actual practice of laying Chitrini Ishtakah in fire. What is of significances that Chitrini-Ishtakah means that the bricks were "decorated" or "ornamental". They could have been either painted or carved with a design or figures. The expression Chitrini possibly also

denotes carved bricks with relief figures or geometrical or floral motifs.

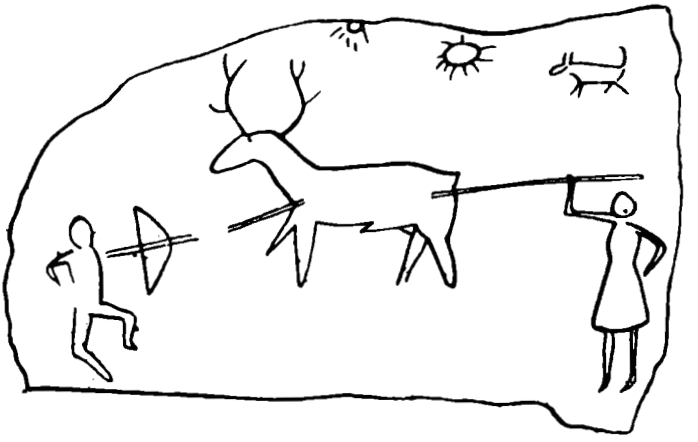
In fact, our knowledge of the artistic heritage of Central Asia and Western Himalaya is entirely dependent upon archaeological finds. This is true with Kashmir also where with the recent explorations and excavations many facts of the early life led by the ancient people have been brought out. It is often maintained that the Neolithic Kashmir has no parallel in the sub continent but has links with Central Asia. This is equally true of the earlier historic period of Kashmir as has been revealed from the brief study of terracotta tiles found at different places in the valley. These moulded tiles have been attributed to the Buddhistic settlements in the valley but a study of these terracotta tiles shows that they apparently pertain to the pre-Buddhist settlements of Kashmir about which very little is known to us. Therefore, an attempt is made to re-intrepret these terracotta tiles which provide a glimpse to the artistic activities carried on in the valley after neolithic period.

The Tiles

A few tiles exposed at Ahan, Sumbal, Kashmir show a human figure standing and holding a spear with kharosti numericals. The figures are repeated but no Buddhist artifacts was found in their association. This theme also appears on the Harwan tiles but with slight variations.

In 1978 a sensational discovery was made at Hoinar-Lidroo near Pahalgam when some moulded terracotta tiles were incidently exposed by labours while they were making a road leading to the forest. This prompted State Archaeology Department to undertake trial excavation at the site which exposed some unique types of moulded tiles hitherto unknown. A few mounds were resting on terraced like structure at Hoinar. The tiles so far exposed reveal that the art of tile did not begin at Harwan but had some earlier tradition. On some tiles are depicted hunting scene; a deer being struck by a spear thrown by a hunter who is shown with his both hands raised as if

Fig. 1



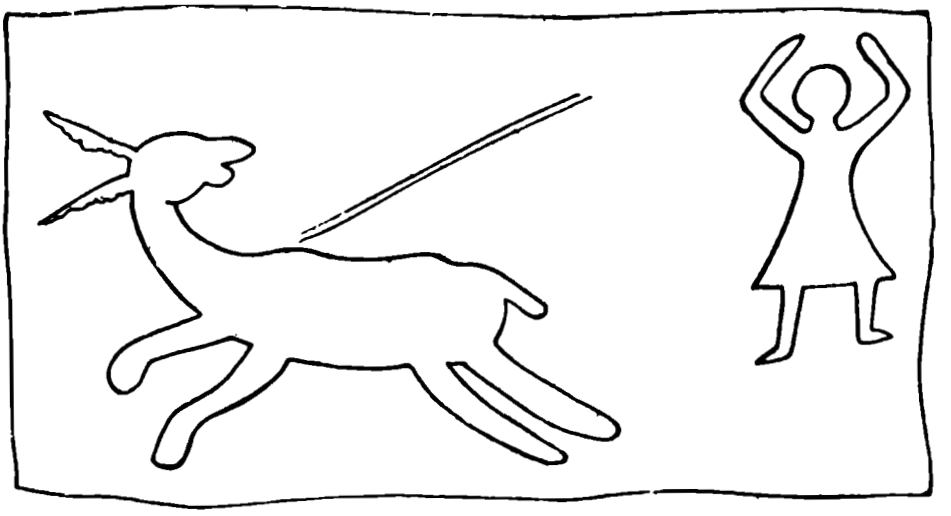
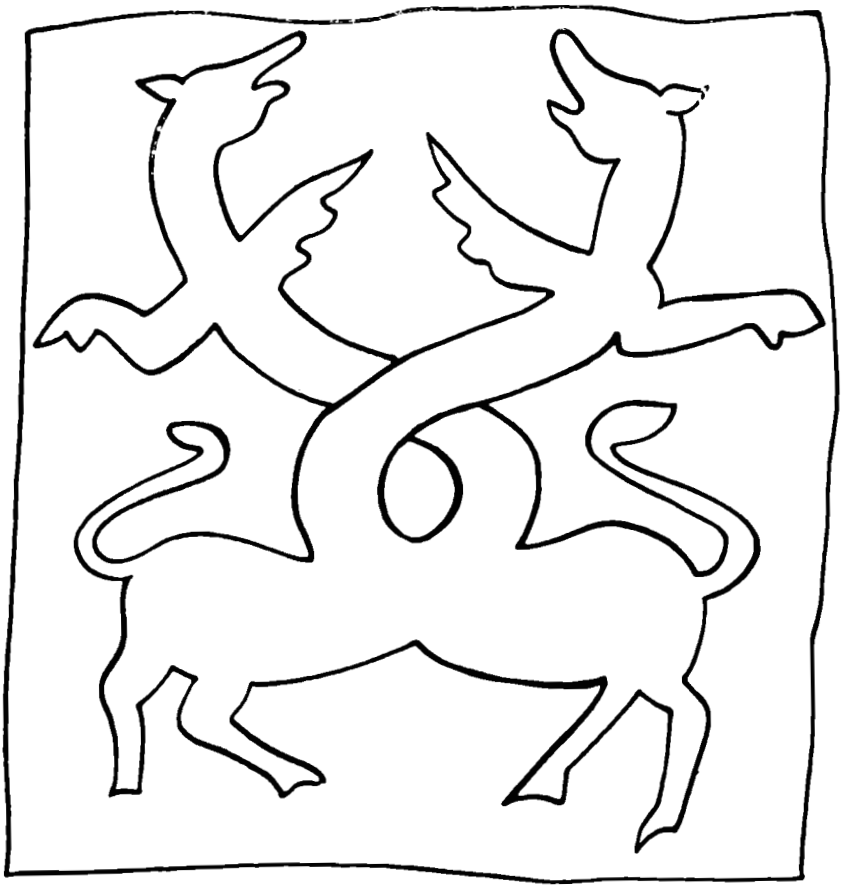


Fig. 2

Fig. 1. Relief on a stone slab depicting a hunting scene (stag hunt). Neolithic period II, Burzahom, Kashmir.
(Coellction : A. S. I. Srinagar.)

Fig. 2. Hunt of a stag-tile Hoinar, Pahalgam Kashmir.
(Collection : S. P. Museum, Srinagar.)

