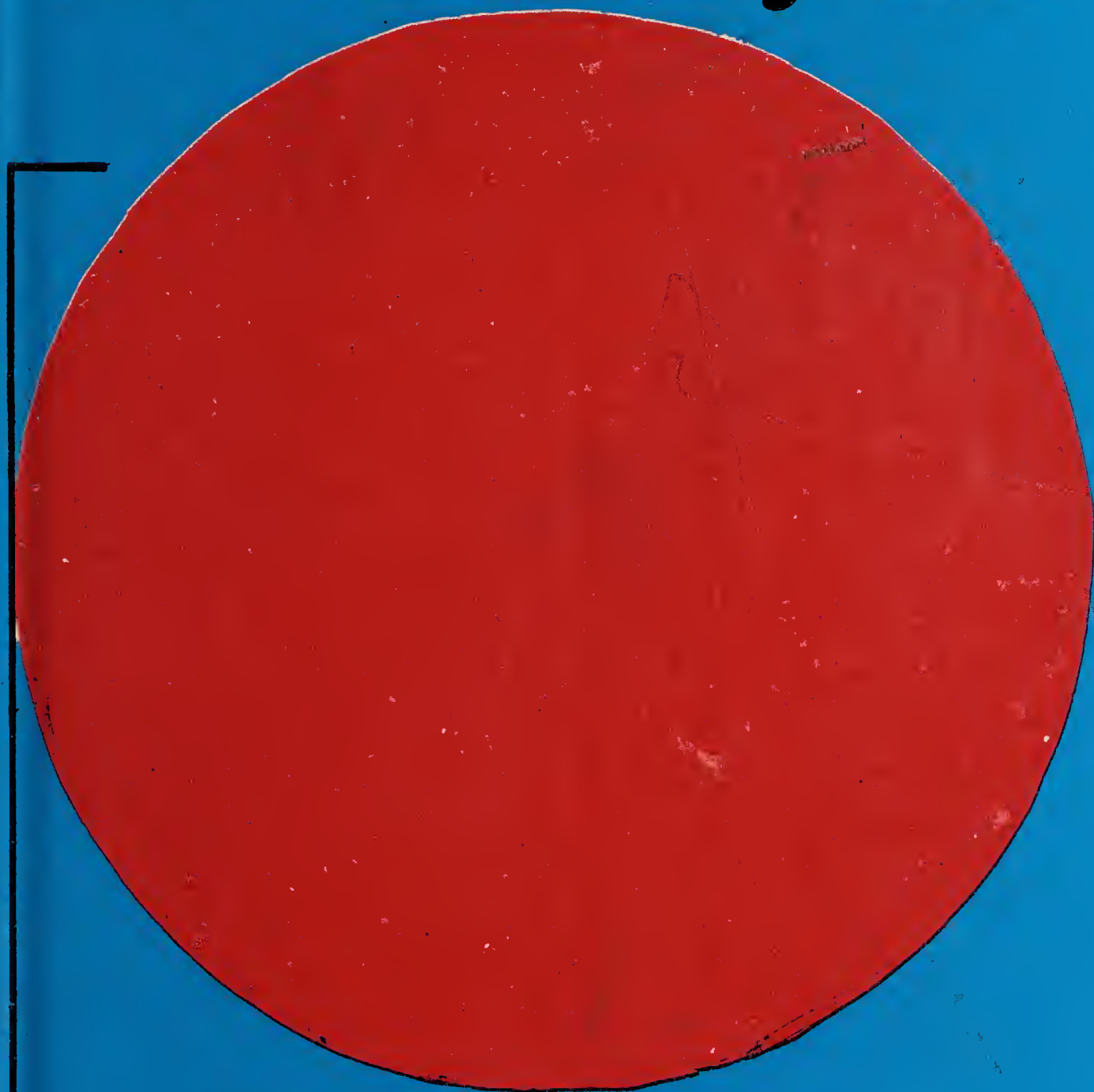


The Himalayas and The Himalayans



Edited by

Manis Kumar Raha

Assisted by

Palash Chandra Coomar

ABOUT THE BOOK

The Hindu mythologies have marked the Great Himalayas being the abode of the gods, goddesses and the saints as the most sacred place on the earth. The *Skanda Purana* has mentioned that by the sight of the Himalayas all sins of mankind are wiped out as dew drops are dried up by the morning sun. Apart from the sacredness, the Great Himalayas are quite unique in many respects. Since time immemorial these great mountain ranges have given shelter to a large number of people with varied ethnic, religious and cultural identities. In the peculiar isolated/semi-isolated Himalayan ecology they have developed a distinct bio-genetical and cultural life. The peculiarity and distinctiveness of their bio-cultural life has made them distinct. Living in different altitudes and different ecological conditions the people here have polyvalent economy, varied social structure, different marriage patterns, varied systems of social control, and also different religions and world view. This book not only highlights the impact of the Himalayan ecology on the people there but also gives its readers a comprehensive idea about their bio-genetical and cultural distinctiveness.

**THE HIMALAYAS
AND
THE HIMALAYANS**



Digitized by the Internet Archive
in 2018 with funding from
Public.Resource.Org

**THE HIMALAYAS
AND
THE HIMALAYANS**
(Studies on Ecology, Biology and Culture)

Edited with an introduction by
Manis Kumar Raha

Assisted by
Palash Chandra Coomar



**ANTHROPOLOGICAL SURVEY OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
DEPARTMENT OF CULTURE
GOVERNMENT OF INDIA
CALCUTTA-700016**

Published in June, 1992

Published by

Director General

Anthropological Survey of India

Government of India

27, Jawaharlal Nehru Road

Calcutta 700 016

Printed by

The Reliance Printing Works

“BASANTA BAS”

93, Sarat Chatterjee Road,

Chatterjee Hat,

Shibpur, Howrah 711 102

ISBN: 81-855 79-11-3

Price: Rs.

£

\$

Without the expressed permission from the Director General, Anthropological Survey of India, no portion of this publication can be reproduced partly or wholly.

Foreword

The Himalayas have profoundly affected Indian psyche. They are our sentinel. They are also home to a number of interesting communities. They have been the refuse of the communities moving from the plains and far away places. Here the indigenous and incoming communities have met to produce an amalgam of cultures. This has been the subject of many interesting studies which have highlighted the uniqueness of Himalayan societies and cultures and also the extent of acculturation and impact of change and development particularly since independence. Institutions like polyandry have been widely studied. Compared to the plains there exists considerable laxity in the norms governing marriage and inheritance. The incidence of both hypergamy and hypogamy across the varnas and within jati clusters have been widely reported in the Himalayans. The ecological, biological, linguistic and cultural diversities of the Himalayas have been projected. Today parts of Himalayas have been deforested and an ecological crisis of disturbing magnitude has built up with relentless felling of trees, erosion of top soil, etc. In spite of its celestial beauty most of the people of the Himalayas are impoverished, suffering from acute malnutrition and hunger.

The available information, particularly the mass of data generated under the *People of India* project, together with the sets of data available from many other sources should make it possible to evolve appropriate strategies for the regeneration of the ecology of the Himalayans and human development.

Dr. M. K. Raha has been one of our prolific scholars. He had devoted a good many years of research in the Himalayas. It is only appropriate that he should put together articles covering a wide gamut of studies on the central and western parts of the Himalayas. I hope this book will be found useful by researchers, students and teachers.

29th May, 1992

K. S. SINGH,
Director-General

Acknowledgement

I am deeply indebted to Dr. S. C. Sinha, former Director, Anthropological Survey of India, who inspired me to undertake research work in the Western and Central Himalayas and to Shri H. K. Rakshit, also former Director of Anthropological Survey of India, who permitted me to take up this volume. I am also very much thankful to Dr. A. K. Danda, also former Director for his help, encouragement and interest in this work and also for permitting me to incorporate some articles already published in the Survey's bulletins.

I am also extremely grateful to Dr. K. S. Singh, Director General, Anthropological Survey of India for so kindly writing the FOREWORD of this book.

My thanks are also due to Dr. R. S. Negi, former Regional Officer, Anthropological Survey of India, North Western Region, Dehra Dun, whose inspiration provoked me to take up this volume. I am also indebted to all my colleagues who co-operated with me by contributing articles in this volume (in fact my colleagues of our survey are the contributors). Without their co-operation this volume could not have been made.

My friend Dr. Alope Kumar Ghosh assisted me immensely in editing some of the articles of Part Two, *i.e.*, articles on Physical Anthropology. Dr. Anadi Pal also went through one of the articles of Part Two and gave his valuable comments. I shall fail in my duty if I do not acknowledge my debt to Dr. Ghosh and Dr. Pal.

Professor P. K. Bhowmick, Dr. Amal Kumar Das and Late Professor L. P. Vidyarthi always encouraged me in undertaking such a project. I express my sincerest gratitude to them.

With deep appreciation I remember Shri Swapan Kumar Das and also Shri Sudip De, Shri Ramasis Bhattacharjee, Shri Nilmoni Das, Shri B. Das, Smt. Vimla, Smt. Geeta, Shri Anand Minz and Shri E. Pitambaru of our Survey who helped me ungrudgingly in typing work. I also owe my debt to Shri D. N. Pande for some cartographic work.

I am also greatly indebted to the members of staff of P. M. I. Division, Library and Publication sections of Head Office, T. C. and Library Sections of North Western Regional Centre, Dehra Dun and T. C. Section of Eastern Regional Centre, Calcutta and A. & N. Regional Centre, Port Blair, Andamans.

Some other colleagues of mine also helped me in one way or other in the preparation of this volume. The paucity of space prevented me to acknowledge them individually. I am grateful to all of them. However I am particularly thankful, in the printing stage, to Shri J. K. Sanpui of Printing & Publication section who took utmost care in thorough proof reading.

The very beautiful and attractive cover of this book has been designed by Shri Dilip Kumar Roy. I express my hearty thanks to Shri Roy.

Finally I am thankful to the people of the Western and Central Himalayas for supplying me and my colleagues valuable data used in the articles of this volume.

MANIS KUMAR RAHA

Preface

The first thought of editing such a book with diverse themes on the people of the Western and Central Himalayas cropped up in my mind when I undertook my field work in Kinnaur district, Himachal Pradesh, a high Himalayan region under the project, the Himalayan Border Area Studies.

In a later phase when I studied some other mountainous, inhospitable areas of the Western and Central Himalayas and when I found the marked paucity of anthropological literature on these region, the people of these parts of the Himalayas being ill represented in the anthropological and ethnological books and journals, my desire for editing a volume on the people of the Western and Central Himalayas got a boost.

The Anthropological Survey of India formulated two ambitious projects, *The Himalayan Border Area Studies* and *The Population Genetics of the Western and Central Himalayas* in early seventies with the idea of anthropologically studying the people inhabiting the strategically important places of India close to the international border with other countries like Tibet, Pakistan and Nepal. The work on these two projects actually began soon after the North West Regional office of the Anthropological Survey of India came into being at Dehra Dun, Uttar Pradesh in September, 1969. It was planned to cover wider areas of both middle and high altitude regions of the Western and Central Himalayas closer to the international border and accordingly a good number of teams was sent to Leh, Kargil, Kashmir valley and Jammu of Jammu and Kashmir, Lahaul and Spiti, Kinnaur, Chamba, Kulu and Sirmur of Himachal Pradesh and Chamoli, Uttarkashi, Dehra Dun (including Jaunsar Bawer) and Pithoragarh of Uttar Pradesh. Later on some more areas were also covered under these projects and some new projects like "Tribal Customary Laws", "Tribal Education", "Culture Trait and Culture Area Survey", etc., were also taken up in these Himalayan regions by the Survey. All the papers included in this volume are the direct or indirect outcome from all these projects. Unlike my other book, *The Himalayan Heritage*, in which most of the contributors are from outside our Survey and in which aspects of culture of the people of the Eastern, Central and the Western Hima-

layas were included, this book has all the contributors from the Anthropological Survey of India and has articles on the people of the Western and Central Himalayas only. The articles in this book can broadly be divided into three parts. Part One consists of six articles on the Himalayan ecology and ecological adaptation, Part-Two includes seventeen articles in the bio-genetical aspects and Part-Three covers sixteen articles on various aspects of the cultural life of the people of the Western and Central Himalayas. I have tried my best to include varied types of articles in all the three parts, particularly in the later two parts, in order to highlight diverse biological and cultural characteristics of the people of the Western and Central Himalayas. This is possibly the only book so far published which has highlighted through thirty nine articles, the various aspects of the ecology, biology and culture of the people of the Western and Central Himalayas inhabiting the States of Jammu and Kashmir, Himachal Pradesh and the hill districts of Uttar Pradesh. I shall feel my labour has profitably been utilised if the readers of this book, particularly those interested in the Himalayan Studies, consider it to be to useful to them.

May 1st, 1985.

MANIS KUMAR RAHA

Contributors

The position of different contributors as on December 1991.

- Bandopadhyay, S. S. ... Research Associate (Bio-chemistry), Anthropological Survey of India, Nagpur.
- Bhatia, A. K. ... Assistant Anthropologist (Physical), Anthropological Survey of India, Dehra Dun.
- Bhatnagar, B. R. ... Assistant Anthropologist (Physical), Anthropological Survey of India, Nagpur.
- Chandra, R. ... Sociologist, National Wasteland Development Board, New Delhi.
- Chakraborty, S. K. ... Audience Research Officer, Doordarshan, Madras.
- Choudhuri, A. K. ... Assistant Anthropologist (Physical), Anthropological Survey of India, Calcutta.
- Das, J. C. ... Assistant Anthropologist (Cultural), Anthropological Survey of India, Dehra Dun.
- Ghatak, N. K. ... Assistant Anthropologist (Cultural), Anthropological Survey of India, Udaipur.
- Ghosh, R. R. ... Research Associate (Physical), Anthropological Survey of India, Calcutta.
- Ghosh, T. K. ... Assistant Keeper, Anthropological Survey of India, Dehra Dun.
- Gupta, R. ... Human Ecologist, Anthropological Survey of India, Mysore.
- Lal, P. N. ... Senior Human Ecologist, Anthropological Survey of India, Calcutta.
- Maiti, S. ... Lecturer, Dept. of Anthropology, Dinabandhu Mahavidyalaya, Bangaen, West Bengal.

- Malhotra, R. ... Anthropologist (Physical), Anthropological Survey of India, Dehra Dun.
- Mann, R. S. ... Director, Anthropological Survey of India, Calcutta.
- Raha, M. K. ... Deputy Director (Cultural), Anthropological Survey of India, Nagpur.
- Rayapa, R. S. ... Human Ecologist, Anthropological Survey of India, Dehra Dun.
- Rizvi, B. R. ... Superintending Anthropologist (Cultural), Anthropological Survey of India, Dehra Dun.
- Rizvi, S. N. H. ... Senior Technical Assistant (Physical), Anthropological Survey of India, Dehra Dun.
- Sahay, B. N. ... Research Associate, Dept. of Anthropology, Ranchi University, Ranchi, Bihar.
- Sankhayan, A. R. ... Anthropologist ((Physical), Anthropological Survey of India, Calcutta.
- Sarkar, R. ... Anthropologist (Cultural), Anthropological Survey of India, Udaipur.
- Sastri, S. S. ... Superintending Anthropologist (Cultural), Anthropological Survey of India, Mysore.
- Sarkar, V. ... Anthropologist (Cultural), Anthropological Survey of India, Udaipur.
- Sharma, K. ... Former Fellow, Anthropological Survey of India, Dehra Dun.
- Singh, J. ... Assistant Anthropologist (Cultural), Anthropological Survey of India, Dehra Dun.
- Srivastava, A. C. ... Deputy Director (Physical), Anthropological Survey of India, Mysore.
- Tyagi, D. ... Deputy Director (Physical), Anthropological Survey of India, Calcutta.

Contents

	PAGE
<i>Foreword</i>	v
<i>Acknowledgements</i>	vii
<i>Preface</i>	ix
<i>Contributors</i>	xi
<i>Introduction</i>	xvii

PART ONE

ECOLOGICAL PERSPECTIVES

Ecological setting of the Central and Western Himalayas— Ramji Gupta 	3
Human adaptation to Extreme Climate: A comparative study of two valleys of the Kashmir Himalayas—P. N. Lal ...	11
Economic Strategies, Religious Dualism and Change in diverse Cultural and Ecological settings: A case from the Western Himalayas—Manis Kumar Raha 	24
Mode of economic adjustment in the high Himalaya—Jitendra Singh 	49
Land utilisation in the Tons Valley—Ramji Gupta 	59
Ecological adaptation of the Bhotias of Kali Basin of U.P. Hills—R. S. Rayapa 	71

PART TWO

BIOLOGICAL PERSPECTIVES

Fertility variation in consanguineous and non-consanguineous marriages among the Muslims of Kashmir Valley and Ladakh—B. N. Sahay & R. S. Negi 	91
Ladakh: Some demographic aspects—D. Tyagi 	97

	PAGE
A study in genetical demography of the Kinnauras in Himachal Pradesh—Bhakt R. Bhatnagar	110
Demographic structure of the Gaddi of Bharmour, Himachal Pradesh—Sanjib K. Chakravarty	121
Selection intensity among the Jaunsaris—A. R. Sankhyan, A. C. Srivastava & A. K. Chowdhuri	137
Marriage structure of the Jaunsaris—A. K. Chowdhury, A. C. Srivastava & A. R. Sankhyan	147
A note on some Bio-social aspects of the Jaunsaris—Kadambari Sharma	154
Distribution of ABO blood groups in Central and Western Himalayan population—R. S. Negi, A. C. Srivastava & B. R. Bhatnagar	165
A Serological study among the Jaunsaris—A. C. Srivastava ...	186
Digital Dermatoglyphic study of three Jaunsari populations—A. K. Chowdhury, A. C. Srivastava & R. S. Negi ...	193
Taste sensitivity to PTC among the Garhwali Brahmins and Rajputs—A. R. Sankhyan, A. C. Srivastava & B. N. Sahay	203
Incidence of colour blindness in North Western India with special reference to Dehra Dun city—R. S. Negi & B. N. Sahay	210
Mid-phalangeal hair variability in some Himalayan populations—A. C. Srivastava	220
Physical growth studies on Kinnaura Male Rajputs—R. Malhotra	235
Diet and body build of the Pastoral Gujjars of Uttar Pradesh and Himachal Pradesh—S. S. Bandyopadhyay	271
A note on the relationship between height, weight and upper arm circumference in Garwali female children—Rekha R. Ghosh	282

	PAGE
Eruption of deciduous teeth in a Himalayan population— A. K. Bhatia	287
 PART THREE CULTURAL PERSPECTIVES 	
Caste and cohesion in a Western Himalayan village—V. Sarkar & R. Sarkar	297
Jajmani system in a Himalayan village—Jitendra Singh ...	306
Social economy in Western Himalayas: A study of Kargil District of Jammu & Kashmir—B. R. Rizvi	318
Pastoral economy and Territorial organization among the Bakarwals of Jammu & Kashmir—Subhrendu Maity ...	342
Social stratification in Western Himalayas: A comparative study of the Bodhs of Spiti and Muslims of Kargil— B. R. Rizvi	355
Social stratification in Lahaul—T. K. Ghosh	370
Intra and inter-family relations among the Ladakhis of Ladakh —R. S. Mann	380
The changing horizons of marriage and family among the Gaddis of Himachal Pradesh—R. Sarkar & V. Sarkar ...	399
Politics, political system and the elites in the Jaunsari society: Emerging trends—N. K. Ghatak	410
Rôle of monasteries in the Ladakhi life and culture— R. S. Mann	423
Religious proclivity of Lahoul: A scion of interaction— T. K. Ghosh	441
Communication pattern in a Sirmur village—Ramesh Chandra	448
Health practices of the Jaunsaris: A socio-cultural analysis— S. N. H. Rizvi	460

	PAGE
Native Himalayan medicine with special reference to its practice among the Jaunsaris—S. N. H. Rizvi	484
The Garhwalis of the District Chamoli—S. S. Sastri	491
Rural life in the Himalayas: An analytical exposition of a Garhwali and a Kinnauri village—M. K. Raha, J. C. Das & J. Singh	510

Introduction

The Anthropological researches in the Western and Central Himalayan regions of India, which cover the whole of the States of Jammu & Kashmir and Himachal Pradesh and eight hill districts of Uttar Pradesh (namely Chamoli, Uttarkashi, Tehri, Pauri and Dehra Dun districts of Garhwal Division and Pithoragarh, Almora and Nainital districts of Kumaon division) are not very old; rather these are of recent developments. In real sense the anthropological studies among the people of these parts of the Himalayas actually date back in late forties (of course in India anthropology as discipline is only six decades old); so anthropology crept in the Western and Central Himalayas to highlight the characteristics of the people living there in a much later period than it did in case the people of other parts of India, and even in case of the Eastern Himalayas covering many parts of north-eastern India.

For centuries the Great Himalayas attracted the saints and sages for meditation and salvation. They wrote so many great epics wherein they had written many things about the Himalayas, praising this great mountain, describing the culture of the people lived there. A large number of the Hindu mythologies and ancient Indian literatures like the Mahabharata, Ramayana, Upanisadas, Vedas, Puranas and also later epics like the Kadamvari, Raghuransam, Meghadutam, Kumarsambhavam, Vimanvathu, Manusamhita, Amarkosh, etc., have mentioned about the Himalayas and the inhabitants. Besides the sages and saints, early literatures have also mentioned about a number of divine races like the Yakshas, the Gandharvas, the Guhakas, the Kinnauras, the Kiratas, the Savaras and others occupying different parts of the Himalayas. Many things have been written about them by the great sages and epic writers. Even in the later phases till early forties whatever accounts and reports on the Himalayas have been published, are almost all written either by the missionaries, administrators, travellers or mountaineers or by the adventurers, as no doubt, the Himalayas attracted men from different walks of life. Even many invaders had taken their course through the Himalayas and many people took refuge in many places of these

mountainous ranges because of these invasions. But to the anthropologists the Great Himalayas particularly, the Western and the Central Himalayas, were not that attractive as the other parts of India were. Attempts made by them to explore anthropologically the various biological and cultural realities of the people of the Western and Central Himalayas till late forties, are not that significant. From late forties of course, the anthropologists and other social scientists have started realising the potentialities of the Western and Central Himalayas as field for anthropological researches as finally they could understand that these mountainous ranges could provide a very little explored, formidable and interesting site for anthropological studies. This late realization of the anthropologists that the Western and Central Himalayas are a virgin field for study for them, left the place almost unexplored anthropologically, and as a result the life and culture of the people inhabiting different parts of the Western and Central Himalayas and their biogenetical features remained almost unknown to the world.

No doubt a very large number of ethnic groups have accepted the Himalayas spreading over Jammu and Kashmir, Himachal Pradesh and hill districts of Uttar Pradesh as their cradle land and are living in the high, middle and low altitudinal regions from times immemorial. Many people have migrated there in successive phases in later periods.

These people are found living in varied ecological and cultural environments of the Himalayas. While some of these ethnic groups live in almost arid high altitude regions which remain snowclad for at least five months a year, some live in the foothill areas amidst thick vegetation with heavy monsoon rain. While some people live on the beautiful valleys, some other live on the rugged, inhospitable, steep slopes of the mountain. Though majority of the Himalayans have agriculture as the primary means of livelihood, others are nomad or lead transhumant mode of life with pastoralism or animal husbandry as the source of livelihood; still others have various other occupations like trade, cottage industry, craft, business, service, etc. Here while some people are Buddhists, some are Hindus, some have embraced Islam or Christianity and still others live in the world of their own deities and spirits. Many people here are monogamous but some practise polyandry and so on. Thus no doubt these parts of the Himalayas provide a very formidable and interesting field for anthropological research.

Since early forties as I have already mentioned, some progress has been achieved in studying the Western and Central Himalayas anthropologically. The Department of Anthropology of different Indian Universities and also of some foreign Universities have undertaken important research works in these regions and some such works have been published. But more vigorous exercise of the anthropological research began since 1970 when the North-Western Regional Centre of the Anthropological Survey of India began to function by undertaking a series of research works in both Physical and Cultural Anthropology and also in other allied disciplines like Human Geography, Psychology, Linguistics, etc. The Department of Anthropology of Lucknow, Delhi, Chandigarh and some other Universities and some Institutions also started showing more and more interest since late forties. Interest in the Western and Central Himalayan population by the individual anthropologists has also increased more and more, and as a result more and more anthropologists, both Indian and foreign, started undertaking research works in different areas on varied topics in the Western and Central Himalayas. The outcome of such research work is seen in the form of some books and many articles on Himalayans published in recent years.

My interest on studying the Himalayan culture developed when I undertook my first major study in 1970-1974 in the Western Himalayas among the Kinnauras, a high altitude people residing in the north western part of Himachal Pradesh bordering Tibet (the report of which has recently been published) though my first exposure to the Himalayas was as early as mid sixties when I undertook some research work among the Lepchas and the Bhutias of the district of Darjeeling, West Bengal.

During the course of my studies on the Himalayas, I discovered the lack of sufficient coherent anthropological literature on the Western and Central Himalayas, and this aroused in me an idea of publishing some books on the Himalayans. The outcome of this idea and interest are for the present, two books.

In the first book, *The Himalayan Heritage* (1987), I have incorporated articles on the people of the Eastern, Central and the Western Himalayas. The contributors both foreign and Indian, are mostly from outside Anthropological Survey of India and also belong to different

disciplines though the anthropologists definitely dominate. None of the 27 articles of the book is on Physical Anthropology or Human Geography or Ecology.

But the present book, *The Himalayas and the Himalayans* (which was earlier entitled as the Anthropology of the Western and Central Himalayas) is exclusively based on the studies on the Western and Central Himalayas and the people live there only. The articles are written by my colleagues in the Anthropological Survey of India. I have not included any article on the Eastern Himalayas. From the very beginning I have planned to incorporate articles on both Cultural and Physical Anthropology and also on Human Geography. The book has thirty nine articles, and of these, six are on the Himalayan ecology and ecological adaptation, seventeen on Physical Anthropological researches and sixteen on Cultural Anthropological studies. Again of these, thirty three are unpublished original articles but the other six are already published in different volumes of the Bulletin of the Anthropological Survey of India. The latter articles are:

- (1) Land utilization in the Tons valley—Ramji Gupta, Vol. XXIX, No. 3 & 4, pp. 63—73, 1980.
- (2) Distribution of ABO blood groups in Central and Western Himalayan populations—R. S. Negi, A. C. Srivastava & B. R. Bhatnagar, Vol. XXI, No. 3 & 4, pp. 57—76, 1972.
- (3) Mid-phalangeal hair variability in some Himalayan populations—A. C. Srivastava, Vol. XXI, No. 1 & 2, pp. 139—150, 1972.
- (4) Intra and inter-family relations among the Ladakhis of Ladakh—R. S. Mann, Vol. XXI, No. 1 & 2, pp. 88—106, 1972.
- (5) Social stratification in the Western Himalayas: A comparative study of the Bodhs of Spiti and Muslims of Kargil—B. R. Rizvi, Vol. XXIII, No. 1 & 2, pp. 20—33, 1974.
- (6) Jajmani system in a Himalayan village—J. Singh, Vol. XXVIII, No. 1 & 2, pp. 21—29, 1979.

I have incorporated total of thirty nine articles in this book. Two of these articles are general in nature while the rest are theme specific. The main reason for including such a big number of articles is to give

this book a wider coverage covering not only different areas of these parts of the Himalayas, but also various aspects, ecological, biological and cultural, of human life there. The typical Himalayan ecology, its impact on human life and how human being there adapted to this peculiar Himalayan ecology have also been traced upon. Table at page xxiii will give some idea about the areas and ethnic groups covered, and specific themes included in different articles of this book.

As I have already mentioned that there are altogether thirty nine articles of which eight are from Jammu and Kashmir. Part-One includes one article, Part-Two two and Part-Three five articles (one of which also deals with the people of Spiti area of Lahaul and Spiti district of Himachal Pradesh). The article included in Part-One is on ecological adaptation by the Boudh and the Muslim of Ladakh (Leh and Kargil districts) and the Muslim and the Kashmiri Pandit of Kashmir valley. There are two articles in Part-Two which are on fertility and demography respectively. The data on these two articles were collected from the Muslim, Boudh, Kashmiri Pandit and other groups from Leh, Kargil and the Kashmir valley (Srinagar and Anantnag districts). Part-Three has included five articles which have covered ethnic groups like the Boudh, the Muslim and other groups of Leh and Kargil districts and the Bakarwal of different districts of Jammu and Kashmir. Through these articles themes like religion, family, social stratification, economy and village organization have been dealt.

There are a total of fifteen articles having concern with Himachal Pradesh. Under Part-One there are only one article which deals with the ecological adaptation among the people of Kinnaur, Himachal Pradesh who include the Rajput (Kanet), the Koli, the Lohar, the Boudh and others.

The Part-Two includes 7 articles on the people of the Himachal Pradesh based on Physical Anthropological studies. These seven articles cover the districts of Kinnaur, Kulu and Chamba. The ethnic groups covered are the Rajput (Kanet), the Koli, the Gaddi (Rajput, Brahmin and other castes) and the Gujjar. The themes on which these articles are based, are growth and nutrition, demography, blood groups, mid-phalangeal hair and on Dental Anthropology. Again of these seven articles, three articles also concern with some areas of Uttar Pradesh—one with the people of Jaunsar-Bawer (Dehra Dun district, U.P.) and the other with

that of Uttarkashi district. Under cultural perspectives, *i.e.*, Part-Three there are seven articles. One of these articles also covers Kargil district (J. & K.) and the other Uttar Kashi district (U.P.). The areas covered are the districts of Lahaul and Spiti, Kinnaur and Chamba and the ethnic groups are the Boudh, Brahman, Rajput Swangla, Sippi, Rajput (Kanet), Koli and the Gaddi (Brahmin, Rajput and others). The themes covered through these articles are social stratification, economy, village organization, religion, marriage, family, caste system and village study.

Articles covering Uttar Pradesh are nineteen in number. Part-One is constituted of three articles. The districts covered are Uttarkashi and Pithoragarh. Two of these articles are on ecological adaptation and one on land utilization. The ethnic groups studied are the Jad, the Bhotia and the Garhwali (Rajput, Brahmin and others). Under Part-Two there are altogether eleven articles but three of these articles also concern some areas of Himachal Pradesh (Kinnaur and Chamba). Through these eleven articles ethnic groups like the Khas Brahmin, Khas Rajput, Gujjar, Kolta and the Garhwali (Brahmin, Rajput and others) have been highlighted. Various themes have been covered through these articles and these themes are blood groups, mid-phalangeal hair, growth, nutrition, dermatoglyphics, demography, mating pattern, colour blindness, PTC and bio-social aspect.

Part-Three which bears five articles, covers areas like Uttarkashi, Chamoli and Dehra Dun, though one article also has data from Kinnaur district of Himachal Pradesh. Various ethnic groups like the Rajput, Dom, Koli, Garhwali (Rajput, Brahmin and others) Lohar, Kolta, Brahmin, Nath and others, have been studied through one or the other articles. The themes covered are village study, ethnography, caste system, communication, political organization, health practice and folk medicine.

It is thus seen that quite a vast area, a good number of ethnic groups, and the varied types of themes have been covered by this book. I personally feel that the readers of this book will get a satisfactory idea about the nature of ecological adaptation in the Western and Central Himalayas and various bio-genetical and cultural aspects of the people living there. And if that is so I shall take it for granted that the aim of the book has mostly been achieved.

Finally I like to point out something important. The Himalayas have got a distinct identity. Here the geography, the geology, the soil,

the weather condition, etc., are all peculiar. Here the flora and the fauna have distinctiveness. Here the people have got distinct cultural identity, peculiar manners and customs, particular sources of livelihood, etc., and all these have given the Himalayans distinct ecological, cultural and biological identities, which are, no doubt, quite different from those of the other parts of India. Anthropologists while studying the people here, should be particular and cautious about all these. They should realise the distinctiveness and importance of the Himalayan studies not only because the Himalayas have got distinct ecological, biological and cultural realities, but also because the Himalayas have strategic importance and also because the Himalayans are situated in between nations and civilizations. And the very situation of the Himalayas between nations and civilizations, has provided the anthropologists unique opportunity to study this melting pot of cultures and ethnicities and to develop a distinct discipline of the Himalayan Anthropology or the Himalayan studies with multi-disciplinary approach.

For the convenience of the readers, I give below the distribution of the articles of this book on the basis of areas, ethnic groups and the themes of these articles in a tabular form. Here it is important to mention that some of the articles have covered more than one State, and therefore these articles have been mentioned under more than one State.

The Himalayan Region covered (State wise)	Articles*		Area covered (District wise)	Ethnic group covered	Themes covered
	Part	No.			
Jammu & Kashmir	One	1	Ladakh, Kashmir Valley (Srinagar)	Bodh, Muslim, Kashmiri Pandit.	Ecological adaptation.
	Two	2	Leh, Kargil, Kashmir Valley (Srinagar)	Muslim, Bodh and other groups.	Fertility, Demography.
	Three	5	Leh, Kargil, Jammu	Bodh, Muslim, Bakarwal.	Religion, Family, Social stratification, Economy, Village organisation.
Himachal Pradesh	One	1	Kinnaur	Rajput, Koli, Lohar, Badhi, Nangalu.	Ecological adaptation.

(Contd.)

The Himalayan Region covered (State wise)	Articles*		Area covered (District wise)	Ethnic group covered	Themes covered
	Part	No.			
	Two	7	Kinnaur, Chamba, Kulu.	Rajput (Kanet), Koli, Gaddi, Gujjar.	Growth, Nutrition, Demography, Blood group, Mid-phalangeal hair, Dental Anthropology.
	Three	7	Lahaul & Spiti, Kinnaur, Chamba, Sirmur.	Boudh, Brahmin, Rajput, Swangla, Sippi, Rajput (Kanet), Koli, Gaddi.	Social stratification, Economy, Village organization, Religion, Marriage, Family, Caste system, Village study.
Uttar Pradesh	One	3	Uttarkashi, Pithoragarh.	Jad, Bhotia, Garhwalis	Ecological adaptation.
	Two	11	Dehra Dun, Uttarkashi	Khas Brahmin, Khas Rajput, Gujjar, Kolta, Garhwali.	Blood group, Mid-phalangeal hair, Growth & Nutrition, Dermatoglyphics, Demography, Mating pattern, Colour blindness, PTC, Bio-social.
	Three	5	Uttarkashi, Chamoli, Dehra Dun	Rajput, Dom, Koli, Garhwali, Lohar, Kolta, Brahmin, Nath, and others.	Village study, Ethnography, Caste system, Communication, Political organization, Health, practice, Folk medicine.

* Exclude two articles of general nature depicting the general trend in the Western and Central Himalayas.

PART ONE : ECOLOGICAL PERSPECTIVES

Ecological setting of the Central and Western Himalayas

RAMJI GUPTA

The Himalayas, one of the highest and youngest mountain systems of the world, are not a single continuous chain or range of mountain but a series of more or less parallel or converging ranges intersected by numerous river valleys. The Himalayas can broadly be divided into three regions from west to east, *i.e.*, the Western Himalaya, the Central Himalaya and the Eastern Himalaya. The Western Himalaya extends from the Indus to the Sutlej (covering the states of Jammu and Kashmir and Himachal Pradesh), while the Central Himalaya extends from the Sutlej to the Kali (covering the eight Hill districts of U.P.). The Eastern Himalaya extends in the valley of Brahmaputra and its tributaries which includes the states/union territories of Assam, Meghalaya, Arunachal Pradesh, Sikkim, Manipur, Mizoram, Nagaland and Tripura.

The appraisal of ecological potentialities and limitations of the area is one of the important aspects of the present regional development. The Nature in the form of the Himalayas, has endowed us unlimited vast resource base which has fruitful scope of exploitation and investigation. An assessment of the existing environmental conditions can be very much useful in regional planning and fixing the priorities. This will help in balancing the human needs and availability of resources in a rational manner for use of the present and future population. Keeping the theme in mind an attempt has been made to study the setting of the Central and the Western Himalayas in the present paper.

The Central and the Western Himalayan zones extend on a length of about 880 kms., in the North-west and South-east direction of the Indian territory. The length of the Western Himalayas from the Indus to the Sutlej is 560 kms., while of the Central Himalayas from the Sutlej to the Kali is 320 kms. The width of this mighty range varies from 250 to 400 kms., with a mean elevation of the central axial range of 6000 m. The Central and the Western Himalayas cover an area of 32,9013 sq. kms., with a population of 15,143,680 (according to 1971 Census).

Physiography

The Central and the Western Himalayas are the result of thrusts and vertical upheavals (cymatogenic activity) of the late tertiary times. The thrust sheets and overfolds are overridden by relicts of earlier 'smoother plantation' of mid tertiary age. The anticlines, synclines and other isoclinal folds as created, have been carved and denuded by now receding glaciers and large scale river erosion in the sub-recent and recent times. The phenomena of uplift is still in progress and is marked by frequent earthquake. The lofty Himalayan system has thus been sculptured and present the beautiful scenery through a process of complicated phenomenon. (Mittal, cf Law, 1968: 76).

Longitudinally this part of the Himalaya may be classified into three more or less parallel zones. These zones differ from one another in the well marked physiographic vegetational and climatological units. These divisions extending from north to south direction, are (i) the Greater Himalaya, (ii) the Lesser Himalaya and (iii) the Siwalik or Outer Himalaya.

The Great Himalayan zone representing the highest altitude with snowy peaks, forms a single mountain chain. The average height of this zone is 6000 m. The rock formation comprises of granite and gneiss with sediment horizons in between. This belt covers the elevated parts of the Ladakh, the Pir Panjal and the Zaskar range. The elevated peaks of the Naga Parbat (8,126 m.); the Kanchanjunga (8,598 m.), the Nanda Devi (7,817 m.) and the Banderpunch (6,315 m.) are situated in this zone. The general trend of increase in elevation is from south to north and from west to east. Major part of this region is not connected by regular transport system. The connecting passes remain closed for considerable portion of the year. This part has the credit of having highest peaks of the world ranging from 7,710 m. to 8,848 m.

The Lesser Himalaya is approximately 60 to 80 kms. wide. It forms the southern boundary of the Great Himalayan ranges. The zone mainly composed of highly compressed and altered rocks varying from Pre-cambrian to Escene in age. Its elevation ranges between 1,000 m. to 5,000 m. The Pir Panjal, Dhouladhar and Musseorie are the principal mountain ranges of the Lesser Himalaya in the zone under study. The Pir Panjal, the largest mountain chain of the region divided the Kishenganga and the Jhelum rivers. The Musseorie range divides the

water catchment areas of the Sutlej and the Ganges. Most of the tourist's resorts such as Simla, Musseorie, Srinagar, Almora, Kulu, Manali, etc., are situated in this zone which attracts heavy tourist rush during summer.

The Siwalik or the Outer Himalaya is situated in between the great plains of the northern India and southern limits of the lesser Himalaya. The zone consists of the low hills with an average elevational range from 900 to 1,200 m. The southern slopes of the Siwalik are deep while northern slopes are gentle by flat floored structural longitudinal or erosional valleys known as the *duna* which are covered by thick gravels and alluvium. The chief *duna* from west to east, are Dehra Dun (lying between the Yamuna and the Ganges), the Kotri, the Chokum Duns (drained by the western tributaries of the Ramganga), the Patli and the Kotch Dun. Only Dehra Dun and Kotch Dun are cultivated and populated while other Duns are situated amidst the forest. The width of Siwalik zone varies from 10 to 50 kms.

Drainage

The Central and Western Himalayan drainage system may broadly be classified into the Indus drainage flowing towards the Arabian sea and the Ganges drainage, flowing towards the Bay of Bengal. The Indus rises in the snowy range of the Great Himalayas at an altitude of 5,000 m., and is 709 kms. long within the Indian territory. Its elevation at Leh is 3,500 m. The Zanskar, the Shigar, the Drass rivers join it in the Ladakh region. The Jhelum which is 400 km., long in the Indian territory is the major river of the Kashmir valley. The Chenab river consisting of two streams, the Chandra and the Bhaga, flows between the Great Himalayas and the Pir Panjal ranges of the Lesser Himalaya and moves from the Chamba district of Himachal Pradesh towards Jammu and Kashmir State. The Beas river originates in the Kulu district at an elevation of about 4,000 m. and has the length of 470 kms. The Sutlej rises at an elevation of about 5,000 m., and forms the longest catchment areas among the tributaries of the Indus. This river runs within the Himalayas for about 450 kms., passing through Kinnaur, Kulu, Simla and Bilaspur districts of Himachal Pradesh. It flows about 600 kms., in the plains of Punjab.

The Ganges drains a major part of the Central Himalayas which includes the hill districts of U.P. The river, Ganges rises from the

Gaumukh glacier of the Great Himalayas at an elevation of 6,600 m. and flows through the Uttarkashi, Tehri, Pauri and Dehra Dun districts of the Central Himalaya. The upper course of this sacred river of the country is known as the Bhagirathi. It resumes the name, Ganga after its merger with the Alakananda at Deoprayag. The Alakananda receives the water of the Dhauliganga, the Vishnuganga and the Pinder in its upper course. The Yamuna is another principal river of this zone. Its source is situated on the western slope of the Bandarpunch peak of the high Himalaya, at the Yamunetri glacier at an altitude of 6,387 m. The Tons is the biggest tributary of the Yamuna which confluences below Kalsi in Dehra Dun district. The length of the Yamuna in the Himalayas is 152 kms. Another major river of the Ganges system is the Kali which flows through the district of Pithoragarh and eastern part of Nainital and Almora districts. The Gorganga joins the Kali at Jauljibi. The Kali river is known as the Sarda after entering the plains. The Ramganga river, rising from Nainital district of the Lower Himalaya forms a supplementary drainage link of the extensive Ganges system of the Great plains of the country.

Climate

From the snowy ranges of the Great Himalayas to the Siwalik foothills, there are extreme variations in the climate of the Central and the Western Himalayas. The temperature varies in this part with the variation of altitude from sub-humid in the low altitude to glacial and cold alpine in the high mountains. The micro-climatic conditions usually differ from valley to valley and locality to locality due to degree of slope, direction of ridges and the wind, sunny and shady aspects of slope, intensity of forest and nearness to glaciers. Mean monthly temperature is usually lowest in the month of January and the highest in the month of June. The towns like Kargil, Leh, Dras ($-17^{\circ}\text{C}.$) remains below the freezing point in January. The mean daily maximum temperature at Keylong ranges from $6.1^{\circ}\text{C}.$ in February to $26.8^{\circ}\text{C}.$ in July while mean maximum temperature ranges from $6.7^{\circ}\text{C}.$ in February to $17.8^{\circ}\text{C}.$ in August. Normal monthly temperature at Simla and Dharmshala in February is $1.9^{\circ}\text{C}.$ and $6.5^{\circ}\text{C}.$ respectively while in June it is $15.6^{\circ}\text{C}.$ and $22.8^{\circ}\text{C}.$ respectively. The elevated parts of Kinnaur, Uttarkashi, Chamoli and Pithoragarh remain below the freezing point during winter and remain isolated for a considerable time during winter months.

The distribution of annual rainfall is not even. It is far less on the

Greater Himalaya, but its intensity increases towards the Lower Himalaya. The precipitation in the high altitude is in the form of snowfall. The areas like Ladakh, Lahual and Spiti and Upper Kinnaur experience drier conditions and are semi-arid in nature. Precipitation due to snowfall in Lahual and Spiti district varies from 2.44 to 5.49 metres from December to the beginning of April. Practically speaking the monsoon rains are spent before they reach the semi-arid region of the Himalayas. The average rainfall of the Ladakh region is 8 cms., whereas in Kashmir valley it is 67.5 cms., and at Jammu 115 cms. The average rainfall of other areas such as Kulu (915 cms.), Dharmshala (105.53 cms.), Pithoragarh (122 cms.), Lahual and Spiti (35.0 cm.), Dehra Dun (212 cms.), Nainital (318 cms.), etc., also varies. The monsoon usually commences at the end of June and ceases in the month of September. Winter depressions causes heavy snowfall from the months of January to March in the higher ridges influenced by the frequent western disturbances.

The variance of climate is as varied as the area itself, and it is difficult to divide the whole zone into well marked seasons of the year. The temperature in the outer Himalaya is much more uniform as it is in the influence of periodic rain, then the interior Himalayan part where winter is extremely cold. However, the entire region enjoys four seasons, *i.e.*, spring (April and May), summer (June to September, this includes the periodic rainy season), autumn (September end to November) and winter (December to March).

Soils

The depth and nature of the soil varies in the Central and Western Himalaya due to climate and local conditions, *i.e.*, prevailing wind, rain, snow and the slope of the ground. Due to forest cover humus is generally present except on steep slope and bare rocky slopes where it is thin. Thick soil covers are mostly confined to the valley bottoms and terraces. In the Great Himalayan ridges the glacial and mountain meadow soil predominates. In the lesser Himalayan zone brown deciduous and grey coniferous soil are found at the altitudinal limit of 1,800 m. From the lower parts of the Lesser Himalaya till the northern slopes of the Siwalik forest soil of the brown colour is found. This soil is ideally suited for horticulture and potato cultivation. The soil of the Kashmir and Dun valleys is alluvial varying from loam to clay due to transportation of the soils by the river coming from mountains. The soil of the Siwalik is also alluvial type which is highly fertile.

Flora and Fauna

The wide range of altitude, temperature, precipitation in the region, etc., result in diversified and rich flora and fauna. Natural vegetation varies from tropical dry forest to alpine pastures. Following table shows the area under different forest categories in the Central and Western Himalayas.

Area under Different Forest Types (in thousand hectares)

STATES	Sub-tropical forest		Temperate forest			Total
	Sub-tropical pine forest	Dry-ever-green forest	Moist temperate forest	Dry-temperate forest	Alpine forest	
Jammu & Kashmir ..	281	71	917	141	588	1,998
Himachal Pradesh ..	729	93	753	69	301	1,945
Uttar Pradesh ..	511	—	1,055	17	357	1,940
TOTAL ..	1,521	164	2,725	227	1,246	5,883

The sub-tropical forest covers an area of 1,685,000 hectares with its maximum concentration in Himachal Pradesh. This type of forest is found within the altitudinal limit of 300 m. to 1500 m. The *chir* pine is the main floral species in this category. The sub-tropical forest may be further classified as sub-tropical pine forest and sub-tropical dry ever green forest. The *sal* (*Shorca rubusta*) is the principal species of the dry ever green forest. Its extensive growth is found in the lower hills in between the Lesser Himalaya and the Siwaliks.

The temperate forest may further be classified as the moist temperate forest and the dry temperate forest. The former covers an area of 2,725,000 hectares which is largest in any one forest type of the entire region. This forest zone is represented by moist *deodar* which is found in between the upper altitudinal limit of the *chir* and lower limit of Fir and Spruce, *i.e.*, 1500 m. to 3650 m. On cooler and moisture region *deodar* is replaced by Fir and Spruce whereas drier and hotter zone is everwhelmed by sturdier *kail*. The maximum area of the *deodar* forest is in the Central Himalayas followed by the States of Jammu and Kashmir and Himachal Pradesh of the Western Himalayas. In the dry temperate forest category, *chilgoza* pine mixed with *deodar* for example are found. In the Upper Indus, Sutlej and Chenab valleys, where monsoon rainfall is ntgligible, the dry temperate forest is in abundance.

The alpine forests are found in the upper ridge of *deodar* zone beyond 3650 m. upto the snow line. The tree growth is limited upto the elevation of 4000 m. Silver Fir and Spruce cover larger area of the natural vegetation under this zone. The dry alpine forest are found in the semi-arid zone of the higher Himalayas.

The extensive alpine pastures are the main feature of this region supporting the larger cattle population, sheep and goats. The sub-alpine forests, another category of alpine forest, occur below the dry moist alpine scrub. The blue pine is found in this zone which extends in the lower parts of the high Himalayas. This zone is the summer pasture of the semi-nomadic population of the Central and Western Himalayas.

The exploitable forest area in the Central and Western Himalayas is 3,388,000 hectares which includes the species of *sal*, *Chir*, *deodar*, *kail*, Fir, and Spruce, etc. The per capita forest area of Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh are 0.46, 0.63, 0.60 hectares respectively as compared to an average of 1.19 for the world as whole. The forest of the region classified as demarcated, undermarcated and the *soim* forest for the purpose of exploitation and administration.

The main faunal species of the Central and Western Himalayas are wild sheep, Himalayan blue sheep, goat, antelope or ibex, *goral*, musk deer, *thar*, black bear, snow-leopard, *monal*, and snow pigeon, etc.

Conclusion

In the above discussed complex ecological setting of this part of Himalayas various population, religion and culture flourished from time unknown. The agricultural practices varied from settled cultivation to the seasonal cultivation. The people supported their economy with the rearing of livestock due to harsh climatic situation, practising the transhumance way of life. The region is an ideal admixture of the religions like Hinduism, Buddhism and Islam. As the important rivers of the country are originating in this region a number of pilgrimage is situated in this region which still attract large population in summer. The density of population is high in the fertile river valleys and lower hilly zone whereas population is thick in the Greater Himalayan part. Due to the opening of road the influx of outsiders as contractors, tourists and administrators began in this remote and isolated region which undoubtedly resulted in the quick development of the area. But this has also created a considerable gap in between the primitive and

modern way of life within a short span. Mass level deforestation, construction of roads and buildings in a quick manner has created an ecological imbalance in this part, which resulted in more landslides, avalanches, flood and other natural calamities. Still there is time to think about the suitable conservation measures for the natural resources of the entire region. This will help in balancing the ecological setting of the area for the betterment of future population and rich cultural heritage of the so far little-known Himalayan communities. To preserve the peculiar life pattern of this area and valuable natural resources, it is essential to formulate plan keeping in view environmental conditions and the desires of the hill dwellers.

REFERENCES

- | | | |
|------------------|------|---|
| Ahmed, E. | 1979 | <i>Social and Geographical aspects of Human settlement.</i> Classical Publications, New Delhi. |
| Gupta, R. | 1976 | Human Adaptation in the Tons valley. The paper presented in the Himalayan Border Area Seminar, Anth. Survey of India, Calcutta. |
| Law, B. C. (ed.) | 1968 | <i>Mountains and Rivers of India.</i> National Committee for Geography, Calcutta.. |
| Mamgain, M. D. | 1971 | <i>Kinnaur-Himachal Pradesh District Gazetteer.</i> Govt. of H.P. Press, Simla. |
| Singh, B. | 1979 | <i>Man and Forest</i> (Ed.), Gupta Des Bandhu Proc. of Himalaya Seva Sangh. |
| Singh, R. L. | 1971 | <i>India — A Regional Geography.</i> National Geographical Society of India, Calcutta. |

Human adaptation to extreme climate : a comparative study of two Valleys of the Kashmir Himalayas

P. N. LAL

Introduction

Climate is one of the most important factors of the physical environment of man. It influences man's activities on land, on sea and in the air in three ways, *i.e.*, (i) It sets up barriers which limit his movement, (ii) It is the main physical factor in controlling the nature and amount of the material culture needed for food, clothing and shelter and (iii) It has a direct and important influence upon health and energy of the human being. Climatic conditions change with altitude and the physiographic conditions in the Himalayas. In the Kashmir Himalayas a mountain range may have two types of climatic conditions. The windward face of the range may be full of natural vegetation while the other slope may be devoid of any vegetal cover. Similarly the nature of the river valleys brings about change in climatic conditions. A longitudinal valley (*i.e.*, north to south) draws the monsoon clouds but on the contrary if the valley is in the east-west direction it remains dry due to the alignment of the mountain ranges. Each valley in the Himalayas has a peculiarity of its own. The catchment area, shape and size of the valley, altitude and terrain conditions within the valleys, etc., have affected the socio-economic life of the people. In the present paper an attempt has been made to compare the socio-economic adaptation of the people in two important valleys namely the Indus in Ladakh and the Jhelum in Kashmir. Culturally the two valleys are inhabited by two religio-cultural streams-Buddhists and the Kashmiris who still maintain their regional expressions in the Ladakh and the Kashmir valleys respectively. The historical records (*e.g.*, Rajtarangini, A.D. 1079—1151) show that the Kashmir valley was inhabited during summer only; due to severe winter the people used to move down to the lower hills and the plains. It is stated that before the draining operation of the Great Lake occupying most of the present Kashmir valley the climate in winter was so cold and snowfall used to be so heavy that the habitable parts of the valley consisting mostly of mountain slopes, could be occupied by the nomads only who used to migrate along-with their herds of cattle southward. It was Kashyapa who brought the major radical change from nomadism to settled life. When Huen Tsang visited

the valley of Kashmir in the middle of the seventh century, he found agriculture, a settled occupation of its inhabitants. Rice, fruits and flowers were grown in the valley of the river Vitasta (Jhelum). Thus nomadism and sedentary agriculture formed the economic base of the people in the two valleys. But due to exogenous forces of change nomadism as a form of life is completely wiped out from the Jhelum valley while it still prevails in the Indus valley of Ladakh. Possibly the ecological factors of the Indus valley or the cultural constraints support dual economies of the Ladakhis.

Methodology

In order to compare the socio-economic life of the people one village each from the Indus and Jhelum valleys has been studied in detail. Data were collected in 1982-83 in connection with the project Human Adaptation to Extreme Climate: A case study of the Kashmir Himalaya. In order to quantify the extent of dependency on land and animal based economies a detailed household survey and land use survey of the two villages was made.

Geographical Setting

The Kashmir Himalayas form part of the Western Himalayas and lies in the state of Jammu and Kashmir. The region as a whole, is mountainous. Predominance of the majestic mountain ranges with snow clad peaks, large longitudinal valleys of subsequent streams occupying deep gorges and strategic mountain passes and dearth of extensive alluvial plains are the peculiarities of this mountain locked region. Geologically the region preserves a chronological record of the great Alpine orogeny as well as of the sedimentation tectonics and vulcanicity that followed the Himalayan orogeny.

The relief of the region is made by four large mountain ranges running almost parallel to each other. From north to south these ranges are the Karakoram, the Ladakh, the Zaskar, the Great Himalayas and the Pir Panjal. Between these ranges are found the longitudinal river valleys of the Gilgit, the Shyok, the Indus, the Jhelum and the Chenab.

Rising from the springs of the Sengge Khabab in Tibet about 100 kms. north of the Mansarower, the river Indus flows north-west through Tibet before entering Kashmir. It continues to flow north-west as far as the base of the Haramosh peak (7397 m.) when it takes a sharp southerly turn

cutting the Ladakh range through a terrific gorge of 5200 m. deep near Bunji and then flowing for another 90 km. or so westward it leaves Kashmir. Three important rivers join the Indus on its left bank and these are the Zanskar, the Dras and the Astor fed by glaciers of the Great Himalayas. It has two tributaries joining on its right bank—the Shyok and Shigar fed by the melt waters of the Karakoram glaciers.

The Jhelum originating from the eastern mountain girdle of the valley of Kashmir meanders in the valley, enters the Wular lake, leaves it near Sopore and flows in a narrow gorge across the Pir Panjal from Baramula to Muzaffarabad. Its main right hand tributaries are the Lidder, the Sind and the Kishen Ganga, the former two joining it in the valley of Kashmir. Besides these a number of minor streams draining the 'Karewars' join it as its left hand tributaries.

The Jhelum valley running in northwest—southeast direction through Srinagar, is the most picturesque and densely populated. The valley is encircled by a ring mountains, the Pir Panjal in the south and a northerly branch of the Great Himalayas in the north. With an average elevation of 1700 m. and a width of 80 km. the valley is traversed by the north flowing Jhelum. The Indus with its tributaries like the Dras, the Zanskar, the Astor, the Shyak and the Shingar have sculptured and divided the region into separate units. Favourable portions for human habitation is restricted to a height of almost 4000 m. (12000 ft.) especially along the Indus valley. The Jhelum valley on the other hand, is wide and not so segregated. Here human habitations are available upto 3000 m.

Climate, soil and natural vegetation

Climate has been influenced by the location of the region and its physiography. The Kashmir Himalaya is situated far beyond the upper bounds of the tropical zone. The lowest latitude in Kashmir ($32^{\circ} 17' N$) is much higher than the highest ($29^{\circ} 30' N$) in Arunachal Pradesh. The parallel mountain range running from northwest to southeast check the monsoon wind approaching this region from southeast to southwest. The monsoon generally approaches this region by the first week of July and lasts till 15th September. This wind first strikes the Pir Panjal range causing heavy rainfall in Jammu (115 cm.). After crossing this range it enters the Kashmir valley causing moderate rainfall. The average annual rainfall at Srinagar is 65 cm. As the monsoon wind goes further north it

loses its moisture bearing capacity. After crossing the Greater Himalayan range it becomes absolutely dry. Due to this rainfall in Ladakh is quite meagre. It is reflected by the average annual rainfall of 8 cm. in Leh. The monsoon rain on an average account for about 40% of the total rainfall of Kashmir region.

Westerly disturbances are another source of rainfall and precipitation in this region. It dominates the region from December to March. These are more prominent in the western part of the Kashmir valley and Ladakh. Its influence progressively declines as it moves in the eastern parts. It is also heavy on the Pir Panjal and the Greater Himalayan ranges.

The continentality in association with height imparts the Ladakh region a character akin to the cold high land type. Average monthly temperature ranges between -7.9° and 17.8°C . with about 5 months experiencing below freezing temperature. Because of thin atmosphere the radiation and insolation are extremely rapid resulting in extremity of temperature in shade and sunshine. Most of the precipitations is in the form of snowfall, received during December to March, the period of general dryness for the country as a whole.

The climate of Kashmir valley on the other hand, is sub-humid high altitude type. As the altitude rises towards the meadowy slopes of the Pir Panjal, known as the 'Margs', temperature decreases from 24°C . at Srinagar (1600 m.) to 10°C . at an elevation of 3,600 m.; until the middle of June weather conditions remain pleasant. Then the heat increases and high humidity makes it oppressive still the middle of August. The entire valley wears a haze hiding the surrounding mountains from view. The autumn months with bright clear days are most pleasant. It is still the middle of December that this cool and pleasant weather continues when the first snowfall is hailed with joy as a harbinger of good crop in the year to come.

Soils

The formation of soils in the two valleys is the result of climatic factors and geomorphic processes aided by geolithology.

Due to the differences in climate and physiographic conditions soil in Ladakh belongs to glacial and mountain meadow type. Such soil supports little vegetation. In the Kashmir valley the soils vary from clay loam to loam. There is distinct zonation of soil in the Jhelum

valley. This variation is found from the north-western to the south-eastern portions of the valley. Glaciation has also played important part in the soil formation of the valley.

Natural vegetation

The natural vegetation of the two valleys are quite different. Ladakh is almost devoid of vegetal cover. Stunted cedars and willows are found on the moister strips. The Kashmir valley, on the other hand, is rich in vegetal cover. Here willow covers the marshy areas while firs and conifers cover the upper slopes.

The cultural setting

Villages such as Lama-yaru, Kharboo, Moulbeik and Khaltse, etc., are situated on the glacial terraces which are now a few hundred feet above the bed of the Indus. In the still higher regions the villages are found along the arms of the hanging valley also formed by the glaciers. The example of Saboo and Stock villages may be cited here as these are situated along the left and right arms of hanging valleys over-looking the river Indus. These villages are situated at an height of about 700 to 800 m. above the bed of the Indus.

Villages in the Jhelum valley are situated either on the top of 'Karewa' or along the bank of the river especially above the flood limits. In the former case the villages are situated a few hundred metres above the river bed but in the later case it is only a few metres above the river bed. The village Wussan in Srinagar district is an example of the 'Karewa' village while Akoora in Anantnag district is an example of the valley type.

The settlement pattern in the two valleys are controlled by the physiography. In the Indus valley where glacial terraces are wide and there is ample space as in Saboo, the settlement is scattered; where there is a fan like circular basin, as in Stock, the settlement is compact, and where there is a strip of land formed by a glacier, the pattern is linear such as Kharboo, Moulbeik, etc.

In the Jhelum valley the settlements are controlled by the physiography. It is scattered on the 'Karewa' upland but in the valleys the settlements become compact.

Though the main occupations of the people are agriculture,

pastoralism and trade, but if we look into details, some differences are observed between the economic activities of the people in the two valleys of the Indus and the Jhelum. These differences are also found between the lower and upper parts of the same valley. For example agriculture predominates upto 12000 ft. in the Indus valley but at still higher altitudes it is replaced by pastoralism and trade. The shorter growing season for the crops and the frozen soil for a major part of the year restrict agriculture. In the Jhelum valley agriculture is practised upto 8000 ft. only due to physiographic conditions. Beyond this altitude agriculture has been replaced by pastoralism and trade.

Agriculture

Agriculture is not of the same type in the two valleys. Although terrace cultivation is found in both valleys but due to differences in topography, soil slope, climate and cultural traditions of the people there are much differences in the types of terraces made, tools and techniques of production, cropping pattern, sowing and harvest of crops in the two valleys. Three types of agricultural terraces, *viz.*, *maa-zing*, *bar-zing* and *tha-zing* are prepared in Ladakh. The terraces are made right upto the bed of hill streams. Size of the terrace fields varies according to the physiography of the village. It is broad where slopes are gentle and narrow on steep slopes. *Maa-zing* are broad terraces conveniently located in relation to sunlight, water supply and the homestead. As such these are properly fenced with stones and receive the best attention of the owner. The manure of cowdung and human excreta is applied on this type of land. Soil is sandy alluvium and deep. Such type of land is given to the cultivation of wheat, buck-wheat, barley, mustard and vegetables. Generally the homestead is made in the *maa-zing* land.

Bar-zing land is found away from the homesteads. Due to steep slopes the terraces are narrow and the soil is more coarse and full of stones. This type of terraces is given to the cultivation of barley, peas and buck-wheat.

Tha-zing land on the other-hand, is found at still longer distance from the homesteads. Here the soil is poor and clayey, and as such water does not percolate inside. This type of fields are sown with Alfa grass and other fodder crops.

In Saboo village these terraces are distributed upto an elevation

of 500 m. from the bed of the stream. The terraces on both sides of the stream upto 100 m. are given to the plantation of willow and poplar trees. Wherever the soil is clayey it is left as rough pasture because water does not percolate inside. Between 100 to 400 m. the terraces are given to the cultivation of wheat and grim (Naked barley). The upper most terraces upto 500 m. from the bed of stream is given to the cultivation of barley. Where the soil is more coarse and full of stones, such terraces are kept for cultivation of fodder crops.

In the Jhelum valley, on the other hand, the terraces are not found to much height from the river bed. Except on the 'Karewa' soils everywhere the terraces are found just above the flood limits of the river or the streamlet. The terrace fields found in this valley are of two types, *viz.*, wet and dry terraces. The wet terraces are irrigated by the canals. Such terraces are given to the cultivation of *sali* paddy. The dry terraces are not irrigated; and as such these are given to the cultivation of maize. In Akora village out of 473 acres of cropped area (Land record of 1951) about 75% is under wet terrace and 25% under dry terrace.

Crops are not similar in the two valleys even at the same altitude. For example wheat, buck-wheat, barley are the chief crops of the Indus valley. These are grown upto an altitude of 12000 ft. beyond which oats and some fodder crops are grown. In the Jhelum valley rice is the main crop. It is grown upto an altitude of 7000 ft. beyond which it is replaced by maize and millets. In this valley the upper limit of crop cultivation is 9000 ft.

The time for sowing and harvesting of crops varies in both the valleys due to altitude, soil, temperature and snowfall conditions. Sowing of wheat and barley starts between March and April in the Indus valley and the harvest takes place during August to October. In the Jhelum valley on the other-hand, sowing of paddy starts from 15th April to 30th May and harvested between 1st September to 15th October. If we compare the sowing and harvest seasons for wheat in both the valleys we will find that the sowing season of wheat in the Jhelum valley (October) is the harvesting season for wheat (October) in the Indus valley. It is due to altitude and climatic conditions.

Crop rotation is practised in the Indus valley for the restoration of the fertility of the soil but it is not similar in the Jhelum valley. In

the Saboo village (Ladakh) the crop rotation practised by the people is as follows.

1st year—Wheat.

2nd year—Potato.

3rd year—Mustard.

4th year—Naked barley.

In the Jhelum valley chemical fertilizer is used to a large extent for the restoration of the soil fertility.

System of cultivation

The method is almost the same in both the valleys. They use plough in the terrace fields but the shape and size of the plough are different to suit the local environment and soil conditions. The plough of Ladakh has wooden blades while in Kashmir valley it is made of iron. Ploughing is done by men with the help of cattle and sometimes with *dzo* which is a cross breed between Yak and local cow. Ploughing with *dzo* is prevalent in Ladakh. This operation requires an additional person who guides the animal in the proper direction by pulling a long rope tied to its nose. This system is also in vogue in other high Himalayan valleys.

Both valleys remain covered with snow from December to March. By the end of March the snow starts melting when in the Kashmir valley people start preparing the field for paddy nurseries. Repairing of the field boundaries, garden walls and such other works are done in this season. But in Ladakh the preparation of land for cultivation starts in the month of May as the soil remains frozen for longer duration here.

After the snow melts away in the month of May the farmers in Ladakh start repairing of the field boundaries, the *kuhals* (irrigation canals) and the bunds. Manures consisting of cowdung and human excreta are taken on the back of donkies to the terrace fields especially *maa-zing* (wheat fields) and *bar-zing* (barley fields). The fields are then filled with water by the irrigation channels (*kuhals*). The water is allowed to remain for 25 days in wheat fields and 15 days for barley fields. It allows the manure to mix with water and with the help of sun-shine the manure percolates deep in the soil.

Ploughing of the wheat and barley fields starts by the first week

of June. Lower terraces are ploughed first as these are prepared for wheat. Ploughing in the upper terraces starts by the third week of June because of the frozen soil. These are prepared for barley. Thrice the land for wheat is ploughed, while the barley fields are ploughed only once.

Sowing the seeds of wheat and barley is done during ploughing the fields. The seeds are broad-cast. After the plants attain a height of six inches during the months of June and July irrigation is restored. Much attention is paid to the wheat fields as these are irrigated 7 or 8 times at an interval of 15 to 20 days. The barley fields are irrigated only 2 or 3 times. Weeding of the fields is done during August as grass and other wild plants come up in the fields. Barley grows first and it is harvested by the end of September. Wheat takes more time. It is harvested during the middle or end of October.

Thrashing of wheat and barley is done inside the field itself. A thrashing floor is prepared in the middle of the *maa-zing* land and the harvested wheat is collected in bundles. The wheat is spread on the ground. Thrashing is done by animals.

After separating the wheat from the stalks winnowing is done to clean the wheat which is then carried in bags to the granaries.

In the Jhelum valley the agricultural operations are carefully timed so as to fall within a certain period during the spring and autumn seasons. The spring season locally known as *sont*, lasts between 15th March to 15th May. The autumn season locally known as *hard*, prevails between 15th September to 15th November. Most of the agricultural operations starting from ploughing to sowing, weeding and harvest are performed within these two seasons. The circumstance which interferes with the punctuality in ploughing and sowing is the absence in the irrigation water at the right time due to natural cause. In any case transplantation of paddy must be completed by 21st June. It is locally believed that transplantation of paddy after this period gives bad harvest.

Preparation of the field for the cultivation of *sali* paddy starts during the last week of May, by ploughing it for 2 to 3 times. After crushing the clods, the field is given the basal dose of chemical fertilizer and then filled it with water upto a depth of 3 inches. It is then puddled thoroughly so that the water and fertilizers are fully mixed up with the soil. The field is then levelled and made ready for transplanting the

paddy seedlings. The whole activity starts from 2nd June and ends by 21st June. The paddy takes about 160 days for ripening and harvested by 15th October.

After the harvest of the paddy the same field is made ready for sowing mustard. It is completed by last week of October. From the month of November the temperature starts falling and by December the fields are covered with snow. By the end of March when the snow melts the mustard plants grow up quickly. These are harvested by May.

Agriculture in the Jhelum valley practically depends on irrigation. If there is normal snowfall during the winter and the mountains are well covered with snow, the water supply for the rice will be sufficient. The water of the melted snow flows through various mountain streams and falls into the Jhelum river after traversing through the valleys. From both sides of the Jhelum the country rises to the mountains in bold terraces, and the water passes quickly from one village to the other in the years of good snow. At convenient points on the mountain streams temporary weirs are erected, and the water is taken off in main channels which pass into a network of small ducts and eventually empty themselves into the Jhelum. All the villages which depend for their irrigation on a certain weir, are obliged to assist in its construction and repair. The weirs consist of wooden stakes and stones with grasses and willow branches twisted in between the stakes.

The system of distribution of water is rough and simple. It has the advantage that quarrels between villages rarely arise, and the cultivators of the same village never indulge in conflicts. The system is said to have been introduced by the Emperor Jahangir. The laid down rule is that the upper villages which has no local spring and lower villages which receive no overflow of water from the upper villages, are entitled to share irrigational water from the main channel.

Besides cultivation the villagers in this valley have some orchards and earn money by selling fruits like apples in the months of September and October. The fruits of Kashmir are a great help to the people as food as they come in a pleasant and changing succession. With the arrival of summer season from 15th May to 15th July the villagers relish with mulberrys. The apricot ripens next, and they too are eaten or stored for the winter. Then comes cherry, and later in the season come the

apples, pears and walnuts. The fruit gardens are sold to the contractors who collect the fruits, pack these in boxes and transport them in trucks to distant cities and towns.

Seasonal migration

Seasonal migration is resorted to by the people of the Indus and the Jhelum valleys. It is necessary for the adjustment of their economic activities with the changing seasons. But the nature and season of migration are different in both the valleys. In the high altitude village of Saboo (Ladakh) the families move with their livestock to high altitude pastures in summer (June) and return to the parent village in winter. But in the Kashmir valley only the cattle, sheep and goats are taken to high altitude pastures in summer and returned to the villages in winter. It is done under the care of *chaupans* (cattle graziers).

During the summer migration, the people of Saboo move along the Saboo stream upward and go in the vicinity of snow line under the Tarachut glacier (18000 ft.). During their stay at high altitude pastures the families are engaged in preparing butter, cheese, curd, etc. The injured and dead animals are slaughtered and meat preserved. The cowdung is collected and dried. Wool of the sheep and hair of goats are collected. All these things are carefully packed and carried on donkeys in their return journey to the parent villages during October. The polyandrous families have an advantage in this type of economy. Here one of the brother-husbands goes in the high altitude pasture with the livestock, while the other one stays in the main village for looking after agriculture. The woman stays with her husband in the low altitude village.

In the Kashmir valley the nature of the seasonal migration is different. As the summer approaches all the cattle except the requisite plough bullocks and the cows in milk, sheep and goats are taken away to the high mountains where they obtain excellent grazing.

In the mountain meadows these cattle are kept under the care of *chaupans* (cow herders). It is necessary because of the scarcity of grazing land in the villages due to the extension of cultivation. The villagers are therefore dependent on the mountain meadows and as summer advances the cows (other the milch ones), ponies and flock of sheep and goats move towards the mountains. With the onset of autumn,

as the grazing is over, the *chaupans* descend to the valley where his clients wait eagerly. As soon as the animals reach the valley villages these are thoroughly washed in the water of the river or streams. The hair is roughly rubbed down with a hoof of iron and shearing of wool commences. Second shearing is done after three months, but it does not give much wool.

Other occupations

Besides agriculture and seasonal migration, the people of the two valleys depend on pastoralism, household industry and trade. In the Indus valley falling in Ladakh region animal husbandry is the second most important occupation of the people. The Ladakhis have domestic cows, *dzo*, *dzomo*, bullocks, sheep, goats and donkies. These are kept for milk, meat, wool, hides and skin and particularly as beasts of burden. In agricultural seasons, some of these animals are used for ploughing the fields. Cows, *dzo* and *dzomo* are mainly found upto an altitude of 12000 ft. Beyond this limit yaks become the important domestic animal. A section of the Ladakhis living in the high altitude areas and depending mainly on yaks, leads a kind of nomadic life.

The household industry is also important in Ladakh. In Saboo there are two Gara households (ironsmith). They are engaged in repairing agricultural implements and preparing domestic cooking furnaces. These cooking furnaces are made from iron sheet and operated by bellows. The cost of a furnace varies from Rs. 200/- to Rs. 400/-. Besides there are three households of carpenters. Spinning and weaving from wool are important occupations in the Ladakhi villages. In most of the households old men and women remain engaged in spinning thread from wool. In summer season weavers come from upper areas and weave *chaddar* (wrapper). It is weaved by a hand operated wooden machine locally called *thongnong*. From woolen *chaddar* the people prepare *goncha* or long coat. Besides these artisans there are two Beda families in the village. These are drummers and are called in *gompa* on the occasion of festival. They are considered as untouchables. The Ladakhis come from distant villages to Leh town and sell raw wool, *pashmina*, Ladakhi cap, shoe and precious stones.

In the Jhelum valley domestic cattles are not that important as these are in Ladakh. Due to wide valley, alluvial soil and facilities of transport and communication, agriculture becomes more dependable.

Conclusion

The comparative study of the two valleys of Kashmir Himalaya shows a great adjustment of the cultural activities of man on the physical landscape. As a result the physical landscape gets modified to suit the cultural demands of the people.

Economic Strategies, Religious Dualism and Change in Diverse Cultural and Ecological Settings : a case from the Western Himalayas

MANIS KUMAR RAHA

Man's relation with his environment and man's acceptance of the influence of it, established from the day man was born. His power of adaptation to the immediate ecological situation and accordingly adjusting himself helped him survive even in varied and extreme climatic conditions. He was constrained to adopt himself even in the most inhospitable conditions because he needed to be survived. This has been observed at any point of time. Man adjusted himself according to the variation of environment and reshaped his culture accordingly. His social and ecological systems run parallelly but one depending on the other.

“The conjunction of social and ecological systems, at any particular point of time, defines a set of conditions to which the participant organisms (human being here) are constrained to adapt, either genetically or culturally or by a combination of hereditary and learned attributes” (Ingold, 1979:271).

At a point of time a particular culture in a given ecological setting has to adjust itself with the prevailing environment as this is essential for its survival. While—

“human being participate simultaneously in systems of ecological and social relation of production” (Op. cit) his primary “adaptive strategies are devised by an intelligent perception of the environmental characteristics of his habitat which accordingly chisel and shape the cultural pattern in order to cater the needs at his best” (Raha *et. al.*, 1978: 70).

Wherever he stays be it plains or mountains, desert, arctic or coastal regions, man's primary concern is with his surrounding environs—the ecological conditions that prevail there. The main reason of his concern is that he will have to develop his strategies for his survival accordingly. Unless he proves himself fit against the odds and hostility of his own physical and cultural environments, in a natural course he will perish. And he is

aware of it. He knows that the culture and ecology in which he lives, are undoubtedly vital factors which directly or sometimes indirectly contribute in organising not only his sources of livelihood but also the totality of his culture.

“How men participate in any ecosystem depends upon the cultural baggage of those who enter it, what they and their descendants subsequently receive by diffusion or invent themselves” (Rappaport, 1971: 246).

The ecological production to human necessity has beautifully be exemplified by Ingold.

“Now it need hardly be said that ecological production is going on in all living things, for it is none other than the life process itself. Imagine, for example, a part of an ecological system a particular food chain—linking grass, a herd of herbivorous game, and a group of human hunters. The grass assimilates solar energy by photosynthesis, and this is converted, with a certain efficiency, into potential energy stored in plant tissues: quite simply, the grass grows. The herbivores graze the grass assimilating a proportion of that potential energy, which is converted—again with a certain efficiency—into energy stored in the flesh of the living animals. The men, in turn kill the animals and consume meat, facilitating a further step in ecological production: the growth and multiplication of human bodies.” (1979: 275)

Further, sometimes instead of directly consumed the meat of the herbivores, men offer the same to the deity through certain rituals and ceremonies. After the offered animals is sacrificed, the meat is prepared as *prasad* of the deity and consumed by all. Thus it is seen that man depends on the local environment for his energy and resources to a great extent. For various aspects of his culture, man banks on his surroundings and environs. This interdependence and interrelationship between man and his environment situated in a high altitude society of the Great Himalayas, has been exemplified in the following pages.

Place : Environment : People

Kinnaur the northeasternmost district of Himachal Pradesh is situated close to the international border with Tibet. As a district it came into existence only on May 1, 1960. Before it got districthood, it was a part

of Mahasu district (at present Simla district). During pre-Independence period it belonged to the erstwhile princely State of Bushahar. The district has seventy seven villages spread over in three sub-divisions, namely, Pooh, Kalpa and Nachar. Punjab State Gazetteer, 1911 states that Kinnaur was a Tehsil of Bushahar State and was divided into a number of *parganas* or *khunts*, each of which was again divided into a number of *ghories*, which consisted in turn, of a number of villages. Considering the ecological conditions of the area the district may be divisible into three distinct ecological zones; these are (1) the arid zone covering the area adjoining to Tibet border, *i.e.*, upper Kinnaur (2) the moist zone spreading over lower Kinnaur and (3) the dry zone ranging in most of the central part of the district. While the moist zone receives some monsoon rain, the arid zone remains satisfied with the last residue of the monsoon rain. The northeastern extremity is almost devoid of it. The dry central part of Kinnaur gets some sprinkles of rains as the monsoon cloud while advancing from lower Kinnaur towards upper Kinnaur, gets almost exhausted with water. But it can satisfy the thirst of only a small area of central zone as the Great Himalayas prohibit further advance of monsoon cloud thereby causing the upper Kinnaur almost arid.

The district of Kinnaur, being encompassed by three big ranges, the Zaskar, the Great Himalaya and the Dhaula Dhar, has a series of mountains and precipitous ravines descending rapidly to the bed of the Sutlej and its tributories. The general features of these mountain systems are that the lee sides are usually jagged and shaggy covered with thick unkempt vegetation while the opposite side is more gently sloped with less developed timber but with rich pasture land.

“Face of the country presents high hills and low dales with rapid and rushing streams and streamlets and is marked by precipitous skyhigh mountains with their peaks usually covered with perpetual snow” (Singh: 1965).

This mountainous district is often interspersed with a number of beautiful valleys, the largest being the Sutlej valley spreading over both banks of the river, Sutlej, the principal river of the district. This river originating in the Himalaya, enters this district through a pass, and while flowing through this district, it is fed by a number of tributories, such as the Baspa, the Spiti, the Yula, the Kashang etc.

The temperature of the district begins to rise till June or July

(considered as the warmest month) whereafter the temperature drops gradually, drop being very rapid from October, January and February are coldest months.

The rainfall though not at all heavy, is also not uniform throughout the district, average rainfall being 434.1 mm. It is 700.00 mm, in lower Kinnaur, 325.00 mm. in middle Kinnaur and very low in upper Kinnaur. The snowfall on the other hand, is 320.00 mm. on an average. But the average snowfall is highest in middle Kinnaur followed by lower Kinnaur but lowest in the upper Kinnaur.

Whatever forests and vegetations the district of Kinnaur has, are usually found in Nachar and Kalpa sub-divisions though the former sub-division covers larger, thicker and better forests. But Pooh sub-division which is almost arid, is mostly devoid of vegetation. Whatever countable number of trees etc. is found, it is seen only in or around the villages. As one comes out of the village boundary, one gets only bare rock all through bereft of even small bushes or grass.

Most of the habitations of this district are lying on the banks of the river Sutlej and also on some of its tributories. The villages are in general situated on the higher altitudes varying from 6000 ft. to 14,000 ft. above mean sea level. One can hardly get a village below 6000 ft. (Raha & Mahato, 1975).

The total population in Kinnaur according to 1971 census is 49,835 of which 26,407 are males and 23,428 females. Of these total population, 34,090 belong to the Scheduled tribe while only 9,669 are the Scheduled castes. Though the Kinnaur have been declared as the Scheduled tribe, there are four ethnic groups, namely the Koli, the Lohar, the Badhi and the Nangalu who have been treated as the Scheduled castes. Different ancient Indian literatures like Amarkosh, Mahabharata, Raghubansam, Ramayana, Vachaspatyam etc. have mentioned about the Kinner. They have been mentioned as a divine race like Asuras, Yaksas, Guhakayas, Gandharvas, Siddhas and others; as musician and divine court singers living in high Himalayas; as defeated Dasas; as *kimpurusa*, i.e., ugly human being; as a fabulous being with half human with bird's legs and wings and also as half human half house, etc. In Raghuvansam they have been considered as a polyandrous tribe inhabiting the Himalayas.

Culturally the district of Kinnaur may be divided into three distinct

culture zones. Zone-I includes most part of Pooh sub-division or upper Kinnaur and is dominated by Buddhism (Lamaism). Zone-II is spread over the area covered by Nachar sub-division and is totally influenced by the local Hinduism. Zone-III sandwiched between the above two zones, includes Kalpa sub-division and a part of Pooh sub-division. In this last zone people have embraced both Buddhism and Hinduism simultaneously (Raha, 1975; Raha, 1976; Raha, 1978; Raha & Mahato, 1975). These culture zones often correspond with the eco-zones of this district.

The present day Kinnaura are divided into two distinct broad categories: The *khosia* and the *beru*. The former group include the Rajpur or Kanet while the latter one covers all the four Scheduled castes *i.e.*, the Lohar, the Badhi, the Koli and the Nangalu. These four castes come under the broad category, *beru* and are included into three sub-groups into which the *beru* is divided. These are (i) the *domang* which includes the Lohar and the Badhi, (ii) the *chamang*, which consists of the Koli, and (iii) the *chanalas* which covers the Nangalu. Of these four castes, the Koli are most numerous and come only next to the Rajput (Raha & Mahato, 1975; Raha, 1978).

None of these ethnic groups is divided into any status group, lineage or any other sub group.

But the nature of stratification in the Rajput or *khosia* society as prevalent in Zones II and III is definitely some what different from that present in Zone I. In the former two zones the *khosia* group is divided into three sub-divisions or status groups called the *khel*, *viz.*, the Orang, Maorang or Orang-mech and the Waza, the Orang being the superiormost and the Waza, the lowest in the ladder of social hierarchy.

Each of these *khels* is further subdivided into a number of *khandans* or lineages which are like the *khel*, arranged in hierarchical order. Each *khandan* or the lineage covers a number of households or *kim*.

In Zone I on the other hand, the *khosia* system of stratification is not identical with that prevalent in other two zones. Here the *khel* system is altogether absent. The *khandan* system is also not well developed. While some of the households do have *khandan*, quite a large number of these do not have any.

Cultural zones Vs Ecological zones

When the culture zones and ecological zones are simultaneously examined in the context of the influence of ecology on the culture of the people of Kinnaur, one may curiously observe that a particular ecological zone coincides with a particular culture zone (see Figure-1). It is interesting to mention here that while Buddhism is dominant in arid zone

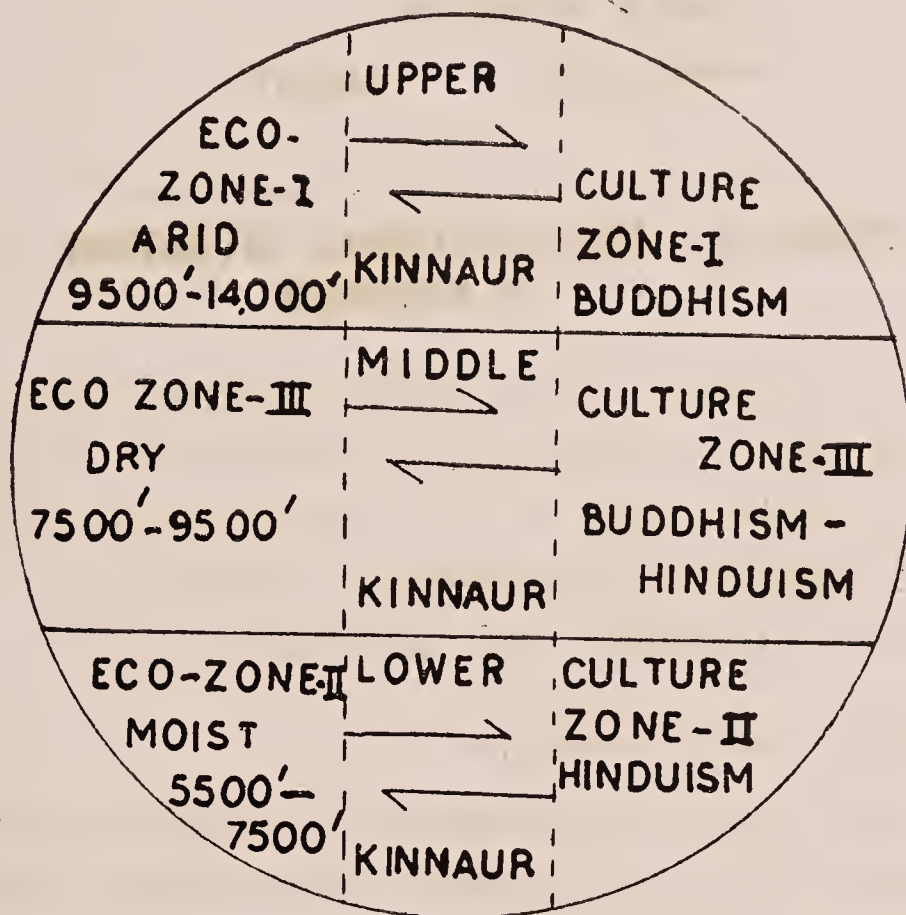


FIGURE:1. DISTRIBUTION OF CULTURE ZONES AND ECOLOGICAL ZONES IN KINNAUR

the stronghold for Hinduism is the moist zone. That means in the arid Pooch sub-division the predominance of Buddhism is noticed but in the moonsoon-fed moist Nachar sub-division Hinduism reigns supremely. Central Kinnaur, which is neither arid nor moist but gets only a little of monsoon rains, has curiously embraced both religions.

It, thus, clearly indicates that the district of Kinnaur can be divisible into three distinct eco-cultural zones (1) The Upper Kinnaur which is characterised by arid climate with very little of rain and less snow-fall

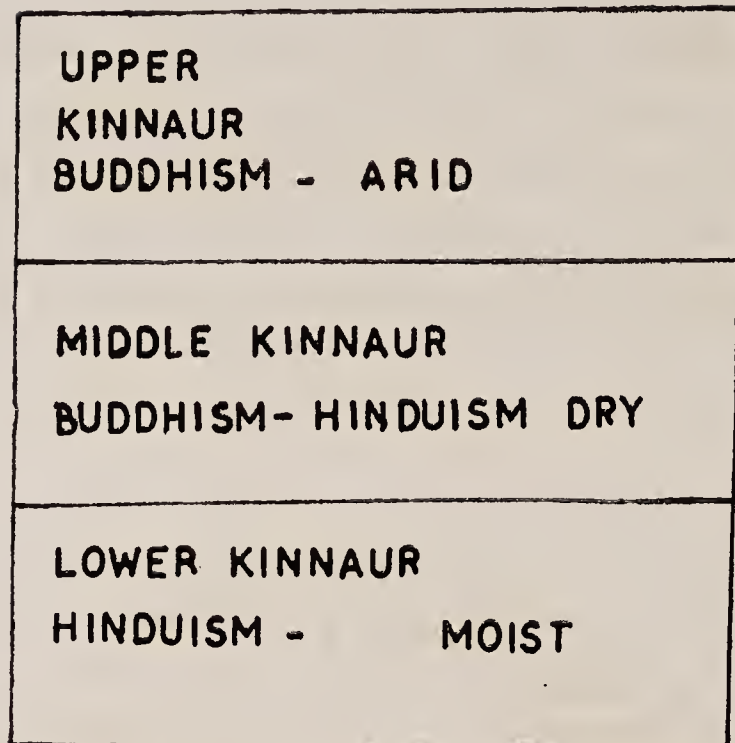


FIGURE: 2 - ECO-CULTURAL SITUATION
IN KINNAUR

and Buddhism as religion (2) The Middle Kinnaur which is dry with little of rain and heavy snowfall and a combination of both Buddhism and Hinduism as religions, and (3) The Lower Kinnaur which is characterised by moist climate with considerable monsoon rain comparatively less snowfall and with Hinduism as the dominant religion.

Economy : Strategies and Transitions

It is true that no much of information is available about the Kinner economy of bygone days, but doubtlessly three economic pursuits, trade, animal husbandry and agriculture were the main sources of their livelihood. The people of Kinnaur had trade relation with Tibet, Yarkhand, Ladakh, and other places, and also with the plains and lower hill areas of Himachal Pradesh, Panjab and Hariyana. As excellent traders, the Kinner were—

“almost exclusively the commercial couriers between Hindustan and Tartary, and also between Tartary and Cashmere, frequenting the routes from Leo in Ladakh, Lhasa and Degurcha and Nepal on trading speculation” (Fraser, 1820).

The Kinnaura merchants used to collect different trade items such as sugar, sugarcandy, tobacco, cloth, chintz, indigo, copper power, paper, iron implements, grains etc. from their native place, from neighbouring areas and also from plains and lower hill areas and to sell these to different trade centres accross the border and from there used to bring chiefly salt and wool besides some gold dust, tea, borax, pasmina, etc,

As already stated animal husbandry was another traditional occupation of the Kinner.

“They used to rear many sheep and cattle, and a great deal of wool, both raw and woven, was exported. In remoter parts the Soorajee or Yak were also kept. They used to breed these animals in large numbers, and these were their best riches next to their crop. They also had a breed between yak and common hill cow which were locally known as dzo and dzomo. Ponies called Gountz together with asses and mules, were likewise bred and kept, and all these as well as sheep and goats were used as the beast of burden” (Frazer, 1820).

Agriculture was their other important livelihood. They cultivated their terraced land situated on the mountain slopes and on the valleys. The land was definitely not fertile. Irrigational facility was not at all satisfactory. They mostly depended on the snowfall for irrigation, of course, in Lower Kinnaur they depended partially on the rain water too. The season of agriculture was from April to October as from November to March agricultural operations remained completely suspended because of the extreme cold and heavy snowfall. Only some inferior types of millet and other cereals were grown which alone were definitely not sufficient to meet up their hunger.

Possibly because agriculture failed to supply them sufficient food, the Kinnaura had to opt for two other supplementary sources—trade and animal husbandry, particularly sheep and goat rearing. At least it could be one of the main reasons. Trade was primarily developed to bring food and other necessities from the neighbouring areas in exchange of various important goods which those areas were lacking. Sheep and goats were deployed for carrying those merchandises and also for wool and meat. Their economic necessity and the environmental demand compelled them to develop these economic strategies.

But from early sixties these strategies started changing with the closure of the international border between India and Tibet. As a result the trade link ceased to operate. With the stoppage of trade some economic maladjustment took place and the people of Kinnaur definitely thought of some alternative arrangement to save themselves from the economic depression. The Government came forward; many development works started in the area, and the opportunity of employment on daily

wage basis was opened to the people. Horticulture took a new turn. People there started earning from fruits and vegetables which they started selling to the army, para-military personnel, Government officials and others. In the field of agriculture also, marked change is noticed. Modern knowhow, new cereals, improved seeds and fertiliser, etc., have been introduced. Besides with the development of transport system market centres grew in different places. Many Kinnaura got employment in offices, schools and in other institutions.

So it is seen that though the present day economy of the Kinnaura (Rajput) is mainly based on their traditional agriculture and animal husbandry.

“but with the construction of roads (after 1960) and opening of the modern communication and transport systems when the whole area shook off its age old isolation, and also with the promulgation of new administrative system, with the intensification of modern education, spread of modern political ideologies and introduction of new development programme and economic order, the age-old tradition started breaking up, many people of this district inclined towards diversified occupations” (Raha, 1977).

While the Rajputs (Khosia) remain busy with above mentioned economic systems, the other four castes, the Koli, the Lohar, the Badhi and the Nangalu serve the Rajputs through their specific occupations. The Koli cultivate the land of the Rajputs and weave and tailor woolen garments mainly for the latter. The Lohar act as both black and silver smiths and make iron implements and silver ornaments for the Rajputs. The Badhi are carpenters and masons. And the Nangalu are basket makers. But even they are also reaping the benefits of the present-day development and modernization programmes of the district.

From 1971 census returns we get that—

“62.72% workers are involved in cultivation, 13.42% in other services, 6.65% in livestock, forestry orchard, etc., 5.74% act as agricultural labourers and 4.08% in household industry” (op. cit.).

It is interesting to note here while there is reduction in the number of male worker in agriculture from 51.90% in 1961 to 46.71% in 1971, a sudden increase in their involvement in service from 8.74% in 1961 to 22.31% 1971 is clearly noticed. Identically the marked increase of the

involvement of male workers in orchard and livestock is also a significant feature. While in 1961 only 1.27% male workers were involved in these pursuits, in 1971 this frequency was increased to 10.25%. In case of female workers, more and more of them remained involved in agriculture in order to balance the man power in agriculture. Thus the political incident of the closure of the international border has brought a marked change in the economic life of the people there though undoubtedly it has also significant impact on other aspects of their life.

Ecological involvement in the economic strategies

Elsewhere I have shown (Raha, 1982) how the economic pursuits of the Kinnaura are ecologically influenced. The table below will show that in Kinnaur people's involvement in different type of economic pursuits in different environmental condition varies in degree. In wet climate zone (Nachar sub-division) prevailing in the comparatively lower altitude covering wider areas having thick vegetation, where there is considerable snow as well as rainfall, people there remain involved more in agriculture than in animal husbandry and other occupations. Almost opposite is the picture in the arid zone prevailing in higher altitude areas (Pooh sub-division) with thin to nil vegetation where rainfall is almost nil and snowfall is very low. The involvement of the people is more in husbandry and other occupations than agriculture.

But during pre-Indo-China conflict era, *i.e.*, before 1962 when the Kinnaur had trade link with Tibet, the condition was quite different. At that time people of Nachar area like today had maximum involvement in agriculture and minimum in trade. Animal husbandry received moderate response. But at Pooh at that time trade and animal husbandry were given maximum importance whereas agriculture was not considered as a major source of livelihood. At Kalpa area, on the other hand, agriculture was chosen as the most important source of livelihood, and animal husbandry and trade got moderate response.