Fig. 3



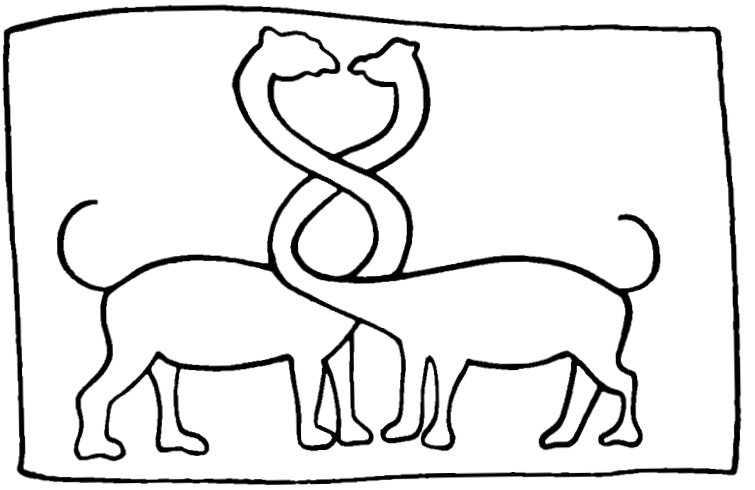


Fig. 4

Fig. 3. Pair of a wniged lious-Tile Hoinar, Pahalgam, Kashmir. *(Collection S. P. Museum, Srinagar.)*

Fig. 4. Two Sarpo-Pards. (Two Sarpo-Pards C. 1300 B. C.) Egptian-Museum, Cairo.

Fig. 5 a, b, c

Fig. 5. a. A couple seated at Balcony-Tile, Harwan, Kashmir.
b. A couple seated at Balcony-Tile, Harwan, Kashmir.
c. A couple enjoying a drink-Tile, Harwan, Kashmir.

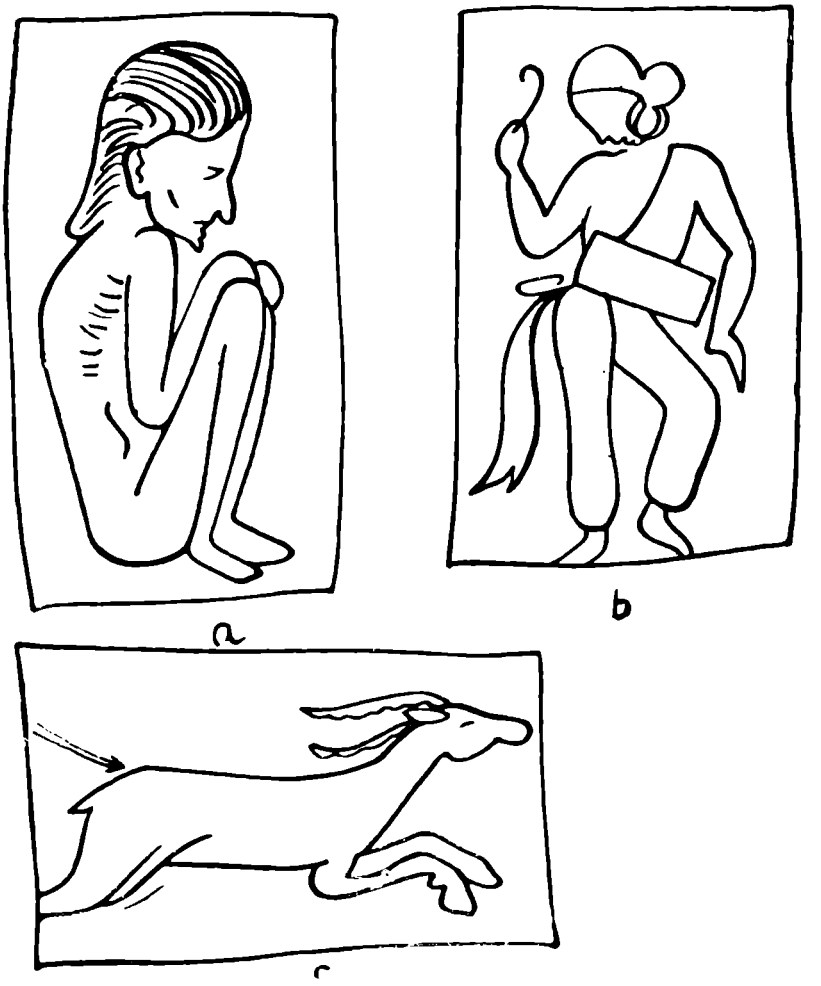


Fig. 6 a, b, c

Fig. 6. a. An Ascetic, Tile-Harwan-Kashmir.
b. A musician Tile-Harwan-Kashmir.
c. A running stag with an arrow auned at his back.

happy on his successful hunt. The genius artist of Hoinar seems to have witnessed the entire hunting scene before he commissioned this theme in clay thereby immortalising this episode. Some tiles depict animals and flower design but the most interesting, however, is a tile which shows two winged lions with their intertwined necks depicting some earlier tradition. It shows some western associations and one recals a panel depicting two serpo pards c 3100 B. C. in Eygptian Museum Cairo with intertwined necks held in an identical manner as on our relief from Hoinar; and is also identical to the seal impression of Nysa situated in the south Turkmenia which was the capital of the Parthian kings in 3rd century B.C. This tradition also flourished at various other places in Pahalgam area such as Doni-Pather, Yaren Yender, and Guder Nakh from which number of moulded tiles have come to our notice bearing similar motifs as Hoinar tiles. These tiles do not show any clue to their association with any of the Buddhist edifices.

The only scientifically excavated tiles are known from Harwan. These excavations exposed extra-ordinary moulded titles which are perhaps unique in the entire spectrum of Central Asian art. Stien identified Harwan with Sadarhavana (grove of six saints). This being primarily after Kalhana. The name of Nagarjuna, a great saint of Buddhist philosophy who is associated with Sardarhavana is mentioned only once by Kalhana and Harwan or Sadarhavana is otherwise unknown in the literary evidences of Kashmir. Curiously enough even Hieun Tsang (7th century A.D.) and O'Kong (8th century A.D.) do note make any mention of this site although both of them stayed is Kashmir for a considerable time and visited Buddhist shrines besides studying Buddhist literature in the valley.

The earlier scholars stated that Harwan was a Buddhist site. This is corroborated by the structure built in the lower most terrace which consists of a stupa and diapper pebble structure. The stupa may have been built after 6th century A.D. as per the numismatic evidence found at the site. But as one climbs higher up, one comes across a structure which is

more intrigiving and its iconography becomes complex. It consists of a unique courtyard decorated with remarkable moulded tiles which do not agree with the known Buddhist sites in India or Central Asia. Ananda Coomaraswamy stated that these tiles bear great similarity with some example from China; and bear many motifs which include human, animal, floral and some abstract designs.

Among the human forms both male and female figures occur in a wide range of activities such as female figures in transparent robe holding a flower vase, a pair of human figures seated in a balcony conversing or sometimes holding a lotus bud or holding a bowl of wine. This theme is repeated in one of the Taxila terracotta trays. The course features, low receding foreheads, high cheek bones and prominent noses of human figures are noteworthy characteristics. A graceful lady depicted on one tile walks with a basket while in another a male stands guard holding a long spear in his hand. Female musicians wearing turkish trousers playing on a drum, flute, cymbols are commonly met with motifs in these tiles. In certain tiles, a male is shown in combat with graffin like creatures.

The animal figures stamped on Harwan tiles represent a variety of motifs. Among the realistic representation of animals are a galloping horse, long horned stags, elephants, cow suckling her calf; and among the birds goose, cock which have caught the imagination of the artist of ancient Kashmir. The depiction of makara or crocodile with its curtied tail and its tongue protruding out from its mouth deserve mention. The floral designs consists of variations of lotus plants and leaves of acquatic plants.

Parthians and Sassaniar cultures which occupied most position of Iran and West Asia from 3rd century B.C. until the advent of Islam in 7th century A.D continued the tradition of clay for construction purposes. In the eastern areas of Parthian kingdom some clay bricks even included numbers similar to the system used at Harwan to assist in correct placement. The excavation of the Parthian site at Shami show that the courtyard was decorated with tiles without any decorative motifs.

Some sites in Central Asia have also indicated the use of decorative floors. Von-Le-Cog, a German, who undertook an expedition to Turfan records in his diary that beautiful tiles decorated the floors of many temples. One might assume that they were similar to these found at the famous site at Dunhaung in eastern part of Sinkiang which shows floral motifs in form of lotus petals. These tiles, however, do not show any pictorial representations as we find in Kashmir.

John Marshall while exposing a site at Taxila found a Buddhist site where a courtyard was decorated with tiles bearing some geometrical patterns but without pictorial richness of Kashmir tiles. The establishments in Mirpur Khas in Sind (Pakistan) exposed certain walls of residential houses which were decorated with moulded bricks showing geometrical patterns and vegetation motifs. The moulded bricks found at Suratgarh pertain to late Kushana or early Gupta period but show remarkable Gandharan influence. The figures available on these moulded bricks depict rossests, Acanthus leaf, a man with beard and wearing a skull cap are reminiscent of Harwan morigs which we get in the valley of Kashmir. The wide range of pictorial representations of Harwan tiles is most unusual. Such tiles with similar motifs appear at Bham-ud-Din Sahib mosque situated at Bumzoo near Mattan on Srinagar Pahalgam road. The author located some eleven moulded tiles fixed on the external side of the mosque bearing similar themes and motifs as we do find at Harwan which include a hunter on a horse back chasing a fleeing stag, a geese, a stag with an arrow shot at his back etc.

The exact site where these tiles have come is yet to be established. Nevertheless their presence at such a remote place from Harwan clearly shows that there were other sites in the valley which flourished side by side with Harwan and thus providing a tangible proof to the wide spread artistic activities which did not abruptly appear at Harwan but underwent various stages in its evolution before it crystalised at Harwan. These tiles depict vividly the ancient culture of the people of Kashmir in all its wealth a diversity and testify to the

independent and original nature of the art of the Kashmir who lived during ancient times, the parallel of which is not met elsewhere.

The Parthian finds found in north of oxus river south Central Asia are similar to those found at Harwan. From Khalachayan an important archaeological site Uzbekistan area moulded bricks carrying different motifs have been found. Kak had long ago suggested that the facial types at Harwan reflected some ethnic people who were living in Kashmir and must have come from Central Asia. In Bukhara, a number of decorative stuccoes which bear geometrical, floral motifs, animals and birds have been found. It may be pointed out here that the famous site at Toprak-kala, the excavations of which have provided an idea of high and unique artistic culture of Khoresum pertaining to 3rd century A.D. depict themes as can be observed in Harwan tile.

The excavations at Harwan have revealed various structure, built with Profound parthian influence. The discovery of few mounds recently discovered at a short distance from the top terrace of Harwan would throw further light after their excavation on the life and artistic activities of these forgotten people. The great temple at Surkotal situated in the north Afganistan and built by Kaniska shows similar plan on which Harwan has been built. Both these sites originally has a stairway leading to the centre of each terrace. The most important Parthian feature of Harwan tiles is the presence of an archer on horse back, Parthian mode of dress, with leggings and long skirt, prominent ear rings can also be found on Harwan tiles.

The stag, a sacred animal among the nomads of west Asia and amongst the Buddhist has become a popular these terracotta tiles of Kashmir. Similar motif can also be observed on the relief representation of a deer at Toprak-Kala (illus. page 275 Arch. of U.S.S R-Mongait) in the Central Asia. Among the various animals shown on these tiles, one often sees a stag hunt scene. On many tiles of Harwan, Hoinar, Bham-ud-Din Sahib an arrow or a spear is struck to the stag. It may be pointed out that in the earliest pictorial art of Kashmir

pertaining to the Neolithic period, a stag is shown being killed by two hunters with a spear and, arrow both these methods of killing are vividly depicted on these tiles. The killing of the stag is unvariably depicted as the terracotta tiles found at Hoinar, Harwan, Bhau-ud-Din's Sahib Mosque shows its continuity from Neolithic period onwards in Kashmir. In the known Buddhist sites in India or elsewhere the hunting of a stag is no more to be found. In fact the Buddhists prohibited animal killings. In rock edict I of Asoka, complete prohibition on animal killings even for the purposes of sacrifice is ordered. The edict limits the killings of only three animals every day consisting of two peacocks and one deer. Interestingly Asoka in the same edict the killing of deer thereafter. From the examination of the moulded terracotta tiles available at the various sites in the valley one is often confronted with the stag hunting scene. In the entire Buddhist art, deer is associated with the first sermon of Buddha held at the Deer Park at Sarnath, Banaras. Another point which requires our attention is the figure of an asoetic stamped on various tiles from Harwan. It may be pointed out here that the ascetisum was banned by Buddha and is rarely met in Buddhism as Buddha himself renounced this way to achieve enlightenment as excessive. The famous fasting Buddha found in Gandhara relates a particular episode from the life of Buddha. The image must have served as a warning against ascetic practices which is often depicted on Harwan tiles. This would clearly show that the terracotta tiles bearing human, ascetic figures and other figures discussed earlier in this paper and found at Hoinar, Harwan and other sites in Kashmir located so far cannot be associated with Buddhism. In his "Monuments of Kashmir" Kak reports that the tiles which decorated some portions of the Buddhist Stupa in the lower most terrace at Harwan where actually taken from the top most terrace which was lavishly decorated with moulded tiles. This might indicate that Buddhists might have come to Harwan after the site was earlier abondened by the people who used the top most terrace which was beautified with these tiles. The Buddhists

must have re-used some tiles for the beautification of their stupa which they had built in the lowermost terrace. This is further authenacted by the discovery of 6th century A.D. copper coin of Tormona underneath the Stupa which was found during the course of excavation of this unique archaeological site. The apsidal shrine which was built by these people in the centre of the tiled courtyard at the uppermost terrace was already in vogue in India long before it was incorporated in the Buddhist architecture in India. It is likely that the Buddhist must have been responsible for the displacement of these artistic people who left behind an ample evidence of their high artistic caliher, the parellel of which is not seen in the entire spectrum of Central Asian and Indian art. The complex cultural and ethnic set up of these forgotten people who se tled in Kashmir in early historical period is clearly revealed from the study of these pictorial terracotta tiles.

Who were these people with such artistic ideals and where from they came is a forgotton link to be probed in by the experts. However one is tempted to connect them with some tribe of Central Asia who probably belonged to the Parthian ethnic group as is revealed from the examination of the tiles and who might have settled in the valley during 1st/2nd century B.C. when the rule of the Parthians extended up to Sind and left behind them a rich legacy.

REFLECTION ON BURZAHOM AND SEMTHAN EXCAVATIONS AND LATER MYTHOLOGICAL PERIODS IN KASHMIR VALLEY

R.S. Bisht

On the present showing, the first settlers of Kashmir valley were the Neolithic people who were unfamilier with the use and manufacture of pottery. The first site that was subjected to extensive excavations was Burzahom situated on a high karewa table land now surrounded by fertile peddy fields and orchards under the shadow of the towering Mahadeo. The location should have been ideal for primitive farming and stock-razing besides hunting and fishing.

Excavations at Burzahom were conducted from 1960-1971 by T.N. Khazanchi of the Archaeological Survey of India. The cultural deposit is divided into four periods out of which the first two belong to the Neolithic culture, the third to the Megalithic and the last one being the Early Historical. According to Khazanchi, period I was marked by it dwelling of two types : (I) the large circular pits which are broad at the base and narrow at the tope like a truncated cone. (The largest pit is 2.74m at the top 4.57m at the base and 3.95m in depth. In a few cases a hearth on the bottom floor and in most cases walls have been found plastered with clay. Above ground along the margin of the mouth of such pits are found post-holes suggesting the existence of a wooden superstructure supporting a roof of perishable materials. In one case two

adjacent dwelling pits were connected by an opening for inter-communication). (II) The dwellings were square or rectangular chambers cut into the loess to the depth of 50 to 1 m. Such partially underground structures seem to have been surrounded by mud-walls some of which indicate timber reinforcement also. (There have been observed successive floorings and hearths containing house-hold goods such as saddle-querns, grinders and a description of tools and refuse. Amongst the tools there are harpoons, arrow heads spear-heads, needles, awls, digging tools, scrapers of bone and antlars and polished axes, adzes, borers, scrapers, chisels, polishers etc. of stone). The Neolithic folk of this period used a crude and hand-made pottery which often bore the impression of a mat on the bottom. Singnificantly R.K. Pant (1980) an associated with the excavation asserted that period I of Burzahom is without pottery. In 1981, Pant's view found to be correct. The subsequent excavation at Gufkral in district Pulwama conducted by A.K. Sharma has revealed the similar evidence. This excavation has added new information regarding flora and fauna, both wild and domesticated, whereas such information was sadly lacking at Burzahom.