Another example of environmental involvement in the development of an economic resource is the development of woolen industry. It is undoubtedly a reality that for the development of woolen industry in Kinnaur the role of the local environment is definitely very significant, though there may be some other reasons. As already stated the whole of Kinnaur is situated in the high altitude mountainous areas. As a result, during winter, *i.e.*, from November to April, the whole of Kinnaur remains under the grip

TABLE I: *Ecological Involvement in Survival Strategies in Kinnaur*

Place (sub-division)	Area in sq. km.	Altitude average in ft.	Rain fall	Snow fall	Vegetation	Weather	Population 1971	Involvement in Survival pursuits
Nachar	42.1	7,000	710.0	434.2	Thick and in wider area	Wet	12,120	Agriculture—Maximum Animal husbandry —Moderate Other occupations—Minimum
Kalpa	51.7	9,500	322.2	629.1	Moderately thick in less wider area	Dry	15,612	Agriculture—Maximum Animal husbandry —Moderate Other occupations—Moderate
Pooh	46.6	11,000	270.1	235.2	Thin to nil and in small areas	Arid	13,248	Agriculture—Minimum Animal husbandry —Maximum Other occupations—Moderate

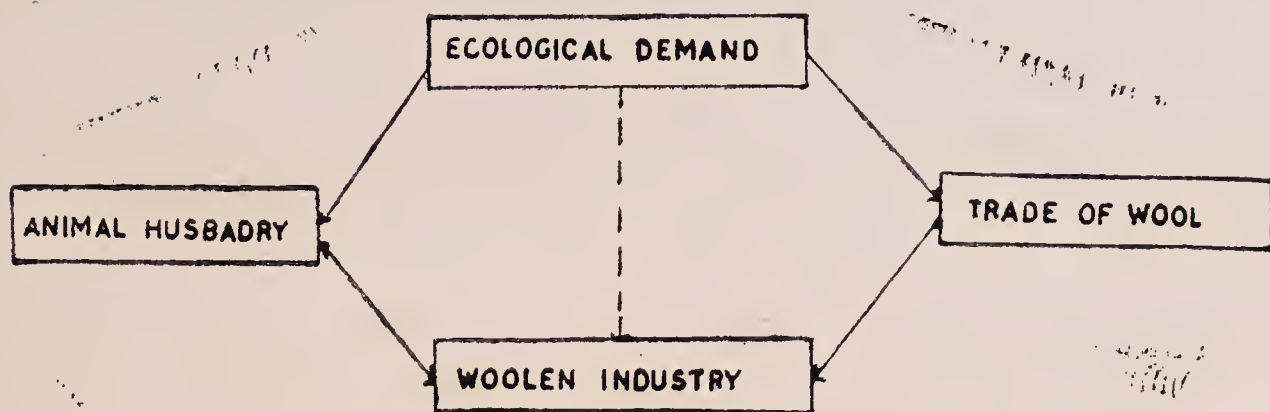


FIGURE 3. ECOLOGICAL FACTOR AND DEVELOPMENT OF WOOLEN INDUSTRY: CORRELATION

of extreme cold with regular snowfall. From middle of December to next April the whole area remains embedded in thick snow. To save themselves from the biting cold, they felt the need to have more and more wool. The production of wool in the district was definitely lower in comparison to the demand. To compensate this requirement, they used to import wool from Tibetan trade centres. With the gradual growth of their own livestock (sheep and goats), they slowly started building up the woolen industry. Thus the growth of the livestock helped them in two ways—firstly in developing the woolen industry which was essential for their survival in the extreme cold country in the high altitude of the Himalayas; and secondly these animals were deployed as the carrier of merchandise of the Kinnaura marchants from one place to another. Even in other spheres of their economic activities, positive impression of the Himalayan eco-system is particularly noticed. Terracing of hilly land, agricultural cycle, yield of high altitude crops, natural irrigation through *chasma* (stream), agricultural operations, horticulture and all others are definitely influenced by the Himalayan environment.

Religious Duality

“The district of Kinnaur may be termed as the place of a curious co-existence of two religious—Hinduism and Mahayanist Buddhism” (Raha, 1974).

As already stated that on the basis of the distribution of the religions, Kinnaur district—

“can be divisible into three well demarcated zones—Hinduism is dominant in Nachar sub-division while Pooh Tehsil, Hangrang sub-Tehsil and parts of Morang Tehsil of Pooh sub-division are Buddhist strongholds. On the other hand, in the whole of Kalpa sub-division and parts of Morang Tehsil of Pooh sub-

division we find these two religions are supplementing each other" (Raha, 1975).

An official publication of the Himachal Pradesh Government, Statistical Abstract, Kinnaur, 1970-71, also confirms such distribution.

"Broadly speaking, the people in the southern part of the district follow Hinduism, in the north Lamaistic Buddhism and in the middle a mixture of two systems is being followed".

This diversity of religious beliefs also existed even a century and a quarter ago.

"The religion of Koonawar is Brahminism in the south, in the north Lamaic Buddhism, in the middle a mixture of the two systems" (Thornton, 1854).

Gerard as early as 1941 also found both Hinduism and Buddhism in Kinnaur. About one hundred thirty years ago, in 1852 Thomas observed both Hinduism and Buddhism in Kinnaur.

"The gradual transition in ascending Sutlej from Hinduism to Buddhism is very remarkable and not the less so because it is accompanied by an equally gradual change in the physical aspect of the individuals, the Hindus of lower Sutlej appearing to pass by insensible gradation as we advance from village to village till we arrive at pure Tartar population."

While about one hundred and sixty years ago the Kinnaura were found to be mostly Buddhists though they were Hindu by 'descent and general profession' (Frazer, 1820), in 1971 they are now mostly Hindus. According to 1971 census 85.25% of the total Kinnaur population (49,835) are Hindus. The Buddhist Kinnaura form only 14.81% of the total population. And of these Buddhist population 93.41% live in Pooh sub-division; Kalpa sub-division has housed 6.27% of the Buddhists and Nachar sub-division only an insignificant number (0.32%). This indicates that while in the arid high altitude Pooh area a large number of Buddhists live, in the moist low altitude Nachar area they are only a few in number. But in the dry middle altitude Kalpa area Buddhists live in the neighbourhood of the Hindu Kinnaura or Buddhism is simultaneously being practised with Hinduism by the same people.

“The presence of two different religions in Kinnaur has given birth to two different complexes. These are Hinduism (Devi-Devta Complex) present in the Hindu dominated areas and Buddhism (Lakhan-Labrang Complex) present in Pooh sub-division where Buddhism is predominant” (Raha, 1978).

It may be of interest to point out here that in Kinnaur at present no religion other than Hinduism and Buddhism is present though the Moravian Mission started its function as early as 1865. It could survive only for a short while and thereafter has to wind up its activities from Kinnaur (Raha, 1984).

The Kinner pantheon of deities in the Hinduism dominated areas, namely Nachar and Kalpa sub-divisions and parts of Pooh sub-division, consists of a large number of gods (*devta*) and goddesses (*devi*). These *devi-devtas*, considering their power, status and area of control, are divided into two distinct types—the principal deities and the subordinate deities. Each principal or sub-ordinate deity has control over the people of an area; while principal deity controls over a bigger area, the sub-ordinate deity exerts authority and power over a small part of that bigger area under the control of the principal deity. That means a number of sub-ordinate deities come under the authority and power of the principal deity. Though the sub-ordinate deities are actually under the control of the principal deity, they also enjoy certain sovereignty in some particular situations and conditions over the people of their respective jurisdiction.

I have already discussed earlier (Raha & Mahato, 1975; Raha, 1979) that in Kinnaur and also in many parts of the Western and Central Himalayas these gods and goddesses were extremely powerful and still they are. Nobody could dare violating the order of the deity. In the past, when the deity was the socio-religious and administrative head of an area, everything was done with the consent of the deity. Nothing could be done without the approval of the deity concerned. For starting any economic pursuit like trade or migration with sheep and goats or any social ceremony like marriage or funeral or any religious festivity the deity's advice and approval was essential. Even in case of some crisis like crop failure or successive periods of dry weather without any rain or the outbreak of some epidemic, deity's advice was considered the most desired thing. It was so much so that nobody could deem of

getting elected in the *char bhai* (village council) unless he got the blessings of the deity. So deity used to play a vital role even on the political activities of the area. This condition still prevails in the present day Kinnaur almost to that strength, though with the modernisation of Kinnaur the rigidity of the custom tends to show some relaxation.

Each deity is served by a horde of temple functionaries, called the *kardar*, who act as the media between the deity and the people.

“A common man cannot approach the deity directly. He has to state his difficulties to the *mathas*. The *mathas*, on behalf of this villager, approaches the deity and narrates the problem which the villager is facing. The deity then gives his/her verdict, to the *grokch* who, in his turn, discloses the will of the deity to the villager. In this way the villager comes to know the god’s will” (Raha & Mahato, 1975; Raha, 1979).

That means in order to solve his problem, a common man will have to depend totally on the *mathas* and the *grokch*, as through these functionaries only he can approach the deity and gets the prescription and clearance of the deity to solve his problem.

Buddhism

As already stated that in most parts of Pooch sub-division Buddhism is quite prominent. The same Buddhism is also found in Kalpa sub-division also where it coexists with local Hinduism.

“Here in some cases these two religions run side by side and sometimes mixed together” (Raha & Mahato, 1975).

It is difficult to say exactly how and when Buddhism came into existence in Kinnaur. But it may not be imperfect to assume that—

“this religion might have brought by the Buddhist missionaries who visited north western part of Himalayas including Ladakh, Lahaul and Spiti, Kinnaur and some other areas of the Himalayas on their way back to India from Tibet” (op. cit).

It is revealed from the ancient book, *Padma bka-btang* that the famous Buddhist missionary, Padmasambhava, visited places like Zohor (Tibetan for Mandi), Garzha (Tibetan for Lahaul and Spiti), etc. (Anand, 1968).

The centre for Buddhism in Kinnaur is the number of monasteries. Each of these monasteries is headed by a head Lama. Other Lamas live there and perform various religious rites and rituals. The Buddhist people in Kinnaur mainly belong to two sects, Nyingmapa and Dukpa. A few have their faith in the third sect, Gellukpa. Nyingmapa is considered as one of the oldest sects or the Old Order. The founder of this sect claimed to transcribe the original teachings of the famous tantric master, Padmasambhava. Dukpa on the other hand, is one of the subsects of the original sect, Kargyudpa. The members of Dukpa sect in Kinnaur have not been accepted in-to-to the hermitage and the ascetic mode of life and the strict monastic life and also the high standard of morality and discipline as prescribed by the original sect, Kargyudpa. The sect, Gellukpa, founded by Tsong-ka-pa (1358-1419 A.D.) is popularly known as "Yellow hats" and on getting patronage from the Dalai Lama, become most powerful and widely recognised one.

Gerard as early as 1841 also found that the Lamas of Kinnaur belonged to these three sects (1849: 117).

The Buddhist villages in Kinnaur are marked by many features. A decorated gate bearing the paintings of Buddhist saints and deities, called *kankani* is often found situated on the main entry near the village boundary. One also finds the *mane* which is a tomb made of loose stones of various shaped and sizes. These stones pieces are inscribed with *om mane padme hum*. Two different types of tomb, *chorten* and *dongten* are found in different directions of the village, on the cultivable land and also on house top. These are meant to ward off the evil spirits. The prayer uag, *tharchok* or *darchchot* are found hoisted on the pole in front of the house or on the house top.

In the monastery, the metal idols of different Buddhists saints are found to be installed. The walls and roof of the monasteries are painted with the paintings of all of these saints, and also various incarnations of Lord Buddha. In the middle a large prayer wheel, *domtyur* has been installed. All rituals are performed in this monastery.

Ecology, Economy and Religion : interrelations and correlations

While working in the high altitude societies of the Great Himalayas I have seen that there is positive interrelations between the peculiar Himalayan ecology, high altitude economy and the socio-economic systems

of the society or the area, and the interdependence of one on the other. I have tried to demonstrate convincingly this interrelation and interdependence as present in Kinnaur society through this paper.

As already stated elsewhere that agriculture, animal husbandry and trade were the primary sources of livelihood in Kinnaur. The agriculture in Kinnaur was uniquely adopted to steep terraces constructed on hill slopes and also on the undulating valleys; this definitely was a response to the peculiar Himalayan geography and environment there. The period for cultivation was definitely shortlived because of the environmental condition; extreme cold and heavy snowfall disallowed cultivation from November to April when all sorts of agricultural activities were discontinued. Each of the major agricultural operations was connected with some sort of religious ceremonies or worship of deities. These operations could be started or ended only after the deity concerned was invoked.

The Himalayan ecology and environment had the identical control over the trade and animal husbandry. Trade with Tibet could take place only in summer months. In winter months the merchandises were sold in different fairs and markets in lower hills. Similarly, during summer the animals, mainly the sheep and goats were taken to high altitude alpine pastures mostly situated in Tibet while in winter months these were tended in the lower hill forests. Before the Kinnaur merchants or Kinnaura shepherds started for their mission, they used to seek approval and blessings of the household, village and/or *khunt* deity after making necessary worship with offerings and sacrifices. They could not move unless the ritual was performed.

The main agri-horticultural productions, *i.e.*, cereals and fruits were mainly consumed by the members of the household; but a little quantity were also used in different religious ceremonies. Identically animals not only acted as carrier of merchandise but also supplied meat to the household members and also were sacrificed in various rituals and worships. Besides various other items for rituals were also brought through trade. A Kinnauri religious festivity and feast required production and co-operation of the whole group of villagers; villagers coordinated in their festivity and feast and attended ceremony, performing various rites and rituals, distributing and consuming ceremonial meat and other food items. No one was isolated, unless barred by the deity from participating this ceremonial cooperated exchange system. We thus see that in the Kinnaura society of the past there was a distinct inter-

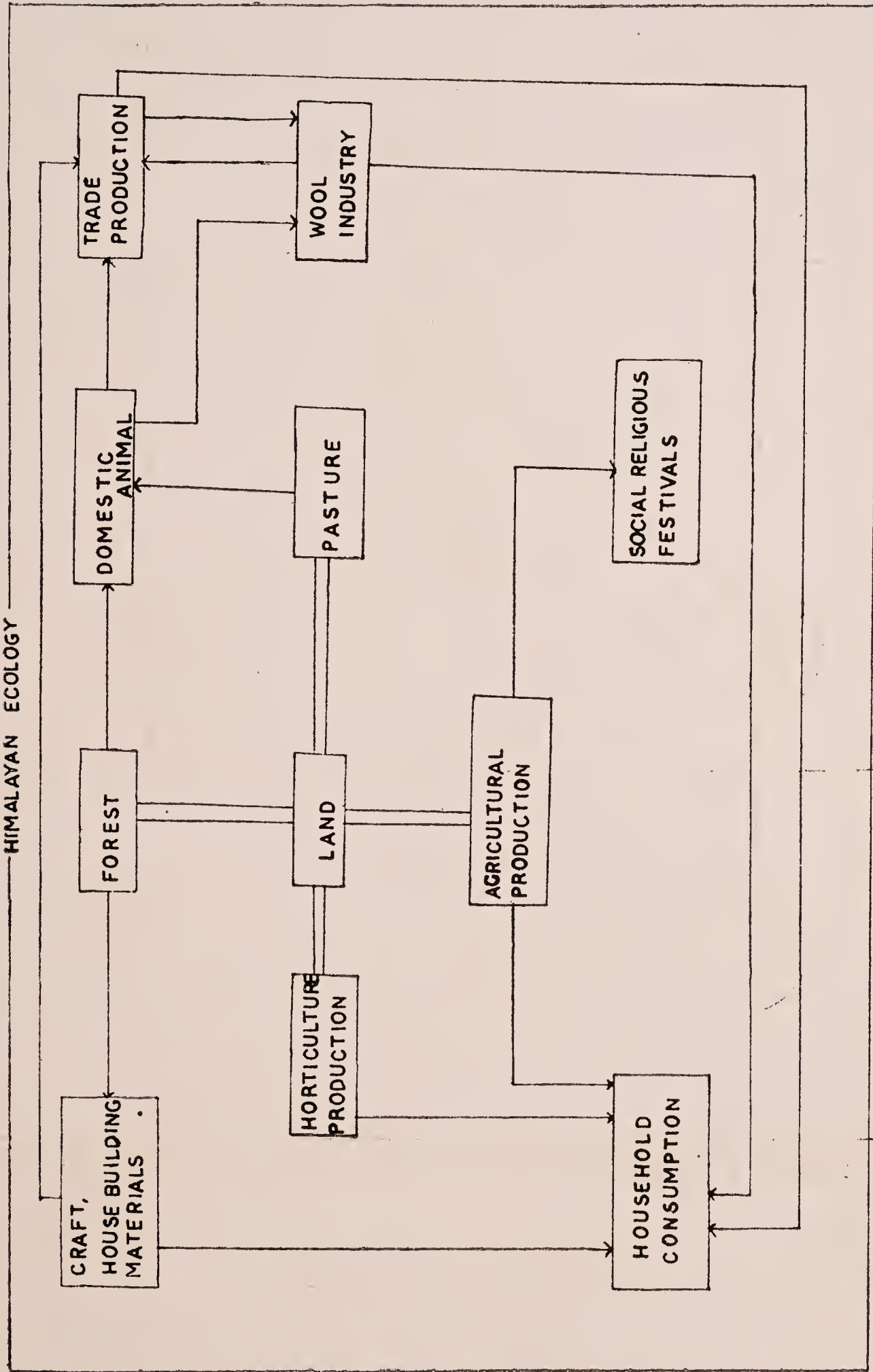


FIGURE: 4. HIMALAYAN ECOLOGY, LANDUSE PATTERN, OTHER ECONOMIC SOURCES AND SOCIO-RELIGIOUS SYSTEMS; INTERRELATION AND INTERDEPENDENCE

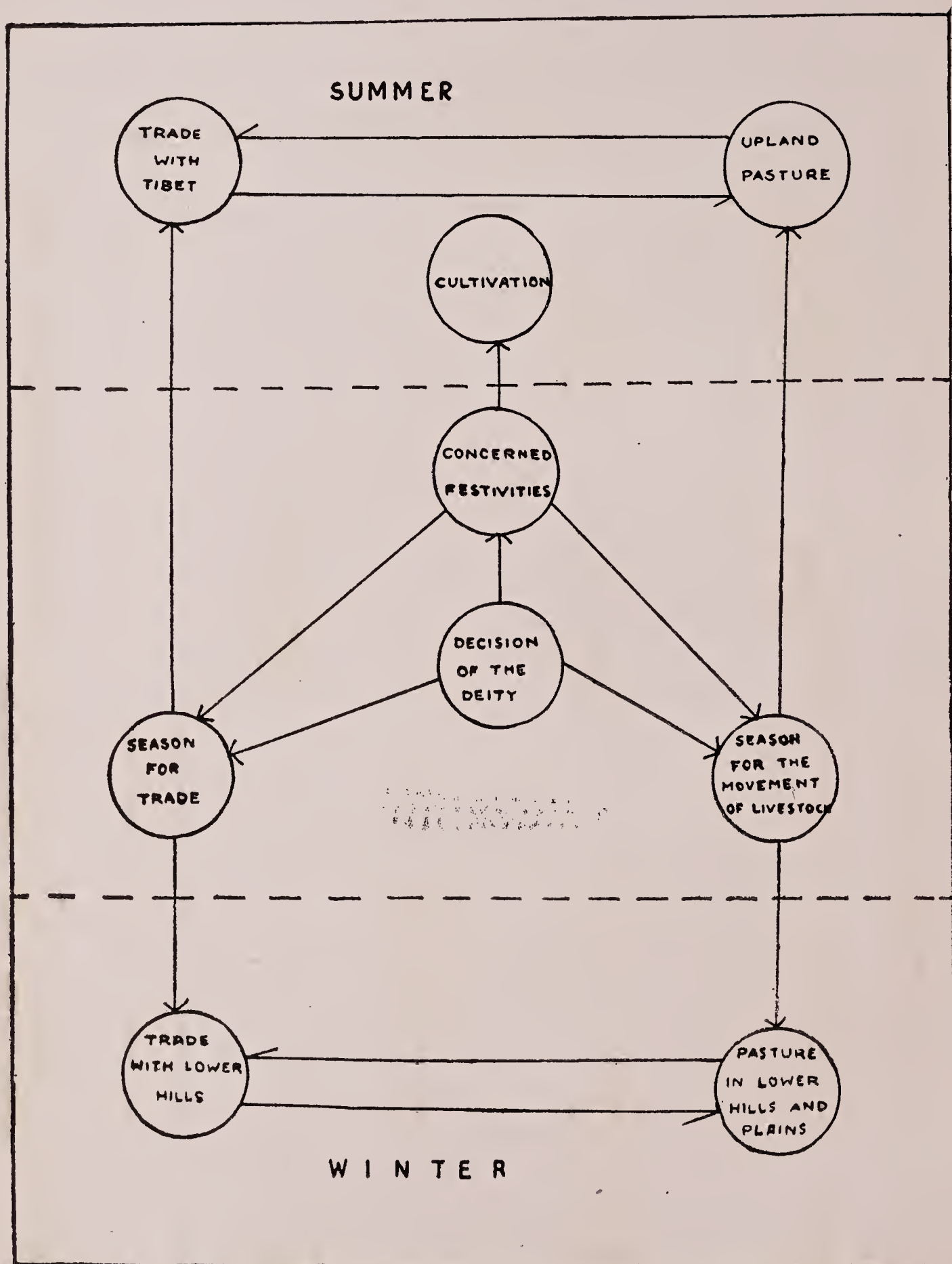


FIGURE - 5 ECOLOGY ECONOMY AND RELIGION CORRELATION

relationship and interdependence of the resources, technology, socio-religious activities and the Himalayan environment.

Another important development in the Kinnaur religion, which could be identified as having possibly been influenced by the peculiar ecology there, was the custom of *zomo* or the Buddhist nun system. Due to the ecological factor division of labour came into being. If a household had three adult male members the eldest usually looked after

the land; of the other two one remained engaged in trade with Tibet and other places, and the third one was meant for tending the animals in the alpine pastures and lower hills. This arrangement gave them a feeling inconvenience and insecurity in running individual families. So

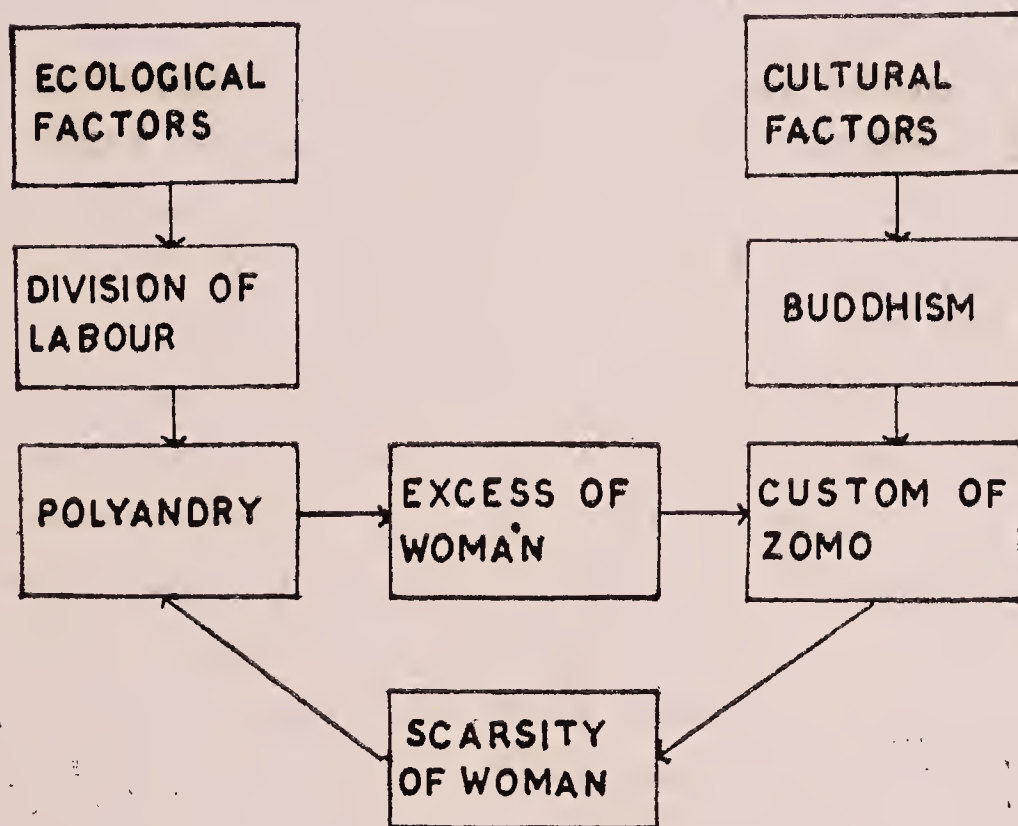


FIGURE 6. ECOLOGICAL AND CULTURAL FACTORS IN KINNAUR : CORRELATION

possibly the institution of polyandry came into existence. As a direct result of polyandry there was excess of women in the society. The problem of this excess women was partly solved by the institution of zomoship. Reversely the cultural factors brought Buddhism here; and as a result of Buddhism some women renunciated the material world and became Buddhist nans (*zomo*) instead of getting married and leading a family life. This institution of *zomo* gradually created a situation of the unbalanced sex ratio, the number of marriageable women became less in number in comparison to the number of males in the society. Ultimately this situation possibly led to the formation of the institution of polyandry in Kinnaur and may be in some other Buddhist dominated polyandrous areas in the Himalayas.

Modern Kinnaur Economy : Interrelation of land, subsistence, cash crop and religious festivities

As already stated a drastic change in Kinnaur economy took place from early sixties when international border between India and Tibet was sealed. The trade between Kinnaur and Tibet was suspended and

the pasture facility in Tibet ceased to continue. A temporary economic depression was set in. But in order to recover this economic set back, the Government came forward with package programme of development, and constructional projects started which have markedly affected the ecological and socio-cultural systems.

The development programmes include the construction of road and other communication, intensification of the modern health and educational programmes, introduction and development of cash crop like fruits and vegetables, new land reforms system, etc. All these have helped in diversifying the new economic and productive order and exchange activities in Kinnaur. Many Kinnaura have got employment as daily labourers in the constructional projects. They have also started attaching much importance and interest in the fruit and vegetable productions which with the patronage of the Government, have started giving them a lucrative dividend in cash. The scope of cottage industry has much been widened. Many educated Kinnaura have got and also are getting service inside or outside the district. Markets have been developed in different places thereby yielding rapid flow of cash and varieties of goods hitherto unknown to them.

The forests as usual supply raw materials for preparation of crafts and also house building purpose most of which are consumed locally. Besides the fuel and fodder, consumed by the household, are also available from forests. It also gives scope and opportunity for tending domestic animals. The cereals, fruits, etc., yield from their field and meat of their animals are offered to their deities, and the offered cash crops and meat of the sacrificed animals are finally consumed by the people.

With the development of market and cash crops, the Kinnaura have started facing an altogether new economic system, *i.e.*, cash and market economy which was so long not at all important in their life. The ancient trade was never involved in cash exchange; it was ran in barter system. The market helps them in getting new religious paraphernellia. The Kinnaura are now spending quite a good sum not only for the various socio-religious festivities but also for their own use. They have definitely realised the importance of the cash.

Another significant contribution to the Kinner character is that with the development of transport and mass media, people have become more mobile, their exchange relationship have become wider, Long distance

affinal friendship, and socio-religious ties have been established. Where there was only a few marital ties between Zone I and Zones II and III, it has increased manifold in the present time.

The other important change is that they are now attracted by the cosmetics and toilets and such other fashionable goods and terrelene and cotton cloths brought to their place from plains mostly by the non-Kinner businessmen. Electricity has lightened the darkness of some areas of Kinnaur. Radio, modern furniture, modern utensils and many other modern ways of life have become part of life of the present day Kinnaur.

The farewell to the age-old isolation from Kinnaur because of the construction of roads and opening of transport and other communications, has brought not only a change in the eco-system there, but also affected their religion in two diverse ways. Firstly, Hinduism from the lower Kinnaur has made inroads in the Buddhist strongholds, *i.e.*, Pooch subdivision where many people have accepted many local Hindu deities and local Hindu methods of worship. Secondly, Hinduism from the plains, mainly from the Indo-Gangetic plains, has infiltrated in Kinnaur and spread its tentacles in many parts of Kinnaur. The main carriers of this version of Hinduism are the army and paramilitary personnel, GREF people, administrators, and businessmen who have mainly come from other parts, mainly from Indo-Gangetic plains of India. In some cases, the those people who went out in other parts of India, have also brought this new ideology.

It is thus seen that in the high altitude society in the Himalayas man keeps a very close link with the environment exists in and around his habitat. He shapes his socio-cultural system according to the needs of the ecological system prevalent there. He evolves strategies for his existence according to the demands of his surroundings. He knows well that if he cannot adjust according to the dictates of the environment he lives in, he loses his right to survive. While it is true in the high Himalayas, it is very well true in any other part of the world.

REFERENCES

- | | | |
|------------------------------|------|--|
| Das, J. C. and
M. K. Raha | 1976 | Ecology, Economy and Transhumance: A study of an immigrant society in Himalayas in <i>Bull. Anthropological Survey of India</i> , Vol. XXV, No. 3 & 4. |
|------------------------------|------|--|

- 1981 Divergent Trend of Transformation among the Kumaon Bhotia of the Central Himalaya in *Asia Highland Societies* in Anthropological Perspective. Ed. C. Von-Furer Haimendorf, Sterling Publisher, New Delhi.
- Fraser, J. B. 1820 *Journal of a Tour through part of the Snow Range of the Himala Mountain and to the Sources of Jumna and Ganges*, London.
- Gerard, A. 1841 *Account on the Koonawar in the Himalayas, etc.*, London.
- Ingold, Tim 1979 Social, and Ecological Relations of Culture bearing Organism: An Essay in Evolutionary Dynamics, in *Social and Ecological systems*. Ed. Philip Burnham and Roy F. Ellen, Academic Press, London.
- Raha, M. K. 1974 Highlanders of Western Himalaya, *Vanyajati*, Vol. XXII, No. 3.
- 1975 (a) Religion and Politics in Kinnaur (Unpublished article).
- (b) The Kinnaurese of Western Himalaya in *Bull. Cultural Research Institute*, Vol. XI, No. 1 & 2.
- 1976 Changing Economy in a Himalayan society (paper presented in the Seminar on Tribal Economy in India) organised by Anthropological Survey of India..
- 1979 Stratification and Religion in a Himalayan Society in *Himalayan Anthropology*. Ed. James Fisher, Mouton Publishers, the Hague,

- 1982 Environmental Diversity and Polyvalent Economy in the Western Himalayas. (Unpublished paper presented in the Seminar on Environmental Anthropology) organised by Anthropological Survey of India.
- 1983 Subsistence Economy, Environmental Involvement and Survival Strategies in a high Himalayan society. (Unpublished paper presented in the Seminar on Cultural Ecology and Human Adaptation organised by Ethnographic and Folk Culture Society, Lucknow.
- 1984 Kinnaurese in *Tribal Education in India*. Ed. B. K. Dasgupta and A. K. Danda, Anthropological Survey of India, Calcutta.
- 1984 The Khandan System of the Kinnaur of the Western Himalaya in *The Himalayan Heritage*. Ed. M. K. Raha.
- Raha, M. K. and S. N. Mahato 1975 The Kinnaurese of the Western Himalayas. (Unpublished Report).
- Raha, M. K., J. C. Das and S. Mandal 1979 Village Structure in Kinnaur in *Journal of Social Research*, Vol. XXIII, No. 1.
- Raha, M. K., S. N. Mahato and R. S. Negi 1976 The Kinnaurese Kinship System: A Terminological Analysis, in *Bull. of Anthropological Survey of India*, Vol. XXV, No. 3 & 4.
- Rappoport, R. A. 1971 Nature, Culture and Ecological Anthropology. In *Man, Culture and Society* (Revised Edition). H. L. Shapiro (Ed.) New York, Oxford Univ. Press.

- | | | |
|---------------------------|------|---|
| Singh, R. C. P. | 1965 | <i>District Handbook, Kinnaur, Census of India, 1961.</i> |
| Govt. of Himachal Pradesh | 1973 | <i>Statistical Abstract, Kinnaur, 1972-73, Simla.</i> |
| | 1975 | <i>Economic Review, Simla.</i> |
| Govt. of Punjab | 1901 | <i>Punjab District Gazetteer, Simla District, 1904, Lahore.</i> |
| | 1914 | <i>Administrative Report of Bushahar State, 1914.</i> |

Mode of economic adjustment in the high Himalaya

JITENDRA SINGH

Adaptation to various challenging environmental conditions of the mountains has long been a difficult task to its people, who in order to adjust themselves with the existing situations have to evolve certain unique devices, those in due course become traditional to cultural diversities of the people occupying different environmental niche (Singh, 1982). Considering the similar circumstances Plog and Bates (1976) have rightly pointed out that "the procurement strategy developed by a society is a reflection of its adaption to its environment." Amidst the multiple challenges of their snow-clad high Himalayan habitat, the Jad procurement rested on one-crop agriculture supplemented largely by postoralization of sheep and goat flocks. As pastoralists, the Jad introduced to Tibetan graziers in *bugyal* (high Himalayan meadows) during pasturage at summers. Through their regular and close interactions, they knew the mutual requirements and potentialities of their countries and started the exchange of each others' commodities simply on personal level leading to the famous and fulfilled international trade. As an adaptive measure, the Jad gave up their one-cropped agricultural subsistence pattern and opted for lucrative trade with Tibet, for which pastoralism was still an essentiality as rams and he-goats were the only beast of burden to carry goods and grains on narrow-snowy mountain slopes having not even bridle-paths. The heights of trade between India and Tibet are documented in ancient texts, especially Mahabharat (Sabha Parv: 48/3-7). With the sudden end of the trade during the first half of the present century due to sealing of border, the Jad's trade disturbed and completely stopped. To adjust with new situations, they started concentrating on their flocks, wool-industries, and other business along-with services in different organisations.

The present article aims to focus the pattern of adjustment that came into existence in the Jad economy in accordance to different conditions of their habitat.

Setting

The Jad is a highland population living at present only in one

village—Bagori of Uttarkashi, hitherto awarded a status of Scheduled Tribe in Uttarpradesh as the 'Bhotia' along with other Bhotiya ethnic groups living in the highlands of Garhwal and Kumaon. As already mentioned that at one time, quite before the closure of Indo-Tibet border, the Jad were actively engaged in international trade between the Bhagirathi Complex of valleys of Garhwal and Tibet. The trade was State patronized and consented mutually as an understanding by the then Kings of Garhwal and Tibet for the welfare and co-existence of the adjoining kingdoms.

The Jad claim themselves to be the Rajputs of Himachal Pradesh, where many of their kin and affines still live and known by the same name. They emigrated generations ago and settled down at the frontier of the Garhwal State in its two villages—Nelang and Jadung, to carry out trade conveniently, as these villages were situated between the way joining to the Tibetan markets with the valleys of Garhwal, which were slightly outside the route of the other Bhotiya traders of Niti, Mana and other valleys. The Jad are divided in many sub-groups like Negi, Bhandari, Rawat, etc., which are in compliance with these prevalent as sub-castes among the Jad and the Rajput of Himachal Pradesh; and likewise, these sub-caste markers too are suffixed with the names. The claim of the Jad for being Bushahari Rajputs and presence of many endogamous sub-castes such as Negi, Bhandari, Guruyata, Risala, Rawat and Rana, etc., among them were noticed by Turner, decades ago (1931: 591). The Jad is an ethnic group which dominates over the multi-ethnic highland society of so-called Bhotiya and also various service castes like the Badhai, Lohar, Koli and others.

The Jad of Uttarkashi, like the Jad and the other highlander Rajputs of Himachal Pradesh have strong faith in Buddhism. They circumambulate *chorten*, rotate *mani-charkhi*, recite *om mane padme hum* and hoist *lungta* a flag printed with the Lord Buddha's preachings, on one hand, and on the other they worship Guru Nanak of Sikh tradition along with sound belief in Pandavas, Renuka Devi, etc., local Hindu deities and imbibed the practice of many festivals of typical Garhwali pattern. Likewise, they give place to the *manes* and various spirits in their pantheon and village deities. The society is patrilineal but women enjoy a dominant place and maximum freedom in the family. Universal Himachali custom of polyandry though at home to the Jad but now is not revealed. Adult marriages are frequent in the society and there is individual liberty to

select and to divorce one's spouse. Exchange marriages are common in which the cross-cousins are often preferred. Negotiatory marriages are also common but the negotiation is always observed in terms of bride price. Widow marriages, alongwith levirate and sororate are practised in the Jad society. Institution of youth dermitory, found elsewhere in all the Bhotiya valleys, has little rather no significance among the Jad today.

Since centuries the Jad have depended upon a variety of food procurement systems needed for survival in the high Himalayas. Each of these systems reflects clear cut adjustment and adaptation of the Jad to their unpredictable environment. This situation is revealed in the procurement history of the Jad through the presence of many remarkable stages given as follows:

Agro-pastoral stage

The Jad opine that their economy before indulging in trade with Tibet depended entirely on the agriculture and pastoralism simultaneously as this dual procurement system is a must in the high Himalaya. This opinion is supported by the presence of a quite old agro-pastoral oriented social organisation among them. Turner also noticed this fact and wrote decades ago that "curiously enough this Jad community has Doms of its own including Orhs, Lohars and Kolis, who hold much the same status among the Jad community as the hill Doms hold among the Rajputs and the Brahmins of the hills" (*ibid.*). In this traditional system the Jad were held responsible for agriculture and pasteralism while the Orhs or Badhai for carpentary, the Lohars for blacksmithy and the Kolis for weaving woollen clothings. Though the Jad due to some hurdles are not engaged in agriculture at present, but the traditional system of division of labour and mode of payment locally called as *dandar* finds its institutionalized piace and is utilized to realise the various service castes of the society for their services. In response to adjust with various environmental conditions the Jad gave up one cropped agriculture as well as their habitat in due course and adopted profession of trade with Tibet which was closely associated with pastoralism and settled down in Garhwal frontier in the villages Nelang and Jadung. These villages were again abandoned due to cessation of trade for which they settled there.

Tibetan Trade and Pastoralism

The time when the Jad switched over to trade from their age-old subsistence pattern of agro-pastoralism, is definitely uncertain. They hold the opinion that interest in trade evolved automatically through the pursuit of pastoralism. It started as already mentioned in the remote past due to the constant annual meetings of their ancestors with the Tibetan people as the latter used to come for tending their flocks in the summer pastures of alpine ranges. This constant interaction, however, turned into closer intimacy leading to exchange of each other's country's products which with the passage of time, matured and flourished into trade.

That the Jad may or may not be the very old traders, is altogether a different thing. But the trade between India and Tibet has its centuries old tradition and is well represented in the chronicles of India. On the basis of the engagement of the people of the frontiers of Garhwal and Kumaon in the remote past in import of *tankan* (Borax) from Tibet, the territory itself was named as Tankanpur. Kattyuri Tamra Patra inscriptions supply witness to accept the present Upper Bhagirathi and Alakanda valleys as the remains of the territory of Tankanpur (Debral, 1966: 241). Further, it is explicit that the upper Bhagirathi valley which comes in Uttarakashi district, is still called administratively as Tankanpur. In the Alknanda valley also there are many villages such as Tankani Chatti which helps to locate the ancient Tankanpur. The territory of Tankanpur was very popular even outside India for its *tankan* or *tangan* people and nature of import. Ptolemy is one, who has mentioned that the people found in the northern frontier of Uttarakhand from the eastern bank of Bhagirathi to Kali, were *Tangan* (*ibid.*: 242).

There are many contexts in the Mahabharata epic, where we come across frequent citations of the Tangan people alongwith the native products of their territory. In Mahabharata (Sabha Parv, 48/3-7) it is mentioned that during the Rajsuya Yagya of King Yudhisthir, the Tangan brought powder of gold, *chanwar* (yak tails), honey, precious stones, sacred water from the Ganges and Mahabala, medicinal herbs, etc., from Kailash as presentations from the Himalayas to offer him in Hastinapur.

Handling of trade with Tibet was never an easy job. The first problem at hand was making of *musse* (trade friends) in Tibet. These people who could manage trade friends in Tibet, were able and entitled

to run up this pursuit, because the latter used to provide shelter, security and surity for exchanging each other's goods through the system of barter. This trade friendship was of crucial importance so it became the subject matter of inheritance in the successive generations of the traders. These friends whenever and wherever met, were entitled to stay with one another's family just like a member brother in the polyandrous society. They had a tradition to sip beer and tea from the same cup simultaneously to prove themselves to be ever confident, like a brother. Each trader used to endeavour to please his trade friend with all sorts of amenities he had, simply as to have monopoly over the trade to earn a good amount of money in the competition with others.

Though there were many famous *mandis* (trade centres) in Tibet but Pulling and Chhaprang of those were ideally suited to the Jad as they were mostly engaged in the exchange of Indian cereals with the Tibetan salt and borax. But of course, those Jad traders, who wished to purchase Tibetan horse, goat, sheep, wool and woollen products used to make their visits to Gyanima and other bigger trade centres of Tibet. Sometimes, when the Jad traders failed to reach trade centres of Tibet in time or used to become late, their Tibetan *musse* used to come down closer to their settlements with the commodities to exchange the loading on their packs.

The Jad traders used to import borax, *laicha* salt, wool and woollen garments, dogs, sheep, goats, jebu, horse, mule, etc., from Tibet as these items were highly appreciated and demanded by the people. In turn, they used to export to Tibet several necessary commodities in which cereals like *phafra*, rice, wheat and other food items like jaggery, tobacco, sugar, etc., were highly demanded.

Earlier mode of transaction in this trade was simply barter, and this alone persisted for a longer time until the spread of monetary system. Later on it became fully or partly money oriented. The mode of transaction by barter to which the Jad cling was called *balthia* locally. Application of the term, *balthia* was restricted to the exchange of Indian cereals with the Tibetan salt and borax. Through this system the Jad traders acquired the right of receiving wool on nominal payments from all of those sheep of their *musse*, who were packed to transport the salt and borax for exchange. The payment was very nominal and fixed for fifty paise (*i.e.*, eight annas in old Indian currency) per sheep having a

crop of 2 to 2½ kgs. of best quality of wool. However, extra requirement of wool, woollen garments, dogs, horse, mule, etc., was the subject of purchase against the payment of cash (in Indian currency).

Decline of the trade

As far as the thinking of the living Jad traders is concerned the *balthia* system remained highly profitable for them prior to First World War. At that time security of their commodities against plundering was quite enough and the taxes imposed upon were considerably lesser. The trade in true sense was *balthia* (barter). They used to exchange one *phancha* (saddle bag) of Indian cereals with the equal amount of Tibetan salt or borax. The same one *phancha* of salt was exchanged in the various villages of Garhwal with a range from four to six-fold amount of grains depending upon coarser or finer varieties respectively. The borax was supplied to trade centres with three fold profit against cash. The wool, they sheared from the sheep of the Tibetan friends by the payment of 50 paise per kg., was sold in India at the rate of Rs. 2/- to Rs. 3/- per kg.

Afterwards a gradual increase in the cost of the cereals in Garhwal took place. Increasing trend of dearness checked the people to pay sixfold cereals for the Tibetan salt. Seeing the situation of increasing dearness people agreed upon the payment of double amount of cereals for the exchange of the salt. In this way curtailment of huge benefit gave a hard blow on the economy of the Jad. On the otherhand, another blow was realised simultaneously regarding the decreasing market demand of Tibetan borax which was definitely crude in comparison to that started coming from the plains. Observing a heavy curtailment in the prospects of benefit in Tibetan trade, the Jad like other Bhotiya traders now became reluctant. This situation was realised in the markets of Tibet immediately. As an allurements to continue the trade with Tibet, management in Tibetan markets reduced the rate of salt and then one *phancha* of Indian cereals became exchangeable with those two filled with Tibetan salt instead of one. In India, increasing dearness of food grains was followed by the dearness in the rate of the wool, which further attracted the Jad to revive their dying trade.

During Second World War again the Tibetan trade passed through the condition of hardship and the situation became more intricate. Imposition of taxes on the Jads' trade was frequent and that increased

tremendously and so were the increased incidences of plundering in the trade routes leading to Tibet. These created horror among the Jad due to insecurity of their commodities and life. Meanwhile, *sambhar* salt appeared in Garhwal which was very cheap and available on cash payment and hence it banished the prospects of Tibetan *laicha* salt as it was available only on exchange with cereals. This was a serious set back for the trade and it broke down the back bone of the economy of the Jad. Keeping all the circumstances in view, *viz.*, heavy taxation, plundering and decreasing demand of *laicha* salt, borax, etc., the Jad found no alternative but to drop the trade for ever. Economically prosperous Jad took initiative in the stoppage of the trade first which was followed by other traders of Garhwal and thus it gradually decreased and ultimately stopped at the end of forties. Even then some of the Tibetan trade friends of the Jad who were in dire need of food grains continued their visits to the Jad villages for exchanging salt with cereals. But this phenomenon could not flourish any longer nor on a large scale, as the salt exchanged against cereals was consumed only by the Jad and some of the villages of very interior terrain where conveyance problem had a check over the introduction of *sambhar* salt. But unfortunately it ceased to function finally with the Chinese occupation of Tibet.

Pastoralism and New occupations

The Jad who had left their Himachal homeland for the effective adjustment to the environment to facilitate trade with Tibet, once again compelled to leave Ne'ang and Jadung villages of the Garhwal frontier for readjusting their economy as it was now devoid of agriculture and trade with Tibet. Consequently they came down to Bagori village which was used by them as a temporary summer halt for passing a couple of months, now converted into a permanent settlement. The Jad avail themselves of the facility of transhumance by descending to lower altitude with the beginning of cold season where they halt at Birpur near Dunda and Chorpani and Bhopalpani—near Rishikesh which used to be their temporary halts of their trade routes, now developed as *ghunsa* (winter settlement) with the aid of the government.

Needless to repeat that the Jad earned a lot of money through the pursuit of trade with Tibet and were naturally economically sound. While giving up the trade they emphasised pastoralism as it remained the only economic alternative for them. Because they already had large

flocks of goat and sheep some of which were used as pack animals during the trade while others were meant for breeding and obtaining wool. They concentrated on raising their flock wealth to solve the economic set back by producing more superior quality of wool. They started increasing the number of he-goat and ewe for multiplying flock wealth and disposed of rams and he-goats because pack animals were not beneficial in new environment where transportation is facilitated by motor trucks.

Mean while, as an adaptive measure the younger members of their society got inclination to receive formal education to manage jobs in various Government departments and remained in autonomous organisations. Those who still remained unemployed, started ferry trade from village to village for a fair earning. All of these businesses are still going on alongwith the pastoralism, which is now their basic economic resource as they have no cultivable land at their disposal.

Rehabilitation step

Since Uttarkashi has assumed the status of a district and the Jad are included in the Bhotiya Scheduled Tribe in U.P., various facilities are being extended to them through different plans especially meant for their rehabilitation and for stimulating to opt improved sheep flock for the increase of wool production in quantity and quality and development of wool-based cottage industries.

For this purpose sheep breeding centres have been opened at Harsil and Bhatwadi. In these centres Australian ram are kept for cross-breeding local ewe so that they can yield good hybrids. Side by side veterinary centres are also set up to look after the health of these flocks by diagnosing different cattle diseases and providing them with good treatment in proper time.

Further, multi-purpose wool-based industrial centres have been set up in Uttarkashi, Dunda and Bhatwadi. Workers of those industries usually purchase raw wool from the Jad on Government approved rates and after carding it they distribute it to the needy unemployed Jad men and women for spinning on wages. These centres also have provision to provide training to the Jad about different processes of making woollen garments. The centres also provide the Jad with carding, spinning and weaving machines on cheaper rates to help in flourishing industries of their own.

After getting technical training in the wool industries many of the Jad who used to sell raw wool, have now realised the benefits of selling prepared garments. They have stopped the tradition of looking down weaving of different kinds of woollen wrappers, carpets, coatings, sweaters, etc., which formerly was the work of the Kolis—a traditional weaving caste among them. Thus the woollen cottage industries of the Jad are flourishing day by day by virtue of their hard work and keen interest in the only basic economic engagement now left at their disposal in which their females and boys also find scope to devote much time.

Relying on the above account it becomes amply clear that the Jad adopted and passed through different economic systems which are inevitably called to be utter adjustments to and crucial reflection of their environmental conditions.

REFERENCES

- | | | |
|---------------------------|------|--|
| Dabral, S. P. | 1966 | <i>Uttarakhand Ka Itihas</i> , Pt. I. |
| Flog, F. &
D. G. Bates | 1976 | <i>Cultural Anthropology</i> , New York. |
| Mahabharat, Sabha Parv | | 48/3-7. |
| Singh, J. | 1982 | Cultural Adaptation to Mountain Environment: A Study from Garhwal Himalaya. Paper presented in the seminar on Environmental Anthropology organised by Anthropological Surevy of India. |
| Turner, A. C. | 1931 | <i>Tribes and Castes of N.W. Provinces and Oudh</i> . |
| Bose, S. | 1963 | The Gaddi of Chamba in <i>Man in India</i> , 43: 3, July—Sept. |
| D. C. H. | 1961 | <i>Uttarkashi</i> . |
| Fox, J. W. | 1956 | Landuse Survey, General principles and a New Zealand example, <i>Auckland Univ. College Bulletin</i> . |

Land utilisation in the Tons Valley

RAMJI GUPTA

Research connected with land utilization has two objects scientific and practical, but it is difficult to separate them. The most general scientific aim is above all the study of the ways in which man's economy utilises its natural environment. The land utilization survey can serve as an important foundation for the drawing of conclusion aimed towards a more rational utilization of the geographical environment (Polish Academy of Sciences, 1961). The term landuse and land utilization is virtually self explanatory, but shades of difference may be found in the dictionary meaning and definition. But both words are used in the same context. According to J. W. Fox, "Land use is the actual and specific use to which land surface is put in terms of interest land use characteristics while land utilisation is the process of exploiting land use that is, land applied to specific objectives" (1956: 46).

In a comprehensive study of landuse pattern it is proper to take all forms of use, *i.e.*, forest, agriculture, pastures, waterbodies, etc. As a result of landuse survey areas are grouped into regions by considering different variables. In the area like hilly tract share of agricultural land is comparatively negligible in comparison to forest occupied territory, undulating surface and rocky terrain delimit crop producing land. The presence of livestock for wool, meat and transportation purposes requires suitable land for pastures. Agricultural settlement areas are only confined to the river valleys or some cultivable lands of the spur. Thus ecological factor broadly limits the types of landuse that may be present in any region and also impose certain limitation. In brief the relief controls operate partly through the climate they create and partly through the slope angle and rugged topography. The soil reflects the influence of climate and relief as well the nature of vegetation. Climate decides plant zone and nature of plants which may grow there.

In the present paper pattern of land utilization in the Tons Valley region has been discussed. The Tons river, as a major tributary of the Jamuna river, flows through the north-west corner of Uttarkashi District of the Garhwal Himalayas. The valley roughly covers the whole of Puroḷa subdivision of the district Uttarkashi. Puroḷa subdivision covers

an area of 1684.02 sq. km. with 32,917 population (1971). The north-western limit of the valley touches state boundary of Himachal Pradesh.

Existing factors responsible for landuse

Physiographically the valley may be divided into two major physiographic regions, the Greater Himalayas and the Lesser Himalayas. The mean average relief of the Greater Himalayas ranges between 4,800 m. to 6,000 m. culminating in the peaks like the Bandar Punch (63.15), the source peak of the rivers Jamuna and Tons. Average height of the Lesser Himalayas is from 1,500 m. to 2,700 m. The valley bottoms of the Lesser Himalayas ranges from 500 m. to 7,200 m. usually. The effects of physiography are felt mainly through climate and soil. The Tons forms the major drainage system of the area with its tributaries like the Pabar, the Kamal, and the Rupin.

With the variation in altitude the climatic conditions of the area also varies—the climatic conditions vary from hot and sub-humid tropical in the lower altitude of southern extreme to temperate cold alpine and glacial in the north-east surroundings. It is the principal aspect of environment for landuse determination. The characteristic soil, the essential medium for plant growth, is largely the product of past and present climates.

Relationship between soil and the soil forming factors are as intricate as they are. The relatively permanent characteristics of soil are the basis of the possible classification which has practical value in the landuse. The soil of the alpine zone is of mixed origin, *i.e.*, glacial soil, while that of the lesser Himalayan terraces is silty to clayey loam. This one is more fertile than glacial one. In general the soil of the whole area may be poor for many crops, but extremely better for horticulture and potato cultivation in comparison to the soil of the plains.

Every type of flora and fauna requires certain ideal climatic situation in which these are able to survive and to grow in natural way. Generally trees are grown upto height of 3,650 beyond which only alpine pastures are found. Perpetual snow line is reached at about 4,600 m. Huri Ki Dun famous for its flowers is also situated in the valley. Trees like the Chir, Deodar, Koil, Spruce, Fir, etc., are found in abundant,

Landuse in general

Total geographical area of the Purola Tehsil is 1,684,03 sq. km., *i.e.*, 22% of the total area of the Uttarkashi District. Tehsil has total 177 census villages including 7 forest settlements. Total number of households are 10,612 and houses are 6,274. Average number of persons per household is 3.1 and per house is 5.2 (1971). As per the same census record sex ratio is 879 females per 1,000 males with a total population of 32,032 of which respective share of the males and females is 17,096 and 14,976 respectively.

As regards the general landuse forest claims for 84.2% of the total geographical area of the tehsil which is obvious from the following table:

Table 1

Landuse		% share of the total area
Forest	..	84.2
Land under non-agricultural uses	..	0.6
Barren and uncultivable land	..	2.5
Cultivable waste	..	0.2
Permanent pastures and other grazing land	..	6.3
Land under miscellaneous use like bushes, etc.	..	0.5
Current fallow	..	0.1
Other fallow	..	0.2
Net area sown	..	5.4
	Total ..	100%

The forest area of the valley comes under the jurisdiction of the Tons Forest Division. The forest covers an area of 147,427 hectares. For the purpose of proper care and administration, the whole of the forest areas are classified into three categories, *i.e.*, Reserved forests, *soim* forests, other forests. In the Tons Forest Division respective share of these three categories are 67,374 hec., 5,607 hec. and 74,446 hec. respectively. Reserved forests and other forests are directly under the control of forest authorities. These forests are subjected to deforestation and reforestation as per their Working Plan. Annual auction of these forest is done by the Government. As a matter of fact due to exploitation of this valuable natural wealth Government contractors and workers

related to woodcutting earn sizeable money. But the absence of long term systematic programme and unusual cutting very often affect the climatic condition and invite soil erosion and floods. That is why local people very often claim against the policy of the Government. Forests under the category of *soim* are under supervision of forest officials as well as village officials. No felling or change may occur without collaborating decision of both the parties. The Village Panchayat is also responsible for looking after and care of the such kind of the forests. The *soim* category of the forest is not auctioned by the Government.

Land under non-agricultural use (0.61%) includes the settlement areas of the valley. In this category house sites, Village Panchayat's inhabited land and the temporary hutments of the field are included. Under this category the frontal portion of houses for drying cereals and husking, etc., is also there. Roughly this area delimits the habitated zone of the various villages.

Being the mountaineous tract the importance of livestock is unquestionable particularly in the one crop zone of high altitude areas where the economy is being balanced by the livestock. Abundant land is required for pasturing of these cattles. Land under such category is 6.8%. These meadows mainly cover the alpine pastures and pastures near to the village. Alpine pastures are the place for summer grazing which are grown on glacial clays after the annual snowfall. In the Alpine pasture locally known as the *bughiyal*, besides, the local livestock, the Gujjars are coming since the reign of the Tehri king. Even after the merger of this feudatory state they are permitted by the Forest Department to bring their livestock during summer in the meadows of Panchgaipatti. But now due to high influx in local population and domestic animals, it has become the place of frequent conflict between the Gujjars and the local people. The local people have so many times represented against the Gujjar to the Government to stop their cattle lead on their grazing lands. Some of other complaints against the Gujjars are their unfixed stoppage while coming and going and bringing of some animal diseases. Now native people are happy as the U.P. Government has decided to settle the Gujjars in Bhabhar region of Uttar Pradesh. So no more outside pressure will be there.

From Table 1 it is clear that only 5.4% of total land of Purola Tehsil is categorised as net area sown, *i.e.*, agricultural uses. Some other

categories of the land are barren, uncultivable waste, fallow or in other miscellaneous uses. In the hilly region due to its undulating surface and steep slope, it is very difficult and laborious job to reclaim uncultivable land into cultivable lands. Agriculture is only restricted upto certain gentle spurs in the fertile soils of river valleys. Fields are made by back breaking, levelling and removing the stone bolders. Even though some-time return is undesirable or ought to be handicapped by soil erosion or unfertility. Lack of irrigational measures also delimits the agricultural land.

Terrace cultivation is done in the whole valley. Tehsil claims for 26% of the total net sown area of the district. Size of the holdings are smaller; the size of the holding becomes smaller and smaller as one moves from valley bottom to up the hill. Following table (Table 2) shows the size of the holdings and their respective percentage share in whole tehsil:

It is also to be noted that the Tons Valley has 17% of the total number of the land-holdings of the whole Uttarkashi District. From administrative and fertility points of view agricultural land is classified into three categories as *taloan*, *avval* and *doim*.

Table 2: Size of holdings

Size of the holdings in hectares	Total number of plots
0—1	4,873
1—3	3,321
3—5	274
5+ Alone	28
Total	8,496

The revenue of the *taloan* land is highest than other lands. *Taloan* is irrigated land while other two categories, *avval* and *doim* are classified as *uproan lands*, being its location on high contour and lacking irrigational facility. The term *ukhar* is also used for *avval* and *doim* land. Revenue of *taloan* land is three times more than that of *doim* while ratio of revenue of *avval* and *doim* is $\frac{1}{2}$: 1 in the whole tehsil. During

the year 1972-73 total revenue collection of the tehsil was Rs. 6,980. *Madua*, rice, wheat, pulses, *jhagorar*, *kaundy* are the main crops grown here. Potato plantation is done in higher terraces, but having lesser commercial importance, being the isolation of the area.

As regards the horticulture the area is no less significant than other parts of hill domain. But the absence of regular and quick transport facility and limited market avenues are the greater hindrance in its development. During the peak seasons sometimes apple are to be sold as of potato's price, *i.e.*, without desirable earning. Otherwise it so happens that actual cost of the fruits or potato becomes lesser and transportational charges higher even double than previous one. *Akhrot* trees are also numerous in the whole area but having domestic use only. Famous nursery of the fruit plants is situated at Jarmola of this tehsil. It is also famous for its improved variety of fruits.

Landuse of the village

For detailed study of landuse village Deora has been studied. It is situated along the bank of the Tons river, on the mid slope of spur of the Kedarkanta rudge at an highest of 1,674.4 m. The village is situated below the snow belt and under two crops zone. It is under Suphi Forest Range and also in Singather path. Average annual rainfall of the village (Naitwor, the neighbouring village) is 1,491 mms. (1952—63). Annual difference in the temperature is 18.6°C with minimum 2.1°C in January and maximum 20.7°C in July (1952—63). Soil of the village agricultural lands consists of stone bolder mixed with fine ground clay.

As per the forest record of the Suphi Forest Range, Deora villagers are entitled to avail all the facilities in Manora compartment No. 1, 2 and in Deora forest compartment. These compartments have area of 81.75, 177.48 and 20.64 hectares respectively. The forest area given alone excludes the area under village pastures and *soim* forest.

Facilities and concessions given by the Forest Department to the villagers are in the given categories (a) Building timber: Ten cubic feet of exploitable timber of *chir*, *kil*, *shisham* or 30 cubic feet of *fir* or other unexploitable species per household as annual free grant. The sanctioned tree grant may be accumulated for three years and marked trees should be recovered within one year of marking (b) Agricultural implements:

One Oak tree for five households per year is given (c) fire-wood, torch-wood, etc.: Timber for such uses are permitted to be recovered from dry wood or stems (d) Grazing: Free grazing is allowed within five miles of village boundary and in other areas where free grazing has been allowed in past and which are open to grazing. The concession is only for the animals kept for domestic requirements (e) Grass cutting is permitted in all areas except those closed for regeneration purposes (f) Roof slates and stones may be removed without charge for *bonafide* use. It is permitted from old quarries and overground stones (g) Medicinal herbs, ringal, edible fruits, limestone and other minor products are also permitted to be remove free of cost, for *bonafide* use.

Besides above concessions lopping under rule is allowed for the purpose for which it is permitted. All the existing water mills, *guls*, burning *ghats* and *chhans* situated in the forest boundary are also allowed to be used by the villagers. At the time of investigation it was reported that annual free grant is being given as per the old settlement record of 1952. Whereas within later 25 years population has increased rapidly with that number of households also increased. So annual free grant is insufficient to meet their own requirement. In lieu of these concessions villagers have to look after the forests welfare and its misuse. They have to report for fire and illegal falling by the outsiders; in the areas of reforestation, they have to supervise and restrict the entrance of live-stock, falling which they are liable to be punish under the I.A.F. Act Section 29. As a matter of fact these forest resources are a valuable natural product; so it should be conserved and exploited as well in proper and rational manner. If this will not be done it may create ecological imbalance and invite so many irregularities. That is why villagers always claim for mass falling of trees by the outside contractors without proportionate regeneration measure. Unusual and excessive fell-ing of trees has direct bearing with soil erosion and climatic conditions of the area. Some of the movements like the *chipko*, etc., are drawing attention of the Government as well as of the villagers for this heavy deforestation.

In the above category forest which is under collaborative supervision of village Panchayat and forest authorities are not included. As it is obvious from the following table that the area of pastures and *soim* forests are 92.24 hectares.

Table 3 : Land under different uses in village Deora

Kind	Total land in hectares
Total geographical area	215.85
(i) Forests (<i>soim</i>) and pastures	92.24
(ii) Settlement area	2.77
(iii) Net area sown	120.84
(a) Area under <i>Kharif</i> crop	120.84
(i) Irrigated	61.06
(ii) Non-Irrigated	59.78
(b) Area under <i>Rabi</i> crop	101.00
(i) Irrigated	60.00
(ii) Non-Irrigated	41.00
(c) Double cropped area	101.00

Forest and pastures situated in the village domain are mainly used for the winter grazing. Because during winter pastures of high altitude zone become snow bound and livestock are kept in the village. For felling or plantation in this category both parties should be agreed.

Settlement area of the village is 2.77 hectares. It includes all the inhabited parts of the village. Besides the temple land of *korn* village club and *dogris* of the villagers are also in this. Primary school and other Government buildings are in this category. Footpath and mule track counted in this *dogris*, are mainly situated near the agriculture fields to facilitate all the cultivation work during summer season.

In Table 3 it also appears that net sown area is 120.84 hectares. This much area is only devoted for cultivation purposes. In net area sown doubly cropped area producing *rabi* and *kharif* crop, is 101.00 hectares. Both in *kharif* crop all the land under agriculture is devoted. But for the *rabi* crop which is grown during the winter only 101.00 hectares of cultivable land is given. It is because other land remains fallow during the winter. It is also associated with the rotation of crop of the two years cycle. In a field if paddy and wheat are grown during summer and winter serially in the first year the same field will be devoted for *madua* in the next year during summer. In winter the field will remain fallow and again in summer, cycle will start with paddy. Paddy and *madua* are the principal *kharif* crop while wheat and pulses are the chief *rabi* crop. Paddy is grown by 57 households of the village with an average

production of 8.54 quintals and total production of 486.92 quintals. Other dominant crop *madua* is grown by 48 households with total and average production 160.95 and 3.35 quintals respectively. In the *rabi* crop wheat is grown by 45 households with 95.83 quintals total production and 2—13 quintals average production. Besides *urd* (33.80q) *cheena* (18.13q) *jhangora* (15.91q), kowndy (5.74q), mustard (1.11q) are grown in the village. As per village level work records average production per hectare of paddy, wheat and *madua* are 22.20 q and 3.70 q respectively. *Taloan* or irrigated land is mainly used for paddy cultivation while non-irrigated for *madua*, wheat may be cultivated in either category. *China* is grown in paddy fields while pulses in the *madua* fields of the village.

Previously we have seen horticulture and potato plantation are not getting proper attention of the village people. Recently one horticulture unit has been opened by the Agriculture Department for its rapid growth. Block Development authorities are also trying in this direction. Number of fruit trees planted by them during April 1972 to August 1974 was as follows.

Table 4

Fruits	Number
Apple	350
Akhrot	5
Aru	4
Orange	46
Malta	20
Grapes	40
Anar	2

During the time of data collection none of these nursery trees were under productive stage. Only reported production of potato was 1.85 quintals grown in only one household while number of Akhrot was reported only 1,400. Other categories of vegetables are not at all grown due to their limited taste and less demands. After the road link and better marketing facility the rapid increase in fruits and vegetables production may be possible.

Height of the terrace fields are invariably high towards ridge and it goes on decreasing in the valley side. Before sowing *kharif* crop during

winter each terraced field is being cleaned and levelled. This process directly effects the fields of upper contour. Because in cutting grasses and shrubs of the lower field, upper field becomes the subject of soil erosion. The same thing is being done by the owner of the other fields lower than that. So during the time of rainfall the fertile soil of the upper field goes to the lower. There is frequent conflict between the owner of upper and lower fields. During excessive rainfall and soil erosion, sometimes it seems difficult to trace the actual boundary of the fields. Terraces towards valley side are of 2' to 5' interval whereas towards *uproan* land the difference of contour ranges from 10' to 15' or even more than that. Due to annual levelling of the fields, contour interval of the successive terraces goes on decreasing. Terraces are not inbound. In net sown area percentage share of *taloan*, *avval* and *doim* land is 30.09%, 41.40% and 28.51% respectively. It means 69.91% of the total cultivated land are classified into *uproan*, as these are not getting proper irrigation facility. Revenue of the land differs from village to village and field to field. Revenue of the *doim* land is Rs. 0.82 per acre while of *avval* is Rs. 1.23 per acre. Maximum revenue of the *taloan* land is charged as Rs. 2.46 per acre, *i.e.*, three times of the *doim* land. Total revenues of the village is Rs. 453.97 at the time of investigation.

Size of the holdings are too small to plough. It is obvious from the following table that the number of holdings is gradually becoming lesser with the increase in the area of the fields. About 50% of the total agricultural holdings have an extent below 5 *nalis*.

Table 5 : Size of holdings

Holding in <i>nalis</i>	No. of holdings
Below $\frac{1}{2}$ <i>nali</i>	2,739
$\frac{1}{2}$ <i>nali</i> to 1 <i>nali</i>	1,399
1 to 3 <i>nalis</i>	1,391
3 <i>nalis</i> and above	351
Total in Deora village	5,878

20 *nalis*=1 Acre

Generally bigger holdings are towards the side of the gentle slope or valley bottom ; with increase of the steepness of slope holding becomes smaller. Agricultural implements prevalent in the area are well in accord-

ance with the such ecological situation. They are smaller in extent and make direct furrow in this rocky land of the village.

The Rajputs and the Brahmins of the village are the chief independent cultivator. About three-fourth, that is 73.12% of the total cultivated land, are owned by the Rajputs, while the Brahmins are cultivating 18.34% of the agricultural land. Among the Scheduled castes the Doms are the cultivator who have 8.54% the agricultural land. But the Nath and the Bajagi have no land at all. They are engaged in cottage industries, doing share cropping or making in the forest department as daily labourers.

Three small rivulets flow from the Kedarkanta ridge to the Tons river in its zigzag way. Water of these tributaries gave drinking and domestic requirements. During the rainy season these possess enough water, but after that it becomes as dry belt. So the water becomes an acute problem. There is no systematic provision for irrigation to these villages. From the water of rivulets low lands are mainly benefited while other fields remain without water. Even the water of the rivers are not properly used in absence of systematic channel system and arrangement. Mostly the fields situated near these are getting much water. Besides these one *gul* is also situated amidst the village which rarely serve the drinking requirements. By the mutual understanding if water is available to a particular field the owner gives it to the other fields situated at lower side. If some upper field owner refuses to do so, he is also discarded where his own field is in the same situation. During the peak summer season irrigation becomes a problems, people depends on rainfall, if it occurs.

Conclusion

Landuse is an important aspect of geographical studies particularly relevant to agricultural geography. Landuse Survey has become the spear-head of the advance of geography in the applied sciences, maps of landuse having become recognized as essential tools of regional planning and development (Symon, 1968: 228). In the Tons valley the various types of landuse and its categories have been studied. The accurate survey of existing conditions of land can serve as an essential tool for agricultural planning. Topographically, the valley is like the other parts of the Himalayan realm, but some micro level changes may be observed due to various other interferences. Still there is enough possibility of the introduction of cash crops and horticulture. The waste and barren land

be reclaimed for cultivation. If the irrigational measures are provided, the fields may yield more. It will not be the out of context to add that the balanced planning of the forest resources should be maintained. The aim should be to declare minimum area under forest. The local people should be given proper responsibility and share, so that they can help in forest conservation. For to meet the speedy development, the existing situation of the land should be removed in proper manner and reclamation of land will be done when necessary. In brief, it can be said that if the proper land utilization is done, there is no question of the valley's economy only to remain as subsistence one, *i.e.*, whose output is consumed almost entirely in its own place, rarely a small portion may be offered for sale, which has the direct bearing with country's economy.

Ecological adaptation of the Bhotias of Kali Basin of U.P. Hills

R. S. RAYPA

INTRODUCTION—*The Community and the Area :*

Near the holy Kailas-Manassorovara the place called Kalapani (not Andamans), the legendary abode of Vyas Rishi, the great author of Mahabharat (hence the name '*patti* Byans') is situated at an altitude of 11,740 ft. above mean sea level. It is the actual source of the Kali river which is called as the Mahakali in Nepal and the Sharda in plains of Northern India. The northern part of the western basin of the Kali, the tri-junction of India, Nepal and Tibet (China) is the region where the Bhotia tribe resides.

The Bhotias (not akin to the Bhutia of Bhutan) are Mongoloid by race and Hindu by religion. In 1967 they declared as the Scheduled Tribe in Uttar Pradesh. The Bhotia land of Dharchula Tahsil in the district, Pithoragarh of U.P. is divided into a number of *patties*, i.e., Byans, Chaudans, Malla Darma and Talla Darma. The paper deals only with the above area. Besides, the Bhotias are also found to inhabit in Jahar (Pithoragarh district), in Chamoli and Uttar Kashi districts, and also in Byans Panchayat in Nepal. This community is called the Shauka in place of the term Bhotia by the neighbouring Kumaonese, Garhwalese and the Nepalese; the Rang the themselves and the Jyanba by the Tibetans. The British administrators and travelers have mentioned them as the Bhotias, probably based on their mongoloid features.

ENVIRONMENT (The Habitat and the Surroundings)

(A) NATURAL ENVIRONMENT

1. *The area and situation :* The Kali river runs towards south through the *patti* Byans in the upper valley and Chaudans in the middle valley. In its course it forms the international boundary between the Bhotia region of India and the Nepal. The Dholi river, tributary of the Kali, runs through Malla Darma in the upper valley and Talla Darma in the middle valley. From Tawaghat the Kali enters into the lower valley towards south upto Jauljibi (2127'), passing through Dharchula (3000'),

the winter resorts of the Bhotias, a Tahsil Head Quarters, and place where people from various communities, religion, culture and nationality mingle.

The Bhotia land covers the area of 12,400 hectares. To the east is Darchula District of Nepal; to the north is Tibet; to the west Johar and to the south beyond the Gori river, is the rest of Kumaon. Thus the whole of the Bhotia region is one of the most rugged areas in the Greater Himalayas as well as in the Kumaon Himalaya.

2. *Relief*: The Bhotia region is the north-eastern part of the Kumaon Himalayas. And it has the minimum altitudes of 2,127' and maximum of 22,661' above mean sea level. The original settlements of the Bhotias are concentrated in the upper and middle valleys between 7,000' and 12,000'. The lower valleys between 2,100' to 4,000' from the temporary resorts during winter. To the northern borders, there are passes like the Lipulekh (16,800'), the Limpiya (18,050'), Darma pass (18,510'), etc., which lead to Tibet from India. There are some noted peaks like Panchachuli (22,661'). The land form is quite rugged with high peaks, mountain ranges and deep valleys parallel to the courses of the Kali and the Bholi rivers. The upper valleys, formed by the glaciation are quite levelled and sometime form ribbon type terraces. The extreme lower valley has river terraces. The valleys are flanked by high ranges with maximum degree of slopes at places. The high peaks are permanently capped with snow. The sources of rivers are various glaciers. The land below glaciers is the vast slope having steppes type of grasses, used as pastures (*gwars*). Numerous small tributaries namely the Kutti, the Palangad, the Syankhola, the Jyungti also contribute to the Kali and the Dholi. These tributaries have formed hanging valleys over the Kali and the Dholi, and many times make water-falls. All the rivers are perennial in character and form dendritic pattern of drainage system.

3. *Climate*: The Bhotia land is divided into two climatic divisions: (1) The lower valleys having heavy rainfall during monsoons (Dharchula 100 cms.) and high temperature in summer. (2) The high valleys having heavy snowfall with periodical rains and temperature below zero in winter. Four local seasons are marked.

(A) Yena—(15 March to 16 June). High temperature, less humidity and cyclonic weather in the lower valleys and moderate climate in the higher valleys are marked.

(B) Shyal—(15 June to 15 Sept.) Heavy monsoonal rains which decreases towards the higher valleys. Land slides, wash out of roads and bridges are common. Seasonal springs and streams are formed.

(C) Namin—(15 Sept. to 15 Dec.) Occasional rains, clear sky, moderate temperature, pleasant nights in lower valleys but snowfall in the high valleys during November and December is the main feature of the season.

(D) Gunchh—(15 December to 15 March) Snow line falls down to 5,000'. Temperature below freezing point and the higher valleys are under thick layers of snow. In the lower valleys, days are moderate but nights are chilly. Inversion of temperature is observed. Avalanches occur in high valleys.

4. *Vegetation*: The Bhotia region is thickly covered with vegetation. At places in this area depending on soil, altitude and slopes of the mountains, the vegetation is thin.

Apart from various species of trees, a very luxuriant growth of precious medicinal herbs are found abundently. Some of them are: Salampanja (*Orchis latifolia*), Salam Misri (*Orchis mascula*), Gugal (*Doronicum roglia*), Kutki (*Picrojakurroa*), Jatamase (*Nardostachys jatamase*), Attis (*Aconitum neterophy eleum*), Dandasa (*Jaglans regia*).

5. *Soil*: The scientific study of the soil in the Bhotia land is yet to be done. The higher valleys have sandy and till soil formed by glacier. But the lower valleys have fertile soil formed by rivers. The soil of the cultivated land has been classified into 'Abbal' and 'Doyam' based on its fertility by revenue Department.

(B) CULTURAL ENVIRONMENT—(*Cultural Landscaps*)

The Bhotia population at present is around 14,000 inhabiting in an area of 12,400 hectares. It was 5,000 in 1881 (Atkinson) 6,798 in 1961 (Census), 8,236 in 1968 (Raypa) and 9,629 in 1971 (Census). The Bhotias are concentrated in 33 Villages. Total number of households was around 2,000 (1961 Census). The density of population is 1.13 persons per hectar. The sex ratio is 861 females to 1,000 males (1961 Census).

The Bhotias possess a well built muscular body. They are hardworker, intelligent and brave people. Till the Indo-China war in 1962, the spread of education was very low and that too was limited to elementary educa-

tion only. But during last two decades it spread fast with higher education. The Bhotias are occupying better positions like I.A.S., I.F.S., Provincial Civil Services, Doctors, Lawyers and Engineers.

The Bhotias follow Hinduism. But due to their continuous isolation and with the absence of the Brahmins, the primitive animism is not absent. Their religion seems to be influenced much by Shaivism. The Linga shaped idols in their temples and wine as one of main offerings denote it. They worship Hindu Gods and Goddesses and observe Hindu festivals. But side by side they worship spirits and also every natural objects like mountain peaks, rocks, revulets which represent some dieties. (Atkinson, 1882). They believe in supernatural power. This power left impressions on the religious ceremonies and festivals. (Sherring, 1906). Since long, they also came into contact with the Tibetans but Buddhism is absent. The pilgrimage to Kailas—Mansarovara and establishment of Naryana Ashrama have also infused Hinduism. Some of the dieties are—Byasirkhi (Vyas Rishi), Shyang Se (Greatest God-Mahadev), Gabla (who helps in trade), Mati (God or Goddess-land). Durga and Nanda, along with Devi who protects from the diseases, are also worshiped.

The Bhotia dialect is grouped to the Himalayan branch of the Tibeto-Burman language. But some aspects of the Bhotia language and including vocabulary resemble Munda dialect. Hindi is now becoming the common language in general use. The Bhotias both male and female, can speak Hindi, Kumaoni, Nepali and Tibetan. It is an intrinsic voluntary adaptation which is very essential to have better trade relations with the others.

In the olden days the Bhotias used to live in the unapproachable, interior parts of the Himalayan terrains. That is why to them the end of the mountains is the end of the universe as mentioned in their legends and folk literature. Later on the Bhotias have had contacts with the Kumaonese, Nepalese and the Tibetans. In present days, better means of transportation and communication have brought businessman belonging to various religions and castes—from northern Indian cities. These people have now permanently settled in Dharchula town and neighbouring area.

The Bhotias have experienced various stages of ecological succession in the cultural landscape. The history prior to 10th century is only legendary. They have been mentioned as the Kirats, Kinners and the Ganas of Shiva who later on mingled with the Khas, Nag, Shak and

others. At the time of Raja Raj Bahadur of Chand dynasty trade with Tibet was opened. During British period, the Trade Agreement of 1904 and Simla Conference of 1914 and again during post independence period agreement of 1954 (Ponchsheel) between India, Tibet and China helped the Bhotias to enjoy the monopoly of trade. But their monopoly and prosperity based on trade, suffered a set back because of the stoppage of the Tibet (China) trade as a result of the Indo-China war in 1962.

The Bhotias have attained various stages of political changes and diverse cultural environments. In such natural and cultural set of surroundings, they have been under going a peculiar type of ecological adaptation determined by their faculties and needs.

III

ADAPTATION

A—BIOLOGICAL NEEDS AND ADAPTATION

1. *Settlement and Dwelling*: In the selection of suitable site for settlement, the natural hazards like violent wind, land slides and avalanches are taken into consideration. The vagaries of climate in the higher valleys has compelled the Bhotias to adopt seasonal migration. These people of Byans and Malla Darma migrate to the lower valleys with their livestock in the month of November and December and reside there till April and May when the valleys face the heat of summer. The villages in the lower valleys consist temporary huts only. The village in the middle valleys have permanent settlements. Earlier to 1962, these people have a profitable trade with Tibet. They used to barter the Indian goods with those of Tibet by crossing passes while having their base settlements in the upper valleys. Then on return, they used to sell Tibetan goods in the lower valleys. This trade was concomitant with the seasonal migration. In summer, the Bhotia traders remained busy in exchange of goods in Tibet. In winter season they used to migrate *en masse* to the lower valleys where they used to see the Tibetan goods and purchase Indian goods. The trade and seasonal migration were forced to stop as a result of the Indo-China War in 1962. But however some of them who could not own landed property in the lower valleys, continue to migrate. Thus the seasonal migration could be attributed for economic as well as the climatic factors.

The isolation and geomorphology of the land have compelled them to have an agglomerated pattern of settlement. Multi storied houses are constructed. The walls are built with stones and the steep slanting roofs are covered with slates. This kind of roof is suitable in the region frequented by storms and snow falls. The windows and doors are less in number and small in size. In the middle valleys, the houses are of one or two storied only and cattle sheds are constructed separately. In the lower valleys, houses are constructed with cement-bricks, C.G. sheets, etc. and provision for separate kitchen, latrine, bathroom is made in present days.

2. *Food and Drink*: The Bhotia diet mainly consisted of rice and mutton. The *ghee* (butter), fat, milk and sugar also are consumed. The babies are breast fed for longer period. For the pregnant woman, no special and rich food is provided but after delivery, nutritious food is given to them. Though the rice is not produced in upper valleys, it is the staple food of the Bhotias as cooking of rice takes comparatively less time, labour and fuel. The green vegetables are absent in their diet but the wild varieties in dried form are taken sufficiently. The mutton is preserved for months together in higher valleys. The tea churned with butter and salt is common. It gives warmth to body and protects throat infections. The buck wheat which possesses less nutritive value is taken but it is exclusively a poor man's diet.

In present days, they take rice, wheat-flour breads, pulses, and vegetables with all condiments. The common tea is taken. Both men and women use liquor. They feel it quite necessary in the prevailing climatic conditions, and moreover it is an important item in ritual offerings and in entertaining the guests. However, the intoxication never leads to any serious disorder in their society. Two types of liquor are brewed out of barley, *viz*, *daru* fermented and distilled one and *barchhyang*—only fermented one. In present days, barley has been replaced by jaggery.

3. *Clothing*: Males and females are always found to wear woolen clothes made locally. The spinning of wool, weaving it into cloth and even stitching is done by themselves. The male dress consists of coat, trouser and cap. The traditional turban and long over-coat are worn these days only on ceremonial occasions. The women's dress consists of an upper garment, a skirt from waist to ankles, a conical shaped cap

drooping backwards and a cotton girdle at the waist. The woman also wear woolen boot. The blankets and carpets are also woolen. The Bhotia women are much fond of ornaments. The ear-ring and nose-ring are made exclusively of gold but rest are *muga* and silver ornaments.

Today, there is a drastic change in dress pattern and ornaments. The clothes they use at present, are all mill made and are of both woolen and cotton. The male garments like coats, pants, shirts are all stitched in modern fashion while the females wear *sari* and blouses. The use of cotton and polyaster clothes is a suitable adaptation in lower valleys and is not merely because of the non-availability of sufficient raw wool after 1962. The Bhotias are thus seen using modern clothes and cosmetics. The traditional practice of wearing ornaments is slowly dying away. The cotton *gaddas* and *rajanis* have replaced the traditional woolen carpets and blankets. The use of cotton, silken, and all type of modern synthetic clothes has become common.

B—ECONOMIC NEEDS AND ADAPTATION

1. *Trade*: The Bhotias played an important role as a bridge and buffer community between Tibet, Northern India and Nepal. Tibet which produces rock-salt, borax and raw wool, was always in dire need of cereals. On the contrary, Kumaon (India) and Nepal which produced cereals, were always in need of some Tibetan produces. The Bhotias, due to their strategic domicile, adopted trade and monopolized it. They imported goods like rock-salt, borax, raw wool, woolen cloths, sheep, horses, etc. and exported cereals, mill made woolen and cotton clothes, sugar, jaggery, implements, utensils, and other articles of daily uses.

The Bhotia reared herd of animals (sheep and goat) which were the beasts of burden employed between Tibet and Indian frontiers. The trade was based on barter system. After the Chinese occupation of Tibet the business flourished well. The Bhotia traders used to stay in Tibet for business purpose from July to October and return by November to their summer resorts. After migrating to the lower valleys, they used to sell their imported goods in Kumaon and Nepal and purchase export goods from Indian cities like Delhi, Kanpur, Amritsar, Calcutta, Bombay and Kalimpong. Male folks were totally involved in this profitable business throughout the year while female folk managed agriculture and weaving. The trade thus made the Bhotias quite prosperous in their economy (Walton, 1911) and they were better provided with food,

clothing, shelter and amenities of life than the non-tribal Kumaonese and Garhwali (Johari).

The Bhotias unfortunately have lost this trade in 1962. Their economy thus got upset. They then onward started seeking jobs and business opportunities in the lower valleys. A few Bhotias are now involved in business in Dharchula and some other towns in Kumaon. Some of them are contractors in the Public Works Department, Forest Department and some in transport business. But only those who are economically sound can adopt these jobs. On the contrary, the Bhotias, who are economically backward, still struggle for their livelihood.

2. *Domestic animals* : Till 1962, herds of goats and sheep, *jibu* (cross-breed of yak and cow), mules and horses were reared by the Bhotias. These animals were small in size but well adapted to the prevailing climate. They provided the means of transportation between Tibet and Indian frontiers as well as in the migration between the upper and lower valleys. The sheep and goats also produce raw wool but because of its roughness it was used only in manufacture of rough carpets and ladden bags. The *jibu* and horses were yoked too in higher valleys. Cow were reared for the milk. The break up of trade with Tibet and decreasing tendency in migration have somewhat lessened the importance of these beasts of burden and therefore today these are rarely found in large number with the Bhotias. By rearing sheep and goats for which vast pasture lands are available, the manufacture of course wool can be developed. The meat of sheep and goats can enrich the Bhotia diet as well.

3. *Agriculture* : All activities concerning agriculture, except ploughing, is done by the female folk. In the middle valleys situated below 8,000' above mean sea level, both *rabi* and *kharif* crops of paddy, wheat, barley, maize, potato, buck-wheat and *chua* are grown. On the other hand, the higher valleys produce only one crop a year, and that too only buck-wheat and barley. The land in the middle valleys is not that fertile and fields are small in size but however the produce meets some requirements of the people. In the higher valleys, the crops have higher yields but of inferior quality. These cereals, of course, earned Bhotias a handsome profit from the Tibetans when trade was flourished. The Bhotias now depend less on their agricultural produce. A big portion of the cultivated land in higher valleys is not being cultivated.

The middle valleys are also not dependable due to the natural hazards. In these circumstances, people have taken to fruit cultivation, and apple is the major fruit grown. Again due to the lack of transportation and packing facilities, only a little quantity of fruits could be brought to the markets. Same is the case with cash crops like potato, buck-wheat and soyabeans, which have more demands in north-Indian cities. Thus because of the geographical limitations, lack of proper transportation coupled with the present tendency to settle permanently in lower valleys, agriculture is not a well dependable occupation. However there is wide scope if the Bhotias produce exclusively cash crops which have high yields and better markets.

4. *Weaving* : The women folk are highly skilled in manufacturing all sorts of woolen clothes. The woolen produces like blankets, carpets, shawl, clothes have had a good market in Kumaon and Nepal. The non-availability of raw wool with the break-up trade agreement with Tibet has severely affected the industry. In recent years only a little quantity of wool reaches the Bhotia, but mostly it reaches to the hands of mill owners, Khadi Board and industry department. The manufacture of woolen goods by the Industry department, established in Dharchula are now helping the Bhotia to a considerable extent.

5. *Services* : Till sixties, the Bhotias engaged themselves in trade after getting elementary education. The eco-cultural and political changes have now compelled them to seek jobs. A good number of the Bhotia are now doing various jobs. By declaring the Bhotias as the Scheduled Tribe in 1967, scholarships and free education facilities are being provided. Attraction towards education in present days certainly will bring them a better life and higher standard of living.

6. *Collection of Medicinal Herbs* : The different kinds of herbs are available in plenty in the region. The scientific cultivation of these plants would prove to be a profitable occupation for the Bhotias. The mountain slopes of the valleys could be converted into large herbal farms by just removing the unwanted scrubs and plants (Raypa, 1974). The Bhotias used to collect these medicinal herbs primarily for their own use but nonetheless they used to sell these in the markets. They could not make this collection of herbs a profitable job as the royalty levied by the Forest Department was high. Therefore this plant wealth could be properly exploited for the benefit of the people. The systematic and

scientific extraction of these medicinal plants may help the Bhotias to earn cash.

The Bhotia region had a dense population of musk deer. The indiscriminate hunting of the musk deer has rendered them as endangered species. The scientific farming of these animals would be a profitable industry for the Bhotias (Raypa, 1974).

C—THE SOCIETY AND ADAPTATION

The Bhotia society generally maintains joint family system but simple families are not totally absent in present days. The father or the husband is the headman of the family. Monogamy is in practice and the polyandry and polygyny are absolutely absent. On the contrary, polygamy is observed among the neighbouring Kumaonese and Nepalese and the polyandry among the Tibetans.

The Bhotias have a casteless society. The social structure is based on exogamous clan system. The clan called *rathu* is believed to be descended from a single ancestor. In each Bhotia village, there are a few artisan families belonging to the 'Dom' caste. They were brought long back from Kumaon and Nepal to work as blacksmiths and goldsmiths, mason, carpenter, etc. Some of them also play musical instruments for the villagers for which they used to get remuneration in kind.

The co-operation among the families is a basic need in the society. The Bhotias assist one another with their free labour in the major works like house construction, etc. The co-operation in trade as well as in cultivation is commonly observed. Poor man invests his labour with the capital of rich in the business. In this co-operation the share is fifty-fifty. The poor man provides labour in cultivation of richman's farm and the latter provides agricultural implements and bullocks for the cultivation of poorman's land. They attend the funeral ceremony of a dead irrespective of their relation with the individual and help the bereaved family by providing fire wood for the pyre as well as cereals at the time of death ceremony.

Division of Labour: The husband is supposed to be engaged in business and trade and wife is to manage the household activities. The agricultural activities except ploughing also are left for woman folk. A Bhotia woman works in the fields from morning to evening. She fetches the water; collects firewood and fodder and also engages her-

self in spinning and weaving, cooking and serving of meals; cleaning of utensils, and washing of cloths are her duties. On the other hand man's job is also not easy one. He makes outings for months together in connection with trade and animal husbandry. The girls assist their mothers and the boys their fathers in their respective works. The division of labour is well arranged among males and females according to their respective skill, ability and strength.

Status of Women: The women folk are never looked down but get equal status. They equally contribute in maintaining the economy. Strict practice of monogamy is mainly because of equal status enjoyed by women. In arranging the marriages, the will of the bride is given higher importance than that of the groom. Absence of dowry also denotes the equal status of woman. A Bhotia woman equally takes part in village panchayats, ceremonies and festivals. The house wife is called as 'Mulin Rani' (Goddess of the hearth).

Dormitory: Till not long back, a dormitory (*rang-bang*) was found to exist in each Bhotia village. The boys, girls and elderly people of the village used to assemble there after their evening meals to sing, dance, drink and rejoice in the night hours. The young fold could get enough opportunity to enjoy the company of the opposite sex. But the elders used to discuss about village problems, customary laws, etc. Each of the member could come in close contact through the dormitories. The young boys and girls could have had better choice of spouse through their association in dormitories. And they could also learn every arts, manners and etiquette under the guidance of elderly people. In recent years this unique institution of the Bhotias has totally been disappeared for varied reasons.

Marriage: Marriage is arranged for boys and girls who have entered their twenties. The hardship of the Bhotia life always requires matured and well experienced life partners. Cross-cousin marriage is common and given preference. Marriages are arranged by negotiation. But marriage by capture was also in practice till recent past. Such practice would avoid the prolonged negotiation, and thus Bhotia boys who ordinarily engaged in trade could get their life partners expeditiously. Unlike the arranged marriages, this kind of marriage would not be postponed on account of monetary problems faced by the girl's parents. However the willingness of the girl and her guardian is ascertained.

Widow marriage is permitted and cases of divorce are rare. Dowry system is totally absent.

Marriage is a great social occasion in the Bhotia life. Engagement is settled by the parents of the girls and elderly persons of her village. The bridegroom's party consisting of his sisters, villagers and friends along with musicians proceeds to the bride's house. The elderly people from both sides perform the rituals. All deities are worshiped with offerings including sacrifice of goats. Later on a feast is arranged in the groom's house. Drink, dance and songs go around for a couple of days.

Other life cycle activities: The birth and first hair cutting ceremonies are simple. Relatives and friends are invited for the feast and deities are worshiped. The naming of child and boring of ears are performed without any ceremonies. The next ceremony is *bumo*, an adaptation inevitable for their way of life. The hard working woman can not always carry her baby in hands. At the age of three months, the child is first carried on the back ceremonially. Henceforth the infant is carried back-packed with a piece of cloth. As the practice indirectly increases the efficiency among the mothers, this ceremony is given more importance than the previous one. The next one is *budhani*. At the age between three and fifteen years, the boy is taken to the temple of the village deity in a procession with pomp and show. The deity is worshipped and prayed for a bright future for the boy. Thereafter the boy obtains a responsible membership in society. The last one is death ceremony. It can be observed within a week or 2-3 months after the death. It is so because the duration of trade-trips was earlier uncertain and also the migration period depended on climatic conditions. But dark half of lunar month is always chosen for death ceremony. The brighter half of month is selected for worshipings and other ritual performances.

During the period between death and death ceremony, cutting of hair among males, wearing of ornaments among females and ceremonial performances in the family are prohibited. Yak is worshipped which represents of soul of the deceased during the death ceremony. The Yak (*chamar gai*) is believed to lead the soul of the deceased to heaven crossing *vaitarni (mujartha)*. The economic importance of the yak is recognised by giving ceremonial status similar to the sacred-row of

Hindu. The son-in-law and maternal uncles play important role in death ceremony. Due to many reasons like the shifting of the permanent settlement in lower valleys, change in socio-economic systems, contact with the non-Bhotias and non-availability of sacred yak from Tibet, the mortuary rites and rituals have much been changed. Most of the villagers perform *sarat* on 11th days of death. Only a few employ a Brahmin priest for performing these rituals. However, in most of the cases the *saiyakchha*, a proficient man still performs the ceremony.

In all life cycle activities and ritual performances, the local deities and ancestors are worshipped. Wine, *sattu* cake (cake prepared in the shape of *linga* with dough of parched cereal), sweets, rice (*akshat*), incense, oil-lamp and *dhajha* (strip of white cloth) are the main offerings. For ritual performances, the barley, juniper leaves and piece of wool are used in place of usual articles like rice, incense and *dhajha* as the latter articles are not available readily.

The health condition and habits: The Bhotias bear a well built physique. The proteinous diet and Himalayan type of climate have made their health sound. The medical facilities have reached the Bhotia valleys but it is not yet accepted by all. Family planning schemes have been introduced here and very few have adopted them. The cultural persistence is still powerful in interior areas and so traditional medicines and witch craft are in practice. The Bhotia believe that some contagious diseases are spread on account of Davi's (village goddess) wrath. Some cases of tuberculosis have been noticed during the last few years. One of the main causes of T.B., as has been observed, is the excessive use of liquor which is now prepared with jaggery in an unhygienic condition. The liquor is served one by one by a single cup in the gatherings. They have adopted common tea prepared with sugar and milk and consume it in excess like the salt tea consumed in earlier days. The dental caries marked among most of the Bhotias. Since Bhotias live and work in small, dark and smoky rooms, their eyes are strained and hence their eye sight has become poor. In places, cleanliness of the body, diet and clothing is not satisfactory. Rooms are small, dirty and full of smoke. With the spread of education, the awareness regarding the health and hygiene is increasing.

On the other side, the Bhotias are an honest, industrious, intelligent (Trail, 1982) soft spoken, witty and talented people. Their social code

and norms are such that very few civil disputes go before the courts (Stowell, 1919). They seem to be always in a jovial mood. All the Bhotias irrespective of age and sex, are fond of drinking, singing and dancing which are essential for their hard labourious morbid and insipid life. These are also essential part in ritual performances, local fairs and festivals. They always wait for such occasions and thus never miss chances. Thus the construction of a new house or purchase of a new house or purchase of a new land or cattle always brings them enjoyment. Sometimes, to avoid the monotony, few families, closely related, prepare food collectively. Consuming of the food in a company is later followed by rejoicing and marry making with drink, dance and signing of songs. The Bhotias do not droop over their problems and future which is well depicted by a folk sahing, *i.e.*, "*Pasya magimchang benthulu, lakyi majyamchang paula.*" (Why should one worry? To keep the head safe, one is bound to get turban and to keep the legs unhurt, there is no reason why one should not put on shoes).

In summing up, it is observed that the Indo-China war in 1962 has proved to be a changing point in the temporal succession of Bhotia's economy, culture and way of life. Till that stage, the trade with Tibet made the Bhotias a prosperous class in U.P. hills. Thus, they maintained a balanced adjustment to their prevailing natural and cultural environments. They were then well facilitated with their economic, biological and social needs.

The breakdown of trade relation with Tibet has brought a set back to the Bhotia's economy. Not only the trade, but the manufacture of woolen clothes and rearing of life stock have also been badly effected. The situation might have made the Government to declare them as the Scheduled Tribe in 1967.