During the period II at Burzahom, (Khazanchi i.e.) lithic and bone tools and the pottery of the proceeding period remained in use but pit dwellings were replaced by mud wall structures. Human as well as animal burials made their appearances. Significantly, early levels of this period yielded a few wheel made pots of red ware of pre-Harappan tradition in addition to the exotic copper tools and carnelian beads. But this context seems to be short lived.

However, there is reason to believe that the beginning of this period is heralded by the sudden appearance of the pre-Harappan pottery, although in very small quantity, in association with the copper tools and carnelian beads and further that the hand-made pottery of coarse grey ware of poor technical skill follows the appearance of the pre-Harappan items. Most of shapes found in the Neolithic were poor and a bad imitation of some of the diagnostic shapes of pre-Harappan tradition. It

is not unlikely that the Neolithic people of Burzahom learnt the art of pottery making from their pre-Harappan contemporaries with whom they are in contact; may be for a short duration but could not master the technique. (How and why the pre-Harappan objects made their entry into the valley or at Burzahom is not known. But this breif contact must have revolutionised the life-style of the neolithic people. In this context, the introduction of burial practices is also very significant.

Scholars have tried to connect some of the bone and stone tools and also the practice of pit dwelling with the Neolithic culture of China and elsewhere. But, this remain a debatable point, as there are no connecting links, at present, in the vast intervening area that separate the two cultural zones. Secondaly, no Mangoloid trait is observed in the skeletones from Burzahom. Conversely, the anthropological studies indicate that the Burzahom people were nearer to the Harappan as well as the living population of the Punjab plains. Besides, in the recent years, there have been located and excavated, a few sites in the neighbouring Pakistan where there has been established a long succession of both aceramic and ceramic Neolithic containing a variety of bone and stone tools. This may throw welcome light on the point.

The period III continuous with the preceding one in respect of pottery and most of the items of common use, is represented by rubble structures and huge menhirs.

The period IV is represented by the existence of the early historical potteries and mic brick structures. The recent findings from Gufkral has largely supplement/complimented the result of Burzahom but surely have thrown much more light on the pre-pottery, pottery stages of the Neolithic culture of Burzahom.

With regard to the stratographical position and use of the so called deep circular dwelling pits, Pant opines that these belong to the period II and not to period I; and further that those were not possibly meant for dwelling at all. No such large pits have been found in the central zone of the settlement

whether at Burzahom or at Gufkral. At Burzahom, these pits occupy the margins of the settlement and might have been dug up largely for storage purposes. While no longer in use those were filled with the refuse. Archaeological Survey has located about two and half dozen sites. Nearly two dozen sites were studied by Pant and Nautiyal who prepared site wise distribution of the different Neolithic fabrics and made an attempt to establish of stages of the Neolithic expansion in the valley.

Neolithic levels of Burzahom have produced seven C-14 dates based on half life value of 5730 years. (The earliest level is dated to 2375±120 B.C. while the remaining are 2225± 115 B C.; 2100±115 B.C.; 2025±350 B C.; 1850±125 B.C.; 1825±100 B.C. and 1535±110 B.C.) We feel that the first six are fairly consistant and cover a span of about 600 years (2400 to 1800 B.C.) for deposit of slightly less than 3.50m containing both the aceramic and ceramic levels. Another 200 years may be assigned to the Megalithic phase and thus bringing down the terminal date of the Neolithic tradition to 1600 B.C. The lower age aceramic period has been further pushed back at Gufkral were the top level of the aceramic has given a date of 2470 B.C. and thereby suggesting still older date for the beginning. In this chronological frame-work the appearance of pre-Harappan objects in the beginning of the ceramic phase fits in well. Furthermore, Sharma has suggested Harappan contact as well in the late phase of the Neolithic at Gufkral.

It is further observed that all the Neolithic settlements so far brought to light in the valley are situated on the high karewa tops or the elevated grounds and none so far on the valley-floor.

There followed a long Dark Age of 14 to 15 centuries till the appearance of the Kushanas in the later half of the 1st century of the Christan era. Two to three centuries before them the Indo-Greek and Indo-parthian princes ruled over the greater part of the northwest India. Their coins have been reported from Kashmir too, but they remained by and large shadowy personages in the absence of their material culture till the Semthan excavation conclusively proved their debut in

Kashmir. Similarly, the association of the Mauryan emperor, Ashoka, with Kashmir is notable though earlier held debatable. However, with the deposit of N.B.P. ware period at Semthan, the later phase of that period coincides with the Mauryan rule. Still significant contribution of Semthan is in the discovery of a new culture, the material of which underlies the N.B.P. deposit and rests on the natural soil.

The most diagnostic and significant item of this period, the ceramics, deserve special attention. Being largely unrelated to the assemblage of the Neolithic Burzahom, the pottery of this period, curiously enough, bears close resemblance in fabric potting. surface-dressing and certain forms to the Bara and other cognate wares of Punjab and Haryana forms to where it might probably look for ancestry; yet need not be over emphasised point of time as there might be a chronological hiatus between the two.

Palaeobotanical investigation of G.M. Butt have established that the people of this period were conversant with the use and cultivation of wheat, barley and rice. In addition to the weeds usually associated with the cultivation of wheat and barley. The blue pine is also recorded.

(With respect to two cultures of Semthan, it is largely established that the N.B.P. flourished from 500 B.C. to 200 B.C. although in recent years B.B. Lal has tried to prove that its lowerlimit could be pushed to 700 B.C. On the upper side too the date might to come 1st century B.C.). On most conservative estimates the N.B.P. was flourishing here during the reign of Ashoka. Further in view of the thickness of the deposit and close proximity of Kashmir with Taxila both geographically and historically the beginning of N.B.P. at Semthan could be around 500 B.C. at which time it was in use at the former. Naturally, the antecedent culture should be pre-500 B.C. In the light of thickness of the available deposit of period I it is not possible to give it a longer duration than 50 years.

Still there remains a gap of about one millennium between the terminal phase of the menhir Neolithic at Burzahom and the early Iron age of Semthan. Therefore, there still exists a

yawing gap that needs further bridging by archaeology.

In restrospect, the beginning of human activities in the valley starts with a long-lived aceramic of Neolithic culture, (if however we dismiss the solitary find of a doubtful palaeolithic tool that was collected by Dr. Sankalia from the Liddar valley in Pahalgam.) Pre-pottery Neolithic culture towards its close came in contact with a feeble wave of the pre-Harappan influence, which otherwise, in the neolithic folk who then on started to manufacture the native ceramics. In the terminal stage one finds the erection of menhirs at Burzahom and it many other places such as Haripargom, Waztal, Gufkral, Brah. Then follows a long dark age till the early Iron age followed successively by N.B.P. and the Indo-Greeks at Semthan.

It should not be out of place to mention here that the Nilmatpurana, perhaps the oldest surving literary work of Kashmir, written sometime in the 8th century, claims that the valley remained uninhabited by man for six manvataras because there was a large sheet of water called Satisara It was only in the last and seventh manvatara that mountains near Baramulla broke open to let of the water and make the valley inhabitable for men Tradition has it that earlier it was peopled by the Nagas who perhaps for sometime came under the sway of the Daitays as the story of Samgraha tells. Further, it is said that Samgraha was killed by Indra, the Aryan war-lord. In revenge the former's son Jalodbhava devastated the neighbouring countries. It was only subsequent to the drying up of the Satisar that the tyrant was killed and the man of the race of Manu came to settle in the valley. The story further tells that for a long period the people of Manu and the Nagas remained hostile to each other, but the Nagas subdued by the Manus with the help of the nomadic pishachas whose home is said to have been vast desert of a far-off land. Tradition further says that in the beginning the Aryans of the Manu race used to live here for six months of summer in order to produce food and then moved out for winter months during which the Pishachas would come down to the valley. The influence of the Pishachas could be eliminated only when the

Manus and the Nagas came closer and reconciled to live in peace.

Thus there were the Nagas, the Daityas, the Manus and the Pishachas. In mythology the three tribes excepting that of Manus, that is the Aryans, were reduced to satanic forces perhaps for various reasons. The Pishachas were brutes and the others gave continuous resistances to the Aryan expansion and life style. There are copious examples in literature and in history that those were human tribes with whom the Aryans often established relations also. (History tells us that there have been many rulers of the Naga family nine of which were conquered by Samudragupta in the 4th century A.D. Many coins and inscriptions of the Nagas have been found from different parts of India. The famous ruling family of the Karkotas of which Lalitaditya-Muktapida was an illustious king of Kashmir was of the Naga tribes. Even today there are many families in Kashmir, in Bengal, and elsewhere who call themselves Nagas).

Similarly the Nilmatpurana depicts the Pishachas as people of ferocious looks, living in the forest without houses, wearing animal hides for clothes and eating raw flush. Their original home is said to be in a distant desert. We do not know precisely whether it was Takala Makan in China or the desert of Karakum in Russia or some other place. Significantly, one of the dialects of the Prakrita language is called Pishachi which was spoken in a large part of northwest India during the medevial times.

Likewise Daityas were also a tribe with whom the early Aryans worshiping Indra had fought bitterly over centuries.

It is of course difficult to build up a reliable story of the past on the basis of mythological tradition. There seems little harm to make an attempt for identification of these tribes which are said to have played a historical role in remote past of Kashmir.

The Nagas of old Kashmiri tradition have been closely related to the water. Thus all the springs, lakes and ponds in Kashmir are held sacred to one of the legendary Nagas. The

water in the valley must have been more abundant 4 to 5 thousand years ago; and the draining out of water and progressive desiccation would have been a very low process and a large area of Kashmir must have been covered by a series of lakes and the large area of the remaining land must have been marshy; therefore, not fit for habitation and large scale cultivation. It is why almost all Neolithic settlements are found on higher ground. No wonder, if the Nagas were the first settlers of the valley who after a long time came in contact with the advanced Daityas whose remains perhaps we find in the form of pre-Harappan items at Burzahom. They greatly influenced and changed material life of the Neolithic people although the contact did not last long. After a long gap we come across at Semthan with the early Iron age pottery of foreign lineage. It must be mentioned here that the earliest people of Semthan were not surely those who came into contact and fought with the Nagas. These people might be the late successors of the conquerers whose settlements and objects are yet to be found. Only when the curtain is lifted from the Dark Age we would be able to identify the successors of the Neolithic and predecessors of the early Iron age people and thus be in a position to solve the riddle of the Naga-Manu conflict if it ever occurred. And then only probably the Pishachas may appear as an archaeological reality.

LATE CENOZOIC PALAEOCLIMATE OF KASHMIR : A PICTURE EMERGES

D.P. Agrawal

The Kashmir valley is an intermontane fault basin filled with mainly lacustrine sediments. Sandwiched between the Himalayan ranges on the NE and the Pir Panjals on the SW, this boat shaped valley is now drained by the Jhelum which meets the Indus. Here I present a summary of the post-Pir Panjal-rise sedimentary fill : its stratigraphy, chronology, sedimentology, palaeontology, and archaeology to delineate the broad outlines of the climatic changes the valley went through during the Late Cenozoic period. These studies were carried out under the Kashmir Palaeoclimate Project, funded by the Department of Science and Technology, in which the Universities of Delhi, Garhwal, Gujarat, Kashmir and Punjab, Birbal Sahni Institute of Palaeobotany and Geological Survey of India participated.

To assess the significance of the work reported here, it needs to be emphasised that detailed lithologs of all the major exposed sections of the Karewas were prepared and a composite litholog was made by correlating different sections of the basis of sedimentological, palaeontological features and chronological data based on physical dating methods. The multiple sampling was keyed to such master lithologs measured with high resolution and dated through different technique. As a result, all the multidisciplinary data can be intercompared.

One can now pinpoint, for example, from a particular stratum dated to the Olduvai event (1.9 m.y.) what type of pollen, diatoms, ostracodes, vertebrates, etc. derived and what type of sediments were being deposited at that time. Not all the thousands of collected samples have been analysed so far; it will take a couple of year more. But we do know that whenever these data become available where they will hang in the chrono-stratigraphic framework of the Karewas built up by us. In the meanwhile, a large body of data have become available and an outline of an emerging picture can be delineated despite the gaps.

There exists a general consensus that the rise of the Pir Panjal range was responsible for impounding the primaeval drainage and giving rise to a vast Karewa lake. As the Pir Panjal continued to rise, the Karewa lake shrank and shifted to the Himalayan flank. At some stage in the late quaternary period, the Jhelum emerged from a fault near Baramula and drained out the lake. Tandon (1982) and Singh (1983) have made detailed analyses of the sedimentary structures of the Karewa deposits. Bhatt has worked out the different members of the total lithostratigraphy.

Chronology

We made detailed lithologs of all the exposed sections separately and keyed the multiple sampling to them. Vertebrate fossils were hunted for their use as chronological markers. Large chunks of sediments were macerated in the field itself to locate a large numbers of mega and microvertebrates (Sahni et al. 1982, Sahni and Kotlia, 1983). Besides the earlier reported occurrence of *Equus sivalensis* from the upper part of the Hirpur sequence by Tiwari and Kachroo, Sahni and Kotlia have located a *Cervus* bone from Hirpur Locality IV and a number of remains of *Cervus*, *Equus*, *Elephas* from the upper parts of Romushi and Upper Karewa sediments. None of these mammals goes beyond 2.4 m.y. (Matuyama/Gauss boundary).

Magnetic measurements by Sheela Kusumgar et al have

assigned the beginning of the Karewa sediments to *c* 4 m.y. (Gilbert Chron). The fission track dates measured by Bhandari et al have confirmed the magneto-chronology. Singhvi et al have now dated the Dilpur and Karpora loess sequences, using thermoluminescence. So far only the upper parts of the total loess profile have been dated. The earliest TL date for Dilpur so far is *c.* 70,000 B.P. The uppermost three palaeosols have been 14*c* dated by Kusumgar et al to *c.* 18,000 B P., c. 31,000 B.P. Thus a broad chronological framework of the Karewas start at *c.*4 m.y. with the Hirpur sequence. The Romushi section comprises the middle part of the sequence and the Upper Karewas, the top. The loess deposits of the Pir Panjal are younger than the mid-Brunhes and of the Himalayan flank belong to the upper Brunhas.

Climate

Gupta et al have worked out the pollen evidence from Hirpur III which covers approximately a period of *c.* 3.5-2.3 m.y. They have documented a sub-tropical climate in the earlier part of the Hirpur III profile, which, becomes cooler as one goes upwards reaching a cold phase at the top.

The pollen profiles have yet to be complete for the period 2.3 to 0.7 m.y. But around 00.7 m.y. there is a distinct cold phase depicted both by diatoms (Gnadhi et al) and pollen (Dodia et al). An early quaternary horizon (*c.*2 m.y.) on the Romushi section shows some voles, which if *in situ,* should represent very cold conditions, as they occur at *c.* 3000 m. A.S L. at present.

Loess proved barren in pollen, but the succession of loess and palaeosols itself is indicative of climatic oscillations (Agrawal et al). Agrawal et al have been able to detect three clear soil horizons at the Burzahom site, which have now been confirmed by Bronger. Pant et al have attempted stratigraphic correlations between different pollen profiles. Much more work needs to be done loess to reconstruct a climatic succession for its time bracket.

The last 20,000 years are better documented mainly because

of the several pollen profiles now available from Kashmir (Singh et al, Agrawal and Singh, and Dodia et al). The details of this work are being presented in this symposium by Dodia et al. We will therefore summarise them only briefly here.