During the last two decades, we mark two distinct classes of cultural patterns in the community, *i.e.*, (1) Have and (2) Have not groups. The first group which is economically sound, has settled permanently in lower valleys, the winter resorts. Most of them have adopted either business or the services. Education has been reached to them. As the lower valleys also comprise Kumaonese and other businessman population belongings to plain areas, a clear cut cultural diffusion is marked. However, this group of the Bhotias is at par with the other communities of the lower valleys. Modern civilization has reached them, Transporta-

tion and communication facilities are available there. Utilizing Governmental facilities and privileges provided to a Scheduled Tribe, the Bhotias run different types of business. Due to cultural contact some families of this group exclusively follow Hinduism and have left many of the traditional customs and rituals. They use modern dresses as seen in cities and towns. They keep all types of luxurious articles like radio, camera, tape recorder, cosmetics, etc. Most of them live in well planned furnished and electrified *pucca* houses. Cinemas and clubs are their means of recreation. To some extent, they lead now a semi-urban life. Family planning schemes have been well accepted by them. These people mainly maintain nuclear families. Intercaste marriages are though rare but marriage circle has been extended because many clans of the different villages of different valleys now live together in the lower valleys.

On the contrary, the later group, the Have not, is still facing ecological disequilibrium. They are not at par with the former group as far as their economy and faculty are concerned. Literacy is low among them than that of the former group. The cultural persistence is seen among them. The superstitious beliefs and age old customs still determine their way of life. These people still maintain the migratory pattern of settlement. Very few families have their own houses in lower valleys. These people are engaged in the agricultural and sheep rearing activities in higher valleys. They also do a little of spinning and weaving. Some of them do small business. They purchase some items of daily uses in Dharchula town and barter with cereal, ghee, honey, tobacco, etc., in Nepal. A very few have taken jobs like constables, and non-commissioned officers in Indo-Tibet Border Police, Border Security Force, etc. Only a negligible number of persons have got better jobs. In upper valleys, this group produces only buck-wheat and barley and also depends on these. The lower valleys are densely populated and land is limited and hence it is costly. Therefore these people cannot afford to purchase the land there. In present time, when the trade with Tibet has come to an end, the cost of living of two establishments in two settlements in their transhumance practice, seems to be quite expensive. Often, two sets of items of household uses along with two *pucca* houses, are to be kept at two places, *i.e.*, their settlements in lower valley and upper valley.

It is difficult for these people now to adopt new businesses and

better earning jobs in new environment in the lower valleys. Besides, their long experience in Tibet trade, weaving and rearing of livestock is not being properly utilized. Thus we observe that the degree of economic and cultural variation between two classes is increasing day by day.

The Have Not group, which shares major portion of the Bhotia population, requires a stable and profitable economy. These people can exploit forest produces like herbs and timber under proper guidance with financial help and motivation. The forest wealth in the greater Himalayas of this region is still untouched. The problem of ecological imbalance due to deforestation, which gave birth to the *chipko* movement higher valleys specially for collection of herbs. The Bhotias also can produce cash crops, *i.e.*, potato, fruits (apple), buck-wheat, soya-beans, which yield more with less labour and have a good demand in cities in northern plains. For making these a profitable economy, transportation facility would be a prime requirement. Obviously, road construction upto strategic frontiers may be restrained but rope-ways and bridle paths can prove a better substitute. One very common practice is noticed among the Bhotias that the financial aids and helps extended by the Governmental agencies are not being utilized properly. Not many boys are benefited in Ashram type schools where education is given with free board, lodging and book aid facilities. Apathy towards education need to be abended. The extravagant false belief and superstitions are to be removed. In conclusion, we can say that the Bhotias need the ideological as well as material assistance.

BIBLIOGRAPHY

- | | | |
|-----------------|------|---|
| Atkinson, E. T. | 1882 | <i>The Himalayan Districts of North Western Provinces of India</i> . Vol. I, II, Allahabad. |
| Batten, J. N. | 1951 | <i>Official Reports on the Province of Kumaon</i> . Government Press, Agra. |
| Davral, S. P. | 1965 | <i>Uttarakhand Ke Bhotantik</i> . Veer Gatha Prakashan, Dogadda. |
| Johari, S. R. | | <i>Our Border Lands</i> . |
| Majumdar, D. N. | 1961 | Bhotias in <i>Races and Cultre of India</i> , Lucknow, Ethnographical Society, P. 272—274. |

- Pande, T. 1962 *Kumaon Ke Lok Sahitya*, Almora Book Depot.
- Pannalal , 1942 *Hindu Customary Law in Kumaon*, Government Press, Allahabad.
- Pant, J. S. 1970 Himalaya Ki Prachin Arth Vyawastha Men Bhotantikon ke Bhumika. *Khadi Gramodyag*, Sept., P. 676.
- Pant, S. D. 1935 *The Social Economy of the Himalayans*. George Allen Unwin Ltd., London.
- Pranvanand 1950 *Exploration in Tibet*. Cl. Univ. Press.
- Raypa, R. S. 1965 Bundi: a geographical survey of a border village. Typed desertation, Agra University..
- Raypa, R. S. 1974 *Shauka-Simawarty Janjati*. Raypa Brother, Dharchula.
- Sherring, C. A. 1906 *Western Tibet and British Border Lands*. Edward Arnold, London.
- Srivastava, R. P. 1958 Bhotia Nomadas And their Indo-Tibetan Trade, *Saugar University Journal* 7. 1—29.
- Stewall, V. A. 1919 *A Manual of Land Tenures of Kumaon Division*. Government Press, Allahabad.
- Traill, G. W. 1832 *Statistical Report on the Bhotia Mahala of Kumaon*. Asiatic Research 17. 1—50.
- Wolton, H. G. 1911 Almora: A Gazetteer, *District Gazetteers of United Province of Agra and Oudh*. Vol. XXXV, Government Press, Allahabad.

PART TWO : BIOLOGICAL PERSPECTIVES

Fertility variation in consanguineous and non-consanguineous marriages among the Muslims of Kashmir Valley and Ladakh

B. N. SAHAY

R. S. NEGI

The present study reveals the fertility variation between consanguineous and non-consanguineous marriages among the Muslim population of Kashmir Valley and Ladakh. The data on demographic aspects were collected from the villages Chandrapura and Bagichandpura (Srinagar) and Akoora (Anantnag) of Kashmir Valley; and Lamochan-Biarass and Baroo of Kargil (Ladakh). In the Kashmir Valley villages (Chandrapura, Bagichandpura and Akoora) the Muslims are dominant and live side by side with the Pandits, whereas Kargil villages (Lamochan-Biarass and Baroo) are wholly peopled by the Muslim population.

Out of a total of 449 marriages, 36 marriages (8.02%) are consanguineous. A comparison of consanguineous marriage in different villages reveals that the highest of such marriages (30.00%) is in Bagichandpura village of Kashmir Valley and the lowest (3.72%) is in Baroo village of Kargil (Table 1). Mc. Kusick has reported, "In some endogamous Muslims groups in India as many as 40 percent of the marriages are consanguineous" (1972:193). The lower incidence of consanguinity among the Muslims of Baroo may be accounted to the higher density of the populations and also to Buddhist influence as consanguinity is not practised by the Buddhists. It may be further pointed out that the Muslims of Ladakh are convert from Buddhists. The high incidence of consanguinity among the Muslims of Bagichandpura village may be mainly due to their lesser population density in the village (than the density of Muslim population in other villages); besides some of their socio-economic factors also encourage them to marry among their relatives. It is true that most of the valley Muslims are also converts and as such ethnically related to the Pandits.

The distribution of consanguineous couples according to the degree of relationship is presented in Table 2. It may be observed that the second degree of relationship among the couple comes to about 94 percent,

while third degree relationship is about 6 percent. First degree relationship marriages are totally absent.

Mothers according to sibship size for consanguineous and non-consanguineous marriages are shown in Table 3. Larger sibship size upto 9 is recorded for consanguineous unions as compared to 7 in case of non-consanguineous unions. The percentage of women having no issue is two times greater than that of non-consanguineous unions. Among consanguineous marriages maximum number of women have three children which is followed by 1, 4 or 5 sibship size, whereas among the mothers of non-consanguineous marriages they show maximum distribution in two sibship size which is followed by 1, 3, 4 and 5 sibship.

The pregnancy record of mothers shows that pregnancies and alive children per mother are higher in consanguineous marriages than that of non-consanguineous marriages. The reproductive wastage is more than two times per mother in non-consanguineous marriages (Table 4).

Conclusion

1. Consanguinity among the Muslims is recorded about 8%.
2. Consanguinity attains higher frequency in the Muslims of Bagichandpura village as compared to that of other villages, which may be due to their lesser population density.
3. Larger sibship size upto nine is found in consanguineous marriages.
4. Pregnancy and alive children per mother are more in consanguineous marriages, than that of non-consanguineous marriages.

In regard to consanguinity Curt Stern has stated "The genetic facts serve for an understanding of the often contradictory effects of inbreeding, leading sometimes to unfavourable phenotypes and, at other times to normal or even better-than average constitutions" (1949:361).

On the basis of above mentioned explanation we may infer that in comparison to non-consanguineous marriages, where the consanguineous marriages on one hand, provide more chances to the recessive abnormal deleterious genes to form homozygosity and express its bad effects even lethal; on the other hand it also provide more chances to normal genes and sometimes better than normal genes to form homozygosity and express its good results by providing normal and sometimes

better-than-average constitution to the offsprings, as well as the frequency of normal genes in the population is always generally higher than the frequency of abnormal genes. Therefore, the chances of homozygosity of normal genes in the foetus of consanguineous unions is higher, which may have possibly favoured higher rate of pregnancy and alive children, with average constitution per mother.

5. Reproductive wastage per mother is more than two times in the non-consanguineous marriages than in consanguineous marriages.

To visualize the heterozygosity and incompatibility Cavalli-Sforza and Bodner has stated, "Some blood group and other polymorphisms detected by immunological techniques are potentially subject to a special type of selection called incompatibility. This is the consequence of immunological reactions in the mother against a fetus having an immunological difference. The fetus may thus be selected against" (1971:110).

On the basis of above mentioned statement in non-consanguineous unions as the chances of heterozygosity and so incompatibility is higher, possibly this has been caused higher rate of reproductive wastage per mother than in consanguineous unions.

6. Increased frequency of children died per mother in consanguineous unions may be due to increase in homozygosity of recessive lethal genes.

In this connection Stern (1949:361) has also pointed out that 'Inbreeding tends to bring into the open recessive traits present in heterozygous carriers,.....'

Table 1: Distribution of marriage among Muslims

Name of the Villages and Tahsils

	Chandpura & Bagichandpura (Srinagar)		Akoora (Anantnag)		Lamoohan, Biarass (Kargil)		Baroo (Kargil)		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Marriages	18	30.00	4	4.60	7	6.14	7	3.72	36	8.02
Consanguineous	42	70.00	83	95.40	107	93.86	181	96.28	413	91.98
Non-consanguineous	60	100.00	87	100.00	114	100.00	188	100.00	449	100.00

Table 2: The distribution of consanguineous couples according to the degree of relationship

	Degree of consanguinity							
	1st degree		2nd degree		3rd degree		Total	
	No.	%	No.	%	No.	%	No.	%
Consanguineous marriages	Nil	Nil	34	94.44	2	5.56	36	100.00

Table 3: Mothers according to sibship size

Sibship size	Consanguineous marriage		Non-consanguineous marriage		Total	
	Women		Women			
	No.	%	No.	%	No.	%
0	11	30.56	64	15.50	75	16.70
1	4	11.11	84	20.34	88	19.60
2	2	5.56	92	22.28	94	20.94
3	7	19.44	71	17.19	78	17.37
4	3	8.33	49	11.86	52	11.58
5	3	8.33	41	9.93	44	9.80
6	2	5.56	9	2.18	11	2.45
7	2	5.56	3	0.73	5	1.11
8	1	2.78	—	—	1	0.22
9	1	2.78	—	—	1	0.22
10	—	—	—	—	—	—
11	—	—	—	—	—	—
12	—	—	—	—	—	—
Total	36	100.01	413	100.01	449	99.99

Table 4:
 Distribution of mothers and children out of 449 consanguineous and non-consanguineous marriages

	Mother having zero sibship		Mother having one or more sibships		Wastage
	No.	%	No.	%	
Consanguineous marriages	11	30.56	0	00.00	0.04
Non-consanguineous marriages	62	15.01	2	00.48	0.09
Total	73	16.26	2	00.45	0.09

	No.	%	Ever pregnant women	Pregnancy per mother	No. of children per mother	No. of dead children per mother	Wastage
Consanguineous marriages	11	30.56	25	69.44	3.24	0.68	0.04
Non-consanguineous marriages	62	15.01	349	84.60	2.78	0.46	0.09
Total	73	16.26	374	83.30	2.80	0.47	0.09

REFERENCES

- Cavalli-Sforze, L. L. & W. F. Bodoner 1971 *The Genetics of Human Population*, W. H. Freeman and company, San Francisco.
- Mc. Kusick, V. A. 1972 *Human Genetics*, Prentice Hall of India Private Limited, New Delhi.
- Stern, Curt 1949 *Principles of Human Genetics*, W. H. Freeman and Company, San Francisco, California.

Acknowledgement

We are very much thankful to Sri S. S. Duttachoudhury, who helped a lot in improving this article.

Ladakh : Some Demographic aspects

D. TYAGI

Ladakh, situated in the highlands of Himalayas is a district of Jammu and Kashmir and situated in the northern extremity of the State. Ladakh—the land of the *gumpas* and *lamas*, occupies a leading position among the Buddhists' culture of the country. District Ladakh¹ is bounded on the north by Karakoram ranges and on the east by Tibet. The districts of Baramula, Srinagar, Anantnag and Doda of Jammu and Kashmir State are on the west, whereas southern part is flanked by the district of Lahaul—Spiti of Himachal Pradesh. The total area of the district is 95,876.0 sq. km². The district is full with vast deserts, high plateau and rocky valleys, criss-crossed by high mountain ranges. The river Indus cuts the district diagonally. It is inhabited by various population groups; and many socio-cultural and historical changes have taken place in the area. Consequently; it has a very distinct demographic structure. In view of this we present demographic structure of the Ladakh.

I

CENSUS DATA: ANALYSIS

Population groups

The total population of the district is 105,291 only (D.C.H. 1971), out of which 92.3% (97,382) live in rural and 7.7% (7,909) in urban areas. The people of this region belong to five religions namely, Buddhism, Islam, Hinduism, Sikhism and Christianity. The majority of the people are either Buddhists or Muslims. It is found that the Buddhists are numerically more than the Muslims. The frequency of the Muslims at various censuses (*i.e.*, 1911, 21, 31, 41) are 49.35%, 48.52%, 49.50% and 46.51%. On the other hand the frequency of Buddhists for the corresponding census periods are 50.25%, 51.18%, 50.09% and 52.83% respectively. The figures for 1951 are not available. In 1961 the population of Buddhists and Muslims in the district was 53.81% and 44.94% respectively, whereas in 1971 it was 51.82% and 46.66% respectively.

Population growth

The population of Ladakh has been increasing since 1901 (figures before 1901 are not available), as is the case with almost all the populations of India. The largest increase was between 1961 and 1971. In 1901 the population was 60,467 (30,454 males and 30,013 females) and in 1971 it was 105,291. The population figures for Ladakh for 1911, 21, 31, 41, 51³ and 61 census enumerations are 67,994; 68,886; 72,181; 76,030; 82,340 and 88,651 respectively, which show the increase over the preceding years. The percentage decade variation since 1901 is 12.45, 1.31, 4.78, 5.33, 8.30, 7.66 and 18.77. The population increase between 1901 and 1971 for Ladakh is 74.1%, whereas for the State it is 115.8%. The population growth of Ladakh between 1961-71 is 18.8%, but for the State (Jammu & Kashmir) it is 29.6%, which shows a rapid growth in other parts of the state. It is suggested that the rapid growth in other parts may be due to—

“(1) eradication of epidemics like Cholera, Smallpox, Plague, etc....., (2) quantitative dispersal and qualitative improvement in the medical facilities, (3) general economic prosperity and social change registered during the post independence are....., (5) lesser impact of the Family Planning programme in the State.....” (Census of India 1971, series 8, part II-A, p. 73).

The slow growth among the Ladakhi population can also be due to ecological factors, as high altitude has effects on fertility.

Sex ratio

Out of the total population of Ladakh (88,651) in 1961, 44,972 were males and 43,679 females, which indicate that males outnumber females and same is the situation in 1971 census, where the number of males and females were 53,315 and 51,976 respectively. But this indicates a decline of females in proportion to males from 1961 to 1971. The sex ratio (number of females per 1000 males) of Ladakh from 1901 to 1971 decade-wise is 986, 997, 1029, 1011, 990, 971 and 975. An analysis suggests that since 1901 it increased upto 1921, then decreased upto 1961 and again showed an increase in 1971⁴. The decrease of females in proportion to males for last two decades can be assigned to the reason that most of the outsiders (Govt. employees, business men, etc.)

stationed in Ladakh, generally do not bring their spouses along with them. Nearly for three decades the females outnumbered the males. In comparison to the State in general, Ladakh shows a high proportion of females to males. It is rightly pointed out,—

“The hilly districts have by far the highest sex ratio amongst which Ladakh is marked for having a sizeable number of females. As things stand, Ladakh possess the highest proportion of females, *i.e.*, 975 per 1000 males” (Census of India, 1971, 3.74).

A study of age-wise changes in the proportion of females per 1000 males in Ladakh between 1911—61 indicates that in 0—4 age group, the number of females is more than males. It is noticed that between 5 and 19 years of age the number of females has proportionately declined. This decline may be due to high incidence of mortality among the females between the age, 9 and 15 years (Census of India, 1973: 139). The age group 20—29 shows an improvement in the female proportion. Perhaps, because the—

“mortality rate among females of Ladakh is much smaller..... due to persistence of polyandry in consequence of which many females remain unmarried and do not fall victims of the after-effects of reproduction.....Female's.habist of working under difficult conditions.....has developed their power of resistance and reduced the incidence of mortality among them” (Census of India, 1968: 140—141).

A broad classification of 1961 data reveals that proportion of females is high in 0—14 age group (977) and highest in 15—34 years age group (990 and then it declines with the increase in age (35—59=954; 60+ =939).

Religious groups show differential sex ratio.

“The sex ratio in respect of the Muslims (urban).....is considerably low, there being 760 per 1000 males.....The sex ratio among Buddhists.....found in urban sector of Ladakh is very high—1046 females per 1000 males. Polyandry still prevalent among them, is one of the factors explaining this special demographic character” (D.C.H., 1971).

Age-wise population structure

A study of population with reference to age will give us a better understanding of the population growth. The age structure in the Jammu and Kashmir State for 1971 reveals that 42.90% are below 14 years of age and 5.55% above 60 years of age. The remaining population can be divided into two age groups, *i.e.*, 15—39 and 40—59. The population in these groups are 37.11% and 14.44% respectively. This was not the situation in 1961 Census, when we find that in 15—39 years age group the total population (41.29%) is slightly more than that in the 0—14 years age group (40.76%). The situation complicates if data are analysed sex-wise (0—14: males=39.28%, females=42.44% and 15—39 males=40.88%, females=41.75%). The 1961 Census indicates a fewer aged people (60+ years) (4.36%) than 1971 Census does (5.55%); and same is the situation in 40—59 years age group (1961=13.59% and 1971=14.44%). The situation in Ladakh is somewhat similar to that in 1971 Census figures of the State. The percentage distributions are 33.4, 40.6, 17.1 and 8.9 for the age groups 0—14; 15—39; 40—59 and 60+ respectively. This suggests that the population shows an increase in early years of age in recent times. A comparative study of children (0—14 years of age) indicates that in 1961 there was an increase in number than that in 1941 irrespective of sex⁵.

Marital status

A study of census figures of 1961 for Ladakh for marital status reveals that the percentage frequency of 'never married', 'married', 'divorced' and 'widowed', are 48.58, 44.71, 5.34 and 1.32 respectively (0.04% can not be assigned to any category). The sex-wise analysis indicates that in both the sexes the frequency of married persons is equal (male=44.21% and females=45.22%). In case of 'never married' the males (50.92%) outnumber the females (46.17%). Under the category 'divorced' and 'widowed' we find a difference between the two sexes (widowed: males=4.03%, females=6.7% and divorced: males=0.80%, females=1.85%). The low frequency of divorced individuals may be due to 'remarriage' (which is not socially looked down) and practice of polyandry (which is declining).

The age-wise distribution of males and females separately for marital status reveals that none below the age of 9 years is married.

Below 14 years only 0.3% males and 0.5% females are married and the remaining persons are unmarried. In the age group 15—34, the unmarried males (41.5%) are fewer than married males (56.0%) and widow/divorced are 1.18% and 1.21% respectively. In females the frequency of never married (30.8%) is quite low than that of married (64.96%). 1.58% and 2.65% fall in the category of 'widowed' and 'divorced' respectively. The next age group (35—59) shows a further decline of unmarried ones (10.54% males and 6.42% females). The frequency of married males and females is 82.53% and 79.51% respectively. The frequencies of widowed and divorced in this age group are as follows: Widowed: males—5.86% and females—10.88%; Divorced: males—1.03% and females—3.19%. The aged people's (above 60 years) distribution indicate that only 8.79% males and 3.98% females fall under the category—'never married'. This may be attributed to the fact that the Buddhist *lamas* (monk) and *zomos* (nun)⁶ remain unmarried throughout their lives. Taking into consideration the people of all ages together, it is found that the married males and females are 50.92% and 46.17% respectively. A moderately low frequency of widowed and very low frequency of divorced are noticed.

In 1961 the total population of Ladakh was 88,651, out of which 88.37% were born at the place of enumeration, 8.51% elsewhere in Ladakh, whereas only 0.86% were born in other districts of Jammu and Kashmir State. A negligible number (2.26%) of people enumerated in Ladakh, were born outside the State. The data reveal that percentage variation (between 1941—61) in natural population is 19.58.

The analysis of registered female deaths per 1000 registered male deaths during 1951—61 in Ladakh reveals that it is not an uniform pattern, as the figures for successive years between 1951 and 1961 are 953, 939, 1000, 717, 1045, 916, 1017, 1083, 1077 and 732 respectively. (Digest of Statistics, 1977-78). The crude birth rates per 1000 population of Jammu and Kashmir during the year 1970, 71, 72, 73 and 74 were 33.0, 32.9, 31.6, 32.5 and 29.2 respectively; but the urban population show a lower birth rate than the rural population. The crude death rates for these years were 11.9, 10.5, 10.8, 10.3 and 9.9 respectively. The death rate in the urban population is nearly half to that of the rural population (Mitra, 1978).

II

Field Data : Analysis

This section is based on the data collected by a team of scientists from the North Western Regional Office of the Anthropological Survey of India at Dehradun in 1975 and 76'. The presentation is limited to the data on the Buddhists of village⁸ Lampa (near Leh) and Misrauli (near Kargil towards Leh) and the Muslims of village Kamoli (near Kargil) and Dandi (near Kargil towards Drass). These four locations will be referred to as BL, BM, MK and MD respectively. The combined sample of the Buddhists and that of the Muslims will be referred to as BA and MA respectively.

Household Size

Households have been classified into small (1—3), medium (4—6), large (7—10) and very large (10+) types on the basis of number of individuals living in a household and its distribution is given in Table 1. The medium and large households are in majority, the former being more than the later, except in the BM. The number of small households come next to the above categories. It shows that the frequency of nuclear families is more in these areas. The very large households are very few. The average number of persons living in a household is also presented in Table 1. It comes to around six persons per household, as we notice that persons per household ranges between 5.90 to 6.63. The differential situation in the two groups of the Buddhists needs some explanation. This may be due to many factors, but, perhaps the most important factor is the location of the group. One group (BL) lives near an urban-cum-tourist centre and surrounding villages which are Buddhists dominated, whereas the other group lives away from the urban area and tourist centre but is adjacent to the Muslim villages, and this geo-spatial difference may be responsible for the different picture. The Buddhists of the former cluster, have large number of medium and small households than those of the later cluster. It is probably due to the influence of tourism and urbanization.

Population age structure

Age and sex-wise distribution of the Buddhists and the Muslims from various locations (Table 2) reveals that there is a tendency of higher concentration in lower age groups among the Buddhists and in second age group (15—39) among the Muslims. But the difference

between the two age groups is not large enough. A further analysis, on the basis of five year age groups, reveals that the highest occurrence is in first three age groups. Table 2 indicates that among the Buddhists the 15—39 age group shows the highest frequency which is followed by 0—14 years age group; but on the other hand in the Muslims, a reverse picture is seen, *i.e.*, the 0—14 age group shows the highest frequency. This suggests an increase in the number of children. The percentage frequency of persons in the 40—59 and 60+ years age groups are higher in the Buddhists than in the Muslims. The sex-wise analysis reveals that among the Buddhists in 0—14 and 40—59 years age groups the number of females is greater than the number of males (except in the BL where males and females are 35.90% and 35.86% respectively), whereas in the other two age groups, males are more than the females. Among the Muslims, we find almost a similar picture, except in the age group 40—59 where males are more in number than females. On the whole the two groups show by and large similar pattern.

Sex ratio

Table 2 reveals that males are more in number than females irrespective of religion and location to which they belong. The females per 1000 males (sex ratio) in this study ranges between 869 and 987. The sex ratio among the Buddhists is 929 and 987 for the BL and BM respectively. Taking them together it becomes 958. On the other hand among the Muslims we find a low sex ratio as among the MD and MK. They are 869 and 916 respectively; and the overall sex ratio among the Muslims is 897. This suggests that females are slightly less in number than males in both the groups. The sex ratio is low among the Muslims but moderate among the Buddhists.

It is observed that in both the groups, Muslims and Buddhists, the majority of first borns are males. Taking into consideration the first borns only, the sex ratio is 662 and 827 among the Muslims and the Buddhists respectively. This indicates that in most cases the first borns are males. Mitra (1979) remarks, "The masculinity at birth is still of the order of 104 to 107 male births per 100 female births". An analysis of sex ratio in various age groups (0—14, 15—39, 40—59 and 60+) indicates that among the Muslims in all the age groups it is below 1000 except in first age group in the MK. In the Buddhists age

find that in the first age group the sex ratio is 929, 1019 and 973 for the BL, BM and the BA respectively, suggesting a low frequency of females. This low frequency is also observed in the 15—39 and 60+ age groups. But in the 40—59 age group females are greater in number. The two groups reveal different picture of sex ratio, when studied in various age groups and all the ages combined together; the overall sex ratios among the Muslims and the Buddhists are 897 and 958 respectively.

Marital status

The marital status (*i.e.*, unmarried, married, widowed and divorced⁹) indicates that the number of unmarried is highest followed by married ones, except in the Muslims females where we find a reverse picture (cf. Table 3). An analysis of population on the basis of age and marital status reveals that, as expected, the frequency of unmarried is highest in the below 14 years age groups. Among the Buddhists unmarried persons are found in all age groups, but among the Muslims none remains as unmarried above 39 years of age. This situation among the Buddhists may be due to the prevalence of *lamaship* and *zomoship*—traditional way of serving the god in Buddhism. The frequency of widow and divorced is quite low due to widow-remarriage and polyandry prevalent in the area.

Reproductive performance

Table 4 reveals that approximately 17.00% of all married women are yet to conceive. The frequency of live births ranges between 79.25% and 95.64%, and it is higher among the Buddhists than among the Muslims. The averages are 2.77 and 2.99 live births among the Muslims and the Buddhists respectively. In the Muslims still births are more in number. The average numbers of children ever born (excluding still births and abortions) are 3.27 and 3.31 among the Buddhists and the Muslims respectively. To have a better and deeper understanding of the reproductive performance the data have been grouped into two categories—(a) women of 'incomplete' fertility (ICF) and (b) women of 'complete' fertility (CF)¹⁰ and the various statistical constants are presented in Table 5.

The frequency of women yet to conceive is 25.27% among the Buddhists whereas it is 23.53% among the Muslims. The frequencies of live births per married woman in the two groups (atleast pregnant

once) are 2.23 and 2.47 respectively; but on inclusion of all married women the corresponding figures are 2.94 and 3.24 among the Buddhists and the Muslims respectively. It suggests higher number of pregnancy among the Muslims. An analysis of CF women shows that only 4.96% and 3.61% women among the Buddhists and the Muslims respectively have never experienced pregnancy. The live births per married woman in both the groups is 3.4; but it increases to 3.6 if 'never-pregnant' (no issue) females are excluded.

Acknowledgement

Author is thankful to the Director, Anthropological Survey of India for providing necessary facilities. He is indebted to Dr. R. S. Negi for guidance and to Dr. M. K. Raha for encouragement. Thanks are due to Sarvashree B. R. Bhatnagar, B. N. Sahay, A. R. Sankhyan and Kewal Ram for their help.

Notes—

¹ Ladakh which consists of two districts now (Leh and Kargil) has been treated here as one district, as it was at the time of field work.

² This includes 78932 km² under illegal occupation of Pakistan and also 5180 km² and 37555 km² under illegal occupation of China (Digest of Statistics 1977-78, p. 3).

³ The population figures of 1951 are the mean of 1941 and 1961.

⁴ But interestingly Mitra writes that—

“The steadily deteriorating ratio over the last one hundred years and particularly since the beginning of the current century of female to males in the Indian populations has been the subject of much speculation and investigation” (1979: 1).

But in Ladakh we do not find a situation like this.

⁵ See statement VI, 10; Census of India 1961, Vol. VI, Jammu & Kashmir part I-A(ii) General Reports published in 1968.

⁶ There is a tradition among the Buddhists that they will send at least one son or daughter (depending on certain social condition, rules and factors) to the monasteries, and they will remain unmarried through out the life and perform the religious duties.

⁷ During the course of the genetic survey in the Central and Western Himalayas, data for certain demographic characteristics were also collected. The data on which this paper is based, are a part of data collected in 1975-76. In 1975 data were collected by Sri Kewal Ram from three locations and in 1976 by D. Tyagi, B. R. Bhatnagar, B. N. Sahay and A. R. Sankhyan and from one location. Some of statistical analysis have been done by Sri Kewal Ram. The over all guidance and supervision of the project was provided by Dr. R. S. Negi.

⁸ The names of all the locations (villages) are pseudonyms.

⁹ It includes persons 'separated' also. But frequency of 'separated' is negligible.

¹⁰ In the group 'incomplete' fertility (ICF) women below the age of 45 years were included. On the other hand women of 45 years age and above were grouped in 'complete' fertility (CF).

REFERENCES

- | | | |
|----------------------|---------|--|
| Census of India | 1965 | Cultural and Migration Tables, <i>Census of India 1961, Vol. VI, Jammu & Kashmir</i> , part II-CC, Srinagar. J. & K. Govt. |
| Census of India | 1968 | <i>General Reports, Census of India 1961, Vol. VI, Jammu & Kashmir</i> , part I-A(ii), Srinagar, J. & K. Govt. |
| Census of India | 1973 | <i>General Population Tables, Census of India 1971, Series 8, Jammu & Kashmir</i> , part II-A Simla, Govt. of India Press. |
| Digest of Statistics | 1977-78 | <i>Jammu & Kashmir Govt. Planning and Development, Directorate of Evaluation & Statistics. Srinagar Govt. Press.</i> |
| D.C.H. | 1974 | <i>District Census Handbook—Ladakh, Census of India 1971, Series 8, part X-A & B. Srinagar, J. & K. Govt.</i> |
| Mitra, A. | 1978 | <i>India's Population : Aspects of Quality and Control</i> (two vol.) New Delhi, Abhinav Publication. |
| Mitra, A. | 1979 | <i>Implications of Declining Sex ratio in India's Population.</i> Bombay, Allied Publishers Private Ltd. |

Table 1: Domicile Size

Population group	No.	Small (1—3)	Medium (4—6)	Size Large (7—10)	V. Large (10+)	persons/ household
BM	92	16.30	31.52	42.39	9.78	6.63
BL	102	17.65	46.08	31.37	4.90	5.90
BA	194	17.01	39.17	36.60	7.22	6.25
MD	75	20.00	40.00	33.33	6.67	6.25
MK	122	8.20	54.10	34.43	3.27	6.14
MA	197	12.69	48.74	34.01	4.56	6.19

Table 2: Age, Sex and Location-wise Distribution of Buddhists and Muslims

Population group	Sex	No.	Age group			
			—14	15—39	40—59	60—
BM	M	307	35.18	39.74	15.63	9.45
	F	303	36.30	36.63	19.47	7.59
	T	610	35.74	38.20	17.54	8.52
BL	M	312	35.90	41.99	14.74	7.37
	F	290	35.86	40.00	17.59	6.55
	T	602	35.88	41.03	16.11	6.98
BA	M	619	35.54	40.87	15.18	8.40
	F	593	36.09	38.28	18.55	7.08
	T	1212	35.81	39.60	16.83	7.76
MD	M	251	43.03	35.46	14.34	7.17
	F	218	46.33	35.32	13.30	5.05
	T	469	44.56	35.39	13.86	6.18
MK	M	391	37.34	39.39	13.55	9.72
	F	358	43.02	39.11	12.57	5.30
	T	749	40.05	39.25	13.08	7.61
MA	M	642	39.56	37.85	13.86	8.72
	F	576	44.27	37.67	12.85	5.21
	T	1218	41.79	37.77	13.38	7.06

M—male; F=female; T= male + female

Table 3: Marital Status

Population group	Male (age in years)				Female (age in years)			All ages %	
	—14	15—39	40+	All ages %	—14	15—39	40+		Abs. no.
BM	UM	65.45	30.90	3.64	53.74	74.83	4.08	147	48.51
	M	—	52.62	46.87	43.32	—	43.28	134	44.22
	W	—	—	100.00	2.61	—	88.89	18	5.95
	D/S	—	100.00	—	0.33	—	50.00	4	1.32
BL	UM	67.47	31.92	0.66	53.21	74.82	2.88	139	47.93
	M	—	58.79	41.23	41.99	—	35.66	129	44.48
	W	—	6.66	93.33	4.81	—	94.74	19	6.55
	D/S	—	—	—	—	—	66.67	3	1.03
BA	UM	66.46	31.41	2.11	53.47	74.82	3.50	286	48.23
	M	—	55.68	44.31	42.65	—	39.53	263	44.35
	W	—	4.35	96.65	3.72	—	91.89	37	6.24
	D/S	—	100.00	—	0.16	—	57.13	7	1.18
MD	UM	86.40	13.60	—	49.80	97.03	—	101	46.33
	M	—	62.50	37.50	41.43	2.80	28.02	107	49.08
	W	—	25.00	75.00	7.97	—	100.00	10	4.59
	D/S	—	100.00	—	0.80	—	—	—	—
MK	UM	73.74	26.25	—	50.64	90.59	—	170	47.49
	M	—	56.28	43.72	45.01	—	30.68	176	49.16
	W	—	13.34	86.66	3.84	—	90.00	10	2.79
	D/S	—	50.00	50.00	0.51	—	50.00	2	0.56
MA	UM	78.64	21.36	—	50.31	92.99	—	271	47.05
	M	—	58.58	41.42	43.61	1.06	29.68	283	49.13
	W	—	20.00	80.00	5.45	—	95.00	20	3.47
	D/S	—	75.00	25.00	0.62	—	50.00	2	0.35

M—Married; UM—Unmarried; W—Widowed; D/S—Divorced/Separate

Table 4: Pregnancy Record

	Population group					
	BM	BL	BA	MD	MK	MA
Total married women	156	151	307	116	188	304
Married women ever preg.	125	129	254	91	161	252
Total pregnancies	442	390	832	318	539	857
Pregnancy/married women	3.5	3.02	3.28	3.49	3.35	3.40
Children Alive—						
Abs. no.	386	373	759	252	446	698
Percentage	87.33	95.64	91.22	79.25	82.74	81.45
Average	3.09	2.89	2.99	2.77	2.77	2.77
Children Dead—						
Abs. no.	55	17	72	58	78	136
Percentage	12.44	4.36	8.65	18.24	14.47	15.87
Average	0.44	0.13	0.28	0.64	0.48	0.54
Still births and Abortions—						
Abs. no.	1	—	1	8	15	23
Percentage	0.23	—	0.12	1.90	2.78	2.68
Average	0.01	—	0.004	0.08	0.09	0.09
Average of ever born (excluding still births and abortions).	3.53	3.02	3.27	3.41	3.25	3.31

Table 5: Fertility Pattern of ICF and CF Women

Population group	Number of married women	Number of married women never preg.	Number of married women preg. once or more	Number of live births	Live births per married women preg. once or more	Live births per married women
<i>ICF Women</i>						
BM	90	27	63	192	3.05	2.13
BL	96	20	76	223	2.93	2.32
BA	186	47	139	415	2.98	2.23
MD	87	25	62	229	3.69	2.63
MK	134	27	107	318	2.97	2.37
MA	221	52	169	547	3.24	2.47
<i>CF Women</i>						
BM	66	4	62	249	4.02	3.77
BL	55	2	53	167	3.15	3.04
BA	121	6	115	416	3.62	3.44
MD	29	3	26	81	3.12	2.79
MK	54	—	54	206	3.81	3.81
MA	83	3	80	287	3.59	3.46

A study in genetical demography of the Kinnauras in Himachal Pradesh

BHAKT R. BHATNAGAR

Introduction

The district of Kinnaur forms a part of Western Himalayas, and the villages are situated from 7,000 to 12,000 feet mainly on the either side of river Sutlej and its tributaries. The district has three sub-divisions—Nachar, Kalpa and Pooh. The Nachar sub-division contains Nachar tehsil while Kalpa has Kalpa and Sangla tehsils. In addition to this Pooh sub-division consists of tehsils of Morang and Pooh, and one sub-tehsil Hangrang (D.C.H., 1961).

The inhabitants of Kinnaur are popularly known as the Kinnersa, Kinnaurese or Kinnaura. They are the most dominant Scheduled Tribe constituting 99.85% of the total Scheduled Tribe population of the district. There are two types of the Kanets in the district of Kinnaur. The Khash Kanets are the residents of Kalpa and Nachar and also some parts (Maorang sub-tehsil) of the Pooh sub-division. The second type of Kanets are found in the Pooh tehsil and Hangrang sub-tehsil of the Pooh sub-division and are called as the Zads (Kanets) locally. All the Kanets now prefer to be called as the Rajputs.

The Scheduled Caste population in the district Kinnaur comprise 11,133 persons which are 27.16% of the total district population. The distribution of Scheduled Caste population in all the three sub-divisions is not uniform. They are maximum in Nachar (36.54%) followed by Kalpa (27.95%) and Pooh (17.66%). The numerically most dominant among the Scheduled Castes are the Kolis (8,655) which constitute 77.74% of the total Scheduled Castes population of the district (D.C.H., 1961). They are engaged in spinning and weaving of woolen cloth and also cultivate the land. Only a very few of them do the leather work. Raha (1978) is of opinion that the Badhis and the Lohars form the sub-group Domang under the group *beru* and are numerically not very prominent. The Badhis are carpenters and masons, the Lohar, ironsmith and the Nagalu are the basket makers.

The present data on marital movements in the district of Kinnaur

have mainly been collected from the Nachar and Sangla sub-divisions. The Kalpa sub-division is represented by the data only from Pangi village. The marital movements have four aspects, magnitude, distance, orientation and direction as outlined by Harrison and Boyce (1975).

The magnitude of endogamy among the Kanet Rajputs by tehsils (Table 1.1) shows that in Nachar endogamy (80.51%) is more prevalent than exogamy. So is the case with Sangla (endogamy 67.92%). It may however, be noted that proportion of exogamy to endogamy is more in the Sangla than that in Nachar. Since the data are collected through male line from only one village in Kalpa (and none from Pooh) it shows more of territorial exogamy than endogamy. The magnitude of territorial endogamy in each of the tehsils among the Kolis (Table 1.2) shows that the tehsil endogamy is greater in the Nachar (93.14%). Territorial endogamy is also more in Sangla (69.23%) but it may be noted that proportion of exogamy to endogamy is more in the Sangla than in Nachar, and so is the case with the Kanet Rajputs. It may also be worthwhile to point out that the magnitude of endogamy is more among the Kolis than among the Kanet Rajputs at the tehsil level.

It may further be interesting to find out how many males and females have contracted marriages from outside their respective tehsils, *i.e.*, Nachar, Sangla and Kalpa. It is seen from Table 1.1 that more females in case of the Nachar have got their spouses from other tehsils than male. In Sangla the situation is just the reverse, *i.e.*, more males have got their spouses from other tehsils. But the situation in the Kalpa tehsil is different since the data are collected from only one village, *i.e.*, Pangi. It shows that more females than males have got their spouses from outside.

Among the Kolis of Nachar (Table 1.2) the territorial exogamy is very low. But it shows that little more females than males have got their spouses from outside the Nachar tehsil. In Sangla the situation is again reverse.

The matrimonial distance between the village of origin of both the spouses is located on Survey of India's quarter an inch maps and then estimated by Rotameter. The overall average of village endogamy among the Kinnaura is 46.6%, and therefore exogamy is 53.4% (Table 1.3). The Rajputs are more endogamous (48.65%) than the Kolis (38.58%) at the village level, and therefore the village exogamy among the Kanet Rajputs

and the Kolis are 51.35% and 61.42% respectively. It is also observed that more than 60% of the marriages among the Kanet Rajputs and the Kolis have taken place within a distance of 0 to 5 miles around the village. It is slightly more among the Rajputs than among the Kolis. It is found that there is an inverse relationship between marriage-frequency and geographical distance in the Kanets as well as in the Kolis. There is a sudden increase in the marriage frequency in the 71+ miles class in the Kanets as well as in the Kolis. Thus it may be noted that the territorial endogamy at the village level is more among the Kanet Rajputs than that among the Kolis; but this trend is reversed at the tehsil level where the territorial endogamy is more among the Kolis than among the Kanet Rajputs. It indicates that the Kolis cannot afford to have spouse from other than their respective tehsil due to poor economic condition.

The orientation of matrimonial movements within and between villages in the Sangla tehsil is given in Table 1.4. It is found that out of 312 marriages (176 male based and 136 female based) 65.34% males have married within the village itself whereas 34.66% have brought their wives from elsewhere. In case of females it is seen that 84.56% of females have married within the village itself whereas 15.44% have gone out of the Sangla village after marriage.

Kamroo is a small village near Sangla. In Kamroo it is found that out of 68 marriages (37 male based and 31 female based), 40.54% males have selected wives from Kamroo itself, 16.22% have brought spouses from Sangla and the remaining 43.24% have married in the villages other than Kamroo and Sangla. In case of females 48.39% have married in Kamroo itself, and the rest, *i.e.*, 51.61% have gone to Sangla after marriage. In Sangla it is found that 65.34% males have married within the village itself and 9.09% have brought wives from Kamroo and the remaining 25.57% have brought spouses from the villages other than Kamroo and Sangla. So it shows that in terms of bride's movement that Kamroo receive more brides from the neighbouring villages (43.34%) than from Sangla (16.22%) while in case of females majority (51.61%) have gone to Sangla than to any other village. In case of Sangla, which is a bigger and more developed village, most of the women have married within the village itself (84.56%) while a few (4.41%) are married in the Kamroo village and the rest (11.03%) in some others village. So it shows that matrimonial movements are mostly oriented towards a big village in the first instance and then towards a temple village.

The direction of territorial endogamy (Table 1.5) seems to be from west to east as is evidenced not only from decreasing percentage of endogamy in the following decreasing order from Nachar→Sangla→Kalpa→Pooh but also from decreasing percentage of intra and inter tehsil's magnitude of endogamy. Direction of matrimonial movements can also be judged from territorial exogamy which increases in the following way from Nachar→Sangla→Kalpa→Pooh.

The Koli demographic data have mainly been collected from the Nachar (102 couples) and therefore in absence of data from other tehsils direction of territorial exogamy cannot be ascertained. The percentage of exogamy is found to be very low.

Marriage area patterns

The distribution of marriages in Kinnaur by tehsils (Table 1.6) shows that within tehsil marriages are more in Nachar and Sangla but in the Kalpa it is just the reverse. The frequency of 'between tehsil marriages' are found to be in the following decreasing order. Kalpa-Sangla (9.94%) > Kalpa-Nachar (3.73%) > Sangla-Nachar (2.69%) > Nachar-Pooh (0.98%) > Sangla-Pooh (0.62%) > Kalpa-Pooh (0.41%).

Thus it can be seen that the exchange of spouses between Kalpa and Sangla are due to the fact that the later has carved out from the former recently. The marriages between Kalpa and Nachar are comparatively more than those between the Kalpa and Pooh. It may also be noted that the exchange of spouses between Pooh and other tehsils namely Nachar, Kalpa and Sangla, are very low. Negi and others (1972) have also noted the same trend. They have mentioned that "the Kanet of the Pooh valley, even though descendants of the Kanet settlers came from the lower areas as claimed by them, had marital alliances with the people of the Hangrang valley, north of the Pooh valley. The populations of the Pooh and Hangrang valleys formed a single mendelian population and a closed genetic system". Harrison and Boyce (1975) have mentioned that "Local genetic structure is determined not only by the amount of gene flow into a population, but also by the size of the geographical area over which the genes are flowing. The area of flow, which arises from marital movement can be derived from the distance between the birth places of spouses".

Thus in the light of the marriage area patterns described above it is interesting to note that genetic differences in terms of OAB phenotypic frequencies among the Kinnauras are showing the similar

patterns. Both the sub-samples of the Kanet Rajputs (Table 1.7) collected from the Sangla and Nachar tehsils have preponderance of A gene over B and therefore do not show any significant difference between the two ($X^2=1.134, 3 \text{ df. } .70 > P > .50$). On the other hand the Kanets of the Pooh sub-division have preponderance of B gene over A and are characterized by the absence of A_2 gene which is either absent or is in a very low incidence in Mongoloid populations. It is therefore, observed that the Kanet of Pooh differ significantly (Table 1.8) from the Kanets of Kalpa, Sangla and Nachar mainly due to differential occurrence of A or B gene. They most probably marry within the Pooh sub-division as evident from low frequency of marriages with the Kanets of Kalpa, Sangla and Nachar; in addition they have also marital alliances with the people of the Hangrang valley, north of the Pooh valley as reported in earlier studies. Thus it is quite likely that they might have received genes from culturally and numerically more dominant people of adjoining territory during last several generations.

The Koli samples from the Nachar, Kalpa and Pooh (Table 1.7) show differential occurrence of A & B genes. In the Kolis of Nachar A gene is higher than B but in the Kalpa and Pooh samples B is higher than A. The Kolis of Nachar have moderate value of A_2/A_1 gene ratio. The Kolis of Kalpa and Pooh have low values of A_2/A_1 gene ratio but it is higher than that in the Kanets of Pooh. All the three Koli samples do not differ significantly from one another firstly because they basically belong to the same 'Dom' group and secondly they are not much influenced by the Kanet Rajput who brought the Kolis to serve them (Table 1.8). The Kolis of Pooh however, differ significantly from the Kanets of Nachar, Sangla and Kalpa mainly because the former have very high incidence of O and low incidence of A gene in them.

It may be added that in other morpho-genetic markers such as mid-phalangeal hair and colour blindness, there is no significant difference between the Kanet Rajput and the Koli of the Kinnaur district (Bhatnagar, 1981 unpublished report).

Thus it can be surmised that there are, as already mentioned, three administrative sub-divisions namely Nachar, Kalpa and Pooh which more or less coincide with three ecological zones—the moist, dry and arid respectively.

The Kinnaura of Kinnaur have three shades of religion—Buddhism

or Lamaism in the Pooh, Hinduism in the Nachar and both in the Kalpa sub-division (Raha & Mahato, 1975; Raha, 1978). The three zones according to Raha and Mahato (1975) are somewhat different in socio-cultural practices, e.g., the *Khel* (status group) and *Khandan* (lineages) which control the marriages in Nachar and Kalpa, do not perform the said function among the Kanets of the greater part of the Pooh area as the *Khel* is absent there and the *Khandan*, ill-developed.

The ethnic difference among the Kinnauras is quite distinct. The high altitude Pooh area is inhabited by the Mongoloids such as the Zad Kanets. The middle and lower altitude areas of the Kalpa and Nachar are populated by the Indo-Aryans such as the Kanet, Khasa or Khosia and the 'Dom' group of populations, e.g., the Koli, Lohar and Badhi and others (Negi, Srivastava and Bhatnagar, 1972).

The mating structure in the Kinnaur region has some regional variations as shown by magnitude, distance, orientation and direction of endogamy. The A_2/A_1 gene ratio decreases from Nachar to Sangla to Kalpa to Pooh, the magnitude of territorial endogamy also shows the same pattern. The marriage area patterns have shows concordance with distribution of OAB phenotypes among the Kinnauras which are similar to religio-cultural and ethnic variations in Kinnaur reported by earlier scholars.

The analysis of marriage alliances clearly reveal that territorial endogamy is more than exogamy due to inaccessible mountains separating the valley which make human movements very difficult. The orientation of territorial endogamy is towards the village of origin due to poor economic status of the people. The marriage alliances between Pooh and Sangla, Nachar, Kalpa are very low since it depends on the behaviour of the people which is influenced by socio-cultural, linguistic and ecological stresses which are in turn different in the two settings, i.e., Pooh and non-Pooh areas.

Acknowledgements

The author is very much grateful to the Director, Anthropological Survey of India for providing all the necessary facilities for carrying out this piece of work. The author also indebted to Dr. R. S. Negi, Ex-Dy. Director, Anthropological Survey of India for supervision at the designing and data collection stages of the work. He is also thankful to all the officials of district of Kinnaur who helped him by providing various

facilities and also to Head Masters of Sungra Primary and Sangla High School. In the last but by no means the least the author is grateful to all the Kinnaura subjects, who offered alongwith other things their blood for examination. He is also thankful to Shri R. B. Bhale, Statistician, for doing statistical calculations.

REFERENCES

- | | | |
|---|------|---|
| Harrison, G. A. and
A. J. Boyce | 1975 | <i>The Structure of Human Populations</i> ,
pp. 128—133, Oxford: Clarendon. |
| Negi, R. S., A. C.
Srivastava and
B. R. Bhatnagar | 1972 | Distribution of ABO blood groups
in Central and Western Himalayas
populations. <i>Bull. An.S.I.</i> , 21: 57—76. |
| Papiha, S. S., S. M. S.
Chahal, D. F. Roberts and
I. P. Singh | 1980 | Genetic Studies among Kanet & Koli
of Kinnaur district in Himachal
Pradeseh, India. <i>A. J. Phy. Anthropol.</i> ,
53; 275—283. |
| Raha, M. K. and
S. N. Mahato | 1985 | <i>The Kinnaurese of the Himalayas</i> .
Anthropological Survey of India,
Calcutta. |
| Raha, M. K. | 1978 | “Stratification and Religion in a
Himalayan Society”. In <i>Himalayan
Anthropology</i> , Ed. by James F.
Fisher Paris: Mouton Publishers. |
| Rakshit, H. K. | 1971 | Aspects of marriage patterns in nine
population groups of Maharashtra.
<i>Man in India</i> , 51: 83—91. |
| Singh, R. C. P. | 1965 | <i>District Census Handbook, Kinnaur
district, Himachal Pradesh</i> . Simla:
Census 1961 publications. |

Table 1.1: Magnitude of territorial endogamy by tahsil among the Kanet Rajputs

Sl. No.	Tahsil involved	Total	Both spouses from same Tahsil		At least one spouse from same Tahsil			
			No.	%	Male		Female	
					No.	%	No.	%
1	Nachar	236	190	80.51	20	8.47	26	11.02
2	Sangla	240	163	67.92	62	25.83	15	6.25
3	Kalpa	86	24	27.91	12	13.95	50	58.14
4	Pooh	11	—	—	5	45.45	6	54.54

Table 1.2: Magnitude of territorial endogamy by tahsil among the Kolis

Sl. No.	Tahsil involved	Total	Both spouses from same Tahsil		At least one spouse from same Tahsil			
			No.	%	Male		Female	
					No.	%	No.	%
1	Nachar	102	95	93.14	3	2.94	4	3.92
2	Sangla	26	18	69.23	8	30.76	—	—
3	Kalpa	6	—	—	1	16.67	5	83.33
4	Pooh	1	—	—	—	—	1	100.00

Table 1.3: Marriage distances among the Kinnauras

Sl. No.	Distance in miles	Kanet Rajput		Kolis		Total Kinnauras	
		No.	%	No.	%	No.	%
1	Village endogamy	235	48.65	49	38.58	284	46.55
2	1—5	89	18.43	30	23.62	119	19.50
3	6—10	59	12.22	24	18.90	83	13.60
4	11—15	23	4.76	5	3.94	28	4.59
5	16—20	12	2.48	4	3.15	16	2.62
6	21—25	10	2.07	5	3.94	15	2.45
7	26—30	9	1.86	3	2.36	12	1.96
8	31—35	4	0.83	—	—	4	0.65
9	36—40	5	1.04	—	—	5	0.81
10	41—45	4	0.83	—	—	4	0.65
11	66—70	—	—	1	0.79	1	0.16
12	71+	10	2.07	4	3.15	14	2.29
13	Not known	23	4.76	2	1.57	25	4.09
Total		483	100.00	127	100.00	610	99.92

Table 1.4: Orientation of marital movements in Kanets of Sangla tehsil

Sl. No.	Village name	Total No. of marriages	Male based (176)		Female from outside village		Female based (136)		Male from outside village	
			No.	%	No.	%	No.	%	No.	%
1	Sangla	312	115	65.34	61	34.66	115	84.56	21	15.44
2	Kalpa+ Kamtoo	68	14	37.84	23	62.16	14	45.16	17	

Table 1.5: Director of endogamy and exogamy in Kanet Rajputs (483 spouses) of district Kinnaur

Sl. No.	Name of Respective tahsil	Total contributions from respective tahsil		No. contributions from respective tahsil	
		No.	%	No.	%
1	Nachar	426	88.20	57	11.80
2	Sangla	403	83.44	80	16.56
3	Kalpa	110	22.77	373	77.22
4	Pooh	11	2.28	472	97.72

Table 1.6: Distribution of marriages in Kinnaur district by tahsils

Sl. No.	Tahsils involved	Kanet Rajput		Kolis		Total Kinnauras	
		No.	%	No.	%	No.	%
1	Kalpa-Kalpa	24	4.97	—	—	24	3.93
2	Sangla-Sangla	163	33.75	18	14.17	181	29.67
3	Nachar-Nachar	190	39.34	94	74.02	284	46.56
4	Pooh-Pooh	—	—	—	—	—	—
5	Kalpa-Sangla	48	9.94	4	3.15	52	8.52
6	Kalpa-Nachar	18	3.73	1	0.79	19	3.11
7	Kalpa-Pooh	2	0.41	1	0.79	3	0.49
8	Sangla-Nachar	13	2.69	2	1.57	15	2.46
9	Sangla-Pooh	3	0.62	—	—	3	0.49
10	Nachar-Pooh	6	1.24	—	—	6	0.98
11	Kinnaur-outside Kinnaur	16	3.31	7	5.51	23	3.77
Total		483	100.00	127	100.00	610	99.99

Table 1.7: Distribution of OAB phenotype and maximum likelihood gene estimates of p q r genes among seven population groups of Kinnaur

Sl. No.	Population group	Locality	Sample size	Phenotype percentage				gene frequencies (M.L.E)			A_2/A_1 gene ratio	Investigator
				O	A	B	AB	p	q	r		
1	Kanet	Kalpa Kinnaur	118	16.10	37.29	30.51	16.10	0.319±0.033	0.271±0.004	0.410±0.021	0.04	Negi, Srivastava & Bhatnagar 1972
2	Kanet	Sangla "	86	20.93	43.02	25.58	10.46	0.322±0.039	0.203±0.004	0.475±0.029	0.06	Do
3	Kanet	Nachar "	101	24.75	37.62	23.76	13.86	0.302±0.035	0.209±0.004	0.489±0.026	0.16	Do
4	Kanet	Pooh "	108	27.78	12.96	50.00	9.26	0.118±0.023	9.360±0.002	0.522±0.011	0.00	Do
5	Koli	Nachar "	100	29.00	31.00	29.00	11.00	0.238±0.032	0.225±0.003	0.537±0.023	0.27	Do
6	Koli	Pooh "	48	41.67	18.75	37.50	2.03	0.111±0.033	0.225±0.002	0.663±0.024	0.12	Do
7	Koli	Kalpa "	61	34.43	19.67	37.70	8.20	0.151	0.264	0.586	0.09	Papiha et al 1980

Table 1.8: Homogeneity Chi-Square between seven population groups of Kinnaur district

Sl. No.	Population groups	Kanet Nachar	Kanet Kalpa	Kanet Sangla	Kanet Pooh	Koli Nachar	Koli Kalpa	Koli Pooh
1	Kanet-Nachar	—	4.749	1.134	31.393***	1.833	5.504	15.754***
2	Kanet-Kalpa		—	2.622	23.437***	5.776	4.278	19.236***
3	Kanet-Sangla			—	18.161***	3.229	5.959	11.625***
4	Kanet-Pooh				—	13.731	1.094	6.315
5	Koli-Nachar					—	2.090	7.280
6	Koli-Kalpa						—	0.634
7	Koli-Pooh							—

***Significant 5, 2 and 1% level of Probability.

Demographic structure of the Gaddi of Bharmour, Himachal Pradesh

SANJIB K. CHAKRAVARTY

The Gaddi, a transhumant Scheduled Tribe of Himachal Pradesh, are mainly concentrated in Bharmour tehsil of Upper Ravi valley (Chamba district). The Gaddi have a rigid caste structure and are constituted of caste groups like the Brahman, the Rajput and others. While the Brahman are the immigrants to the hills from the Indo-Gangetic plains, the Rajput are the descendants of a mixed strain composed of the Rajput and the Khatri immigrants from Delhi and Lahore regions and the indigenous Thakur and the Rathi (Negi, 1963).

Agriculture alongwith traditional practice of sheep and goat rearing are their main occupations. Spinning of wool and wearing of woollen blankets and clothes form a significant part of their economic subsistence. In recent years a few of them have adopted apple growing as a means of earning cash.

The Brahman and the Rajput Gaddi population are living in a sympatric association, exposed to a common environmental and socio-economic conditions. They form rigid endogamous units with endogamy to the extent of about 99% (Chakravarty and Dutta, 1982). With this background some demographic aspects are being considered in the present paper to examine the level of variation in demographic structure of these two Gaddi caste groups.

Material and method

Demographic information on 225 Brahman and 250 Rajput households were collected using structured schedules. The field investigation was carried out during 1981-82, covering 21 villages of Bharmour, Hadsar, Khani and Garula areas in Bharmour Tehsil. Standard statistical methods were employed to analyse the data.

Result

AGE-SEX COMPOSITION

As per present census there are 1355 Brahman and 1573 Rajput individuals accommodated in 225 and 250 households respectively. Per-

centage distribution of the two caste groups in age categories, 0—14 years, 15—49 years and 50+ years, is approximately in the ratio 40 : 50 : 10, suggesting a trend of progressive type. Population pyramids for age and sex distribution (Fig. 1 and 2) in respect of both populations gradually taper towards older ages from a broad base at the youngest age group. A closer scrutiny of Table 1 and Fig. 1 reveals that among the Brahman the youngest age group (0—4 years) registers excess males, the sex ratio being 1.25 males per female. Either more male births during last 5 years or high mortality rate of female children during recent years have probably caused the observed situation in the said age group. The immediate progressive age group has all ideal sex ratio of 1: 1, whereafter a little excess of males is indicated upto 25 years. But the females outnumber the males in the next preceding four age groups before regaining the ideal sex ratio in the age group 45—49 years. The traditional practice of moving out with herds of sheep and goats for grazing, temporary migration in connection with non-traditional economic pursuits, etc., have probably contributed to the observed concavity in the male age pyramid covering the above mentioned age groups. Beyond 49 years the age pyramid tapers smoothly towards oldest age group with minor fluctuation at the female side.

Among the Gaddi Rajputs also the youngest age group has more males with a sex ratio of 1.25 males per female, in common with the Brahmans. The next two ascending age groups experience more females. Either low birth rate or high death rate of male children in corresponding years, is probably responsible for this difference in the sex ratio. The male pyramid shows a steady state from 5 years to adolescence stage. Barring a sharp constriction at the age group of 30—34 years, and a bulging at the age group of 50—54 years, the male pyramid ascends to taper towards older ages more or less smoothly. The constriction at 30—34 years of age group is the result of movements in connection with economic activities of traditional and non-traditional nature. As regards female side of the age pyramid the first considerable reduction is indicated after 14 years. The influence of migration following effective marriage is to some extent reflected in the age group of 15—19 years. A further remarkable reduction observed after 24 years is possibly due to migration on economic reasons. The age group of 40—44 years also registers a constriction probably because of some demographic events. Beyond 44 years the female pyramid ascends almost smoothly to taper at older ages.

The median ages of the two populations have been estimated from the age distribution and show similarity. These are 18.75 years for the Brahmans and 19.16 years for the Rajput. The two populations are divided into three main age categories (Table 3) for further scrutiny. Among the Brahman Gaddi the category of dependant children includes 41.25% of the census population. Active population amounts to 55.79% and the rest 2.95% are included in dependant aged category. Males in both active and dependant categories proceeds females, and the sex ratio is maximum in the dependant aged category. Among the Rajputs 40.43% of the enumerated population belong to dependant children category, 54.74% form active population and 4.83% are categorised as dependant aged. A little excess of males over females is observed among the dependant children and active population categories. The dependant aged category of the Rajput registers an ideal sex ratio. It is further observed that the sex ratio of active population in the two groups is of similar order. In both the Brahman and the Rajput the proportion of pooled dependants and active populations is 45 : 55 approximately. The ratio of pooled dependants to active populations has been estimated in terms of dependency ratio, which is 79.23 for the Brahman and 82.69 for the Rajput. Therefore not much of difference is reflected in the level of dependency in the two populations. The proportion of dependant aged are comparatively more among the Rajput. The index of ageing is much pronounced among them (11.95) as compared to the Brahman (7.16).

The overall sex ratio for the Brahman is 1.07 and that for the Rajput is 1.04 (Table 1 & 2), and is close to the expected ratio. The secondary sex ratio for these populations (Brahman—1.13 and Rajput—1.15) deviates significantly from the ideal ratio. The situation is reflected in the age-sex pyramids (Fig. 1 & 2), where preponderance of males over females in the age group 0—4 years is noticed.

Family size

Nuclear is the most prevalent and preferred type of family among the Gaddi. The next numerically dominant type is the joint or extended type. The average family size among the Brahman is 6.02 and that among the Rajput is 6.29. Therefore the Rajput have a bigger family size on an average. The mean and median of the distribution of family size for both the populations are in the same order. Exceptionally bigger families being in low frequency could not infate the mean size to an unintelligible level.

Literacy

Literacy is one of the indices of development achieved by a population. The variation in occupation, especially the deviations from the traditional ones, are chiefly dependent on the literacy standard of a population. Among the Brahmans 50.50% of the males and 15.55% females constituting 33.58% of total population have been returned as literates (Table 3). Among the Rajput 35.16% of the population is literate where 48.25% of males and 21.60% of females are included (Table 3). Further, the literacy situation according to age focuses that in the age group 0—14 years the Brahman have 50.34% of males and 27.88% of females as literates. Among the Rajput of the same age group on the other hand, 51.25% of males and 40.19% of females are literate. In the next age group, *i.e.* 15—49 years, while the Brahman have 63.21% of males and 8.38% of females are literate, the Rajput have 60.06% of males and 11.27% of females. In the oldest age group (50+ years) 6.59% of the Brahman males and 5.74% of the Rajput males are literate. But in this age group no female of either populations has returned as literate. It is thus observed that, with the exception of 0—14 years age group, the percentage literacy is more among the Brahman males compared to the Rajput males. In case of females the percentage literacy status is strikingly higher among the Rajputs. In both the caste groups major concentration of literates are in the younger age groups.

Occupation

Agriculture is the major occupation of the Gaddis. Among the Brahmans 37.20% of males are engaged in agriculture and 6.44% are absorbed in different services (Table 4). In case of the Rajput 35.12% and 5.88% of males are engaged in agriculture and service respectively (Table 4). Other occupations, particularly the traditional occupations of sheep and goat rearing, engage 6.58% of the Brahman and 8.38% of the Rajput males. Agriculture is also the major secondary occupation for a number of males of both the populations. The economic activities of the females are mostly restricted to secondary occupation of agriculture, and 49.39% of the Brahman females and 49.55% of the Rajput females are engaged in it. Agriculture as primary occupation, is practised by 3.05% of the Brahman and 1.55% of the Rajput females. The proportion of the Brahman and the Rajput females engaged in service are 0.3% and 0.4% respectively.

Marital status

The number evermarried males in the Brahman and the Rajput are 38.91% and 38.13% respectively. Of these 2.72% of the Brahman and 2.38% of the Rajput are either widower or separated. Evermarried females account for 47.25% among the Brahman and 47.35% among the Rajput. Again 7.62% of the Brahman and 7.89% of the Rajput evermarried females are either widowed or separated. The females outnumber the males in civil conditions subsequent to marriage in both the populations. In the two population the majority of unmarried males are aged below 25 years (Brahman—98.13% and Rajput—96.36%), and for females it is below 20 years (Brahman—97.97% and Rajput—95.58%). (Tables 5 and 6).

Neither type of polygamy (polygyny and polyandry) is found to be in practice among either of the populations under study though local custom and tradition have not been against the same. The practice of marrying more than once, subsequent to separation from or death of the spouse is, however, prevalent. Of the evermarried individuals 5.22% of the Brahman males and 0.37% females are reported to have married twice; 6.13% males and 0.63% females of the Rajputs fall in this category. Only 0.37% of the Brahman males and 0.32% of the Rajput males married for the third time. No female is reported to have married more than twice.

Age at marriage

The mean age at marriage for the Brahman males and females is 23.49 and 17.17 years respectively. In case of the Rajput males and females the same is 23.73 and 16.91 years respectively. It is very much obvious that the two groups of people do not differ significantly in respect of the age at marriage. When the population sample of each ethnic group is divided into three generational categories, a temporal trend of decreasing marriage age from older to younger generations becomes conspicuous among both sexes of the Brahman and only among the males of the Rajput. The observed trend is statistically significant among the younger generations, *i.e.*, Generation II and III. Exception to this norm is observed among the Rajput females, where a trend of increasing marriage at age is practised through generations.

Reproductive performance

Out of 310 evermarried Brahman women 302 are considered for analysing their reproductive performance, because reproductive history

of the rest can not be collected due to some unavoidable reasons. Similarly 349 out of 366 Rajput women have been taken into consideration. Among the Brahman 15 females do not have any issue and 13.33% of them are suspected sterile; 18 Rajput females did not attain motherhood and 27.78% of whom are suspected steriles.

The crude birth rate is 48.71 and 48.95 among the Brahman and the Rajput respectively. General fertility rate in the Brahman is estimated to be 234.04 but it is 246.79 in the Rajput. The average number of conception is 4.42 and 4.61 for the Brahman and the Rajput women respectively. The Rajput females maintain higher mean estimates for all the reproductive events, *viz.*, fetal wastage, total livebirths, dead livebirths and livebirths alive. The differences between the two populations on the events is not striking. To examine the age-specific situation and possible trend of variation through age groups the data on reproductive events of evermarried women have been classified into seven categories. An apparent trend of increasing mean values as the mother's age increases, is noticed for all the events considered. Minor fluctuations are noticeable in the trend on fetal wastage for both the caste groups and also on dead livebirths for the Brahman. When only the women with completed fertility (aged 45 + years) are considered, it is revealed that the Rajput sample shows higher conception rate and a pronounced fetal loss. The mean number of livebirths still remains higher in them as compared to the Brahman. Comparatively higher mean number of dead livebirths is found among the Rajput, than among the Brahman, resulted into a lower mean for the surviving livebirths in them.

The average rate of mortality of livebirths is 1.05 in the Brahman and 1.12 in the Rajput. Average number of neonatal death is a little more in the Brahman than that in the Rajput, it is 0.18 and 0.15 in the Brahman and the Rajput respectively. Average number of dead infants per month is 0.57 and 0.55 among the Brahman and the Rajput respectively. These account for 53.77% (Brahman) and 48.85% (Rajput) of total dead livebirths. Infant mortality rate, estimated on the basis of infant deaths and livebirths in a year, is 107.69 in the Brahman and 51.95 in the Rajput. Population difference on the above rate is very striking here. Average total death of livebirths within five years of age is more in the Rajput. Upto the first year of development the Brahman were leading in death rate; but within one to five years of age the average number of dead livebirths increased in the Rajput. The overall mortality rate

below the age of reproduction (0—14 years) is 0.93 for the Brahman and 1.05 for the Rajput, showing again an enhanced rate of mortality for the Rajput livebirths. Except within one month stage a trend of increase in average number of dead livebirths with the increase in mother's age is apparent in the other developmental stages, in general.

The sex ratio of dead livebirths is 1.18 in the Brahman and 1.15 in the Rajput. The ratio at the neonatal stage is estimated to be 1.12 and 1.68 in the Brahman and the Rajput respectively. In the infant stage the ratio is 1.11 for the Brahman and 1.25 for the Rajput. Thus it is observed that in both the populations the male livebirths in all the stages of development upto 5 years are subjected to more selective pressure. The condition is comparatively more intensive in the Rajput. But beyond the age of five years the Brahman registered more death of male livebirths (sex ratio=1.72), and this has caused increase of the overall mortality rate of male livebirths in them in contrast to the Rajput.

Summary and discussion

The analysis of demographic structures of the Brahman and the Rajput Gaddi populations suggests a progressive trend in age sex distribution. The population pyramids with broad base taper towards older ages with little fluctuations at some age-groups. The percentage proportion of population included in the main age categories of dependent and active populations, is of similar order in both the caste groups. Therefore the Brahman and the Rajput do not display much of difference in respect of dependency. The index of ageing attains a higher value in the Rajput because of higher proportion of dependent aged population in them. The overall sex ratio does not depart significantly from the ideal ratio. But the deviation in respect of secondary sex ratio is significant, the youngest age group in the population pyramids (Fig. 1 & 2) attests to the situation. The two populations are consistent with each other regarding average family size. In the literacy status the Rajput females surpass their Brahman counterparts. The major concentration of literates in the younger age groups suggests that the consciousness to attain educational standard is a recent phenomenon among the Gaddi. This certainly amounts to a progressive trend in these populations. The occupational levels also do not bring forth much of variation between the two populations. The fact that the females are taking up service as occupation certainly adds to the progressive trend,

The marital status in the Brahman and the Rajput exhibit a nearly similar situation. They approach each other in average age at marriage pertaining to two sexes. A significant decreasing trend in age at marriage through generations, contrary to the general pan-Indian situation, is evident for the two sexes of the Brahman and also for the Rajput males only. Such deviation from the usual trend is hard to explain. However, the need for added hands in agricultural pursuits and the custom of marriage by exchange seem to be some of the influencing factors. The Rajput females on the other hand, display a temporal trend of increasing age at marriage. The consciousness for acquiring educational standard and the urge for better economic opportunities are on the increase. These factors might have affected the age at marriage of the Gaddi populations in succeeding generations; the temporal trend of increasing age at marriage as shown by the Rajput females, probably points to the future situation.

The percentage of sterile women in the Rajput is more than twice that in the Brahman. Crude birth rate and general fertility rate in the two Gaddi populations are of similar magnitude. Though the difference between the two populations in respect of reproductive performance is not striking, the Rajput females are found to maintain higher average for all the events considered. Infant mortality rate is very much pronounced in the Brahman as compared to the Rajput. The infant mortality rate is considered as an important indicator of health condition of a population. The estimated rates thus indicate remarkable difference in health status of the two population. Beyond infant stage the death rate for livebirths is more in the Rajput, and the total rate below the age of maturity is also more in the Rajput. Thus the Rajput livebirths seem to have been exposed to enhanced risk. The sex ratio of dead livebirths at different developmental stages shows that the male livebirths are subjected to more selective pressure.

The foregone discussion indicates that the Brahman and the Rajput Gaddi population have more resemblances than differences in respect of their demographic structures. The differences too are not so striking that would invite special attention. Even though the populations studied are strictly endogamous with about 99% endogamy, the resemblances are quite pronounced. The common ecosystem they are exposed to, in a sympatric association for a considerable time span, is likely the major

factor that has raised the observed level of resemblance between the Gaddi Brahman and the Gaddi Rajput populations.

Acknowledgement

I am thankful to the Director, Anthropological Survey of India for providing necessary facilities for conducting the study. I am grateful to my Gaddi friends for their invaluable cooperation.

REFERENCES

- Chakravarty, S. K. and P. C. Dutta 1982 Effect of Sympatric association on the Transhumant Gaddi: a Demographic and Genetic analysis. Report submitted to Anthropological Survey of India (in press).
- Negi, T. S. 1963 *Himachal Pradesh District Gazetteers, Chamba.*

Table 1: Distribution of the Gaddi Brahman and Rajput by age and sex

Age group	Brahman			Rajput		
	Male	Female	Total	Male	Female	Total
0-4	99	79	178	121	97	218
5-9	99	99	198	100	115	215
10-14	92	91	183	99	104	203
0-14	290	269	559	320	316	636
15-19	82	76	158	101	80	181
20-24	58	56	114	68	70	138
25-29	38	43	81	51	45	96
30-34	36	39	75	33	45	78
35-39	35	38	73	46	43	89
40-44	29	30	59	35	29	64
45-49	40	40	80	24	43	67
15-49	318	322	640	358	355	713
50-54	33	26	59	41	26	67
55-59	23	13	36	22	22	44
60+	35	26	61	59	54	113
50+	91	65	156	122	102	224
Total	699	656	1355	800	773	1573
Sex Ratio			1.07			1.04

Table 2: Main age categories in the Gaddi Brahman and Rajput

Age categories	Brahman				Rajput			
	Male	Female	Total	Sex Ratio	Male	Female	Total	Sex Ratio
Dependent children (0—14 years)	290	269	559 (41.25)	1.08	320	316	636 (40.43)	1.01
Active Population (15—64 years)	388	368	756 (55.79)	1.05	442	419	861 (54.74)	1.06
Dependent Aged (65 + years)	21	19	40 (2.95)	1.11	38	38	76 (4.83)	1.00
Total			1355				1573	
Index of ageing			7.16				11.95	
Dependency ratio			79.23				82.69	

Figures in parentheses are percentages of total population.

Table 3: Percentage literacy among the Gaddi Brahman and Rajput

Age group	Brahman			Rajput		
	Male	Female	Total	Male	Female	Total
0—14	50.34	27.88	39.53	51.25	40.19	44.18
15—49	63.21	8.38	35.63	60.06	11.27	35.76
50+	6.59	—	3.85	5.74	—	3.13
Total	50.50	15.55	33.58	48.25	21.60	35.16

Table 4: Percentage engagement in occupation according to age group among the Gaddi Brahman and Rajput

Age group (years)	Male						Female						
	Primary occupation			Secondary occupation			Primary occupation			Secondary occupation			
	Agricul- ture	Service	Other	Agricul- ture	Service	Other	Agricul- ture	Service	Other	Agricul- ture	Service	Other	
Brahman													
0-14	—	—	0.69	0.69	—	—	—	—	—	—	0.37	—	—
15-49	57.55	12.89	12.57	20.13	—	3.46	5.28	0.62	—	—	84.78	—	—
50+	84.62	4.39	4.39	9.89	—	1.10	3.30	—	—	—	76.92	—	—
Total	37.20	6.44	6.58	10.73	—	1.72	3.05	0.30	—	—	49.39	—	—
Rajput													
0-14	—	—	—	—	—	—	—	—	—	—	—	—	—
15-49	49.72	12.29	15.36	20.95	—	3.91	2.55	0.85	—	—	84.23	—	—
50+	84.43	2.46	9.84	11.47	—	3.28	2.94	—	—	—	82.35	—	—
Total	35.12	5.88	8.38	11.12	—	2.25	1.55	0.40	—	—	49.55	—	—

Table 5: Marital status of the Gaddi Brahman

Age group (years)	Male				Female			
	Unmarried	Married	Widower	Separated	Unmarried	Married	Widow	Separated
0-14	290	—	—	—	269	—	—	—
15-19	81	1	—	—	70	6	—	—
20-24	48	10	—	—	7	48	1	—
25-29	5	33	—	—	—	42	—	1
30-34	1	34	1	—	—	36	3	—
35-39	—	34	1	—	—	36	2	—
40-44	—	27	1	1	—	29	1	—
45-49	—	37	3	—	—	32	7	1
50+	2	77	11	1	—	31	34	—
Total	427	253	17	2	346	260	48	2
Percentage	61.09	36.19	2.43	0.29	52.74	39.63	7.32	0.30
		38.91				47.25		

Table 6: Marital status of the Gaddi Rajput

Age group (years)	Male				Female			
	Unmarried	Married	Widower	Separated	Unmarried	Married	Widow	Separated
0-14	320	—	—	—	316	—	—	—
15-19	101	—	—	—	73	7	—	—
20-24	56	12	—	—	18	51	1	—
25-29	17	34	—	—	—	45	—	—
30-34	1	32	—	—	—	44	—	1
35-39	—	45	1	—	—	42	—	1
40-44	—	33	2	—	—	28	1	—
45-49	—	20	4	—	—	36	7	—
50+	—	110	11	1	—	52	50	—
Total	495	286	18	1	407	305	59	2
Percentage	61.87	35.75	2.25	0.13	52.65	39.46	7.63	0.26
		38.13				47.35		

Table 7: Percentage frequency of number of times married

Population	No. of times married					
	Male			Female		
	Ist	IInd	IIIrd	Ist	IInd	IIIrd
Gaddi Brahman	94.40	5.22	0.37	99.63	0.37	—
Gaddi Rajput	93.55	6.13	0.32	99.37	0.63	—

Table 8: Mean age at marriage and temporal trend: the Gaddi Brahman

Generation	Male				Female			
	N	Mean	S.D.	t value	N	Mean	S.D.	t value
I (50+ years)	77	24.16	3.72		96	17.34	2.35	
II (30—49 years)	134	23.71	3.41	0.862	141	17.47	2.74	0.395
III (below 30 years)	43	21.59	2.83	4.055*	35	15.49	2.25	3.584*
Total	254	23.49 ±0.22	3.53		272	17.17 ±0.16	2.63	

* Significant, $p > 0.001$

Table 9: Mean age at marriage and temporal trend: the Gaddi Rajput

Generation	N	Mean	S.D.	t value	N	Mean	S.D.	t value
I (50+ years)	111	24.32	3.54		59	15.51	3.30	
				I×II 0.962				I×II 3.523*
II (30—49 years)	126	23.86	3.79		152	17.22	2.82	
				II×III 3.964*				II×III 0.127
III (below 30 years)	45	21.91	2.39		94	17.27	2.36	
Total	282	23.73 ±0.21	3.59		305	16.91 ±0.16	2.87	

* Significant, $p > 0.001$

Table 10: Average of reproductive events of the mothers according to age: The Gaddi Brahman

Age group	N	Foetal wastage	Dead livebirths	Livebirths alive	Total livebirths	Conception
15—19	6	—	0.17	1.00	1.17	1.17
20—24	49	0.10	0.16	1.20	1.36	1.46
25—29	43	0.12	0.26	2.25	2.51	2.63
30—34	39	0.05	0.92	3.05	3.97	4.03
35—39	38	0.24	1.34	3.74	5.08	5.32
40—44	30	0.27	1.17	4.03	5.20	5.47
45+	97	0.18	1.81	4.40	6.21	6.39
Total	302	0.16	1.05	3.21	4.26	4.42

Table 11: Age of reproductive events of the mothers according to age: The Gaddi Rajput

Age group	N	Foetal wastage	Dead livebirths	Livebirths alive	Total livebirths	Conception
15—19	7	—	—	0.43	0.43	0.43
20—24	51	0.02	0.04	1.47	1.51	1.53
25—29	43	0.02	0.23	2.44	2.67	2.70
30—34	45	0.09	0.56	2.93	3.49	3.58
35—39	43	0.19	0.97	3.97	4.95	5.14
40—44	29	0.10	1.34	4.07	5.41	5.52
45+	131	0.32	2.08	4.24	6.33	6.65
Total	349	0.17	1.12	3.32	4.44	4.61

Table 12: Average of dead livebirths in progressive stages of development according to mothers' age: The Gaddi Brahman and Rajput

Age group	N		Within a month		Within one year		Within five year		Total	
	Brahman	Rajput	Brahman	Rajput	Brahman	Rajput	Brahman	Rajput	Brahman	Rajput
15—19	6	7	0.17	—	0.17	—	0.17	—	0.17	—
20—24	49	51	0.06	0.04	0.12	0.04	0.16	0.04	0.16	0.04
25—29	43	43	0.05	0.07	0.14	0.12	0.26	0.24	0.26	0.23
30—34	39	45	0.34	0.16	0.60	0.38	0.92	0.54	0.92	0.55
35—39	38	43	0.21	0.21	0.84	0.58	1.18	0.89	1.34	0.98
40—44	30	29	0.24	0.21	0.71	0.62	0.96	1.20	1.17	1.35
45+	97	131	0.20	0.19	0.85	0.95	1.44	1.82	1.81	2.08
Total	302	349	0.18	0.15	0.57	0.55	0.89	0.99	1.05	1.12
Sex Ratio			1.12	1.68	1.11	1.25	1.10	1.16	1.18	1.15

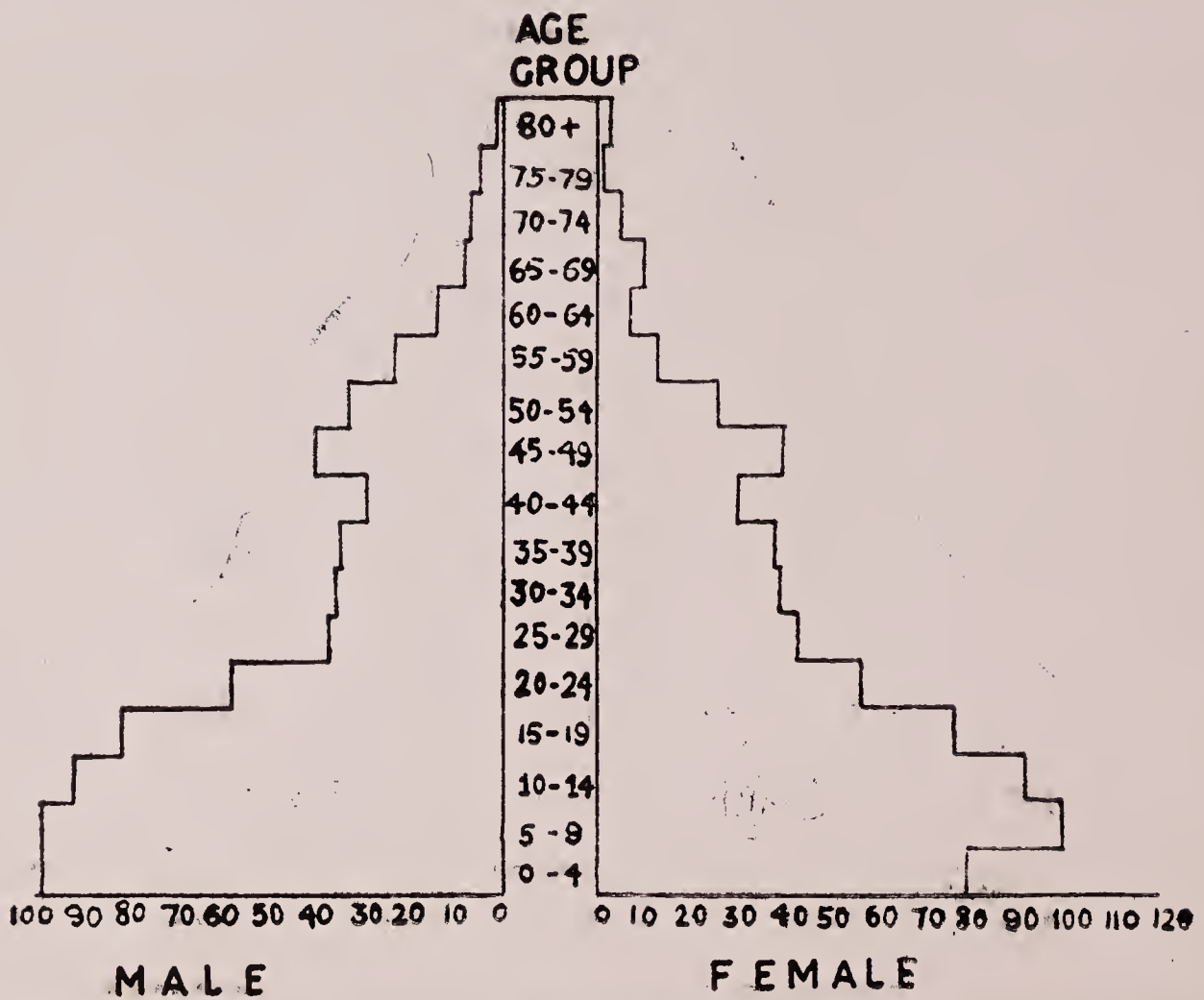


FIGURE 1. POPULATION PYRAMID OF THE BRAHMAN GADDI

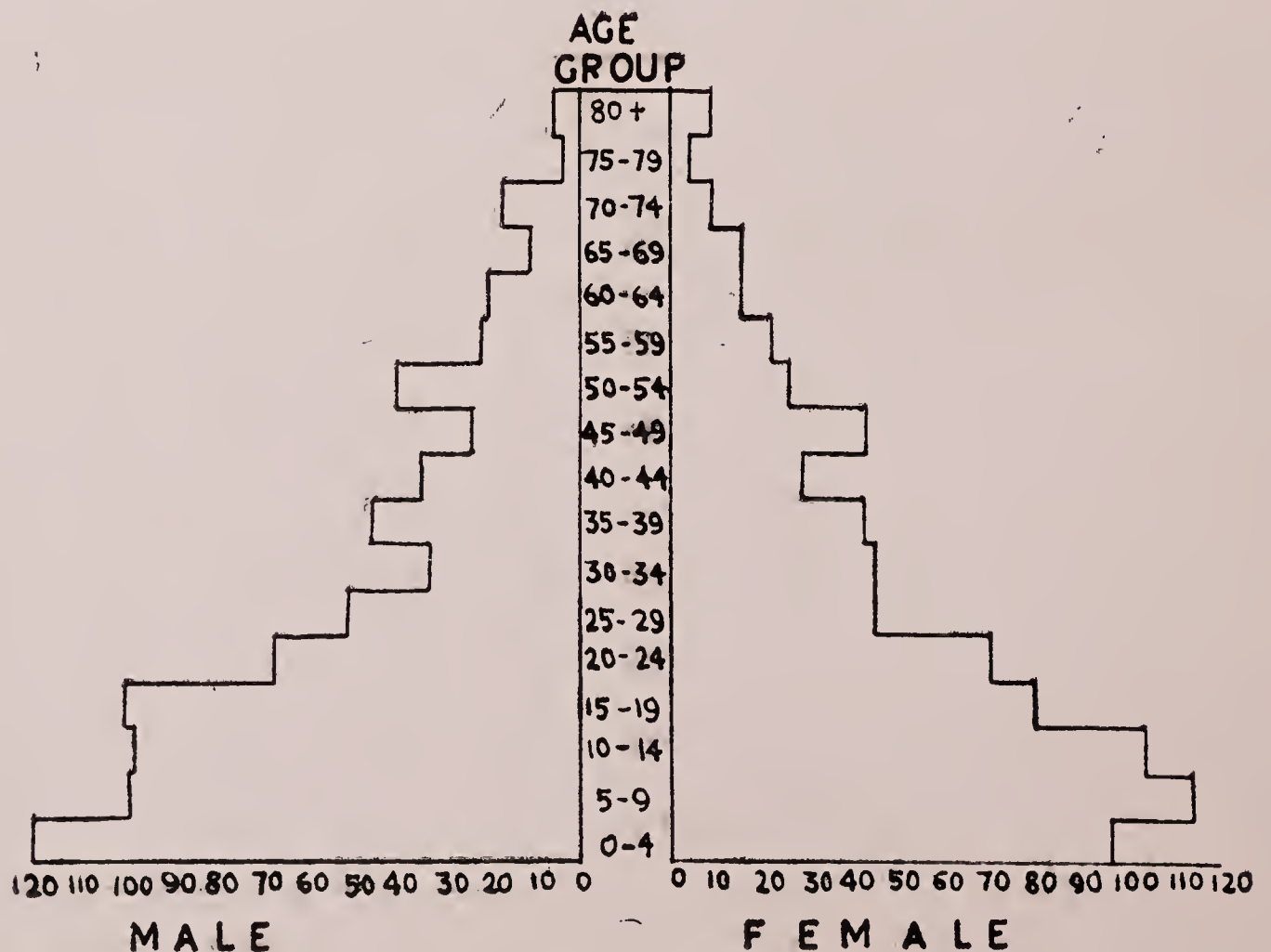


FIGURE : 2 . POPULATION PYRAMID OF THE RAJPUT GADDI

Selection intensity among Jaunsaris

A. R. SANKHYAN,

A. C. SRIVASTAVA,

A. K. CHOWDHURY

Jaunsaris, a tribal group of Uttar Pradesh, are inhabiting the Jaunsar-Bawar area of Dehra Dun district. They have distinct cultural and socio-religious traditions. Jaunsaris commonly practise what is known as fraternal polyandry, though monogamy and polygamy are not altogether non-existent.

Among the Jaunsaris a less rigid form of caste system is in existence. The society is divided into three distinct strata: (1) The high caste group includes Khasas, both Brahmins and Rajput. It may be mentioned that practically there is no differentiation in the status of Brahmin and Rajput. But they form two different castes despite occasional inter-marriages between them (Majumdar, 1963), (2) Intermediate artisan caste group which includes the Lohar, Sutar, Bajgi, etc., (3) The low caste Kolta occupying the lowest rank of the hierarchical ladder.

Selection intensity measures the fitness of a population in a specific ecosystem as it operates *inter alia* through differential fertility and mortality and therefore, is an important criterion for understanding micro-evolutionary changes in a population. In past two decades, a number of studies measuring magnitude of selection through demographic variables have been made on various human populations. In India fewer number of studies covering about 20 populations have been made for this aspect, *viz.*, Basu (1967), Ghosh (1970), Talukdar (1971), Basu (1972), Mukhereje (1972, 1974), Barua (1976), Sahu (1983), Chakravarty (1976), Murty and Ramesh (1978), Reddy and Lakshmanudu (1979), and a need has been felt for more data on different ethnic groups. In view of this the present study reports the magnitude of selection operating on the different caste groups of Jaunsaris.

Material and methods

A demogenetic study was conducted among the Jaunsaris during June-July, 1979. Data were collected from 12 villages, 6 each in the

Jaunsar and Bawar areas, and the pregnancy histories of 531 ever-married women (57 Brahmin, 325 Rajput and 149 Kolta) were recorded. The index of total selection or opportunity of selection (I) and its components—selection due to mortality (I_m) and selection due to fertility (I_f) were worked out following Crow (1958):

$$\begin{aligned} I_m &= Pd/Ps, \\ I_f &= V_f/\bar{X}^2 \quad \text{and} \\ I &= I_m + I_f/Ps. \end{aligned}$$

Where X is average number of live births per woman aged 40 years and above; V_f is variance in progeny number due to fertility, Pd is premature deaths (those died before the reproductive age, *i.e.*, 15 years), Ps, the number of the survivals= $1-Pd$.

Results and discussion

Populationwise distribution of index of total selection (I) and its components (I_m and I_f) is shown in Table 1. It is observed that the Jaunsari populations exhibit an almost similar averages of live births. However, it is found to be highest in case of Khas Brahmins (4.36%). When live births per woman for the three populations in the two constituent areas of Jaunsar-Bawar, *viz.*, Jaunsar and Bawar are compared it is seen that the populations in Bawar area generally exhibit higher values than the Jaunsar. This difference in live births is found to be about two times greater in Bawar area for Khas Brahmins and Koltas. Khas Rajputs, however, do not exhibit any significant variation between the two areas in respect of live births. The reasons for higher average of live births in Bawar area could probably be accountable to remoteness, economic backwardness, isolation and least of recreational activities and also to the least awareness of family planning norms.

The premature death (Pd) is least in case of Khas Brahmins (0.15). Khas Rajputs and Koltas have values 0.20 and 0.22 respectively. Here also a significant feature of increased premature deaths is noted for the Bawar area. This is as per expectations for remote and backward area where people are devoid of better medical care. In Bawar area the populations exhibit lower value of Ps inspite of comparatively higher fertility than in Jaunsar.

The above findings in the Jaunsar and Bawar areas are reflected similarly in the indices of selection due to mortality (I_m) and fertility (I_f).

The value of I_m is found to be comparatively higher in the Kolta (0.285) than the upper caste Khas Rajput (0.255) and Khas Brahmin (0.175). This is in agreement with general mortality picture for the lower caste. The I_f component is greater than two times of I_m component for all the populations. It is higher in case of Koltas (0.742) which is followed by Khas Rajputs (0.622) and Khas Brahmins (0.336).

The magnitude of selection as indicated from I is found to be greater in case of the Kolta (1.238) than Khas Rajput (1.034) and Khas Brahmin (0.567). This is mainly due to the raised value of the fertility component in the Kolta followed by the Khas Rajput and Khas Brahmin.

The index of total selection ranges from 0.23 to 3.69 in 64 populations all over the world (Spuhler 1973). In Indian populations (Table 2), however, it shows a range of 0.24 to 2.25. It is interesting to note that higher values of index of total selection (I) exceeding one are found in most of the tribal populations, such as Jaunsari, Pahira, Pardhan, Kota and Manne Kolam. This observation on Indian tribes, however, does not support the suggested pattern of the increase of the index with technological advancement as observed by Spuhler (*vide* Reddy and Lakshmanudu, 1979). Moderate values of the index are noted among Muslims, Mallia, Southern Pahira I, Dule Bagdi, Hill Kolam, Rajgond and Madiga (Chittoor), and low values of index are reported for Jatav, Jat II, Vadde II, Malla II and Madiga II populations.

The range of variation of the index of selection due to mortality for Indian populations is 0.01 to 0.80 and for the index of selection due to fertility 0.06 to 0.82 (Table 2). Generally I_f value is higher than I_m in most of the Indian population. But in some populations, *viz.*, Pahira, Manne Kolam, Pardhan, Madiga and Maheswar the I_m values exceed the I_f indicating therefore, an apparent decline of the mortality component.

The preceding discussion reveals the following:

- 1 The Jaunsaris along with some other Indian tribes are characterized by high magnitude of selection intensity.
- 2 The indices for opportunity of selection do not demarcate between populations of the tribal and caste affiliations.
- 3 The magnitude of selection varies in different populations depending upon their socio-economic conditions, isolation and remoteness, etc.

- 4 The Jaunsaris along with many other Indian populations exhibit greater value of index of selection due to fertility than that of mortality.

Acknowledgements

The authors are grateful to the Director, Anthropological Survey of India, and the Regional Officer, North Western Region, Dehra Dun for providing facilities.