A broad leaved element dominates the earliest stages *c.* 18, (*c.*18,000 B P) of the Botapathri pollen profile and thus shows a climatic amelioration. It is confirmed by the *c* 3 type of vegetation inferred by Krishnamurthy et al on the basis of the stable isotopic measurments. The wide occurrence of a palaeosol at *c.*18,000 B.P. (Kusumgar et al) also corroborates the evidence of climatic amelioration at this time which is in sharp contrast to the general glacial aridity elsewhere. The climatic implications of this evidence will be discussed elsewhere.

But the post 15,000 B.P. pollen profile shows a cold-warm cold succession on the pattern of the European evidence (Dodia et al).

It is interesting to note that a clear evidence of agriculture, in the form of Cerealia type pollen, is indicated in the Anchar pollen profile (Dodia et al) which is corroborated by the presence of cereals from Burzahom (Buth and Kaw) and also from Gofukral's earliest Neolithic level (Kajale).

The large population densities, indicated by the proliferation of archaeological sites, coincide with climatic amelioration mid-Holocene with the Neolithic, *c.*1800 B.P. with the Kushana period and the *c.* 1000 B.P. with the historical sites.

Thus Kashmir presents a unique situation where one has a sediment record going back to *c.* 4 m.y. Thanks to the contributions by the collaborating scientists of the Kashmir Palaeoclimatic Project, a broad outline of the climatic changes is available today. Details about the individual contribution by the various scientists will be published in *Climate and Geology of Kashmir : the Last 4 million years* (Eds. Agrawal, Krishnamurthy and Kusumgar).

ANTIQUITY OF RICE AND ITS INTRODUCTION IN KASHMIR

G.M. Buth, Maqsooda Khan & Farooq A. Lone

Rice is the most important cereal of the tropical countries, used by half of the world's population. It belongs to genus *Oryza* and has great antiquity. Its Gondwanaland origin and interspecific differentiation before the supercontinent fractured and drifted apart, are indicated by the pantropical distribution of the wild species of the genus in a nondisjunct manner across Africa, Asia, Oceanica and Latin America (Chang, 1967a, 1967b, 1985).

Chang (1967a) regarded the Northeast India, Northern Bangladesh and the triangle adjoining Burma, Thailand, Laos, Vietnam and South China and the primary centres of domestication of rice. The cultivated species of the genus is *Oryza sativa* L. It is considered to be the oldest crop in South Asia, where the agriculture is ancient and climatic conditions favour the diversification and mutation.

A mass of information on the antiquity of rice, in India is rice derived from the imprints of rice spikelets and kernels on pot sherds. Either there was an ancient practice of mixing the spikelets, grains and chaff of rice with clay, as a binding material prior to turning it into pottery, or else the marshes, which were the sources of clay, abounded in wild rices contributed spikelets into the clay. The marshy mud contains besides

these, molluscs and remains of animals also. Of these there is no evidence in potsherds. Thus, this indicates that the practice was international (Vishnu Mittre, 1974) and further that the people had since long been using this crop and were well aware of its utility.

The earliest rice remains found to date belong to carbonized grains and glume fragments from Ulu Leang site in south Sulawesi of Indonesia which has been dated to about 4,000 B.C.C. (Glover, 1977) slightly earlier than the 3,500 B.C or earlier date of Ban Chiang in Thailand (Yen, 1982).

In India at Kolidihawa, a neolithic site near Allahabad in Belan Valley, rice grains have been reported to belong both wild and cultivated species (Vishnu Mittre, 1976). There are two early C^{14} dates for the site; 4530 ± 185 B.C. (PRL-101) and 5440 ± 240 B.C. (PRL-100). Another sample from the same level (PRL-223) gives a date of 1440 ± 120 B.C., thus creating a confusion. However, if this dating is confirmed this would be not only the earliest rice remains yet found in South Asia, but also the oldest dated neolithic settlement so far known on the alluvial plains of the sub-continent. Records of rice grains or husk from Archaeological sites in the country are given in table I.

Table 1.

Locality	Age	State of Material	Reported by
Lothal, Gujrat	C. 2300 B.C.	Impressions of paddy on clay lump.	Ghosh (1961), Ghosh & Lal (1962-63)
Chirand, Bihar	C. 2000 B.C.	Husk impressions on the pieces of clay and some charred grains.	Vishnu-Mittre (1972)
Rangpur, Gujrat	C. 2000 B.C.	Lemma and Pale	Ghosh & Lal (1962-63)
Atranjikhera, U.P.	C. 2000 B.C.	Caryopses, husks and leaves.	Chowdhury Saraswat & Buth (1977)
Ahar, Rajasthan	1800 B.C.	Charred grains	Vishnu-Mittre (1969)
Navdatoli, Maheshwar (M.P.)	1675-1400 B.C.	Charred caryopses	Vishnu-Mittre (1961)
Inamgaon, Maharastra	1370 B.C.	Charred grains and impressions	Kajale (1977)
Hastinapur (U.P.)	1000-800 B.C.	Caryopses and husks	Chowdhury & Ghosh (1954-55).

Besides, there are many other records of rice from archaeological sites in India which date back to 1,000 B.C. or later. The table clearly indicates that the rice culture was an established crop by 1,000 B.C.

With regard to the diffusion and introduction of rice culture Agrawal (1971) propounded a hypothesis that rice cultivation was started at Lothal and Rangpur in Gujrat and spread eastward to Atranjikhera, Hastinapur and Navdatoli and then on to west Bengal and Bihar in a circuitous mamer. This hypothesis is not, however, tenable from the botanical point of view because there is a consensus of opinion among botanists, plant breeders and ecologists that rice cultivation originated somewhere in southeast Asia and the diffusion took place from east to west. Furthermore Vishnu Mittre (1961) and Chowdhury (1971) have expressed their doubts whether the remains of rice discovered at Lothal and Rangpur could be taken as remnants of cultivated rice. In their opinion, the remains may be from wild rice.

Beginning of Agriculture in Kashmir :

Farming necessitates disturbance of natural vegetation. The disturbances created by the Prehistoric Man to clear the land for farming can be depicted through pollen analysis of lake sediments and swamp deposits. The pollen analytical studies of Haigam lake in Kashmir valley (Vishnu Mittre and Sharma, 1966) have shown that in stage b (datable to about 2,000 B.C.). There is a decline of pine forests, appearance of *Plantago* lanceolata which is considered to be indicator of beginning of agriculture in pollen diagrams, the rise in Chenopodiaceae and Compositae shrubs. These results are suggestive of clearance of pine forests, the practice of farming and the abandonment of the site by neolithic Kashmiris. The Anchar lake sediments which have been radiocarbon dated to 4000 B.P. have revealed Cerealia type pollen (Dodia, 1984) which is corroborated by the presence of cereals from Burzahom (Buth and Kaw, 1984) and also from Gofkral's Neolithic levels (Kajale in Sharma,

1979-80). Thus early evidences of farming are undoubtedly of Neolithic age, dated in the valley as 2375±120 B.C.

Rice Culture in Kashmir

Rice is predominantly cultivated in the valley today. Pollen evidence has yet to date the shift to rice cultivation (Vishnu Mittre 1974). The antiquity of rice cultivation as revealed by archaeological excavations is still scanty. However, excavations at Burzahom, Gofkral and Semthan reveal the process of agriculture practised by ancient people.

Burzahom is primarily a Neolithic site capped by a Megalithic complex. The site dates back to 2375 B.C. Neolithic culture of Burzahom shows certain unique characteristics which single it out from other neolithic cultures of India. The excavation has revealed that hunting, stock raising and agriculture played a key role during neolithic times. From this site the charred grains of wheat and barley have been recovered. There is no evidence of rice from Burzahom.

The excavations at Gofkral have yielded the presence of the earliest Aceramic Neolithic period dated back to pre 2100 B.C. Towards the end of Neolithic II period (datable to about 1,000 B.C.) the grains of rice have been reported, though wheat and barley have been recovered right from Aceramic Neolithic phase (Sharma 1979-80).