REFERENCES

- | | | |
|---|------|--|
| Barua, S. | 1976 | Selection intensity among the consanguineous and non-consanguineous groups of Muslim population of 24-Parganas. <i>Man in India</i> , 56: 359—364. |
| Basu, A. | 1967 | Selection intensity in the Pahiras. <i>Eugen. Quart.</i> , 14: 241-242. |
| Basu, Arabinda | 1972 | Demographic study of the Kota of Nilgiri Hills. <i>J. Indian Anthropol. Soc.</i> , 7: 29—45. |
| Basu, A., R. Gupta & K. K. Bhattacharya | 1980 | A demographic study of Mirpur: A village in Coastal Midnapore district, West Bengal. <i>J. Biosocial Science</i> , 12: 227—234. |
| Chakravarty, S. K. | 1976 | Selection potential among Bengali Muslims of Cachar. <i>Proc. 3rd Annual Con. Indian Anthropol. Soc.</i> , 11(2): 77. |
| Chowdhury, Swapna | 1976 | Selection intensity of the Dakshinarrarhi Kayasthas in the Metropolitan Calcutta. <i>Abstract J. Ind. Anthropol. Soc.</i> , 11(2): 76. |
| Crow, J. F. | 1958 | Some possibilities for measuring selection intensity in man. <i>Hum. Biol.</i> , 30: 1—13. |
| Debnath, S. K. & Tulika Sen | 1983 | Selection intensity in the Toto of Jalpaiguri Hills, West Bengal. <i>J. Indian Anthropol. Soc.</i> , 78: 79—81. |

- Gandhi, L. P. 1979 Opportunity of Natural selection among the Maheshwaris. *Ind. Jour. Phys. Anthrop. and Hum. Genet.*, 5(2): 171—177.
- Garg, S. K., A. R. Sankhyan & D. Tyagi 1979 Selection intensity in the Bhoksa of Doon Valley, Uttar Pradesh, India. *Bull. Anthropol. Surv. India*, 28(3-4): 12—16.
- Ghosh, A. K. 1970 Selection intensity in the Kota of Nilgiri Hills, Madras. *Social Biol.*, 17: 224-225.
- Majumdar, D. N. 1963 *Himalayan Polyandry*. Asia Publishing House, Bombay.
- Mukherjee, D. P. 1972 Some recent trends in population genetics in India. In *Genetics and our health*. ICMR Technical Report Series, 20: 234—242.
- Mukherjee, D. P. 1974 Genetic studies in relation to fertility. *ICMR Project Report*, New Delhi.
- Murty, J. S. & A. Ramesh 1978 Selection intensities among the tribal populations of Adilabad district, Andhra Pradesh, India. *Social Biol.*, 25: 302—305.
- Reddy, P. C. & M. Lakshmanudu 1979 Indices of opportunity of selection in Mala, Madiga and other Indian populations. *J. Indian Anthropol. Soc.*, 14: 245—252.
- Roy, S. K. & P. Bharati 1982 Selection intensity: Inter and Intra-group variations. *J. Indian Anthropol. Soc.*, 17(3): 383—386.
- Sahu, P. N. 1983 Demographic and genetic contribution of a small population (The Mallia). *J. Indian Anthropol. Soc.*, 18: 55—59.

- Spuhler, J. N. 1973 Anthropological Genetics: An overview. In *Methods and Theories of Anthropological genetics* (ed.), M. H. Crawford and P. L. Workman, Univ. New Mexico Press, Albuguerque. pp. 423—451.
- Talukdar, S. 1971 Selection intensity in two Bagdi groups of 24-Parganas, West Bengal. *J. Indian Anthropol. Soc.*, 6: 131—133.

Table 1: Distribution of indices of selection among the Jaunsaris

Population	Area	No. of Wo- men Aged 40+ (N)	Total Live Birth (B)	Average No. of live birth per women (X)	Premature deaths (Pd)	Pd	Ps	Im	If	I
I Upper Caste (Khasas) BRAHMIN	Jaunsar	5	12	2.400	0	0.000	1.000	0.000	0.250	0.250
	Bawar	9	49	5.444	9	0.184	0.816	0.225	0.196	0.465
	Pooled	14	61	4.357	9	0.148	0.853	0.173	0.336	0.567
RAJPUT	Jaunsar	58	214	3.690	37	0.173	0.827	0.209	0.804	1.181
	Bawar	53	200	3.774	47	0.235	0.765	0.307	0.497	0.957
	Pooled	111	424	3.780	84	0.203	0.797	0.255	0.622	1.034
Total Khasas	Jaunsar & Bawar	125	475	3.800	93	0.196	0.804	0.244	0.654	1.056
II Lower Caste Kolta	Jaunsar	30	87	2.900	14	0.161	0.839	0.192	1.244	1.674
	Bawar	23	116	5.044	31	0.267	0.733	0.365	0.350	0.843
	Pooled	53	203	3.830	45	0.222	0.778	0.285	0.742	1.238

Table 2: Indices of opportunity of selection in Indian populations (based on Crow's 1958 method)

Population	Tribe/occupational caste	Place	Components Selection intensity		Total Selection intensity index	Reference
			I_m	I_f		
NORTH						
Khas Brahmin	Tribe	Jaunsar-Bawar, Dehra Dun, U.P.	0.173	0.336	0.567	Present Study
Khas Rajput	"	"	0.255	0.622	1.034	Present Study
Khas (Brahmin and Rajput)	"	"	0.244	0.654	1.056	Present Study
Kolta	"	"	0.285	0.742	1.238	Present Study
Bhoksa	"	Sahaspur, Dehra Dun, U.P.	0.262	0.058	0.356	Garg et. al., 1979
Jatav I	Leather workers	Agra, U.P.	0.14	0.26	0.48	Mukherjee, 1974
Jatav II	"	"	0.17	0.12	0.30	"
Jatav III	"	Delhi (U.T.)	0.16	0.24	0.45	"
Jatav IV	"	"	0.12	0.12	0.32	"
Jat	Farmers	"	0.28	0.22	0.56	Mukherjee, 1972
Jat II	"	"	0.10	0.26	0.38	"
EAST						
Northern Pahira	Tribe	Ajodhya, West Bengal	0.815	0.175	1.133	Basu, 1967
Southern Pahira I	"	Dohna Hills, West Bengal	0.529	0.137	0.788	"
Southern Pahira II	"	"	0.484	0.137	0.687	"

(Contd.)

Population	Tribe/occupational caste	Place	Component's Selection intensity		Total Selection intensity index	Reference
			I_m	I_f		
Dule Bagdi (9-Vill. group)	Tribe	24 Parganas, West Bengal	0.250	0.386	0.732	Talukdar, 1971
Dule Bagdi (10-Vill. group)	"	"	0.266	0.393	0.763	"
Toto	"	Jalpaiguri, West Bengal	0.32	0.10	0.55	Debnath & Tulika Sen, 1983
Varendra Brahmin	Service	Nabadwip, West Bengal	0.182	0.378	0.629	Talukdar, 1971
Varendra Kayastha	Farmers	"	0.169	0.360	0.590	"
Tili	Traders	"	0.199	0.316	0.578	"
Jele	Fishermen	"	0.218	0.310	0.596	"
Hindu Namasudra	Farm labourers	Balaramchak, Midnapore, W.B.	0.418	0.307	0.833	Mukhopadhyay, 1981
Hindu Namasudra	"	Barchandpatra, Midnapore, W.B.	0.062	0.305	0.386	Roy & Bharati, 1982
Hindu Mahishya	Farmers	Gopalchak, Midnapore, W.B.	0.307	0.279	0.672	"
Hindu Mahishya	"	Bamanchak, Midnapore, W.B.	0.144	0.280	0.464	Mukhopadhyay, 1981
Dakshinararhi Kayastha	Service	Metropolitan Calcutta, W.B.	—	—	0.621	Chowdhury, 1976
Muslim	Farmers	Balaramchak, Midnapore, W.B.	0.189	0.290	0.534	Roy & Bharati, 1982
Christian	"	Mirpur, Midnapore, W. B.	0.180	0.164	0.374	Basu et. al., 1980
Muslim (Consanguineous)	"	24 Parganas, W. B.	0.434	0.338	0.919	Barua, 1976
Muslim (Non-consanguineous)	"	"	0.307	0.329	0.737	"

(Contd.)

Population	Tribe/occupational caste	Place	Components		Total Selection intensity index	Reference
			Selection intensity	Intensity		
			Im	If	I	
NORTH EAST						
Muslim (Bengali speaking)	Farmers	Cachar, Assam	0.43	0.31	0.86	Chakravatry, 1976
SOUTH EAST						
Mallia	Pariest	Bhubneswar, Orissa	0.687	0.159	0.951	Sahu, 1983
SOUTH CENTRAL						
Manne Kolam	Tribe	Adilabad, Andhra Pradesh	0.54	0.47	1.01	Murty & Ramesh, 1978
Hill Kolam	"	"	0.35	0.38	0.73	"
Rajgond	"	"	0.35	0.38	0.72	"
Pardhan	"	"	0.80	0.38	1.19	"
Vadde I	Stone breakers	Chandragiri, Andhra Pradesh	0.03	0.76	0.58	Mukherjee, 1974
Vadde II	"	"	0.07	0.34	0.33	"
Mala I	Farm labourers	"	0.22	0.22	0.46	"
Mala II	"	"	0.01	0.21	0.24	"
Mala	"	Chittoor, Andhra Pradesh	0.22	0.29	0.58	Reddy & Lakshmanudu, 1979
Madiga	"	"	0.24	0.43	0.77	"
Madiga I	"	Chandragiri, Andhra Pradesh	0.19	0.28	0.52	Mukherjee, 1974
Madiga II	"	"	0.30	0.07	0.39	"
SOUTH WEST						
Maheshwari	Traders	Poona, Maharashtra	0.290	0.202	0.555	Gandhi, 1979

Marriage structure of the Jaunsaris

A. K. CHOWDHURY

A. C. SRIVASTAVA

A. R. SANKHYAN

The Jaunsaris are polyandrous people inhabiting Jaunsar-Bawar area of the Garhwal Himalayas. The Jaunsaris are divided into three major caste groups, namely, the Brahmins, the Rajputs and the Koltas. Both the Brahmins and Rajputs belong to upper castes and are known as the Khasas, whereas the Koltas occupy the lowest rung of the social hierarchy. Between the two upper castes there are occasional inter-marriages which are socially accepted. The Rajputs and the Brahmins, being land owner in most of the villages, are well established, while the Koltas serve as agricultural labourers and are an economically depressed people. The fraternal type of polyandry and polygynandry are prevalent in varying proportions among the Jaunsaris.

The Jaunsar and the Bawar are the two constituent parts of the Jaunsar Bawar area. The Bawar area being remote, generally possesses more of typical culture whereas the Jaunsar is comparatively open to the outsiders.

Of the several aspects of marriage practices, the distances between the villages of the spouses (marriage distance) reflect the flow of genes over the geographical area in the population. A common tendency is observed in most of the populations that mate selection is done within a limited area for maintaining their cultural homogeneity, etc. Thus a population spread over a wide geographical area breaks down into several local populations with proportions of inter-marriages between them. The marriage distance is probably one of the best tool to estimate the nature and magnitude of local differences within the population. Keeping this view in mind, an attempt has been made to find out the regional variations in the patterns of marriage distances among the Jaunsari populations, namely, the Brahmin, the Rajput and the Kolta.

Material and Method

Almost from the centre of both the Jaunsar and Bawar areas six villages in each sector were selected. The information on multiple

marriages and marriage distances from the couples residing in those villages were collected and later separated according to population. The distances (in Kilometers) between the villages of spouses are those told by the respondents and were according to the travel routes.

Results and Discussion

The mean marriage distances of the populations between the two areas failed to reveal any significant difference (Table 1). Hence, they were pooled for observing the differences between populations. The distribution of marriage according to distance classes among the Jaunsaris has been shown in Table 2. It is a general pattern that more than 70 per cent of all marriages in the three Jaunsari populations were performed within the distance classes upto 15 Kms. The Rajputs exhibit greater range of marriage distance, *i.e.*, upto 250 kilometers and it shows the highest mean marriage distance (17.3 ± 0.9 Kilometers) while among the Brahmins it is 12.8 ± 0.8 Kilometers and among the Koltas 9.9 ± 0.8 Kilometers. The mean marriage distance for the pooled Jaunsari population comes to 14.7 ± 1.3 Kilometers. The lowest mean marriage distance among the Koltas may be due to greater proportion of marriages within the villages (10.2%) as compared to the Rajputs. The homogeneity test results, however, reveal significant differences between the Kolta and the Rajput ($t=5.29$, $P>.001$) and between the Rajput and the Brahmin ($t=2.11$, $P>.05$).

The multiple marriages are more frequent in the Jaunsar (38.9%) than in the Bawar area (28.0%). This may probably be accountable to the better economic status and capacity to pay bride price among the people in the Jaunsar area. The multiple marriages among the three populations are most frequent in the Rajput (38.0%) followed by the Kolta (28.2%) and the Brahmin (21.3%) (Table 3).

The distributions of mean marriage distance according to multiple marriages among the Jaunsaris are shown in Table 4. It may be observed that there is no significant difference in the mean marriage distance between the first and subsequent marriages in all the populations from the Jaunsar area. But in the Bawar area a significant rise in the mean marriage distance is seen between the first and subsequent marriages.

In order to observe the generationwise trend in marriage distance the husbands have been classified into three age groups, *i.e.*, 15—24, 25—49, 50 and above years. It appears that there is a growing tendency

of selecting spouses from shorter distances among the younger individuals (below 25 years of age) of the Bawar area. But in the Jaunsar area among the Kolta it is found that the persons under 50 years of age have hardly moved to greater distances for selecting spouses than the older people (*i.e.*, 50 years and above). On the other hand, it seems that the middle aged (25—49 years) Brahmins and Rajputs have mostly chosen their mates from longer distances (Table 5).

Although the data on marriage distance of the different tribal populations of India, are very scanty, an attempt has, however, been made to compare the present results with the studies made by Pingel (1975) on five tribal populations of Andhra Pradesh, Basu (1973) on the Santals of Bihar and Malhotra (1978) on the Bhils and the Pawars of Maharashtra. The mean marriage distances are 54.2 Kms., 24.5 Kms., 26.3 Kms., and 18.6 Kms. among the Andhs, Mathuras, Kolams and Raj-Gonds of Andhra Pradesh respectively. Among the Santals of Bihar a mean marriage distance is 10.8 Kms. while it is found to be 8.3 Kms., and 8.9 Kms., respectively among the Bhils and the Pawars of Maharashtra. It is interesting to note that all the three Jaunsari populations show lower mean marriage distance in comparison with the compared tribals of Andhra Pradesh on the one hand and higher in comparison with the Bhils and the Pawars of Maharashtra on the other.

Finally we observe that among the three populations of the Jaunsar-Bawar, the Rajputs who enjoy the status of land holder and numerically dominant population in most of the villages, frequently choose to move to a greater distance to select their mates and also have greater proportion of multiple marriages. The Koltas who are supposed to move to greater distances in search of their job as agricultural labourers, show least migration for the purpose of spouse selection. So it can be safely said that the economic backgrounds of the Rajput and the Brahmin may probably be responsible for greater marriage distance and multiple marriages.

Acknowledgement

The authors are grateful to the Director, Anthropological Survey of India, for providing the necessary facilities. They are also thankful to Shri M. N. Kaul, and Shri Kewal Ram, An.S.I., N. W. Region, Dehra Dun, for making the preliminary analyses of the data.

REFERENCES

- Basu, A. 1973 A note on the distribution of marriage distance among Santals in the neighbourhood of Giridhi, Bihar. *J. Bioso. Sci.*, 15: 367—376.
- Malhotra, K. C. 1978 Inbreeding and marriage distance among three tribes of Maharashtra. *J. Indian Anthropol. Soc.*, 13: 89—94.
- Pingel, U. 1975 A Comparative study of mating systems and marriage distance patterns between 5 tribal groups of Utnur Taluka, Adilabad district of Andhra Pradesh. *Proc. 2nd Annual Conf. of I.S.H.G.*, Calcutta.

Table 1 : Areawise comparison of mean marriage distance among the Jaunsaris

Sl. No.	POPULATIONS	AREAS		't' VALUES	RESULTS
		JAUNSAR	BAWAR		
		MEAN \pm S.E.	MEAN \pm S.E.		
1	RAJPUT	15.9 \pm 0.92	19.2 \pm 2.21	1.38	Non-significant.
2	BRAHMINI	15.8 \pm 2.72	9.1 \pm 2.08	1.95	Non-significant.
3	KOLTA	10.3 \pm 0.94	9.3 \pm 1.33	0.65	Non-significant.

Table 2: Distribution of marriage distance among the Jaunsaris

Distance Classes (In Kilometres)	Populations			Total Jaunsaris (N=546)
	Rajput (N=329)	Brahmins (N=61)	Koltas (N=156)	
0	0.9	0.0	10.2	3.5
1-5	10.6	26.2	23.2	15.9
6-10	31.3	26.2	19.5	30.2
11-15	27.7	19.7	19.2	24.4
16-20	5.8	8.2	5.8	6.0
21-25	4.0	14.3	5.8	5.7
26-30	6.4	3.3	1.3	4.6
31-35	2.7	0.0	2.6	2.4
36-40	1.8	0.0	1.9	1.6
41-45	2.7	0.0	0.0	1.6
46-50	0.9	0.0	0.0	0.5
50+	5.2	1.6	0.6	3.5
Mean±S.E.	17.3±0.9	12.8±0.6	9.9±0.3	14.7±1.3

Rajput Vs Brahmin $t = 2.11, P > .05$ Brahmin Vs Kolta $t = 1.5 P < .1$ Kolta Vs Rajput $t = 5.29 P > .001$

Table 3: Incidence of multiple marriages among the Jaunsaris

	RAJPUTS		BRAHMINS		KOLTAS			
	JAUN SAR No.	BAWAR % No.	JAUN SAR No.	BAWAR % No.	JAUN SAR No.	BAWAR % No.		
First marriage	102	55.4	23	67.6	65	69.9	47	74.6
Second marriage	61	33.2	8	23.6	2	7.4	18	19.4
Third and subsequent marriage	21	11.4	3	8.8	—	—	10	10.7
Total marriages	184	100.0	34	100.0	27	100.0	93	100.0

Table 4: Mean marriage distance according to first and subsequent marriage among the Jaunsaris

	RAJPUTS		BRAHMINS		KOLTAS	
	JAUN SAR	BAWAR	JAUN SAR	BAWAR	JAUN SAR	BAWAR
First Marriage	Distance Range in Kms., 1-60 Mean 15.9±1.21	0-70 17.9±1.91	2-100 16.6±3.93	2-26 8.8±9.00	0-35 9.6±1.06	0-25 7.4±1.10
Second Marriage	Distance Range in Kms., 2-100 Mean 15.6±1.81	1-250 25.8±7.54	8-24 13.6±1.96	2-25 13.5±8.13	3-40 12.0±2.45	0-40 14.5±4.28
Third and Subsequent	Distance Range in Kms., 3-35 Mean 15.8±1.83	5-12 9.8±0.82	9-21 15.3±2.84	— —	2-27 11.6±2.82	1-52 15.5±7.12
All Marriage	Distance Range in Kms., 0-100 Mean 15.9±0.92	0-250 19.2±2.21	2-100 15.8±2.72	2-26 9.1±2.08	0-40 10.3±0.94	0-52 9.27±1.33

Table 5: Mean marriage distance in different age group among the Jaunsaris

Age groups in year	RAJPUTS		BRAHMINS		KOLTAS	
	Jaunsar	Bawar	Jaunsar	Bawar	Jaunsar	Bawar
15—24	15.4±1.8	12.6±2.5	9.8±1.3	9.2±2.5	9.3±1.5	5.8±2.0
25—49	17.2±1.8	20.7±3.8	23.3±7.8	9.2±3.0	9.0±1.3	9.6±1.8
50 and above	14.2±1.1	19.5±2.8	14.2±1.2	10.2±4.6	13.2±2.0	9.5±2.4

A note on some bio-social aspects of the Jaunsaris

KADAMBARI SHARMA

The study was undertaken to examine the effect of different cultural factors on the population structure, sex ratio, mating pattern and fertility performance of the Jaunsaris, a primarily agricultural people in the hills of the district Dehradun, Uttar Pradesh. The genetic markers, A.B.O. blood genes were considered to observe the genetic variability between the different caste groups.

It may be that various social factors like bonded labour system, family size, marriage, particularly polyandry, etc., may have effect on the genetic make up of the various ethnic groups residing in Jaunsar Bawar area. Reversely factors like population structure, sex-ratio, fertility, etc., may also have effects on certain socio-cultural aspects of the Jaunsari society. The present study intends to reveal all these aspects of the people of Jaunsar Bawar.

Jaunsar-Bawar

The area Jaunsar-Bawar in Tehsil Chakrata of district Dehra Dun is bounded in the north by district Uttarkashi, on east by Tehri Garhwal and in the west by Himachal Pradesh. The main lines of drainage are the Tons and the Jamuna. The mountain ranges of this area are rough. There is much cliff and rock, so that cultivation is difficult. The rock and limestone give the massy irregular character to mountains. To quote the words of Major Young, "There is not a single spot of one hundred yards of level ground in the whole parganah".

The products of the area are rice, *manduwa*, wheat, barley, turmeric, ginger, pepper (red), tobacco, opium, potatoe, maize and timber. The domestic animals are buffaloes, cows, sheep, goat and oxen. The main occupation of the people is agriculture. Traditional methods are used for ploughing and harvesting the fields. During rainy season landslides and other natural calamities are of common occurrence, resulting in much damage to the crops. Sometimes the area is cut off from the rest of the region.

The cultivable landholdings being small are to be kept intact and protected against fragmentation so that they remain economically viable.

In a polyandrous system as the brothers live jointly with a common wife, there is no way of land fragmentation; at the same time it encourages joint living. As the marriage rules are lenient, women have been enjoying a great deal of freedom in sex. They can get divorce (*choot* in local language) easily and there is no stigma attached to it. Multiple marriages and remarriages are a common factor.

Although the polyandrous region extends over parts of the adjoining districts also, *i.e.*, Uttarkashi and Tehri but due to administrative distinctiveness and also some geographical and communication barriers the area Jaunsar-Bawar is distinct from other regions. The people there were declared as a scheduled tribe in 1967 and the inhabitants were called the Jaunsari tribe.

During course of time the accessibility to the region has increased which has brought it into outside influence with both biological and cultural consequences.

Ethnic groups

1 The high caste groups including the Brahmins and the Rajputs are the Khasas. Practically there is not much differentiation in the status of the Brahmins and the Rajputs.

2 The artisan caste groups include the Lohar, the Bajgi, the Nath, the Mochi and others.

3 The lowest rung of hierarchical order is occupied by the Koltas who are treated as untouchables. The local Law *dastoor-ul-amal* prohibits them from holding land. The Koltas of Jaunsar are socially infected by evils such as trafficking in women and prostitution. The lower caste Koltas are autochthones originating from Proto-austroloid stock. Through the passage of time they have undergone change in their genetic make up owing to miscegenation.

The area over a period of time has undergone changes. Although the Jaunsaris are still not as mobile as the Garhwalis of the adjoining region but the area is not so inaccessible now. The system of marriage, *i.e.*, polyandry has also undergone modifications. The V.D. and other diseases have been reported among the Koltas of Jaunsar. The effect of all these cultural factors on the genetic make up of the population is studied, *i.e.*, population structure, sex ratio, mating patterns and fertility

performance, has been studied. The genetic markers, A,B,O blood genes were also taken into account to observe the genetic variability between the three different ethnic groups, *i.e.*, the Brahmins, the Rajputs and the Koltas of the area. The artisan castes being very less in number were excluded.

Distribution and sex ratio

Sex ratio : The proportion of males and females is quite like the general population, *i.e.*, the males are slightly more than females. The sex ratio of the Jaunsaris is 1076: 1000.

The sex ratio is low in the Rajputs 1004: 1000 as compared to the Brahmins 1052: 1000 and the Koltas 1148: 1000 (Table 1).

The age wise distribution of the Jaunsaris reveals that a total of 33.89% are in 'young' (0—14 years), 57.91% in 'adult' (15—59 years) and 8.93% in 'old' (60+ above) age group categories (Table 1).

On comparing the distribution of the males and females, it is noticed that the males outnumber the females in 'young' (0—14 years) and 'old' (60+ above) age group categories while the females outnumber the males in adult (15—59 years) age group category.

Size of the households

A group of families or a family sharing a single roof and hearth come under one household. Big families are preferred by the Jaunsaris. The three caste groups depict varying sizes of the families. Small (1—3 members), medium (4—6 members), large (7—10 members) and very large (11+ above) members each.

The average size of the households is 6.60 (Table 2). The medium and large households are more in number.

In Jaunsar the Brahmins and the Rajputs have large families. The large households among the Brahmins are 47.06% and the Rajputs, 38.98%. Among the Koltas the sizeable proportion of households come in small to medium category. The very large households are rare in the Koltas only 2.63%. This may be attributed to the fact that the Brahmins and the Rajputs have big land holdings as compared to the Koltas who have little or no land holdings of their own and therefore have small families.

Marital status

In Jaunsar a total of 60.17% males are married as compared to 36.02% unmarried males. There are 64.49% married females as compared to 29.59% unmarried females (Table 3). On comparing the three population groups it is evident that the married males and females are maximum in the Koltas. This may be attributed to the fact that marriage age is lowered in the Kolta females. The divorces and re-marriages are much common in this area because of the practice of *choot*, i.e., separation, and a woman can marry again without any social stigma. The married females are more in number than the married males in all the three populations.

Marriage type (Mating type)

The practice of polyandry is common in this area. A typical family in this area, consists of a group of brothers as husbands with one, two or more common wives and children. In case where there are two wives, the second marriage may be after the lapse of a time. The women folk work in the fields and contribute in agricultural input of labour.

Among the Jaunsaris the incidence of polyandry is only 23.46%. Of these 13.41% cases are typical polyandrous and 9.95% cases are of polygynandrous. The monogamous marriages are maximum (58.87%). The incidence of polyandry has been reduced. Majumdar has reported 49.12% polyandry in Jaunsar in 1963. As the institution of marriage is not very stable, *choot* is easily available to females, and a female having a child can also seek *choot* or divorce and remarry, such types of monogamous unions are also frequent where one wife has either died or had sought *choot* and second marriage was contracted. The percentage of such marriages is also high.

A wife having more than 3 husbands was very rare. The cases of polygyny were also very common among the Rajputs and the Brahmins.

Intrapopulation variation

Among the Brahmins the monogamous marriages are 53.48%. Polygyny is 20.53% and polyandry 25.64%. Among the Rajputs monogamy is 45.20%, polygyny 28.77%, polyandry 24.66%.

Among the Koltas on the other hand, monogamy is 62.62%, polygamy 12.12% and polyandry is 25.25%. The frequency of polyandry is more or less

same in all the three population groups. While the incidence of monogamy is highest in the Koltas, polygamy is more commonly practised by the Rajputs (28.77%) and the Brahmins (20.53%).

Fertility

The fertility record of ever married Jaunsari females of all ages (Table 5) reveals that out of a total of 896 pregnancies 94.87% were live births. Out of the total live births the surviving children comprise of 80.36%. The reproductive wastage comprising of still births and abortions amounts to 5.13%. When the different population groups are compared it is observed that the reproductive wastage is highest among the Koltas. The maximum frequency of surviving children is observed among the Brahmins. The high percentage of reproductive wastage among the Jaunsaris and especially among the Koltas is due to the non-availability of hospital facilities in remote areas, and also due to the prevalence of venereal diseases in the area.

A,B,O blood groups

The A blood group has comparatively high frequency in all the population groups. 'O' gene in general, maintains the highest frequency when different ethnic groups of the region are compared. In all cases of inter group comparisons, the chi-square do not reveal any heterogeneity. The homogeneity regarding blood groups depicts that Brahmins and the Rajputs are of the same ethnic stock.

The Koltas when compared with the Brahmins and the Rajputs taking them as a single group, show non-significant results. This shows that admixture between the ethnic groups has occurred.

Acknowledgement

I acknowledge my sincere thanks to Anthropological Survey of India for providing me facilities to carry out the work.

I am also thankful to Shri Kewal Ram and Shri M. N. Kaul for the help extended in analysing the data.

REFERENCES

- Bannerjee, S. & N. Kumar 1953 Blood group distribution of the people of Jaunsar-Bawar, *Bull. Anth. Surv. of India*, 2(1): 55—60.

- Basu, A. 1969 The Pahira: A Population Genetical study. *Amer. J. Phys. Anthrop.*, 31: 399—416.
- Engels, F. 1977 *The Origin of Family, Private Property and State*. Progress Publishers, Moscow.
- Hiatt, L. R. 1980 Polyandry in Sri Lanka. A test case for Parental Investment Theory; *Man (N.S.)* 4(15): 583—602.
- Majumdar, D. N. 1961 *Races and Cultures of India*. Asia Publishing House, Bombay.
- Majumdar, D. N. 1963 *Himalayan Polyandry*. Asia Publishing House, Bombay.
- Mann, R. S. 1978 Ladakhi Polyandry reinterpreted. *Indian Anthropologist*, 8(1): 7—16.
- Rakshit, H. K. 1975 Understanding caste for Demogenetic Studies. In *Bio-anthropological Research in India*, Ed. H. K. Rakshit. Anthropological Survey of India, Calcutta.
- Saxena, R. N. 1962 *Social Economy of a polyandrous people*, Asia Publishing House, Bombay.
- Singh, A. P. 1979 Tribes of Uttarakhand. Some aspects of Cultural Ecology. *Journal of Himalayan Studies and regional development*.

Table 1: Age and sex wise distribution of the populations of Jaunsar (Dehra Dun)

Age groups in years	P Ó P U L A T I O N S O F J A U N S A R A R E A											
	B R A H M I N S					R A J P U T S						
	M	%	F	%	Total	%	M	%	F	%	Total	%
0-4	20	14.18	19	14.18	39	14.18	31	12.86	35	14.58	66	13.72
5-9	23	16.31	16	11.94	39	14.18	33	13.69	27	11.25	60	12.47
10-14	14	9.93	11	8.21	25	9.09	30	12.45	20	8.33	50	10.40
15-19	57	40.42	46	34.33	103	37.45	94	39.00	82	34.17	176	36.59
20-24	9	6.38	9	6.72	18	6.55	19	7.88	12	5.00	31	6.44
25-29	10	7.09	17	12.69	27	9.82	15	6.22	23	9.58	38	7.90
30-34	11	7.90	13	9.70	24	8.73	17	7.05	20	8.33	37	7.69
35-39	7	4.96	7	5.22	14	5.09	16	6.64	16	6.67	32	6.65
40-44	9	6.38	10	7.46	19	6.91	12	4.98	26	10.83	38	7.90
45-49	5	3.55	7	5.22	12	4.36	10	4.15	20	8.33	30	6.24
50-54	3	2.13	6	4.48	9	3.27	12	4.98	11	4.58	23	4.78
55-59	10	7.09	9	6.72	19	6.71	17	7.05	12	5.00	29	6.03
60 & above	6	4.25	1	0.75	7	2.55	4	1.66	4	1.67	8	1.66
15-59	70	49.65	79	58.96	149	54.18	122	50.62	144	60.00	266	55.30
Total	141	100.00	134	100.00	275	100.00	241	100.00	240	100.00	481	100.00
Sex Ratio					1052 : 1000				1004 : 1000			

(Contd.)

Table 2: Size of households in Jaunsar area

Size of Households	Brahmin		Rajput		Koltas		Total	
	No.	%	No.	%	No.	%	No.	%
Small (1-3)	3	8.22	8	10.17	31	27.19	40	19.32
Medium (4-6)	8	23.53	15	25.42	49	42.98	72	34.74
Large (7-10)	16	47.06	23	38.98	31	27.19	70	33.82
Very Large (11 and above)	7	20.59	15	25.42	3	2.63	25	12.08
Total	34		59		114		207	
Average size of households	8.09		8.15		5.35		6.60	

Table 3: Marital status of the three populations of Jaunsar-Bawar

Male/ Female	Populations	Unmarried		Married		Widow		Divorced	
		No.	%	No.	%	No.	%	No.	%
MALE	Brahmin	55	39.01	82	58.16	3	2.13	1	0.71
	Rajput	94	39.00	142	58.92	5	2.07	—	—
	Kolta	106	32.52	202	61.91	10	3.07	8	2.45
	Total	255	36.02	426	60.17	18	2.54	9	1.27
FEMALE	Brahmin	46	34.67	83	61.48	6	4.44	—	—
	Rajput	74	30.83	153	63.75	13	5.42	—	—
	Kolta	75	26.41	189	66.55	14	4.93	6	2.11
	Total	195	29.59	425	64.49	33	5.01	6	0.91

Table 4: Mating types (Marriage pattern)

Mating Types		Brahmins		Rajputs		Koltas		Total	
		No.	%age	No.	%age	No.	%age	No.	%age
MONOGAMY	Total	21	53.48	33	45.20	62	62.62	136	53.87
POLYGAMY	1M-2F	6	15.38	17	23.29	10	10.10	33	14.28
	1M-3F	2	5.13	4	5.48	2	2.02	8	3.46
	Total	8	20.53	21	28.77	12	12.12	41	17.74
TYPICAL POLYANDRY	2M-1F	6	15.38	6	8.22	16	16.16	28	12.12
	3M-1F	—	—	1	—	2	2.02	3	1.29
	Total	6	15.38	7	8.22	18	18.18	31	13.41
POLYGY- NANDRY	2M-2F	4	10.26	6	8.22	4	4.04	14	6.06
	3M-2F	—	—	6	8.22	3	3.03	9	3.89
	Total	4	10.26	12	16.44	7	7.07	23	9.95
Grand Total		39		73		99		231	

Table 5: Pregnancy record of ever married females of all age groups in Jaunsar

		Brahmins		Rajputs		Koltas		Total	
		No.	%age	No.	%age	No.	%age	No.	%age
Total number of Pregnancies		189		335		372		890	
Live Births	Surviving children	159	84.13	279	83.28	372	75.81	720	80.36
	Dead children	18	9.52	47	14.03	65	17.41	130	14.51
	Total	177	93.65	326	97.31	347	92.28	850	94.87
Reproductive wastage	Still births	1	0.53	—	—	1	0.27	2	0.22
	Abortions	11	5.82	9	2.69	24	6.45	44	4.91
	Total	12	6.65	9	2.69	25	6.72	46	5.13

Table 6: A₁ A₂ B O blood group distribution in Jaunsar-Bawar

Populations	Phenotypes										Gene Frequency					Goodness of Fit			
	Number Tested	O	A ₁	A ₂	B	A ₁ B	A ₂ B	P ₁	P ₂	q	r								
Brahmins	15 ob	3	6	1	4	1													
	%	20.00	40.00	6.67	26.66	6.67	0.00	0.277	0.048	0.138	0.486	0.683							
	Exp.	3.55	5.58	0.74	3.38	1.57	0.27	±0.088	±0.046	±0.075	0.102	(.80 > p > .70)							
Rajputs	ob	18	13	4	15														
	51%	35.29	26.49	7.84	29.41	1.96	0.00	0.146	0.048	0.175	0.630	2.93							
	Exp.	20.26	11.10	3.22	12.85	2.61	0.86	±0.036	±0.023	±0.039	±0.051	(.30 > p > .20)							
Koltas	ob	6	12	2	11	2	1												
	34%	17.64	35.29	5.98	32.35	5.89	2.94	0.239	0.061	0.234	0.459	1.6140							
	Exp.	7.19	10.43	2.05	9.43	3.89	1.00	±.055	±.034	±.035	±.068	(.50 > p > .30)							

Distribution of ABO blood groups in Central and Western Himalayan populations

R. S. NEGI

A. C. SRIVASTAVA

B. R. BHATNAGAR

The Central and the Western Himalayan regions comprising the Northern Hill districts of U.P., Himachal Pradesh and Jammu and Kashmir are inhabited by three major groups of populations affined to three distinct racial strains.

1 The high altitude valleys of the region are inhabited by Mongoloid populations represented by the Ladakhi, Lahauli, Spitian, Marcha, Bhotia, Khampa, etc., all known under the generic term 'Bhotia'.

2 The middle and lower altitude areas are inhabited by Indo-Aryan element represented by the Kashmiri, Kanet, Khasa or Khasia and other high caste populations, notably Brahmin and Rajput.

3 Side by side with the Indo-Aryan element, the middle and lower altitude areas are also inhabited by a group of low caste population represented by the Kolta and various artisan castes, such as, the Lohar, Bajgi, Mistri, Koli, etc., all known under the generic term 'Dom'.

These three groups of populations have maintained their ethnic identity owing to socio-cultural and geographic barriers to a large extent. But to a lesser extent owing to the processes of miscegenation and mixture, there had been an exchange of genes between the major racial strains so as to give rise to some intermediary mixed populations, in some cases, and obliteration of genetic variability in others.

The Mongoloid element, may be of the Tibetan origin, but at present excepting in a few isolated areas in the proximity of Indo-Tibetan border, such as, Ladakh, Lahaul, Spiti, Pooh, etc., the genetic make-up of the Mongoloid populations in other areas is greatly modified by the influx of the Indo-Aryan people. The 'Bhotia' populations of U.P. Hills clearly illustrate the process. These populations even carry the typical surnames of the Garhwali and Kumaoni Rajput sub-castes. In the isolated valleys,

the fact of isolation by itself, aided by the small sizes of the populations created ideal conditions for the working of 'genetic drift' which again may result in radical change in the original migrant gene pool.

The Indo-Aryan element mainly comprises various branches of 'Khasa' who populated the entire region from Kashmir to Kumaon and were the pioneer settlers in the region. They were probably the 'outer Aryans', first among the Indo-Aryan settlers in the sub-continent, but subsequently pushed to the mountainous region by later waves of Indo-Aryans. The high caste populations from the Indo-Gangetic plains and other regions of the sub-continent who later settled in this area, came probably in at least two waves, first, the descendants of the emigrants who migrated in the wake of great religious movements to the mountain shrines established by Sankaracharya and secondly, those who withdrew to the inaccessible region in the wake of Muslim persecution. This especially is true of the Rajput and their Brahmin priests who followed them.

The 'Dom' population of the region, may be the descendants of (i) Autochthones of the sub-continent who were pushed to the outer periphery from the Indo-Gangetic plains by Indo-Aryan settlers and (ii) Camp-followers of the High caste Rajput and Brahmin settlers during historic times. The autochthone Doms were probably derived from the Proto-Australoid element present in the sub-continent though, with the passage of generations the present day Dom populations have undergone substantial change in their genetic make-up owing to miscegenation and operation of other evolutionary agencies.

With the empirical knowledge of the general racial background of the region briefly alluded to above, it was proposed to design a study of the populations of the Himalayan region which will be threefold in purpose :

I To find out the genetic make-up of the isolated Mongoloid populations inhabiting the high altitude valleys, and to assess the changes undergone *vis-a-vis* the Tebetan population of the adjacent areas.

II To find out the extent of Indo-Aryan penetration in the region, and

III To see as to what extent three major racial strains have

contributed to give rise to mixed populations and the formation of clines.

For the above threefold purpose, careful selection of the populations and the areas of study is imperative. In addition to the Indian populations, it is proposed that the various Tibetan groups now settled in India may also be studied to make-up the paucity of the Tibetan data now readily available.

In the first phase of the study two areas, namely, Jaunsar-Bawar of Uttar Pradesh and Kinnaur of Himachal Pradesh, respectively in the Central and Western Himalayas were selected. The present communication deals with the data collected from these areas.

Jaunsar-Bawar: Chakrata, the northern Tehsil of Dehradun district lies at the north western corner of U.P. The Tehsil which is again subdivided into Jaunsar and Bawar, is approximately 1,155 sq. kms. in area and mostly consists of rugged and hilly terrain. The people of Jaunsar-Bawar have distinct cultural and socio-religious traditions. They commonly practise, what is known as fraternal polyandry, though monogamy and polygyny are not altogether non-existent.

Among the Jaunsaris, a less rigid form of caste system is in existence the society is divided into three distinct strata: (1) The high caste group includes the Khasas, both Brahmin and Rajput. It may be mentioned that practically there is no differentiation in the status of the Brahmin and the Rajput. But they form two different castes despite occasional inter-caste marriage between them (Majumdar, 1963). (2) Intermediate artisan caste group which include the Lohar, the Sutar, the Bajgi, and others; (3) The low caste Kolta occupying the lowest rung of the hierarchical ladder.

Kinnaur: Kinnaur is a border district of Himachal Pradesh, covering an area of approximately 6,519 sq. kms. The terrain is extremely rugged and mountainous. The river Sutlej, in its westerly course, flows through the entire district, dividing it into almost two equal halves.

Administratively, Kinnaur district is divided into three sub-divisions, *i.e.*, Pooh, Kalpa and Nacchar. These three administrative sub-divisions conveniently coincide with the three different ecological zones in which the district is divided.

Pooh region consists of the semi-arid high altitude valley; Kalpa is in the middle of the Central Himalayan range, whereas Nacchar, the southernmost sub-division, lies in the maximum rainfall zone of the district. With these ecological variations, the inhabitants of the three sub-divisions also show cultural, socio-religious and ethnic differences.

The high altitude semi-arid zone of Pooh sub-division is solely inhabited by the Mongoloid populations, though they call themselves as the Kanet (Rajput) and the Koli. The Kalpa sub-division is inhabited by mixed sort of populations, whereas the high rainfall zone of Nacchar sub-division is inhabited by populations mostly non-Mongoloid in character. The adaptive mechanism, to which the populations respond in a positive manner, in different ecological niches, through generations, may result in variations in their gene pools.

Materials and Methods

In all 832 individuals, both male and female of all age groups were tested for ABO blood group, from the two selected areas of investigation, *i.e.*, Jaunsar-Bawar and Kinnaur. Table 1 shows the populations, locality and area of origin and the number of individuals included in the study.

Table 1: Population, locality, area, the sample size

Population	Locality	Area	Number tested
Khas Brahmin	Jaunsar-Bawar, Dehra Dun, U.P.	Central Himalayas	92
Khas Rajput	„	„	98
Kolta	„	„	81
Kanet	Pooh, Kinnaur, H.P.	Western Himalayas	108
Kanet	Kalpa, Kinnaur, H.P.	„	118
Kanet	Sangla, Kinnaur, H.P.	„	86
Kanet	Nacchar, Kinnaur, H.P.	„	101
Koli	Pooh, Kinnaur, H.P.	„	48
Koli	Nacchar, Kinnaur, H.P.	„	100

Blood samples collected from finger pricks were tested according to the standard procedure, using 'Microtube techniques'. Antisera employed in the tests were procured from Haffkin Institute, Bombay. Freshly prepared extract of *Dolichos biflorus* seed was used to distinguish between the sub-groups of A in a manner described by Dunsford & Bowley (1955). Gene frequency calculations were made following Mourant (1954). The standard error of individual genes was calculated according to Li (1961).

Results

The results of A_1A_2BO blood groups are presented in Table 2. It is noted that all the populations, separately, exhibit a close agreement between the observed and expected phenotype numbers. Chi-square values, for goodness of fit, for each population is insignificant, indicating satisfactory agreement with the known theory of inheritance (Bernstein, 1930).

From our data it is evident that A gene attains high value in all the Jaunsari populations (23—28%), and also in Kinnaur (24—32%), excepting in Pooh sub-division, where both the Kanet and the Koli show only 11% and 10% incidence respectively. Gene B maintains moderate value in this region, excepting Pooh, where its frequency is as high as 36% among the Kanet. Thus with regard to the distribution of ABO blood group genes in the areas under investigation, a general picture emerges which shows that populations, with Indo-Aryan affiliations, are generally characterised by high A with its preponderance over B; the Mongoloids exhibit high B gene and low A; and the Proto-Australoid element possesses moderate values of both A and B genes (Table 3). O gene is universally high in all the populations, ranging between Ca 41% to Ca 69%. The highest value of 69% is among the Koli of Pooh and the lowest value of 41% among the Kanet of Kalpa, while all other populations harbour the gene around $50 \pm 5\%$ range.

Fig. 1 shows the gradient of gene A for the populations of Jaunsar-Bawar and Kinnaur. It may be noted that the Khas Brahmin and the Khas Rajput of Jaunsar-Bawar, the Kanet (Rajput) of Nacchar, Kalpa and Sangla are at the one end and the Kanet and the Koli of Pooh at the other end of the distribution pattern. The Kolta of Jaunsar-Bawar and the Koli of Nacchar occupy an intermediate position with regard to the distribution of A gene. Thus the populations are clustered into three groups: (1) where the frequency of A gene is less than 15%, (2) where the frequency is more than 20% but less than 25% and (3) where the frequency of A gene is more than 25%.

Table 2: The distribution of A₁ A₂ BO blood groups in the population groups of Jaunsar and Kinnaur

Population	Locality	Area	No. tested	PHENOTYPE							(χ ² Goodness of fit)
				O	A ₁	A ₂	B	A ₁ B	A ₂ B	A ₂ B	
Khas Brahmin	Jaunsar, Dehra Dun, U.P.	Central Himalayas	Obs.	19	26	3	29	12	3		
			Exp. %	18.41	26.02	3.76	29.16	11.83	2.21		0.479 : 80 > P > .70
Khas Rajput	"	"	Obs.	26	34	6	27	4	1		
			Exp. %	29.56	30.76	5.04	23.03	7.99	1.61		3.860 : 20 > P > .10
Kolha	"	"	Obs.	22	20	3	26	10	—		
			Exp. %	21.62	21.74	2.03	26.49	8.74	0.97		0.766 : 50 > P > .30
Kanet	Pooh, Kinnaur, H.P.	Western Himalayas	Obs.	30	14	—	54	10	—		
			Exp. %	30.61	14.18	—	54.62	8.58	—		0.479 : 80 > P > .70
Kanet	Kalpa, Kinnaur, H.P.	"	Obs.	19	44	—	36	17	2		
			Exp. %	19.81	41.70	1.24	34.86	19.61	0.80		0.546 : 90 > P > .80
Kanet	Sangla, Kinnaur H.P.	"	Obs.	18	36	1	22	8	1		
			Exp. %	19.44	33.81	1.42	20.12	10.63	0.58		1.512 : 30 > P > .20
Kanet	Nacchar, Kinnaur, H.P.	"	Obs.	25	34	4	24	12	2		
			Exp. %	24.17	34.77	4.25	25.06	10.99	1.74		0.237 : 70 > P > .50
Koli	Pooh, Kinnaur, H.P.	"	Obs.	20	7	2	18	1	—		
			Exp. %	22.55	6.34	0.69	16.47	1.81	0.21		0.742 : 50 > P > .30
Koli	Nacchar, Kinnaur, H.P.	"	Obs.	29	25	6	29	9	2		
			Exp. %	28.81	25.52	5.95	29.24	8.44	2.28		0.022 : 90 > P > .80

Table 3: The distribution of A_1 A_2 BO blood groups in the population groups of Jaunsar and Kinnaur

Population	Area	GENE FREQUENCY			
		O	A_1	A_2	B
KhasBrahmin	Central Himalayas	0.4473 ± 0.0529	0.2328 ± 0.0316	0.0436 ± 0.0174	0.2763 ± 0.0300
Khas Rajput	"	0.5492 ± 0.0402	0.2225 ± 0.0303	0.0449 ± 0.0143	0.1834 ± 0.0349
Kolta	"	0.5166 ± 0.0436	0.2059 ± 0.0336	0.0235 ± 0.0133	0.2539 ± 0.0368
Kanet (Pooh)	Western Himalayas	0.5324 ± 0.0383	0.1116 ± 0.0226	0.0000	0.3560 ± 0.0366
Kanet (Kalpa)	"	0.4098 ± 0.0368	0.3069 ± 0.0329	0.0124 ± 0.0086	0.2709 ± 0.0312
Kanet (Sangla)	"	0.4755 ± 0.0424	0.3048 ± 0.0332	0.0170 ± 0.0141	0.2027 ± 0.0325
Kanet (Nacchar)	"	0.4892 ± 0.0339	0.2605 ± 0.0346	0.0413 ± 0.0167	0.2090 ± 0.0300
Koli (Pooh)	"	0.6854 ± 0.0391	0.0892 ± 0.0297	0.0104 ± 0.0103	0.2150 ± 0.0446
Koli (Nacchar)	"	0.5368 ± 0.0374	0.1874 ± 0.0300	0.0507 ± 0.0173	0.2251 ± 0.0374

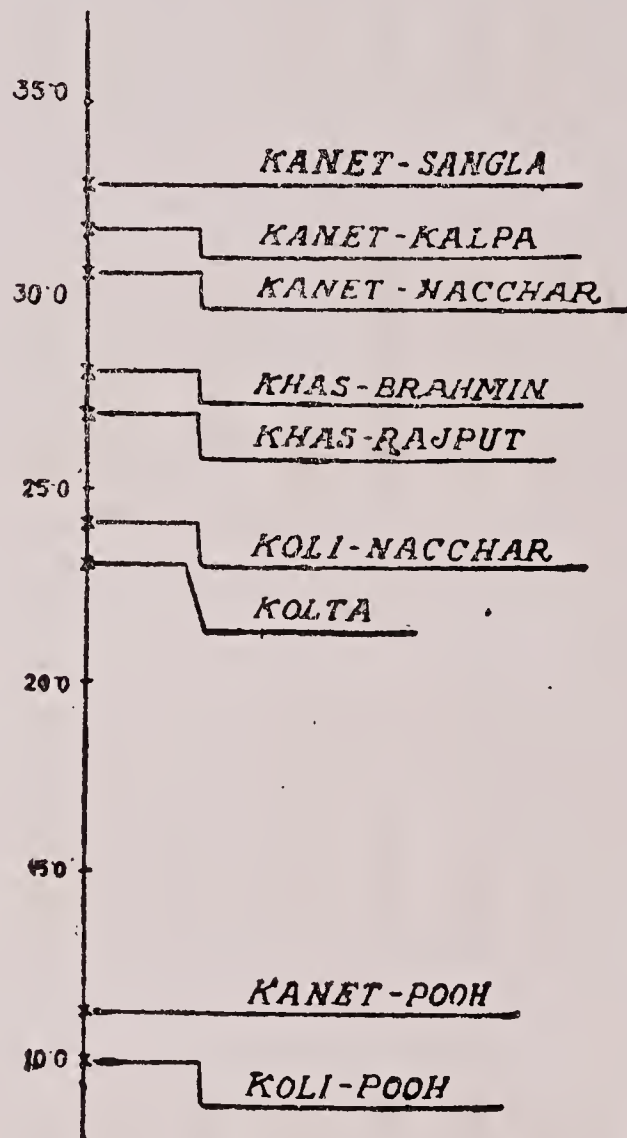
GRADIENT OF GENE 'A'

FIG. 1.

The distribution of sub-groups of A in the area is revealing. The populations can be grouped into three clusters; (1) where the incidence of A_2 is 4-5% (the Khas Brahmin, the Rajput of Jaunsar-Bawar and the Kanet and the Koli of Nacchar); (2) where the incidence is between 1-2% (the Kanet of Kalpa, Sangla, the Koli of Pooh and the Kolta of Jaunsar) and (3) where A_2 is totally absent, that is, among the Kanet of Pooh. A_2 gene discriminates between the populations with non-Mongoloid and Mongoloid affinities, as among the Mongoloid A_2 gene is of rare occurrence.

The distribution of B gene also forms more or less three clusters of populations: (1) where the frequency of the gene is the highest, that is, Ca 36% among the Kanet of Pooh; (2) where the frequency is between 25% and 30% (the Kolta 25.4%, Kanet of Kalpa 27.1% and the Khas Brahmin 27.6%) and (3) where the frequency of the gene is less than 25% (the Koli of Nacchar 22.5%, the Koli of Pooh 21.5%, the Kanet of Nacchar

20.9%, the Kanet of Sangla 20.3% and the Khas Rajput 18.3%). The clustering, of course, only indicates the tendency of populations to vary from one another, though statistically there may be no significant difference among all the populations other than the Kanet of Pooh, where the value of B gene is very high.

Fig. 2 shows that except the Kanet and the Koli of Pooh, all other populations cluster together, with respect to A and B gene frequencies. The Kanet of Pooh is significantly different from all others because of very low frequency of A (Ca 11%) and very high frequency of B gene (Ca 36%). The Koli of Pooh is also distinct from other populations, because of the lowest frequency of A gene (Ca 10%). These two populations, however, are homogeneous to each other ($X^2=6.315$; d.f.=3; $p>.10$).

Chart Showing Population Configuration with respect to 'A' and 'B' Genes

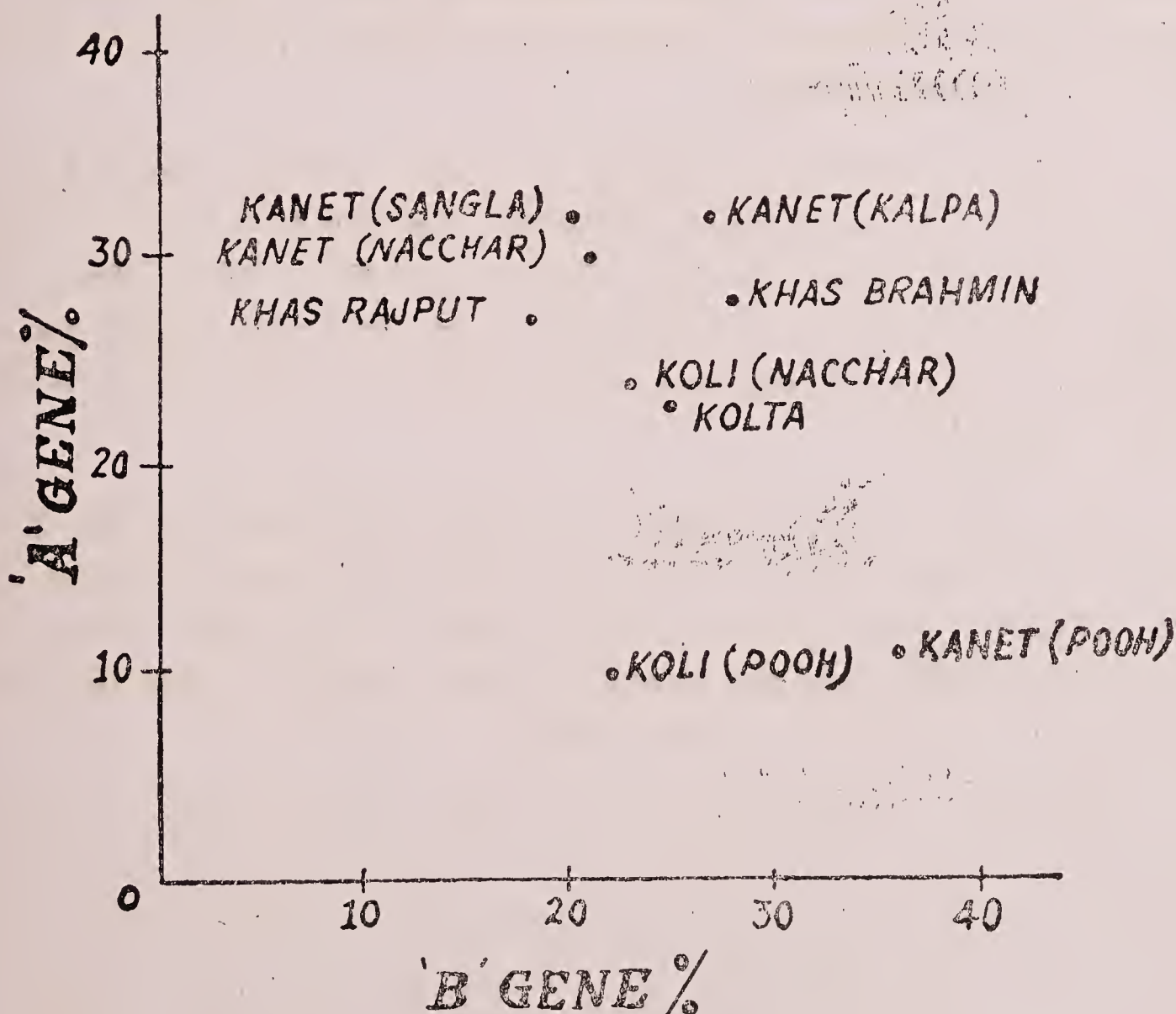


FIG. 2

Discussion

The populations were subjected to homogeneity tests taking all the four phenotypes in consideration, to see the inter-population variation, arising from the various ethnic affiliations. From the Chi-square values, thus obtained (Table 4), it is observed that all the three Jaunsar-Bawar populations fail to exhibit any significant difference amongst them, in spite of different ethnic affiliation of the Khas Brahmin and the Rajput on the one hand, and the Kolta on the other. The gene frequencies though indicating a difference seems to have been narrowing down and the populations are approaching one another in the make-up of their gene pools owing to the free passage of genes between them. Comparatively, much less rigid caste system and not so restricted social mobility in Jaunsar-Bawar have facilitated this process. Socially recognised institution of prostitution among the Kolta women to pay off the debts incurred by their male folk, who are more often than not under debt, has also helped to change the genetic make-up of the Kolta. Thus the creditor, invariably of high caste, having adopted the role of gene donor, it is natural that the differences between the populations will tend to narrow down over the generations.

In Kinnaur, the Kanet (Rajput) of Nacchar, Sangla and Kalpa are homogeneous with one another. However, the Kanet of Pooh are significantly different from all other Kanet populations. The difference is mainly due to very low incidence of A gene and very high B gene in the Kanet of Pooh, as compared to the incidence of these genes in other Kanet populations.

The Kanet of Pooh valley, even though descendants of the Kanet settlers from lower areas as claimed by them, had marital alliances with the people of the Hangrang valley, north of the Pooh valley. The populations of the Pooh and Hangrang valleys formed a single Mendelian population, and a closed genetic system.

The Koli of Nacchar and Pooh valley do not exhibit significant difference, though there is considerable variation between the two in the incidence of A gene. It is believed that the Koli and other artisan castes, such as the Lohar, the Badhi and the Nangalu, etc., were brought into Kinnaur to serve the Kanet (Rajput) land-owner. In Pooh valley also, the Koli perform the same functions for the Kanet as they do in the lower areas. The reason that the Koli of Pooh did not change in their

Table 4: Chi-square values for inter-group differences between the populations of Jaunsar and Kinnaur

	Khas Brahmin	Khas Rajput	Kolta	Kanet (Pooh)	Kanet (Kalpa)	Kanet (Sangla)	Kanet (Nacchar)	Koli (Pooh)	Koli (Nacchar)
Khas Brahmin	—	7.740	1.377	26.209*	1.103	2.949	2.119	12.827*	2.435
Khas Rajput	7.740	—	5.035	23.038*	8.955*	1.334	4.669	8.759*	1.689
Kolta	1.377	5.035	—	9.563*	4.478	3.905	4.030	7.053	0.367
Kanet (Pooh)	26.209*	23.038*	9.563*	—	23.437*	18.161*	31.393*	6.315	13.731*
Kanet (Kalpa)	1.103	8.955*	4.478	23.437*	—	2.622	4.749	19.236	5.776
Kanet (Sangla)	2.949	1.334	3.905	18.161*	2.622	—	1.134	11.625*	3.229
Kanet (Nacchar)	2.119	4.669	4.030	31.393*	4.749	1.134	—	15.754*	1.833
Koli (Pooh)	12.827*	8.759*	7.053	6.315	19.236*	11.625*	15.754*	—	7.280
Koli (Nacchar)	2.435	1.689	0.367	13.731*	5.776	3.229	1.833	7.280	—

* Indicates significant difference at 5% level, 3 d.f.

genetic make-up to the same magnitude as did the Kanet is that owing to their lower social status they were allowed to remain a genetically closed system, with possibly very little exchange of genes with the Kanet, in the form of isolated cases of miscegenation only.

The homogeneity between the Kanet and the Koli of Pooh valley ($X^2=7,280$; d.f.=3; $p>.10$) is mainly due to the low incidence of gene A in both of them, otherwise the Koli has a very high O and much lower incidence of B gene as compared to Kanet. The similarity between the two populations in respect of A gene may be purely accidental. There is, however, an important difference between the Koli and the Kanet of Pooh which is noteworthy. The Koli have the incidence of A_2 to the extent of 1% in a total frequency of 10% A gene, whereas it is totally absent among the Kanet of Pooh.

Examining the inter-population variations, discussed above in relation to the territorial distribution of populations, we see that the Khas Brahmin and the Rajput of Jaunsar-Bawar are homogeneous to the Kanet (Rajput) of Nacchar sub-division of Kinnaur. The Kanet of Kalpa sub-division (Kalpa and Sangla) are also homogeneous to the Jaunsar-Bawar and Nacchar populations except that there is a marginal variation between the Kanet of Kalpa and the Khas Rajput. This minor exception, however does not much disturb the general pattern of genetic similarity between the populations having common racial affiliations. Again there is genetic similarity between the Kolta of Jaunsar-Bawar and the Koli of Kinnaur, even though the populations are specially separated from one another. It is only the Kanet of Pooh, who stand out by themselves are significantly different from the rest of the populations except the Koli of Pooh. As already mentioned, the frequency distribution of A and B genes and total lack of A_2 gene among the Kanet of Pooh closely resembles the Mongoloid distributional pattern. The similarity between the Kanet and the Koli of Pooh is due to low frequency of A gene among the Koli and also possible gene flow from the Kanet with whom they share the habitat.

From the foregoing discussion the following two points emerge.

- (1) Allopatric populations with the same racial affiliation show very close genetic similarity among themselves.
- (2) Sympatric populations with diverse racial affinity also show genetic similarity with one another. But this similarity is as

a result of the trend in the populations, to narrow down genetic diversity originating from diverse racial affiliation, owing to the operation of various evolutionary agencies, specially admixture. This would be very much expected because the various populations are open to gene flow from the neighbouring populations sharing common habitat.

Comparison with other populations of the region

It would be worthwhile to examine the populations under the present study, in comparison with other populations, from the region studied by various other authors. Available data from other sources are thus compiled in Table 5 for this purpose.

Grouping these populations into three, according to the spatial distribution which more or less coincides with the hypothetical racial affiliations, let us examine whether the incidence of A and B gene supports our contention or not.

The first group of Mongoloid populations, inhabiting the high altitude valleys, exhibit lower frequencies of A gene than that of B gene, which sometimes attains a very high magnitude, as in the case of the Bhotia and the Kanet (Pooh). The frequency of A gene in these two populations is quite low. But the Lahauli Bodh and the Ladakhi possess a much high incidence of A gene, and in case of the Ladakhi the frequencies of both the genes approach each other. The four populations, in this group, are significantly heterogeneous which is explained by the highly significant difference between the Ladakhi and the Lahauli Bodh ($X^2=15.653$: d.f.=3; $p>.01$) on the one hand and both of them individually being significantly different from the Kanet (Pooh) on the other. The Kanet and the Bhotia show homogeneity with each other (Table 6). The results thus apparently seem to be at variance with the hypothesis, but, in actual fact, this may not be so. The Kanet (Pooh), the Bhotia and the Lahauli Bodh all are mixed populations with varying degree of inflow into their gene pools from other populations, such as the Indo-Aryan. Also present may be some component of the basic substratum population of the region. In the case of the Lahauli it is said that "Linguistic records indicate that in remote times (200 B.C.), the country (Lahaul) was inhabited by an aboriginal tribe, in language and perhaps also in stock analogous to the Munda speaking tribe of Bengal and Central India" (Anand, 1968). If that be the case then the Lahauli

Table 5: The distribution of ABO blood groups in certain populations of Central and Western Himalayas

Population	Area	No. tested	Phenotypes %				Gene Frequency %			Investigator
			O	A	B	AB	O(r)	A(p)	B(q)	
1 Kumaoni-Brahmin	Kumaon, U.P.	108	25.93	27.78	31.48	14.81	49.52	24.01	26.47	Tiwari 1952 (cf. Mourant 1958)
2 Kumaoni-Rajput	"	124	29.03	24.19	33.87	12.90	52.66	20.52	26.82	"
3 Kumaoni-Dom	"	74	24.32	27.03	40.54	8.11	51.50	19.75	28.75	"
4 Bhotia	Almora, U.P.	144	18.06	15.28	50.69	15.97	41.21	16.92	41.87	Tiwari 1952 (cf. Mourant 1958)
5 Garhwali-Brahmin	Pauri & Chamoli, U.P.	125	29.60	32.80	25.60	12.00	55.27	24.73	20.00	Tiwari & Bhasin 1968
6 Garhwali-Rajput	"	175	20.57	36.57	28.00	14.86	45.41	30.24	24.35	"
7 Khasa	Jaunsar-Bawar, U.P.	246	30.49	30.08	28.05	11.38	54.54	23.39	22.07	Majumdar 1947
8 Rajput Jaunsari	"	110	25.45	37.27	25.45	11.82	50.51	28.67	20.81	Banerjee & Kumar 1953
9 Kolta-Jaunsari	"	136	21.32	30.15	39.71	8.82	48.93	22.28	28.79	"
10 Khas-Brahmin	"	92	20.65	31.52	31.52	16.30	44.73	27.64	27.63	Present Study
11 Khas-Rajput	"	98	26.53	40.81	27.55	5.10	54.92	26.74	18.34	"
12 Kolta	"	81	27.16	28.39	32.10	12.35	51.66	22.95	25.39	"
13 Kanet (Pooh)	Kinnaur, H.P.	108	27.78	12.96	50.00	9.26	53.24	11.16	35.60	"
14 Kanet (Kalpa)	"	118	16.10	37.29	30.51	16.10	40.98	31.93	27.09	"
15 Kanet (Sangla)	"	86	20.93	43.02	25.58	10.46	47.55	32.18	20.27	"
16 Kanet (Nacchar)	"	101	24.75	37.62	23.76	13.86	48.92	30.18	20.90	"
17 Koli (Pooh)	"	48	41.67	18.75	37.50	2.08	68.54	9.96	21.50	"
18 Koli (Nacchar)	"	100	29.00	31.00	29.00	11.00	53.68	23.81	22.51	"
19 Lahauli-Bodhs	Lahaul & Spiti, H.P.	306	16.69	31.37	39.89	11.77	43.93	25.03	31.00	Chopra & Sidhu 1970
20 Manali-Rajput	Manali, H.P.	185	17.87	28.65	33.51	20.00	40.33	31.45	28.01	Serah 1965
21 Kashmiri-Pandit	Jammu & Kashmir	320	35.63	17.50	38.75	8.12	60.03	13.27	26.70	Bhattacharjee 1966
22 Ladakhi	Ladakh, J & K	141	33.33	27.66	31.92	7.09	57.09	20.13	22.78	Bhattacharjee 1968

must have in their gene pool that aboriginal component. And the same will be true for many other populations of the region, specially the mongoloid and the 'Dom' group of populations.

The second group of populations is that of the Khasa, the Kanet and other high caste Rajput and Brahmin, popularly known as the Indo-Aryans, inhabiting the middle and lower altitudes. This group is characterised by generally higher A and lower B incidences. There are a few exceptions to this pattern, that is, the Kumaoni Brahmin and the Rajput as well as the Kashmiri Pandit, showing higher B than A incidence. Though the difference in case of the Kumaoni populations is negligible, in case of the Kashmiri Pandit it is considerable. Actually, it is very low frequency of A gene in the Kashmiri Pandit (13.27%) which is causing the difference, otherwise the frequency of B gene (26.70%) is not at much variance from other populations of the group. The very high value of gene O in the Kashmiri Pandit (60.03%) indicates high degree of homozygosity in the population in Srinagar valley where the study was made.

The third group known under the generic term the 'Dom' show the frequencies of A and B genes approaching each other with incidence of B gene slightly higher than that of A. The exception in this pattern are the Koli of Pooh, and the possible reasons for the same have already been explained above. The populations are thus placed in an intermediate position to those in the first two groups.

If the 'Dom' group of populations are the descendants of the autochthones of the region, and also in view of social disability of this group which has lead to miscegenation in a considerable scale between these populations on the one hand and the Indo-Aryans and Mongoloid on the other, the above observations are not at all unexpected.

The configuration of the population on the basis of frequencies of the A and B genes is shown in Fig. 3. In the figure, only 4 populations, *i.e.*, the Bhotia (4), the Kanet of Pooh (13), the Koli of Pooh (17) and the Kashmiri Pandit (21) clearly stand out from other populations. In case of all these populations there is a marked difference between the incidence of A and B genes. All other populations are configured closely, but on the basis of a gene frequency still closer configuration among the population is discernible, which falls in line with the pattern

Table 6 : Chi-square values for inter-group differences among the populations of Central and Western Himalayas

Population Compared	Khas Brahmin	Khas Rajput	Kolta	Kanet (Pooh)	Kanet (Kalpa)	Kanet (Sangla)	Kanet (Nacchar)	Koli (Pooh)	Koli (Nacchar)
Kumaoni-Brahmin	0.895	7.600	0.246	11.817*	4.251	5.003	2.738	9.061*	0.996
Kumaoni-Rajput	2.630	9.145*	0.454	7.184	8.480*	8.334*	5.665	6.385	1.524
Kumaoni-Dev	3.657	5.113	1.573	5.772	6.590	6.034	6.594	5.554	2.610
Bhotia	11.831*	30.290*	11.013*	4.984	19.043*	11.396*	24.428*	15.523*	17.525*
Garhwali-Brahmin	8.041	4.134	1.710	19.476*	6.396	3.017	1.076	9.285*	0.353
Garhwali-Rajput	0.777	6.550	2.707	25.511*	0.983	1.577	0.997	16.520*	3.207
Khasa	3.935	5.693	0.680	19.750*	9.207*	5.428	2.611	8.101*	0.104
Rajput-Jaunsari	2.358	2.993	1.888	21.955*	3.670	0.897	0.246	11.743*	1.129
Kolta-Jaunsari	3.804	6.059	2.206	10.373*	6.126	5.697	7.087	9.652*	3.554
Lahauli-Bodhs	2.966	11.768*	4.677	17.255*	4.179	7.094	9.079*	18.442*	7.682*
Manali-Rajput	1.125	15.528*	4.268	20.055*	2.594	8.293*	7.275	18.591*	7.613
Kashmiri Pandit	17.595*	23.132*	7.305	5.074	31.557*	27.481*	27.193*	2.545	10.340*
Ladakhi	7.853*	4.640	2.228	12.211*	14.031*	8.092*	7.372	3.692	1.763

* Indicates significant difference at 5% level, 3 d.f.

Central and Western Himalayan Populations
with respect to 'A' and 'B' Genes
(Numbers correspond to the population listed in Table 5)

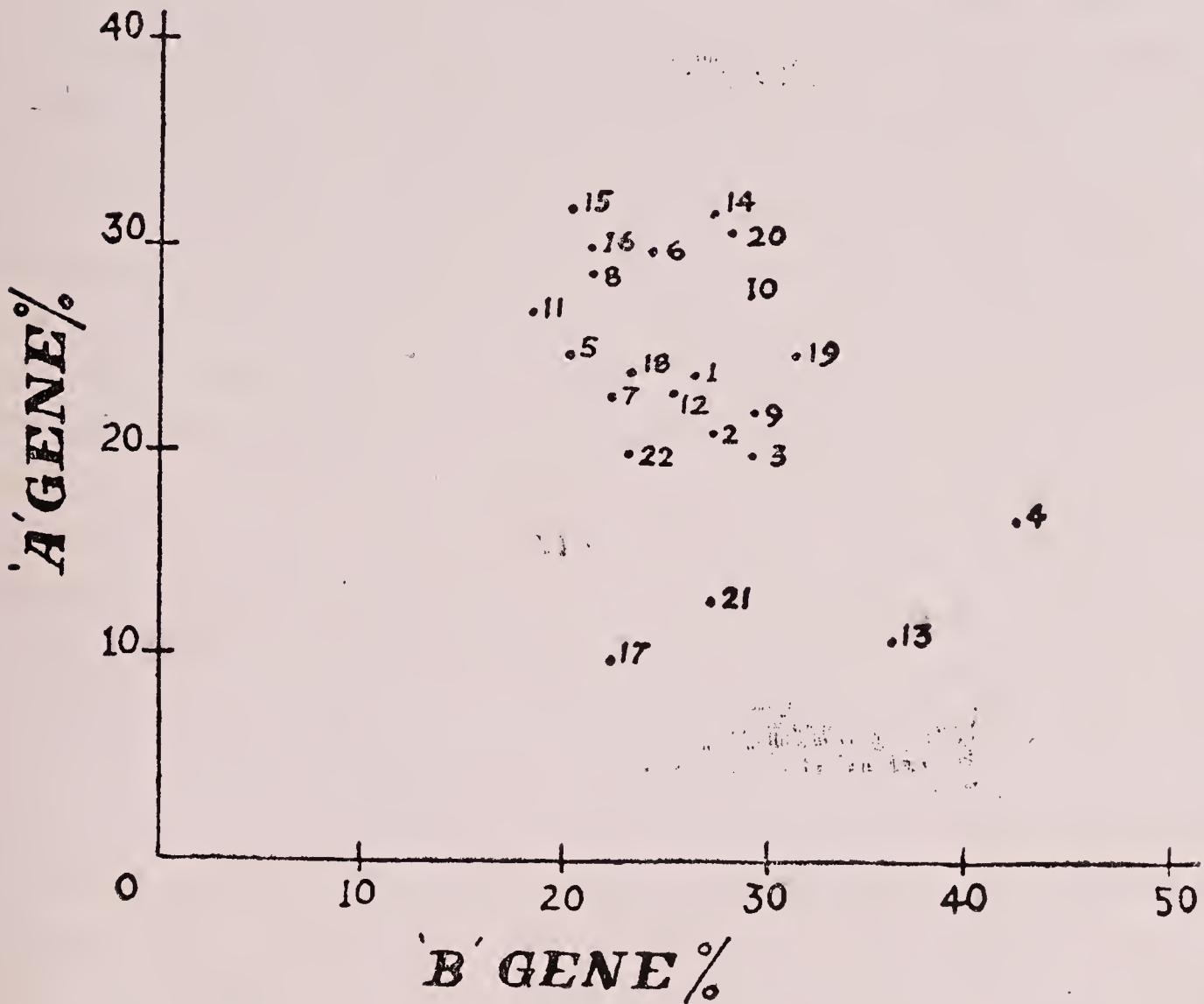


FIG. 3

based on the affiliations of populations. The exceptions in the pattern are the extremely mixed populations, such as the Lahauli-Bodh.

The Kashmiri Pandit and the Koli of Pooh both show low incidence of A and very high incidence of O gene. In both the populations it is seen that in the phenotypes A and B the expected frequencies of the heterozygous genotypes AO and BO are higher than the observed frequencies, indicating reduction in heterozygosity. This may result in the continual, though small, increase in the homozygous genotypes in the populations. Combined with other factors, such as, strictly endogamous nature, with clan and *gotra* exogamy, which further reduces the effective mating size of already small populations, conditions are created for efficient operation or genetic drift, resulting in further changes in gene frequencies. The variation shown by the Kashmiri Pandit and the Koli of Pooh from other populations of their respective groups can thus be possibly explained.

Incidence of A₂ genes in Himalayan populations

A₂ gene has a discriminative value in the sense that the gene is either totally absent or has a very low incidence in the Mongoloid populations. In the caucasoid and other populations of the Himalayan region we can fruitfully utilise the gene to distinguish between populations of the Mongoloid and other racial affiliations. Out of the 22 populations that have been compiled for the purpose of comparative study, in 13 populations only A₂ gene has been investigated and the frequency values are given in Table 7, along with A₂/A₁ ratios. It is seen that populations belonging to 2nd and 3rd group exhibit similar frequencies of A₂ gene within the range of 1—5%, whereas the first group, *i.e.*, the Mongoloid populations show either sporadic occurrence of very little of A₂ or totally lack the gene. The ratio of sub-groups A₂ to A₁ in all the populations of groups two and three, except the Kanet of Kalpa, fall within the Caucasoid range of 0.1 to 0.3 (Boyd, 1950 cited in Bhattacharjee, 1966).

Concluding remarks

On the basis of the present information on ABO blood groups in India which is quite scanty considering the large number of endogamous populations, a wide range of variations are noted in distribution of ABO genes. However, generally predominance of B gene, over a fairly high A, is maintained by almost all populations in the Indian subcontinent and the area of Central Asia immediately to the North. "Nearly all Indian and Pakistani communities have a very high B and rather high A frequencies. Those of the caste Hindus and of the Pakistani as well as of many non-castes populations cluster around the gene percentages: A, 18; B 25" (Mourant, 1954).

In Northern India also both caste and non-caste populations exhibit higher incidence of B gene than A even though A gene maintains fairly high frequencies, specially in high caste populations. But the populations inhabiting the vast ranges of the Himalayan region throughout its entire length from Jammu and Kashmir in the North-West to Arunachal Pradesh in the North-East and Tibet across the main range present an interesting blood group picture. The population inhabiting the plains region of Uttar Pradesh and Punjab, just south of the lower Himalayas generally exhibit higher incidence of gene B over fairly high A. But as we proceed interiorly into the lower and the middle ranges of the

Table 7: Incidence of A_2 gene in certain populations of Central and Western Himalayas

Population	Area	No. tested	G E N E		A_2/A_1	Investigator
			$A_1 (p_1)$	$A_2 (p_2)$		
Garhwali-Brahmin	Central Himalayas	125	0.2327	0.0146	0.06*	Tiwari & Bhasin 1958
Carhwali-Rajput	"	175	0.2603	0.0421	0.16*	"
Khas Brahmin	"	92	0.2382 ± 0.0316	0.0436 ± 0.0174	0.19	Present study
Khas Rajput	"	98	0.2225 ± 0.0303	0.0449 ± 0.0143	0.20	"
Kolta	"	81	0.2059 ± 0.0336	0.0236 ± 0.0133	0.11	"
Kanet (Pooh)	Western Himalayas	108	0.1116 ± 0.0220	0.0000	0.00	"
Kanet (Kalpa)	"	118	0.3069 ± 0.0329	0.0124 ± 0.0086	0.04	"
Kanet (Sangla)	"	86	0.3048 ± 0.0382	0.0170 ± 0.0141	0.06	"
Kanet (Nacchar)	"	101	0.2605 ± 0.0346	0.0413 ± 0.0167	0.16	"
Koli (Pooh)	"	48	0.0892 ± 0.0297	0.0104 ± 0.0108	0.12	"
Koli (Nacchar)	"	100	0.1874 ± 0.0300	0.0507 ± 0.0172	0.27	"
Kashmiri Pandit	"	320	0.1249 ± 0.0135	0.0078 ± 0.0056	0.06*	Bhattacharjee 1966
Ladakhi	"	141	0.1953 ± 0.0249	0.0060 ± 0.0016	0.03	Bhattacharjee 1968

Himalayan region, we find that barring a few exceptions A gene maintains very high incidence (more than 25%), and is always higher than the incidence of B gene which has fairly high to very high frequencies in the Khasa, the Kanet and other high caste populations. In the lower caste populations which live side by side, with these populations, B gene maintains very high to fairly high frequencies, and has slightly higher incidence than that of gene A, even though the incidence of A is also quite high (20—25%) as compared to the plains populations. The picture, however, changes still more interiorly, in the high altitude valleys. It is seen that the populations with the Mongoloid affiliation, who generally inhabit these valleys, possess very high to fairly high frequencies of B gene as against fairly high to moderate frequencies of A gene.

Thus, it may be pointed out that A gene maintains very high to fairly high frequencies in many populations of the Central and Western Himalayas including the Garhwali, the Jaunsaris, the Kinnaura and the Rajput and the Brahmins of Kulu. B gene, which is pre-eminently distributed in the Asian region, also maintains very high to fairly high frequencies in the region but in the above-mentioned populations it has lower frequencies than that of A gene. However, the position is reversed in the Mongoloid and the 'Dom' group of populations where the distribution pattern falls in line with the pattern universally observed in most of the populations of the Indian subcontinent.

LITERATURE CITED

- | | | |
|-------------------------|------|---|
| Anand, R. L. | 1968 | <i>Census of India, 1961: District Census Hand Book No. 8, Lahaul and Spiti District.</i> |
| Banerjee, S. & N. Kumar | 1953 | Blood Group Distribution of the People of Jaunsar-Bawar. <i>Bull., Anth. Sur. of India</i> ; 2(1): 55—60. |
| Bhattacharjee, P. N. | 1966 | Distribution of the Blood Groups (A ₁ , A ₂ , BO, MNSs, Rh) and the Secretor Factor among the Muslims and the Pandits of Kashmir. <i>Z. Morph. Anthropol.</i> ; 58(1): 86—94. |

- Bhattacharjee, P. N. 1968 The Blood Groups (A_1 A_2 BO, MNS and Rh) of the Ladakhis. *Acta Genet* : Basel, 18: 78—83.
- Chopra, S. R. K. & L. S. Sidhu 1970 Distribution of ABO Blood Groups in Lahaulis. *East. Anthrop.* ; 23(1): 11—16.
- Dunsford, I. & C. C. Bowley 1955 *Techniques in Blood Grouping*. Oliver and Boyd, London.
- Li, C. C. 1961 *Human Genetics*. McGraw Hill. New York.
- Majumdar, D. N. 1958, 1961 *Races and Cultures of India*. Asia Publishing House, Bombay.
- 1963 *Himalayan Polyandry*. Asia Publishing House, Bombay.
- Majumdar, D. N. & K. Krishan 1947 Blood Groups Distribution in the United Provinces, Report on the Serological Survey of U.P.; *East. Anthrop.* ; 1(1): 1—15.
- Mourant, A. E. 1954 *The Distribution of Human Blood Groups*. Blackwell, Oxford.
- Mourant, A. E., A. C. Kopec & K. Domaniewska Sobezak. 1958 *ABO Blood Groups (Table and Maps)*. Blackwell, Oxford.
- Serah, T. S. 1965 A Study of ABO Blood Groups and Secretor Factor Distributions among the Rajputs of Mauuli (cited Chopra, 1970).
- Tiwari, S. C. 1952 The Distribution of Blood Groups among the Bhotias of Almora District, U.P.; *Man in India*, 32: 148.
- Tiwari, S. C. & M. K. Bhasin 1968 The Blood Groups of Brahmans and Rajputs of Garhwal. *Hum. Biol.* ; 40(3): 386—395.

A Serological study among the Jaunsaris

A. C. SRIVASTAVA

The Jaunsaris, inhabiting Jaunsar-Bawar area of the Garhwal Himalayas, constitute 28.6 percent of total tribal population of U.P. (Census 1971). Jaunsar-Bawar covers an area of approximately 1150 sq. kms. and is formed of two constituent parts—Jaunsar and Bawar. Roughly speaking, Jaunsar consists of lower half of this region whereas Bawar includes northern parts. There is also a region lying between the two parts of Jaunsar-Bawar, which is locally known as 'Kandmanrh' meaning rugged hillock.

The Jaunsaris have their own distinct social and religious customs. They commonly practise fraternal polyandry, though monogamy and polygyny are not altogether absent. The Jaunsari castes fall into three groups:

- (1) The high caste group includes the Khasas, who are either the Brahmin or the Rajput. They are traditional landowners and cultivators.
- (2) The intermediate caste group includes artisans such as the Badahi (carpenter), the Sunar (goldsmith), the Bajgi (drummer) and the Jagra and the Nath (religious servicemen and magicians), etc.
- (3) The lowest caste consists of the Kolta, the traditional agricultural labourers or serfs. They are also leather workers and at some places associated with the Chamar.

These upper and lower caste groups, which are culturally distinct from each other, have been studied for some serological traits.

A₁ A₂ BO blood groups distribution among the Jaunsaris is presented in Table 1. It is found that the frequencies of both A and B genes are equally high among the Brahmin and the Kolta whereas the frequency of A-gene is higher than B-gene among the Rajput. The frequency of A₂-gene varies from 2% in case of the Kolta to 4% in case of the Brahmin

or the Rajput. However, A_2/A_1 ratio in the Jaunsari populations is within the Caucasoid range of 0.1 to 0.3 (Boyd, 1950: 249).

An overall comparison of A_1 A_2 BO phenotype distributions in the Jaunsari populations does not suggest any significant variation in them. In fact, there are frequent inter-marriages between the Brahmin and the Rajput in this area. So is the case with the Kolta.

The similarity of the Koltas with the other populations of the area can be explained by the fact that there is a good amount of admixture in them. This statement is supported by the findings on blood groups on the same population over a gap of 25 years, roughly one generation time, where a significant increase of particular allele A is recorded and which approaches to the value observed in upper castes (1974) Khasa $A=.234$, $B=.221$ and $O=.545$, and Artisans including Kolta $A=.190$.

$B=.301$ $O=.509$; 1971 Khasa $A=.273$

$B=.227$ and $O=.449$ and Kolta $A=.229$

$B=.254$, and $O=.517$. It may, however, be pointed out that selection might be operating for allele A, but such an increase in one generation time is not the function of selection alone. The Kolta, the autochthones of the region, exhibit quite high A as compared to the Kol group of populations of Northern and Central India.

In MN blood groups (Table 2), the Jaunsari populations exhibit preponderance of the allele—m and it ranges from 63% in case of the Rajput or the Kolta, to 67% in case of the Brahmin. It may be pointed out that there is a good deal of similarity among the Jaunsari populations in respect of this trait.

The phenotypic distribution of the Rh blood group system (tested with 5 anti-sera) in the Brahmin and the Kolta is given in Table 3. [The positive and negative distribution of the Rh. system (tested with anti—D only) among these three populations is set out in Table 4]. It may be observed that the Brahmin and the Kolta exhibit almost similar incidence of R_1 R_0 , R_2 , R'' and r chromosomes. High value of R_1 (54—57%) and R (22%) are suggestive of a mediterranean picture. Among the Kolta such a picture is probably contrary to their ethnic affiliation to the Kol group.

Table 1: A₁ A₂ BO blood groups among the Jaunsaris

Population	No.	P h e n o t y p e s						(Goodness of fit)		
		O	A ₁	A ₂	B	A ₁ B	A ₂ B			
Brahmin Khasa	92 obs.	19	26	3	29	12	3	0.479	.80	P .70
	exp.	18.41	26.02	3.76	29.16	11.83	2.21			
	p.c.	20.65	28.26	3.26	31.52	13.04	3.26			
Rajput Khasa	98 obs.	26	34	6	27	4	1	3.860	.20	P .10
	exp.	29.53	30.76	5.04	23.03	7.99	1.61			
	p.c.	26.53	34.69	6.12	27.55	44.08	1.02			
Kolta	81 obs.	22	20	3	26	10	—	0.766	.50	P .30
	exp.	21.62	21.74	2.03	26.49	6.78	0.97			
	p.c.	27.16	24.69	3.70	32.10	12.35	—			

A ₁ (P 1)		A ₂ (P ₂)		G E N E S		B (q)		O (r)	
.2328 ± .0316	.0436 ± .0174	.2763 ± .0300	.4473 ± .0429						
.2225 ± .0303	.0449 ± .0143	.1834 ± .0349	.5498 ± .0402						
.2059 ± .0336	.0236 ± .0133	.2539 ± .0368	.5166 ± .0436						

Inter-group Homogeneity :

Brahmin Vs Rajput	X ² = 7.740, d. f. = 3,	.10	p	.05
Brahmin Vs Kolta	X ² = 1.377, d. f. = 3,	.80	p	.70
Rajput Vs Kolta	X ² = 5.035, d. f. = 3,	.20	p	.10

Table 2: MN blood groups among the Jaunsaris

Population	No.	Phenotypes			X ² (Goodness of fit)
		M	MN	N	
Brahmin Khasa	92 obs.	38	47	7	2.143, .20 p .10
	exp.	41.11	40.77	10.11	
	p.c.	41.30	51.09	7.61	
Rajput Khasa	97 obs.	38	47	12	0.121, .80 p .70
	exp.	39.00	45.01	12.99	
	p.c.	39.18	48.45	12.37	
Kolta	81 obs.	30	42	9	1.106, .30 p .20
	exp.	32.12	37.78	11.11	
	p.c.	37.04	51.85	11.11	

G E N E S

.6685	.3315
.6341	.3659
.6297	.3703

Inter-group Homogeneity :

Brahmin	Vs	Rajput	X ² = 1.1847, d. f. = 2, .70	p .50
Brahmin	Vs	Kolta	X ² = 0.2146, d. f. = 2, .90	p .80
Rajput	Vs	Kolta	X ² = 0.7772, d. f. = 2, .70	p .50

Table 4: Distribution of Rho blood group among the Jaunsaris

Population	No.	Phenotypes		Genes	
		Rh +	Rh —	D	d
Brahmin Khasa	92 Obs., No	77	15	.5963	.4037
	p. c.	83.70	16.30		
Rajput Khasa	98 Obs., No	87	11	.6651	.3349
	p. c.	88.78	11.22		
Kolta	81 Obs., No	70	11	.6315	.3685
	p. c.	86.42	13.58		

Inter-group Homogeneity :

Brahmin Vs. Rajput	$X^2 =$	1.0362, d. f.	$=$	1,50 p	.30
Brahmin Vs. Kolta	$X^2 =$	0.2262, d. f.	$=$	1,70 p	.50
Rajput Vs Kolta	$X^2 =$	0.2489, d. f.	$=$	1,70 p	.50

Table 5: Genetic distance values among the Jaunsaris

Population	Brahmin	Rajput	Kolta
Brahmin	—	.067±.016	.046±.005
Rajput	.067±.016	—	.049±.014
Kolta	.046±.005	.049±.014	—

Among the Jaunsaris, the Rh-gene, *i.e.*, d varies from .335 in case of the Rajput to .404 in case of the Brahmin. Kolta occupy an intermediate position. All these populations exhibit a higher incidence of Rh negative individuals (11.2 to 16.3 percent) as compared to general picture in neighbouring plains populations of U.P. where it ranges from 2.28% to 7.94% (Srivastava, 1965).

The genetic distance among the populations of Jaunsar-Bawar is shown in Table 5. It seems that distance is greater between the Brahmin and the Rajput, but Kolta occupy an intermediary position and the magnitude of genetic distance is almost same with the Brahmin and the Rajput. It may be inferred that the social groups among the Jaunsaris, although distinct from one another in their cultural and traditional practices, are in fact biologically very close to one another in terms of some genetic markers (A_1 A_2 BO, MN and Rh). Such genetic similarity of the Kolta with the Brahmin and the Rajput may perhaps be due to frequent admixture between these populations. In short, it may be suggested that excessive liberalised extra-marital relations among the various so-called culturally different ethnic groups of the Jaunsaris might have been leading to greater genetic resemblance among themselves.

REFERENCES

- | | | |
|-------------------|------|--|
| Boyd, W. C. | 1950 | <i>Genetics and the Races of man.</i>
Little, Brown and Company, Boston. |
| Census of India | 1971 | <i>Uttar Pradesh</i> , Sr.—21, Pt. II-A. |
| Srivastava, R. P. | 1965 | Blood groups in the Tharus of Uttar Pradesh and their bearing on Ethnic and Genetic relationship. <i>Human Biology</i> , 37: 1—12. |

Digital Dermatoglyphic study of three Jaunsari Populations*

A. K. CHOWDHURY

A. C. SRIVASTAVA

R. S. NEGI

The Jaunsar-Bawar area of Dehra Dun district is populated by the Khasas who have distinct cultural and socio-religious traditions. Exceptionally, among these tribal people of Jaunsar-Bawar, caste system is existing, though in a much less rigid form. Social hierarchy among the Jaunsari incidently coincides with their biological apartness. The Rajput Khasa and Brahmin Khasa, who show Indo-Aryan affiliation enjoy upper caste status while the Kaltas probably derived from Proto-Austroloid elements, present in this sub-continent, occupy the lowest position in the social hierarchy. The two castes of the upper stratum, that is, the Rajput and the Brahmin, are not endogamous in a strict sense as they often inter-marry (Majumdar, 1965). The marriage system of the Khasas, however, do not follow a definite rule. They commonly practise, what is technically known as fraternal polyandry, though monogamy and polygyny are also in existance.

It is well known that biological, socio-cultural, geographical and various other types of isolation of human groups may result in inter and intra group variations. An attempt is made here to evaluate and interpret the results obtained in respect of digital dermatoglyphic study in these three groups. The aim is to see whether the qualititative and quantitative character of dermatoglyphics obtained from individuals belonging to these groups are able to show any inter group variations and if so how the variation can be explained in view of loosely operating caste system on the one hand and miscegenation facilitated by sanctioned social practices on the other.

Material and Methods

During 1970, a total of 171 bilateral finger prints of unrelated male individuals were collected from several villages of Bondur Khat of

* Paper presented in the seminar on Human variation in India held at Calcutta from June 27 to 2 July, 1977.

Jaunsar area by one of us (ACS). The population wise distribution of sample is indicated in Table 1. The prints were analysed by Cummins and Midlo's method (1961). For counting of ridges, the method suggested by Holt (1949) has been followed.

Results and Discussion : Papillary Patterns

The relative frequency of distribution of digital patterns is shown in Table 2. Preponderance of whorls can be observed in all the three groups. Occurrence of whorl varies from 48.40 percent among the Rajput Khasas to 60.00 percent among the Brahmin Khasas. The occurrence of arches is low to moderate in these three groups. This trait ranges from 0.85 percent (the Kolta) to 4.65 percent (the Rajput Khasas). The same finding has been obtained for PI. As a matter of fact PI value for the Brahmin Khasa is the highest reported so far from population of Uttar Pradesh (Fig. 2). A comparison between the three populations with respect to the incidence of three main pattern types, reveals significant difference between the Rajput Khasas and Brahmin Khasas on the one hand and the Rajput Khasas and the Koltas on the other; but the Brahmin Khasas and the Kolta do not show any significant difference (Table 3).

Total ridge counts

The distribution of total ridge count for three groups and mean TRCs are shown in Table 4 (Fig. 1). The value of TRC is relatively high among the Brahmin Khasas (150.52) followed by the Kolta (146.56) whereas the Rajput Khasas possess the low value of 129.82. The decreasing order of digital ridges from the Brahmins to Koltas and the Rajput Khasas is due to conversely increasing order in the number of whorls. No notable observation could be made when mean TRC values of this three populations were compared with other U.P. populations (Fig. 3).

As it is observed in case of PI, a significant difference is also found for mean TRC value between the Rajput Khasas and Brahmin Khasas and between the Rajput Khasas and the Kolta whereas the Brahmin Khasas and Kolta are found homogeneous (Table 5).

In brief, the foregoing analysis of hereditary finger dermatoglyphic features reveals that the Brahmin Khasa and the Kolta are homogeneous population whereas a significant difference is clearly demonstrated between the Rajput Khasas and the Brahmin Khasas,

Genetic implication of bio-social processes

The identical results obtained in respect of PI values and TRC's show the homogeneity between the Brahmin Khasas and the Kolta on the one hand and heterogeneity between the Brahmin Khasas and the Rajput Khasas on the other. It calls for some explanations.

Srivastava (1968) in his sample drawn from different areas does not find any difference between the Brahmin Khasas and Rajput Khasas. The various blood group studies undertaken amongst these people have also shown them to be homogenous (Majumdar, 1965; Negi, *et. al.*, 1972). Heterogeneity observed in the present study, becomes still more baffling in view of the fact that Negi, *et. al.*, have not observed any differences between the two populations in respect to blood group gene frequencies. To attempt an explanation, a close look on the bio-social processes in—operation in these villages of Bondur Khat from where the samples have been collected, may be of some help.

In Jaunsar-Bawer the upper caste Brahmin and the Rajput Khasas constitute the landed property holders, and they engage the landless Kolta as agricultural labourers in their fields and homes. In most cases the poor Kolta takes heavy loan from his upper caste landlord-master to pay the bride price for own, brother, or sister's marriage which he cannot often pay back. The result is that he enters into a bond with his master to work for him in lieu of interest till the principle is paid back. Another socially recognised mode of repayment of loan is that he encourages his wife or daughter to raise money through prostitutions in order to pay off the loan. This practice has resulted in large scale miscegenation, changing the genetic make up of the Kolta. As the money lender landlord class often adapts the role of gene donor to the Kolta, the genetic distance between the upper caste Khasa Brahmins and Rajput and the lower caste Kolta has narrowed down in time (Negi, *et. al.*, 1972). However, sometimes the genetic distance may be observed in space, which seems to be the case here.

The field work to collect the data was conducted in Lakhamandal and six other nearby villages. Lakhamandal being the biggest, is predominantly a Brahmin Khasa village, with a few Kolta families, and it is from this village that most of the Brahmin and Kolta samples were collected. The Rajput Khasa sample was drawn from other villages,

The peculiar spatial distribution of the populations in villages has resulted in greater passage of genes from the Brahmin to the Kolta, narrowing the distance between them. On the other hand Lakhamandal being an ancient temple village the Brahmins here by adopting a more ritualistic stance, keep themselves a closer group than elsewhere in Jaunsar-Bawar which explains the distance between them and the Rajput Khasas in Bondur Khat. Incidentally the Chi-square value for the homogeneity tests between the Brahmin Khasas and Rajput Khasas of Bondur Khat with respect to ABO blood groups is 7.740 which is only marginally short of the 5 percent level of significance (Negi, *et. al.*, 1972).

Conclusion

1. The Brahmin Khasas and the Rajput Khasas are observed to be significantly different from each other in respect of both PI values and TRC even though the two population are known to be homogenous.
2. The Brahmin Khasas and the Kolta do not show any difference though the Kolta are different from the Rajput Khasas.
3. The observed similarity and dissimilarity are attempted to be obtained by the various bio-social processes in operation in the area.

Table 1: Endogamous groups and sample size

Endogamous groups	Sample size	
	For Papillary pattern	For TRC
Brahmin Khasa	54	46
Rajput Khasa	58	45
Kolta	59	55
Total	171	146

Table 2: Frequency of three papillary pattern types and three main indices

Endogamous Group	N	PATTERN TYPE				INDICES			
		Whorls	Loops UL+RLn	Arches SA+TA	Arch/ Whorl Index	Whorl/ Lcop Index	P. I. I. Index	S E	S D
Brahmin Khasa	54	60.00	38.52	1.48	2.47	155.77	15.89	± 0.43	3.17
Rajput Khasa	58	48.45	46.90	4.65	9.61	103.31	14.36	± 0.50	3.81
Kolta	59	54.24	44.91	0.85	1.56	120.75	15.30	± 0.44	3.35

Table 3 : Chi-square values for Papillary patterns: Inter-group differences:

Endogamous Groups	Whorl, Loop, Arch difference		
	d. f.	X ² —Value	Significant or not
Brahmin Khasa X Rajput Khasa	2	21.08	Significant
Brahmin Khasa X Kolta	2	5.38	Not Significant
Rajput Khasa X Kolta	2	19.16	Significant

Table 4 : Mean TRC and Standard Deviation among the three groups

Endogamous Groups	N	Mean TRC	SD
Brahmin Khasa	46	150.52	38.35
Rajput Khasa	45	129.82	40.30
Kolta	55	146.56	38.92

Table 5 : Values of 't' inter-group differences

Groups	t Value
Brahmin Khasa X Rajput Khasa	2.51 *
Brahmin Khasa X Kolta	0.50
Rajput Khasa X Kolta	2.08 *

* Significant at 5% level.

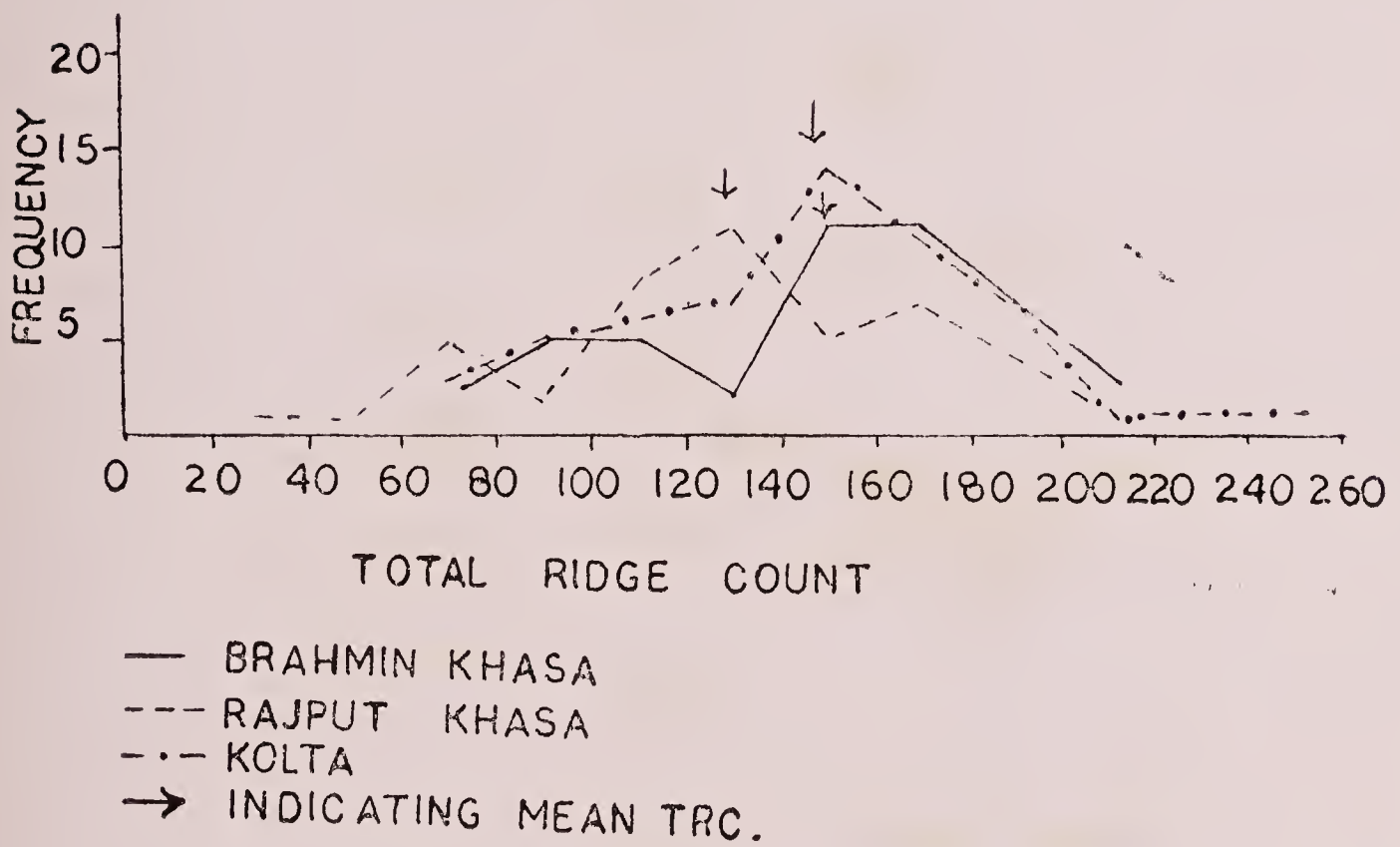
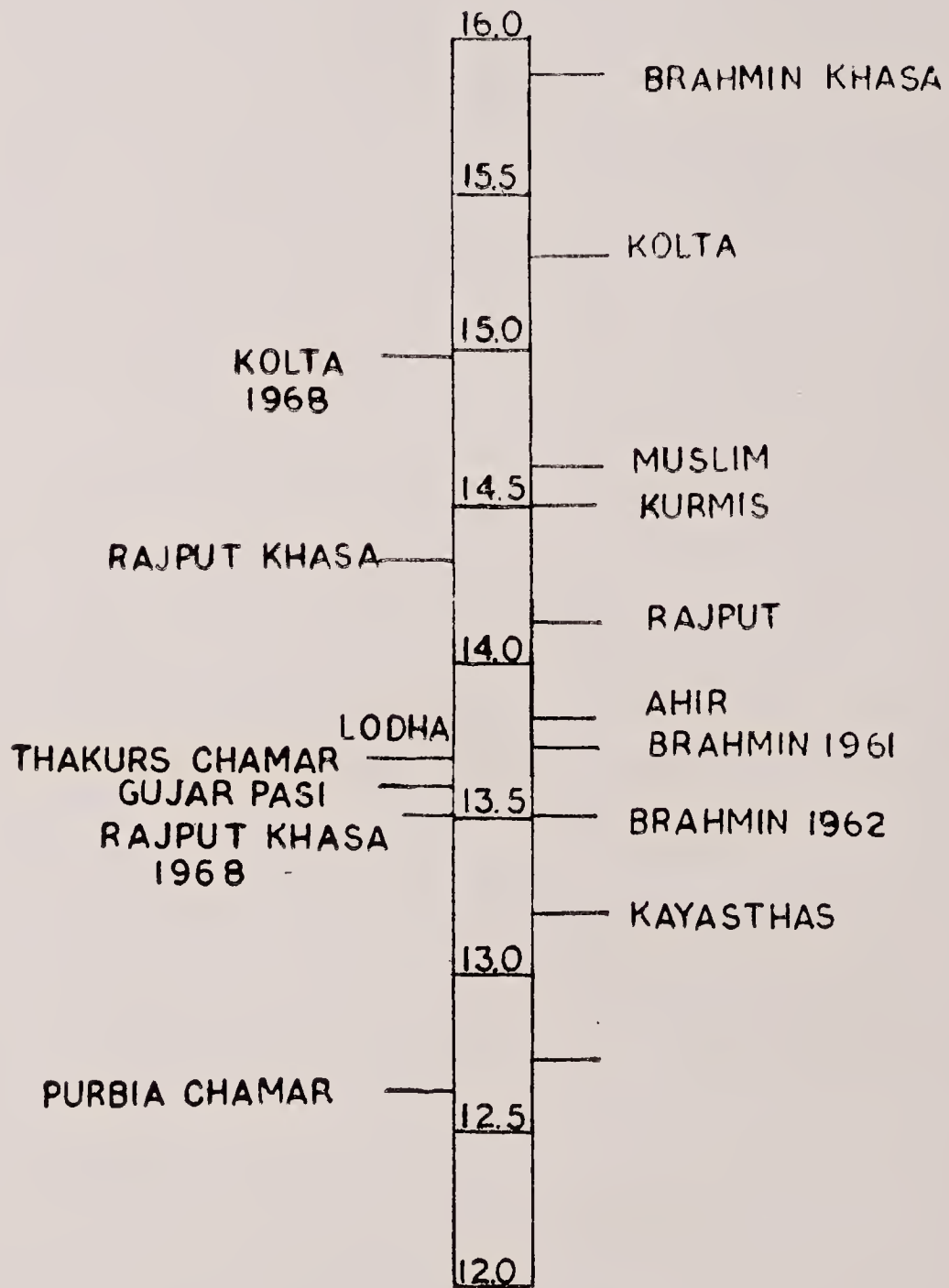
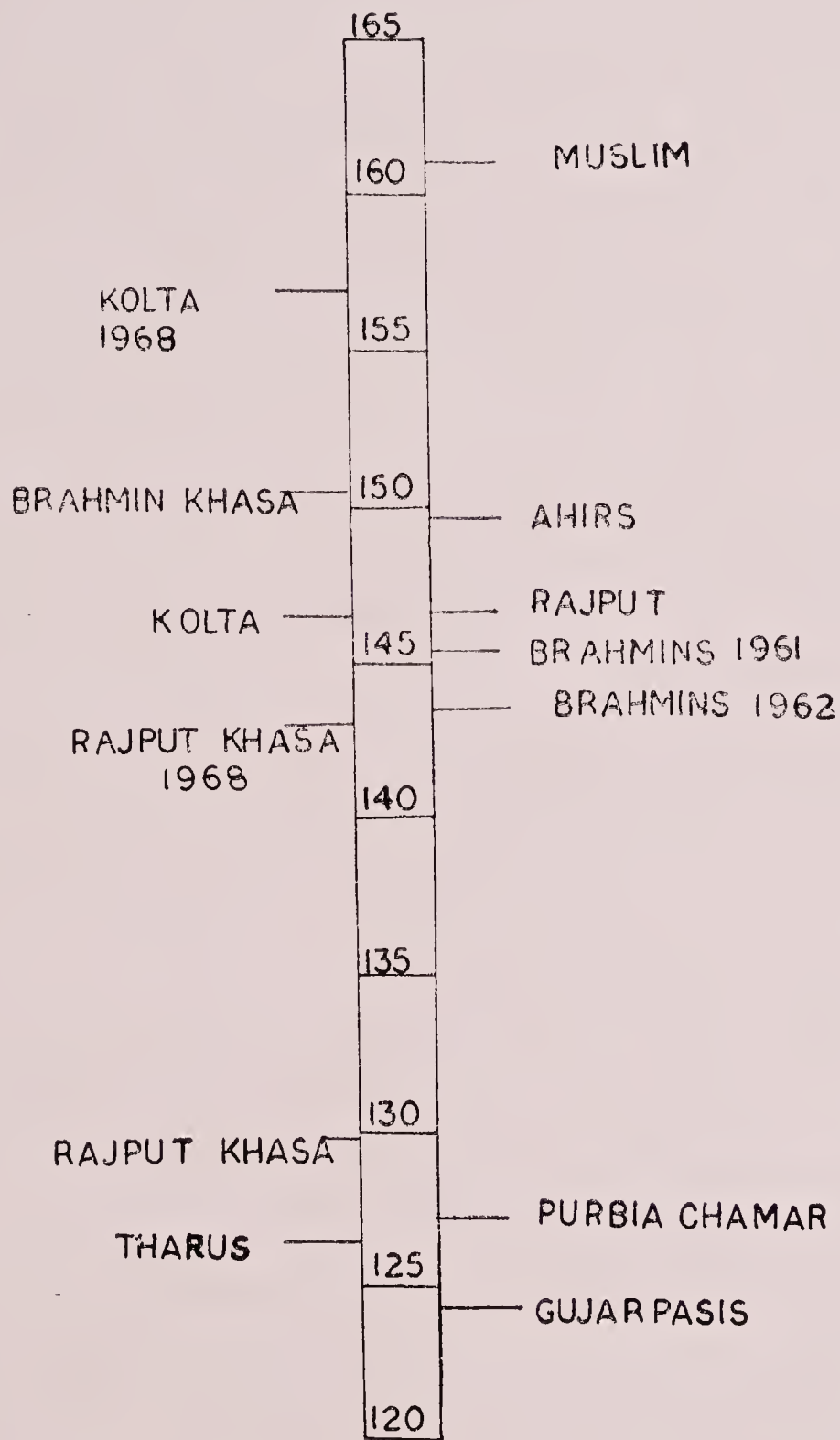


FIGURE-1



PATTERN INTENSITY GRADIENT OF
U.P. POPULATION

FIGURE 2



MEAN TRC GRADIENT OF U.P. POPULATION

FIGURE 3

REFERENCES

- Cummins, H. and C. Midlo 1961 *Finger Prints, Palms and Soles : An Introduction to Dermatoglyphics.* Dover Publication.
- Holt, Sarah B. 1949 A quantitative Survey of the finger prints of small sample of the British Population. *Ann. Engr*, London, 14: 329—338.
- Majumdar, D. N. 1965 *Races and Cultures of India.* Asia Publishing House, Bombay.
- Negi, R. S., A. C. Srivastava 1972 Distribution of ABO blood groups in and B. R. Bhatnagar Central & Western Himalayan Populations. *Bull. Anthropological Survey of India.* 21: 57—76.
- Shukla, B. R. and 1966 A quantitative study of dermato- R. P. Srivastava glyphics of Purabia Chamar & Gujar Pasis of U.P. *Anthropologist*, 13: 65—71.
- Srivastava, R. P. 1962 Dermatoglyphic basis of Caste distribution in a district of Eastern Uttar Pradesh. *East. Anthropol.*, 15: 38—45.
- 1965 A quantitative analysis of Finger prints of the Tharus of Uttar Pradesh. *AM. J. Phys. Anthropol.* 23: 99—106.
- 1968 Digital and Palmar Dermatoglyphics of the Khasas of Jaunsar-Bawar, *J. Indian Anthropol. Soc.*, 3: 71—77.

Taste sensitivity to PTC among the Garhwali Brahmins and Rajputs

A. R. SANKHYAN

A. C. SRIVASTAVA

B. N. SAHAY

That taste dimorphism to Phenyl-thio-carbamide (PTC) is controlled by a pair of allelic genes is quite well known. Some data on PTC taste blindness are available from various ethnic groups in India and abroad. However, the data on the Brahmins and the Rajputs have not yet been reported from Dehra Dun, which is an important area of Western Uttar Pradesh and the biggest valley between the Sivaliks and the Himalayas. With this end in view the present paper records some data on PTC taste sensitivity among the Brahmins and Rajputs of Dehra Dun. Further, an attempt will be made to find out inter-group variation and also the regional variability of PTC taste genes in populations of similar ethnic origin in Uttar Pradesh.

Material and method

The sample consists of 315 Brahmins (161 males; 154 females) and 270 Rajputs (154 males; 116 females) in the age range of 7 to 20 years. The data have been collected from some educational institutions in Dehra Dun city during the years 1976—78. The serial dilution and sorting method of Harris and Kalmus (1949) has been applied to determine the PTC taste blindness. Fourteen solutions of PTC were used: No. 1 was 1.3 gms./1000 ml. of water and in each successive number the strength was reduced to half.

Results and discussion

The distribution of thresholds is bimodal in both the populations. The antimode lies between 5 & 6 in case of the Brahmin and between 4 & 5 in case of the Rajput (Table 1). Considering the antimode as demarcation line between tasters and non-tasters it has been found that the Brahmins (71%) exhibit a slightly lower value of tasters as compared to the Rajputs (74%); and likewise taster gene (T) has a lower incidence in the Brahmins (.4625) than the Rajputs (.4872). The total mean threshold

values are almost same in both the groups (Brahmins 7.68 and Rajputs 7.61).

Inter-group variations

The distribution of tasters and non-tasters in the two sexes for the Brahmins and the Rajputs are presented in Table 2. It may be seen that among the Brahmin a higher frequency of tasters is found in the females (74%) than in the males (68%); whereas among the Rajputs a reverse pattern is noted, *i.e.*, the males (75%) exhibit a slightly higher incidence than the females (72%). However, tasters and non-tasters phenotypes frequencies do not reveal any significant bisexual difference in both the groups (Table 3). The mean taste threshold values reveal that the males in both the populations possess higher values than the females. Considering mean taste thresholds, the sex differences are apparent in case of the Rajput ($t=2.895$, $.01 > P > .001$). In the two populations the males do not exhibit significant difference in mean taste threshold (Table 3). However, inter-group differences between the Brahmins and Rajputs are not significant in both the taste phenotypes as well as in mean taste threshold.

Regional variability

In order to assess the regional variability in respect of this trait in Uttar Pradesh a comparison with the available samples, from Garhwal, Kumaon and Eastern parts have been made, and results are presented in Table 4. It is noticed that in Kumaon both the Brahmins (12.63%) and the Rajputs (12.12%) exhibit lowest frequency of non-tasters in comparison to their counterparts in other areas of Uttar Pradesh. The non-taster frequency among the Brahmin varies from 24 to 29% (Dehra Dun 28.89%, Eastern U.P. 24.65% and Garhwal 23.55%) and in the Rajputs it varies from 25 to 26%. Further, the X^2 values indicate that the Brahmin of Dehra Dun is homogeneous with that of Garhwal and Eastern U.P., but significantly different from the Brahmin of Kumaon. Similarly the Rajput of Dehra Dun are homogeneous with those of Garhwal but significantly different from the Rajput of Kumaon.

Table 1: Distribution of Taste thresholds and total mean thresholds \pm S.E. among the Garhwali Brahmins and Rajputs.

Population	Sex	N	Taste threshold numbers														Mean threshold \pm S. E.			
			<1	1	2	3	4	5	6	7	8	9	10	11	12	13		14		
Brahmins	M	161	5	12	14	11	5	4	5	6	7	8	15	22	23	8	7	17	7	7.60 \pm 0.30
	F	154	3	12	9	10	3	3	6	5	16	23	27	21	11	2	3		7.75 \pm 0.30	
	M+F	315	8	24	23	21	8	7	11	11	31	45	50	29	18	19	10		7.68 \pm 0.22	
Rajputs	M	154	6	13	7	9	4	5	5	7	8	18	23	20	10	10	9		7.96 \pm 0.34	
	F	116	5	7	10	8	2	5	3	5	14	20	20	8	5	4	—		7.15 \pm 0.34	
	M+F	270	11	20	17	17	6	10	8	12	22	38	43	28	15	14	9		7.61 \pm 0.24	

Table 2 : Distribution of frequencies and mean thresholds of tasters and non-tasters among the Garhwali Brahmins and Rajputs.

Population	Sex	N	T a s t e r s			N o n - T e s t e r s				
			No.	%	t-gene \pm S.E.	Mean threshold \pm S.E.	No.	%	t-gene \pm S.E.	Mean threshold \pm S.E.
Brahmins	M	161	110	63.32	0.4372 \pm .03	10.10 \pm .21	51	31.68	0.5628 \pm .03	2.22 \pm .19
	F	154	114	74.03	0.4904 \pm .03	9.71 \pm .16	40	25.97	0.5096 \pm .03	2.18 \pm .21
	M+F	315	224	71.11	0.4625 \pm .02	9.90 \pm .13	91	28.89	0.5375 \pm .02	2.20 \pm .14
Rajputs	M	154	115	74.68	0.4368 \pm .03	10.05 \pm .22	39	25.32	0.5032 \pm .03	1.79 \pm .20
	F	116	84	72.41	0.4747 \pm .04	9.17 \pm .21	32	27.59	0.5253 \pm .04	1.84 \pm .21
	M+F	270	199	73.70	0.4872 \pm .03	9.68 \pm .16	71	26.30	0.5128 \pm .03	1.82 \pm .14

Table 3: Inter-sex and inter-group variations among the Garhwali Brahmins and Rajputs.

Groups compared	X^2 (Tasters—Non-tasters), df=1.	t-value (Tasters mean threshold)
Brahmin (Males X Femals)	1.2468 .30 > P > .20	1.4773 .20 > P > .10
Rajput (Males X Females)	0.1755 .70 > P > .50	2.8947** .01 > P > .001
Brahmin Males X Rajput Males	1.5564 .30 > P > .20	0.1644 .90 > P > .80
Brahmin Females X Rajput Females	0.0885 .80 > P > .70	2.0454** .05 > P > .02*
Brahmins X Rajputs	0.4882 .50 > P > .30	1.0680 .30 > P > .20

*Marginally significant at 5% level,

**Significant at 5% level

Table 4: Comparison of PTC taste among the Brahmins and Rajputs of Dehra Dun with their counterparts in other areas of Uttar Pradesh.

Population	Area	Sex	N	Phenotypes			t-gene	X ²	Reference	
				Tasters No. %	Non-Tasters No. %					
Brahmin	Dehra Dun	M+F	315	224	71.11	91	28.89	0.5375	—	Present study
-do-	Garhwal	M+F	242	185	76.45	57	23.55	0.4853	1.9957	Tiwari and Bhasin, 1967
-do-	Eastern U.P.	?	63	52	75.35	17	24.65	0.4964	0.5076	Srivastava, 1959
-do-	Kumacn	M	95	83	87.37	12	12.63	0.3554	10.2614*	Seth, 1962
Rajput	Dehra Dun	M+F	270	199	73.70	71	26.30	0.5128	—	Present study
-do-	Garhwal	M+F	229	171	74.67	58	25.33	0.5033	0.0606	Tiwari and Bhasin, 1967
-do-	Kumaon	M	99	87	87.88	12	12.12	0.3481	8.3514*	Seth, 1962

*Significant at 5% level.

Acknowledgements

Authors are grateful to Dr. R. S. Negi, Ex-Regional Officer, Anthropological Survey of India, N.W. Region, Dehra Dun for facilities. Thanks are due to Shri R. Dey, for assisting in part of the collection of data and Shri M. N. Kaul for statistical help.

REFERENCES

- | | | |
|------------------------------|------|--|
| Harris, H. & K. Kalmus | 1949 | The measurements of taste sensitivity of phenylthiourea. <i>Ann. Bugen.</i> , 15: 24-31. |
| Seth, P. K. | 1962 | PTC taste threshold distribution among the betal chewers, non-vegetarians and smokers, <i>East. Anthropol.</i> 15: 36-49 (cited from Mourant et. al., 1976). |
| Srivastava, R. P. | 1959 | Measurements of taste sensitivity to phenylthiourea (PTC) in Uttar Pradesh, <i>East. Anthropol.</i> 12: 267-272. |
| Tiwari, S. C. & M. K. Bhasin | 1967 | Taste deficiency for phenylthiourea in the Garhwali Brahmins and Rajputs, <i>East. Anthropol.</i> 20: 243-256. |

Incidence of colour blindness in North Western India with special reference to Dehra Dun city

R. S. NEGI

B. N. SAHAY

Introduction

The city of Dehra Dun is situated in the Doon valley lying between the Himalayan range in the north and the Siwaliks in the south. The Ganga and the Jamuna valleys in the east and west are the openings into the valley. It was through these openings that the population movements took place, into and out of the valley, till the modern means of communications, such as the railways and the motorised transport were developed.

Historically, the Doon valley formed the southern most outpost of the Garhwal Kingdom. Because of its remoteness from Srinagar, the seat of the kingdom, as well comparatively easy access from the plains south of the Siwaliks, the Doon valley had always been the good hunting ground for the marauders and raiders who belonged to various ethnic-stock, from time to time. Though most of the plunderers went back to their respective areas in the plains, some did settle in the valley, and this process went on till the establishment of strong cantonment by the British, after the territory was annexed by them as a body after the Gorkha war. Earlier during the reign of Aurangzeb Guru Ram Rai with his followers settled in the valley and there was a constant immigration of this followers from Punjab. Other important events in the population history of the Doon valley was the settlement of some British planners, as well as, opening of a Railway line. The labour force required for the tea gardens and the railway line, mostly came from eastern Uttar Pradesh, who eventually settled down in the valley.

But the most important event in the recent years which changed the population complex of the Doon valley and especially the city of Dehra Dun, was the partition of India. A large number of displaced persons from West Punjab and N.W.F.P., now in Pakistan, took refuge in Dehra Dun and its surroundings.

Historical events thus influenced the population complex of Dehra Dun and the Doon valley to a great extent. However, the people from the hills across the Himalayan ranges as well as people from plains have come down to settle, maintaining to a large extent, their respective ethnic identity. Thus we find in Dehra Dun, the Garhwalis, the Gorkha or Nepali, emigrant from Punjab and N.W.F.P., descendent of the Rohilla, the Jat agriculturists, the Vaishya and various artisan castes from eastern Uttar Pradesh, etc.

Basically being a Garhwali settlement, though it was outside the influence of Garhwal after the Gorkhas till very recently, and also a convenient opening to the plains for the entire Garhwal division, Dehra Dun has a constant flow of the Garhwalis into the valley, especially in the city. In recent years the tendency of the Garhwalis to settle in Dehra Dun city, especially those who had been in service and spent all their active life in various parts of the country, is on the increase. This tendency has many demo-genetic implications both for the population of the city as well as, its hinterland. A study therefore was designed to see the population structure of Dehra Dun city and its environs. In the present paper we propose to discuss only the frequencies of red-green colour blindness in the various population groups now residing in Dehra Dun city.

The data were collected from various schools in the city, as well as a few villages on the out skirts. The test were carried out with the help of Ishihara Chart, 1960 (38 plates). Though most of the subjects were able to read the numbers, in few doubtful cases, the subjects were asked to trace the lines also.

Results

Table 1, shows the incidence of red-green colour blindness among eight different populations of Dehra Dun. The highest frequency of colour blindness is observed among the Chamar (4.27%), an immigrant population from Western Uttar Pradesh, followed by Garhwali Rajput (3.05%), plains Brahmin (2.61%), Benia (2.21%), Punjabi Khatri (1.85%) and Garhwali Brahmin (1.28%). In the rest two populations namely the Sikh and plains Rajput, the deficiency could not be detected.

The percentage frequency thus reported in the present study does not speak much except that the occupational caste Chamar, occupying

the lowest position in the social hierarchy, among all other castes is exhibiting the highest frequency. The higher caste groups show lower frequency and are more or less homogeneous. On the other hand all the high castes that is the Garhwali Brahmin, Garhwali Rajput and plains Brahmin are individually homogeneous with the lower caste Chamar. (Chi² values 2.397, 0.263 and 1.488 respectively).

Among all the populations tested, the Chamar and the Benia are two professional groups removed from the agricultural activities in the remote past and all the rest are from agricultural castes. Therefore, it was examined whether there is any difference in the incidence of colour blindness between the agricultural or non-agricultural communities. No such difference was however found (Chi² value 1.486).

Colour blindness in North West India

The picture is not very different when we examine the red-green colour blindness data, so far available for the North West Indian region. Table 2, shows the incidence of colour blindness among various populations of this region. The highest frequencies are in the Rajputs of western Uttar Pradesh (6.19, 6.54 and 9.29), Bodh of Leh (9.09) and the Sah of Kumaon (8.51). Out of these samples only the sample of Bodh is somewhat small. However, it may be mentioned that the Bodh of Leh are a high altitude population, living in the 11,000 to 12,000 high arid zone exposed to increased ultra violet radiation, which may effect the vision. The lowest frequencies of the trait are in the Rajput of Kulu (0.96), the Rajput of Kumaon (1.11), the Gorhwali Brahmin (1.28), the Khatri (1.85) and so on, incidently in all higher caste populations.

Selection relaxation

Colour blindness being a genetic trait, it is natural that variable frequencies would be obtained in different populations owing to racial differences. However, the question of selective relaxation of reversal has been discussed in relation to the colour blindness. The increased frequencies of colour blindness among the more advanced societies, as opposed to the primitive societies where there may be strong selection against the trait, as evident from the lower frequencies, has been the basis of the selection relaxation hypothesis. (Pickford, 1958, 1963; Post, 1962). It is mentioned that "in the course of civilization there may be a tendency for colour blindness to be on the increase". The caste hierarchy in India

has been equalled with the progress of civilization, because it has been observed that in some areas some Brahmin populations of India show higher frequencies of colour blindness. (Post, 1962; Pickford, 1963). Dutta (1966) in his Indian sample has shown a gradient, in the frequency of colour blindness increasing from tribal populations to the occupationally higher groups who are presumed to be advanced people. Thus it is made to appear that "in the course of civilization there may be a tendency for colour blindness to be on the increase".

This is however an over simplification of the situation. The habitat scheme divides human population into (A) hunting and gathering communities, (B) agricultural (both rudimentary and developed) communities and (C) industrial communities, coinciding with the progress of civilization. For the hunting and gathering societies and to some extent for the agricultural societies, the ability to distinguish between colours is very important, and it is presumed that due to rigorous selection, the frequencies of colour blindness, in such societies will remain low. But as the society progresses on the path of civilization the inability of individuals, to distinguish between colours, will not remain a serious handicap and so the selection is relaxed, resulting in gradual increase in the frequency of colour blindness. The western industrial societies far removed from hunting and gathering stage, showing high incidence of the trait, are those where selection is relaxed most. However, there seems to be some difficulty in accepting this hypothesis. Assuming that the modern, western industrial societies, passed through the stages of civilization of the habitat scheme and assuming a fairly high rate of mutation for the colour blindness (that is 10^{-5}) it would require some 5000 or 150,000 years to increase the frequency of the trait from 1 percent to 6 percent (Cavalli—Sforza and Bodmer, 1971). We know that so much time was not available for the transition of hunting and gathering stage to industrial stage. Or also we will have to assume a much higher rate of mutation in case of colour blindness to substantiate the selection relaxation hypothesis.

In case of Indian population a parallelism has been assumed between the caste hierarchy and the 'habitat scheme'. It has been forgotten that the Aryan ancestors of the higher castes, were a pastoral community even at the time they entered India 3000 years ago or so. This means that they were in a lower stage of 'civilization' according to the 'habitat scheme' and hence must have had a very low frequency of the trait. But now at a higher stage of civilization where they are assumed to be far

removed from the lower stages of hunting and gathering and agriculture, they have high frequency of colour blindness, due to the relaxation in selection. Besides the assumption that the higher castes are far removed from the lower stage itself is wrong. Rather it is lower artisan castes which were removed from agriculture earlier, than the land holding higher castes.

Conclusion

We have examined the data available from north western India (Table 2) in the light of above discussions and found that it neither fits into the habitat scheme nor there is any parallelism between the social hierarchy and the increased incidence of the trait. The data have been classified into the following schemes in order to see whether there is any significant difference in the frequency of the trait:

A. Habitat scheme

		Normal	Abnormal	Total
1. Semi-agricultural pastoral population		1746	63	1809
2. Agricultural population	...	2247	76	2323
3. Professional population	...	437	18	455
		—	—	—
		4430	157	4587

$\text{Chi}^2=0.5715$ Homogeneous.

B. Social hierarchical scheme

		Normal	Abnormal	Total
1. High castes population	...	2180	84	2264
2. Low castes population	...	689	21	710
3. Tribal population	...	449	20	469
		—	—	—
		3318	125	3443

$\text{Chi}^2=1.4983$ Homogeneous.

C. *Racial scheme*

		Normal	Abnormal	Total
1	High castes (Indo-Aryan) ...	1029	39	1068
2	Low castes ...	2309	85	2394
3	Indo-Mongoloids ...	689	21	710
		—	—	—
		4027	145	4172

$\text{Chi}^2=0.7062$ Homogeneous.

D. *Ecological scheme*

		Normal	Abnormal	Total
1	High altitude populations ...	1380	46	1426
2	Middle altitude populations ...	612	14	626
3	Tarai Plain populations	2438	97	2535
		—	—	—
		4430	157	4587

$\text{Chi}^2=4.0823$ Homogeneous.

It is thus seen that no significant variation is observed in any of the above schemes. Our data, therefore, are unable to substantiate the selection relaxation hypothesis. Adam (1969) had earlier pointed out to such inconsistency in some populations data. However, it will be worthwhile to examine the hypothesis in more details with expanding the coverage both in space and people.

Table 1 : Incidence of colour blindness among the males of different populations of Dehra Dun

Sl. No.	Ethnic Group	Sample Size	MALES AFFECTED										TOTAL No. %	
			Total C. B. Individual		Ptotan		Deutan		Strong		Mild			
			No.	%	No.	%	No.	%	No.	%	No.	%		
1	Chamar	117	—	—	1	0.854	—	—	3	2.56	1	0.854	5	4.27
2	Bania	136	1	0.735	—	—	—	—	2	1.471	—	—	3	2.21
3	Sikh	107	—	—	—	—	—	—	—	—	—	—	—	—
4	Punjabi Khatri	108	—	—	—	—	—	—	2	1.85	—	—	2	1.85
5	Plains Brahmin	115	—	—	2	1.739	—	—	1	0.870	—	—	3	2.61
6	Garhwali Brahmin	156	—	—	1*	—	—	—	1	0.641	1*	—	2	1.28
7	Plains Rajput	57	—	—	—	—	—	—	—	—	—	—	—	—
8	Garhwali Rajput	131	1	0.763	1	0.763	—	—	2	1.527	—	—	4	3.05

Note : *Among the Garhwali Rajputs same individual is suffering from both Ptotan Strong and Deutan Mild.

Table 2: Incidence of red-green colour blindness among the males in north western region

Sl. No.	Population	State	Number	Colour blind		Author
				No.	%	
1	Pooigpa (Boro, Kargil)	J. K.	117	5	4.27	An S.I., N. W. Region (Unpublished)
2	Bodh (Leh)	„	66	6	9.09	„
3	Dardi (Drass, Pandrass)	„	130	3	2.31	„
4	Balti (Mulbakh, Wakha)	„	95	6	6.32	„
5	Bodh („ „)	„	84	2	2.38	„
6	Kashmiri Muslim	„	124	3	2.42	„
7	Kashmiri Pandit	„	107	2	1.87	„
8	Kanet (Sangla & Nachar)	H. P.	200	3	1.50	„
9	Koli (Nachar, Kinnaur)	„	48	1	2.08	„
10	Kanet (Pooh) Kinnaur	„	56	1	1.79	„
11	Kanet (Kalpa)	„	52	2	3.84	„
12	Koli (Kulu)	„	45	1	2.22	„
13	Rajput (Kulu)	„	104	1	0.93	„
14	Brahmin, (Kumaon)	U. P.	263	8	3.04	Tiwari, 1964
15	Rajput („)	„	180	2	1.11	„
16	Sah („)	„	94	8	8.51	„
17	Chauhan, (Rajput)	Western U. P.	194	12	6.19	Negi & Das 1962
18	Rathor (Rajput)	„	183	17	9.29	„
19	Pawar (Dholpur)	Rajasthan	98	3	3.06	„
20	Bhadoria, Bahel and other clans of Rajput	Western U. P.	214	14	6.54	„
21	Raj Pasi	U. P.	163	3	1.84	Bhatnagar (Unpublished)

Table 2: Incidence of red-green colour blindness among the males in north western region—contd.

Sl. No.	Population	State	Number	Colour blind		Author
				No.	%	
22	Gujar Pasi	U. P.	110	3	2.80	Bhatnagar (Unpublished)
23	Kaithwas Pasi	„	100	3	3.00	„
24	Banrasi Pasi	„	119	5	4.20	„
25	Bhoksa, (Dehra Dun)	„	119	7	5.88	An. S.I.N.W. Region (Unpublished)
26	Sikh, (Nainital)	„	134	1	0.73	Kumar, 1968
27	Hindus „	„	108	3	2.78	„
28	Rana Tharu „	„	350	13	3.71	„
29	Chamar	Western U. P.	117	5	4.27	Present Study
30	Sikh	„	107	—	—	„
31	Bania	„	136	3	2.21	„
32	Khatri	„	108	2	1.85	„
33	Plains Brahmins	„	115	3	2.61	„
34	Garhwali Brahmins	„	156	2	1.28	„
35	Plains Rajput	„	57	—	—	„
36	Garhwali Rajput	„	131	4	3.05	„

REFERENCES

- Adam, A. 1969 A further query on colour blindness and natural selection. *Soc. Biol.* 16: 197-202.
- Cavalli—Sforza, L. L. & W. F. Bodmer 1971 *The Genetics of Human Population*. W. H. Freeman and Company. San Francisco.

- Dutta, P. C. 1966 A Review of the Inherited Defective Colour-Vision Variability and Selection Relaxation among the Indians. *Acta. Genet. Basel.* 16: 327-339.
- Kumar, N. 1968 A genetic survey among the Rana Tharu of Nainital district in U.P. *Jr. Ind. Anthropol. Soc.* 3: 39-55.
- Negi, R. S. & A. Das 1962 The Blood groups (ABO, MN and Rh) ABH Secretion in Saliva, and Colour blindness in the Rajput of Western U.P. and Dholpur. *Bulletin A.S.I.* 11: 221-231.
- Pickford, R. W. 1958 A review of some problems of Colour-Vision and Colour-Blindness. *The Advancement of Science.* 25: 104-117.
- 1963 Natural selection and Colour-Blindness. *Eugen. Rev.* 55: 97-101.
- Post, R. H. 1962 Population differences in red-green Colour-Vision deficiency. *Eugen. Quart.* 10: 110-118.
- Tiwari, S. C. 1964 The frequency of colour-blindness in some upper castes of Kumaon. *The Anthropologist.* 11: 64-68.

Mid-phalangeal hair variability in some Himalayan populations

A. C. SRIVASTAVA

A survey on the 'Population Genetics of three different ethnic groups in the Central and Western Himalayas' was undertaken during May—July, 1970 and June—August, 1971. The field areas selected were Jaunsar Bawar in the Central Himalayas and Kinnaur in the Western Himalayas. The selection of Jaunsar Bawar and Kinnaur areas was made owing to remoteness, and also because of less influence from outside populations.

The populations covered were the Khas Brahmin, Khas Rajput and Kolta from Jaunsar Bawar area; Kanet (Pooh), Kanet (Kalpa) and Koli from Kinnaur area for the investigation of blood groups and other genetical traits. The blood group results for these populations have been reported elsewhere (Negi, *et. al.*, 1972). Here, the data for mid-phalangeal hair distribution in them will be discussed. Further, on the basis of this genetical trait an attempt will also be made to compare the variability with the populations of similar ethnic affiliations living in other parts.

Material and method

For noticing the presence or absence of hair, the middle segment of digits of the subjects were properly cleaned with alcohol and with the help of hand lens the hair on middle segment of digits were recorded. Thus, a total number of 354 individuals were considered for study. The data for different populations are as follows:

Population	Area	Individual investigated
Central Himalayas		
Khas Brahmin	... Jaunsar Bawar, U.P.	87
Khas Rajput	... " " "	73
Kolta	... " " "	64
Western Himalayas		
Kanet (Pooh)	... Kinnaur, H.P.	63
Kanet (Kalpa)	... " "	51
Koli	... " "	16

Results and discussions

Table 1 shows the frequency of individuals with and without mid-phalangeal hair in the Central and Western Himalayan populations. It is observed that the occurrence of Ao phenotype, *i.e.*, absence of middle-phalangeal hair on both the hands varies from 36.78% in the case of the Khas Brahmin to 63.49% in the case of the Kanet (Pooh). In Ao phenotype incidence, the upper castes of Jaunsar Bawar, *i.e.*, the Khas Brahmin and the Khas Rajput do not exhibit significant variation, and similar is the case between the Kanet (Pooh) and the Kanet (Kalpa) populations of Kinnaur. The Kolta and the Koli exhibit a similar frequency of unaffected individuals. Thus we see that the Khas Brahmin and the Khas Rajput form one cluster having the lowest value of Ao (36.78—42.47%), and the Kanet (Pooh) and the Kanet (Kalpa) form the other cluster having the highest value of Ao (60.70—43.49%), whereas the Kolta and the Koli are found to exhibit an intermediary value of Ao (51.56—56.25%).

The presence of mid-phalangeal hair on individual digits (Table 2) reveals that in all the populations under study IV and III digits exhibit high degree of pilosity, V digit is moderately pilous and II digit is pilous to a very lesser extent, the order of digital pilosity being $IV > III > V > II$. No significant difference is observed for mid-phalangeal hair distribution in individual digits of the two hands.

Table 3 shows the distribution of fingers with mid-phalangeal hair in the Central and Western Himalayan populations. In all the cases where combination of fingers are affected, IV finger is always involved. This shows no deviation from 'combination rule'. There are fewer instances where a single finger is affected and which is III finger.

The most frequently observed combination is the presence of mid-phalangeal hair on III and IV fingers in all the populations. The other combination worth mentioning is III-IV-V (Table 3).

A high degree of bimanual symmetry in respect of this trait is noted in all the populations of the present study. It is worth mentioning that the Kanet (Kalpa) and the Koli populations exhibit 100% symmetry in the occurrence of hair (Table 4).

Inter-group comparisons reveal that there exist no significant variation in the Jaunsar Bawar populations—the Khas Brahmin, Khas Rajput and the Kolta. Among the Kinnaur populations—the Kanet (Pooh), Kanet

(Kalpa) and the Koli also no significant difference is apparent. However, the Kanet (Pooh) and the Kanet (Kalpa) populations differ strikingly from the Jaunsar Bawar populations. The Koli is indistinguishable from the Kolta (Table 5).

The available range of data on mid-phalangeal hair for different population groups of India has been compiled in Table 6. The bulk of material is from Maharashtra, Madhya Pradesh, West Bengal, Assam and Tripura. However, very little work has been done on North Indian populations and also on the North Western Himalayan populations. Thus the data at hand are not sufficient for a critical assessment of the variability of this trait. Nevertheless, some interesting facts emerge out.

In Indian populations, the range of variability of this trait in terms of Ao phenotype is from 22.6 to 100% in males, and between 28.1 and 100% in females. This genetic diversity of high degree is to be expected for Indian sub-continent, where such factors as regional and social barriers have kept the population split into numerous, more or less, separate groups. The population in each case is endogamous and thus have maintained this isolation during a length of time.

The state of Assam is represented by four groups of Mongoloid population and the frequency of absence of mid-phalangeal hair ranges from 52.8 to 74.0% in males, and from 71.1 to 86.0% in females. However, the Riang—a Mongoloid population of Tripura exhibit comparatively low value of Ao (35.9%). In the two geographically isolated Mongoloid populations, the Chowrite and Terressan of Nicobar Islands still much lower value (22.6 to 23.5% in males; 28.1 to 31.0% in females) is observed as compared to Mongoloid groups of Eastern India.

The variation in the non-Indian Mongoloid populations with regard to the absence of this trait is found to be of a wider range; from 44.9 to 98.0%; the Japanese of U.S.A. 68.0% (Danforth, 1921); the Japanese of Sapporo 55.67% and 61.14% in males and females respectively; the Japanese 58.3% (Matsunaga, 1956); the Aleuts 44.9% (Garn, 1951), the American Indian (Penobscot) 64% (Danforth, 1921); and the Eskimo 98% (Sewall, 1939).

In West Bengal, the frequency of unaffected individuals varies from 41.9 to 66.1% in males and from 58.0 to 75.0% in females. The frequency is below 50.0% in the upper castes and the Muslims, while it exceeds in case of lower castes,

In Madhya Pradesh, the incidence of unaffected individuals in the upper castes is more (Brahmin 54.2%, Rajput 53.1%) than the intermediate castes (Ahir 38.5%, Teli 29.6%) and the lower castes (Chamar 33.9%, Kol 48.0%). The Muslims have a frequency of 49.5%, which is quite similar to that of the Muslims of West Bengal. The tribal groups have a range of variation from 40.7 to 65.4% in males, and from 54.9 to 100.0% in females.

In Maharashtra populations, the frequency of Ao phenotype range from 48.0 to 64.0% in the males. The upper and lower castes have a closer range of variation of this trait.

In Uttar Pradesh, the occurrence of individuals without mid-phalangeal hair varies from 36.7 to 56.3% in males. The upper castes of the plains exhibit higher value, *viz.*, Mohiyal Brahmin 56.3%, Srivastava (Kayastha) 51.8%, than those of hills, *viz.*, Khas Brahmin 36.8%, Khas Rajput 42.5%. The lower caste population of the plains (Pasi 55.4%) exhibit no significant variation with that of hills (Kolta 51.6%).

In Himachal Pradesh, the frequency of unaffected individuals is high and it varies from 56.3% in the case of the Koli to 63.5% in the case of the Kanet (Pooh).

Thus from a comparative evaluation it becomes evident that in the incidence of unaffected individuals, the Khas Brahmin (36.8%) and the Khas Rajput (42.5%) approximates to the mean of 44.88% of upper caste Hindus of India (Dutta, 1966); the Kolta (51.6%) and the Koli (56.3%) populations are nearer to the mean of 55.91% of the lower caste Hindus of India (Dutta, 1966).

The Kanet, both of Pooh and Kalpa, exhibit lower pilosity which is the case of Mongoloid population. The Kanet of Pooh, as a matter of fact is predominantly Mongoloid population which is not the case of the Kanet of Kalpa. However, the Kanet of Kalpa have some Mongoloid components owing to admixture which may explain the lower degree of pilosity in this population.

Summary

Data relating to mid-phalangeal hair among the Khas Brahmin, Khas Rajput and the Kolta of Jaunsar Bawar in the Central Himalayas, and the Kanet (Pooh), Kanet (Kalpa) and the Koli of Kinnaur in the Western

Himalayas are presented. Inter-group comparisons reveal no significant variation in the population groups of Jaunsar Bawar. Among the Kinnaur populations—the Kanet (Pooh), the Kanet (Kalpa) and the Koli also no significant difference is noted.

In the frequency of unaffected individuals, the Khas Brahmin and the Khas Rajput exhibit low value (36.78—42.47%), and the Kanet (Pooh) and the Kanet (Kalpa) show high value (60.78—63.49%), whereas the Kolta and the Koli populations have a range of 51.56 to 56.25% and occupy intermediary position.

In all the populations under study the order of digital pilosity is $IV > III > V > II$. No significant bimannual difference in the occurrence of mid-phalangeal hair is observed.

In the finger combinations with mid-phalangeal hair the highest frequency is attained by III. IV combination. The other combination worth mentioning is III, IV, V. The genetic diversity of high degree in respect of this trait is noted for Indian populations. The variability, in terms of frequencies of unaffected individuals, which ranges from 22.6 to 100% in males, and between 28.1 and 100% in females is surprisingly high. A close scrutiny of the available material on Indian populations suggest some interesting broad genetic relationship.

Acknowledgement

The author wishes to thank the Director, Anthropological Survey of India, Calcutta for the facilities offered. He is also indebted to Dr. R. S. Negi, Regional Officer, North West Station, Anthropological Survey of India, for liberal help in the preparation of this paper.

Table 1: Frequency of individuals with and without mid-phalangeal hair in the Central and Western Himalayan populations

Population	Area	N	Absence of mid-phalangeal hair on both the hands		Presence of Mid-phalangeal hair				Total			
			N	%	Right hand affected and left hand free	N	%	Left hand affected and right hand free		N	%	
Khas Brahmin	Central Himalayas	87	32	36.78	2	2.30	2	2.30	51	58.62	55	63.22
Khas Rajput	Jaunsar Bawar, U.P.	73	31	42.47	2	2.74	2	2.74	38	52.05	42	57.53
Kolta	"	64	33	51.56	2	3.13	2	3.13	27	42.18	31	48.44
Kanet (Pooh)	Western Himalayas Kinnaur, H.P.	63	40	63.49	2	3.17	1	1.59	20	31.74	23	36.51
Kanet (Kalpa)	"	51	31	60.78	—	—	—	—	20	39.22	20	39.22
Koli	"	16	9	56.25	—	—	—	—	7	43.75	7	43.75

Table 2: Distribution of mid-phalangeal hair on the digits II, III, IV and V in the Central and Western Himalayan populations

Population	R		I		G		H		T		V	
	N	%	II	%	III	%	IV	%	IV	%	Absence	Presence
Khas Brahmin	87	98.85	1.15	56.32	43.68	39.08	60.92	79.31	20.69			
Khas Rajput	73	97.26	2.74	61.64	38.36	45.21	54.79	79.45	20.55			
Kolta	64	96.87	3.13	75.00	25.00	54.69	45.31	84.37	15.63			
Kanet (Pooh)	63	100.00	—	74.60	25.40	65.08	34.92	87.30	12.70			
Kanet (Kalpa)	51	100.00	—	80.39	19.61	62.75	37.25	96.08	3.92			
Koli	16	100.00	—	68.75	31.25	56.25	43.75	81.25	18.75			
Population	L		E		F		T		IV		V	
	N	%	II	%	III	%	IV	%	Absence	Presence	Absence	Presence
Khas Brahmin	87	96.55	3.45	57.47	42.53	40.23	59.77	78.16	21.84			
Khas Rajput	73	95.89	4.11	65.75	34.25	45.21	54.79	79.45	20.55			
Kolta	64	96.87	3.13	70.31	29.69	56.25	43.75	81.25	18.75			
Kanet (Pooh)	63	100.00	—	74.60	25.40	66.67	33.33	90.48	9.52			
Kanet (Kalpa)	51	100.00	—	80.39	19.61	62.75	37.25	96.08	3.92			
Koli	16	100.00	—	68.75	31.25	56.25	43.75	81.25	18.75			

Table 3: Distribution of combination of fingers with mid-phalangeal hair in the Central and Western Himalayan populations

Finger combination	Khas Brahmin (87)		Khas Rajput (73)		Kolta (64)		Kanet (Pooh) (63)		Kanet (Kalpa) (51)		Koli (16)	
	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
O	39.08	39.08	45.21	45.21	54.69	54.69	65.08	66.66	60.78	60.78	56.25	56.25
IV	14.94	18.39	15.07	13.70	18.75	12.50	9.52	7.94	19.61	19.61	12.50	12.50
III-IV	25.29	19.54	19.18	16.44	10.94	12.50	12.70	15.87	13.73	13.73	12.50	12.50
III-IV-V	17.24	18.39	16.44	16.44	10.94	12.50	12.70	9.52	3.92	3.92	18.75	18.75
II-III-IV-V	1.15	2.30	2.74	4.11	3.13	3.13	—	—	—	—	—	—
II-III-IV	—	1.15	—	—	—	—	—	—	—	—	—	—
IV-V	2.30	—	1.37	—	1.56	3.13	—	—	—	—	—	—
III	—	1.15	—	—	—	1.56	—	—	1.96	1.96	—	—

Table 4: Symmetry of Right and Left hand with respect to combination of digits with the Mid-phalangeal hair in the Central and Western Himalayan populations

Finger combination	Khas Brahmin (87) Identical on both hands %	Khas Rajput (73) Identical on both hands %	Kolta (64) Identical on both hands %	Kanet (Pooh) (63) Identical on both hands %	Kanet (Kalpa) (51) Identical on both hands %	Koli (16) Identical on both hands %
O	36.78	42.47	51.56	63.49	60.78	56.25
IV	9.91	12.33	12.50	4.76	19.61	12.50
III-IV	14.94	13.70	7.81	9.52	13.73	12.50
III-IV-V	13.79	13.70	7.81	9.52	3.92	18.75
II-III-IV-V	1.15	2.74	3.13	—	—	—
III	—	—	—	—	1.96	—
TOTAL	76.57	84.94	82.81	87.29	100.00	100.00

Table 5: Values of the Chi-square test among the Central and Western Himalayan populations

	Khas Brahmin	Khas Rajput	Kolta	Kanet (Pooh)	Kanet (Kalpa)	Koli
Khas Brahmin	—	0.539	3.285	10.444*	7.471*	2.136
Khas Rajput	0.539	—	1.132	7.795*	4.030*	1.009
Kolta	3.285	1.132	—	1.815	0.980	0.113
Kanet (Pooh)	10.444*	7.795*	1.851	—	0.087	0.281
Kanet (Kalpa)	7.471*	4.030*	0.980	0.087	—	0.103
Koli	2.136	1.009	0.113	0.281	0.103	—

* Indicates significance at 5% level.

Table 6: Frequency of individuals without mid-phalangeal hair in different populations in India

Population	Residence		Male		Female		Author
	N	%	N	%	N	%	
1 Onge	35	100.0	31	100.0	—	—	Buchi & Roy 1955
2 Chowrite	133	22.6	68	28.1	—	—	Ganguli & Pal 1963
3 Terressan	98	23.5	100	31.0	—	—	Ganguli & Pal 1963
4 Nokte Naga	111	54.1	—	—	—	—	Kumar 1955
5 Indian	250	52.8	50	88.0	—	—	Pakrasi & Das 1956
6 Riang	198	35.9	—	—	—	—	Kumar & Sastry 1961
7 Mikir	150	74.0	150	86.0	—	—	Mukherjee 1963
8 Khasi	301	59.5	301	71.1	—	—	Mukherjee 1963
9 Lushai	125	64.0	125	78.4	—	—	Mukherjee 1963
10 Rarhi Brahmin	191	41.9	71	47.9	—	—	Bhattacharjee 1956
11 Gandhabanik	100	49.0	—	—	—	—	Dutta 1965
12 Bengali	427	46.4	—	—	—	—	Buchi & Dutta 1954
13 Bengali	1535	43.2	—	—	—	—	Buchi & Dutta 1955
14 Rajbanshi	284	56.7	—	—	—	—	Roy Choudhury 1961
15 Muslim	203	49.3	12	75.0	—	—	Bhattacharjee 1956
16 Tentulia Bagdi	121	66.1	63	63.5	—	—	Kumar 1957
17 Duley	143	53.8	69	58.0	—	—	Kumar 1957
18 Brahmin	96	54.2	—	—	—	—	Dutta 1964
19 Rajput	49	53.1	—	—	—	—	Dutta 1964
20 Ahir	26	38.5	—	—	—	—	Dutta 1964

(Contd.)

	Population		Residence	Male		Female		Author
	N	%		N	%			
21	Teli	27	Madhya Pradesh	29.6	—	—	—	Dutta 1964
22	Chamar	53	-do-	33.9	—	—	—	Dutta 1964
23	Koli	25	-do-	48.0	—	—	—	Dutta 1964
24	Muslim	101	-do-	49.5	—	—	—	Dutta 1964
25	Gond	27	-do-	55.5	—	—	—	Dutta 1964
26	Dorla	123	-do-	52.8	54.9	71	54.9	Negi et al. 1962
27	Bade Bhatra	106	-do-	48.1	63.6	44	63.6	Negi et al. 1962
28	San Bhatra	69	-do-	57.8	66.7	18	66.7	Negi et al. 1962
29	Manjhole Bhatra	59	-do-	40.7	69.0	5	69.0	Negi et al. 1962
30	Mahra	78	-do-	48.7	62.2	45	62.2	Negi et al. 1962
31	Dhurwa	167	-do-	54.5	66.7	27	66.7	Negi et al. 1962
32	Northern Dhurwa	52	-do-	65.4	100.0	9	100.0	Negi et al. 1962
33	Eastern Muria	143	-do-	51.1	—	—	—	Negi et al. 1962
34	Western Muria	148	-do-	57.4	66.7	18	66.7	Negi et al. 1962
35	Desastha Brahmin	374	Maharashtra	57.0	—	—	—	Basu 1967
36	Maratha	279	-do-	53.8	—	—	—	Basu 1967
37	Kunbi	96	-do-	53.1	—	—	—	Basu 1967
38	Teli	146	-do-	54.8	—	—	—	Basu 1967
39	Mahar	328	-do-	57.0	—	—	—	Basu 1967
40	Mang	196	-do-	60.2	—	—	—	Basu 1967

(Contd.)

41	Chambhar	-do-	50	54.0	—	—	Basu 1967
42	Vanjara	-do-	100	48.0	—	—	Basu 1967
43	Raj Gond	-do-	50	60.0	—	—	Basu 1967
44	Mahadeo Koli	-do-	60	50.0	—	—	Basu 1967
45	An dh	-do-	50	64.0	—	—	Basu 1967
46	Sunni Muslim	-do-	317	53.3	—	—	Basu 1967
47	Mohiyal Brahmin	Uttar Pradesh	71	56.3	77	59.7	Singh & Dutta 1955
48	Srivastava (Kayastha)	-do-	220	51.8	—	—	Srivastava 1966
49	Sayyad	-do-	150	48.0	—	—	Srivastava 1971
50	Fathan	-do-	150	36.7	—	—	Srivastava 1971
51	Pasi	-do-	565	55.4	—	—	Bhatnagar Personal communication
52	Khas Brahmin	Jaunsar Bawar, U.P.	87	36.0	—	—	Present Study
53	Khas Rajput	-do-	73	42.5	—	—	Present Study
54	Kolta	-do-	64	51.6	—	—	Present Study
55	Kanet (Pooh)	Kinnaur. H.P.	63	63.5	—	—	Present Study
56	Kanet (Kalpa)	-do-	51	60.8	—	—	Present Study
57	Koli	-do-	16	56.3	—	—	Present Study

N = Sample size

REFERENCES

- Basu, A. 1967 The frequency of middle phalangeal hair in some population groups of Maharashtra (India) *Acta. Genet.* Basel. 17: 158—165.
- Bhatnagar, B. R. Manus middle phalangeal hair variability among the Pasis—a scheduled caste of Uttar Pradesh—personal communication.
- Bhattacharjee, P. N. 1956 A genetic Survey in the Rarhi Brahmin and the Muslim of West Bengal: A_1 A_2 B_0 , MIN , Rh blood groups, ABH secretion, Sickle cell, P.T.C. taste, mid-phalangeal hair and colour-blindness. *Bull. Dept. Anthropol. India.* 5: 18—28.
- Buchi, E. C. & N. Dutta 1954 Middle-phalangeal hair and age. *Bull. Dept. Anthropol. India.* 3: 144—151.
- 1955 Middle-phalangeal hair. and age. *Bull. Dept. Anthropol. India.* 3: 31—44.
- Buchi, E. C. & S. Roy 1955 Taste, middle-phalangeal hair and colour vision of the Onge of Little Andaman. *Bull. Dept. Anthropol. India.* 4: 7—10.
- Danforth, C. H. 1921 Distribution of hair on the digits in man. *Amer. J. Phys. Anthropol.* 4: 189—204.
- Dutta, P. C. 1964 Middle-phalangeal hair among some populations of Madhya Pradesh, India. *Z. Morph. Anthropol.* 55: 303—310.

- Dutta, P. C. 1965 On the variability of middle-phalangeal hair among Indian populations. *J. R. Anthrop. Inst.* 95: 115—126.
- 1966 Biological differences in middle-phalangeal pilosity of the Indians. *Acta. Genet. Basel.* 16: 95—102.
- Gran, S. M. 1951 The use of middle-phalangeal hair in population studies. *Amer. J. Phys. Anthrop.* 9: 325—333.
- Ganguli, P. & A. Pal 1963 Distribution of middle-phalangeal hair among Chowra and Terressa Islanders. *East. Anthrop.* 16: 122—133.
- Kumar, N. 1955 Taste, middle-phalangeal hair and occipital hair whole among Nokte Naga. *Bull. Dept. Anthrop., India.* 4: 61—67.
- 1957 A genetic survey among the Tentulia Bagdi and the Duley of Hooghly district of West Bengal. *Bull. Dept. Anthrop. India.* 6: 81—88.
- Kumar, N. & D. B. Sastry 1961 A genetic survey among the Riang: a Mongoloid tribe of Tripura. *Z. Morph. Anthrop.* 51: 346—355.
- Matsunaga, E. 1956 Erbbiologische Untersuchung der Finger mittelgliedbehaarung bei Japaner Und Deutschen. *Z. Mensch. Vererb-u Konstit.* 33: 465—469.
- Mukherjee, D. P. 1965 Cited by Dutta, 1965.
- Negi, R. S., S. K. Majumdar, S. H. Ahmad, & R. B. Bhale 1962 Distribution of middle-phalangeal hair in some Bastar populations. *Bull. Anthrop. Sur. India.* 11: 175—191.

- Negi, R. S.,
A. C. Srivastava &
B. R. Bhatnagar 1972 Distribution of ABO blood groups
in Central and Western Himalayan
populations. *Bull. Anthropol. Sur.
India.* 22: 57—76.
- Pakrasi, K. & B. M. Das 1956 A study of the distribution of hair
on the digits (hands) from Assam.
East. Anthropol. 9: 196—201.
- Roy Choudhury, D. 1961 Middle-phalangeal hair among Raj-
banshis of Midnapur, West Bengal.
East. Anthropol. 14: 182—188.
- Sewall, K. W. 1939 Blood, taste, digital hair and colour
of eyes in Eastern Eskimo. *Amer. J.
Anthropol.* 25: 93—99.
- Singh, I. P. & P. K. Dutta 1955 Inheritance and distribution of mid-
digital hair on Mohiyal Brahmin.
Anthropol. 1: 41—50.
- Srivastava, A. C. 1966 A note on the distribution of middle-
phalangeal hair among the Srivas-
tavas (Kayastha) of Lucknow. *East.
Anthropol.* 19: 241—244.
- 1971 Inter-population variation among the
(Unpublished Muslim.
Thesis)

Physical growth studies on Kinnaura Male Rajputs

R. MALHOTRA

The inherent pattern of growth is genetically determined but it is modified by various environmental factors. 'Growth' in itself is an extremely heterogenous and complex phenomenon both in its descriptive as well as in its casual analytic aspects. Whilst referring to the basic term 'Physical growth', we actually take cognizance of two terms, namely, 'Growth' and 'Development' which have been quite generally speaking, used interchangeable, and are considered complementary to each other (Helen, 1934). Moss (1954) has described growth as any change in detectable parameter. Considering in more scientific details while 'Growth' refers to changes in magnitude, 'Development' implies changes in complexity and differentiation including changes in proportions (Bertalanffy, 1938; Garn, 1952; Watson and Lowery, 1967).

A perusal of literature reveals that interest in the study of human growth and development dates back to first published work of Gabriello de Zerbis in 1502. Scammon (1927) while reviewing the literature upto 1925 notes a steady increase in the studies on human growth, since the beginning of the sixteenth century. Subsequently, Krogman (1941) has reviewed the publications on the subject for the years from 1914 to 1939. Since early forties hundred of reports have been published on 'human growth and development'. These studies have been conducted at various developmental stages and in combination with a consideration of environmental factors, such as nutrition, socio-economic status, race and climate, secular trends, altitude, etc. Meredith (1970) has compared the body size of infants of many populations living under different environmental condition.

Importance of nutrition in the child growth has been highlighted in studies conducted by Kimura, *et. al.* (1959), Prader, *et. al.* (1963). They studied effects of famine associated with war. Trulson *et. al.* (1956) and Dean (1965) studied the undernourished children with supplemented diets, in some third world countries and found them to be growing at a faster rate during the period they had improved diet. Tanner (1962) is of the view that malnutrition during childhood delay growth, and in the

years preceding adolescence delays the appearance of adolescent spurt. Similarly, controlled nutrition serves also a check for human body composition (Brozak, 1965). In Indian Aykroyd and Rajagopal (1936), Aykroyd and Krishnan (1936) studied children for height, weight and nutrition and observed that lesser height and weight were due to malnutrition. Bhave (1941) published data on growth and nutrition of Central Provinces and Bihar. Mitra (1941) also carried out a similar kind of study on coal miners in Jharia. Santhals were studied by Lal (1954) on a similar pattern. In India Rao *et. al.* (1954) were the first to include skinfold thickness in growth study. Banerjee and Sen (1957) prepared nomogram for calculating the body surface area of Indians.

Climate certainly plays an important role on the child growth. It has been proved beyond doubt that in warmer places the rate of growth is faster than in cooler regions (Foll, 1961).

Sexual dimorphism in the patterns of growth is well marked. It has been found that girls can withstand more regours of environment, such as malnutrition, illness, etc., as compared with the boys and are in Waddington's (1957) terminology, better (canalized). The males have been found to be heavier and taller in all populations. These results have been confirmed by Trulson *et. al.* (1956), Comas (1960), Kimura *et. al.* (1959), Prasad *et. al.* (1971) Sidhu and Anand (1972) and others.

Another striking feature observed particularly in the Western industrialised countries is the generational changes in the body size and other developmental features of children at all age levels, during the period of growth. Children now mature earlier as compared with those in the past decades (Wolff, 1941; Meredith, 1941 a.b.; Meredith & Meredith, 1953; Clements, 1953). Wolanski (1967 a.b.) broadly categorises the underlying processes resulting in such changes, as microevolution, physiological adaptation and migration.

In the recent years, a number of studies have been launched on human adaptability under the auspices of the International Biological Programme (IBP) for world-wide comparative studies on human populations living under diverse altitudinal environments. A number of multidisciplinary methods to study the problem of human adaptability have been suggested by Yoshimura and Weiner (1966) and Weiner and Laurie (1969).

In the present article, an attempt has been made to provide some basic biological data on the Kinnaura Rajputs living at high altitudes in the interior of the Himalayas.

Land and people

Kinnaur is situated in the north-east extremity of Himachal Pradesh and is bounded in the north by district of Lahaul and Spiti in north-west by Kulu district and in the south-west by Simla district of Himachal Pradesh. On the south is Tehri Garhwal district of north-western Uttar Pradesh, while the outer ranges form the eastern boundary adjoining Tibet. The hills in this area range between 2000 to 7000 metre above sea level. The present study has been conducted around 3000 metre above sea level.

Climatically, Kinnaur can be divided into two zones, *i.e.*, a wet Zone and a dry Zone. The records of the meteorological department show that the monsoon rainfall decreases progressively towards the interior regions due to interception by the Himalayan ranges.

There are two distinct endogamous groups in Kinnaur, namely the Rajputs and the Kolia. Polyandry was quite common, but is now sporadic. According to 1971 census report, the total population of district Kinnaur was 49,835 which included 26,407 males and 23,428 females, giving a sex ratio of 887 females per 1000 males. The entire population, is distributed in six Tehsils, namely Kalpa, Moorang, Nichas, Sangla, Pooh and Hanghang, covering an area of 6553 sq. km. with population density of 8 persons per sq. km.

Material and method

The present study is based on a sample of 689 Kinnaura male Rajputs.

The sample has been drawn from Kalpa and Moorang tehsils, situated at an average altitude of 3000 metre and inhabited by the same ethnic stock. The population in the other four tehsils show varied amount of racial admixture. The total scheduled tribe male population of the two tehsils, under study is 6814. If we were to consider the male population between 5 and 18 years to roughly constitute 50% of the total male population for all age groups, then the present sample of 689 individuals can reasonably be said to be drawn from the total

member of 3407 individuals, thus comprising about 20% of the entire male population, in the age range considered for the study.

In the present cross-sectional study Kinnaura male Rajputs within the age range from 5 to 18 years, who are apparently healthy and free from any congenital defect have been taken from twelve schools of Kalpa and Moorang tehsils. These individuals were measured for a number of parameters, namely, weight, stature, sitting height vertex, upper extremity length, lower extremity length, bicristal diameter and biacromial diameter. The technique suggested by Weiner and Lourie (1969) has been followed for taking these measurements.

Dates of birth

The importance of dates of birth in a growth study can not be just overlooked. So all the precautions were taken to record the correct date of birth. The main source was school register, but in doubtful cases help of parents and teachers was also sought. Further dental status was also recorded to cross-check any obvious error.

Age has been calculated from the date of birth to the date of investigation using decimal age system prepared by Tanner *et. al.* (1966, a.b.). The data are divided into the following 14 years age range.

1	4.500 to 5.499	=	Mean age 5 years
2	5.500 to 6.499	=	Mean age 6 years
3	6.500 to 7.499	=	Mean age 7 years
4	7.500 to 8.499	=	Mean age 8 years
5	8.500 to 9.499	=	Mean age 9 years
6	9.500 to 10.499	=	Mean age 10 years
7	10.500 to 11.499	=	Mean age 11 years
8	11.500 to 12.499	=	Mean age 12 years
9	12.500 to 13.499	=	Mean age 13 years
10	13.500 to 14.499	=	Mean age 14 years
11	14.500 to 15.499	=	Mean age 15 years
12	15.500 to 16.499	=	Mean age 16 years
13	16.500 to 17.499	=	Mean age 17 years
14	17.500 to 18.499	=	Mean age 18 years

Indices

From the linear measurements following indices have been calculated in order to have a quantitative and graphical picture of growth changes in different segments in relation to the total body.

- a) Rohrer's Index = $\frac{WT (gm)}{ST (cm)} \times 100$
- b) Relative Sitting Height Vertex = $\frac{SH}{ST} \times 100$
- c) Relative Lower Extremity Length = $\frac{LEL}{ST} \times 100$
- d) Relative Upper Extremity Length = $\frac{UEL}{ST} \times 100$
- e) Inter membral Index = $\frac{UEL}{LEL} \times 100$
- f) Relative Biacromial diameter = $\frac{BAD}{ST} \times 100$
- g) Relative Bicristal diameter = $\frac{BCD}{ST} \times 100$
- h) Acrom-Iliac Index = $\frac{BCD}{BAD} \times 100$
- i) Body surface Area (m²) (B.S.A.)
- For individual below 12 years = $WT (Kg)^{.425} ST (cm)^{.725} \times 70.00$
- For individual above 12 years = $WT (Kg)^{.425} ST (cm)^{.725} \times 74.66$
(Banerjee, 1962)
- j) Mass—B.S.A. Index = $\frac{WT (Kg)}{B.S.A. (m^2)}$

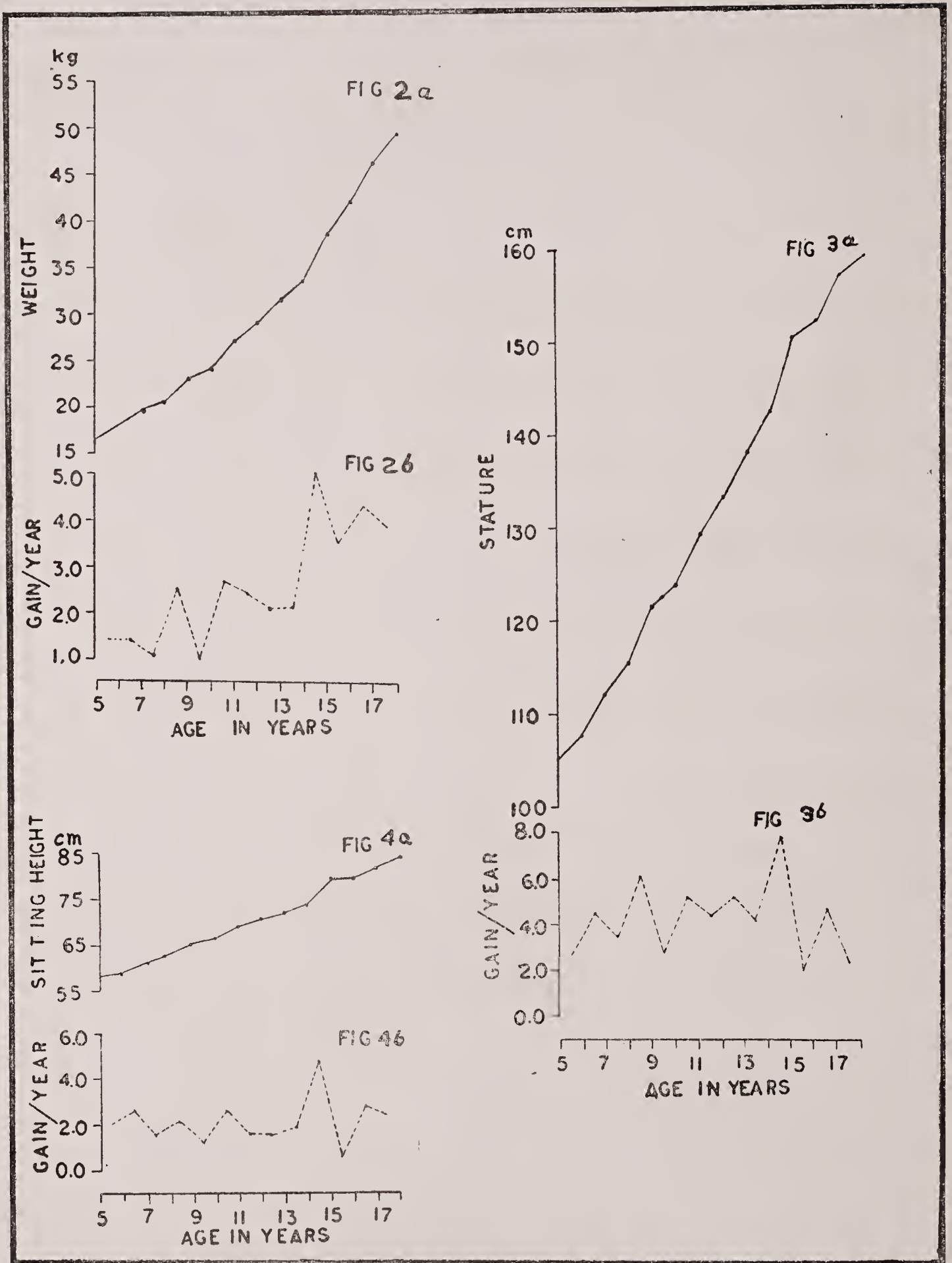
Results and discussions

The results of the present study have been discussed under various heads, with a view to providing the base line data on physical growth.

(A) Magnitude of growth

The magnitude of growth has been studied in terms of three statistical measures namely, the distance curves, regression lines and correlation and growth gradients.

WT—Weight, ST—Stature, SH—Sitting height vertex, UEL—Upper extremity length, LEL—Lower extremity length, BAD—Biacromial diameter, BCD—Bicristal diameter, BSA—Body surface area,

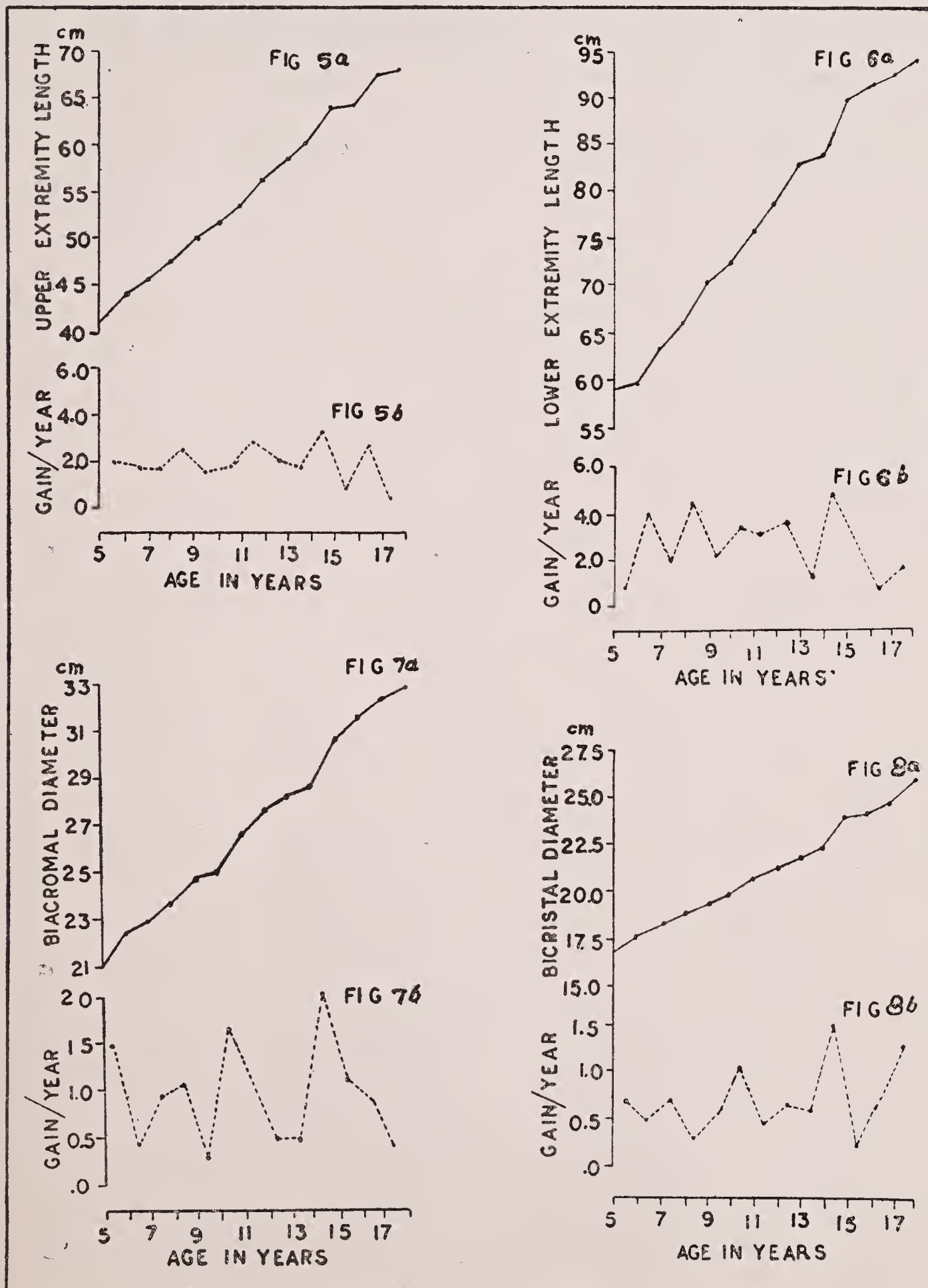


(a) *Distance curves*

The mean values obtained from 5 to 18 years have been transposed in the form of distance curves to study the magnitude of growth (Figs. 2a, 8a). A steady increase in all the linear measurements is seen at all age levels, though the extent of growth varies.

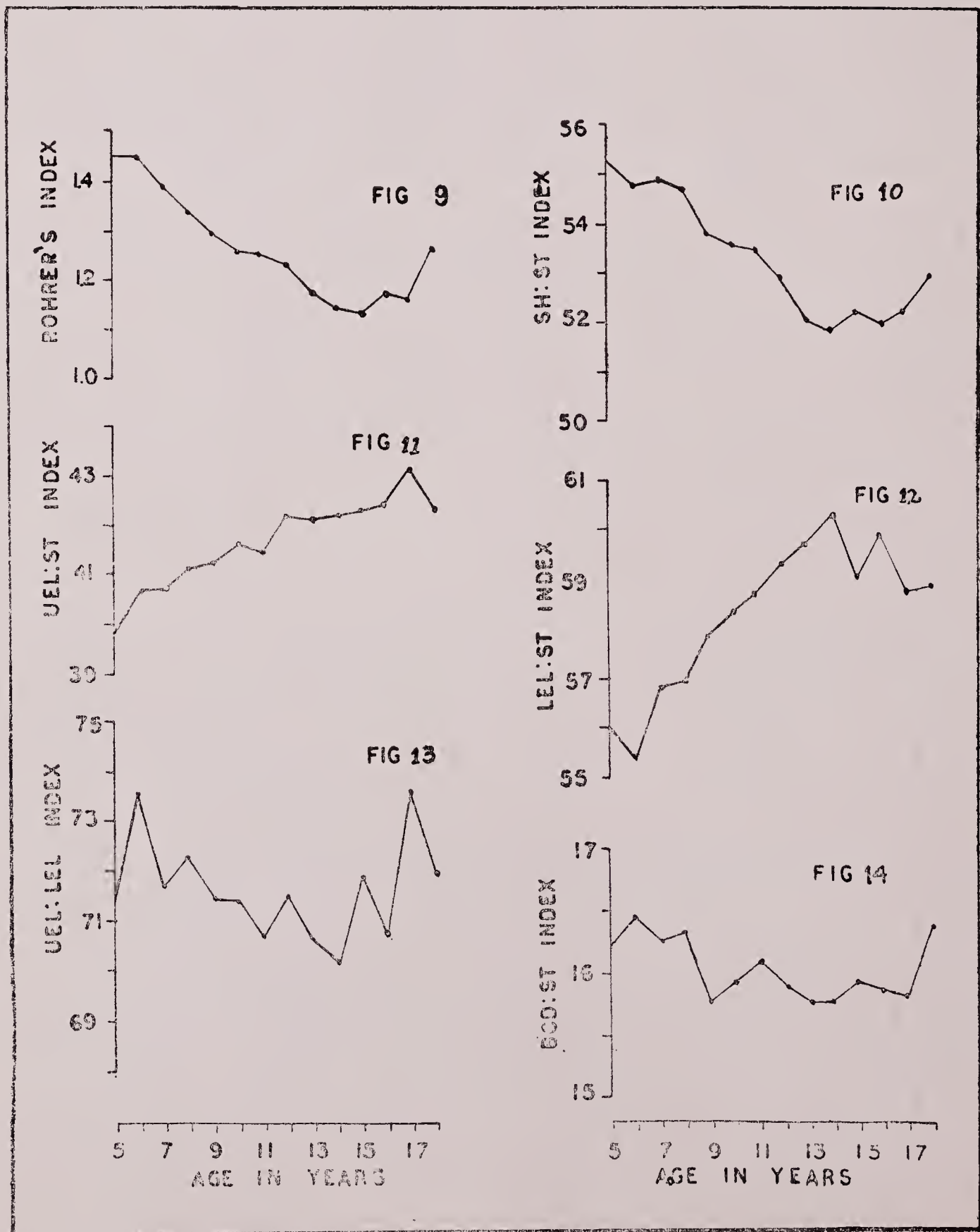
A glance at the distance curves constructed for some of the *morphological parameter* (Table 1 and 2) like weight, sitting height vertex

are concave in shape—indicating slow growth in the initial period and a faster rate in later phase. Similarly curves for stature, upper extremity length, lower extremity length, bicristal diameter are concave-convex—meaning slow growth rate during the initial and final phases and faster growth rate during the adolescent phase and for biacromial diameter initially the curve is rectilinear, which, in the later stages, becomes concave. Two phases of accelerated growth can be observed, namely,



between 8 and 9 years, *i.e.*, 'Juvenile' or 'mid growth' spurt and the other between 14 and 15 years, *i.e.*, 'adolescent' growth spurt; besides these there are many other minor fluctuations.

The *body proportions* (Table 3 and 4, Figs. 9 to 18) show completely a different picture. The value of Rohrer's index decreases with age upto 15 year indicating that the relative weight of the body decreases as the height increases, or in other words shorter individuals are heavier. A slight increase in the values is observed after 15th year. The trunk portion does not increase in proportion to stature, hence a consistent



decrease in the SH/ST index is seen upto 13th year. Similarly with the increase in age, upper and lower extremities grow at a faster rate in relation to stature. Perhaps this is due to a faster rate of growth of extremities. The intermembral index does not speak much about trend of growth of extremities, except that both tend to grow more or less at the same rate. Similarly relative biacromial and bicristal diameters also do not indicate any thing special. But the acromoilliatic index shows that bicristal diameter increases at a faster rate as compared to biacromial diameter upto the age of 11, afterwards later one tries to take over. This index also conforms to the law of cephalo-candal growth.

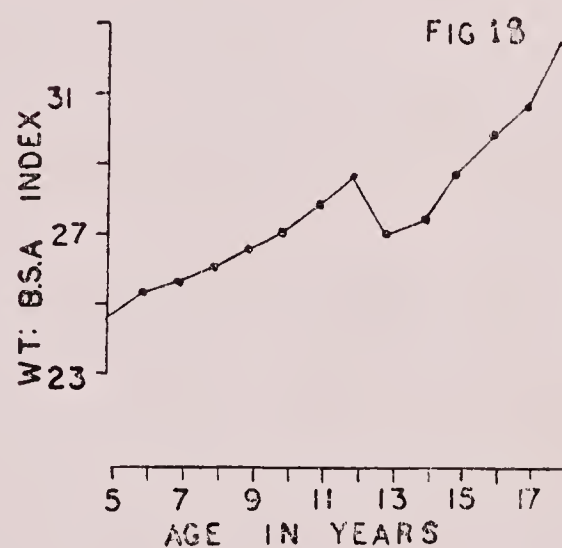
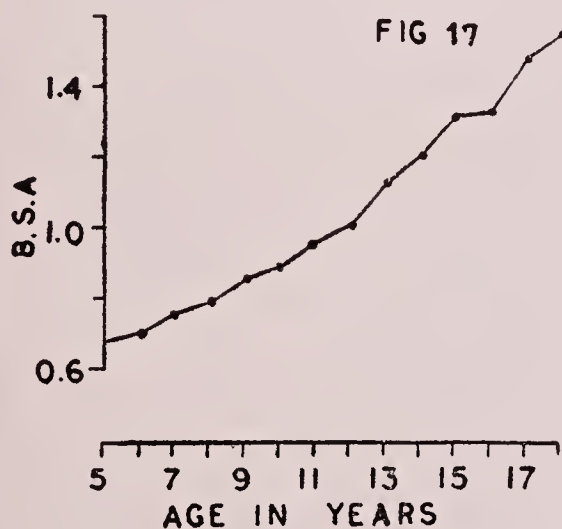
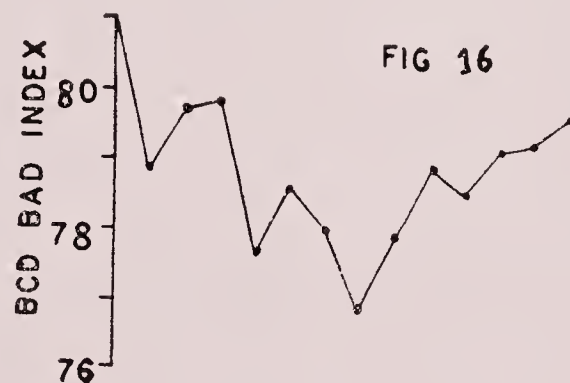


Table 1: Body measures

Age in years	N.	Weight (Kg.)		Stature (Cm.)		Sitting Height Vertex. (Cm.)	
		Mean	SD.	Mean	SD.	Mean	SD.
5	47	16.70	2.35	105.00	7.16	58.00	3.79
6	42	18.06	2.41	107.65	6.94	58.94	3.19
7	50	19.50	3.50	112.13	7.84	61.46	3.64
8	55	20.62	3.15	115.50	6.48	63.14	3.10
9	54	23.10	3.39	121.46	7.54	65.33	3.85
10	61	24.12	3.62	124.17	6.34	66.48	3.20
11	54	26.78	3.38	129.35	7.56	69.11	4.43
12	58	29.22	4.23	133.66	7.19	70.66	3.66
13	56	31.35	5.23	138.77	7.95	72.16	4.69
14	40	33.49	6.45	142.90	6.46	73.99	5.16
15	43	38.52	6.31	150.77	8.06	78.67	4.85
16	46	41.98	7.27	152.68	8.51	79.36	4.74
17	36	45.23	6.38	157.34	8.23	82.11	4.49
18	34	49.15	7.45	159.69	6.66	84.43	3.40

Table 2: Body measures

Age in years	N.	Upper Extremity Length (Cm)		Lower Extremity Length (Cm)		Biacromial Diameter (Cm)		Bicristal Diameter (Cm)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
5	47	41.75	3.39	58.85	6.98	21.04	1.60	16.98	1.22
6	42	43.79	3.34	59.66	5.42	22.49	1.88	17.66	1.13
7	50	45.66	3.80	63.70	5.15	22.88	1.93	18.18	1.25
8	55	47.48	3.46	65.79	5.10	23.70	1.80	18.87	1.14
9	54	50.11	3.84	70.32	5.86	24.74	1.74	19.15	1.12
10	61	51.74	3.52	72.57	5.03	24.78	2.12	19.72	1.08
11	54	53.64	4.09	75.94	5.36	26.66	1.47	20.76	1.14
12	58	56.40	3.80	79.21	6.10	27.69	1.99	21.23	1.45
13	56	58.51	4.93	82.85	5.06	28.13	2.23	21.87	1.52
14	40	60.37	5.05	84.11	6.57	28.57	2.38	22.48	1.58
15	43	63.86	4.33	88.91	4.87	30.59	2.16	23.99	1.57
16	46	64.70	4.26	91.46	5.49	31.62	2.31	24.19	1.75
17	36	67.49	4.46	92.36	4.99	32.46	2.45	24.86	1.46
18	34	67.94	4.61	93.94	4.95	32.82	3.15	26.10	1.75

Table 3: Indices

Age in years	N	Rohrer's Index		Body Surface area(m ²)		Mass-Body Surface area Ratio (Kg/m ²) (WT/BSA)		Relative Sitting Height Vertex (SH/ST)		Acromo-Iliac Index (BCD/BAD)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
5	47	1.45	.15	.68	.07	24.63	.93	55.30	2.08	80.85	4.77
6	42	1.45	.19	.71	.07	25.31	1.12	54.83	2.14	78.89	4.79
7	50	1.39	.23	.76	.09	25.63	1.92	54.88	1.97	79.69	4.78
8	55	1.34	.16	.79	.08	25.93	1.60	54.72	1.90	79.82	4.07
9	54	1.29	.11	.86	.09	26.68	1.27	53.83	1.83	77.58	4.13
10	61	1.26	.14	.89	.08	26.93	1.61	53.57	1.44	78.62	4.47
11	54	1.25	.19	.96	.08	27.80	1.49	53.46	2.23	77.99	4.07
12	58	1.23	.16	1.02	.10	28.52	1.73	52.89	1.46	76.82	4.27
13	56	1.17	.12	1.15	.12	27.05	1.62	52.02	2.03	77.91	4.49
14	40	1.14	.11	1.21	.16	27.47	1.69	51.81	1.43	78.88	4.36
15	43	1.13	.20	1.33	.12	28.73	2.57	52.18	1.60	78.54	4.26
16	46	1.17	.13	1.40	.15	29.83	2.22	51.98	1.25	79.16	4.52
17	36	1.16	.10	1.48	.14	30.54	1.67	52.19	1.24	76.19	6.29
18	34	1.26	.15	1.57	.13	32.42	2.25	52.91	1.95	79.56	4.86

Table 4: Indices

Age in years	N	Relative upper Extremity Length (UEL/ST)		Relative Lower Extremity Length (LEL/ST)		Intermembral Index (UEL/I,EL)		Relative Biacromial (BAD/ST)		Relative Bicristal Breadth (BCD/ST)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
5	47	39.77	1.54	55.95	3.88	71.34	4.72	20.06	0.94	16.19	.77
6	42	40.69	1.76	55.37	2.46	73.59	4.07	20.92	1.60	16.42	.74
7	50	40.70	1.37	56.80	2.08	71.73	3.02	20.41	1.03	16.23	.68
8	55	41.11	1.81	56.93	2.39	72.29	3.68	20.52	1.06	16.35	.63
9	54	41.24	1.53	57.85	2.31	71.37	3.30	20.38	1.07	15.78	.66
10	61	41.66	1.57	58.42	1.87	71.36	2.96	20.13	1.53	15.89	.62
11	54	41.46	1.79	58.63	1.40	70.67	2.79	20.65	1.21	16.08	.88
12	58	42.20	1.75	59.28	3.33	71.46	5.98	20.71	0.94	15.89	.73
13	56	42.12	2.07	59.71	1.57	70.62	3.81	20.27	0.98	15.76	.67
14	40	42.23	1.34	60.27	1.92	70.10	2.61	20.00	0.97	15.75	.65
15	43	42.34	1.45	58.99	1.69	71.80	2.28	20.29	0.99	15.92	.75
16	46	42.37	1.35	59.91	1.48	70.74	2.06	20.05	0.88	15.85	.82
17	36	43.16	1.44	58.72	1.83	73.56	3.20	20.86	1.66	15.81	.83
18	34	42.29	2.54	58.82	1.81	71.88	3.51	20.34	2.04	16.35	1.06

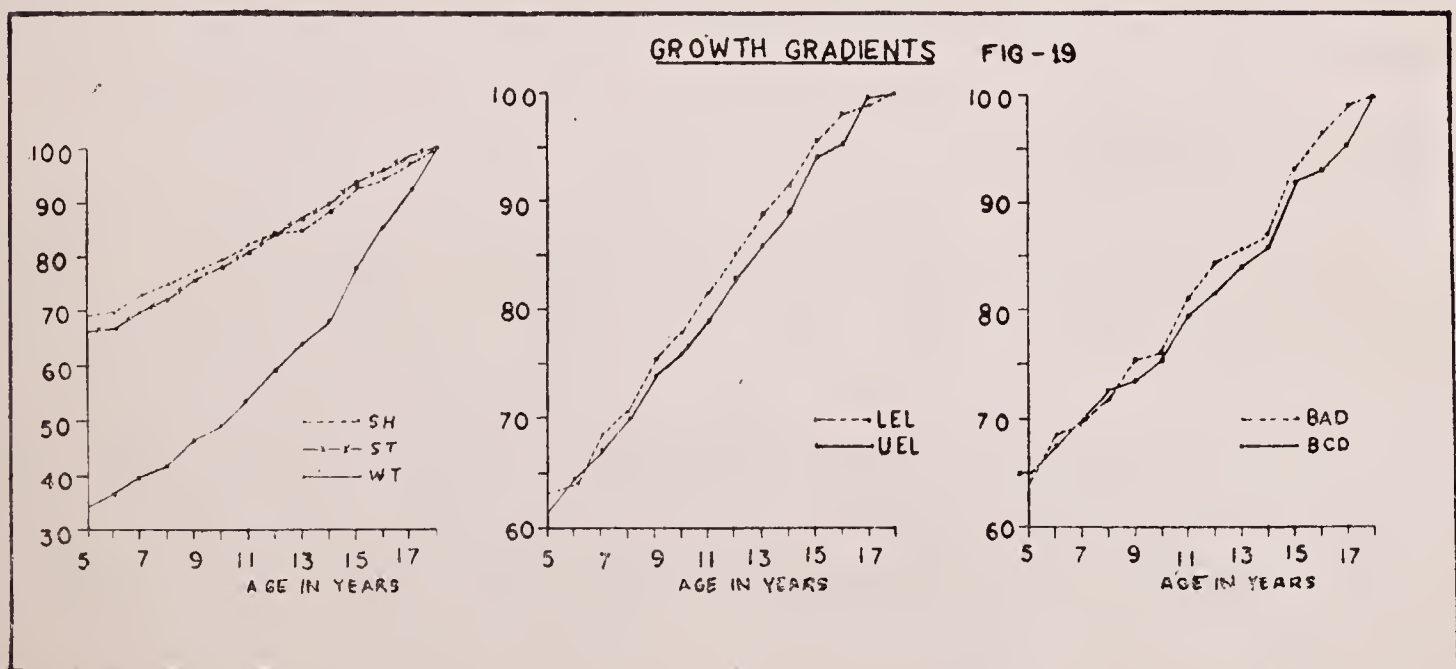
(b) *Regression lines*

Table 5 shows the values for the various regression equations computed for various biological variables. The morphological variables have been arranged in the descending order of regression co-efficients. The higher values of regression co-efficients are indicative of more increase of 'dependent' variable with unit increase in the 'independent' variable.