The excavations at Semthan have also revealed the occurrence of a post-Harappan culture in the lowest level. It is considered to be a tentalizing discovery in the history of the archaeological research ever done in Kashmir valley. This period, known as Pre-N.B.P. phase, has been dated back to 1200 B.C. At this site rice is found throughout the profile right from the pre-N.B.P. phase. The frequency of rice compared to barley and wheat increases as we go from pre-N.B.P. towards historical periods.

As wheat and barley are found from the Neolothic (2375 B.C.) to Megalithic (600 B.C.) at Burzahom and in all the phases of Gofkral and Semthan excavations, it can be stated that perhaps rice was introduced somewhere around 1000 B.C.

because of some change in the climate and/or subsistence practices.

The geographical proximity of Kashmir Neolithic cultures is closer to the Harappan zone. Being advanced and urbanized the Harappans extended their sphere of influence to neighbouring areas. In this context the pre-Harappan pot and semi-precious stone found in Neolithic Burzahom also indicate a sort of limited contact with the reverine plains of the Indian sub-continent during the Indus period. The similarity that exists between the assemblage of Burzahom and Neolithic cultures of Central Asia might have resulted from the movement of people and cultures from the north through the passes connecting these areas. That rice was introduced from Central Asia into the Kashmir valley seems to be a remote possibility. On the other hand it appears that the introduction of rice culture has taken place from the plains, possibly from Indo Gangetic area, alongwith the migration of the people.

NEOLITHIC LINKS

G.M. Buth, Farooq A. Lone & Maqsooda Khan

Neolithic settlements in Kashmir have opened a new chapter towards the cultural intercourse with the regions of Central Asia during pre-historic times. These settlements are found throughout the length and breadth of the valley and show definite stage of evolution of the neolithic industry. This culture as represented at Burzahom, Gofkral and other sites in the valley of Kashmir shows certain unique characteristics which single it out from the other neolithic cultures of India.

The Neolithic Culture of Burzahom (2325-1500 B.C.) has revealed two phases within the neolithic occupation. The earliest settlers (Period I) lived in sub-terranian pits. Besides the circular pits, pit chambers which are rectangular or squarish have also been found. They used handmade pottery many forms of which are used in the villages of Kashmir even now. The period I shows a total absence of burials and people may have adopted some other practices for disposal of the dead. Bone tools as an organised industry is most developed here. The main types are harpoons for fishing, needles with or without eyes and awls, spear points, arrowheads and daggers for hinting game, scrapers for treating skins. Tools have also been fashioned out of antler's horn.

In the succeeding phase (period II) pit dwelling was abandoned and structures of mud and mud bricks were built. The

period II indicated peculiar burial practices and numerous human and animal burials, mostly within the settlement, were found. Red ochre was used on the bones of the human burials of this period. The physical features of the long headed people of Burzahom show no appreciable difference from that of the Harappan people. It is asserted that Burzahom carnia are closer to Harappa R. 37 carnia than to neolithic carnia of southern India. The skeletal evidence thus points towards ethnic affinity between the Harappa and Burzahom series and suggest ethnic continuity in spite of cultural differences. Animals represented in the burials are dog, wolf and ibex. The most interesting amongst these was a burial showing skeletal remains belonging to five wild dogs and antler's horn.

Gofkral on the other shows the presence of a well defined Aceramic Neolithic level, the top layer of which goes back to 2740 B.C. It is characterized by the recovery of wheat, barley, lentil, pea and the appearance of rice towards the close of neolithic period. The faunal assemblage is dominated by the wild animals in the low levels which slowly leads to the domesticated ones. The site present an evidence of structural remians both similar to those found at Burzahom and those unique to this site.

Archaeological investigations in the valley have also brought to light such cultural traits at Huin Baramulla and in Lar area of Sindh valley. Both these routes have been of paramount importance in the succeeding periods of the history of these regions. The surface collection of these newly discovered sites resemble with the finds from the excavated neolithic sites of Burzahom and Gofkral.

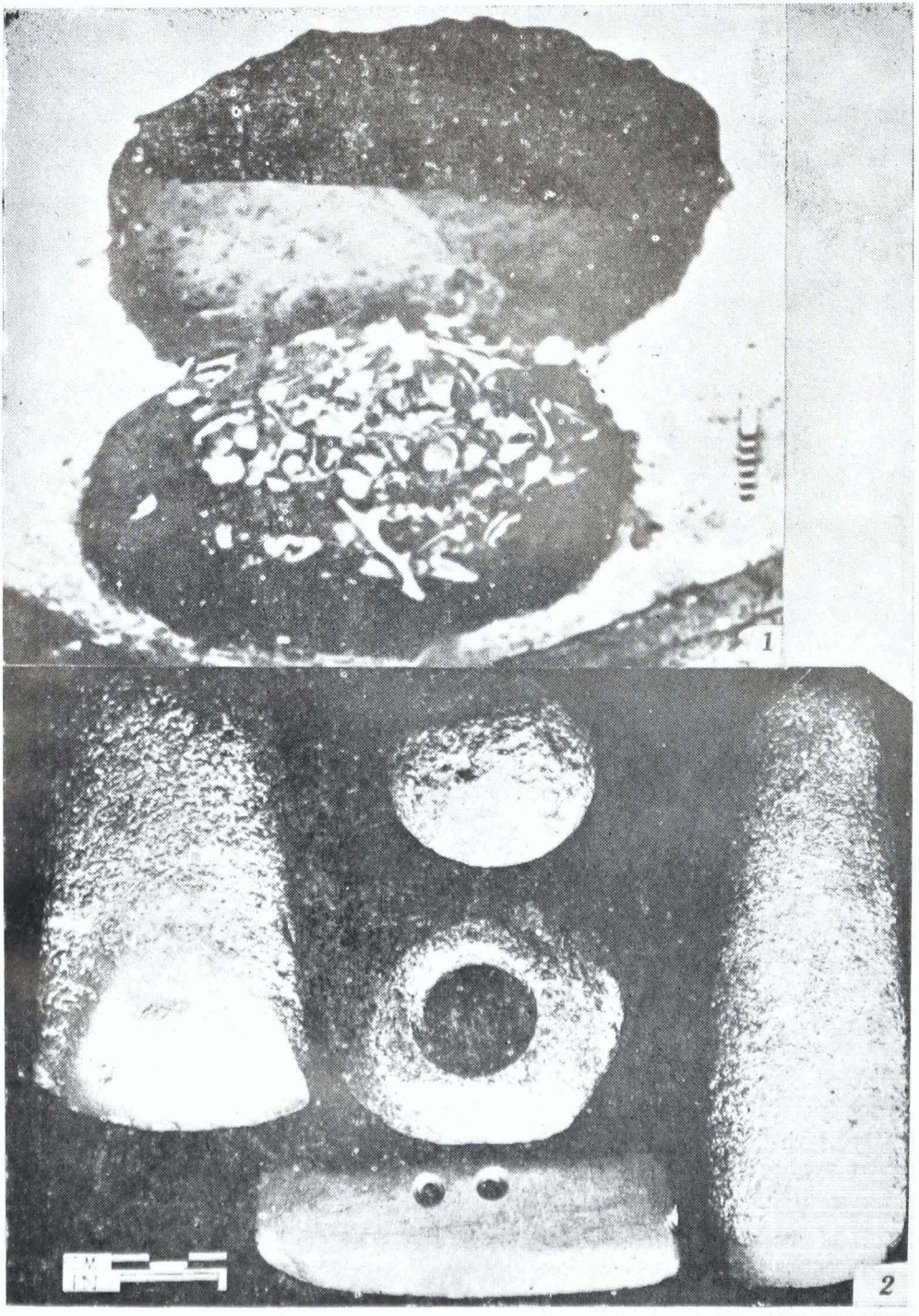


Plate 1

(1) Animal and human bones (Sacrificial altar). Pd II.

(2) Stone tools (Axes, mace-head and a perforated harvestor).