Table 5 : Regression equation and total correlations

Y	=	a	+	bx	'r'
Upon Age (A)					
ST	=	84.61	+	4.07 A	0.91
LEL	=	47.00	+	2.57 A	0.88
WT	=	2.46	+	2.35 A	0.89
SH	=	47.91	+	1.92 A	0.90
UEL	=	33.14	+	1.88 A	0.89
BAD	=	16.88	+	0.87 A	0.86
BCD	=	13.48	+	0.66 A	0.89
Upon Weight (WT)					
ST	=	84.67	+	1.59 WT	0.94
LEL	=	47.27	+	1.00 WT	0.90
SH	=	47.77	+	0.76 WT	0.93
UEL	=	33.07	+	0.74 WT	0.92
BAD	=	16.87	+	0.34 WT	0.89
BCD	=	13.52	+	0.26 WT	0.91
Upon Stature (ST)					
LEL	=	7.16	+	0.64 ST	0.97
WT	=	43.35	+	0.55 ST	0.94
SH	=	9.04	+	0.46 ST	0.97
UEL	=	5.89	+	0.46 ST	0.97
BAD	=	0.18	+	0.21 ST	0.91
BCD	=	0.76	+	0.15 ST	0.93

Y	=	a	+	bx	'r'
Upon Sitting Height Vertex (SH)					
ST	=	10.36	+	2.03 SH	0.97
LEL	=	12.47	+	1.27 SH	0.93
WT	=	51.03	+	1.15 SH	0.93
UEL	=	10.45	+	0.93 SH	0.94
BAD	=	2.76	+	0.42 SH	0.90
BCD	=	1.41	+	0.32 SH	0.92
Upon Upper Extremity Length (UEL)					
LEL	=	4.30	+	1.22 UEL	0.96
BAD	=	3.60	+	0.43 UEL	0.90
BCD	=	3.71	+	0.32 UEL	0.91
Upon Lower Extremity Length (LEL)					
UEL	=	1.59	+	0.70 LEL	0.96
BAD	=	3.91	+	0.30 LEL	0.87
BCD	=	3.67	+	0.23 LEL	0.90
Upon Bicristal Diameter (BCD)					
BAD	=	1.92	+	1.19 BCD	0.87
Upon Biacromial Diameter (BAD)					
BCD	=	3.77	+	0.65 BAD	0.87



Another feature is that the values of correlation co-efficient 'r' have been found to be 'positive' and 'high' in all the morphological parameters. Falkner (1962) considers correlation to be high if the value of 'r' is between 0.80 to 1.00.

(c) *Growth gradients*

The growth gradients indicate the level of maturity at a particular given stage. Table 6 and Fig. 19 show the growth gradients values for all the measures for the age range between 5 to 18 years. The values at the age 18 have been taken to be mature values for the computation of growth gradients.

It would be evident from the table that weight steadily increases from 33.98% at age 5 to its mature value, whereas all other parameters by this age (5 years) have already attained at least 60% of their mature value, e.g., from a minimum of 61.45% in the case of upper extremity length to a maximum of 68.70% in the case of sitting height vertex. Similarly, other parameters like stature 65.06% and Biacromial diameter 65.11%, also attain more than 60% of their mature value at the age of 5 years.

From the foregoing paragraph it is quite clear that some dimensions which are slower in the initial stages tend to be faster in the latter stages, e.g., stature covers sitting height by the 12th year and thereby supporting the law of compensatory growth. Similarly some measures like weight, bicristal diameter tend to grow even after the mature values. This is evident from the fact that there is lot of difference between the values obtained at the age of 17 years and 18 years. These phenomenon can be attributed to the differential rates of growth of different body parts.

(B) *Rhythm of growth*

The Velocity curves have been utilized for studying the 'rhythm of growth'. The Velocity curves (Fig. 2b to 8b) show the following identifiable phases.

- (i) *Phase of Slow Growth* : The Velocity curve indicate the period of slow growth duriig 6th, 7th and 8th year, except stature and sitting height vertex which show accelerated growth.
- (ii) *Juvenile or Mid Growth Spurt* : The juvenile or 'mid growth

Table 6 : Growth gradients

Age in years	Weight	Stature	Sitting height vertex	Upper extremity length	Lower extremity length	Bicristal diameter	Biacromial diameter
5	33.98	65.75	68.70	61.45	63.05	65.06	65.11
6	36.74	67.41	69.81	64.45	63.92	67.66	68.53
7	39.67	70.22	72.79	67.21	68.25	69.66	69.71
8	41.95	72.33	74.78	69.89	70.48	72.30	72.21
9	47.00	76.06	77.38	73.76	75.34	73.37	75.38
10	49.07	77.66	78.74	76.16	77.75	75.56	76.11
11	54.49	81.00	81.85	78.95	81.36	79.54	81.23
12	59.45	83.70	83.69	83.01	84.86	81.34	84.37
13	63.78	86.90	85.47	86.12	88.76	83.79	85.71
14	68.14	89.49	87.63	88.86	90.11	86.13	87.05
15	78.37	94.41	93.18	93.99	95.25	91.92	93.21
16	85.41	95.61	94.00	95.23	97.99	92.68	96.34
17	92.13	98.53	97.25	99.34	98.95	95.25	98.90
18	100.00	100.00	100.00	100.00	100.00	100.00	100.00

spurt' has been observed between 6th and 8th year, by many authors like Meredith (1935), Grubb (1942), Tanner (1947, 1964), Sidhu (1969) and others.

In the present study however this spurt is observed around 8 or 9 years. This is probably due to the fact that Kinnauras attain late maturity. This spurt is of minor intensity.

(iii) *Phase of Slow Growth* : The period of 'mid growth spurt' is followed by a few years of slow and steady growth. This trend can be seen almost in all the parameters. The increase in the dimensions is rather slow and this trend continues upto 14th years in almost all the parameters.

(iv) *Phase of Adolescent Growth Spurt* : The phase of slow growth is followed by a period of marked acceleration of growth especially during the 14th and 15th years, and it is this marked acceleration which is popularly termed as the 'adolescent spurt'. It occurs in all human populations. (Richey, 1931 ;

Boas, 1932, 1933, 1935; Meredith, 1935, 1941 a.b, 1944, 1947, 1951; Bayley, 1943; Greulich, 1957; Sharma, 1970; Chang *et. al.*, 1963; Tanner, 1964; Wolanski, 1967 a.b; Frisancho and Baker, 1970; Kaul, 1971; Chopra, 1975).

All the seven parameters in the present study show this adolescent spurt around 14th—15th year.

Higher values of the standard deviation for the age groups from 13 to 15 years is indicative of somewhat greater heterogeneity of the sample, because during this period of growth the sample would include besides the normals, both early and the late matured ones.

- (v) *Post Adolescent Growth Phase*: The post adolescent growth phase is marked by a sharp decline immediately after the adolescent spurt for all measures. This downward trend continues only for the next one year for all parameters except lower extremity length, where it continues for next two years. Again the curve shows picking up pace from 16th year onward.

The velocity curves for weight, stature, sitting height vertex, upper extremity length and lower extremity length are suggestive of a similar pattern of growth and those for bicristal diameter and biacromial diameter indicate another pattern.

(C) *Relative variability*

To check whether one distribution is relatively more variable than another, Karl Pearson's co-efficient of variation has been computed for various parameters (Table 7). These co-efficients are arranged in the ascending order. Amongst these linear measurements sitting height vertex is least and weight most variable parameter.

Similarly, co-efficients of variation have also been calculated to study index to index differences. Relative sitting height vertex has been found to be least variable and Rohrer's index to be the most. The latter one is most variable probably due to one of its components, *i.e.*, weight, which itself registers the maximum variability.

Table 7: Co-efficient of variation in the ascending order

A. <i>Linear Measures</i>			
1	Sitting Height Vertex	...	5.54
2	Stature	...	5.68
3	Bicristal Diameter	...	6.46
4	Lower Extremity Length	...	7.34
5	Upper Extremity Length	...	7.41
6	Biacromial Diameter	...	7.81
7	Weight	...	15.62
B. <i>Indices</i>			
8	Relative Sitting Height Vertex	...	3.24
9	Relative Lower Extremity Length	...	3.67
10	Relative Upper Extremity Length	...	3.98
11	Intermembral Index	...	4.61
12	Relative Bicristal Diameter	...	5.00
13	Acromo—Iliac Index	...	5.83
14	Relative Biacromial Diameter	...	6.06
15	Body Surface Area/Mass	...	6.11
16	Body Surface Area	...	9.90
17	Rohrer's Index	...	11.93

Also age to age differences in the co-efficient of variation have been recorded (Table 8). The maximum co-efficient of variation of the whole age range is at the 5th year in the case of stature and lower extremity length. Between 7 and 13 years the co-efficients of variations are not very high, because this phase falls under the slow growth phase and heterogeneity in the sample is likely to be less. Since the period between 14 and 15 years is characterised by the adolescent spurt highest values of standard deviation and co-efficients of variation are found during these years.

(D) *Percentiles as indicative of Growth Norms*

Stuart and Stevenson (1963) and Tanner and Whitehouse (1966) have prepared growth standards for assessing the growth of a child against

Table 8: Age-wise distribution of coefficient of variation

	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Weight	14.06	13.34	17.94	15.26	14.69	15.01	12.61	14.48	16.68	19.26	16.37	17.33	13.79	14.56
Stature	7.16	6.45	6.99	5.61	6.21	5.34	5.85	5.38	5.73	4.52	5.35	5.58	5.23	4.17
Sitting height Vertex	3.79	5.42	5.92	4.91	5.89	4.81	6.41	5.19	6.50	6.97	6.16	5.97	5.60	4.02
Upper Extre- mity length	8.11	7.62	8.33	7.30	7.66	6.80	7.63	6.74	8.42	8.37	6.78	6.58	6.62	6.78
Lower extre- mity length	11.86	9.08	8.09	7.76	8.34	6.93	7.06	7.74	6.11	7.81	5.48	6.00	5.40	5.30
Bicristal dia- meter	7.18	6.37	6.85	6.85	6.05	5.86	5.48	5.49	6.81	6.95	7.05	6.54	7.22	5.89
Biacromial diameter	7.59	8.35	8.45	7.58	7.02	8.48	5.53	7.18	7.93	8.34	7.05	7.31	9.97	9.60

particular population standards. Most of the authors who prepared these charts, computed values for *3rd, 10th, 25th, 50th (arithmetic mean), 75th, 90th and 97th percentiles, using the formulae given by Tanner *et. al.* (1966, a). In the present study the percentiles for height and weight (Table 9 and 10) have been calculated. Tanner and Whitehouse (1966) have recommended that the growth curves of children falling prior to 3rd and after the 97th percentile should be ordinarily taken unhealthy/abnormal until proved otherwise. During the pre-adolescent and adolescent periods a departure from the usual centile may be observed sometimes, meaning thereby the child is either early maturer if the value deviation is to the higher centile or is late maturer if the deviation is towards the lower centile. The reason of this deviation can also be assigned to the growth spurts occurring at different times.

Fig. 20 gives us the position of the Kinnaura male Rajput in relation to the various centile values for Indian children (ICMR, 1968) for weight and stature. In case of stature the Kinnaura boys are almost as tall as average Indian children upto 7th year, but afterwards the curve moves around 25th centile of average Indian children, showing thereby the mature adults are by and large shorter than the average Indians.

But weight-wise they are well comparable with them. In fact the Kinnauras are relatively heavier than the average Indian children till 13th year, afterward they show a declining trend, but the adult values are better than the average Indian children. This observation rather confirms the findings of Rohrer's index.

(E) Comparison with other populations

The differences in physique and body composition have been mainly ascribed to the genetical factors, whereas the environmental factors such as climate, nutrition, socio-economic factors do play their role in such differences. Most of the world populations are adjusted to their environmental conditions by means of selection (Tanner, 1964). According to Swaminathan *et. al.* (1964) the growth rate of infants in the developing countries compares well with the western standards upto the age of

* 3rd and 97th percentile	=	Mean \pm 1.881 SD.
10th and 90th percentile	=	Mean \pm 1.282 SD.
25th and 75th percentile	=	Mean \pm .675 SD.
50th percentile	=	Mean.

Healy (1962) has suggested a correction against using only SD. He has suggested that SD/12 should be subtracted from SD.

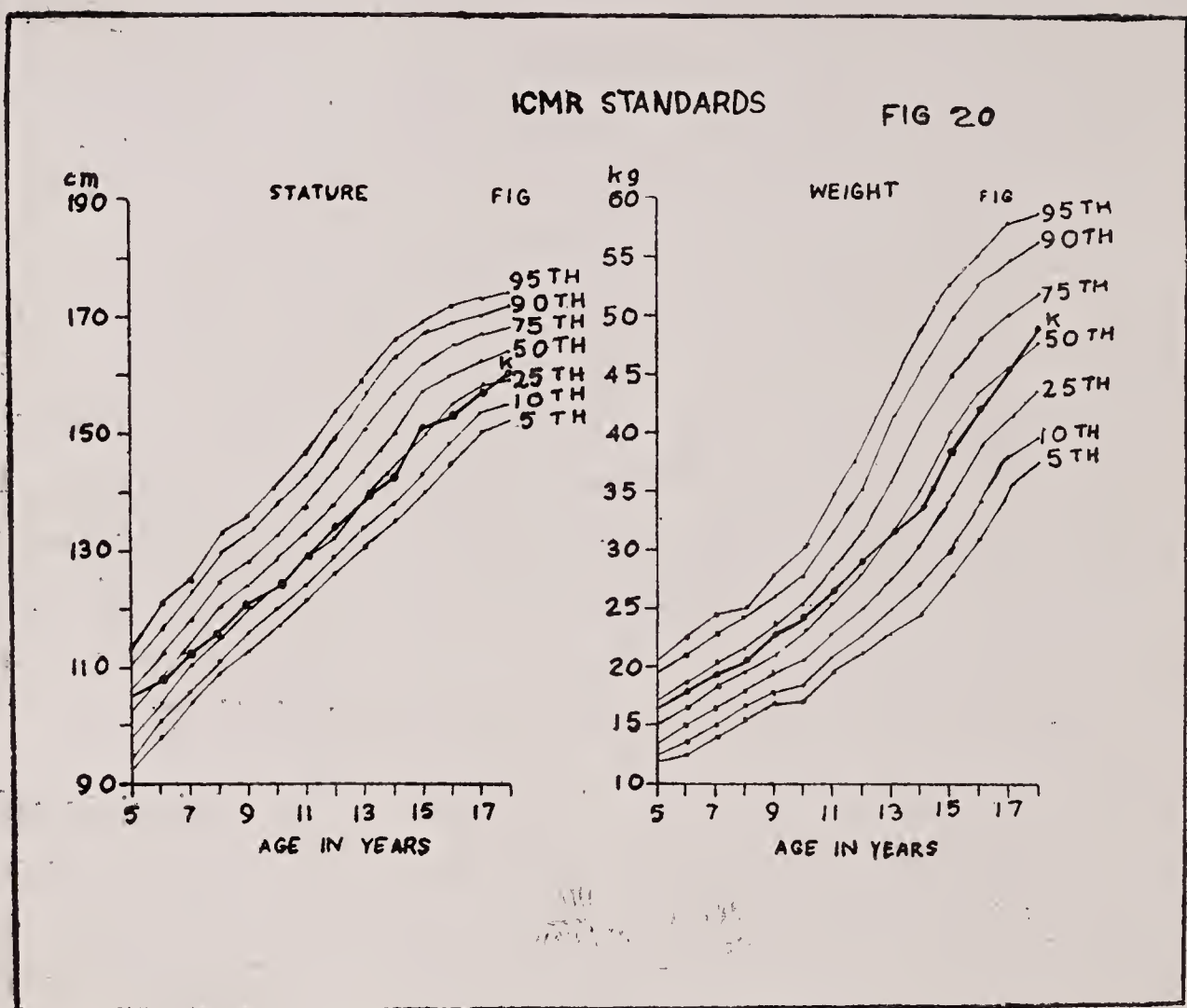


Table 9 : Stature percentiles (cm)

Age in years	3rd	10th	25th	50th	75th	90th	97th
5	90.86	95.37	99.92	105.00	110.08	114.63	119.14
6	94.59	98.75	102.95	107.65	112.34	116.54	120.70
7	97.38	102.08	106.83	112.13	117.43	122.19	126.89
8	103.32	107.02	111.13	115.50	119.88	123.81	127.69
9	107.27	111.79	116.36	121.46	126.56	131.13	135.65
10	111.69	115.67	119.69	124.17	128.66	132.68	136.66
11	115.12	119.65	124.24	129.35	134.47	139.05	143.58
12	120.12	124.43	128.79	133.66	138.52	142.88	147.18
13	123.81	128.57	133.39	138.77	144.15	148.97	153.73
14	123.23	129.50	135.83	142.90	149.97	156.30	162.57
15	135.60	140.43	145.31	150.77	156.22	161.10	165.93
16	136.66	141.76	146.92	152.68	158.43	163.59	168.69
17	141.87	146.80	151.78	157.34	162.91	167.89	172.82
18	147.16	151.15	155.18	159.69	164.19	168.22	172.21

Table 10 : Weight percentiles (Kg.)

Age in years	3rd	10th	25th	50th	75th	90th	97th
5	12.28	13.69	15.11	16.70	18.29	19.71	21.12
6	13.53	14.97	16.43	18.06	19.69	21.15	22.59
7	12.92	15.01	17.13	19.50	21.87	23.99	26.08
8	14.70	16.58	18.49	20.62	22.74	24.65	26.54
9	16.72	18.75	20.80	23.10	25.40	27.45	29.48
10	17.31	19.48	21.67	24.12	26.57	28.77	30.93
11	20.43	22.45	24.50	26.78	29.06	31.10	33.13
12	21.26	23.80	26.36	29.22	32.08	34.65	37.18
13	21.52	24.65	27.81	31.35	34.88	38.05	41.18
14	21.36	25.22	29.13	33.49	37.85	41.75	45.62
15	26.66	30.44	34.26	38.52	42.79	46.61	50.39
16	28.29	32.65	37.06	41.98	46.90	51.30	55.66
17	33.37	37.09	40.96	45.28	49.59	53.46	57.29
18	37.14	41.60	46.11	51.15	56.18	60.69	65.16

six months, but thereafter the rate of growth slows down. Raghayan *et. al.* (1971) maintains the malnutrition is an important factor for the retardation of growth. In the present context it would be interesting to compare the heights and weights of Kinnaura male Rajputs with the neighbouring and few world populations.

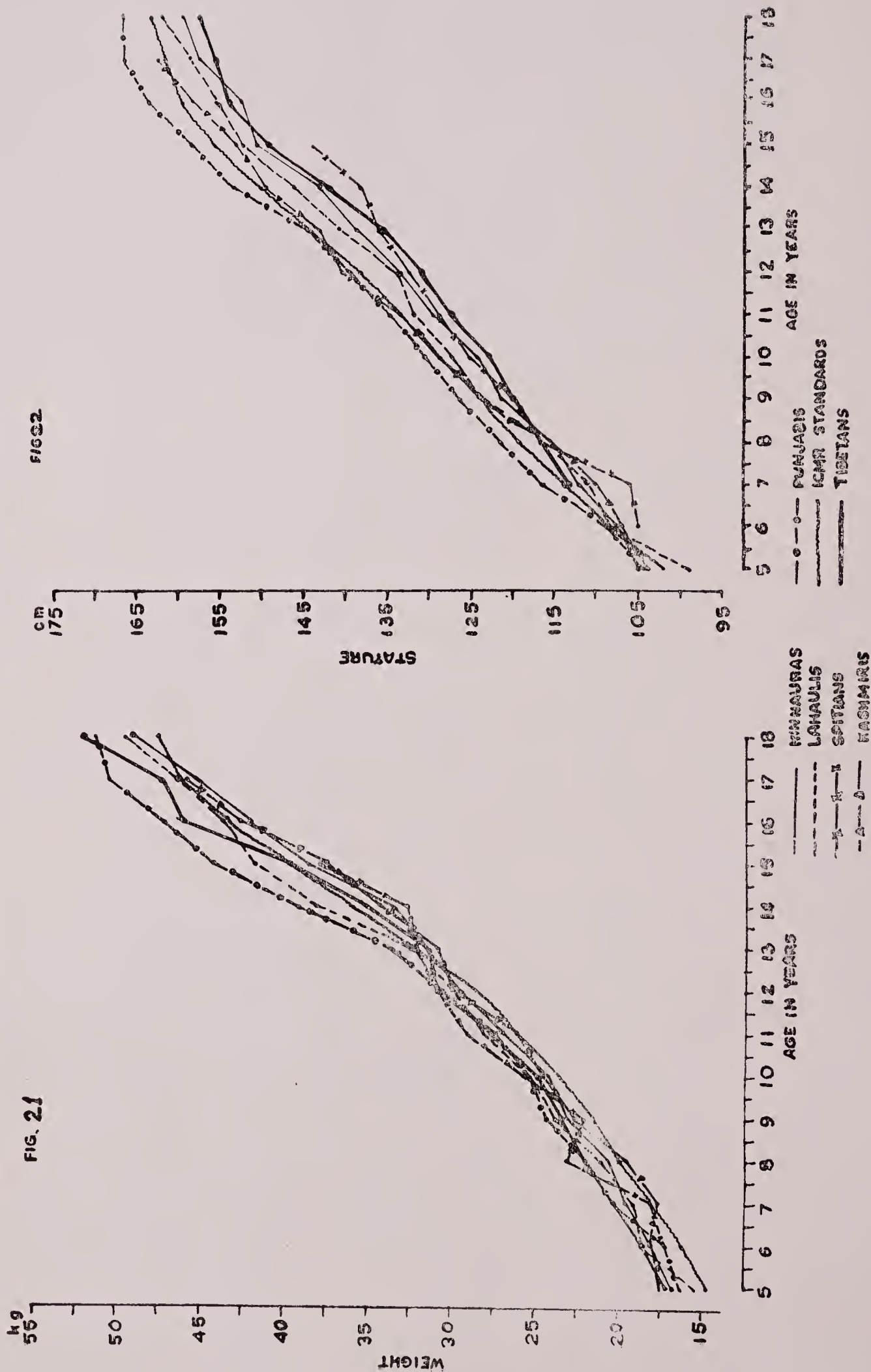
(a) *Neighbouring and other Indian populations* (Table 11 and 12)

For the comparison purposes few Indian populations have been considered: Tibetans (Bagai, 1975); Lahaulis (Singh, 1970); Spitians (Chopra, 1975); Kashmiri Pandits (Kaul, 1971); Punjabi males (Sindhu, 1964); Average Indians (ICMR, 1968). Figs. 21 & 22 show that weight of Kinnaura male Rajputs is much better than most of the other populations except the Punjabi and the Lahaulis, but in case of stature they are shorter than most of the populations, except that they are slightly taller than the Spitians and the Tibetans, just before the onset of adolescent phase.

(b) *Populations outside India*

Similarly, few world population have also been taken for comparison with the Kinnaura male Rajputs. They are: Peruvian Qucchua (Frisancho and Baker, 1970); Southern Chinese (Chang *et. al.* 1963); Japanese

COMPARISON OF KINNAURA BOYS WITH NEIGHBOURING POPULATIONS AND ICMR STANDARDS



(Greulich, 1957) and American Whites (Hathaway, 1957) (Table 13 and 14). The Kinnaura males are also well below most of the populations for weight and stature. But in comparison with the Peruvian Quechhas, they are slightly lighter in weight all through excepting that at the time of maturity they tend to be closer (*see* Fig. 23). Again the Kinnauras are taller than their counterparts in Peru, all along except for a brief period of 2-3 years, *i.e.*, between 6th and 8th years (Fig. 24). Similarly they are little shorter than Japanese and this little difference is maintained upto 15th year and afterwards these differences become more conspicuous.

Acknowledgements

The author is deeply indebted to Prof. Dr. S. R. K. Chopra, Department of Anthropology, Punjab University, Chandigarh for his guidance and constant help for completion of this study and also to the Governing body of Indian National Science Academy, New Delhi, for funding this project.

Table 11: Comparison of weight with neighbouring population

Age group	Kinnauras (Present study)	Tibetans (Bagai, 1975)	Lahaulis (Singh, 1970)	Spitians (Chopra, 1975)	Kashmiris (Kaul, 1971)	Panjabis (Sidhu, 1969)	ICMR Norms (1968)
5	16.70	16.94	15.37	—	17.57	16.24	14.8
6	18.06	18.42	18.45	17.17	17.86	17.26	16.3
7	19.50	20.18	19.07	17.86	17.62	20.18	10.0
8	20.62	21.96	20.98	22.86	19.50	21.88	19.7
9	23.10	23.67	23.73	22.08	22.60	24.23	21.5
10	24.12	25.25	24.70	25.56	24.37	25.90	23.5
11	26.78	27.06	28.09	28.96	25.78	27.92	25.9
12	29.22	28.58	29.64	30.74	29.93	30.50	28.5
13	31.35	31.40	32.29	31.88	30.71	33.50	32.1
14	33.49	35.02	37.90	32.55	34.12	39.26	35.7
15	38.52	39.70	41.82	37.63	37.48	44.18	39.6
16	41.98	43.70	42.38	—	47.26	48.55	43.2
17	45.28	49.79	46.61	—	46.37	50.58	45.6
18	49.15	51.85	49.57	—	—	51.19	47.4

Table 12: Comparison of stature with neighbouring population

Age group	Kinnauras (Present study)	Tibetans (Bagai, 1975)	Lahaulis (Sing, 1970)	Spitians (Chopra, 1975)	Kashmiris (Kaul, 1971)	Fanjabis (Sidhu, 1969)	ICMR Norms (1968)
5	105.00	101.87	98.90	—	104.23	104.56	102.1
6	107.65	108.23	108.89	105.07	107.24	108.48	108.5
7	112.13	113.43	111.74	105.84	109.95	116.34	113.9
8	115.50	116.63	116.19	116.38	115.54	121.64	119.3
9	121.46	119.80	123.33	120.20	123.62	126.70	123.7
10	124.17	122.96	127.52	124.94	128.83	130.65	128.4
11	129.35	127.48	132.01	129.22	133.27	134.54	133.4
12	133.66	131.10	134.14	132.40	140.60	139.52	138.3
13	138.77	135.50	141.13	136.03	142.84	144.69	144.6
14	142.90	141.80	146.22	138.00	149.57	153.39	150.1
15	150.77	149.60	152.59	144.07	153.20	158.34	155.5
16	152.68	159.07	155.63	—	158.46	163.55	159.5
17	157.34	160.53	158.38	—	162.45	166.32	161.4
18	159.69	162.39	161.79	—	—	166.43	163.1

COMPARISON OF KINNAURA BOYS WITH POPULATIONS OUTSIDE INDIA

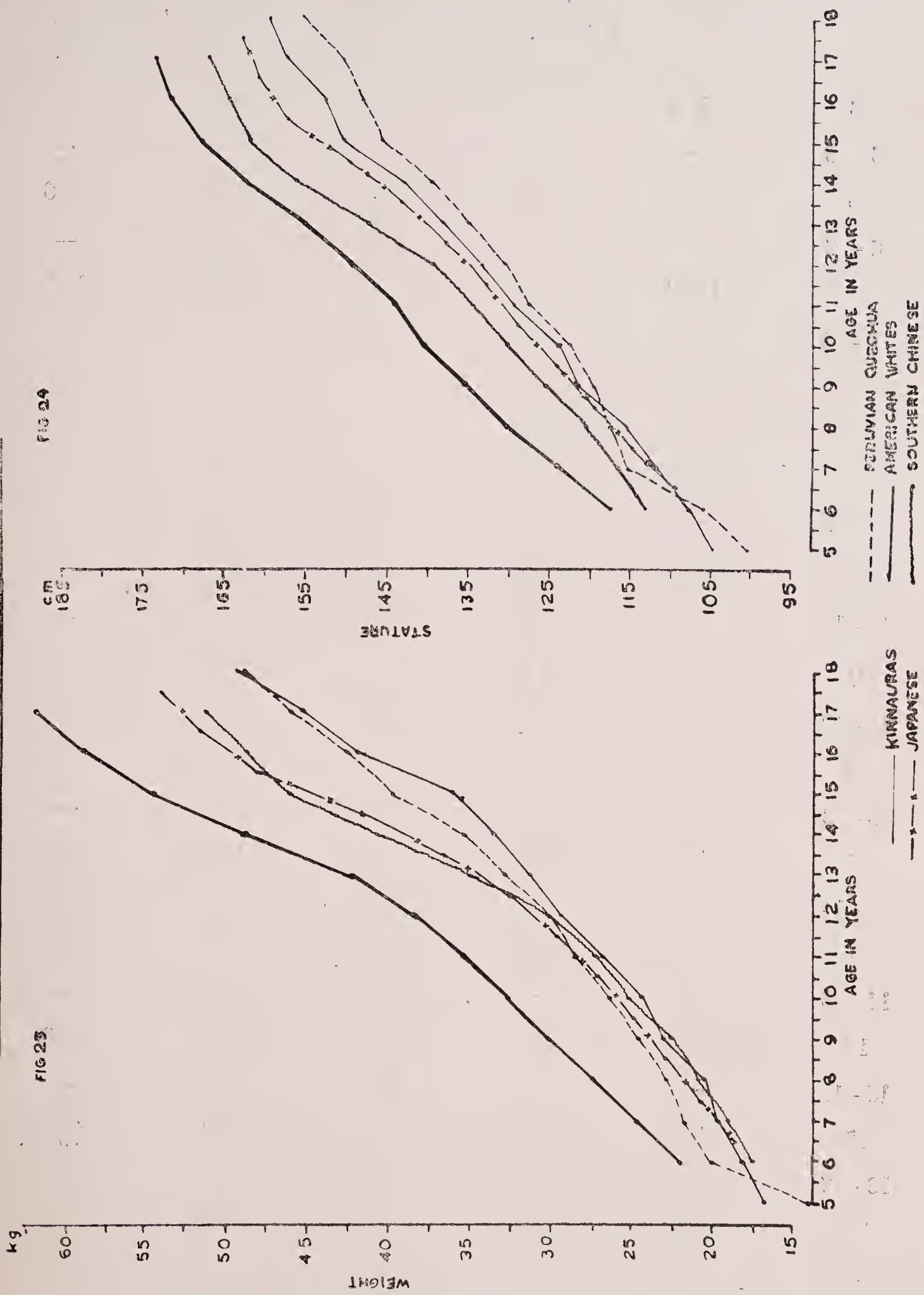


FIG 24

FIG 23

Table 13: Comparison of weight with populations outside India

Age group	Kinnauras (Present study)	Peruvian Quechua (Frisancho, & Baker, 1970)	Japanese (Greulich, 1957)	American Whites (Hathaway, 1957)	Southern Chinese (Chang et. al. 1963)
5	16.70	—	—	—	—
5 - 6	—	—	—	—	—
6	18.06	20.0	—	21.9	17.6
6 - 7	—	—	18.6	—	—
7	19.50	21.7	—	24.5	19.1
7 - 8	—	—	20.6	—	—
8	20.62	22.7	—	27.3	20.8
8 - 9	—	—	22.8	—	—
9	23.10	24.4	—	29.9	22.5
9 - 10	—	—	24.8	—	—
10	24.12	26.3	—	32.6	24.9
10 - 11	—	—	27.1	—	—
11	26.76	28.5	—	35.2	27.1
11 - 12	—	—	29.5	—	—
12	29.22	30.1	—	38.3	29.9
12 - 13	—	—	32.5	—	—
13	31.35	32.7	—	42.2	34.8
13 - 14	—	—	36.5	—	—
14	33.49	35.3	—	48.8	40.5
14 - 15	—	—	41.6	—	—
15	38.52	39.8	—	54.5	46.0
15 - 16	—	—	48.1	—	—
16	41.98	42.5	—	51.8	48.8
16 - 17	—	—	51.6	—	—
17	45.28	45.9	—	61.8	51.3
17 - 18	—	—	54.0	—	—
18	49.15	49.0	—	—	—

Table 14: Comparison of stature with populations outside India

Age group	Kinnauras (Present study)	Peruvian Quechua (Frisancho, & Baker, 1970)	Japanese (Greulich, 1957)	American Whites (Hathaway, 1957)	Southern Chinese (Chang et. al. 1963)
5	105.00	95.6	—	—	—
5 - 6	—	—	—	—	—
6	107.65	106.2	—	117.5	112.9
6 - 7	—	—	109.50	—	—
7	112.13	115.6	—	124.1	116.4
7 - 8	—	—	114.80	—	—
8	115.50	116.4	—	130.0	120.6
8 - 9	—	—	119.70	—	—
9	121.46	119.6	—	135.5	125.4
9 - 10	—	—	124.20	—	—
10	124.17	122.7	—	140.3	130.4
10 - 11	—	—	128.70	—	—
11	129.35	127.7	—	144.2	134.6
11 - 12	—	—	133.10	—	—
12	133.66	130.3	—	149.6	139.6
12 - 13	—	—	137.90	—	—
13	138.77	134.8	—	155.0	147.4
13 - 14	—	—	143.50	—	—
14	142.90	139.5	—	162.7	156.3
14 - 15	—	—	149.90	—	—
15	150.77	145.6	—	167.8	162.0
15 - 16	—	—	157.60	—	—
16	152.68	148.2	—	171.6	164.6
16 - 17	—	—	160.90	—	—
17	157.34	150.3	—	173.7	166.9
17 - 18	—	—	162.90	—	—
18	159.69	155.3	—	—	—

REFERENCES

- Aykroyd, W. R. & B. G. Krishnan 1937 Diet Survey in South Indian Villages. *Ind. J. Med. Res.* 25 : 667—88.
- Aykroyd, W. R. & K. Rajagopal 1936 The State of Nutrition of School Children in South India. *Ind. J. Med. Res.* 24 : 419—38.
- Bagai, K. 1975 Personal Communication.
- Banerjee, S. 1962 *Studies in Energy Metablism*. Special Report Series No. 43. New Delhi: Indian Council of Medical Research.
- Banerjee, S. & R. Sen 1957 A Nomogram for Calculating the Surface Area of the body of Indians. *Ind. J. Med. Res.* 45 : 33-34.
- Bayley, N. 1943 Size and Body build of Adolescents in relation to rate of skeletal maturing. *Child. Developm.* 14 : 47—90.
- Bertalanffy, L. V. 1938 A Quantitative Theory of Organic growth (Inquiries on growth laws II). *Hum. Biol.* 10 : 181—213.
- Bhave, P. D. 1941 Diet Surveys in the Central Provinces and Bihar. *Ind. J. Med. Res.* 29 : 99—104.
- Boas, F. 1932 Studies in Human Growth. *Hum. Biol.* 4 : 307—350.
- 1933 Studies in Human Growth II. *Hum. Biol.* 5 : 429—444.
- 1935 Studies in Human Growth III. *Hum. Biol.* 7 : 303—318.
- Brozak, J. 1965 Nutrition and Body Composition. *Rev. Nutr. Res.* 26 : 31—43.

- Census of India 1971 *Census Handbook*. (Statistical Tables). Govt. of India Publication.
- Chang, K.S.G., M.M.C. Lee, 1963 W.D. Low, & E. Kvan Height and Weights of Southern Chinese. *Amer. J. Phys. Anthropol.* 21 : 497—509.
- Chopra, S. R. K. 1975 Personal communication.
- Clements, E. M. B. 1953 Change in the Mean Stature and Weight of British Children over the past seventy years. *Brit. Med. J.* 2 : 897—902.
- Comas, J. 1960 *Manual of Physical Anthropology*. Illinois Charles C. Thomas: Publisher.
- Dean, R. F. A. 1965 Effects of Malnutrition, especially of slight degree on the growth of young children. *Courrier.* 15 : 73—83.
- Falkner, F. 1962 The Physical Development of Children. *Pediat.* 29 : 448—66.
- Foll, C. V. 1961 The Age at Menarche in Assam and Burma. *Arch. Dis. Child.* 36 : 302—304.
- Frisancho, A. R. & 1970 P. T. Baker Altitude and Growth. A study of the patterns of physical growth of high altitude Peruvian Quechua population. *Amer. J. Phys. Anthropol.* 32 (2) : 279—92.
- Garn, S. M. 1952 Physical Growth and Development. *Amer. J. Phys. Anthropol.* 10 : 169—92.
- Ghani, A. R., I. C. Verma, 1971 O. P. Ghai & V. Seth Physical Growth of school children in Delhi. *Ind. J. Padiat.* 38 : 286.

- Grubb, R. 1942 Das Wachstum der Körperlänge beim Weiblichen Geschlecht. *Acta. Paediat*, 30 : 298—303.
- Greulich, W. W. 1957 A Comparison of the Physical Growth and Development of American born and native Japanese children. *Amer. J. Phys. Anthropol.* N.S. 15 : 489—515.
- Hathaway, M. L. 1957 Heights and Weights of children and youth in the United States. (Home Economic Res. Report No. 2.) Washington: U.S. Dept. of Agriculture.
- Healy, M. J. R. 1962 The Effect of age grouping on the distribution of measurements affected by growth. *Amer. J. Phys. & Anthropol.* 20 : 49—50.
- Helen, T. 1934 A Third Aspect of Growth. *Hum. Biol.* 6 : 405—407.
- I.C.M.R. 1968 *Studies on Growth and Physical Development of Indian infants and Children* (All India) Part I. A. New Delhi: Statistics Division Indian Council of Medical Research.
- Kaul, S. 1971 Physical Growth and Development: A study base on Kashmiri Pandit school-going boys in Srinagar, Kashmir—Punjab Univ. Ph.D. Thesis (Unpublished).
- Kimura, K., S. Hagiya & S. Kitano 1959 Effect of War on Stature. *Zinring. Zassi*, 67 : 82—89.
- Krogman, W. M. 1941 *Bibliography of Human Morphology* 1914—1939. Chicago Univ. Press.

- Lal, S. B. 1954 Changes in the Dietary Habits and Physique of Aborigines in Santhal Parganas district of Bihar. *Ind. J. Med. Res.* 42: 167.
- Meredith, H. V. 1935 The Rhythm of Physical growth: A study Anthropometric measurements on Iowa city white male ranging in age between birth to 18 years. *Univ. Iowa. Stud. Child. Welf.* Vol. XI.
- 1941a Stature and Weight of children of the United States, with reference to the influence of racial regional socio-economic & secular factor. *Amer. J. Dis. Child.* 62: 909.
- 1941b Stature and Weight of Private School Children in two successive decades. *Amer. J. Phys. Anthropol.* 28: 1—40.
- 1944 Human Foot Length from embryo to adult. *Hum. Biol.* 16: 207—82.
- 1947 Length of upper extremities in Homo sapiens from birth through adolescence. *Growth.* 11: 1—50.
- 1951 Size and Form of U.S.A. North European ancestry born and reared in Oregon. *Growth.* 15: 39—55.
- 1970 Body Size of contemporary groups of one year old infants studied in different parts of world. *Child Devlpm.* 41 (3): 551—600.
- Meredith, H. V. & E. M. Meredith 1953 The Body Size and Form of present day white elementary school children residing in west central Oregon. *Child. Devlpm.* 24: 83—102.

- Mitra, K. 1941 Diet and Physique of Mining population in Jharia Coal Fields (Bihar). *Ind. J. Med. Res.* 29 : 143—56.
- Moss, M. L. 1954 Differential Growth analysis of bone Morphology. *Amer. J. Phys. Anthrop.* 12 : 71—75.
- Prader, A., J. M. Tanner & G. A. Haranch 1963 Catchup growth following illness or starvation. *J. Pediat.* 62 : 646.
- Prasad, R., R. Kumar & S. Dayal 1971 Physical Growth and Development from one to five years. *Ind. Pediat.* 8 (3) : 105—19.
- Raghavan, K. V., D. Singh & M. C. Swaminathan 1971 Height and Weights of well-nourished Indian school children. *Ind. J. Med. Res.* 59 : 648—54.
- Rao, K. Someswara, A. D. Taskar & M. K. Ramanathan 1954 Nutrition and Haemoglobin surveys in children, Nilgiris Dist. *Ind. J. Med. Res.* 42 : 55—75.
- Richey, H. G. 1931 The blood pressure in boys and girls before and after puberty: Its relation to growth and maturity. *Amer. J. Dis. Child.* 42 : 1281—1330.
- Scammon, R. E. 1927 The Literature on the Growth and Physical Development of the foetus, infant and child: A quantitative summary. *Anat. Rec.* 35 (3) : 241—67.
- Sharma, J. C. 1963 Age changes in Bodily proportions of Maharashtrians. Punjab Univ. Ph.D. Thesis (Unpublished).
- 1970 *Physical Growth and Development of Maharashtrians*. Lucknow: Ethnographic at folk Culture Society.

- Sidhu, L. S. 1969 Biological Survey of Punjabi males with special reference to age changes. Punjab Univ. Ph.D. Thesis. (Unpublished).
- Sidhu, L. S. & S. Anand 1972 A Study of Birth Weight in full term viable Punjabi infants. *Ind. J. Pediat.* 39: 339—47.
- Singh, L. 1970 Physical Growth of Lahaulis from births to maturity. Punjab Univ. Ph.D. Thesis. (Unpublished).
- Stuart, H. C. & S. S. Stevenson 1963 General factors in the Care and Evaluation of children. Physical growth and development in *Text Book of Paediatrics*. ed. W. E. Nelson. Philadelphia: W. B. Saunders.
- Swaminathan, M. C., K. K. Syothi, R. Singh, S. Madhavan, & C. Gopalan 1964 A Semi-longitudinal study of Growth of Indian children and related factors *Ind. Pediat.* 1: 255—263.
- Tanner, J. M. 1947 The Morphological level of personality. *Proc. Roy. Soc. Med.* 40: 301—8.
- 1962 *Growth at Adolescence*. Oxford: Blackwell Scientific Publications.
- 1964 Human Growth and Constitution. In *Human Biology*. ed. G. A. Harrison & others. Oxford: The Clarendon Oxford Univ. Press.
- Tanner, J. M. & R. H. Whitehouse 1966 *Notes on the use of Height and Weight Standard Charts* (growth and development record) England. Crtaseys, Hertford. Ltd.

- Tanner, J. M.,
R. H. Whitehouse, &
M. Takahashi 1966a Standard from birth to maturity for height, weight, height velocity and weight velocity. *British children 1965 Part I. Arch. Dis. Child.* 41 : 454.
- Trulson, M. F.,
C. Collazos &
D. M. Hegsted 1956 Growth and Development of Peruvian children. 1. Carquin and san Nicholas. *Pediatrics.* 17 : 510—23.
- Waddington, C. H. 1957 *The Strategy of the Genes: A discussion of some theoretical Biology.* London: Allen & Unwin.
- Watson, E. H. &
G. H. Lowery 1967 *Growth and Development of children.* Chicago: Year book medical Publishers. Inc.
- Weiner, J. S. &
J. A. Lourie 1969 *Human Biology—A guide to Field methods.* Oxford: Blackwells Ltd.
- Wolanski, N. 1967a Basic problem in Physical Development in man in relation to the Evaluation of Development of children and youth. *C.A.* 8 : 35—60.
- 1967b The Secular trend: Microevolution physical adaptation and migration and their causative factors. *Proc. 7th Int. Cong. Nutr.* 4 : 96—108.
- Wolff, G. 1941 Further results on the trend of weight of school children. *Child. Develpm.* 12 : 183—204.
- Yoshimura, H. &
J. S. Weiner 1966 *Human Adaptability and its Methodology.* Tokyo: Japan society for promotion of Science.

Diet and body build of the Pastoral Gujjars of Uttar Pradesh and Himachal Pradesh

S. S. BANDYOPADHYAY

Many dietary studies have been conducted by various agencies all over India on the tribal and non-tribal populations but this type of study on pastoral nomadic people is mostly lacking. The pastoral populations are usually technologically simple and live in an intimate relationship with their natural environments exposed to a wide variety of stress without the mediating effects of modern medical care or other means of coping with their surroundings. Data on such groups are of significance as they help to reveal the differences which exist both within a particular eco-system or between a number of them. In addition, the dietary information on populations still to undergo major change, furnish us with a baseline which help to evaluate the effects of cultural change upon body build of the population.

To bring the gap of knowledge, data on nutritional intake, and allied informations were collected from pastoral nomadic muslim Gujjars of Uttar Pradesh and Himachal Pradesh. The Gujjar usually construct hut in the forest of the lower slopes of the Himalayas and Sivalik hills in the months between September to February and migrate to high altitude alpine pastures of the North West Himalayas in the months from April to July with all their belongings following a fixed route of migration. Due to restriction of inter-state migration, the Gujjar have been divided into different segments in different North Indian states though they are originally from a single ethnic stock.

Two such groups, one from Chamba (H.P.) and other from Uttarkashi (U.P.) have been included in the nutritional study.

The daily activities of the family are socially and economically selfsufficient. Head of the family generally enjoys a leisure life. Woman lead an exceedingly hard physical life. Children assist their parents in every respect of physical work. Youngsters of both sexes do most of work. The Gujjar economy depends entirely on cattle rearing. In recent years a few Gujjars have purchased or been provided by Government plots of land for improving their economic conditions and also for

giving up their nomadic way of life. Because of traditional attitudes they were slow to adopt cultivation. The general custom is to have two main meals a day. The diet is more or less monotonous. Food pattern without doubt has not changed much in past few decades. When wealth increases there is a tendency for money to be spent initially on other things than food. The Gujjar go for prestige spending such as transistor, cycle, tape-recorder, wrist watch, etc., or engage servants so as to enjoy more leisure. Cattle are still regarded as capital. With the increase of market value there is a greater demand for the cheaper foods and falling off in nutritional value. Higher price obtained from milk encourages the Gujjars to sell more milk or its products for money while his family take food with lower nutritional value.

Material and methods

The material of the present paper consists of the nutritional data collected for the project entitled "Nutritional study on the pastoral Gujjars of Garhwal U.P. and H.P.". The area covered under investigations were the Tisa forest range of Chamba District (H.P.) and the Rupin, Supin and Toknor forest ranges of Uttarkashi District (U.P.). Altogether 83 households, 47 from Chamba and rest are from Uttarkashi forms the matter of study. The data were collected during the month of June-July 1982 from the high altitude areas (3000 m. and above). Standard weighing method was adopted to collect food intake of the family for three days. Body measurements were taken from normal individuals who have been included in the diet survey.

Results

Sex ratio and household composition do not show any marked difference between the two groups (Table 1). The percentage of large household size (7—10) is maximum for all the Gujjars.

Table 2 deals with the land holding of the Gujjars. The land owning families are maximum (42.55%) in Chamba (H.P.). Average land holding is 0.71 hector though the Uttarkashi Gujjars possess an average land of 0.33 hector per family.

Cattle holding of the Gujjar has been shown in Table 3. The average cattle holding per family is maximum of 28.58 for the Uttarkashi Gujjars. They also possess the maximum number of buffalos and cows which are the main source of their income. Though there is no striking

difference in the possession of the average milching cattle per family, the total production of milk is higher for the Uttarkashi Gujjars due to availability of plenty of green fodder.

Table 4 deals with the Anthropometric parameters. There is no striking difference of stature and sitting height between these two groups. Chest girth of the Uttarkashi Gujjars shows a higher value. Body weight of the female Gujjars of Uttarkashi indicates a higher value than that of the Chamba females. Upper arm and skinfold thickness of the Uttarkashi Gujjars shows a higher value for both sexes.

Nutrient intake of the Gujjar has been shown in Table 5. The intake of energy food such as carbohydrate, protein and fat are much higher among the Gujjars of Uttarkashi than those of Chamba. Except for iron and nicotinic acid all other nutrient intake is higher among the Uttarkashi Gujjars than among their compatriots in Chamba.

Discussion

The maximum frequency of larger families in both groups of the Gujjars is an indicative of extended family norm for dealing with the problem of division of labour in the hazardous route and also a protection against external threat. Economy regulates nutritional intake, which in turn, affects the general health of the population. The Gujjar economy entirely depends on cattle rearing. In recent years, though the Gujjars have purchased or been provided plots of land for the betterment of their economic status, the land holding per family is very less and quality of land is poor. Though the Chamba Gujjars possess maximum land, their economic condition is not so sound compared to the Uttarkashi Gujjars. This is due to the fact that the Uttarkashi Gujjars produce more milk than the Chamba Gujjars.

Anthropometric measurements of the adults are the best tool to judge the general health through standard nutritional indices. According to Martin's classification they may be grouped into upper, medium statured people and in the Smidt's classification they come under medium statured people. There is no appreciable difference in the stature of the two groups confirming that they are from the same ethnic stock. However, the Chamba Gujjars show a lower value of chest girth. The average body weight and tricep skinfold thickness are higher for both sexes of the Gujjars of Uttarkashi than those of Chamba. The tricep

skinfold is more in females than males for these two groups of population. Thus the Gujjars of Uttarkashi are physically well off than those of Chamba. The body surface area value of the Gujjars of the former area is higher than that of the Gujjars of the latter area. The Pelidishi index values represents that they are in the normal state of nutrition and more towards very mild state of over weight. The Korpefulla index values as obtained, confirm that they are in very good state of body build, and from the Ponderal index it can be concluded that they are in medium range of body build.

Conclusion

To conclude it may be recalled that the main economic subsistence of two groups of the Gujjars is based on milk through grazing pursuits. In recent years some of them have purchased or been provided land by the Government for which the Chamba Gujjars are mostly benefited. But agricultural pursuits are not helping much to improve their economy. The Gujjars of the Uttarkashi are producing more milk due to better green fodder availability. Thus ecology is helping them in bettering the economic status.

From the nutritional anthropometry it can be concluded that both groups are in sound state of health, but the comparison between the two groups reveals that the Gujjars of Uttarkashi are in a better state of health. The nutritional intake points towards a better intake for the Gujjar of the former area than those of the latter area though for both groups, intake is much above the all India average intake (National Sample Survey 1974: Dasgupta, 1983). The diet of the Gujjar provides sufficient quantity of calorie, protein, fat, vitamins and minerals which are enough to meet their need as prescribed for moderately active Indian populations by I.C.M.R. Expert Group 1981.

Considering all the facts mentioned earlier, it may be stated that the two groups of the Gujjars though belong to same ethnic origin, show some somatometric differences. Thus ecology by way of nutrient intake is bringing a gradual change in the morphology of the Gujjars.

Table 1: Household composition of the Gujjars

Area of investigation	Number of households	Population size	Sex Ratio	Average household size	Household size							
					1 — 3		4 — 6		7 — 10		11 and above	
					No.	%	No.	%	No.	%	No.	%
Chamba (H. P.)	47	467	105.73	9.9	1	2.13	14	29.79	28	59.57	4	8.51
Uttarkashi (U P.)	36	321	104.60	8.9	1	2.78	6	16.67	23	63.89	6	16.67
Total	83	788	105.20	9.49	2	2.41	20	24.09	51	61.44	10	12.05

Table 2: Landholding of the Gujjars

Area of investigation	Total number of families surveyed	Number of landowning families	Percentage of landowning families	Average landholding per family (in hector)
Chamba (H. P.)	47	20	42.55	1.00
Uttarkashi (U P.)	36	4	11.11	0.33
Total	83	24	28.91	0.71

Table 3 : Economic condition of the Gujjars

Area of investigation	No. of families surveyed	H E R D							Milk and its products				
		Buffaloe No. Av. per family	Cow No. Av. per family	Milching & Buffaloe Cow No. Av. per family	Ox No.	Horse No.	Sheep & Goat No.	Av. Cattle per family	Total (lit)	Av. per cattle (lit)	Av. per family (lit)	Sold per day (lit)	Total Butter produced per day (Kg) for sale
Chamba (H. P.)	47	691 14.7	35 0.75	434 9.28	38	40	144	20.17	746	1.72	15.87	75 (six families)	62 (fortyone families)
Uttar-kashi (U. P.)	36	742 20.6	45 1.25	392 10.89	4	80	158	28.58	1048	2.67	29.11	245 (six families)	64 (thirty families)
Total	83	1433 17.26	80 0.96	826 9.95	42	120	302	23.82	1794	2.17	21.61	320 (twelve families)	126 (seventyone families)

Table 4: Nutritional Anthropometry: Physical Parameters

Area of investigation	Age in yrs.	Sex	Sample size	Stature (cm)		Sitting height (cm)		Chest girth (cm)		Weight (Kg)		Upper Arm circumference (cm)		Skinfold at tricep (mm)	
				Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Chamba (H.P.)	20 to 55 Yrs.	Male	63	166.66	6.26	85.50	3.68	80.59	6.91	56.35	5.45	22.85	1.56	5.38	4.36
		Female	71	155.29	9.84	79.60	3.16	—	—	49.33	5.35	21.22	1.88	6.71	2.39
Uttarkashi (U.P.)	20 to 55 Yrs.	Male	51	165.62	5.97	84.64	3.81	82.45	5.21	57.98	6.78	23.35	1.84	6.12	4.60
		Female	51	155.53	10.16	80.39	3.34	—	—	52.00	7.00	22.72	1.82	7.27	3.04
Total	20 to 55 yrs.	Male	114	166.19	10.47	85.11	6.13	81.42	7.39	57.08	6.22	23.07	1.09	5.71	1.43
		Female	122	155.39	15.96	79.93	3.75	—	—	50.44	5.83	21.85	1.20	6.94	0.93

Table 5: Nutritional Anthropometry: Indices

Area of investigation	Sex	Age in years	Sample size	Body Surface area (cm)		Pondral Index		Korpefulla Index		Polidishi Index	
				Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Chamba (H.P.)	Male	20-55	63	1.61	0.09	23.03	0.74	1.24	0.15	96.81	3.37
	Female	20-55	71	1.45	0.10	23.90	0.90	1.32	0.15	97.46	11.30
Uttarkhasi (UP)	Male	20-55	51	1.62	1.00	23.27	0.72	1.26	0.12	98.46	4.66
	Female	20-55	51	1.50	0.11	23.94	0.75	1.38	0.13	100.30	5.22
Total	Male	20-55	114	1.61	0.12	23.14	0.47	1.25	0.02	97.55	5.44
	Female	20-55	112	1.47	0.02	23.73	0.53	1.34	0.02	98.65	11.30

Table 6: Intake of different Nutrient per head per day.

Area of investigation	No. of household holds	Calories	Protein (gm)	Fat (gm)	Carbohydrate (gm)	Calcium (mgm)	Phosphorous (mgm)	Iron (mgm)	Carotene (mgm)	Vit B ² (mgm)	Nicotinic acid (mgm)	Av. family size	Av. family members included in the diet survey	Av. consumption unit	Av. calorie intake per head per day
Chamba (H. P.)	47	2829	89.64	80.18	422.22	1026.25	2591.46	116.12	1041.91	2.01	26.02	8.9	7.66	7.45	3172
Uttar-kashi (U. P.)	36	3145.51	98.95	107	430.73	1587.97	2986.39	83.37	1265.47	2.31	25.96	9.9	8.47	7.73	3321
Total	83	2966.28	93.68	91.81	425.91	1270.11	2762.75	101.91	1138.87	2.14	25.99	9.3	8.01	7.57	3236

A note on the relationship between height, weight and upper arm circumference in Garhwali female children

REKHA R. GHOSH

The Garhwal division of Uttar Pradesh comprises the hill districts of Chamoli, Uttar Kashi, Tehri Garhwal, Pauri Garhwal and Dehra Dun. The Garhwal division is mainly drained by the rivers Ganges, Yamuna, Alaknanda, etc., and their tributaries. The total population of the Garhwal division is 2,452,549 (male—1,243,734 and female—1,208,815) according to Census 1971.

According to Atkinson (1980) Garhwal and Dun have no written history of their own and the tradition preserved regarding them are of the most meagre and unsatisfactory nature. But some existing records show a list of Garhwal Rajas with their dates for the earlier history of Garhwal.

The Garhwalis are short and stocky. "Being a hardy race they have a natural inclination for the art of soldiering" (Bisht, 1982). They are the original inhabitants of the Garhwal hills, and those who have migrated from these said hills two or three generations ago and settled in the city of Dehra Dun and its suburbs were subjected to the present study.

Anthropometric measurements, such as weight, linear and circumferential measurements of children at different ages give information regarding the rate and pattern of growth, relationships between measurements, nutritional status of the population, etc.

A positive correlation between height and weight has already been noticed amongst infants. Kondakis (1969), Robinow and Jelliffe (1969), Rutishauser (1969), McKay (1969) and Gupta *et. al.* (1972) have observed a positive correlation between weight and upper arm circumference. Gupta *et. al.* (1974) has also reported a positive correlation between a linear measurement (height) and a girth (upper arm circumference).

In an attempt to investigate the possible correlation between height and weight, height and upper arm circumference and weight and upper arm circumference in the Garhwali Brahman and Rajput girls prominent population of the hill area of North Western Region, the present data

were collected from school going Garhwali female children of Dehra Dun city and its suburbs aged between 6 and 10 years and belonging to almost same socio-economic groups. This work was conducted as part of a bigger project entitled "Growth and nutrition of school going children in a north Indian city".

Mean and standard deviations of height, weight and upper arm circumference are given in Table 1. It is observed that in case of stature the Garhwali Brahmans are taller than the Garhwali Rajputs in all the age groups, but in case of weight the Garhwali Brahmans are heavier in the first two age groups while in the last two age groups the Rajputs are heavier. The Brahmans are thinner than the Rajputs in respect of upper arm circumference in the last three age groups but at the initial age group (6-7 years) the Rajputs are thinner. However, these differences are not statistically significant at 5% level of probability.

The relationship between height and weight, height and upper arm circumference and weight and upper arm circumference of the Garhwali Brahmans and Rajputs are presented in Table 2. Positive correlations were obtained between height and weight, height and upper arm circumference and weight and upper arm circumference in all the age groups, and in both the ethnic groups. High positive correlation were observed between height and weight in all the age groups, though the values of the coefficient of correlation (r) are high in the Garhwali Brahmans than those of the Rajputs. But, in case of height and upper arm circumference and weight and upper arm circumference, the values of " r " are higher in each age group in the Rajputs than in the Brahmans.

The literature indicates that body weight is generally related to height. The high values of correlation coefficients in the study may be due to such a relationship. The correlation between weight and upper arm circumference is higher than that of height and upper arm circumference in all the age groups and in both the groups, which may show a close relationship between these variables, but the higher values of correlation may be expounded to some extent. Comparatively lower values of correlation coefficient may be due to larger individual variation in the two variables and the rate of growth of each variable may be different. When an individual has a bulky body along with excess subcutaneous fat at upper arm, such individual variation increases the value of correlation coefficient. Similarly, the variation caused by an

individual having a short stature with excess subcutaneous fat at upper arm, also reduces the value of correlation coefficient. Another probable cause of high correlation between upper arm circumference and weight may be due to the fact that upper arm circumference is highly correlated with muscle thickness of upper arm (Singh, 1967), and muscle thickness of upper arm in turn is related to muscle thickness at other parts of the body (Tanner, 1962, 1964 and 1965). It may be further mentioned here that there may also be other factors for the higher correlations observed between upper arm circumference and body weight than that between upper arm circumference and height.

Table 1 : Statistical constants of stature, weight and upper arm circumference

	Age groups in years	N	Stature (mm.)		Weight (kg.)		Upper arm circumference (mm.)	
			Mean	SD	Mean	SD	Mean	SD
Garhwali Brahman	6—7	30	1082.23	32.56	15.50	2.22	143.93	8.33
	7—8	30	1151.40	28.12	18.68	3.24	149.57	11.33
	8—9	30	1200.90	32.74	19.00	2.66	150.33	9.67
	9—10	30	1269.00	28.62	22.50	3.88	158.73	13.23
Garhwali Rajput	6—7	30	1072.10	24.89	15.43	1.48	142.77	9.12
	7—8	30	1149.20	24.39	18.07	2.55	151.03	12.39
	8—9	30	1200.50	20.77	19.92	2.54	151.77	11.52
	9—10	30	1263.10	30.95	23.35	3.78	161.60	12.47

Table 2 : Correlation coefficient (r) between height and weight, height and upper circumference and weight and upper arm circumference

	Age group in years	Height & Weight	Height & Upper arm circumference	Weight & Upper arm circumference
Garhwali Brahman	6—7	.8696	.2896	.3228
	7—8	.7981	.0281	.0651
	8—9	.7594	.0346	.0595
	9—10	.8868	.1979	.2751
Garhwali Rajput	6—7	.5334	.3177	.6063
	7—8	.5362	.1955	.3395
	8—9	.5832	.2536	.1775
	9—10	.5258	.2871	.7008

REFERENCES

- Atkinson, E. T. 1980 *Kumaon Hills—History, Geography and Anthropology with reference to Garhwal and Nepal*. Cosmo Publication, New Delhi.
- Bisht, D. S. 1982 *Guide to Garhwal and Kumaon Hills*. Trishul Publication, Dehra Dun.
- Gupta, R. 1981 *Census of India*. Series 22; Uttar Pradesh, Part II, A General Population Tables.
- Gupta, V. M., I. C. Tiwari, S. M. Marawah & N. S. Murthy 1972 Mid upper arm circumference in infant. *Indian Journal of Pediatrics*. 39: 68—72.
- Gupta, V. M., N. S. Murthy, I. C. Tiwari & S. M. Marawah 1974 Correlation study of weight, height and mid-upper arm circumferences in infants. *Indian Journal of Medical Research*, 62(11): 1678—1681.
- Kondakis, X. G. 1969 Field surveys in North Greece and Dadoma, Tanzania. *Journal of Tropical Pediatrics*. 15: 201.
- McKay, D. S. 1969 Experience with mid-arm circumference as a nutritional indicator in field survey in Malaysia. *Journal of Tropical Pediatric*. 15: 213.
- Robinow, M. & D. B. Jelliffe 1969 The use of arm circumference in a field survey of early childhood malnutrition in Dusoga, Uganda. *Journal of Tropical Pediatrics*. 15: 217.
- Rutishauser, J. H. E. 1969 Correlation of circumference of mid upper arm with weight and weight for height in three groups in Uganda. *Journal of Tropical Pediatrics*. 15: 196.

- Singh, Raghbir 1967 Relationship of arm girth measurements with roentgenogrammetric and caliper measurements of subcutaneous fat at triceps and biceps in adult male volunteers. *Zeitschrift Morphologie und Anthropologie*. 59: 85—91.
- Tanner, J. M. 1962 *Growth at adolescence*. Blackwell Scientific Publication, Oxford.
- 1964 Human growth and constitution. In *Human Biology*, ed. by G. A. Harrison, J. S. Weiner, J. M. Tanner and N. A. Barnicot. Oxford University Press. Oxford. pp. 299—397.
- 1965 Radiography study of body composition in children and adults. Symposia of the Society of Human Biology, Vol. VI. Human body composition, pp. 211—236. Pergamon Press. Oxford, London, Edinburgh, New York, Paris, Frankfurt.

Eruption of deciduous teeth in a Himalayan population

A. K. BHATIA

The knowledge of tooth eruption timings is extremely important in understanding the maturational status of a child as well as in assessing the age of a child when age record is not available. Unlike other maturity indicator teeth are readily accessible and observations on their emergence can be made objectively. Since ages of tooth eruption are influenced by factors like sex, ethnicity, nutrition, climate and general health of the individual, sex-specific information of various ethnic groups, therefore, is required to use it as a yardstick for measuring biological maturity in medico-legal cases, pediatric clinics, public-health programmes and a host of anthropological and archaeological studies beside being also useful to orthodontists in planning the treatment of malocclusion in relation to maxillo-facial growth.

Although of extreme applied value, studies on the timings and sequence of gingival emergence of teeth, deciduous in particular in Indian population are very few, fragmentary and restricted in scope (Banerjee and Mukherjee, 1967; Mukherjee, 1973; Visweswara Rao, *et. al.*, 1973; Prabash, 1974 and Rami Reddy, 1981). Of the five reported studies made on deciduous teeth in India, two are from West Bengal, two from South India (Andhra Pradesh and Karnataka) and one from Punjab. The present study deals with the Rajput children from Kulu district of Himachal Pradesh.

Material and method

The data, based on 444 healthy children varying in age from 3 months to 3 years, were collected by visual examination of the oral cavity and molting a record of the dental status of the child. The observations were confined to the Kulu town and its neighbouring villages.

On the basis of the data mean age of eruption alongwith S.D. for each of the twenty teeth were calculated. The mean age of eruption was calculated by adding the age of the children between the age at earliest eruption and age at latest non-eruption of the tooth and dividing the same by the number of children.

Results and discussion

The timings of deciduous teeth eruption as per sides and sex are reported in Table 1.

The generalised eruption sequence based on the timing of teeth eruption is that the central incisors are first to appear followed by lateral incisors, first molars, canines and the second molar. The mandibular teeth have a tendency to appear earlier than the maxillary teeth except for first molars. The advanced eruption of mandibular teeth varies from —1.0 month as in case of left first molar to 2.1 months as in right lateral incisor. Also females show a general precocity in the tooth eruption varying from a maximum of .5 month as in case of the left upper central incisor to the maximum of 4.4 months in the case of the lower right second molar.

A test of significance when applied between the median ages of eruption shows that the differences between left and right sides are statistically insignificant in both the sexes. Comparison between upper and lower sides also shows difference being statistically insignificant except for lateral incisors and canines in males. Between the two sexes the differences in the ages of eruption appear to be statistically insignificant only for central incisors and lower canines. For others the difference are coming out to be significant. Thus for all practical purposes, the left and right sides as also upper and lower sides can be combined. However the data can be and should be treated separately for the two sexes. Based on the median ages of eruption the following sequence between the 20 teeth can be arrived at—

Males

LCI RCI LCI RCI LLI RLI LLI RLI LM₁ RM₁
RM₁ LM₁ LC RC LC RC LM₂ RM₂ LM₂ RM₂

Females

LCI RCI RCI LCI LLI RLI RLI LLI LM₁ RM₁
RM₁ LM₁ LC LC RC RC RM₂ LM₂ RM₂ LM₂

Key: upper lower
 L=Left R=Right

CI=Central incisor

M₁=First molar

LI=Lateral incisor

M₂=Second molar

C=Canine

In males, the teeth of left side have the tendency to appear earlier while in females the right side teeth tend to appear earlier.

The time gap between the consecutive erupting teeth varies from 3.2 months as between lateral incisors and first molars to 6.3 months as between the canines and second molars in the males. In case of females it varies from 2.9 months as between the central and lateral incisors to 4.6 months as between first molars and canines in females. Therefore unlike permanent dentition where a significant "Rest period" is seen, in deciduous teeth no such clear tendency is visible.

Table 2 shows the mean number of teeth at various age levels for the two sexes. None of the males and females less than six months of age has shown any erupted teeth. Females generally show more number of teeth except for the age group of 28—30 months whereas males have more mean number of teeth than females. The present study also reveals the occurrence of an even number of teeth more frequently than odd number in majority of the Kulu children as has also been observed among the Gulbarga children by Rami Reddy (1981).

A comparison of average number of teeth erupted at specific ages in some other populations in comparison to the children of Kulu reveals that the number of teeth at varied ages are less than all other reported (Table 3). The comparison of eruption schedule with other populations reveals that the sequence of tooth eruption by and large tends to be same but in terms of timings, Kulu children are showing remarkably delayed eruption. The delayed eruption of teeth may be due to climatic factors, nutrition or perhaps overall delayed growth process or even combination of all these. To understand the causative factor responsible for delayed dental growth in the Kulu children requires further studies.

Acknowledgement

The author is grateful to the Director, Anthropological Survey of India for permission and facilities to undertake this work. Thanks are also due to the Regional Officer, N. W. Region for constant help in completion of the research work.

Table 1: Ages of deciduous tooth eruption in Kulu children

Tooth type			Mean age of eruption (months) \pm S.D.	
			Males	Females
UPPER				
Central Incisor	..	L	10.9 \pm 2.07	10.4 \pm 2.43
		R	10.9 \pm 2.13	10.2 \pm 2.38
Lateral Incisor	..	L	15.4 \pm 1.66	13.3 \pm 2.33
		R	15.6 \pm 1.31	13.1 \pm 2.24
Canine	..	L	23.5 \pm 2.05	21.6 \pm 2.28
		R	23.6 \pm 1.97	21.8 \pm 2.14
First Molar	..	L	18.7 \pm 2.34	17.1 \pm 1.70
		R	18.7 \pm 2.34	17.1 \pm 1.70
Second Molar	..	L	29.8 \pm 2.91	26.0 \pm 2.77
		R	29.8 \pm 2.90	25.9 \pm 2.67
LOWER				
Central Incisor	..	L	10.0 \pm 1.70	9.3 \pm 1.44
		R	10.2 \pm 1.74	9.3 \pm 1.47
Lateral Incisor	..	L	13.5 \pm 2.01	12.2 \pm 2.23
		R	13.5 \pm 2.01	12.2 \pm 2.23
Canine	..	L	21.9 \pm 2.23	21.7 \pm 2.22
		R	22.2 \pm 2.20	21.7 \pm 2.16
First Molar	..	L	19.7 \pm 2.47	17.7 \pm 1.98
		R	19.4 \pm 2.38	17.5 \pm 2.04
Second Molar	..	L	29.5 \pm 2.64	25.7 \pm 2.67
		R	29.8 \pm 2.82	25.4 \pm 2.94

Table 2: Mean number of teeth at various age levels

Age (Months)	No. of teeth		Range	
	Males	Females	Males	Females
0—6	0	0	0—0	0—0
7—9	1.6	1.8	0—4	0—8
10—12	3.4	4.7	0—7	0—8
13—15	5.6	6.1	2—12	2—10
16—18	8.2	10.0	4—16	6—16
19—21	11.8	13.2	8—16	7—20
22—24	13.5	15.8	9—16	10—20
25—27	16.5	17.0	14—20	13—20
28—30	19.3	18.7	16—20	16—20
31—33	19.2	20.0	16—20	20—20
34—36	20.0	20.0	20—20	20—20

Table 3: Mean number of teeth in different populations

Age (months)	U.S.A.	London	Paris	Zurich	New Castle	Uganda	Dabar	Cambria	New Guinea	Australian aborigines	Hong Kong	West Bengal	Andhra Pradesh	Karnataka	Kulu	
															M	F
6	0.4	0.4	0.4	0.4	0.9	0.3	—	0.3	—	0.2	0.3	0.5	0.1	1.7	0.0	0.0
9	3.1	2.8	2.9	2.5	3.7	2.3	2.7	2.2	2.2	—	2.7	1.4	1.3	2.5	1.6	1.8
12	5.9	6.1	5.8	5.4	6.7	5.7	4.7	4.5	5.2	3.8	5.5	4.2	4.2	4.9	3.4	4.7
15	—	—	—	—	10.7	—	—	7.5	10.3	—	8.1	—	—	9.9	5.6	6.1
18	12.4	12.9	12.3	12.2	13.3	13.8	11.4	10.9	13.1	12.2	13.1	11.4	10.0	13.3	8.2	10.0
21	—	—	—	—	15.5	—	—	15.1	15.4	—	15.4	—	—	15.0	11.8	13.2
24	16.7	16.3	16.4	16.3	16.9	18.2	16.4	17.4	17.7	17.8	16.1	16.2	16.3	16.3	13.5	15.2
30	—	—	—	—	19.0	—	—	19.8	—	—	19.3	—	—	19.3	19.3	18.7
36	19.9	20.0	—	—	19.9	—	—	20.0	—	—	20.0	—	20.0	19.5	20.0	20.0

Table 4: Ages of deciduous teeth eruption in different populations

Tooth type	Japanese	Korean	American	Whites	Bengalee		Gulbarga		Kulu	
					M	F	M	F	M	F
UPPER										
Central Incisor	7-9	9-11	6-9	9-12	10-12	10-13	12-12.3	10.5	10.9	10.3
Lateral Incisor	8-11	11-14	7-11	12-14	11-14	12-15	12.3-13	12.3-12.8	15.5	13.2
Canine	17-20	15-19	16-20	20-24	19-24	19-24	19.8-21	16.0	23.6	21.7
First Molar	15-20	13-19	10-18	16-18	16-18	16-19	16.0	13-13.5	18.7	17.1
Second Molar	23-36	19-29	20-28	30-32	29-32	29-32	27.5	26.5-27.8	29.8	25.9
LOWER										
Central Incisor	7-9	7-9	5-7	6-8	10-12	10-13	8-8.3	10.5	10.1	9.3
Lateral Incisor	8-11	11-14	6-8	14-18	14-18	15-20	15.3-15.5	12.8-13.3	13.5	12.2
Canine	10-19	15-19	14-19	20-24	20-24	20-24	21.8-22.8	18.0	22.0	21.7
First Molar	15-20	13-19	8-16	15-16	16-18	16-18	17.5-18.0	16.3	19.5	17.6
Second Molar	22-26	19-29	16-24	30-32	29-32	29-32	25.8-26.0	26.5-27.5	29.6	25.6

REFERENCES

- Banerjee, P. & S. Mukherjee 1967 Eruption of deciduous teeth among Bengalee children. *Am. J. Phys. Anthropol.* 26: 357.
- Mukherjee, D. K. 1973 Deciduous dental eruption in low income group Bengalee Hindu children. *J. Trop. Pediatr.* XIX Sp. issue. 207.
- Prabash, S. 1974 A note on the estimation of age from deciduous teeth. *East Anthropol.* 27: 263.
- Rami Reddy, V. 1981 Eruption of deciduous teeth among the children of Gulbarga S. India. *Indian J. Med. Res.* 73: 772.
- Rao Visweswara, K. Susheela & M. C. Swaminathan 1973 Association of growth status and deciduous teeth eruption among rural Indian children. *J. Trop. Pediatr.* XIX Sp. issue, 223.

PART THREE : CULTURAL PERSPECTIVES

Caste and cohesion in a Western Himalayan village

V. SARKAR

R. SARKAR

Caste has been one of the most unique and characteristic feature of Indian society as also the most basic and important criterion of stratification where an individual is ascribed to a particular stratum by virtue of his birth and ethnic identity rather than his occupation, class or achieved position. Castes are ranked as endogamous divisions of society in which membership is hereditary and permanent. This unique system is governed by the concept of ritual purity and pollution, for it is from ritual rather than secular status and from group rather than personal status that the caste system derives its unique consistency and viability.

Indian village typically holds several *jati* groups each with its traditional rights and obligations, the privileges and restraints, its special contribution in services or manufacturers to the total functioning of the community. The people of each group in the village maintain marriage and kinship ties with their compeers in other villages. Within a main *jati*.

“There are those with whom he may have close and unquestioned ties. He may have friendship with man of other *jatis* out his closest links, those of marriage and kinship are only with his *jati* fellows. His family typically commands his most intense loyalties and efforts and his village encompasses much of his life” (Mandelbaum ; 1972).

In India these caste distinctions in such rigid and watertight compartments, have been explained in terms of elaborate religious, mythological and historical rationalizations and is made acceptable to the people who are included in it.

It is quite normal to assume that such a rigid close system where individual is tied to a particular rank from where he can do little to rise above his ordained position despite his capabilities, is likely to breed contempt against those who are relatively in privileged positions. In many cases the dominant caste Hindus try to monopolise the socio-political situation to hold on to the power position, and any attempt

from the low caste to move up is met with contempt and rebuff. The dominant groups devise such code of norms of social behaviour which keeps the lacuna intact so that they may never be able to encroach upon other caste positions.

However, despite the divergant interest, clashes and feeling of hostility there is a definite mechanism superimposed on these apparent disparities and inequalities which co-ordinates all these segments and division into a workable whole for the smooth functioning of the society, as also for the perpetuation of the system *per se*.

Inspite of the tremendous changes that have taken place during the recent times, the caste scheme has still got an enormous hold in the village. Undoubtedly, rural life implies a social closeness that reduces in some measure cleavage between the upper and lower castes.

The village is a well defined structural entity which commands the loyalty of all who live there, irrespective of affiliations of different castes. The unity of the village finds expression in the ritual contexts and the interdependence of castes seen in day to day matters. The village has its own assembly and a council of elders who act as guardians of social and ethical code of the village society. These elders serving as the judiciary, stand in an intermediate position with respect to castes. These factors represent the partial view of village solidarity for there is the cultural and social side which shows some similarity of customs and practices which are alike to all. The castes have more part to play in maintaining the solidarity of the village than the economic or political interdependence of castes.

It is against this background that the authors wish to explain the working of the caste groups as witnessed in Panschi village of Barmour Sub-tehsil of Chamba district in Himachal Pradesh, on which the present paper is based. In this paper concentration has been laid chiefly on those aspects of the intercaste relationship and behaviour which brings about cohesion rather than conflict, fusion rather than fission and that which helps to bind all the members into a common thread and thereby reinforce the village solidarity and maintain its equilibrium.

The village and the caste structure : Historical perspective

Bharmour which once had the distinction of being the seat of

Government of the old sovereign state of Barmour from 9th to the middle of 10th century, is now the Headquarters of the Bharmour sub-tehsil in Chamba district (H.P.). The place is situated at the height of approximately 7,000 ft. and remains covered with snow from late November till early April. The place is also of considerable religious importance, as towards the north east of the village lies the Manimesh peak and is said to be the abode of Lord Shiva. Besides, there is a large complex of 4484 temples popularly known as Chaurasi in Bharmour proper which is of great antiquity and is devoted entirely to Shiva.

The Gaddis are semi-pastoral and semi-agriculturist. Their wealth consist of the flock of sheep and goat, and hence they have to move along with their herd in winter down to the plains in search of green pastures. This constant feature of movement down to the lower hills in winters, gives them a migratory character, and hence they are left with a little time to devote to their field and engage in agricultural operations fully. Obviously the yield is poor and the land holding are small barely sufficient to meet even the local requirements. Another stumbling block in the growth of agriculture is the topography and the physical condition of the mountaneous area. The rough cliff with bush wood here and there, has given little scope for human hands to display its skill in farming the terraced fields and again the heavy snow for most part of the year makes it a single crop area only. Unlike plain, the caste structure is characterised by a two fold division into the high caste (Brahmin, Rajput and Khatri) and the low caste (Sippis, Raharas and Halis), the division being entirely on the basis of Dwij and Shudra caste.

By the term Gaddi it is commonly meant 'Rajput, who it is said, migrated to this place from the plains for the fear of persecution by the Muslim invaders. The first Bharmour King, Raja Jai Stambha came alongwith his followers. Later many Khatri families also came and joined them. Occupation of these people is sheep breeding and agriculture, and they are the wealthier lot in comparison to others and are also the most numerically dominant group in the area.

The Brahmins came mainly to serve the Rajputs as priests (*purohits*), and ritually they are placed at the top. During the reign of Meru Verman (A.D. 680) many Brahmins came and settled here. But due to the shift of the capital from Bharmour to Chamba, Brahmins had lost the royal patronage and taken to agriculture and other professions

together with their traditional profession of priesthood. At present they receive cash and kind from other clients known as *jajmans* in exchange of their services rendered at the ceremonial occasions.

Sippis, Raharas and Halis: These three form the lower caste group. The Sippis are agriculturists but they also work as blacksmiths, and repair agricultural tools. The payment is mostly made to them in kind. They are also engaged for sheering the sheep for which they receive a little proportion of wool they shear or money as the case may be. Besides this, they also act as musicians and drummers at the times of marriage. The most superior status given to the Sippi is that of the *chelas* a devotee of the God and the seer of the Gaddi community who keeps a communion with the God.

One of the hemlets in the village studied was solely occupied by the Halis but there was one Rahera family also practising silversmithy in lower Pausehi. The Halis are petty agriculturist with very meagre land holding. They generally supplement their income by working as agricultural labourers or as daily labourers in the P.W.D. road making. Aside from this they repair the agricultural implements and manufacture *kiriri*, baskets used for agricultural operations for which they receive in cash or kind from the buyers.

It should be made clear that these three groups have been lumped together, since they are treated almost at par in relation to their high caste members but within them they have the same hierarchical arrangement with the Sippis occupying a higher position than Raharas. The marital relations are also restricted within themselves though they may not be adhered to it rigidly as in relation to the high caste but now a days the stray cases of inter-caste and love marriages crossing the caste boundaries, are becoming a common feature everywhere, and they are no exception to this fact.

Interaction between the high and the low caste: It is true that there are certain restrictions and taboos observed in relation to the lower castes which puts a curb in the free mixing of these strata. A certain social distance is definitely maintained, like for example, a low caste in the beginning could not enter even the premises of a Rajput or a Brahmin but now of course, they can sit on the verandah and the courtyard. If any parties are to be given a feast then they have to bring

their own utensils and are made to sit at the distance from the rest while dining on such festive occasions.

The houses of Halis and Raharas are also situated at a distance from the rest, and they occupy the lower terraces down the hill whereas the Rajput and Brahmin houses are all situated at the top. The way to their house is also fraught with filth. The land they are occupying, is also quite inferior in comparison to the rest.

The land holding of these Halis are very small not more than 5 Bighas and the yield because of the poor quality of land, is abominably low. They are generally clad in dirty patchy rugs, and it would be quite insignificant to mention about their material possession, for they hardly have anything worth mentioning except a few utensils and that too of bare necessities. They supplement their income through labour and by doing odd jobs like basket making, preparing *kiriris*, repairing agricultural tools, etc., for which they are paid mostly in kind. Many of them earn their livelihood by receiving food grains from the Rajput families.

Marital relations between the high and the low caste is strictly forbidden though extra-marital liaison can be maintained with their women but instances are not lacking where such type of marriages have been contracted in the recent past. Cases have been noted where a member of a high caste has married a girl of the lower caste. All such males have been outcasted from their respective caste groups and have formed a village of their own called 'Kheri'. In cases where a high caste male marries a low caste female, he in no case, remains a member of his caste; rather he acquires the caste status to that of his wife. But this marriage nevertheless debar them from their share in the ancestral property. They are given their due share in the property. Earlier the outcasted members whenever they visited their parental home, were not allowed to enter the house nor given food in the utensils, but now the time has healed the wound and they can now enter the house and eat in the same utensils, but still they are not given places of ball-metal (*kut*) as if it once defiled, can not be purified again.

Thus such cases are not rare where marital liaison have crossed the caste frontier, and it is assumed that as there is a general slackening in the adherence of various caste taboos in the day to day behaviour, these restrictions will also be minimized and made acceptable to the people gradually over a period of a decade or two.

The forgoing facts shows the differences that exist between the high and the low castes but these apparently dichotomous and seemingly antagonistic divisions are camouflaged by a definite mechanism and interactional medium which promotes collective consciousness, unity and oneness amongst its members.

No society simple or complex can function in isolation and without co-operation amongst the different segments. The system of stratification is essential and fundamental to its existence, the central function being that of providing a workable division of labour.

“The function of the organization is to co-ordinate the activities of the members of a society in ways that will enable the social system as distinct from the people who at any moment constitute the social membership to survive. More specifically, organization assures the perpetuation of the social population” (Pierre, 1965).

There are several occasions and circumstances which command co-operation and good will. Intercaste work groups are common including both co-operative labour and independent labour performed in groups like in building houses, carrying the central beam for building of the house from the forest to the housesite, tending sheep and goat, building protective wall in the field, etc.

In this connection detailed mention may be made of their *kwer* organisation. For example if a house is to be built then at a day set aside for labour every family in the village sharing a common fire place, would be informed and each family has to provide at least one adult male member or as per requirement of the house builder. In the evening all those who have thus come as helpers, would be provided with free meal and *sur* (local liquor) by the host. It means that two or three days in a week one of the brothers in the family must abandon his work to take part in such activities in the *kwer* season which usually commences in the month of September just before new crops are harvested or else at the return of the people from the plains after the snow has melted when the retaining wall of the fields must be strengthened. The work team are used on every possible occasions both private and public, secular and religious, like building agricultural wall below the field, building houses, repairing watermills, etc. Even children can be asked to assist them to collect the stones which roll down to the fields and to

arrange them in pile ready to be packed into wall. Women similarly meet together on such, tasks as plastering the house with cow-dung, etc.

If a villager is asked as to why do they carry out their obligation in *kwer* at a great personal inconvenience, they would immediately reply that each of the family in the village has the *birtan* ties with each other. The *birtan* ties can be defined as a system of traditionally sanctioned mutual obligations between individual and families other than kinship, etc. It would be in a nature of personal insult to the host if a given person asked for the work, does not turn up, and in such cases nobody would go to him for any help in the future.

The *birtan* obligation can be further classified into different types which are as follows:

(a) *Bersord*: It is the relationship between families and its Brahman *purohits* and is similar to the *jajmani* relationship. The Brahmans receive some percentage of food from the *jajman* (employer) mainly at four great *sankranti* and also at some special occasions like birth, marriage and in exchange he is expected to carry out all the rituals from birth to death for all members of his client. He may be asked to do little extra favour by preparing horoscopes, performing *kathas* and *pujas*. This is a true *birtan* relationship which implies duties as well as the obligations on both the part and such an alliance can not be dissolved or dissociated irrespective of the performance or non-performance of the act, though now a days due to the changing needs of the time the *purohit* although has a clientele but would not be paid anything in cash or kind in case of non-performance of the expected duties and obligations. If the Brahman *purohit* is unable to come, he would send his nominee to the client's place but in no way the client could call *purohit* at his own sweet will. But again such rules are gradually being relaxed and instance can be cited when the *purohit* is being changed and the office of the *purohit* has not remained exclusively hereditary in nature.

(b) *Kaman birtan* is a term applied for all forms of *birtan* ties between different caste groups, like relationship between an agricultural family with various craftsman of the village, and in turn the *kaman birtan* is entitled for a fixed quantity of grains from the produce prorate for the work done by him.

Similarly there are a number of other *birtan* relationships of this kind. To illustrate, we would quote some more instances which would

highlight the existing pattern of the relationship. For example at wedding parties certain families belonging to the low caste bring leaf plates (*bhojpatra*) and they are mostly paid in kind, otherwise, those who bring tiles for the roof from the quarry for the families with whom it has *birtan* ties, receive certain share of produce, and this way one can go on enumerating such instances of patterned relationship existing amongst various sections of the society to facilitate its working.

In fact the nature of the village economy is such that various sections and different segments have to work in totality where anonymity has little place which has become a characteristic feature of the fast industrializing urban centres. In such simple little communities, members are tied together by a definite bond which can not be dislodged at one's own wish or on certain personal basis because petty issues of enmity, rivalry or caste differentiations have to be ignored in the interest of the community as a whole ; and to achieve this end there are various occasions as already pointed out, which strengthen the bond of mutual relationship.

To cite few more instances and occasions which bring in cohesion, the most frequent occasion for intimate social interaction across caste lines in the village, is at drinking parties. People of one caste group sit and chat together with a glass of drinks and enjoy the evening. They are also seen sharing the same *hukah* (hubble-bubble).

The amount of friendly interaction between high and low caste is evidently more than expressed attitudes of these groups towards each other and the formal restrictions placed upon interaction between them. In general as pointed out "activities which are illegal, overtly disapproved or non-sanskritic are much more likely to be intercaste in nature than those which are entirely approved and orthodox" (Berreman, 1972).

Another most important colourful fact of their life is the religious *yatra*, fairs, festivals and dances which play a very important role in strengthening the ties. In Bharmour every year the famous *yatra* starts in the late August or early September for Manimesh which is said to be the abode of Lord Shiva. The *yatra* is performed with all enthusiasm and full participation. The entire village moves singing and dancing along the way to pay homage to the most revered deity. There are

number of other such fairs and festivals like *minjhar* (falicitates with the ripening of corn which is their staple diet). *Sui ka mela* and many more, too many to mention which bring in great amount of collective force, a sense of unity and oneness.

To sum up more appropriately in the words of Berreman (1972) that:

“the nature of caste creates economic and religious interdependence in the village. Every local caste is essential to other and the extent that people depend upon members of other castes within the village, a strong cohesive bond is formed. From such interdependence and from the crucial fact of residential proximity intercaste social bonds also grow to be effective cohesive forces. There is certain lore about the village its locale and people which is shared almost exclusively among villagers without regard to castes and cliques”.

From the foregoing analysis it should not, however, be understood that caste boundaries have become so fluid and the caste status so ambiguous but rather it is so secure that it is not jeopardized by interaction of this kind (Berreman, 1972).

REFERENCES

- | | | |
|-----------------------|------|--|
| Berreman, Gerald D. | 1972 | <i>Hindus of the Himalayas: Ethnography and change</i> , London, California. |
| La-Pierre, Richard T. | 1965 | <i>Social Change</i> , USA McGraw-Hill Book Co. Inc. |
| Mandelbaum, David D. | 1972 | <i>Society in India</i> , Vol. 1, Bombay, Popular Prakashan. |

Jajmani system in a Himalayan village

JITENDRA SINGH

The term 'Jajman' is derived from the Sanskrit word *jagvano*, frequently used by the Brahmin *hota* (priest) in Rigveda to indicate the Kshatriya or *rajanya* (kings) who used to perform *yagya* (sacred sacrifices) usually (cf. Singh, 1972: 1). Later on, the term was initiated and utilized by the fourth *varn* of the non-Aryan artisans, *i.e.*, the Shudra, to indicate *rajanya* (king), to whom they tendered different services. And in due course of time, these services became fixed and took the form of an usual social pattern in agricultural economy, popularly called as *jajmani* (*ibid*, 2—5).

The system of *jajmani* has its deep roots in the history of India. Credit of making it a subject matter of anthropological interest goes to an American Missionary Wiser (1936), who, first of all published his findings on this system as found in a north Indian village. Following him a number of scholars both from India and outside namely; Mathur (1950); Majumdar *et. al.* (1955); Srinivas (1955); Dube (1955); Lewis and Barnouw (1956); Opler and Singh (1958); Gould (1958); and others took much interest and collected data on the pattern of inter-ethnic ties and other associated aspects of *jajmani* system from different parts of India.

Whatever information regarding the system we have are from the villages, situated in plains of India. The system also exists in the Himalayan region, particularly, in the Central and Western Himalayas, but it has not yet been brought to limelight. The *dhandhwar* system of the district of Uttarkashi in Uttar Pradesh (Central Himalayan region) shows its characteristic similarities with the *jajmani* system of the plains areas. This article describes interactional pattern of the *dhandhwar* system found among various caste groups of Deora village in the district of Uttarkashi, U.P.

Deora is one of the interiormost village of the Rawain area, 48 Kms. away from Purola, tehsil headquarters of Uttarkashi district. The district until independence was a part of Tehri Garhwal princely State. Even today it is least accessible, has a low level of literacy and fewer occupational opportunities other than agriculture. In the whole of the

Garhwal region and within the district the Rawain area is considered to be least developed. Due to these reasons, research in the area is supposed to provide a picture of traditional inter-caste interactional pattern.

Village caste system and economy

As in the whole of the Garhwal region, the society of Deora village may also be differentiated into two broad groups: the Beet and the Dom. The Beet group is superior in status and composed of Nautiyal subcaste of Brahmin and Rangad subcaste of Rajput castes. The Dom group, which is considered as having lower status, consists of the Nath (mistri), Bajgi and the Dom castes.

The caste system of Garhwal varies considerably from that of the plains, as there is no rigidity regarding the occupation. Artisan castes are very few, and each one of these has to perform more than one occupations. For instance, the Mistri caste people simultaneously work as the Kumhar (potter), the Lohar (ironsmith), the Badhai (carpenter) and the Rajgir (mason). And so is the case with other castes such as the Bajgi and the Dom, who perform more than one occupations, side by side, but none of their members is thought to be out of the caste.

Vocational flexibility is not prevalent among the castes in plains. There is a separate caste for each occupation, for example, the Kumhar (potter), who make earthen pots, is a separate caste and do not have relations outside the caste and so are other artisans like the Lohar, the Badhai, the Dom and others.

Economy of the village is mainly based on agriculture, substantiated by sheep breeding. Nearly all of the households of the village own some area of land, but most of the land is still in the hands of the Rajputs. They constitute a major community of the village and receive the *jajmani* services from all other castes of the village. Returns of the *jajmani* services, share-cropping in the land of big landholders, agriculture and temporary labour are the means of livelihood of all the households of the Brahmin, Nath, Bajgi and the Dom castes.

It is to be mentioned in this context that before independence the Brahmins of Deora had no land. The land at present possessed by them was made over to them by the Rajputs of the village for maintenance

of the Karn temple. But now it is treated as their own property. Most of the Nath (mistri), Bajgi and the Dom caste people also had no land because they used to earn from their respective traditional occupations. But only a few who were interested, got small area of land given by the State.

As I have already mentioned that the different occupational experts of the village contribute in one or the other way to run up the agricultural, social and religious activities and in turn are paid a fixed amount of cereals at harvests, food, clothes at working period and ceremonial occasions, and other remunerations such as *pithain*, *bishota*, etc., during birth, marriage and death. This system of payment is popularly known as *dhandhwar*. One who gives *dhandhwar* is called by all service castes as *gaik* or *thakuro*.

And those who receive *dhandhwar* are called *perja*. But the Brahmin who according to their work are called *pujari* and *pandat*. Those who receive his sacerdotal services are called by him as his *jajmans*.

Occupations and traditional expertise of castes

As in the villages of the Rawain region, the limited number of artisan castes of Deora have many occupations. So each caste has to perform more than one occupation. At the same they may serve more than one village and several *gaik* (customers). The names of the occupations and artisan castes handling them are mentioned as follows:

1 *Pujari*: Brahmin households of the village worship Karn deity turn by turn, daily, and for this they are called *pujari*. Since, the Karn deity governs the destiny of the people living in the villages of Singtur Patti (revenue division), therefore, his Pujari who works as paid representative of the people, requests and pleases the deity for their prosperity and well being. He also calls the deity over him and points out the causes and treatments of individual ailments and natural calamities. He gives badhai (congratulations) to the people of the Patti during childbirth and marriage.

2 *Pandatai (Purohit)*: Brahmins of Deora are not expert in *pandat* or *purohit* business, for instance they are not able to conduct sacred performances during rites be passage and other ceremonies, tell *muhurt* (auspicious times) for initiating certain work, make horoscope and recite

Satya Narayan Katha. Therefore, all the castes of Deora get Pandatai services from the Brahmins of Guradi village which lies at the distance of 2 Kms.

3 *Paori*: The Nath (mistri) caste people of the village are traditional *paori* (guards) of the village and Karn temple in particular. All the Nath (mistri) households of village still discharge this age old traditional responsibility. They are also called for sending message from one place to another and for collecting contributions from the public during the worships and other ceremonies proposed to be held in public interest.

4 *Kumbhar-Kam*: Some Nath (mistri) caste people of the village hold the *kumbhar* (potter) occupation. They prepare earthen pots for their own and neighbouring villages which are used for domestic and ceremonial needs.

5 *Rajgiri*: Some households of the Nath (mistri) caste of the village work as the Rajgir (masons) in their own and neighbouring villages. They make stone walls, wooden houses and so on.

6 *Badhaigiri*: The Nath (mistri) caste people of the village also work as the Badhai (carpenter). They render their services inside and outside the village. They make wooden parts of the houses, implements, household and agricultural. Since they are also mason, they build houses of the villagers.

7 *Lohargiri*: The job of the Lohar (blacksmith) is traditionally done by the Mistri caste people. But the Mistri (nath) of Deora are not expert in ironsmithy. So all the castes of the village avail the services of the Mistri of Dandgangaon who are expert in this craft. They make and repair iron implements used in social, ceremonial and agricultural activities.

8 *Bajgiri*: Traditional Bajgiri (drumming and dancing) works are done by the Bajgi caste of the village. Drumming at the Karn temple daily in mid-day is done by all the Bajgi households of the village in their turn. They also drum and dance during ceremonial occasions to entertain the people. It is also their duty to keep on record the days of all festivals of their own village and those in the neighbourhood.

9 *Darjigiri* : Some Bajgi households of the village also hold their traditional Darji (tailoring) works for serving the villagers, by making garments.

10 *Nai-Kam* : The Bajgi caste people of the village also works as the Nai (barber). They shave all the caste people during usual needs and on ceremonial occasions.

11 *Ringal-Kam* : Some people of the Bajgi caste do Ringal (basket) works. They make different kinds of container from bamboo splits for domestic and agriculture uses.

12 *Binani* : Some Dom households of the village are engaged in the Binani (weaving) occupation. They weave woollen garments for the people of their own village and those outside the village.

13 *Dom-Kam* : People of the Dom caste are traditionally expert in skinning, tanning and shoe-making. They collect fuel for making pyre for the dead belonging to the households of their *gaik* (customer). They also carry bride on their back during marriage from the house of his *gaik* to groom's party.

14 *Halia* : People expert in cultivating land are called *halia*. Traditional Halia occupation absolutely belongs to the Dom caste, nonetheless, any caste member expert and interested in the land cultivation can work as *halia*. Their main duties are land tilling and collection of fuel from the forest.

15 *Gair* : People employed for tending cattle are called as *gair*. Anyone belonging to any caste, interested and capable of tending cattle may work as *gair*.

16 *Bhendal and Bakarwal* : Persons employed to tend sheep are called *bhendal* and those who tend goat as *bakarwal*. Any person of any community interested and capable of tending these animals can work as *bhendal* and *bakarwal*.

Types of payment

Before discussing types of payment, it is necessary to mention again that each of the occupational experts of Deora has more than one *gaik* (customer) in and outside the village. As the rate per household

is traditionally fixed, the income of a particular expert may be calculated by multiplying the amount received from a *gaik* with the total number of *gaiks* served by him.

Of the four types of payments for the services of traditional specialists, such as (1) Semi-annual grain payments to a specialist engaged on permanent basis, (2) Payment of cash or grain on piece work basis to a specialist permanently engaged, (3) Exchange of services and (4) Payment of cash, grain or both on a piece work basis to any specialist as reported by Gould (1964: 16) from north Indian villages, three, *i.e.*, 1st, 2nd and 4th with some variations are present in Deora. The exchange of services within *jajmani* relations is not practised here but one more type, *i.e.*, annual payment is present. Types of payment availed by the occupational experts are detailed as below:

1 *Pujari*: Brahmin *pujari* (*priest*) of Karn temple get annual *dhandhwar* of five *dang* (times) food grains amounting 2 Kg. rice from each household of the village plus free *gunth* land dedicated for the maintenance of temple. But they are given 16 *kundi* (Kg.) bi-annual *dhandhwar* of grains per household from other villages of Singtur Patti with $\frac{1}{2}$ Kg. wool per household once a year because they have not given any land. They also receive *pithain* (presents) of Re. 1 per *badhai* (congratulation) during childbirth and marriages taking place in client's households.

2 *Pandat* (*purohit*): The Brahmin of Gurdai, who holds the charge of *pandct* in Deora, is given annual *dhandhwar* of 4 *kundi* (Kg.) paddy per household. He is also given *pithain* (presents) in return of per *badhai* (congratulations) during childbirth and marriage. As a piece work payment he receives Rs. 25 for conducting each marriage and Rs. 25 for each Satya Narayan Katha, utensils during *pitraunth* (ancestral worship) day and utensils and beddings during pilgrimage with clients. They also beg food-grains during Auns (Amawas) and Sankranti and other ceremonies from *Jajman* households.

3 *Paori*: The *paori* (guards) of Karn temple and village get bi-annual *dhandhwar* from every village household amounting 8 *kundi* (Kg.) paddy at the time of Mangsir (Nov.-Dec.) harvest and 2 *kundi* (Kg.) wheat during Jeth (May-June) harvest. They also receive bhadrand payment in the month of Bhadaun (Aug.-Sept.) amounting 4 *kundi* (Kg.) Kaundi or Cheena grains from each household.

4 *Kumbhar* : Holder of the Kumbhar (potter) job are paid mostly in cash per piece of pot. As the villagers possess metal utensils for domestic use they take earthen pots on ceremonial occasions.

5 *Rajgir* : People of the Nath Caste, who work as the Rajgir (mason) are paid in cash, sometimes in grains plus two times food on *dhyadi* (daily wages) basis.

6 *Badhai* : The village Nath caste people also supply Badhai (carpenter) services on *dhyadi* (daily wage) basis payable in grains and cash plus two times food.

7 *Lohar* : Blacksmith is paid bi-annually an amount of 16 *kundi* (Kg.) of paddy as the *dhandhwar* in Mangsir (Nov.-Dec.) and 8 *kundi* (Kg.) wheat in Jeth (May-June) from each household. He also receives *bijan* (seeds) of paddy and Mandua grains amounting 4 *kundi*, Bastar payment consisting of 3 *kundi* paddy for sharpening share of the plough during Phalgun sowing season ; *bhadrand* payment of 4 *kundi cheena* or *kaundi* in Bhadaun (Aug.-Sept.) and *jeulo* payment of 4 *kundi* paddy in Mangsir (Nov.-Dec.) per household per year. During the marriage of some girl he receives *bishota* consisting of 20 *kundi* paddy from groom's party. In addition on each ceremonial occasion, festival and on working days he is given food.

8 *Bajgir* and *Nai* : Since both occupations of drumming at Karn temple and of barber are done by the Bajgis of the village, payment is made to them jointly. They get bi-annual *dhandhwar* of 8 *kundi* (Kg.) of paddy in Mangsir (Nov.-Dec.) 2 *kundi* (Kg.) wheat in Jeth (May-June) from each of the households. They are also paid with 4 *kundi cheena* grains as *bhadrand* in Bhadaun (Aug.-Sept.) and *bishota* consisting of 20 *kundi* (Kg.) paddy during the marriage of a girl from groom's party. They also receive *padai* money amounting to Rs. 10 to Rs. 15 thrown over the deceased persons. On birth, marriage and death and other ceremonial occasions they receive cash for drumming and dancing in addition to food and some times clothings also.

9 *Darji* : As tailor, the Bajgi also earn on piece work basis. paid mostly in grains. A tailor has been provided with a sewing machine by the villagers through common contribution.

10 *Ringal Kam* : Baskets of different shapes and sizes are sold now a days on the payment of cash by the Bajgi caste.

11 *Binani* and *Dom*: Since both the works of weaving and sundry labour are done by the Dom caste people, the payment is made jointly. They receive 16 *kundi* (Kg.) paddy in Mangsir (Nov.-Dec.) and 8 *kundi* (Kg.) in Jeth (May-June) as bi-annual *dhandhwar* and also annual *bijan* (seeds), *bhadrand jeulo* and *bishota* in the same quantity as given to the Lohar. Moreover, food on ceremonies and festivals alongwith other remuneration from each household are also paid to them. They are also given cattle skin. Apart from this, for every piece of work they are paid 4 *kundi* (Kg.) paddy and 2 *kundi* for woollen shoes. When they weave *bhendi* cloth (24' × 2') they are paid 6 *kundi* (Kg.) paddy with 2 times food per day for 3 days. But the weaving of *kaunth* and *dhabli* (woollen rug) costs 1 *kundi* (Kg.) paddy per 1.5 feet length when it is 7.5 feet broad.

12 *Bhendal* and *Bakarwal*: Annual *dhandhwar* of 4 *kundi* (Kg.) paddy is paid in the month of Mangsir (Nov.-Dec.) per goat or sheep. Besides they are given grains in lieu of two times food daily. Food grains for a month are paid in advance amounting 16 *patha* (32 Kg.) rice and or flour from each household.

13 *Gair*: They get bi-annual *dhandhwar* equivalent to that received by the Dom and *binai* and 4 *kundi cheena* as *bhandrand* in Bhadaun (Aug.-Sept.) plus grains for two times food daily if he works in a household and if in others also, food grains for one diet only from every household.

14 *Halia*: In general *halia* is given interest free advance of Rs. 1000—3000 as loan for the period he serves as *halia*. He is paid bi-annual *khalata* (food grains for family subsistence) amounting 30 *patha* (60 Kg.) paddy and 10 *patha* (20 Kg.) of Mandua in Mangsir (Nov.-Dec.) and the Jeth (May-June) 2 *mounds* of wheat and 2 Kgs. pulse plus clothings and food, when he works. If he works for the whole day he is given three times food but when he works for half a day he receives two time food. *Bijan* (seeds), free land and bullocks to cultivate land are also given to him.

Nature of interaction

Since agriculture constitutes the basic subsistence of the village, the dominant Rajput caste owning more or less all the agricultural land, largely control its economy. Other castes are associated in the organisa-

tion of production as service givers and suppliers of non-agricultural commodities. This interdependence in the economic sphere is conspicuous in the prevailing *jajmani* relations as described in the preceding pages.

Ancestors of the Rajputs of this village established Karn temple and brought a Brahmin for worshipping the deity. They arranged a fixed amount of grains called *dhandhwar* and *gunth* land to be given for the livelihood of that priest. The Nath (mistri), the Bajgi and the Dom caste people were also brought into this village for getting help in different phases of socio-economic affairs. In early days, the services of these artisan castes were absolutely meant for the Rajputs of the village. In course of time population of each of the caste increased, and it became difficult to feed all family members of the service castes by the Rajputs alone. Realizing this difficulty of the employee-artisans, the Rajput offered some arable land, which could provide them with some additional income. As land exploitation is a very difficult job, few of them took up agriculture, but expanded and established their traditional service with other castes in their own and also neighbouring villages.

Nonetheless, the service castes of this region continued to serve their traditional Rajput clients for a longer period. But today these artisan castes prefer their wealthy clients mostly. All the occupational experts are equally important due to the importance of service they render. Each of the occupational experts has its own importance and value on different occasions as they handle key job, which can not be done without cordial co-operation of these experts in urgent moments of operations.

Although, on interactional level, ritual purity of the high castes is always taken into account yet it does not put any constraint on the works of lower caste people because they also give same payments as are given by the upper castes for various works. The high caste Brahmin who works as *pandat* (*purohit*), presides over sacred performance for lower caste people, but not in their houses. These sacred rites are conducted in courts of temples or other secular sites of the village. But the *pandat* conducts all these works at the house of the interested Brahmins and Rajput *gaiks* living in and outside the village.

However, other occupational specialists, who generally belong to the castes with status, possess no such caste oriented considerations for working. They work wherever they get it, in or outside the village

and for any caste. But they prefer neighbouring *gaiks* (customer) due to nearness in distance and to avoid wastage of time and energy in covering risky distances.

Approach of occupational experts

Since long social scientists have assumed that the village is an appropriate unit of study in complex societies. But Mayer (1960) and Bailey (1957, 1960) among others, have turned to the concept of small regions encompassing a number of villagers as a more useful framework of analysis. Gould (1958, 1964) has explicitly applied such a concept to the study of a north Indian *jajmani* system. In the Himalayan villages also, the system of *jajmani* can not be studied in isolation from the surrounding villages. When I studied the system from Deora village I found that the various occupational experts of the village provide their services to residents of neighbouring villages and also receive the services of those experts which either are not present in the village or if present, do not stand the demand of local people.

Some *bhendal* and *halia* experts are also employed in Deora from neighbouring villages as the village experts do not fulfil the home demand. Besides these each of the occupational expert may have several *gaik* to serve simultaneously.

The *gaik* or *jajman* household services are inherited by the successive generations of each occupational expert. Equal division of *jajman* household is done among the male children of an occupation expert. If the *gaik* households are not equally visible, rich and bigger households are put as compensatory share to the partner, whose part is less. The services can not be entrusted at any rate by the *gaik* or *jajman* to other expert of that nature unless, the former do not refuse to perform them willingly.

Summing up

It is evident from the above account that each of the artisan castes of Deora like other villages of the district are expert in different occupations and continue to give services simultaneously. Although most of the occupational experts are still engaged in their traditional occupations, yet a sort of change has appeared. They want payment of cash in hand instead of payments of kind of traditional nature so that they can cope with the market and cash economy introduced in their area.

White coloured jobs have impressed them much. They are thinking to discard the traditional way of life which has failed to provide them with the modern amenities of the present day.

The lower caste occupational experts are fighting for social, political and ritual equality with higher caste people. They are also trying to borrow and revive for themselves, the elements of culture that the higher caste people are shedding. For instance, contact pollution and dietary distances are being introduced among the Mistri, Bajgi and the Dom castes. For these reasons also, the Dom (serf) caste people of the village are refusing their traditional skinning, tanning and leather works. They are of the opinion that the pollution inferiority of their caste status is due to their impure job. If they could give up this traditional profession they would get somewhat higher social status.

Anyhow it is apparent that this system is in transitional phase. Inter-caste dependence is lessening day by day due to spread of education and distribution of land among all the castes. Moreover, occupational expertise is also decreasing with the passage of time due to decrease of interest in traditional occupations which were actually centered around the agriculture.

REFERENCES

- | | | |
|-----------------|------|---|
| Bailey, P. G. | 1957 | <i>Caste and the Economic Frontier</i> Manchester. |
| ————— | 1960 | <i>Tribe, Caste and Nation</i> . Manchester. |
| Dube, S. C. | 1955 | <i>Indian Village</i> . London. |
| Gould, H. A. | 1958 | The Hindu Jajmani System: A case of economic particularism. <i>South Western Journal of Anthropology</i> . 14: 428—437. |
| ————— | 1964 | A Jajmani System of North India: Its structural Magnitude and Meaning, <i>Ethnology</i> . 3: 12—41. |
| Lewis & Barnouw | 1956 | Caste and Jajmani System in a North Indian Village, <i>Scientific Monthly</i> . 83 (2). |

- Majumdar, D. N., *et. al.* 1955 Inter Caste relations in Gohna Kalan. *Eastern Anthropologist*. 8.
- Mathur, K. S. 1950 Occupational Structure of a Malwa Village. *Eastern Anthropologist*. 12.
- Mayer, A. C. 1960 *Caste and Kinship in Central India*. Berkeley.
- Opler, M. & R. D. Singh 1958 *The Division of Labour in Indian Village: A Reader in General Anthropology*. ed. C. S. Coon. New York.
- Singh, J. 1972 A Study of Jajmani Vyavastha in Thathura Village, District Sitapur, U.P. Unpublished Dissertation, Lucknow University.
- Srinivas, M. N. 1955 *Indian Village*. Calcutta.
- Wiser, W. H. 1936 *The Hindu Jajmani System*. Lucknow.

Social economy in Western Himalayas : A study of Kargil District of Jammu & Kashmir

B. R. RIZVI

There are few Anthropological studies available on Kargil. The existing body of information is found in the form of old account of travels, missionaries and administrators. The intention of the present author through this paper, is to give a detailed picture of economic ways of life of the people of Kargil and to state how people living in the peculiar geographical conditions prevailing in the region, manage their economic affairs. In this paper social economy of Kargil is explained in terms of economic resources and economic relationship that help to explain the network of regional economy.

The Area : Kargil recently carved out from Ladakh, is a new district consisting of two sub-divisions: Kargil and Zaskar. Kargil Tehsil is bordered in north by Gilgit district and the east by Leh Tehsil. It is bounded in the west and southwest by the districts of Barmulla, Srinagar, Anantnag and Doda and is contiguous in the south with Punjab and Himachal Pradesh.

Most of the villages in Kargil are stretched at a height of more than 10,000 feet above the mean sea level. The climate is generally dry in summer but very cold in winter when the temperature goes down below the freezing point in every part of the Tehsil. The rainfall received by the tehsil on an average per year is 639.36 mms. (25.17").

Majority of population is concentrated in villages with a population of 200—499 and 500—999, but the proportion of population claimed by villages of population size 200—499 is highest in Kargil. Villages having a population size of below 200 are 33.00 per cent, villages with a population size varying between 200 to 499 are 45.00 per cent and between 500—999 population size 19.00 per cent. Only 3.00 per cent villages claim population size of between 1000 to 1999 (Census of India, 1961).

Selection of villages

The villages, viz., Karkit, Hardas and Wakha were studied intensively.

Karkit: Karkit is situated at 12,730 ft. above the mean sea level. It is mainly inhabited by the Shia Muslims and the Brok-pas or Dards. The Brok-pas of Kargil speak Shin dialect. The term Brok-pas which means 'highlanders', is being used by the Baltis who live in the neighbouring region of Skardo. The people themselves use the word Shin for their ethnic identification. The Shin have a group hierarchy as follows.

Social hierarchy in Karkit

Ronu/Rom	...	—Ruling elite.
The Shin	}	... —Farmers.
Yekhshun		
Kremin/Dom	...	—Occupational groups.

Ronu, also known as Rom-raj are the remnants of ruling class. The Shin are peasants, the Yekhshun, though they belong to the Shin group but enjoy an inferior status being the immigrants from Gilgit. The Kremin and Dom belong to specialised occupational groups. Each group in the hierarchy is sub-divided into *gatti* or *quom*. The population of the village is 437 with 75 households.

Hardas: The village is situated 9,370 ft. above the mean sea level. The population consists of the Baltis. Six Kashmiri families (Khache-pa) also settled down in this village. Like the Brok-pa, the Baltis too belong to the Shia, ethna-ashari sub-sect of Islam. The Baltis may be sub-divided into the status groups in order of their hierarchy, as given in page 320.

The Agha category belongs to those who claim their descent from prophet Mohammad and his daughter, Fatima. By virtue of their descent they claim a supreme status in the society, and the society too holds them in the highest esteem. The group may be sub-divided into two categories: the priests and non-priests. Priesthood is an achieved status which is attained by imbibing theological learning only at selected places in Iraq and Iran. The non-priest Aghas though inferior to the Agha priests, hold a superior position *vis-a-vis* the Sheikhs.

The Sheikhs are also priests and the source of their priesthood is again the same selected places of learning in Iraq and Iran. Hence the status of the Sheikh priest is an achieved one. The Akhund are also

Social Hierarchy in Hardas.

Ascribed status	Agha { Priest (Mujtahid) Non-priest	Immigrants from the middle east
A C H I E V E D S T A T U S	<p style="text-align: center;">Sheikh — Priest (Mujtahid)</p> <p style="text-align: center;">Akhund — (Non-Mujtahid priest)</p> <p style="text-align: center;">Haji</p> <p style="text-align: center;">Zamindar/Saget (Farmers)</p>	A U T O C H T H O N E S O F T H E R E G I O N
Status in Transition	Dom—(Musicians ; now artisans)	

priests but only indigenously trained. The Hajis are those persons who have returned from pilgrimage of Karbala and Najaf. The Hajis are placed over and above the *saget* but otherwise the former are in no way different from the latter who indulge in all labour and agricultural activities. The total population of the village is 541 with 87 households.

Wakha : Wakha is situated 8 Kms. west of Nameikla at an altitude of 11,000 ft. above the sea level. The Wakha river flows from the centre of the village dividing it into two halves. Ruins of the formidable Wakha fort dominate the eastern flank of the village. The population of the village consists of 530 Boudhs and, 363 Muslims belonging to ethna-ashari sub-sect of Islam. The Boudh population follows the Geluk-pa sect.

SOCIAL ECONOMY

Traditional economy: In the past trade and pastoralism with marginal agriculture was the main foundation of the regional economy. The green patches of land down below the vast desolate mountain attracted pastoralists from Gilgit and other high bowing ones who gradually settled down in Kargil. The settlers carved out water chanck for irrigation. Trade was carried out mainly in the form of barter. Commercial links connected Kargil with China, Central Asia, Gilgit via Skardo, Kashmir valley and further upto the plains of Punjab through the Moghul Highway Lahul and Spiti via Zanskar and then down to the plains of Punjab. The world famous *pashm* wool, borax, salt, dry fruits, gold dust and eggs were exchanged for tea, butter, finished dresses, honey, food grains, sheep and goats, resins, pack animals, pearls and utensils.

Trade accross the border came to a sudden halt in 1962 causing a set back to the regional economy as the agricultural produces were not sufficient to meet the people's requirements round the year. Nevertheless the growing need of expanding transport and communication created new job opportunities to the local populace and manual labour emerged as the major subsidiary source of livelihood replacing trade and commerce.

ECONOMIC RESOURCES

The economic resources of a human society mainly consist of land, labour and capital.

Land: The rough mountainous terrain of Kargil leaves very little land for cultivation. It has been reported that 58.10 per cent land in Kargil is non-cultivable. However, the data from three villages, *viz*, Karkit, Hardas and Wakha show that only 30.68 per cent land is non-cultivable. Looking at the three villages it was found that in Karkit, Hardas and Wakha the percentages of non-cultivable land are 47.37, 44.14 and 25.03 respectively (Table 1). The higher percentage of non-cultivable lands in Karkit and Hardas is due to their rough terrains.

Size of landholding per household: A household in the three villages on average possèsses 1.90 acres of land. Out of which 1.32 acres (69.47 per cent) is cultivable and 0.59 acre (30.53 per cent) non-cultivable.

In Karkit the size of landholding possessed by a household is 0.84 acre. Out of which 0.44 acre (52.38 per cent) is cultivable and 0.40 acre (47.62 per cent) non-cultivable. The average size of landholding possessed by a household in Hardas is 1.07 acres out of which 0.60 acre (56.04 per cent) is cultivable and 0.47 acre (43.93 per cent) non-cultivable. A different picture emerges from Wakha, where a household possesses 3.04 acres of land. 2.28 acres (75 per cent) cultivable and 0.76 acre (35.00 per cent) non-cultivable. The abrupt increase in the size of landholding in Wakha may be explained in terms of its: (i) topography and (ii) population composition. The village Wakha, as mentioned earlier is situated in a vast valley which is evenly divided by the Wakha river. 59.40 per cent of its population belongs to Buddhism and 40.80 per cent are Muslims. Among the Buddhists or Budhs fraternal polyandry is prevalent. Naturally the size of a land holding attached with a polyandrous household remains stable as only the eldest male issue has the right to marry and keep the landed property. Other brothers, though share their elder brother's wife, cannot claim their right on land ownership. Any issue born to such a union, belongs to the elder brother. The Muslim, on the other hand, are strictly against polyandry, though polygyny is permitted but only a couple of polygynous households came to notice in 130 households of the village. Monogamy, thus is more prevalent which results into the perpetual fragmentation land reducing the size of landholding in possession of Muslim household.

Another factor which affects the size of land holding possessed by a household is the relative proximity of the village from the borders. Karkit and Hardas are nearer to the borders hence they show smaller size of landholdings per household whereas Wakha is situated far from the border showing bigger size of landholdings per household.

Per capita size of landholding

The data collected from Karkit, Hardas and Wakha shows that on an average a person possesses 0.291 acre out of which 0.202 acre (69.42 per cent) is cultivable and 0.089 (30.58 per cent) non-cultivable.

Karkit shows the smallest size of landholding per capita which stands at 0.145 acre out of which 0.076 acre (52.41 per cent) land is cultivable and 0.069 acre (47.59 per cent) non-cultivable (Table 1).

Table 1: Economic resources: Land in Kargil

Villages	Total land	Culti- vable	Per- cen- tage	Non- culti- vable	Per- cen- tage	Size of landholding per Household			Size of landholding per capita			Nos. of households	Population				
						Total	Cultivable	Percentage	Non culti- vable	Percentage	Total			Cultivable	Percentage		
Karkit	63.23	33.28	52.63	29.95	47.37	0.84	0.44	52.38	0.40	47.62	0.145	0.076	52.41	0.069	47.59	75	437
Hardas	87.49	48.87	55.86	38.62	44.14	1.07	0.60	56.07	0.47	43.93	0.161	0.090	55.90	0.071	44.10	82	543
Wakha	395.50	296.50	74.97	99.00	25.03	3.01	2.28	75.00	0.76	25.00	0.443	0.332	74.94	0.111	25.06	130	893
Total	546.22	378.65	69.32	167.57	30.68	1.90	1.32	69.47	0.58	30.53	0.291	0.202	69.42	0.089	30.58	287	1873

In Hardas a person possesses 0.161 acre of land out of which 0.090 acre (55.90 per cent) land is cultivable and 0.071 acre (44.10 per cent) land is non-cultivable.

In Wakha a person possesses 0.443 acre of land out of which 0.332 acre (74.94 per cent) is cultivable and 0.111 acre (25.06 per cent) non-cultivable. In other words the amount of non-cultivable land in the border villages of Karkit and Hardas is higher in comparison to Wakha.

Distribution of household according size of landholding

Karkit and Wakha have smaller size of landholding in comparison to Hardas. The size of landholdings in Karkit varies between 0.125 acre to 2.00 acres. In Hardas it varies between 0.125 to 4.00 acres. In Wakha, however, the situation is different showing a variation of size of landholdings between 0.125 to 12.00 acres.

84.00 per cent households in Karkit possess size of landholdings varying between 0.125 acre to 1.00 acre. In Hardas 96.34 per cent households possess landholdings size of which varies between 0.125 acre to 2.00 acres whereas 73.03 per cent households in Wakha possess landholdings of the size varying between 1.00 to 4.00 acres.

There are 4 landless households in Karkit and 2 each in Hardas and Wakha.

Types of land

There are five types of land in Karkit which are enumerated below.

(1) *Muljin* : *Muljin* is best land situated near a source of irrigation. Two crops can be raised in favourable weather. The rate of revenue paid for *muljin* is Rs. 4/- per acre.

(2) *Buljin* : A single crop is taken out of *buljin* land because of its inferior quality. Nevertheless *buljin* is considered as wet land.

(3) *Chas-saagzar* : *Chas-saagzar* is usually attached with a household and is invariably used for kitchen gardening. The rate of revenue paid for the land is Rs. 4/- per acre.

(4) *Tha-jin* : *Tha-jin*, as the name implies means 'distant land'. It is usually situated in another hamlet at a higher altitude. Natural streams

irrigate the fields. One crop of millets and/or a crop of fodder (*kroshtan*) is cultivated. The rate of revenue paid is Rs. 3/- per acre.

(5) *Ol*: It is a waste land on the hill slopes where fodder and grassy bushes are harvested and stored for winter.

Collection of revenue

During the *shakhsi raj* of the Dogras, the village *numberdar* was solely responsible for collection of land revenue on commission basis. He was paid *panjotia* (one-fifth part of the total revenue collected). After annexation of Kargil with Jammu & Kashmir state, all those land owners paying Rs. 9/- or less were exempted from the payments of land revenue. As a result of this relief measure very few farmers in the three revenue villages pay land revenue to the Government.

Pattern of landownership

Land is owned collectively by lineages which in return reallocates patches of lands to its constituent households. Land is inherited by both male and female in accordance with the Muslim law of inheritance. Male issues are entitled for two-third portion of the land whereas a female issue gets one-third of the landed property left behind by deceased father. An unmarried girl of a deceased, in practice, does not get her share in the property as she is being looked after or maintained by her elder brother before marriage. Even after marriage, elder brothers look after the interests of their sisters. In case of widowhood or divorce, a woman returns to her brother for proper maintenance of herself and her issues, if any. However, a woman can always claim for her share in property of her deceased father but such claims are looked down in the society.

Crops

There are two main crops in Karkit: *thoq* and *chyut*. The crops consist of millets, barley, turnip and grim in high altitude villages; the villages situated at lower altitudes (between 9,000 ft. to 11,000 ft.) grow wheat and peas in addition to millets. The millets are of two varieties, *gungli* and *trumba/brau* in Karkit. Turnip is also harvested on a large scale. In Hardas main agricultural products are barley (*soah*), wheat (*kanak* or *tro*), grim (*nas*) and peas (*ghanma*). Turnip (*mulaq*) is also harvested. In Wakha crops are similar to that of Hardas.

Water management

The narrow snow fed water channels (*kuhl*) are the only source of irrigation in Kargil as the monsoon fails to approach the areas east of the Zojila. Rivers flow below the level of the villages hence in absence of lift irrigation devices river water is of no use to irrigation. Shortage of water for irrigation invariably leads to low agricultural output.

“The Hardas aqueduct is nearly three miles long and six cubits broad. These chanals which are conducted several hundred feet above the village are mostly built up with a retaining wall and puddled with clay to hold the water. In a few places the rock itself was excavated to form a passage for the water but in other places where the hill was too precipitous or the rock was too hard the water was passed along hollow Poplar and Willow trunks which were supported by uprights standing on the edges of the rock or on the huge pegs driven into its crevices.” (Cunningham, 1970).

The *kuhls* originate from upstream of a river and pass several hundred feet above surface of a village. The *kuhl* water is stored in a pond situated in each hamlet of village. This accumulated water is used for cleaning utensils, washing clothes. Village cattle also drink water from these pond.

The maintenance of the village *kuhl* is the collective responsibility of villagers. The orders for carrying necessary repairs in the *kuhl* damaged by frequent land slide, etc., are issued by the *numberdar* of the village.

Hardas has a set time-schedule for utilization of *kuhl* water by each lineage of the village. The time allotted to various lineages to draw water from the *kuhl* is further decided amongst constituent household of a lineage. Table 2 shows water allocation to each lineage of the village and the strength of each lineage in terms of the numbers of constituent households.

Table 2: Allocation of water in Hardas

Sl. No.	Lineage	Number of Households	Time allotted for irrigation (in hours)	Remarks
1	Rulba-pa	9	36	
2	Hussain-Mir-pa	9	15	
3	Ma Jan-pa	8	9	
4	Skrit Ali-pa	7	15	
5	Haider-pa	7	6	
6	Ashur-pa	6	2	
7	Khache-pa	6	6	
8	Kalbi-pa	5	24	
9	Ghote-pa	3	12	
10	Dolthog-pa	3	6	
11	Mala-pa	3	12	
12	Syead-pa	3	12	
13	Arab-pa	2	6	
14	Rahman-pa	2	9	
15	Shafi-pa	3	NIL	Later
16	Deumo-pa	1	6	immigrants
17	Durvesh-pa	1	6	
18	Goya-pa	1	6	
19	Karpochuli-pa	1	6	
20	Kharma-pa	1	NIL	-do-
21	Purig-pa	1	6	
Total		81	216	

The above schedule holds good for 9 days after completion of one round the time-schedule is repeated again.

Karkit and Wakha have better availability of water. Karkit being a high altitude village has plenty of water during summers and quite often its fields are inundated by the swollen streams. Hardas on the other hand, depends mainly on *kuhl* water.

Labour

Labour is an important resource in the economy of Kargil as it helps to augment the deficient agricultural resource. Labour in Kargil may be divided into the following two broad categories for purpose of analysis :

- (i) Effective labour force and (ii) Auxiliary labour force.

Effective labour force consists of persons between the age of 14 years to 60 years who are the major bread earners for their households. However, it does not imply that persons below 14 years and above 60 years of age have any insignificant role to play or their contribution to overall economy is marginal. Children contribute their mite to economy from an early age of 5 years in way of collecting juniper bushes, animal dropping, helping in irrigational and other related economic activities about which we will know more at a later stage. Likewise people above 60 years of age too contribute to the household economy by assuming a supervisory role in day-to-day economic activities. Table 3 gives a complete picture of the effective and auxiliary labour force sexwise in the three villages studied. It is apparant from the above table that 54.51 per cent population ranging within the age groups of 14 to 60 years, form the bulk of effective labour force. 32.41 per cent come between age group of 34 to 60 years. 38.60 per cent population in the villages under reference, form the auxiliary labour force which includes people upto 14 years and above 60 years.

Auxiliary labour force

The size of auxiliary labour force is smaller as 45.77 per cent population belongs to the age group upto 14 years and above 60 years. Wakha comes nearer so far the size of auxiliary labour force is concerned where 42.55 per cent population contribute auxiliary labour force. In Hardas the picture is slightly different with comparatively bigger size of auxiliary labour force which stands at 50.09 per cent of the total population.

It was noticed that Karkit comes nearest to the overall size of effective and auxiliary labour force. Its size of auxiliary, *e.g.*, which is constituted by 45.77 per cent of the village population, is very near to overall percentage, *i.e.*, 45.49. Hardas and Wakha, on the other hand, show a diverse picture from the overall percentage of auxiliary labour force.

Table 3: Distribution of population into different age groups composing of effective and auxiliary labour force

VILLAGE	K A R K I T			H A R D A S			W A K H A			T O T A L						
	Male	Fe- male	Total %	Male	Fe- male	Total %	Male	Fe- male	Total %	Male	Fe- male	Total %				
0 to 14	78	91	169	38.67	133	102	235	43.28	163	156	319	35.72	374	349	723	38.60
14+ to 34	66	72	138	31.58	84	78	162	29.84	156	151	307	34.38	306	301	607	32.41
34+ to 60	49	50	99	22.66	57	52	109	20.07	118	83	206	23.07	224	190	414	22.10
60+and above	20	11	31	7.09	21	16	37	6.81	32	29	61	6.83	73	56	129	6.89
Total	213	224	437	100	295	248	543	100	469	424	893	100	977	896	1873	100
Effective labour force	115	122	237	54.23	141	130	271	49.91	274	239	513	57.45	530	491	1021	54.51
Auxiliary labour force	98	102	200	45.77	154	118	272	50.09	195	185	380	42.55	447	505	852	45.49
Total	213	224	437	100	295	248	543	100	469	424	893	100	977	896	1873	100

Effective labour force

Karkit and Wakha come close to each other so far as the size of effective labour force is concerned. It was found that 54.23 per cent population in Karkit and 54.91 per cent population of Wakha constitute effective labour force, whereas Hardas shows a smaller size of effective labour force (only 49.91 per cent).

As in case of auxiliary labour force Karkit with a percentage of 54.23 of population constituting effective labour force, comes nearer to overall percentage of 54.51 that constitute effective labour force.

Another way of looking at labour as an economic resource is to divide the labour force into two broad categories: self employed labour force and wage labourers.

Self employed labour force

The self employed labour force consists of the individuals who perform labour for themselves, for the members of their family or close kin for which neither they expect nor get any wages excepting occasional hospitalities in kind extended by the host for whom a particular task is performed. This category of self employed person is composed of men, women and children working for themselves.

Wage labourers

The wage labourers, as the term implies, receive remunerations in exchange of their labour from the employer who may or may not belong to their own group. 23.51 per cent of effective labour force is employed on wages in the villages studied. Karkit shows the highest percentage of employment as 34.50 per cent of its effective labour force is gainfully employed. Hardas comes next to Karkit with 21.03 per cent of the effective labour force employed. Wakha shows the lowest percentage of employment as only 19.69 per cent of its effective labour force is employed.

It may be stated further that Karkit is a high altitude village nearest to the border. Hence comparatively heavier pressure on land and its proximity to the border generate better job opportunities and thus have resulted into a higher percentage of employment. Hardas though situated near to border but at a lower altitude, depends on wage labour to a lesser extent as employment opportunities for the villagers

are not as good as in the case of Karkit. Wakha, which is farthest from the border, shows the lowest percentage wage labour.

The following table shows the village wise distribution of effective labour force and the number of persons engaged in wage labour.

Table 4: Villagewise distribution of effective labour force and wage labourers

Village	Effective labour force	Wage labour force	Percentage
Karkit ...	237	82	34.60
Hardas ...	271	57	21.03
Wakha ...	513	101	19.69
Total ...	1021	240	23.51

Capital

“Capital represents a stock of goods and services not devoted to immediate consumption in future periods either directly or indirectly through production” (Firth & Yamey, 1969).

Agriculture, as the main economic resource, does not meet people's requirement round the year, hence agricultural products hardly help in capital formation. Ornaments are more of social value than an item of capital. Animal wealth, however, may be treated as capital to some extent. Hence it will be essential to show the distribution of animal wealth in the three villages of Kargil. Before we discuss distribution of animal it will not be out of place to discuss various kinds of cattle and other animals in possession of the people.

Khotta (Ponies): Ponies play a significant role in the rural economy of Kargil as beasts of burden. A few households keep horses both as a source of recreation and transportation. The people's traditional game, horse-polo (*chaugan*) is played in accompaniment of music. The Muslim of Kargil do not play the game any more but the Buddhists are extremely fond of it. Ponies are an asset, especially in border villages where a single animal earns as much as Rs. 800/- per months for its master.

Cows are mainly kept as a source of milk supply. Hardas, where there is not a single cow, faces acute shortage of milk. As a result people whiten their cup of tea with a paste of apricot seeds.

Bullocks are yoked in ploughs but they are not commonly seen. Out of the three villages bullocks were found only in Wakha.

Zho and Zhomo : *Zho* and *Zhomo* are a cross breed of yaks and cows. The male *Zho* is the beast of burden and is also helpful in agricultural operations. The female *Zhomo* is kept mainly as a source of milk supply. A large *Zho* is 6 ft. high at shoulder and humps but the *Zhomo* is much smaller. The hair is black and short except on the flank and tail where it forms a long shaggy fringe.

Goats : Goats are raised as the main source of milk and mutton supply. The long winter months reclude any agricultural operation in Kargil. The fodder is also limited and is given exclusively to cattle. Hence the size of the goat here is slashed on the onset of winter or on occasions of Losar, Id-e-qurb-an and Moharram ; each Muslim household in Kargil slaughters a number of goats. The mutton is used throughout winter as the temperature below the freezing point keeps the meat fresh throughout the winters. Besides milk and mutton, goat's hair is used in weaving bedsteads (*chari*). Goat dung is considered as a good fuel and manure.

Sheep : There are fewer sheep than goats. The villagers attributed their disliking for sheep to inferior quality of the mutton which is harder and more fibrous than that of goat and takes more time in cooking. Naturally the consumption of the precious fuel is much more in case of sheep than of goat. Milk and wool of sheep however, compensate for its inferior mutton. The wool extracted on the onset of summer is carded and then spun into threads on a wooden spindle. The threaded wool is woven into elongated strips of about 12 inches in breadth which are sewn together to make a broad strip of *patoo*. Long coats, caps shoes, and coarse shawl woven on handlooms.

Distribution of animal wealth

The distribution of animal wealth per village, per household and per capita are shown in Table 6. Table 5 shows villagewise distribution of cow, *Zho/Zhomo*, goats and sheep.

Table 5: Distribution of animal wealth, man/animal and households/animal ratio

Vil- lages	Horse	%	Cow	%	Bul- lock	%	Zho/ Zho- mo	%	Goat	%	Sheep	%	Total	%	Man/ Ani- mal ratio	Ani- mal/ House- hold ratio	Popu- lation	Nos. of House- holds
Karkit	60	37.27	62	32.98	Nil	Nil	36	12.16	270	22.24	261	23.36	689	24.05	1:1.6	1:92	437	75
Hardas	28	17.39	—	—	—	—	71	23.99	172	14.17	113	11.41	384	13.40	1:0.71	1:4.7	543	82
Wakha	73	45.34	126	67.02	16	100.00	189	63.55	772	63.59	616	62.22	1792	62.55	1:2.01	1:14.6	893	130
Total	161	100	188	100	16	100	296	100	1214	100	990	100	2865	100	1:1.53	1:10	1873	287

There are 60 ponies in Karkit, 28 in Hardas and 73 in Wakha. In other words Karkit possesses 37.27 per cent, Hardas 17.39 per cent and Wakha 45.34 per cent of ponies. The low percentage of ponies at Hardas is due to lack of grazing grounds and other hazards which take heavy toll of animals lives.

There are 62 cows in Karkit (32.98 per cent) and 126 at Wakha (67.07 per cent). Hardas owns none.

Zho/Zhomo are found in all the three villages. Karkit possesses 36 animals (12.16 per cent), Hardas 71 (23.99 per cent) and Wakha 189 (63.85 per cent).

Goats outnumber all other species of animals. Out of 1214 goats enumerated from the three villages, Karkit has 270 (22.24 per cent), Hardas 172 (14.17 per cent) and Wakha 772 (63.59 per cent).

As said earlier, sheep are fewer than goats. 990 sheep were enumerated in the three villages. Karkit had 261 (26.36 per cent), Hardas 113 (11.41 per cent) and Wakha 616 (62.22 per cent).

Taking all animals into account it was further noticed that Wakha is the richest possessing 62.55 per cent of the animal wealth. Karkit comes next sharing 24.05 per cent of the animal wealth and Hardas just 13.40 per cent.

Man animal ratio

Overall man-animal ratio in Kargil, is found 1:1.5. In Wakha this ratio is found to be 1:2, in Karkit 1:1.6 and in Hardas 1:0.7.

Poultry : Poultry does not contribute to capital formation directly as the birds are mainly raised for self-consumption. Selling out of birds to outsiders is considered bad by the Muslims whereas the Buddhists make fast money by selling chickens and eggs to army personnel and other Government officials.

Economic resources in a nutshell

Having considered land, labour and capital as major economic resources in three villages of Kargil, an over all picture has been presented in Table 6 which shows that Karkit occupies the lowest place in the possession of economic resources. Hardas occupies an intermediate

Table 6: Economic resources in Kargil

Villages	Nos. of House holds	Po- pu- la- tion	LAND (in acres)		LABOUR		LIVE STOCK					ANIMAL RATIO		AGRICULTURAL PRODUCTION (in Kgs.)					Remarks		
			Cultivable	Non-Culti- vable	Auxiliary	Effe ve	Total	Horse/Poney	Cow	Goat	Sheep	Zhomba/ Zhombi	Total	Per House- hold	Per Capita	Per acre total land	Per acre cultivable	Per House- hold		Per Capita	Total Produc- tion (in Kgs.)
Karkit	75	437	33.28	29.95 * 63.23	200	237	437	60	62	270	261	36	689	1:92	1:1.6	359.9	683.80	303.4	52.1	22,757	*Total land (in acres)
Hardas	82	543	43.87	38.62 * 87.49	272	271	543	28	—	172	113	71	348	1:40	1:0.71	346.3	620.01	369.50	55.80	30,300	* -do-
Wakha	130	893	296.50	99.00 *295.50	380	513	893	73	126	772	616	189	1792	1:15	1:2.01	272.8	363.95	830.10	120.8	1,07,910	* -do- + Bull- ocks- 16
Total/ Ave- rage	287	1,873	378.65	167.57 *546.22	852	1021	1873	161	188	1214	990	296	2865	1:10	1:1.53	294.7	425.1	560.9	85.9	1,60,967	

position whereas Wakha possesses maximum of economic resources. Factors responsible for this inequitable distribution of economic resources have already been enumerated but will not be out of place to explain those factors briefly in the light of three variations, *viz.*, (i) Borderness, (ii) Topographical setting and (iii) Changes occurring since 1947.

(i) *Borderness*: Karkit and Hardas are situated in proximity to the line of actual control and have faced the impact of three successive wars, *i.e.*, of 1947, 1965 and 1971. A part of Karkit village remained under illegal occupation of an alien power from 1947 to 1971. As a result a considerable amount of cultivable land with irrigational facilities was rendered unusable. Hardas has the same story to tell. Thus shrinking of the size of cultivable land and animal herds had an adverse effect on the over all economy of the people. Wakha, on the other hand being away from the border did not face the above mentioned problems.

(ii) *Topographical setting*: Karkit and Hardas are sandwiched between narrow and parallel hill ranges, resulting into lesser availability of land per household and per capita. Wakha is situated on a vast valley. The river Wakha flows from the middle of the village hence irrigation is not as problematic as it is in *kuhl*—fed Hardas. The overall surface of the village is flat. There are vast pastures around for grazing animals.

The climate in Karkit is much more rigorous than Hardas and Wakha. Extensive cold does not allow to grow more than a single crop. Sometimes arctic condition in Karkit do not allow harvest to ripe and harvesting of even a single crop becomes a problem. Hardas and Wakha, having comparatively moderate climate allow the people to grow double crops. After a detailed discussion on economic resources in possession of the three villages, we will discuss economic activities in the pages to follow.

Economic activities

Under economic activities, the main focus of discussion will be as to how these resources are procured and utilized. Activities pertaining to food-gathering, agriculture, horticulture, animal husbandry and labour will be brought to relief.

(i) *Gathering activities*: There is not much to collect from the barren and denuded mountain of Kargil excepting low Juniper bushes

as a fuel to keep the hearth and body warm during the prolonged arctic winters. Housewives with their young children walk everyday 10 to 15 kms. with huge conical vicker baskets shapped on the back for fetching the bushes and animal dropping. In the evening the baskets are emptied on the flat roof top allowing the fuel to dry. Then they are stacked neatly for future consumption. Women and children play an active role in gathering activities.

Once Kargil might have been a good hunting ground with wild ibex, sheep and goats but the present generation has almost forgotten the art of hunting which is still quite prevalent in the Buddhist Zanskar and Spiti valley of Himachal Pradesh.

(ii) *Agricultural activities*: Fields in Kargil remain snow locked from the middle of November to middle of March rendering all agricultural activities impossible. Feeble sunrays in the month of March are incapable of penetrating into the thick blanket of snow covering the fields. Under these extraordinary circumstances the people of Kargil have evolved a technique that results into premature melting of ice by making use of solar heat. The technique is known as *sum*. *Sum* involves spreading of dust enriched by human and animal manures. Fifteen days before Navroz falling on March 21, the dust is removed from laterines and cow sheds and sprinkled on the icy surface. The dust concentrates sun's heat and melts the snow quickly. Thus the fields are cleaned from, snow manured and irrigated at the same time.

Ploughing: Ploughing, known as *ban-thornus* in Karkit and *jin changet* in Hardas and adjoining areas, is done in April by the help of small ploughs, driven by bullocks, horses, and/or Zomba. Women are barred from participating in ploughing activities.

Sowing: Sowing known as been *donrus* in Karkit, *shalba* in Hardas and *son* in Wakha is done by broadcasting method. Both men and women participate in sowing.

Irrigation: Irrigation, known as *woi donrus* in Karkit, *jin chotang* in Hardas and adjoining areas is done by artificial water ducts (*kuhl*). Men, women and children participate in making channels for water damming and preparation of field.

Weeding: Weeding, known as *neen-thonrus* in Karkit, *yurma* in

Hardas and *yurma-ba* in Wakha is done thrice through the entire duration of a crop by all members of a family.

Harvesting: The operation, known as *lonus* in Karkit, *schumet* in Hardas and *snigna* in Wakha is done in the month of September. Sickles are not used lest tender sheaves disintegrate with the impact of sickle. Stalks are plucked with hands, and left in the field to dry. Women play an active role in plucking the stalks and preparing a patch of land to be used as granary.

Winnowing: Winnowing, known as *osh weenrus* in Karkit and *espumet* in Hardas and Wakha is done by lifting the hay above the head threshed by animals by a broad iron shovel and dropping the mixture slowly on the ground. The wind blowing strong separates food-grains from hay which are later stored in goat skin bags (*kelbur*).

Storage and processing: The food grain are stored either in tin drums or gunny sacks in the stores next to sleeping room. The barley is first given a wash and then is spread in a open yard for drying. The *grim* stored in gunny sacks is sprinkled with water allowing the grains to germinate before the grains are dried up under sunrays. After the grains are dried up it is roasted in a huge iron vessel by heating with sand. The roasted grain is sent for grinding. The roasting of barley makes a ready made food (*tsampa*) which is the staple diet of the Laddakhis.

“The Himalayan diet of *tsampa* further makes travelling simple as this cooked flour is eaten cold and keeps for a long time. A small bag of *tsampa* can see a traveller on his way for weeks”. (Preissel, 1979: 145).

Kitchen Gardening: Every house in Kargil owns a tiny kitchen garden (*chas saagzar*) in which onion, turnip (*mulaq*), potato radish and spinach (*shanti*), peas (*shanma*) and cabbage (*gobhi*) are grown. Sowing, manuring, watering, harvesting and drying of green vegetables are mainly feminine pursuits. Green sprouts of spinach, cabbage and turnips are plucked and woven into big ropes. These ropes are kept hanging under the sun shine for drying up. Dried vegetables sustains the population during the winters when not a single blade of grass is grown on the snow locked grounds. The bulbs of onion, potatoes and turnips are left beneath the ground allowing them to grow. More so

they may be dug out only when it is essential. In this way the bulbous vegetables are preserved for a longer period. Turnips grown in Karkit are bigger in size. Being a high altitude village the yield of *grim* and barley is low. The millet, however, is a regular crop. Hence the turnip is cut into pieces boiled dried up and mixed up with millets for flouring. In Hardas and Wakha, however, turnip is consumed only as a vegetable. Peas are eaten raw or dried for storage to be used as a pulse. It flour is mixed with *tsampa* as a sweetening agent.

Horticulture: The orchards in Kargil grow apricots, mulberries, apples and grapes. Garden is famous for its grapes whereas Hardas takes a pride in producing the best apricot in the whole of Laddakh. The villages of Hardas claimed that their forefathers brought the seeds from Skardo and planted them in Kargil. Hardas' apricot is a blend of orange and vermilion in appearance, very sweet in taste, and gives a variety of benefits to its growers. First, it fetches a high price in the local market in its dried form. The kernel of its seed is believed to be highly nutritious and sweet in taste. The ripe fruits are spread on a smooth surface of rock allowing it to dry. The fruit turns deep brown when dehydrated. Other fruits like mulberries and apples are by and large meant for self consumption. In villages where milk is scarce or a taboo (in case of Garkoon), the tea is whitened by a paste of apricot seeds.

Economic relationship

Economic relationship are determined by the availability of various economic resources and their equitable distribution and proper utilization among various segments of a society or between different societies. Man has a basic tendency to monopolise scarce economic resources and exploit them for his personal benefits on the cost of the weaker sections of the society. This tendency leads to conflicts of interests and worsening of economic relationships.

In Hardas, it was observed that the entire village population was divided into two factions which may be referred as faction 1 (f. 1) and faction 2 (f. 2) for convenience. The population of f. 1 is 15.65 per cent of total village population but f. 1 owns 31.02 per cent of the total cultivable land and 31.88 per cent of the agricultural products. The ratio of f. 1's population and all economic labours owned by them is 1:2 whereas the ratio of f. 2's population and resources owned is 1:71. This inequitable distribution of economic resources is a major factor

leading to group conflict that manifests itself in the form of frequent altercations, throwing of allegations and counter allegations, and ultimately there was deterioration of overall social relationship between the two factions of the village. Many sincere efforts to defuse this situation of conflict failed to make any headway. The deterioration of social relationships between the two factions of the village extended in the form of an inter village dispute between Karkit and Hardas. The main bone of contention in this intra as well as inter-village dispute was a *kuhl* that was carved out from the Karkit *nallah* flowing from Karkit village. It was alleged by the members of f. 2 that their rivals, *viz.*, the members of f. 1 incited the villagers of Karkit that the later's land would be lost if the *kuhl* was allowed to flow through their lands. It is interesting to mention here that members of f. 2 took an initiative to construct the proposed *kuhl* in order to solve their problem of water scarcity. Hardas had another *royal kuhl* which was constructed for the use of some relations of the Raja of Kharmang in the past days. Members of f. 2 were not allowed to draw water for irrigation from the said *kuhl*. Hence they wanted to have their own water channel. It was partially built, but the villagers of Karkit took an objection over the construction of the new *kuhl* and the matter was still under litigation when I left the village.

Another dimension of relationship is between the local units of army who mainly play the role of employers of the village population that act employees.

In order to maintain supplies to the forward posts, the army engages labourers mostly from the villages nearer to the border. Each village has a paid agent (*numberdar*), whose main task is to supply labourers to the army as per later's requisition. The state of relationship between the army and villagers was found to be quite pleasant. The villagers have a very high admiration for the valour and high standards of discipline shown by the Indian Armed forces. Army and para-military personnel, officers and especially their wives have endeared the village population by a selfless and dedicated welfare of villagers. An Army Doctor visiting border villages periodically is a true friend of villagers. High Army officials visiting border villages exhort the people to send their children to school and raise their standards of hygiene and cleanliness. The people's responses to these agents of social change is highly encouraging. They feel that Indian Army is genuinely interested in their welfare.

REFERENCES

- Census of India . 1961 *District Census Handbook Ladakh*.
Srinagar: Superintend of Census
Dept. Jammu & Kashmir.
- Cunningham, Alexandar 1970 *Ladakh*, New Delhi: Sagar Publi-
cation (Reprint).
- Firth, Roaymand & 1969 *Capital Saving and Credit in*
B. S. Yamey *Peasant Societies* (ed.) London:
George Allen and Unwin.
- Preissel, Mirdrel 1979 *Zanskar: The Hidden Kingdom*,
London: Collins and Harvill.

Pastoral economy and Territorial organisation among the Bakarwals of Jammu & Kashmir

SUBHRENDU MAITI

Introduction

The Bakarwals are one of the nomadic pastoral communities who are mainly concentrated in the north-western part of our country specially in the state of Jammu & Kashmir. They are also one of the backward communities of the state, owing to their economic, cultural and socio-political backwardness. Keeping in view of such imbalances in the levels of development, Government of Jammu & Kashmir decided that "our approach in the Fifth plan will be informed by consideration of balancing investment, efficiency and social justice" (Deptt. of Planning and Development, 1974:1). Even now the areas inhabited by them are most backward and lack different facilities, in the way of their socio-economic life due to various "social problems associated with their peculiar life styles" (Kango and Dhar, 1981: 2). Naturally the Bakarwals constitute a distinctly neglected section of the state's population having "a great deal of psycho-emotional stress originating from these" (Bhowmick, 1983: 224).

Bakarwals are treated as a 'natural nomad', because of their constant movement from one place to another "on account of vagaries of nature" (Mishra, 1982: 58). Throughout the year they shift from place to place within the state of Jammu & Kashmir, and for severe climatic conditions they are forced to settle down at least for the time being.

In this paper an attempt has been made to highlight the pastoral economy and territorial organisation of the Bakarwals, a nomadic whose 'peculiar' mode of living will give an adaptive response under different ecological settings in the Himalayan region.

Brief environmental features

The state of Jammu & Kashmir is a highly mountainous tract, (except a smaller part adjacent to the Punjab plains and the valley of Kashmir), situated in the extreme north-western part of the country. The mountains

of the state form different regions and rise from the foothills of Outer Shiwaliks and to the Outer and Inner Himalayas. The Korakoram and Eastern Deosai mountains are situated on its north; Tibet on the east, valleys of Jammu & Kashmir on the south and Yogistan and Chitral on its west. The whole state may be classified into three main physical areas.

(a) The northern trip beyond Zogilla range of Outer Himalaya which is drained by the middle reaches of the Indus.

(b) The valley of Kashmir, which is lying between the Himalayan ranges and also drained by the rivers Jhelum and Kishen Ganga.

(c) The southern region which is called Jammu province, sewered by the upper ridges of the Chenub which may be classified into two sub-divisions, *viz.*, (i) the outer moonsoon region and (ii) the Chenub Ravine region.

The Jammu region rests between the plains of Punjab and the vale of Kashmir. The plain rises in common ascent and thereafter within a few miles becomes hilly and rugged tracts. The lower Himalayan ranges begin behind the city of Jammu which is situated on a slope of over 1300 ft. and ultimately overlooks and commands the plain watered by the Chenub and the Ravi. The hilly tracts rise in the interior and cut up the country into inaccessible and isolated areas.

The Kashmir region is situated to the north of the Pir-panjal range in the northern part of India. It is more or less an oval shaped valley and lies in the north and southeast perched in the Himalayas at an average height of 6,000 ft. (approx.) above the mean sea level. Near Baramula district, there is a gap where the river Jhelum flows out from a narrow opening towards Punjab. One of the highest peaks named the Pirpanjal peak, is situated at the southern side and is about 15,000 ft. high from the sea level. The national highway popularly known as Bannihal Cord Road which connects Jammu with Srinagar, passes though the longest tunnel named as the Jawahar tunnel which has been built at a height of 7,280 ft. above the mean sea level. Ladakh, a vast high altitude tract which is very cold and almost arid, is situated on the north. A greater part of the high Himalayan regions of Jammu & Kashmir remains almost covered with snow from December upto middle of May.

The Bakarwals : A general outline

The Bakarwals are spread over all the districts of the state except the districts of Kargil and Ladakh, and are ascendantly concentrated in the districts of Poonch, Rajauri, parts of Jammu, Udhampur, Kathua and Doda in the Jammu division and Wangat valley Kellar, Noorbad, Charisharief belt and foothills of Bandipore in the Kashmir division. Other areas (Karewas of Tehsil Badgam, Tehsils of Karnah and Uri, Beerwah, Gulmarg, Shopian, Kulgam, Pahelgam and Daksum Bidyar) also claim a sizable population of the Bakarwals.

Historical background, origin, physical affinity and migration

The term "Bakarwal" is actually derived from 'Bakri-chayana', *i.e.*, grazing of goats. They have originated from the common stock of the Gujjars who are one of the pastoral nomadic communities in the country. The Gujjars who are mostly settled and dependant on agriculture and allied occupations are called as the 'Settled Gujjars'. Those who depend primarily on the rearing of cattles and baffoloes, are termed as the 'Dhodhi Gujjars'. And, the community which depends on the rearing of goats, sheep and horses, is named as the Bakarwal. The Gujjars, who occupy important social and economic hierarchy in the region, claim that the Bakarwals are a section of the Gujjars community, and as such they have no individual cultural identity (of their own).

Though the Bakarwals are mainly found in the state of Jammu & Kashmir and they move within the territory of the state, many of the researchers agree that they are not original inhabitants of the state. A good number of observers argue that they intermixed with the Aryans after the advent of the latter. Drew mentions that the race of such nomadic people in the state is Aryan, but their "countenance cannot be called high Aryan" (1976: 109). Some of the Historians believe that they are a section of Rajput community and as such they have some similarity in the physical features with Rajput (Shashi, 1979: 20). Conningham believes that the migratory nomadic communities of Jammu & Kashmir came from Gujarat—Kathiawar region of Rajasthan (Census, 1961 J. & K.). Some European scholars trace their origin from the Jewes (Gani, 1961: 9).

One of the earliest references of the Bakarwals appeared in Census of India, 1921 and again in Census of India, 1931. There it is mentioned that 'the castes that are comparatively more migratory are the Gujjars,

Gaddis and Bakarwals who follow pastoral professions' (1931: XXXIV: 100-101). Possibly since then, the Bakarwals appeared as a distinct community of the state. But it is interesting to note that in the Census of India, 1941, it has been mentioned that, "the Bakarwals are a nomadic element of Gujjar tribe; they keep large herds of sheep and goats and a certain number of buffaloes and cattle" (1942: I: 9—11). On the basis of such argument they have also been treated as the 'Gujjar-Bakarwals' due to their original drifting from the Gujjar society (Khatana, 1976). In the report of the Department of Tribal Welfare the Bakarwals has been stated as a distinct group, different from the Gujjars (1975: 120—24). Madan describes them as the "fourth category of immigrant Muslims" who speak non-Kashmiri dialect among themselves. They entered into the country in the late nineteenth century (1981: 25).

Population

The Bakarwals are distributed over a large area of Jammu & Kashmir, but there is no written record mentioning the exact population of this community. They have always been amalgamated with the Gujjar population, and as a result we do not get any population figure. However, as per discussion with the Government officers and other political leaders of the surveyed areas in the year 1981, it has come to our notice that there are about six lacs of Bakarwals living scatterly in the state.

Physical features

The Bakarwals possess narrow forehead and a narrow chin. They have thick eyebrows with lighter eyes, and highly curved nose. They are tall, gaunt and have typical long flowing beard with very prominent moustache. Men shave their heads; women have long, black hair and have varieties of designs on the braids (Drew, 1976).

Language

The language spoken by the Bakarwals, belongs to 'Gojri' which is perhaps borrowed from Rajasthani according to census 1931. This language is also spoken by the Gujjar community from whom the Bakarwals have been originated. Some of them, specially those who are living in the different parts of Doda district say that they speak their own language which they call 'Bakarwali'. They say it is of course a part of 'Gojri' language but there are some sort of vocabulary differences. The language of the Bakarwals is also related to Harara and Swat dialects

which are perhaps borrowed from Kashmiri (Shashi, 1979: 49). Besides their language is related to Punjabi (Rao *et. al.*, 1982: 42). On the other hand it can be said that due to interpersonal communication with the outsiders, the Bakarwals are also able to speak Urdu, Punjabi, Pahari and Hindi.

Pastoral economy

The subsistence pattern of the Bakarwals is dependant on pastoral economy. They have a good number of sheep, goats and sometimes horses of their own which have a high market value and are reared for sale or for exchange against food and other goods. They tend these animals even for other communities, specially from the 'settled' and the 'Dodhi' Gujjars, on yearly contract basis. In such a contract they are paid one hundred rupees per annum per animal, except horse; and half of the products of the female herds. In case of a horse tending they get a minimum of one thousand rupees per year. The animals are handed over to the owners after periodic return, *i.e.*, after summer haunt. If owners of the animals want to give them again, they make a fresh contract.

The following tables show the number of animals possessed by each family in the two camps in Bhadarwah and Kishtwar Tehsils in the Doda district of the state in the year, 1982.

Table 1: Tehsil-Bhadarwah, Camp: Zai, possession of herd

Sl. No.	Name of the head of the family	No. of goats	No. of sheep	No. of horses	Total
1	Gollam Hossain	5	4	1	10
2	Modh. Yakub	4	3	—	7
3	Sadak	4	6	—	10
4	Mir Baksh	12	16	1	29
5	Abdul Wani	14	16	1	31
6	Abdul Aziz	16	21	1	38
7	Nur Allam	11	18	—	29
8	Din Modh	18	22	1	41
TOTAL		84	106	5	195

Table 2: Tehsil-Kishtwar, Camp: Palmove, possession of herd

Sl. No.	Name of the head of the family	No. of goats	No. of sheep	No. of horses	Total
1	Ali Hossain ..	8	12	1	21
2	Basir ..	10	7	1	18
3	Modh. Yesa ..	11	10	—	21
4	Nabi Baksh ..	14	10	1	25
5	Maindeo ..	7	5	—	12
6	Yellu ..	10	4	—	14
7	Modh. Fata ..	12	7	1	20
TOTAL ..		72	55	4	131

Animal products like flesh, hides, wool, horn and milk are the main sources of income for the Bakarwals. Sheep give maximum income to them. Trimming of the sheep is done thrice in a year by which they earn a good amount. This trade has been promoted because of good interaction between pastoralist Bakarwals and the state and its agents.

Milk selling is done frequently specially when they live near the villages. Cost of milk varies between rupees three and four per litre.

Pastoral economy is dependent on the sale of animals and the products in the market. This is being done while they are on the move. At the time of summer season they completely lead nomadic mode of life and as such they need cash. When they have an urgent need, they go to market and sell the animal(s) to a businessman. In general, they avoid to do so as they think that they would not be given a satisfactory price for their animal(s). Instead they welcome businessmen to come to them. Cost of each goat/sheep depends on its health condition. Besides, it depends on the age of each animal. After one year of age price goes higher. On the basis of age sheep and goat have been classified into three categories which help the Bakarwals to fix and demand the price of each animal. An example is given in the following table.

Table 3 : Classification of sheep

Sl. No.	Category	Age group
1	Lamb	0+—120 days
2	Hogget	121 days—1 year
3	Sheep	Above 1 year

Price of the animal is settled by bargain. Sometimes relationship between the buyer and the seller plays an important role. The role of a headman or an elderly person is a great help in this matter on occasions. When both the parties fail to strike an agreeable bargain they seek help from them. Decision of the headman is given due consideration.

Skins/hides of goats and sheep are also purchased by the businessmen. Two types of businessmen are there: the meat seller and the hide seller. On various ceremonial occasions like birth, marriage, etc., meat is arranged by the Bakarwals and as a result they own a good number of hides which sometimes meet their urgent need, *i.e.*, money. Skins of goats are more costly than the sheep. Cost of the goat's skin varies between rupees sixteen and sixty, and that of sheep varies from rupees ten to twenty only. Goat's skin is used for warm garments, varieties of bags and decorative items whereas sheep's skin is not used for such purposes. It is mostly used for bag in which they carry food materials from the market or ration shop.

Beside such pastoral economy, the Bakarwals also earn additional income from their horses. Due to peculiar ecological conditions of the upper Himalayan region specially in the pilgrimic and other tourist places, horses are generally used for carrying luggage at the time of shifting camp from one place to another; and, also for carrying food stuff. At all tourist places like Sonmarg, Gulmarg, Pahalgam and Wangat tourists ride horses/ponies and roam here and there for pleasure. The Bakarwals come to these places for their summer haunt. At all these places there are fixed charges for the ride to be paid by the tourists. The Bakarwals lead nomadic life, and have no licence for the purpose; so they charge much less and attract the tourists for riding at a concessional rate. Besides, the Bakarwals earn substantially, not only from the tourists, but also from the pilgrims who visit Holy cave, Amarnath,

situated at 13,500 ft. height from the sea-level. It is situated about 58 kms. away from Pahelgam, the base camp for Amarnath pilgrimage. The pilgrimage starts from mid-July and lasts till middle of August. The 58 kms. tract (approx.) between Pahelgam and Amarnath is extremely arduous and can be covered either on foot or riding a horse or pony. This peculiar ecological setting as well as undeveloped roads and mechanised transport system, help the Bakarwals to earn cash money. Some evidence is found at Kailash—another pilgrimic place of Jammu region, situated about 30 kms. away from Bhadarwah Tehsil of Doda district.

Territorial organisation

Territorial organisation is maintained through certain norms, values and customs. As an ethnic group, the Bakarwals have their individual identity which may be found in every sphere of their socio-economic life such as dress, economy, social organisation and the like.

The social organisation of the Bakarwals is more democratic and controlled by the elder members of the family. The division of roles between the sexes are highly specified, and as such men involve with pastoral activities and women taken responsibility for cooking and other household activities. Eldest male member of the family takes authority to control and supervise the family matters related to rights and obligations.

“Household, home-steads, kingroups, political communities normally have male heads, and a woman is usually accepted to have a male guardian, a kinsman if she is not married, a husband if she is, who protects her interests and is responsible for any offences that she may commit” (Lucy Mair, 1965: 49).

In general they are monogamous and believe in purity of the patrilineal line. The family is patrilineal specially in its authority pattern. The household consists of close agnatic kinsmen. Every household has its own tent, hearth for cooking, household equipments and domestic animals.

Residence is patrilocal. Marital residence is shifted from wife's residence to that of the husband. Where parallel cousin marriage is in practice, the female remains in her natal family. Though she continues

to reside with her parental camp huts, yet she becomes a full-fledged member of her husband's family. Being Islamic in faith they permit marriage between the cousins of all shades and degrees. As they belong to Muslim community both endogamous and exogamous marriages are practised by them. But normally they prefer exogamy. Marriage is strictly prohibited with other Muslim communities and even with the Gujjars which makes a strong social identity of the Bakarwals. Due to faith in Muslim ideology a Bakarwal's male may practise polygyny but he is not permitted to have more than four wives at a time. Marriage generally takes place in their winter camps. They consider winter season as a slack season and as a result they get sufficient time to organise marriage ceremony. In this season most of the groups meet together after their summer haunt and negotiate the marriage ceremony.

To maintain their territorial organisation as well as nomadic mode of life within the community they form several groups and sometimes even subgroups, for better and trouble-free life. Such groups generally consist of six to ten families. Usually a group consists of clan members in view of the lineal identification. In the nomadic life, maintaining of camp has its great significance and clan plays an important role. Clans among the Bakarwals are unilineal and they are divided into several sub-clans. These are ; Khatana, Basir, Ahmad, Ali, Nisa. Nazir, Rasid, Aziz, Baksh and Safi. They refer to themselves by their respective clan names on the various cultural occasions which help to maintain individual clan identity and relationship. The Bakarwals have no concept about the clan stratification among them. Even all clan names are not equally well-known among many of them. Groups are formed on the basis of clan, but there are no restrictions on joining a group of another clan. Even there is no formal rule which hinders the formation of a group of Bakarwals. It is followed on their own choice, as a few of them think that it gives a strong stability to maintain their larger social group identity. The formation of a group is not a mere aggregate of households but it is a clearly bound social group. The membership of a group is only marked that he should be a member of the Bakarwal community by birth. Each group is guided by its headman who is known as the *Nambardar*. A good conversationist, having adequate knowledge and experience preferably literate is generally selected as a headman.

Territorial organisation having effects on pastoral economy which is dependent on the rearing of goats, sheep and horses, and sale of

their products, supports the Bakarwals quite well. For various pastoral facilities such as pasture, water and halting place, each group follows a specific route and maintains a time schedule so that other group(s) do not face any difficulty. Besides, "they have a territorial location in lands which they traditionally graze and defend; they undertake collective activities in nomadic movement, rituals, legal proceedings, feuds; they act as a person in relation to other similar units" (Krader, 1963: 328). Because of those reasons they maintain a meaningful interaction between and among the groups and their relations are congenial and happy. The schedule system is generally followed by the Bakarwals every year. In exceptional cases this kind of time schedule is changed. For instances the Bakarwals change specific time period due to non-availability of fodder and food supply. Besides, human habitation sometimes disturbs them. As flocks destroy local pasturage, neighbouring people do not entertain them to stay for a long period and as a result they do not halt at one place more than a few days in such localities.

Migration from Jammu to Kashmir region generally starts around April. Respective group starts just after seven to ten days of previous group. Each group stays at their prefixed halting place where they take rest and herd the flocks. While on the move, the Bakarwals live in the small tent and use as far as possible metalled roads. As such their camp huts are seen near the road. All family members stay in the camp hut and two to three male members graze the animals in the nearby forest or pasture. The territorial organisation of pasture resources within, the each group implies on the spatial distribution which depends on the use of pasture and its primary production. Generally after ten to twelve days Bakarwals shift to another halting camp and follow the same route on the way to and from the summer pasture. During their journey flocks of sheep and goats are tended with the help of hunting dogs by a few Bakarwals. Besides, in order to guide the animals, the shepherds whistle all the time when they move with the pack animals.

The routes which are followed by the transhumant Bakarwals are quite systematic and give a strong territorial location arrangement and provide basis of interaction not only among different Bakarwal groups but also with the neighbouring communities. These routes are easily identifiable. High land pastures are exclusively used by the Bakarwals. Pasture below 2000 ft. are used primarily by the other pastoral community known as the Chopans, who collect herds from the agricultural

communities and move with them to the altitudes upto about 2000 ft. for summer pastures. Besides, the Gujjars do not use the same pastures which are used by the Bakarwals. It is already mentioned that each group of the Bakarwals has its specific routes for summer pastures; so, splinter group may have the equal opportunity to move systematically. Even such a system is followed on the basis of a district which they consider as their permanent settlement. For instance, the Bakarwals who claim themselves as permanent inhabitants of Rajauri district of Jammu region, follow two routes through two districts of Kashmir region for summer pasturage. One section goes to Srinagar district and another section to Anantnag district. The groups who move towards Srinagar district, again follow two major routes after their arrival at Kangan Tehsil. From Kangan onwards one section goes to Naranang—Gangabal pasture and the other one moves towards Sonmarg highland pasture. Besides, a few groups of Rajauri and Udhampur districts go towards the high altitudes of Doda district where a large area is used for pasture. Those who move towards Anantnag district, also follow two major routes. From Anantnag onwards, one of the groups goes to summer pasture at Amarnath and another section of the Bakarwal goes towards Lidderwat which is considered as a suitable locale for summer pasture. A few groups of Punch district also follow the route of Lidderwat. Besides, a large section of the Punch Bakarwals goes to Baramula district. In Baramula district some of the groups head towards the Lagamared bridge area (which is on Indo-Pak border), in pursuit of reaching towards the summer pastures.

For nomadic movement and territorial location in lands, the Bakarwals as well as other nomadic pastoral communities follow several routes within the territory of Jammu & Kashmir. Gazetteer of Jammu & Kashmir (1890) focused that there were seventy four routes followed by the various communities in the state. Khatana (1974) first tried to highlight the nomadic routes which were followed by the various migratory communities of Jammu & Kashmir. In the year 1981, an attempt has been made by the Directorate of Soil Conservation, Government of Jammu & Kashmir to illuminate the nomadic routes in Jammu & Kashmir which are mostly followed by the transhumant Bakarwals. It mentions,

“considering that total movement of graziers in the State it has been possible to recognise seven routes; some of these with a number of sub-routes. These routes cover the longest

migration of the 'Bakarwals' from lower to the terminal pastures....." (1981: 6).

The same routes are taken by the respective groups on their way back. G. H. Kango and Bansi Dhar on route No. 1 (which is known as Riasi-Margan-Krishnai route), mention that

"nomads who over winter in Poni-Barakh and other places around Riasi, enter the valley across Pir-panjal through Halam Gali and Jawahar Tunnel moving towards Warnah through Margan pass. At in an one group goes to Krishrai (Nunkun), which on return, enters the valley at Daksum to follow the same route on their way back to winter grazing lands. The other group moves to Sain Nallah via Sukhnai" (1981: 6).

In the terminal pasture, the Bakarwals normally spend three to four months (June to September) before their return journey. It appears that, to maintain territorial organisation, the Bakarwals lead a distinct way of life in a cyclic way, and in this process they maintain their socio-economic life and do move in a zone characterised by varying altitudinal and climatic conditions, living in tents or temporary shelters without any protection against natural hazards.

Summing up

On the basis of above discussion following observation may be made:

First, Pastoral economy of the Bakarwals is based on territorial organisation and these two systems, *i.e.*, economy and territorial organisation are mutually complementary phenomena among them.

Second, their movement and process of living depend on their sharp perception of two ecological zones—one at the high altitudes near Himalayan glaciers and the other being scrub forests of the dry sub-tropical eco-zone. Considering this fact their pastoral economy and territorial organisation may be viewed as a dimension of nature and man inter-actional frame which has been sustained by their culture and has survived down the ages.

BIBLIOGRAPHY

- Bhowmick, P. K. 1983 The Lodha: A Denotified community of West Bengal. *Man in India*: Vol. 63, No. 3.

- Crooke, W. 1974 *The Tribes and Castes of North Western India*. Vol. II, Cosmo Pub., Delhi.
- Drew, F. 1976 *The Jammu & Kashmir Territories*. Cosmo Pub., Delhi.
- Lucy, M. 1965 *An Introduction to Social Anthropology*. Oxford University Press, London.
- Kango, G. H. & Bansi Dhar 1981 Studies in transhumant pastoralism in North West Himalayas. *Tech. Bull.*, RMP-I, Jammu & Kashmir.
- Krader, L. 1963 *Social organisation of the Mongol—Turkic pastoral nomads*. Mouton & Co. The Hague.
- Madan, T. N. 1981 Religious ideology in a plural society: The Muslims and Hindus of Kashmir. *Contribution to Indian Sociology*, New Series, No. VI.
- Maiti, S. 1981 Pastoralism and Transhumance among the Bakarwals of Kashmir. (Unpub. paper). Calcutta.
- Mishra, P. K. 1982 *The Nomadic Gadulia Lohar of Eastern Rajasthan*. An. S. I. Calcutta.
- Rao, A., Casimir & J. Michel 1982 Mobile pastoralist of Jammu & Kashmir: A preliminary report. *Nomadic people*, No. 10. April Canada.
- Ruhela, S. P. 1968 *The Gaduliga Lohars of Rajasthan—A Study in the sociology of Nomadism*. Impex India, New Delhi.
- Shashi, S. S. 1979 *The Nomad of the Himalayas*. Sudeep Prakashan, Delhi.

Social stratification in Western Himalayas : A comparative study of the Boudhs of Spiti and Muslims of Kargil

B. R. RIZVI

Caste as a form of social stratification is not confined to Hindu society only. Recent religions like Buddhism and Islam which put greater emphasis on egalitarianism and social equality also found their respective societies organised more or less on caste lines, though in much diluted form. Buddhist and Islamic societies, do not provide the moral sanction justifying the continuation of social inequality; these concepts were replaced by the concepts of 'shame' and 'honour' (Barth, 1960: 140) among the Muslims of the Himalayas. How did these concepts emerge? For a reply, one should look at kinship as a major determinant of social stratification. Consanguineous proximity with the Prophet Mohammad through descent and the quality of deeds according to Islamic ideals determine the social status of an individual in Kargil whereas the rule of primogeniture is the basis of social stratification in Spiti. The concept of pollution which is "absolutely fundamental" and governs the relations between different castes (Srinivas, 1952: 26) is present in Spiti only in its rudimentary form whereas it is absolutely absent in Kargil. Religion, however, plays a dominant role in sustaining the system of social stratification in the Western Himalayas. Professional occupations, based on specialisation are achieved ones and cross cut all status oriented groups of the society. The varying degrees of Muslim Indians' conformity to caste stratification has been explained by Kroeber's concept of "content" and "form" of culture.

Spiti or Piti is a sub-division of Lahul and Spiti district of Himachal Pradesh. Its inhabitants are the Boudhs owing their allegiance to the Gelug-pa sect of Buddhism and speak Bodhi. The village Tabo, which was almost destroyed due to ravages of a devastating earthquake in recent past, is accessible through Hindustan-Tibet road which runs via, Simla, Rampur-Bushahar and Sumdo. A brittle 36 kms. long westward pony track leads to Tabo from Sumdo. The village is situated in lower Spiti valley and its average height from sea level is 10,662 feet.

Spiti lies in the polyandrous belt of the Himalayas where adelphic polyandry is the rule. The custom derives its strength from the people's

strict adherence to the rule of primogeniture which allows only eldest male issue of a household to marry and inherit the real family estate. Parents retire to a separate household with their unmarried daughters. Other male brothers are supposed neither to marry nor to attain the status of social fatherhood. They usually share their eldest brother's wife. The youngest brother is sent to monastery for attainment of Lama-hood. The sisters make an exit either through marriage or by attaining the status of a nun (*tsomo*).

The household unit established by the eldest male brother, is known as *khangchen* and the one established by parents, is *khinjung*. The head of a *khangchen* is responsible for providing maintenance to *khinjung* and to the monastery (*gompa*) for the youngest brother. The core of a *khinjung* household unit consists of two spouses. After the death of either of the two, the separate identity of *khinjung* is lost and the surviving spouse rejoins *khangchen*. The fission and fusion of household in Spiti occur in the three stages.

The process of stratification in Spiti started with the introduction and implementation of anti-polyandry acts in the early forties of this century. Soon afterwards fissures appeared in the polyandrous arrangements of *khangchen*. Younger brothers, who were not allowed to marry or inherit property, started asserting their rights of marriage and property and establishing separate households. Such households are called as *hinjung*. A few Lamas, who could not stand to rigours of monastic life, also started marrying and establishing neolocal households joining and swelling the ranks of *hinjung*.

The *khangchen* assumes an air of superiority due to certain political and social factors which are enumerated below.

The political superiority of *khangchen* emanates from the law of primogeniture. Like family estate, the ruler's title (*nono*) also runs in the line of eldest male issue. The *nonos*, in return, appoint their revenue collectors in each village from the *khangchen*. The local rulers, it seems, are not in a mood to give recognition to the newly created group of *hinjung* households. These revenue collectors are known as *numbardar*. Hence, the *numbardar* of Tabo also belongs to *khangchen*. After inception of statutory village council (Panchayat), the *numbardar*

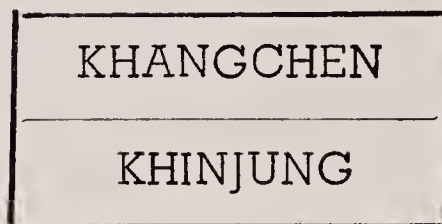
of Tabo becomes its head (*sarpanch*) and two other villagers also belonging to *khangchen* become its members.

Being the inheritors of the family estate, the *khangchen* holds an absolute sway over economic resources and forces the *hinjung* to accept a subordinate economic status of labourers. Till recently, the *khangchen* of Tabo does not allow the *hinjung* to cultivate their self-acquired land till the sowing in former's field is completed. Similarly, the *hinjung* are allowed to collect fuel only when the fuel stores of the *khangchen* are full to the capacity. The canal (*khul*) bringing precious water to the village, is under the absolute control of village council mainly represented by the *khangchen*. Hence *hinjung* fields remain dry whereas the *khangchen* have surplus water which they use as a tool to exploit *hinjung* labour. Thus the rule of primogeniture helps the *khangchen* to establish an unchallenged control over economic resources of the village whereas the *hinjung* are considered as serfs catering to the need of their *khangchen* masters. Like family estate, the family deity and family name also ran in the line of eldest male issue. This helps *khangchen* to attain a superiority over the *hinjung* on ritual level also, and the latter are pushed to the bottom rung of the hierarchical ladder. The *khangchen* hold the top rung and *khinjung* got an intermediate status because of their socio-economic dependence on the *khangchen*.

A member of *hinjung* has no opportunity but to join *Khangchen* at any moment of time excepting in case of an uxori-local (*makpa*) marriage which allows a member of *hinjung* to marry with a girl of *khangchen* group who owns some landed property. Such persons have no right to own wife's property. Their stay in *khangchen* depended on the sweet will of the *khangchen*. The system of the *makpa* marriages helps *khangchen* to procure additional working hands on temporary basis. Disagreement between the head of a *khangchen* household and his sister's husband usually results into the return of the latter into *hinjung*. The children born of such union also belong to *hinjung*.

The lower ritual status of *hinjung* is visible in *namgan* festival which is held in Tabo in the honour of Yulsa Manjong, the village deity. The festival is held in the house of *ex-numbardar* and head of the village council (*sarpanch*), who as stated earlier, belongs to *khangchen*. All the villagers are present on the occasion on to listen to the decree of the

deity regarding collective welfare of the village through a possessed priest in trance. During deliverance of the deity all villagers sit in the following manner



The *hinjung* sit in two parallel rows whereas the *khangchen* and *khinjung* sit together facing the priest. The host serves drinks (*chang*) to all members of *khangchen* in the cups of silver and brass whereas the members of *hinjung* are not provided cups by the host, and they drink in the cups which they bring from their respective homes. The priest stands facing the *khangchen*. In course of conversations he never looks at *hinjung* even though he is addressed by the latter. The Dom are considered untouchables and their traditional occupation is singing, dancing and drumming. It is clear from the above diagram that the *khangchen* and *khinjung* maintain a maximum spatial distance from the Dom whereas the *hinjung* sit separately and closer to the Dom maintaining a distance from the *khangchen*.

Thus, the rule of primogeniture is the basic foundation for social stratification in Spiti. Religion and the concepts of purity and pollution are emerging but do not play a substantial part in stratification of the society.

Social stratification in Kargil

Kargil is one of the districts (previously a sub-division of Ladakh district) of Jammu & Kashmir. The inhabitants are Muslim and owe

their allegiance to the Shia sect of Islam. Islam came in Kargil through the efforts of Persian missionaries in 14th century headed by Saiyed Sharafuddin *alias* Bulbul Shah, Saiyed Ali Hamadani, Mir Ali Hamadani and Mir Shamsuddin Iraqui (15th century A.D.). Prior to the advent of Islam, the entire Ladakh was Buddhist by creed, and prior to Buddhism the professed religion of the areas was Bon, a form of "magical shamamism" (Conz, 1957).

They belong to the category of those people who trace their genealogical descent from Prophet Mohammad. Hence, by virtue of their consanguineous proximity with the messenger of Allah, they occupy the topmost place in hierarchical arrangement among the Muslims of Kargil. *Mujatahid* priests among the Aghas seek theological training (*ijtihad*) in the cities of Karbala, Mashhad, Najaf and Qum, and return to Kargil for leading the masses to the path of righteousness. Hence, their social status is higher *vis-a-vis* an Agha commoner. But the Aghas as a group enjoy the highest position among other groups, *viz.*, Sheikh, Akhund, Haji, farmers and drummers/musicians. The social status of an Agha is 'ascribed' (Linton, 1936). The Aghas are immigrants from Arab from where they went to Persia and later spread to other parts of the world. In Kashmir, they entered as peaceful missionaries and helped in spreading Islam. The Sheikhs, who also attain the degree of *ijtihad* from Iraq and Iran, mainly belong to the local peasantry. They go to the Middle East in early teens and return to their respective villages as fully grown priests. The social identity of an Agha and a non-Agha priest is established through the colour of their turban. The Agha priest wear a black turban whereas the non-Agha priests don a white one. The villager's attitude towards the priestly class is that of awe and deep reverence. No one indulges in gossipings, loose talks, loud talking or laughter in presence of a *mujtahid* priest. The people while sitting and gossiping, always stand erect seeing the passing priest. The Shiekhs, on the other hand, pay due regard to the Aghas. Seeing an approaching Agha, a Shiekh stands up and offers his seat to the former. The latter will not sit unless asked to do by the former. Priesthood is confined only to the male members of the society. Like the Aghas the Sheikhs do not work as labourers or farmers. Their social activities are confined to teaching, leading prayers and addressing occasional congregations. Sometimes they are asked to intervene in village disputes and give their ruling which is considered binding by the parties involved.

Unlike the Aghas, the status of a Sheikh is an achieved (Linton, *op. cit.*) one. Any common villager who can afford to go to the Middle East, can become a Sheikh and attain priesthood through innate mental capabilities. The Akhund are also priests but receive their religious training in Islamic *madarsas*; one of them imparting higher religious learning is situated at Kargil. The Akhund help the villagers in performance of the latter's life-cycle rituals. He is, otherwise, not different from other villagers in terms of economic and political activities.

The Hajis, in other parts of India, are known as individuals who perform the Haj pilgrimage in Mecca. They are given a place of honour in the society. In Kargil, the term Haji is also used for those who return after the pilgrimage of Iraq and Iran. None of the Hajis under this study, are found to have returned from Mecca. The Hajis get a place over and above the farmers but, the former are in no way different from other villagers who indulge in labour and agricultural activities.

Farmers are popularly known in Kargil as *zamindar* but in Hardas, which is predominantly a Balti village, this category of people is known as *saget*. Labour is the subsidiary means of their livelihood. Some of them have become specialised professionals like masons, millers, cobblers, tailors, ironsmiths, carpenters, and weavers. The specialist artisans are mainly from the three lower segments of the people, *viz.*, the Hajis, farmers and the Doms.

The Aghas of Kargil trace their genealogical descent from Mir Shamsuddin Iraqi who was related with the Imam Moosa Kazim in 26th descending generation hence, are known as Moosavi Syeids (Fauq, 1943: 12). Mir Shamsuddin Iraqi belonged to 32nd descending generation from the Prophet Mohammad. On the basis of genealogies collected from Moosavi Syeids, it is found that their present generation belongs to 53rd descending generation from the Prophet Mohammad. Giving each generation a period of 28 years we find a gap of 1484 years. This nearly corresponds with generation of the Prophet as the present year after *hijra* is 1497.

The group identity of the Aghas is determined by birth and hence it is fixed. The group mobility within the Aghas is minimal. Even if an Agha girl marries a non-Agha, the status of her children remain over

and above the rest of the society. To justify such cases a precedent is drawn from the Prophet's daughter Fatima from whom the Aghas trace their descent to the Prophet who had no adult male issue. But cases of hypogamous marriages are rare. Hypergamy between the Aghas and non-Aghas is usually allowed and practised. There are three Agha families in Hardas. All the three live separately. Saiyed Haider was called from Kharmang by the people of Hardas to look after religious needs of the villagers. He came and married a lady of the village from Dolthoqpa lineage (*qaum*). His elder son Saiyed Mehdi Shah married another village girl belonging to Hussain Mir-pa *qaum*. The younger son Saiyed Hadi Shah married a girl belonging to Malapa *qaum* of Hardas.

The Aghas do not cultivate but earn their livelihood through teaching and *khums*, a cess levied on the people in proportion to their wealth. However, they rear poultry and keep a few sheep and goats. Unlike the Aghas, the Sheikhs earn their livelihood through agriculture, teaching and the *khums*. A Sheikh himself does not involve in agricultural practices but there is no binding on other members of his household in carrying out agricultural practices, resorting to labour and other means of subsistence. The Akhund gets remuneration from the villagers in return of his services rendered to the latter. The Hajis are similar and equal to any common villager in terms of social status excepting an honorific prefix with their names. These people carry out normal agricultural practices, work as building contractors, labourers and artisans. Haji Ibrahim and Haji Mehdi of Hardas work as cobbler (*Iamkhan*) and weaver (*thagskan*) respectively. There is no former ruling class in Hardas but in Kirkit and Wakha the ruling class is known as *Raj Rom* and *Kacho* respectively. Now this class has merged with the cultivators for which there is a general term *zamindar*. In Hardas, this category of people is known as *saget*. The class of drummers and musicians is known as the Dom in Kirkit and the Mon in Wakha. Hardas has none. The Doms in Kirkit, now, have assumed the name of the *mistri* (artisans) and they resent to be called as Dom. The change in identity of the Doms may be attributed to revival of Islamic ways of life in Kargil after the partition of India and creation of a neighbouring Islamic state which claimed to be the champion of all Islamic values. The continuous radio propaganda by the said country affected the value system of the Muslims of Kargil and made them more conscious about the normative patterns of their religion. This change in value system had its reflection

on the socio-cultural life of the people. The game of horse polo (*chaugan*), which was commenced with the accompaniment of drumming and music, was banned by the religious priests. This left the Doms of Kirkit without any source of livelihood. Subsequently, they specialised in artisanship and insisted on calling them as the *mistri*. The two Dom families living in Kirkit have come from Goshan village of Dras valley. They settled in Kirkit after extracting a promise from the villagers to the effect that their daughters will be acceptable to the villagers of Kirkit. Subsequently Raza's daughter (Dom) was married to Mohammad of Kirkit. Raza's son Hussain was also married to the daughter of Mohammad Hassan of the same village. Similarly, another head of Dom family in Kirkit gave marriage of his son with the daughter of a Raj Rom. Hence, no marriage restrictions were observed between the land owning class of Raj Rom, and the artisan group of Doms.

On the basis of above observations, religion seems to be the only consideration for marriage. Other considerations, *i.e.*, ethnic, social and economic do not come in the way of matrimonial alliances. The hierarchical arrangement in Kargil does not provide any clue to the concept of pollution operating at intra or intergroup levels. The concept of purity is determined through kinship ties with the Prophet Mohammad but this concept *per se* is not allowed to perpetuate the socio-economic inequality between the various segments of the society.

Below the rank of the Aghas, which is only a microscopic component of the Muslim society in Kargil, there are always possibilities of upward group mobility. Drummers and musicians have attained the status of artisans and farmers. A farmer may become the Haji by performing pilgrimage to Iraq and Iran. He can send his child to Islamic *madarasa* to make him an Akhund to the middle East for attainment of highest religious learning and the status of a Sheikh.

Having described the nature of social stratification in Spiti and Kargil separately it is worthwhile to present a comparable picture of the two places and see how and to what extent the determinants of caste system as a form of social stratification, operate in the two regions. These determinants and their existence at the two places have been shown in the following table:

Sl. No.	Determinants of caste system	Boudhs of Spiti	Muslims of Kargil	Remarks
1	Pollution and Purity	Present	Absent	In rudimentary form in Spiti.
2	Commensal taboos	Present	Absent	„
3	Endogamy	Present	Absent	„
4	Ascribed caste Status	Present	Present	Partially for Saiyed only in Kargil.
5	Invocation of Religious traditions and scriptures for perpetuation of inequality of groups.	Present	Absent	In rudimentary form in Spiti.
6	Occupational specialization	Absent	Present	
7	Upward group mobility	Absent	Present	Below Saiyed only in Kargil.
8	Prohibition of hypogamy	Absent	Absent	
9	Existence of hypergamy	Absent	Present	
10	Spatial Differentiation	Present	Absent	

The above list should not be treated as exhaustive. Only basic and major determinants of caste system have been taken into consideration.

For a better understanding of the problem it seems desirable to discuss each determinants of caste system separately.

1 *Purity and pollution*: The concept of pollution and purity appeared among the Boudhs of Spiti after anti-polyandry acts promulgated in 1941 and gave rise to the *hinjung* groups. Now the *hinjung* are considered as impure and polluted by the *khangchen* as the former have broken the avowed celibacy of lamahood, deserted the monasteries and some of them refused to accept a subordinate position in a *khangchen* household. Hence the idea of purity and pollution has emerged in Spiti in somewhat rudimentary form. In Kargil, people do not harbour any such ideas. The Saiyed may be considered as an exception but the concept of their purity is basically due to their kinship ties and consanguineous proximity with the Prophet Mohammad. This concept, however, does not affect other determinants of caste system.

2 *Commensal taboos*: Inter-dining of the *khangchen* and the *hinjung* is absent among the Boudhs of Spiti. The *khangchen*, as observed

earlier, do not serve *chang* to the *hinjung* in their own cups but in the cups brought by the latter. The Muslims of Kargil on the other hand, do not impose any restrictions on inter-dining at intra-community level. The dietary taboos are involved only in respect of other non-Muslim communities. A Muslim in Kargil does not accept anything cooked or wet from their Buddhist kinsmen. Even if a Muslim relative is invited by his Buddhist brethren in a marriage or mourning ceremony, the former is offered with dry and uncooked food. The Buddhists, on the other hand, do not practise such dietary taboos in respect of their Muslim kinsmen.

3 *Endogamy* : The *khangchen* and the *hinjung* in Spiti are moving towards endogamy. The *makpa* marriages, however, can be considered as an exception but such uxorilocal marriages do not help to change the status of the *hinjung*, who can, at one point of time or the other, forsake *khangchen* and rejoin their original group. The Muslims of Kargil do not observe endogamy. Inter-marriages between the Saiyed and the non-Saiyed and between the Doms and other groups are common. A few cases in respect of endogamy have already been dealt with earlier.

4 *Ascribed caste status* : The status of the *khangchen* and the *hinjung* is ascribed from the hereditary classes, the *khangchen* and the *hinjung* are moving towards castes.

The Saiyed among the Muslims of Kargil, enjoy ascribed status whereas the status of the Sheikh and the group below is achieved ones. A person belonging to the Dom stratum may become a Sheikh or a Haji or a farmer or an artisan.