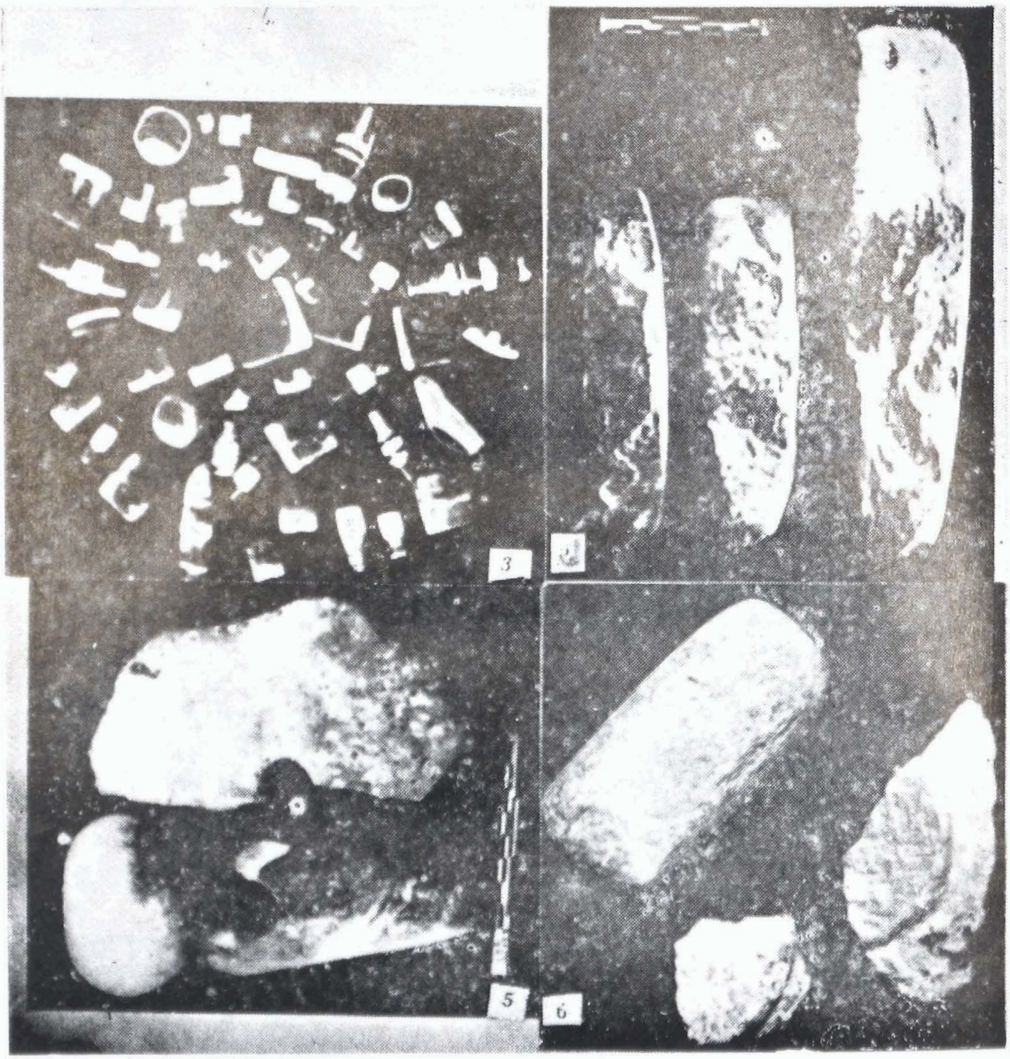


Plate 2

(3) Carnalian and Agate beads. Pd II.

(4) Stone axes.

(5) Stone tools.

(6) Pottery bases with mat impression and a stone tool.

Plate 3

(7) Pottery base with mat impressions and stone axe.

(8) Human burial of man and a child. Pd II.

(9) Excavated red ware pot with hoard of Agate and cornalian beads (Foreign elements) Pd II.

(10) Sombur. Gritty Red Ware Pot. (Neolithic period).

(11) Gofkral. Pottery bases with mat impressions A mace-head (broken) A stone chisel.

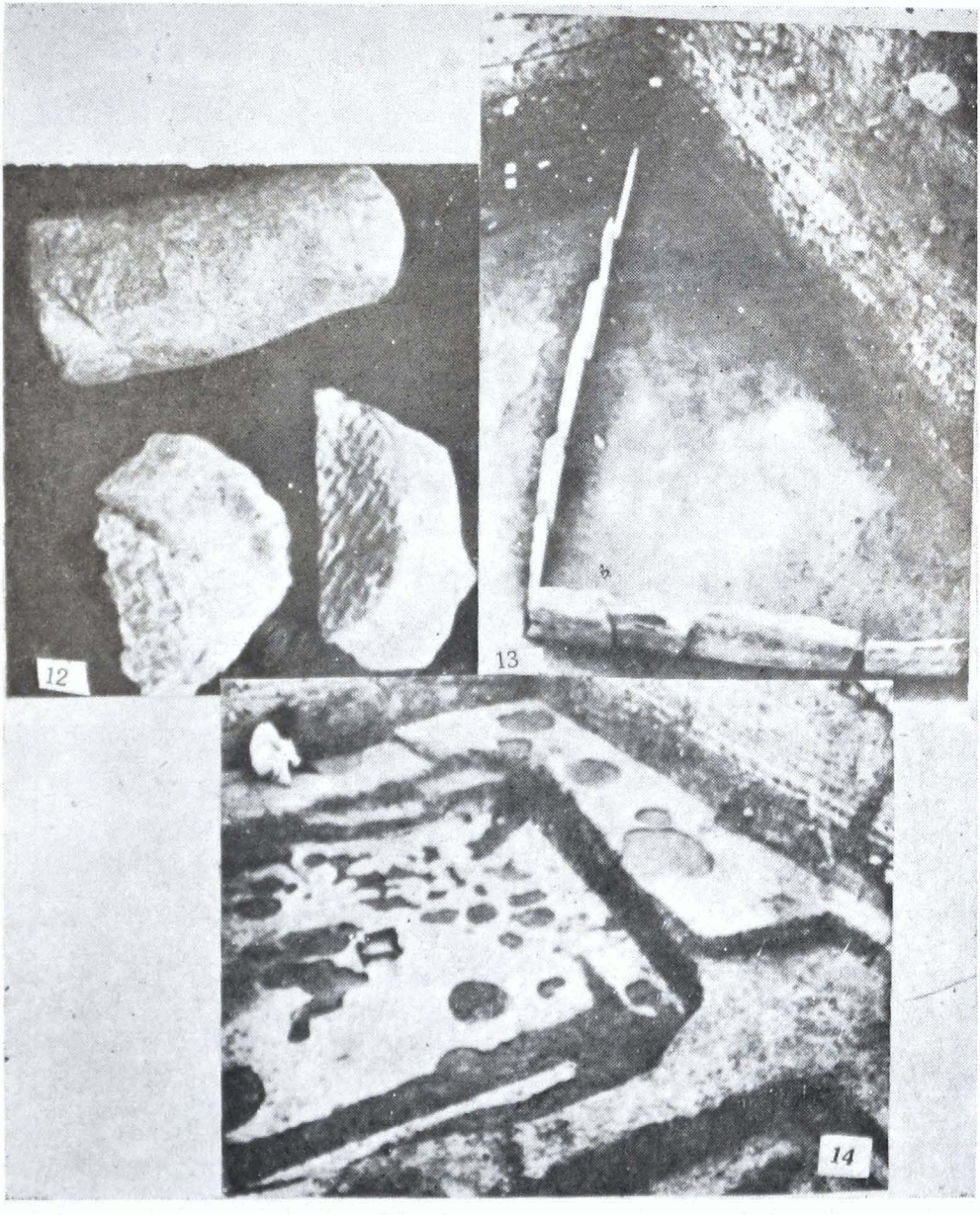


Plate 4

(12) Pottery bases and stone axe. Pottery bases with mat impression.

(13) A storage tank (Neolithic period II).

(14) Dwelling pit (Rectangular chamber with stone lined hearth in the Centre and post-holes.

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