5 *Invocation of religious tradition and scriptures* : The concepts of Brahma, Karma and Dharma are three main features of philosophy to maintain the structure of caste (Ansari, 1961: 17). These are present in the rudimentary form among the Boudhs of Spiti although the people are not consciously aware of them. The Muslims of Kargil have no such concepts to justify the hierarchical arrangement of the society.

6 *Occupational specialisation* : Caste groups are identified through their respective occupations. Among the Boudhs of Spiti the *khangchen* and the *hinjung* do not possess any exclusive occupation excepting the Mons, the traditional drummers and musicians. The millers, tailors, masons, carpenters and ironsmiths are found in both the groups. The

scavenging caste is absent both in Spiti and Kargil due to ecological compulsions. Animal and human excreta is conserved and administered to the fields in the form of manure. Hence, scavenging caste does not exist.

In Western Kargil, the occupations of the Garba (ironsmiths), the Lamkhan (cobbler), the Shinkhan (carpenter), the Shipkun (mason), the Chempopa (tailors), the Ranthoqpa (millers) and the Thaqskan (millers) are found uniformly in all the groups below Akhund. In Eastern Kargil, the Garba (ironsmiths) and the Mon (musicians and drummers) are the only occupational groups among the Muslims.

7 *Upward group mobility* : The lower caste groups have a tendency to revise their social status through adaption of the rituals and practices of the high castes.

The Boudhs of Spiti seem to possess no such motive. The *hinjung* have neither an urge nor an opportunity to raise their status. They, however, adapt secular methods to raise their prestige through economic means, e.g., getting higher education, seeking public services and subsequently, acquiring more land. The signs of upward group mobility are clearly visible among the Muslims of Kargil. The case of the Doms who, now, call themselves as the *mistri*, may be cited as an example. Pilgrimage to Iraq and Iran is not only performed in order to acquire religious merit but also to enhance social prestige in the society. The very motive is visible in efforts to acquire priesthood from within the country or from abroad. The tendency of upward group mobility in Kargil Muslims is confined to non-Saiyed groups only.

8 *Prohibition of hypogamy* : Hypogamy is restricted in the caste system but the *makpa* (uxorilocal) marriage is an exception in which a person having no male issue may give his daughter to a person of lower groups and induct the latter into his household. The status of the *makpa* is always considered lower to a customary marriage. The former enjoys no rights on his wife's father's property or wife's property. The property passes on to his children in the event of his wife's death. A number of wealthy widows also undertake *makpa* marriages. Traditional marriages however, are not allowed between *khangchen* and *hinjung* in Spiti. Hypogamy is therefore, allowed only partially in form of the *makpa* marriage.

In Kargil, there are no restrictions on hypogamy. Free exchange of daughters takes place between all the groups. The *makpa* marriages are also very much in vogue but the frequency of such marriages is very low in comparison to customary marriages. Hence, hypogamy is allowed in its purest sense.

9 *Existence of hypergamy*: Hypergamy is an accepted form of marriage in the caste system but it is entirely absent among the Boudhs of Spiti. No matrimonial alliances between the *khangchen* and *hinjung* were recorded from Spiti but among the Muslims of Kargil such marriages are common. Even the Buddhists, who get themselves converted to Islam, have married the Muslim girls irrespective of their status.

10 *Spatial differentiation*: The peculiarity of a caste manifests itself in various ways. One of them is to maintain a spatial differentiation with the lower caste group. It has already been observed in case of the Boudhs of Spiti that the *khangchen* and *hinjung* sit separately in all collective occasions. The Muslims of Kargil, however, do not observe any such restrictions.

It is clear from the table (p. 363) that the Buddhists of Spiti lean more heavily towards the caste system than the Muslims of Kargil although the two shared the same religion and other cultural attributes till 15th century A.D. One can observe the presence of all the major determinants of caste system among the Boudhs of Spiti, *viz.*, the concept of purity and pollution, commensal taboos, endogamy, ascription of caste status, invocation of religious traditions and scriptures for perpetuation of inequality of various groups and spatial differentiation. They lack, however, some secondary determinants of caste system, *viz.*, occupational specialisation, upward group mobility, prohibition of hypogamy and existence of hypergamy.

The Muslims of Kargil stand on the other side of the pole as they possess only secondary attributes of the caste system, *viz.*, occupational specialisation, upward group mobility and existence of hypergamy.

The variation in conformity to caste system in Spiti and Kargil may be explained in terms of ecology and culture contact situations. The Boudhs of Spiti have probably tilted towards caste system due to

their contacts with the greater Hindu tradition of Kinnaur on one side and Lahaul on the other. The Muslims of Kargil, on the other hand, were close to the Muslims of Kashmir in the west and the Boudhs of Ladakh in the east. Buddhism in Ladakh never came into contact with Hinduism and the present population of the Ladakh Buddhists is the result of miscegenation between the Dards, Mongols and the Scythians. None of these populations ever followed Hinduism in Ladakh. They had their own native religion which was purified and refined into modern Buddhism by the priests of Nalanda and Vikramsila. The names of Padmasambhaya and Atisa (Dipankar) may be mentioned in this respect. The Muslim society in Kargil therefore, remained completely isolated from the well developed Hindu caste system. The minor traces of caste stratification are undoubtedly present among the Muslims of Kargil but they are found more or less in all developed societies of the world. Therefore, as such they cannot be attributed wholly to caste system.

Various scholars have tried to prove the prevalence of caste system among the Muslim Indians on the basis of intensive regional studies (Ahmad, 1962; Ansari, 1961; Barth, *op. cit.*; Khan, 1986; Siddiqui, 1974) but one does not find a coherent picture of the caste system prevalent among the Muslims of this country.

In my attempt to describe social stratification in Spiti and Kargil, it was found that the Boudhs of Spiti are nearer to the caste model in comparison to the Muslims of Kargil, but in other places in India the Muslims show clear signs of caste system. How best this situation be explained? Kroeber's concept of 'content' and 'form' of culture (1963: 101) seems helpful in providing a solution to the problem of variability of the Muslim society in conformation to caste system in different regions of the country. "The content of a Culture", says Kroeber (1963), 'is the sum of the items of which it is composed; things present in it; whether present or lacking in other cultures', and cultural form is "what is left over when we subtract cultural content from culture". Hence, cultural content is the nucleus around which a form is superimposed as a result of historical processes, ecology and culture-contact situations. In the light of the above concept, it may be said that the Muslims have been able to preserve the cultural content of Islam which consists of a few fundamental religious precepts stated in the Holy Book Quran, *viz.*, belief in existence and oneness of God, performance

of five daily prayers, fasting in the month of Ramzan, pilgrimage to the holy places of the Middle East, etc. Hence the content of Islamic culture is unchanging and uniform through time and space but its forms varied. In Indian situation, the Muslims living in close proximity to the caste Hindus adopted caste stratification in their cultural form whereas those living with the Buddhists developed Buddhist form of culture. Hence a uniform existence of caste system among the Indian Muslims will be too broad a generalisation without a sound empirical base. However, it can be said that the Muslim society in India has been influenced by the prevailing local conditions and the acceptance of caste system by the Muslim communities of various regions differs in degrees. It has changed its cultural form but not its content.

REFERENCES

- | | | |
|----------------|------|---|
| Ahmad, Z. | 1962 | Muslim Castes in Uttar Pradesh, <i>Economic Weekly</i> . 14(17). |
| Ansari, C. | 1961 | <i>Muslim Caste in Uttar Pradesh: A study in culture contact</i> , Lucknow. |
| Barth, F. | 1960 | The system of social stratification in Swat, North Western Pakistan, In <i>Aspects of caste in South India Cylon aid Northwest Pakistan</i> . (ed.) E.R. Leach, Cambridge University Press. |
| Conz, E. | 1957 | <i>Buddhism: Its essence and development</i> , Oxford University Press. |
| Fauq, M. D. | 1943 | Tarikh-e-Aqwam-e-Kashmir (in urdu). |
| Khan, Z. | 1986 | Caste and Muslim peasantry in India and Pakistan. <i>Man in India</i> . 28(2). |
| Kroeber, A. L. | 1963 | <i>Anthropology: Cultural patterns and process</i> , First Harbinger Book Edition, Harcourt, Brace and World Inc., New York. |

- Linton, R. 1936 *Study of Man*, New York: Appleton.
- Siddiqui, M. K. A. 1974 *Muslims of Calcutta*, Anthropological Survey of India, Calcutta, Memoir 36.
- Srinivas, M. N. 1952 *Religion and Society among the Coorgs of South India*, Oxford, The Clarendon Press.

Social stratification in Lahaul

T. K. GHOSH

The Lahauli society is divided into a class and caste structure peculiar to the area and conforming to a pattern of its own kind. Hence, the social developments of the structural and organization pattern seem to have been conditioned by the environment and the economy.

According to the Kangra Gazetteer, the tribes and castes of Lahaul are distributed by race, religion and occupation and differ from each other in all three respects. The Buddhists form the majority of the population, occupying mainly the Chandra and the Bhaga valleys where the figures for the villages studied show 100% (approx.) Buddhists populace including the scheduled castes, who are Buddhists by religion. The Hindus are found in the Chandra-Bhaga or the Pattan Valley, where they form more than half the population, the rest being Buddhists and a small number of the so-called Scheduled Caste people. The figures for the villages studied in the Pattan show 69.17% Hindus, 23.24% Buddhists and 7.59% scheduled castes out of a total population of 44%, which prove that the Hindus (Swanglas) form majority of the population and are representative of that part of the valley.

The following classification will reveal a somewhat structural order :

1. The hierarchical honour is held by the Thakurs, who, although a few in number, represent the feudal landlords, holding *jagirs* and exercising tremendous power in the valley. Although reforms have left them impoverished of the political authority that they once enjoyed, nevertheless, they are still held in high social esteem.

These Lahauli Thakurs are Buddhists but have successfully asserted a Hindu origin of the Rajput descent in order to gain in social prestige.

Although a certain strain of the Rajput blood might be running through their veins due to past inter-marriage, their genealogies can be traced to originating outside Lahaul. Trade and business might have made them migrate to this region, and their subsequent contact with the Rajput rulers of the lower regions with whom they also sometimes were involved in inter-marriages, made them assert a Rajput status,

which in its turn gave them an established power and prestige and a confidence for the exercise of authority as is associated with the Hindu Rajputs.

Thus did the Lahaula Thakurs consolidate their position and power and high social esteem in imitation of the Hindu Thakurs, which had social sanction and acceptance.

The Brahmins come next in the social ladder. They are found entirely in the Pattan or the Chandra-Bhaga valley, where only is their position supreme. But as for the other two valleys where the Hindus are nearly non-existent, and, in the whole of Lahaul taken together, none can beat the sway and influence commanded by the Thakurs.

The Brahmins here are immigrants mostly from the lower regions and adjacent Chamba. Close on the heels of the Brahmins follow the Hindu Rajputs and the Rajput Boudhs. The Hindu Rajputs, found mainly in the Pattan valley, may be migrants from Sangla and can well be connected to the Kanets or the Khosia.

The Rajput Boudhs term themselves such to equate in social ranking with the Hindu Rajputs and it is more or less a Hinduising influence or tendency for the sake of prestige and honour which goes with the Hindu Rajputs. However, considering their social and economic status, the Lahauli Hindu Rajputs have accepted them as social equals.

An interesting feature is the background of the Brahmins and Hindu Rajputs. Both of them term themselves as Swanglas, only suffixing the words Brahmins or Rajputs to distinguish themselves; and, it was said that they originally migrated from Sangla, a place in Kinnaur. Hence, the name of Swangla is associated with them. However, the inhabitants of Sangla were mainly Rajputs and the theory can be made applicable to the Rajputs only. On scrutiny from another angle, it is probable that along with the Rajput immigrants, a few underprivileged Brahmin families from adjacent regions, may be from adjacent Sarahan, where a good number of Brahmins have been living for quite sometime past, came to this region. They were persuaded to accompany the Rajput to officiate as priests in their pursuit of more verdant pastures. The second conjecture and hypothesis is that some Brahmins under adverse circumstances might have agreed to accompany the migrant Rajput (Kanets),

amongst whom they knew they would enjoy a better status, prestige and facilities.

It is also possible that due to lack of sufficient number of the Brahmins, a few of the Rajputs commanding a respectable and higher status were elevated to the position of performing certain priestly duties, a procedure which is not entirely unheard of, and in course of time asserted a Brahminical status. This probability has also a corroboration from the fact that communities, even today, lacking in Brahmins, have actually elevated some of their higher classes of the Kanets or Rajputs to perform certain every day priestly duties, although for rites-de-passage events, the Brahmins are called from neighbouring areas. When the Swanglas first came to Lahaul, they were bereft of any such traditional practice and had to resort to manipulations from among themselves to accomplish the essentials.

Again, it is quite probable that some Brahmins were enticed to migrate from adjacent Chamba who were intermingled with the indigenous and improvised Brahmins, which, in the course of time, resulted in matrimonial alliances that were welcomed by the local Brahmins for a firm establishment of their claim to a Brahminical authority, without being ever prone to criticism and questioning.

Whatever be the actual fact, the Rajputs in this category, at least, can conclusively, for the aforesaid reasons, be established to be related to the Kanets.

These aforesaid are the higher castes of Lahaul claiming cleanliness and purification. They are subjected to form matrimonial alliances among themselves, although usually a Brahmin may take a daughter from the Rajput but may not give a daughter to him in marriage. But the Rajput Hindu and the Rajput Bodh will contract no matrimonial alliances with each other and the Hindu Rajput would only grudgingly consider his counterpart in the other group as his social equal, a clear social factor again of the irrelevance of the term 'Rajput' for the Boudhs in the same sense and social standing as the Hindus. The Buddhists of some repute may have coined the word for themselves at a later date, seeing the status symbol and social prestige it carried in the society, and in this regard they have no objection to contracting a marriage between one of its own members and an equivalent in caste status among the Hindus with a view to establishing and confirming their claim to that category

of people; the more orthodox amongst the Buddhists tends to look upon them condescendingly, though accepting the fact as an unavoidable pitfall, which is invariably treated as pardonable. In order to distinguish, the hybrid is called 'Garu'. And, though the Buddhists will tend to treat them and their progeny as equals, while treating them as a separate entity at the same time, the Swagla tends to look down upon them, never agree to such a match, and would invariably treat him and his progeny as an outcaste from their social grouping. This is another indication of the negative factor that is attributed to the word 'Rajput' in context with the Buddhists who claim to be thus.

Again, of the Hindu Rajputs it may be said, that they are the descendants of the Kanets who immigrated into Lahaul and admixed with the resident populace of Lahaul cannot be ruled out. And, since Hinduism, as such, permits acceptance of daughters from out of caste in marriage, and subsequently absorbing them within the fold, such an admixture is and has been imminent. It gives relevance to the fact that the present day Hindu Rajputs are descendants of such unions and it has given the Rajput Boudhs the much desired opportunity of claiming themselves as social equals to the Hindu caste group by attaching the word 'Rajput' as a status ranking symbol.

Within the last one hundred years or so, preceding the early part of this century, there has been a considerable influx into Lahaul of the people from Bara Bangahal Chamba, Zanskar and other parts of Ladakh. These from Bara Bangahal were Hindu Rajput or Kanets, from Chamba were Brahmins and from Zanskar and other parts of Ladakh were Boudhs. Hence time and again the society and culture of Lahaul have been much influenced also by its Hindu and Buddhist neighbours. And, the Lahaulis were as much thrown into contact with the Kulu people, partly out of social affinity and partly out of political and business compulsion coupled with a discretionary motive to retain and preserve their integrity and distinct existence, that all along they have been gradually Hinduised, consciously or unconsciously, or, more appropriately, being subject to acculturation from contact with the lower regions. This has been more so the case and accelerated the momentum, ever since the closing of the borders with **Tibet**, from where the Buddhist culture of Lahaul used to derive its water of life.

Below these higher castes come the untouchable castes, which in

ancient days, included the Sippi or Char, the Domba, the Dagis, the Burraras, the Suwyers and the Hensis, besides other miscellaneous castes. The Dagis were said to have come from Kulu, and as in that place in Lahaul also they were the menial castes, and were bound to give service as porters, and provide firewood, etc., at encamping grounds. They also acted as musicians in the monasteries and temples. Their social abilities, coupled together with the subsequent development of the region, providing the area with transport and other amenities, made their service no longer indispensable and hence they emigrated to their own ancestral area in the lower regions, which, in the meantime, also witnessed developmental activities and more job opportunities. The Lohars or blacksmiths are a caste of about the same standing as the Dagis, if indeed, they are not the Dagis themselves, who, with the change of times may have switched over to that occupation and conveniently forgotten their original identity. The Burraras wove blankets and baskets, and the Hensis were the professional musicians, their wives and daughters performing as nautch-girls. These latter are a nomadic people from Spiti and do not form a stable group in Lahauli society.

Of these above groups today, only the Sippi or the Bhar, the Dombas and the Lohars, are found in Lahaul. The Sippis are mostly domiciled in the Pattan valley. They are treated as menials, receiving remuneration from the Brahmins and the Rajputs for services performed on festive occasions. The Kangra Gazetteer, 1917, describes them mostly to be immigrants from Kulu. The Lohars are mostly the landless menials, distributed all over Lahaul, being associated with the ironsmithy and jewellery work of the area. In the Bhaga and the Chandra valleys, they are also associated with an assortment of menial works.

The Dombas are the same as the Lohars in the Gara region and distributed also in Rangloi. They are, as well, associated with the menial work. They are musicians, as well, along with the aforesaid group, who render this special service on any ceremonious occasion. The Dagis were the traditional musicians of the area, but their total absence today have put the responsibility on the aforesaid groups. The functions and position of the Dombas in the Lahauli society are almost the same as those of the Sippis of the Pattan valley.

The Lohars and the Dombas are, in addition, artisans as well,

manufacturing agricultural implements and copper utensils. Like the Sippis, they are also said to have immigrated from Kulu and Bara Bangahal.

These latter are the disprivileged castes of Lahaul. The upper caste Hindus and Boudhs never used to take food and water from any of the Scheduled castes. However, they may take roasted meat and *sattu* with ghee at their places, in carefully washed utensils. But if these are touched by their water, they would not take. The Boudh habit is in imitation of the high caste Hindus so as to render themselves ritually acceptable to the upper caste Hindus. The custom is strictly followed by the old people, although the young people are not so orthodox, but adhere to the custom in the village, because they say that they have gone out, and in the hotels and restaurants in which they have taken food and drink, one does not know what has been touched by whom and hence it is all useless, a rather logical argument. And, though the Boudhs have today relented in their untouchability modes, the Hindus have not.

The Scheduled castes may go to the houses of the Boudhs and the Swanglas but are made to sit at a lower table. They are served food, but the utensils used by them are carefully washed. They are also invited by these upper strata people at weddings and feasts, along with the other villagers, but are treated likewise. The upper strata on the other hand are not invited to the weddings of this class of people, as there is a taboo to their presence.

The Sippi or the Dagi suffer from a number of various social disabilities by virtue of the fact that they are 'Kamins', meaning low born. They receive remuneration from the Brahmins and the Kanets on festive occasions and initially were immigrants from Kulu. They are known by various names as the Koli, the Domra, the Dom and others in Kulu and the adjoining areas. On the basis of their ethnic affiliations and social status, they can be compared with the Bajgis and the Koltas of Jaunsar-Bawar in Dehra Dun District of Uttar Pradesh. More or less similar is the case with the Lohars described below. It may incidentally be mentioned that the Sippis and the Lohars, besides professing Hinduism or Buddhism, as the case may be, in taking after the dominant religion prevalent in their area of residence, as has been found in our respective area of study, worship certain favourite pre-Aryan or non-

Brahminical deities such as Sanke and Hidamba. These deities are associated with the ancient animistic faith of Lahaul and are worshipped in association with other animistic spirits associated with that cult.

The Upper Lahaul, comprising of Rangloi and Gara, is a mixture of Mongoloid and Aryan features. The Aryan mixture came later due to the contact of the earlier Mongoloid inhabitants, and some of whom had, again, settled in the Pattan valley of Lahaul.

The Rangloi area is a principally inhabited by the Thakurs, Rajputs and the Sippis, and the Lohars of the Boudh religious group. In the hierarchical order of this region comes the Thakurs first, closely followed by the Rajputs, while the Sippis and the Lohars bring up the rear. The principal religion of this area is Buddhism, and Gondla prides in having a big monastery. Here, Buddhism is much mixed with Hinduism.

Communities found in the Gara region are the Thakurs, Rajputs and the Lohars. Rajputs form the majority of the inhabitants, although the Thakurs enjoy here also the most prestigious position. Lohars are considered to be the menials, traditionally acting as serfs of the above two groups. Caste distinction is negligible in the Gara region. The Mongoloid element is more pronounced in this region than it is in Rangloi, particularly among the Thakurs and the Rajputs in the north and north-east. Buddhism is again the principal religion of this region.

The Lower Lahaul or the Pattan Valley is predominantly occupied by the Swanglas, who are the Hindu Brahmins and the Rajputs. It may be mentioned here that a considerable proportion of the population of the Pattan Valley consists of the Rajput Boudhs. Councelbinal advantages between the two groups have existed, considering the equal social ranking, although differing in beliefs. And, it is not unlikely that the admixture has been due to this. There have been instances of the two groups of this and the other two valleys coming in contact with each other, resulting in marriage or sexual unions, overtly or covertly performed, and this probably resulted in the sprinkling of Mongoloid traits among the Hindu Swanglas, *i.e.*, the Rajputs and the Brahmins included. The physical mixture and its consequences percolated the existing social structure of the variant groups and gave birth to compromised features acceptable to all. This, in course of time, established itself in giving Lahaul a unique culture and society.

The other groups found in the Pattan Valley are the menial caste groups like the Sippis and the Beraras. The Beraras today are found in insignificant numbers due to the fact that their fellow brethren have emigrated to the lower regions on account of reduced economic and other facilities here and increased opportunities there. In this valley, the Brahmins are at the top of the social hierarchy followed by the Rajputs, both the Hindus and the Boudhs, who, apart from their religious differences, are considered to be of the same social status and ranking, and share reciprocal formalities between each other. They are followed by the Sippis, who are the menials and occupy the bottom place in the social hierarchy.

The Hindus of the Pattan, *i.e.*, the Brahmins and the Rajputs, follow Hinduism with elements of Buddhism or Lamaism of Lahaul coming in between, while the Boudhs follow Buddhism or Lamaism of Lahaul with elements of Hinduism coming in between. But both these groups have also imbibed certain concepts and precepts of the ancient animistic creed of Lahaul, which widely prevailed in the region before inroads by Buddhism or Hinduism in the region.

The Sippis follow a strange admixture of the ancient animistic creed of Lahaul, the Loong Pai Chos Creed, Buddhism and Hinduism. In this context, it may be said that the whole of Lahaul, whether high or low, Hindus or Buddhists, contribute to the ancient animistic creed of Lahaul, which, however, has more ardent following among the menial classes or castes.

Scheduled castes exist both amongst the Hindus as well as the Buddhists. The sense of untouchability today does not exist to such an extent between the Buddhist higher castes and these castes, as they do, even to this day, between the Hindu higher castes and these castes, although, somewhat, to a lesser degree than what used to be. Amongst the Buddhists, the Scheduled castes can enter the homes of higher castes and participate in the eating and drinking, although at a lower table, when in community. Amongst the Hindus, however, he may not cross the courtyard and will be served meals and drinks at the far end of the courtyard. Again, in areas where there is a preponderance of Hindu population, the Buddhist higher caste groups also make a greater distinction between themselves and the Scheduled caste groups than in areas where there are no Hindu population. This would then go to show that the sense of untouchability as a mark of distinction is not inherent in the Buddhist or Bhoti culture but an outcome of their contact with Hindus

in whose eyes they do not wish to lower their status and prestige. This philosophy then would go to show that the caste system was not inherent among the Boudhs but was a superimposition due to their contact with the Hindu society and culture.

The Scheduled castes, in general, and the Sippis in particular are mostly domiciled in the Pattan valley. They are the menials, receiving remuneration from the Brahmins and the Rajputs for services performed. The Lohars are mostly the landless menials distributed in scanty numbers all over Lahaul. They are mainly associated with the ironsmithy and jewellery work of the area. Nevertheless, in the Bhaga and the Chandra Valleys, they are also associated with menial works. The Lohars of the Pattan Valley could be immigrants from Kulu, but those of the other two valleys are certainly of local origin and it is their occupation which has dubbed ignomy on their social status in invitation of that which exists in the Hindu society.

The Dombas are also associated with menial works. They also form the musician group with the other two aforesaid low castes today. Their performances are mainly in demand on ceremonious occasions by both the Hindus as well as the Buddhists.

In a short conclusive statement, it may be said that there is no social segregation, as such, in or among the three valleys, if it is taken from the point of view of the inmates of the different valleys or region-wise. Segregation from the marital point of view is there between the Boudhs or the Buddhists and the Swanglas or the Hindus, as also between the high caste Buddhists and the Scheduled Caste Buddhists, as has been discussed. Social segregation can again be found between the high castes and the Scheduled castes of both the Hindus and the Buddhists. But, whereas this segregation is marked among the Hindus to this day, among the Buddhists it has diminished to a marked extent. In as much as, today, it is found that the high caste and the Scheduled caste Buddhists or Boudhs may sit together and eat together, in some cases also smoke together, the only distinguishing factor being that they should sit at a less honourable position in the line or the group, in times past, the Scheduled Caste Buddhists had to stay away from the vicinity of a high caste Buddhist. This tendency to fraternize the Scheduled castes by the high caste Buddhist is again noticed to be among members of their own faith and certainly not the Hindu Scheduled castes. The Hindu Scheduled castes are treated by the high caste Buddhist in much the same way as

meted out to them by the high caste Hindus, probably in order to maintain their prestige and social position, honour and integrity, and dignity and cleanliness, which they crave to share between themselves and the high caste Hindus, as is required by the latter, to maintain their standing and as they would require of the former for social parity with them. This segregation is marked where the Hindus predominate. To fraternize the low caste Hindus would certainly be detrimental to the interests of the high caste Buddhists in the eyes of the high caste Hindus, which they want to avoid at all costs to maintain their social integrity. Hence, the treatment meted out.

It is quite possible that the idea of caste, on the basis of occupation, and the segregation implied thereby, might have penetrated into the Buddhist stronghold due to their contact with the Hindus. For, Buddhism, as a religion, does not make any distinction on the basis of caste, colour or occupation, or creed for that matter of fact, and this is further verified from studies carried out in the villages of the other two valleys of Lahaul, which are 100% Buddhists, or nearly so, in religious following, and which do not display such rigidity in segregation and distinguishing between the high caste Buddhists and the Scheduled caste Buddhists.

The connotations as described above are shared by and among all the three valleys of Lahaul in an identical manner, as has been assessed from the study of the villages in the three valleys of Lahaul respectively, and the difference, if any, may be only a difference in degree and not in the essentiality of the matter.

BIBLIOGRAPHY

Kangra District Gazetteer, 1897 Calcutta.

Punjab Hill states Gazetteer, 1917 Lahaul & Spiti.

Census Handbook of Lahaul & Spiti.
1961

Harcourt, A. F. P. 1871 *The Himalayan Districts of Kooloo, Lahaul and Spite*, London.

Nag, N. Y. 1960 Family and Marriage in Lahaul. *Eastern Anthropologist*, Vol. XIII, No. 4, Lucknow.

Intra and inter-family relations among the Ladakhis of Ladakh

R. S. MANN

To give a narrative account of the nature of roles, relationship and interaction among the Ladakhis of Ladakh is, in fact, the chief objective of this paper. The areas explored in respect of this net-work of relations are family, *gyut* (more like a lineage group) and *phasphun*. How far these three social groups, two based on kinship and one on other considerations, are functionally vital, has also been probed. This has been done through the sociological analyses of the Ladakhi family, *gyut* and *phasphun* in respect of their intra and inter-group situation analyses. Wherever found necessary and relevant, the treatment, with reference to this part of social organisation has been extended beyond rigid dimensions of family, *gyut* and *phasphun* to relate them to other areas of Ladakhi life and culture.

Intra-family relations

The nature of the intra-family relations almost remains uniform in all the Ladakhi families. However, the types of such relations do vary from family to family, depending upon the form and composition of the family. In some cases the parents stay away from their sons after the latter's marriage and begetting children. In a polyandrous family the eldest brother enjoys the maximum privileges. In a nuclear family, with minor children, the parents take all decisions. In vertically extended family, the elderly parents or grand-parents may hand over the responsibilities to one of the grown-up sons, if he is considered fit for the position. Even in this case, the opinion of the aged parents is sought, specially in major matters. In spite of the fact that most of the parents stay in a different place, after the marriage of their sons, the relationship is not altogether severed. The parents can seek all sorts of help from their sons. Many of the latter even cultivate the land given to the parents and hand over all the produce to them. Their comfort is bothered for, but it is definite that the separated parents have to work hard to maintain their existence. They keep on working even in the very old age. In the matter of respect as well as consultation, the grandfather, if alive, is given priority over others, provided he is in a position to attend to things. In

his absence, it comes to the father. For various matters, the mother is not very frequently consulted. The eldest brother in the family also enjoys his privilege in the absence of the grandfather and father. In comparison to mother, the wife is said to have a better say. It is likely that the trait took birth because of the polyandrous system, where wife's position in the family is quite sound. Primarily, the position of senior male members is higher than the females. The seniormost male member in the family, if he continues to have a balanced mind and dependable memory, is taken as the leader of the family for all purposes. In the absence of the grandfather and father, the adult and the experienced brother takes decisions in regard to various matters involving family members. Opinions are also sought from the father's brother, if alive. In case one of them is available, the matters are communicated to the maternal uncle. He, then acts as the chief decision-maker. The family members have as much allegiance and loyalty to the opinions of maternal uncle as that of the father or grandfather. The decisions are respected and carried out in the correct perspective. Therefore, in this regard the position of the maternal uncle is no less important. At the same time, the role of the maternal uncle in various matters is not denied.

As a part of their responsibility, the parents do their best in the rearing of children. They also arrange for their marriage. The parents expect their children to be hardworking. Those who shirk hard work are not liked. They can even be beaten if something is stolen by them. The action is considered serious as it goes against Buddhism. The relationship between parents and children is of an easy nature and is not marked by tension. Although the relationship is marked by easiness and frankness, the norms of behaviour do exist. The roles are defined and the concessions exist as subsidiaries of their norms. The concessions in behaviour do not adversely reflect on their day-to-day nature of interaction. They are very free and frank with each other and can eat and drink together. Jokes are freely cut between various members of family, irrespective of their age and sex. The inhibitions and impositions are rare. Even after marriage of the son, his freedom is not hindered in any way. He, along with his wife and children, is left to live independently. The parents retire from the main house, handing it over to the son and his family of procreation. It has been responded that the children take comparatively more liberty with the mother than the father. The latter, at times, is harsh and even beats them. The mother does not resort to physical beating unless and otherwise compelled to do so. But the position of parents,

as that of respect, is always recognised and it reflects in many lifeways. For most of the matters in family, the parents are the chief decision-making persons, especially for important matters like, marriage, land, etc. The parental right over the children is exhibited in certain respects. Whether a son or a daughter is to be dedicated to *gompa* (as *lama* or *chomo* respectively) is to be decided by the father and the mother. No child dares violate their decision. The children are, by and large, submissive to parents without the use of coercive means. In the polyandrous family of the Ladakhi, there is no procedure of determining social fatherhood. In general, the eldest brother in the polyandrous union, is referred to as Bada Baap (elder father) by the offsprings. At the same time, all the younger brothers are referred to as Chhota Baap (younger father). Every child in family adopts the same procedure. That means every brother, sharing a common wife, is equally responsible to every child. Without any segregation, they derive equal affection from all who share the single mother. Actually the children have more members to look after them in the polyandrous family.

The brothers, among themselves, have cordial and helpful relations. Even when they stay away in their respective nuclear families, they keep on helping each other whenever required. Likewise they help their sisters even when the latter get married and stay in different places. The siblings, whether male or female, enjoy equal freedom of movement and speech. In their behaviour, too, they are equally liberal. Equal treatment is meted out to the son and the daughter, even at the time of birth. The birth celebrations are more or less the same for the members of both sexes.

The privileged position in the family has been given to certain members because of their dedication to the religious organization. These members are the *lamas* (monks) and the *chomos* (nuns). As they are considered comparatively more learned in the religious philosophy, they are kept better fed and clothed. A *lama*, in the initial stage, continues to stay in his family of orientation. He is then known as Chang-Jung. But in the next higher stages of Lama hierarchy, he stays in one of the rooms of the *gompa*. On the other hand, a *chomo*, in most of the cases, continues to stay with her family members. She does not stay in *gompa*, except in rare cases. But the *chomos* do attend to all kinds of works required to be done in the *gompa*. They readily agree to the demands of the monastery and are spared for the purpose without the slightest delay. Because the *chomos* and the Chang-Jungs opt to devote their life for the cause of

religion, which provides a big cover to the community, their position is always, at least in theory, taken as superior to other members of the family. The superiority is exhibited in the division of labour and also in other activities related to family life. According to the respondents, in terms of ideal, the *lama* and the *chomo* are never asked to do any hard work. They are preferably given some kind of light work. The senior *lamas* and *chomos* are never asked to participate in agricultural activities. In order that the religious persons may keep up their purity and sanctity, they do not indulge in any activity which may damage these virtues. Ploughing for a *lama* is forbidden. Then the religious persons are not supposed to harvest the crop. In fact, carrying of a sickle by the *lama* and the *chomos* is not approved. It is commonly believed that in course of harvesting, lot of insects and ants get killed. Such killing is considered anti-virtuous and so the acts are not done by the *lamas* and the *chomos*. In fact they are against being offensive and killing of living things. For that matter, the religious persons are never engaged for carrying compost, from the pit to the fields. Broadcasting of compost is also forbidden to them. In order that the sacred persons may maintain their purity and cleanliness, they keep themselves away from their participation in various ceremonies connected with birth, death and marriage. It may be mentioned here that they do perform worship, required on all such occasions. But their secular participation is never observed. In a way, the religious persons are considered and treated as superior to other members of the family. They show regards to the parents, but then the parents do not press upon them, as they can do in case of other family members to do the works which are not meant for the religious class as a whole. It may be mentioned that, in general, a *lama's* position is considered superior to that of a *chomo*. His role, in religious matters, is taken as more prominent. A *chomo* largely confines to the house while a *lama* keeps busy in worship at various places. Through the sacred relationship, he is directly in touch with the village community. Beyond family, the other members of the community also have a soft feeling for the religious persons and regard them accordingly. But under the new conditions, some change has been marked, especially in the types of works undertaken by the *chomos*. During the course of field work, some *chomos* were seen working as labourers in the road and other construction works. One of the senior *chomos* from Spituk is even the head of all the women labour force from the village. It seems that the increasing requirements and the attraction for labour wage have made even the *chomos* to go in for such a hard outdoor work.

The parents, too, do not seem to have any objection because doing so definitely adds to the family income. Thus, the new economic pattern has even started affecting the traditional attitude to the people belonging to the sacred class.

The siblings, irrespective of their sex, are of equal value and meet, more or less, similar kind of treatment at the hands of the parents in day-to-day life. Among themselves, they interact freely and there are not more of inhibitions governing their relationship. As the custom of polyandry was widely prevalent in the past, the eldest brother enjoyed the most privileged position. At the same time he happened to be the repository of the entire family wealth and the rest had to look to him for almost each and everything. Lately, however, the frequency of polyandrous unions has declined but the hangover of the past relationship between the eldest brother and the younger brothers and sisters continues to exist to some extent. In polyandrous families the position of the eldest brother is still of quite a high order. But the replacement of primogeniture by the law of equal share in ancestral property, the position of the eldest brother in a family has suffered a mild setback. The increasing economic independence (more so, under the opportunities of earning) of even nuclear families has also started shaking the dominance of the eldest brother. When the brothers separate and establish independent nuclear families, they do not have that much interdependence and intimacy as could be observed in polyandrous families. While living together, the siblings have most of their affairs, to be managed by the elderly male member. The latter even help to manage the marriages of the younger sisters and brothers. Between brother and sister the relationship does not cease to exist even when she is married out. In most of the festive as well as sad occasions, she visits the brother's house. Thus she continues to share his sorrows and joys for almost the whole of her life. As part of kinship usages, the brother does extend economic help, in cash and kind, to the sister on all festive occasions attended by her. The Ladakhis, however, accept that the relationship in all walks of life between the brother and sister continues to be more close and intimate so long as the sister remains in her parental house. If she gets married and goes out with the husband, the relationship, though continuing, is of less intimate order. Now she can have equal share in ancestral property but still she forgets about it after she leaves her family of orientation. If she continues to stay in the ancestral house after marriage (when the husband joins her), her close intimacy with the brothers continues. It is not considered bad

if the husband stays with the brothers of his wife. Some families purposely do it as they want man-power to look after agriculture and allied occupations, and the man who joins through marriage, serves the purpose. The system works well because the concept of avoidance, in speaking to different people, is almost non-existent. Too much of privacy is also not bothered for. Likewise even when the brothers are staying in different houses, they do, in normal circumstances, extend all kinds of help to one another, as and when it is found necessary. In fact, they depend on each other in the time of difficulty, as also on other occasions where kinship, in one form or the other, intervenes. Under difficult geographical conditions, the cooperation is essentially required in various pursuits. The persons related through blood and marriage form the chief source of cooperation. Of course, there are other sources too, not based on kinship.

The husband and wife relationship is marked by affection, co-operation, conflict and tolerance. The conflict is not a feature of regular way of life. In serious form, it takes shape only in exceptional situations. Under the latter, they may separate from each other or may resort to desertion and divorce. Normally, the husband has an upper hand and more say and weight in family matters. His position prevails over the rest of the family members. In most of the cases, he enjoys his authority and dominance over others. His recognition is established. But in certain cases, if the calibre of the husband is not considered up to the mark, the wife attends to most of the things and her verdict in the matters is sought for. In that case, too, the husband is not completely side-tracked, though the degree of dependence on him decreases. Under the circumstances, the mother's role becomes more prominent and the family members lean more on her. In matters, outside the family, the representation of husband is more than the wife. The latter, unless she is purposely required or her husband is not fit to attend, does not attend to outside calls. Head-manship and leadership are in the hands of males. Normally the father or the eldest son is the head of family.

Division of labour and family

There are no rigid rules which necessarily make a person do only certain specific jobs. Some demarcation does exist, but then it never means that a person cannot undertake the roles meant for any other member in the family. In Ladakhi family, an adult person is usually multipurpose. But at the same time, the persons in family are primarily assigned certain duties on the basis of diverse factors. The allotment of

duties has been framed, keeping in view of age, sex, formal education, physical fitness, opportunity, religious obligation, community expectation and the demand of the societal norms.

Most of the aged people sit in the house and keep themselves busy rotating the prayer wheel. Towards the later years of their life, they are more eager to achieve religious merit for self. It is believed that such a merit is achieved with the rotation of the prayer wheel. The act of rotating the wheel, done by the old person in family, is also partly held responsible for the welfare of all the family members. Members of both the sexes operate the prayer wheel. This job is not done by all the aged people all the time. Those who are comparatively fit also go ahead with other activities which help them secure their bread and butter. Some of them go out for cattle grazing and some keep busy with one or the other agricultural activity. There are others who do baby-sitting in the house, when rest of the family members are engaged in other activities. Whenever they find time, they also switch on to spinning, weaving and making of shoes, ropes, sacks, etc. Shoe-making and weaving cannot be done by all the Ladakhis, but spinning is known to almost all of them. Normally, it is the duty of the old men and the women to keep a watch over their crops. The watching of crops can be done sitting at a point near the house if the agriculture fields are adjoining. But in case the fields are a little away, they manage to go there and do the job. In families, not having aged persons, the watching of crops can be done by other member of the family. The ploughing, sowing, carrying and broadcasting of compost, cutting of grass, harvesting of crops, preparation of bricks, construction of fencing walls, digging of water channel, bringing drinking water, winnowing and threshing, transportation of goods by yaks and horses, are essentially the jobs of the young people. Lately, many of them are in employment on regular or casual basis. Most of them are engaged as labourers. Their participation in the household work also continues. But then the old persons, who are considered fit for such operations, also take part in them. The role of the young females is no less important. They, in fact, participate in all the activities, except ploughing of the fields, a specialized job meant for men only. Over and above, the bulk of household work is primarily a woman's concern. She is the chief cook of the house and most of the time she spends in preparing and serving *gur gur* (Ladakhi tea) to all members of the family. Preparation of *chang* is also a major concern of the females, and they are taken as the best entertainers for their serving *chang* and *gur gur*. Then the other associated

works with cooking, *i.e.*, the cleaning of utensils and the house, burning fire and serving of food are all done by women. The young daughters and the daughter-in-law are usually found cooking the food. Except when very essential, the old mother does not cook when her young daughter or daughter-in-law is present in the house. But if the housewife is not well or if she goes out to some other place for a long duration, the entire work is done by men only. It is not the practice that men would never do women's job. In the sphere of women's activities, the rearing of infants and children, as also bringing of drinking water from the water source are the other essential concerns. But men also bring water and do extend helping hand in the rearing of children, as and when needed. In addition to their routine household activities, women also spend some time in spinning, weaving, knitting, sewing, etc., if they happen to know the same. It has further been observed that women work more in the agriculture field than the men, though theoretically the dominance of men in agriculture activities is always expressed. In fact, women can be marked working in the fields more often than men. Men are comparatively slow and are often observed drinking *chang* and *gur gur* or relaxing here and there. The younger children, who are not in a position to help the parents in major works, either wander here and there with the children of their own age or go to schools, which have lately been started in almost all the villages. Some of them, especially those around the age of eight to ten, are also asked to look after very small children when the adult family members go out for various kinds of works. The educated ones, and also some uneducated Ladakhis do not participate much in their traditional family works. Their contribution is very less because they devote most of their time in new assignments. They, in fact, find very little time to devote to other activities. Such people are those who have been absorbed in various regular services, both civil and defence. A majority of such people leave their places early in the morning and return only in late evening. They get a chance to participate in their traditional division of labour only on Sundays and other holidays. The families, having more manpower, do not disturb those members who are regular employees. But the wage-earners are not spared from hard toil in those families where there is no other manpower available. The females from such families have to devote more time to agriculture activities. Some of the families, especially the larger ones, have made a nice adjustment with the new opportunities. Depending upon the strength of the family members, they spare one or more persons to go in for regular wage-earning. The rest,

whom they consider as sufficient for agriculture and other traditional occupations, stay back. By doing so, they have availed themselves of the new channels of income, while retaining intact an well looked after traditional sources of income and earning.

The pattern of division of labour in the family is also temporarily disturbed when the Ladakhis have to respond to the call of religious order. There is a kind of reciprocity of services between the Ladakhi families and the monastic organizations. The *kushok* and other *lamas* cater to the religious needs of the Ladakhis. The Ladakhi life is so much religion-oriented that the people cannot do without the help of the *lamas*. For most of the purposes, the *lamas* are asked for one or the other kind of worship. For that they get due remuneration in kind or cash. Over and above this, the villagers are under an obligation to supply the manpower, more or less regularly needed, to do the various kinds of works in the monastery. There is a set procedure for that. Actually the *goba*, by rotation, deposes members from various families to work in the *gompa* and to serve the *lamas*. The family, so asked, has to spare its members to render free service to the *gompa*. In case a family has no such members to spare, the head of the family engages, on payment basis, the required number of people who are asked to work for the *gompa*. Under this system, the normal division of labour gets upset in the family for the period prescribed by the *goba*. The monastic organization and the Ladakhis are so closely interconnected, and the hold of the *gompa* on the community is so strong that no one can afford to say no to the deputation of their men or women to work for the monastery and its inmates. In some cases, it amounts to more or less forced labour in the name of religion. Under the present system of their society, no Ladakhi can afford and dare to disobey the *goba* and the *kushok*, both of whom are involved in this kind of assignments.

Apart from their participation and contribution in economic pursuits, the members in a Ladakhi family have regularly to devote some time to a religious rite observed in the worship room of the family. In the religion-dominated community of the Ladakhis, almost every family has a room or a little space in a room meant for keeping the idol or images or photographs of their gods and goddesses, mainly, the reincarnations. Some of the religious paintings are also kept hanging on the walls of this room. This is the best kept room in the house, usually having Ladakhi carpet spread on the floor, with Ladakhi tables arranged in order. Various kinds

of metallic bowls for worship along with some other tools and equipment are kept in front of the images. These bowls need to be daily filled with fresh water. Some of these are made to fill with grain and butter. A wick, immersed in butter, is made to burn in flame. All this is done, preferably in the morning, by an adult male or female member of the family.

Social boycott

The nature of interaction between various families is primarily governed by a common objective of maintaining the solidarity of the community as a whole. Each other's welfare is bothered for in the interest of the group. The participation in various rites and ceremonies, observed by a family, is a very common feature. On occasions where more manpower is needed by a family, the others help straightway. The unity between various families is widely observed at the time of harvesting of crops and the death feasts. Even the families, not connected by blood and marriage, have devised procedures to help each other. The system of Phasphuns is the most important living example of this kind. Minor help and assistance are more or less regularly marked between the members of families of the neighbourhood. The relationship nature is so designed that no family feels as if they are denied of help and cooperation of other families. This kind of interaction is widely displayed at the time of sowing and harvesting and on the festive and mourning occasions. Environmental conditions form a major factor in the prevalence of helpful attitude and mutual cooperation. The difficult surroundings have made living very hard. No family can afford to think of self in isolation from other families. If on account of certain undesirable acts a family is temporarily boycotted by the rest, its existence is immediately threatened. Anti-social commitments are therefore, mostly avoided. But still the provision for social boycott of any family has been kept to make the Ladakhis realise their traditional sanctioned norms.

Social boycott is known as *melan chhulam* which refers to the stopping of the sharing of water and fire with others. It is very rarely done and that, too, temporarily because a permanent boycott would put a person in great difficulty. Even the temporary boycott would help a great deal in the maintenance of social control. Being scared of the social boycott, a person, along with his other family members, remains very submissive to the group interest and the norms of society. Under the hard conditions, it is believed that the existence in isolation, of one's own

fraternity people, would be threatened. The social boycott is resorted to only in certain matters, more connected with the religious sphere and less with the social life of the community. It is done in the following cases :

1. When someone challenges or threatens a *kushok* or a *lama*.
2. When one tries to indulge in party politics against the religious heads.
3. When one poses a threat to community or group life.

When any of these things, in a serious form, is reported to the *goba*, he, with the help of his assistants, calls for a meeting of the elderly men of the village. The defaulter is given a chance to express himself, and if he does not satisfy the gathering, his social boycott is announced by denying him the following :

1. The *lamas* stop serving the family of the defaulter. In fact, the Ladakhis are so much religion-bound that they cannot do without worship, which is done only by the *lamas*. It is a terrible demoralisation when one is deprived of the religious services.
2. Nobody, not even his close relations, visit him or participate in any rite or ceremony performed by him. As a matter of fact, all his celebrations, wherein others are supposed to join, come to an end.
3. All cooperation, social and economic, is withdrawn from the person and the family of the boycotted ones. All through, the affected people have to manage single-handed.
4. Neither the person is offered food by anyone, nor is his food shared and accepted.
5. The person is denied the privilege of having marital relations of his children with other persons of the group.

With all impositions and denying of privileges, the person concerned is put under extremely difficult conditions and all these together make him realise his folly. In order to revive his earlier favours from the community, pardon is sought, not only from the *goba* and his assistants but also from the *lamas* and the *kushok* as the case may be.

Gyut or Rigs

The *gyut* is a bigger social group than the family. In fact, it refers to a group of people who trace descent from a common ancestor or ancestress. All the persons belonging to the group are believed to have blood ties and the relationship, prevalent among them, is like the one existing among brothers, sisters or brother and sister. As the group is based on kinship, the entry of any person, other than the *gyut* members, is not entertained in the group in the form of group membership. The *gyuts* have no specific names, but the villagers know of their respective *rigs* and are aware of others existing in the village. In the absence of *gyut* name, and in the absence of the existence of clan, there is observed no association between such social groups and the surname of the individuals. In fact, the Ladakhis do not have surnames. No part of an individual's name is inherited from any member of the senior generation. From the names of the persons, they cannot be identified as belonging to certain specific *gyuts*. Because of having good relationship, the members of a *gyut* are not allowed to marry each other. *Rigs* are always exogamous. The relationship ties with the members of the *rigs* group are recognised up to five or six generations. That way, the group is more comparable to the lineage rather than to the clan or sept. The size of the *gyut* is not fixed and it depends upon the degree of recognition of a common association to an ancestor or ancestress as well as on the bulk of the remnants included in it. In a family, the husband belongs to a different *gyut* than his wife. The children, born of this union, continue to inherit father's *gyut*. At the same time, the mother's *gyut* continues to be recognised, especially for the purpose of marriage. As a matter of fact, her sons and daughters cannot be married with the members of her *gyut*. That way the *gyut*, and not the clan regulates marital unions. Normally, the members of a *gyut* stay in the same village, except those who have to leave the group after marriage and join a new house at some distant place.

Functionally, the *gyut* is quite an important group. The members of the group often interact in the context of various walks of life. They bank upon each other when help and cooperation are needed. Then they give due recognition to the *gyut* relationship at the time of marriage, Losar, conflict, etc. On the basis of the principle of reciprocity, the *gyut* members render help and cooperation to one another. On Losar days, the members, within *rigs*, invite each other for food and drinks. Any marriage in the *gyut* involves certain obligations on its members. As a part of the

kinship usage, prevalent in *rigs*, its members do offer *khataks* (ceremonial scarfs) to the husbands of the girls after their marriages. The newly-weds are also invited for meals and drinks. In fact, all the members consider every girl of their *gyut* as their own daughter and the above-mentioned treatment is the result of this kind of consideration. The girl is even given clothes by those persons of the *gyut* with whom her relationship is close. Likewise the people of the *gyut* with whom her relationship is close, render help at the time of death. The Lahakhis have to arrange a few feasts after the death of a person. The chief eaters are the *lamas* and the *phasphuns*. The *gyut* families, closely related to one another, are, in this regard, more helpful in comparison to those distantly related. When a death occurs in the house of 'X', the 'Y', who is closely related, and is from within the *gyut*, also arranges for a feast which is usually arranged in the dead person's house, but all its expenses are incurred by the one outside the family. When someone is economically not in a position to manage the feast for the whole day, he may share expenses for a portion of it. In case all the adult members in a family die out, leaving behind the minor children, the responsibility of their bringing up primarily falls on the members of the *gyut* families. One of the families, closely related, assumes the responsibility of helping and rearing the minor ones till they come to a position to stand on their own feet. The work is taken up as a part of the moral responsibility of the *gyut* members to one another. If the *gyut* families are not in a position to manage, the matter is taken up by the members of a still wider group, composed of *phasphun* families. The needy are not, thus, left in the lurch and they normally get support from someone from within the community. Even if the relationship of the *gyut* does not exist between two families, they may help each other in various walks of life. Cooperation does prevail between the members. They can borrow each other's bullock for ploughing and also exchange labour help. In harvesting and other agriculture activities, they render help on the basis of reciprocity. Help, in cash and kind can also be given on various festive occasions, including marriage. Some families are also in dispute, especially in matters connected with land and physical beating of an individual under intoxication.

In spite of the fact that the *gyut* members are so closely related through blood and the inter-relationship among them is so frequent, they do not necessarily belong to a common *phasphun* group. The families of a *gyut* may join different *phasphun* groups. It does not mean that no two

families of a *gyut* can become *phasphun* to one another. From the existing network of the *gyuts* and *phasphuns*, it is clear that the factors, other than kinship, are also taken into account in the selection of *phasphuns*. Rather, the consideration of kinship is comparatively less important than the other factors. The *gyut* membership is determined by birth, while *phasphun* membership is voluntary, and is based on the worship of a common god. Under the circumstances, the *gyut* relationship of a person ceases only when he forgets to remember his kinship links.

Phasphun and family

The help at the time of birth, death and marriage is rendered by the specific families. They are known as the *phasphuns* of each other. It is a sort of common brotherhood in which the people are not necessarily related through blood relations or affinal ties. When the grandparents and the parents in a family die, leaving only the minor children, the *phasphun* members come to the rescue and protection of such children. One of the *phasphun* families looks after these children and takes the responsibility of their rearing till they come to a stage where they can take care of themselves. Normally, one of the families from the *phasphun* group voluntarily offers its services to the needy ones. If all are reluctant to take up the job, then the heads of the *phasphun* families organise a meeting and decide as to who would take up the job. The members from the *phasphun* families do not dare to turn down such decisions. They are always carried out for the sake of the unity of the *phasphun* families. When some members in a family desire to live separately, voluntarily or under compulsion, the prominent members of the *phasphun* group are informed. The latter readily respond to the call and make impartial division of the family property between the separating parties. Their decisions are final and agreed upon without resentment.

The relationship between the families connected through the *phasphun* organization is of important nature. As far as possible, it is kept intact. The membership of the *phasphun* group, though kept limited, may increase in certain circumstances. The decrease in terms of the strength of families of the *phasphun* membership is done only in very rare and exceptional circumstances. Once a family is a member of a particular *phasphun*, it continues to be so. When a couple has no issue and adopts someone, the new entrant through adoption, also joins the same *phasphun* as that of the adopting parents. He or she ceases to be a member of the

phasphun group to which their family of orientation is attached. The families in the *phasphun* group have no objection to the entry of the adopted child in the group. They are treated as regular members of the group for all purposes. As a wider recognition of the adopted child is done at the level of community as a whole, the *phasphun* group, being a small unit, poses no objection.

The *phasphun* is a social group composed of a few families whose members worship a common god and help one another on all festive and sad occasions. All the *phasphun* families have common *la* (god) and they together worship Him on the occasion of Losar. The members of such families are not necessarily connected through descent or any other kinship ties. Social group apart, the *phasphun* also refers to the relationship, as a Ladakhi is found remarking that so and so is his *phasphun*. There is no definite size defined for the *phasphun* group and it varies from case to case. In a true sense, a *phasphun* group is neither purely a kinship group nor a territorial one. At times one or two families, out of a *phasphun* group, may be related through kinship, but it is not always the case. Even the families in the neighbourhood do not necessarily belong to a common *phasphun* group. There are cases where the two adjoining families are not connected through the *phasphun* relationship. Rather, the *phasphuns* of the two are those living at distant places. Sometime the families living in different villages are found sharing a common *phasphun* group. For instance, Wangyal from Sabu village has all his *phasphuns* living in Shee village. All the four *phasphun* families worship Chozhanskang, god of Hemis. But latter practice is more in case of those who do not have families of their own social group in the village. For instance, the Gara, the Mon and the Beda are usually having one family each in almost every village. At the same time, they are not allowed to be the *phasphun* to the Ladakhis, as also among each other. Under the circumstances, the *phasphuns* of a Gara would be the Garas of other villages. Similar is the position in case of the Mon and the Beda. But in the case of the Ladakhis, the *phasphuns* are, in most of the cases, from within the village. But it is always preferred that the *phasphun* family should not live in some very far off village. The *phasphun* group of the Ladakhis can, in no way, be taken as equivalent to the clan group. The members of the *phasphun* are not necessarily connected through common descent. The members of a *phasphun* group can even marry each other when they are not lineally related through kinship. The *gyut* members do not marry each other, but there is no such bar to the *phasphuns*, if

other things permit. Likewise the clan name of a man does not normally change if he joins his wife's residence after marriage. But the *phasphun* of the man, among the Ladakhis, would change under this circumstance. The man is immediately dissociated from his original *phasphun* group, and he becomes a member of his father-in-law's *phasphun* group. Thus, the individuals from the *phasphun* group keep on drifting, affecting the total strength of the group. At the same time, though a rare phenomenon, the composition of the *phasphun* group is also disturbed when some family leaves the *phasphun* group or when a new one joins. For a family, the leaving of a *phasphun* group involves no ritual or ceremony. But for the members of an entrant family, it is necessary to initially worship the god, owned by the group wished to be joined, with the offerings of small white flags and *khatak*. The occasion is also marked by the offering of *chang* and *gur gur* to all the *phasphun* members. All members of the *phasphun* know the name of their common god as well as its location. The image of this god is kept in a *gompa* or in one of the houses of the *phasphun* families or on a hill.

Apart from the fact that the religious element does play an important role in the structure of the *phasphun* group, it is also true that the motivating force in the functioning aspect has again a sacred base. The entire network of relationship is maintained under the force and pressure of the common god. It is firmly believed that the sense of mutual co-operation among the members of the *phasphun* group is cultivated more out of fear of god. If the approved and set pattern in regard to mutual duties and obligations is not observed, the binding force of god may take an indifferent course and bear harshly on the members. The common god, worshipped, is also held responsible for the general welfare of the *phasphun* members. With this, the Ladakhis cannot afford to annoy him. All the *phasphun* members together perform an elaborate annual worship to appease the *phasphun* god. They all visit the place and make necessary offerings. Through the god of a *phasphun*, the link is maintained with the wider monastic religion. He must belong to either the Red or the Yellow Sect of Buddhism. As a result, some of the *phasphun* gods from Sabu village are linked with the Hemis *gompa*, the Red Sect monastery. If a bigger *gompa* is not found in the near vicinity, the god is associated with some *vihara* (smaller *gompa*) existing at the closest distance. The association with the chief monastery is then represented through this *vihara*. The existence of this pattern marks another characteristic of the *phasphun* group. This is in addition to what have already been

explained. The members of a *phasphun* group should belong to one of the two religious sects, existing in Ladakh. They follow either the Red Sect or the Yellow one. In order, therefore, that the god may not get annoyed, all families keep up their various occasions demand. When there is death in a family, the members from its *phasphun* families readily come forward for help. The dead body, so long as it is not cremated, is looked after by the *phasphuns*. It is only they who tie the dead body in a way that it maintains a sitting position. Only a *phasphun* makes the fire and puts it to the dead body. It is the job of the *phasphuns* to look after the mourners as well as the *lamas*. They are to be fed and extended other possible comforts under the circumstances. The property and other belongings of the bereaved family are also watched by the members from the *phasphun* families. One of the superstitious belief of the Ladakhis is that the water channels in the village should not be crossed by the spouse of the dead person for a month after the death. Likewise the crossing of channels is also avoided by a woman and her husband for at least seven days after the delivery. Under the conditions, if anybody crosses the channel, the act is bound to bring bad luck to the villagers. The channels may dry and cause drought, or some disease, in epidemic form, might come in. In order that no such act of crossing the channels is committed, the person concerned, if he has a house in the middle of the village, is temporarily accommodated in a *phasphun's* house located on the outskirts of the village. If no such arrangement is made, the person stays in a tent, temporarily erected. During the mourning period, after death or during confinement, the household work as well as the fields, crops and animals are looked after by the *phasphuns*. The family concerned need not bother for such work. As in case of death, the help is also rendered when the marriage, in one of the *phasphun* families, takes place.

In spite of the involvement of certain social obligations and religious elements in the formation of *phasphun* group, it is not compulsory that no family from the group would ever leave it or no new family would ever join it. It is not taken as the exclusive privilege of those descendants whose ancestors were united together in the same *phasphun* group. Some of them may leave a group, while the new ones may join. The disintegration in a *phasphun* group may occur when the members of one of its member families goes to some very distant place and settle down there only. They, then, prefer to join a new group in the immediate surroundings. It, at the same time, causes reorganisation in the group which is being joined. At the same time, some unavoidable inter-family conflict,

within the *phasphun* group, also leads to structural disruption. Also, when the *phasphun* group becomes unmanageable, from the point of view, of its size, some people voluntarily decide to back out. It is considered that the smaller the group, the better the efficiency in terms of service rendering. In this regard, a very important trend has lately been marked. In fact, the Ladakhis got divided into two political groups, namely, Congress 'A' and Congress 'B' to support their respective candidate in the formal elections. Even within certain *phasphun* groups, the members got divided into 'A' and 'B' groups. With this division, some members decided to leave their original *phasphun* group and then join one of their own political turned. It caused disruption as well as reorganisation of the *phasphun* groups. This kind of process has, thus, adversely reacted upon the traditional social divisions of the *phasphuns* among the Ladakhis. Along with the contraction or expansion of the *phasphun* groups, the nature of relationship became strained.

Likewise, there has taken place another change in one of the traditional aspects of the *phasphun* organization. This change is, again, an outcome of the influence of the change in political system. Prior to 1947, when the Kalhons used to be in power, by virtue of their position, every Ladakhi family in their neighbourhood, village and jurisdiction, used to be regarded as their *phasphun* families. All such families rendered help to Kalhon's family on festive and mourning occasions. However, the Kalhon and his family members never reciprocated it. This type of system started collapsing since the Kalhon's position ceased to be recognised as very high in the political set up. Under the changing circumstances, the Kalhon families have also selected a few as their regular *phasphuns* and have started helping them in reciprocity. Now the relationship is mutual rather than one-sided and presents a more democratic look.

Notes

The author is thankful to the Director, Anthropological Survey of India, Calcutta for sanctioning the research project on the Ladakhis of Ladakh. The paper is a part of the research project entitled "Ethnographic and Culture Change Study of the Lahakhic". The author carried out field work for about six months in four villages of Ladakh.

BIBLIOGRAPHY

- Bamzai, P. N. K. 1962 *A History of Kashmir*. Metropolitan Book Co., Delhi.

- | | | |
|-----------------------|------|---|
| Biscol, C. E. Tyndale | 1971 | <i>Kashmir in Sunlight and Shade</i> , Sagar Publication. New Delhi. |
| Chopra, Pran | 1964 | <i>On an Indian Border</i> , Bombay: Asia Pub. House. |
| Cunningham, Alexander | 1970 | <i>Ladakh—Physical, Historical and Statistical</i> , New Delhi: Sagar Publication. |
| Ganhar, J. N. | 1956 | <i>Buddhism in Kashmir and Ladakh</i> , New Delhi. |
| Kamill, M. H. | 1961 | <i>Census Atlas of Jammu & Kashmir</i> , Vol. VI, Part IX, Office of the Superintendent of Census Operations. |
| Moorcroft, William | 1837 | <i>Travels in the Himalayan Provinces of Hindustan and the Punjab, in Ladakh and Kashmir and Bokhara</i> , London; John Murray. |
| Rahul, Ram | 1969 | <i>The Himalaya Borderland</i> , Delhi: Vikas Publishing House. |

The changing horizons of marriage and family among the Gaddis of Himachal Pradesh

R. SARKAR

V. SARKAR

Anyone turning his attention to the family soon encounters a strange paradox. On the one hand all the manifestations of popular thought disclose an intense and continuous interest in family affairs, while on the other hand, in the world of social science a completely different picture presents itself.

The reason for the neglect of the family in social science is the small size and intimacy of the family unit. So close to the individual is the family that it is sometimes felt to be not social at all. Yet, in any study of human society as a whole, marriage and family cannot be omitted, as they form the basic fundamental unit of understanding a particular society in totality.

“The ancient trinity of father, mother and children has survived more vicissitudes than any other human relationship. It is the bed-rock underlying all other family structures” (Linton in Anshen, 1949).

According to Nadel—

“Marriage is a contingent institution,.....a standardized mode of social behaviour or since social behaviour means co-activity, a standardized mode of co-activity” (Nadel, 1951).

Considering the importance of marriage type in determining the family structure *vis-a-vis* its role in the wider social network the authors aim to analyze the same in the contest of the Gaddis of Chamba district in Himachal Pradesh.

Unlike the neighbouring polyandrous populations like the Pangwala, the Lahaula, the Kinnaura, the Ladakhis, the Gaddis are strictly monogamous, with stray cases of polygyny reported from here and there, of the 103 households of Gaddis studied only 3 families accounting for only

2.91% of the total had polygynous marriages. The fact looks interesting as it is contrary to the popular traditions of the area, where the people are by and large polyandrous. A pertinent question may be posed as to why the Gaddis have remained almost an isolated case of practicing monogamy unlike their fellow brothers, inhabiting the region. The plausible answer to the query can be traced in their history relating to their origin. Since the history regarding their origin is still dubious; all that can be said from the available records, myths and folklores is that they were the Rajputs migrated from the plains of Lahore (in Pakistan) who fled away to the inaccessible Himalayas in Chamba in order to avoid forcible proselytisation of Islam and persecution at the hand of the Muslim invaders.

Though the Gaddis are scattered all over the state of Himachal Pradesh but their main concentration can be found in the districts of Chamba and Kangra particularly the Bharmour sub-tehsil of Chamba district, which they claim to be their cradle land.

Before commenting on their marriage and family structure, it would be worthwhile to know about their ethnic composition. The Gaddi as the name suggests, does not refer to a single ethnic stock, rather it is a generic term comprising the Brahmins, the Rajputs, the Khattris, the Rana, the Rothi, the Riharas, the Sippis and the Halis. The latter three have a status of an untouchable caste with the Halis occupying the lowest rank of the social order. Among the clean castes, the Brahmin ritually occupy the top position followed by the Rajputs. The Khattris have a parallel position to that of the Rajputs, whereas, the Rathis are regarded as inferior to the true Rajputs as this group has emerged as a consequence of the marriages between the Rajputs and the Khattris. A look at the Table (p. 401) will give a clear picture of the Gaddi social hierarchy.

In analysing family systems, we look not only at the social relations internal to a given family but also between the family and the society, consequently in considering the process of mates selections, we see again that a larger society is interested in the result. Always the two family networks of the marrying couple are thereby linked and thus still more distant networks are also involved. Both family lines have some rank in the stratification system, whose stability depends in part on who marries whom. Inter marriage is the best index, that one family line considers the other approximately equal socially or economically.

Purity division	Intrinsic worth of castes	Ritual purity division	S/C or S/T	Rank	Caste names
Dwi Castes	Pure	Ritually Clean	S/T	I	Brahmins
				II	Rajputs, Khatri, Rathis
Shudra	Impure	Ritually unclean	S/T	III	Riharas
Avarna	Very impure	Ritually untouchables	S/C	IV	Hali, Sippi, Dom etc. Note: These castes are S/C but being Gaddi, they are also included in the list of S/T.

The various segments of the Gaddi society try to maintain the rules of caste endogamy, which enjoins on its members among other things to contract marriage alliance strictly within their respective caste groups failing which the defaulter is punished by the society and the nature of punishment would depend on the degree of deviance from the said rule. Normally the Brahmins marry the Brahmins and the Rajputs marry the Rajputs, but now a days marriages are freely contracted among the Rajputs, Khatri, and the Rathis. Incidentally, the Rathis were regarded as inferior to the Rajputs, whereas the Khatri have a parallel position to the Rajputs. So there was no stigma attached to a Rajput marrying a Khatri, but marriage between the Rajputs and the Rathis was not considered good. Even when the marriages within inter-castes groups were contracted, care was taken to strictly adhere to the rules of hypergamy, *i.e.*, the high caste man could marry a woman from the caste lower to his, but could not give his daughter to a low caste. The idea being that the bride from the lower caste would become higher by virtue of her marriage with the high caste, but giving daughter to a lower caste would automatically lower the caste status of that girl. Hence, hypogamous unions and socially frowned upon. While talking about the hypergamous unions mention may be made that intra caste marriages can only be performed within the clean caste. For instance as has been cited above that marriage among the Rajputs, Khatri, Rathis and the Ranas are no longer a taboo.

Marriages have also taken place among the Brahmin and the Rajputs provided the rules of hypergamy are not broken.

Marriage between the clean and unclean castes can result in social ostracism. In that case the caste status would be reckoned with that of the caste with whom the matrimonial ties have been established, and then all the restrictions and reservations would be observed as are maintained with other members of the unclean caste.

Nevertheless, it is an interesting fact that there are couple of families where Rajput boys had married girls of a ritually unclean caste; as a result the boys were turned out of their houses. In due course of time they went and started living with their wives. A village named Seri in Bharmour Tehsil is the exclusive population of such ostracized. Ostracism among the Gaddis in this case, also has its limitations. Such member is not allowed to live in the same house, come near the hearth, or even eat in the same utensils in which other family members eat. He would not be allowed to take part in the ritual and ceremonies of the family, as a member of the family. But ostracism does not debar a person from having his due share in the property. He would be given his share of land in which he will have to carry out the entire agricultural operations himself or with the help of his family members. No member of his father's family will assist him in the agricultural operations. Another interesting fact of the ostracized member is that on getting married to a low caste girl the man and the children born out of the wedlock can no longer retain the *gotra* name of the father's side as is the practice, but will acquire the *gotra* name of his wife and mother's *gotra*. In future also if the ostracized man wants to marry his children in the *gotra* of his father's family he can never do so. However, he can only look and seek for alliances from the wife's side.

The *gotra* has been sometimes described as a clan and the largest exogamous unit in determining marriage. This does not seem to have been its original meaning. Kapadia (1947) states,

The word *gotra* is used in the Rigveda in a sense to a cloud, mountain range or fort. These various meanings attached to the word *gotra* imply that the main idea associated with the word was that of enclosure. The word is used at all times in the sense of assemblage. From these two ideas of

enclosure and assemblage, the word has come to refer to persons living together within the same walls.

The rules of exogamy, broadly speaking, dictate that any two persons of the same *gotra* cannot have matrimonial alliances among themselves, but among the Gaddis, this is also seen. There is usually a concept of dual *gotra* prevalent among the Gaddis. One of the *gotras* is known as Anderla *gotra* and the other as Baherla *gotra*. Normally to an outsider it is the Baherla *gotra* which is referred to. This Baherla *gotra* is usually the name of the place of their ancestral origin, *i.e.*, the place from where their ancestors once migrated, *e.g.*, a Gaddi referring to his *gotra* as Lahl or Chabiyanu would invariably mean that the particular Gaddi hails from Lahl or Chabiya, the village in Bharmaur sub-tehsil of Chamba district. It is only on further interrogation that they reveal their real *gotra* names, which is known as Anderla. Marriage between two persons of the same Baherla *gotra* can take place, but not within persons of the same Anderla *gotra*. There can be a coincidence, that both the Anderla and Baherla *gotras* of two person may coincide also. This definitely means that at one time they must have been close blood relatives of each other, but due to passage of time, they got separated. In a village there can be people of two—three different Anderla *gotra*, but the Baherla *gotra* remains the same. Normally, intra village marriages do not take place; but such marriages are also not unknown, though very few in numbers. Thus, it may appear so, that among Gaddis *gotras* are endogamous, but in reality it is not so.

In the present times there is an overall loosening of the caste ties, but among the Gaddis and especially in the interiors caste ties are very rigidly adhered to. In general, Gaddis are very low in terms of percentage of literacy, usually enter into matrimonial alliances from not far off distances. The usual marital distances are not more than 30—40 Kms. in majority of the cases. But in exceptional cases, the literates of the Gaddis usually prefer sometimes to marry from far off distances also: to the extent of 150—250 Kms. from Noorpur, Kangra, etc.

Among the Gaddis, there are various forms of marriages prevalent, such as *byah* (Dharampur), *i.e.*, regular marriage, *bata sata*, *i.e.*, marriage by exchange, *gudani*, *i.e.*, widow remarriage, *kamash* or *ghar jawain*, *i.e.*, marriage by service, *khewat*, *i.e.*, marriage by payment of bride price, *jhan jarana*, *i.e.*, love marriage, *jhind phunk*, *i.e.*, marriage by elopement.

The most sought after marriage is the *byah* (Dharampur). Stray cases of *bata-sata* have also been reported, which are very few in number; and it is only in those cases where the bride party is very poor so much so as to be unable to bear the marriage expenses, then only they enter into such type of negotiations. *Bata-sata*, i.e., marriage by exchange was at one time quite a popular form but now a days the growing contacts with the higher civilization has lead to the realization that this is not an approved practice.

Within the families themselves one gains and other loses a member. Where they reside determines to a large extent the frequency of social interaction with one set of kins as against another. Marriage forges a new social link, and thus adds strength; but perhaps also the loss of a woman as a bride is compensated for by a bride price or by the man working for a period called "groom-service". Entrance into the family of the spouse creates numerous new role obligations, and necessarily subjects to some new adjustments and strains. After the marriage among the Gaddis the general practice had been that the bride groom and the bride come to live with his parents, as per the norms of the traditional patriarchal society. But these days soon after marriage the newly married couple establishes a separate *chullah* (hearth) within the house or establishes a separate house in the same village.

Thus, it can be said, that the Gaddis have a system of monogamous marriages, patrilocal descent and inheritance, and patrilocal residence, although examples of neolocal residences are not lacking.

Gaddis may be classified into five types of families: (1) Monard, (2) Nuclear, (3) Dyad, (4) Extended family and (5) Miscellaneous family.

On the basis of the sociological census of a Gaddi village comprising of 103 households, figures for different types of families are given below.

Types of family	Frequency	Percentage
Monard	4	3.88
Nuclear	69	66.99
Dyad	1	0.97
Extended Family	24	23.30
Miscellaneous	5	4.86
TOTAL	103	100.00

It can be seen from the above that nuclear type of family far exceed other types of family taken together. Now-a-days, among the Gaddis, it is a general practice for a son to build a separate household. Though this system is not very much approved by the Gaddis especially the older ones socially, with this event new responsibilities emerge. It is the responsibility of the head of the newly formed family to look after his wife and children if any, and to provide them with food and clothing. If a newly married man is not able to construct a house of his own, he and his wife will then have to be contended with a room or a corner in the parental house. As the head of the family, the son's responsibilities center round his own family, but he cannot sever his relations with his parental family. Newly separated sons and brothers generally share a numbers of responsibilities with their parents and brothers. If there is an unmarried brother or sister in the family, they contribute a part of the expenses for his or her marriage. They are also expected to contribute towards the clearing of loans which have been incurred before the separation. On many occasions, land is divided among brothers and father if he is alive, and it is cultivated separately, while in government records, it continues to remain in the name of the father or eldest brother.

Besides the conjugal unit which has the potentiality of turning into a complete simple family after the birth of children, there are two more kinds of conjugal units, *viz.*, those who have passed the child bearing age, and those who have been left alone after the separation of sons and marriage of daughters. Some simple families are left incomplete because of the disintegration due to the death of one of the partners

Among the Gaddi, different types of family compositions is given below.

Sl. No.	Family Type	Constituent Member of the Family	No. of Families	
1	Monard	1 Widow	2	
		2 Widower	2	
2	Nuclear			
		(a) Complete simple family	1 Husband, wife and their unmarried children.	40
		(b) Compound family	2 Husband, two or more wives and their unmarried children.	3

(Contd.)

1	2	3	4
	(c) Complete simple family with or without adjuncts.	3 Husband, wife, their unmarried children and his widow mother or widower father.	15
		4 Husband, wife and their unmarried children and widower father's brother.	1
	(d) Disintegrated simple family.	5 Unmarried children and their widow mother or widower father.	10
	(e) Disintegrated simple family with or without adjuncts.	6 Widower wife and her unmarried children and her husband's father.	—
3	Dyad : Incomplete simple family (Conjugal units)	1 Husband and wife.	1
4	Extended family : Conjugal unit with or adjuncts.	1 Husband, wife, married and unmarried children.	11
		2 Husband, wife, unmarried children, brother, brother's wife and brother's unmarried children.	6
		3 Husband, wife, unmarried children, unmarried brother and unmarried sister.	3
		4 Husband, wife, unmarried brother, unmarried children and his widow mother.	2
		5 Husband, wife, their unmarried children, brother, brother's wife and his widower father.	1
		6 Husband, wife, their unmarried sister and his widower brother and widow mother.	1
5	Miscellaneous family.	1 Widower, widower brother, widow sister and his widow mother.	3
		2 Widower and his widower brother.	1
		3 Widower, wife's widow sister and widower sisters husband.	1
Total No. of families			103

From the preceding tables, it is clear that the composition of the Gaddi family and the family type indicate a clear trend from joint to nuclear houses. Next to the nuclear families come the joint families, as is also clear from the table.

This brings us to the changing concept of family among the Gaddis. Though nuclear houses are more, yet they believe in the supremacy of the joint family system, where the eldest male member remains the head of the family and all the married and unmarried sons as brothers live under the same roof sharing the same *chullah* and enjoying the benefits of the property jointly. They work in perfect coordination, under the authority of the head, who is bestowed with financial, social or religious powers within the family unit. However, the centralisation of all powers in the head does not give him dictatorial authority. On the other hand he decides after consulting the family members. Minor disputes are settled amicably, by the head, by pacifying both the parties. Since the head acts as a coordinator, members do abide by his judgement.

The system of joint family option is otherwise quite conducive to the over all ecological conditions of the area. The Gaddis are agriculturists and herders both, and the area they inhabit has rough topography, hilly terrain and limited field season owing to the early onset of the winters and snow, which necessitates migration to the lower plains along with their sheep and goat. Under these circumstances a joint family venture is more of a necessity than a norm, where every single working hand is utilised to its best; nuclear families according to the prevailing situations, does not find enough support and is not feasible also. However, the growing contacts with the urban population and increasing avenues for the Gaddis to find work outside and also the impact of education to some extent has given rise to individual awareness over collective pursuits. The young Gaddis do not relish the constraints of the joint family system, where one has to sacrifice self interests for the larger interest of the family.

The Gaddis have been exposed to a series of powerful currents of change. While a certain number of changes have been inspired *from within*, a great many has been *induced*—directly or indirectly—from outside. National, regional and local developments have significantly modified the life style of the Gaddis and have also materially contributed towards setting the pace and direction of self-inspired moves for change.

Endogamous and exogamous divisions of the caste have largely been only on intra-caste concern. To the outside, world, irrespective of the division to which they belong, they are Gaddis. Among the illiterate, the endogamous division still perform their main function of defining the outer limits of the group from which a spouse may be chosen; for the literates and especially for the educated and well-to-do elites, it could be said that the larger identity of the Gaddi caste is tending to eclipse the separate identity of smaller endogamous segments. Exogamous divisions, based mainly on considerations of affinity in the lineage scale, appear to be remaining stable.

In the area of intra-family relations and kinship ties two significant trends are in evidence with the better economic and educational status. The Gaddis are adopting the more respectable norms of intra-family relationships. Their bonds with the extended family and kin groups left in their original homes become loose, and the effectiveness and frequency of contacts gradually diminishes as they acquire deeper roots in their new setting.

Dube's relative conceptual scheme synthesis, integrates and develops the current approaches to the study of changes in India (Dube, 1958). It assumes multiple avenues of change and multiple reference groups. Five different cultural traditions have been recognised; the classical, the regional, the local, the modern-western and the emergent national. A community derives its sources and sanctions for patterns of life and patterns of change in varying degrees from all five and its reference model, although it may be characterised by the dominance of one or more over the rest, is in the final analysis made up of a combination of all the elements in varying proportions.

Thus multifaceted approach to the study of change appears to some extent, appropriate in the context of changing Gaddis' local traditions in their inherent strength. These traditions have prevented certain types of change, and where they could not prevent them altogether, they have atleast modified them significantly. Modern-western and the emergent national traditions have opened up new vistas for the Gaddi who are trying to reach out for new horizons today. Credit for the trend should be given to the **impact** of these traditions.

REFERENCES

- Devis, K. 1969 *Human Society*. The Macmillon company, New York.
- Dube, S. C. 1958 *India's Changing Village*. Allied Publishers Pvt. Ltd., Bombay.
- Goode, W. J. 1964 *The Family*. Prentice Hall International Inc., New Delhi.
- Kapadia, K. M. 1958 *Marriage and Family in India*. Oxford University Press, London.
- Linton, Ralph 1949 The National History of the Family in Ruth N. Aushen (ed.). *The Family: Its Function and Destiny*. Hamper.
- Nodel, S. F. 1951 *The Foundations of Social Anthropology*. Cohen and West Ltd., London.
- Newell, W. H. 1961 *Report on Scheduled Castes and Scheduled Tribes—Himachal Pradesh*. Census of India. Vol. XX, Part V—B.
- Sashi, S. S. 1977 *The Gaddi Tribe of Himachal Pradesh: A Sociological study*. Sterling Publishers Pvt. Ltd., New Delhi.
- Singh, T. R. 1969 *The Madiga*. Ethnographic and Folk Culture Society, Lucknow.

Politics, Political System and the Elites in the Jaunsari Society : Emerging Trends

N. K. GHATAK

Introduction

Mosca in late thirties, after analysing the political systems and the power structure of different human societies of the world, felt that

“In all societies—from societies that are very meagerly developed and have barely attained the dawns of civilization, down to the most advanced and powerful societies—two classes of people appear—a class that rules and a class that is ruled. The first class, always the less numerous, performs all political functions, monopolizes power and enjoys the advantages that power brings, whereas the second, the more numerous class, is directed and controlled by the first...” (1939: 50).

What Mosca felt over four decades ago was mostly true for the traditional Jaunsari society of the past. Even for the present day Jaunsari society it is, at least partially true that in spite of the democratic set up, this society is ruled by a section of people—the elite group. Possibly this pattern of elite rule is true for modern human societies as Bottomore following Mills, realised that the modern societies however democratic their constitution may be, are, in fact, ruled by the elite (1964: 36). By elites, both Mosca and others meant ‘groups of people who either exercised directly or were in a position to influence very strongly the exercise of political power’. (Bottomore, 1964: 9). That in Jaunsar Bawar the political system is controlled by the richer section and higher caste groups and the leadership is given by them, has been clearly observed by Majumdar who in connection with the political system and political leadership in Jaunsar-Bawar, writes,

“The lower castes may have a caste leadership among themselves in dealing with certain intra-caste matters, but they generally do not meddle with, nor do they have a say in, the village affairs, which are monopolized by the high castes...” (1963: 135).

If we consider power structure and the elites of India as a subject of study it is needed to have a deep imprint on the traditional form of caste stratification.

“The Brahman among the Hindus have acquired and maintained an authority, more exalted, more commanding this... influence over the Government is only bounded by their desires, since they have impressed belief that all laws which a Hindu is bound to respect are considered in the sacred books...”
(James Mills: 1820: 1. cf. Yogendra Singh, 1974: 4: 350).

So it may be said that elite structure of the traditional India rested on the Brahman as the centre and head of the caste system who monopolized ritual influence and power. And on the other hand, the traditional structural base for elite formation in India was the peasant society. The landed aristocracy as an elite class, underwent many vicissitudes of social systems in the remote past, during the British period and also after independence. Thus the traditional elite does not consist of a solitary changeless class. It is a dynamic one for it adjusted itself with the changing empirical situation of Indian society from time to time, depending on how and when land revenue and land policy was promulgated by the ruler.

In this paper an attempt has been made to highlight the changing political organisation in Jaunsar Bawar in both pre and post independence era and the role of the Jaunsari elites in politics and their time to time adjustment with the changing political scenario of their country. In this study the term elite has been referred to as an occupational group instead of the individual, which has high status in the society. Among the Jaunsaries while the territorial lineage, *i.e.*, *dai-chora* (brotherhood) is in a sense a local group, ritual and fictitious, which together forms an exogamous unit, the lineage on the other, is an extended family of the collaterals, known as *aal*, which forms the major reservoir of the Jaunsari elites. Endeavours have also been contemplated to bring into focus the role of the elites in different social affairs in the present day Jaunsari society and their activities related to present day politics.

Fieldwork has been done in the year 1977. The venue of investigation is the Birnad village of Chakrata tehsil of Dehra Dun, U.P. Data were collected through interviews and observations. The case histories were also collected to understand the society and culture. The ethno-

graphic type of study had been conducted without ignoring the changes that had taken place in the custom and manners of the people.

The Jaunsaries

The traditional inhabitants of Jaunsar-Bawar pargana of Tehsil of Chakrata in the district of Dehra Dun of Uttar Pradesh are known as the Jaunsari. The tribal name is derived from the name of its region, so it hardly denotes a specific ethnic group. The region is multi-ethnic in nature with the Khasas and the Koltas as the major ethnic groups. Ethnically the Jaunsaries belong to the same group of Khasas and the Dom, who form the dominant population of the Himalayan region of Uttar Pradesh and Himachal Pradesh. Politically, Jaunsar-Bawar has been a distinct unit since historical times. The Jaunsaries have common socio-cultural traditions with neighbouring people of Sirmur, Mahasu, Jubbal, Taroch and Rawain-Jaunpur. There is no restriction on marriage alliance among these people. Though, ethnically, the people of the latter areas belong to the same group, yet they are not regarded as the Jaunsaries, nor they are treated as the scheduled tribe. The Jaunsaries were declared as a scheduled tribe for the first time in 1967. 1971 Census reveals that there were 56,699 Jaunsaries in the total of 79,128 population in the Chakrata tehsil of Dehra Dun district.

The Jaunsaries consist of a number of endogamous socio or ethnic groups. Nevertheless, they share a common socio-cultural customs and tradition. It is a partrilineal tribe in which females have no place in the matter of inheritance and succession.

The lineage system among the Jaunsaries is an extension of joint family. The Jaunsari terms *aal* and *bhera* which indicate the lineage and sub-lineage respectively, have been formed due to the separation of brothers and division of families from time to time. Marriage within the lineage, *aal* and sub-lineage, *bhera* is prohibited. The traditional forms of marriage among the Jaunsari is fraternal polyandry but it is not always possible.

“The forms of marriage may be determined by some biological fact, such as that a man born without a brother can only engage in a monogamous or a polygynous union; on the other hand, two or more brothers might traditionally practise polyandry or polygynandry” (Majumdar, 1960: 78).

“In polyandrous marriage system the wives as well as children are common to all the brother, but according to the custom, it is the eldest brother who marries the wife or wives, and it is he who is regarded as social father of all the children born in such marriage. The children are similarly considered as common by the wives in polygynandrous and polyandrous marriages and are looked after by them without consideration of actual genitor” (Saksena, 1962).

In Jaunsar-Bawar area, the Jaunsaries though recognised as a scheduled tribe, are characterised by a distinctive caste structure. The prominent caste in this region is the Khasas who include the Brahman and the Rajput. They are landowners and occupy the upper most levels of the hierarchal order of the society. The Koltas are at the bottom of the ladders of hierarchy and remain engaged as agriculture labourers. The intermediate groups consist of artisan castelike the Sonar (goldsmith), the Lohar (ironsmith), the Bajagi (drum-beaters) and the Nath-jogi (who renders religious services and medicants or local medicine men). The Chandals and Doms are placed in the lowest rank alongwith the Koltas. The upper and the intermediate caste groups have permission to enter into the inner compartment of the fellow persons house except in the kitchen. But lower caste group such as the Koltas, the Chandals and the Doms are permitted to enter upto the courtyard only, but not inside the inner compartment of the house of upper castes or intermediate one. The upper and the intermediate castes people do not accept water and food from the hand of the lower caste people.

The Khasas are the landowing group. Agriculture is their main source of income. Terrace cultivation is the traditional form of agriculture. Some paddy cultivation is also practised by them. There are two methods of growing paddy in this area, one is known as *acharna*, the other as *ropna*. The first one is by the sowing of seeds, and is done in *ukhar* land, and the latter is by transplantation and is done in the *sera* land in the same way as is followed in the plains. After independence some modern facilities reached at the door of the Jaunsaries. Now some of them are using modern manure (urea, phosphate, etc.), pesticide and modern plough (iron) for their agriculture. They keep cattle, goat and sheep, and these also support their economy. At present, horticulture particularly of the fruits like apple, *aru*, ackrute, plum, etc., are helping them to earn cash money, in addition to potato and opium which are cultivated since long to earn cash money.

Although the Koltas or lower caste groups inhabit in the region, they have no territorial right, *i.e.*, right on land. They are brought by the Khasas for their agricultural work from outside. They are the serf of the Khasa group. The Koltas serve the Khasas in agricultural works. The Bajagi (drum-beater in the temple), Barbar, Nath (medicine men), Lohar (iron-smith) and the Sunar (goldsmith) are all *jajman* of the Khasa community. Usually they get their payment from Khasa community, and they also get *ahri* (a token amount of paddy for their service, *i.e.*, about 5 Kg. of grain) in every six months from every Khasa family of the village. The intermediate groups depend on the higher caste groups, *i.e.*, the Khasas for their livelihood.

Mahasu is treated as a Jaunsari god. They are four brothers, *i.e.*, Basak, Pibask (Bishnu), Baitha and Chalda. Among these four Mahasu gods the first two Mahasu Basak and Pibask (Bishnu) left for Garhwal while Baitha and Chalda remained behind. The temple at Hanol is dedicated to Baitha while Chalda is always on the move, staying in different village temples for longer and shorter period according to the invitation of the village *wazir*. The *wazir* is a religious specialist, the post of a *wazir* is linked with Chalda Mahasu, one of the four Mahasu gods whom people worship. The Khasa are the worshiper of the Mahasu gods, and they are also the caretaker of the temples. No other castes have any voices in the village temple and in the temple of Hainol.

Elites in the traditional Jaunsaries society and their activities

From the tradition, the Jaunsaries showed respect to some personalities of their society considering them as philosopher and guide of the community. It was believed by the Jaunsaries that these people had taken leadership for maintaining unity of the community. They kept constant touch with the outsiders to earn some benefit for the community without derogating the social prestige and religious values of the community. Above all, these people were well conscious about the community sentiment and they enrapture this sentiment. So considering above characteristics in favour of a person or group of persons, they were treated as the elites in the Jaunsaries society. Now questions may be raised as to, who will be those renowned personalities? How their position will be detected? And why their social position is so prestigious? So, to identify the Jaunsari elites, we may discuss the *sayanachari* system, with its lineage affiliation as caste and *dai chora*, a village based relationship.

The Jaunsaries were well organized and controlled under the *sāyana-chari* system. The *sayanas* were considered as the authority, guide and philosopher of the Jaunsari society. (In the Jaunsari society, the term *sayana* is given to a person who is respected by the members). The *sayana* (of the family) has sole authority over the family property. He was referred to as *numberdar* (responsible) by his brothers. It was the eldest brother (*sayana* of a family) who married the wife or wives and all brothers shared the wife or wives. The eldest brother who was regarded as social father of all the children without considering the actual genitor. He took care to provide comforts to the family members. So, in the *aal*, *i.e.*, lineage, there was *aal sayana*. The *aal sayana* was the oldest member of the senior branch among all the families of an *aal*. Similarly, in the Jaunsari society, there was *bhera* (sub-lineage) *sayana*, and the *bhera sayana* was the oldest member of a *bhera* or sub-lineage. He was respected by the members of a sub-lineage.

The traditional settlement of a Jaunsari village were linked with brotherly relationship, locally called as *dai-chora*. This *dai-chora* relationship, was in a sense, a local group, ritual and fictitious, that embraced the whole caste groups of the traditional village. It was due to this feature of kinship that the Jaunsaries were said to practise village exogamy. This *dai-chora* system among the members of a caste in the village depended upon the size of the village and duration of a caste members staying in the village. This *dai-chora* relationship was not restricted to a village boundary as lineage and sub-lineage were found in a number of other villages.

The territorial right (right on land) and leadership of the village were linked with lineage system, as the *sayanas* were the landowners and distributing authority of land in the Jaunsar area. So a particular *aal sayana* who got authority on land, distributed these lands to villagers and became the *gaon sayana* (head of the village); so, an *aal sayana* (lineage head), on the one hand, was a conventional leader of an *aal* (lineage) by birth and on other hand, became the leader of *dai-chora* (village council). Besides the above village head, *i.e.*, *gaon sayana*, there was the *sadar sayana* who was the head of *khut* (unit of a group of villages). The foremost influential *sadar sayanas* bearing the title of *chountka*, constituted a senate *chambo* which exercised control over all the *sayanas*. In some areas of Jaunsar, there were more than one *gaon sayana* in one village (as the case might be the village lands were in the names of more than one persons) and

sometimes, there were *sadar sayanas* of the *khog* or a sub-division of the *khut*.

The leadership of the *aal* centred round the *aal sayana*. He had the authority to settle intra-*aal* disputes. He was an important person in the village *panchayat* or *khumri* where he represented the interest of *aal* members at various levels. There was also the *bhera sayana* in each sub-lineage. The *bhera sayanas* took leading part in the discussion on intra-*aal* disputes. But in case of the inter *aal* disputes, the component *aal sayanas* of the caste of the contending parties, took leading part in the discussion on the cases in the village council, and the *gaon sayana*, the head of the village decided the cases considering social implication of the cases. It may be mentioned here that the *khumri*, a village council, is more or less monopolised by the dominant caste group.

The *gaon sayana* was the head of the village community. It was unanimously approved by the villagers. All the village affairs were placed at the village council, *i.e.*, *khumri* for settlement. The village council (*khumri*) was presided over by the *gaon sayana*. The *gaon sayana* was the final authority to take decision on any matter relating to the village. And in the inter-villages disputes, he is the representative of the village. Even earlier he used to keep contact with Zamindar/Rajas directly and with the British authorities through the *sadar sayanas*, (the *sayana* of *khut* unit of a group of villages). He is responsible for the allotment of land among the members of the village and also to collect land revenue from the villagers according to their allotment and deposited the same to authorities through *sadar sayana* or *chountra*. He received guests, visitors, officials coming to the village and arrange for their accommodation and meals. He also looked after the village temple and he cared to see that the rites and rituals were being performed properly. The post of *gaon sayana* was hereditary and it followed the rules of primogeniture.

The *sadar sayana* was more influential and used to hold key position in the traditional political system of Jaunsar-Bawar region. He was the controller of all matters within the *khut*. There were four influential *sadar sayanas* who used to control the whole of Jaunsar-Bawar area. Their council was known as *chountra*. Their judicial powers were unlimited and the same were conferred on them according to their allegiance to the previous Raja but their functions as revenue collector were indispensable to the British Government. A *sadar sayana* was subordinate to the

chountra and used to collect the local revenue according to the allotment given to him by the *chountra*.

The position of *sadar sayana* became more consolidated after the abolition of *chountra* by the British Government in 1849. He had the sanction of the local tradition and so used to enjoy official recognition to exercise his administrative and judicial powers on his own *khut*. The *sadar sayana* controlled inter-village disputes through the inter-village council, *khumri*, where the *gaon sayanas* of the contended parties used to take active part in the discussion. Other *gaon sayanas* of the neighbouring villages were the members of that council.

The office of the *sadar sayana* was hereditary ; on the death of the *sadar sayana* his eldest son succeeded. If he was unfit or a minor he still held the title but a relative does the duties of the office on his behalf. A *sadar sayana* might tender his premature resignation to settle his adult eldest son into the said office. If he died without any issue his brother succeeded him. But the succession to the post of the brother or other relative required the confirmation of the Government. He was also subjected to removal at the discretion of the Government.

The Jaunsaries had their own style of life. They had their traditional panchayat, *i.e.*, *khumri* (lineage or *aal* level and *gaon* or village level and *chountra* in *sadar* or *khut* level). Their traditional way of judgement to control their society helped and is still helping to maintain pace with time. Traditional pattern of polity persisted in relations to the caste, extended family system, *i.e.*, *aal* and village affiliation, *i.e.*, *dai-chora* and also in other aspects. According to Majumdar,

“There is a spirit of co-operation and mutual understanding among all members of the family. This spirit of co-operation along with the patriarchal authority has been further developed and extended in the *bhera* and *aal* to strengthen lineage solidarity. The position of *aal* and *bhera* in the lineage organization is signified by centralized authority (headmanship goes to the eldest member or the seniormost brother of the lineage) and the solidarity of the kin group functioning as local group in village politics” (1960: 126).

Thus the heads of both *aal* and *bhera* continued to dominate in the

caste council and regulated caste activities and *gaon* panchayat (village council).

During the pre-independence era, the revenue policy of the British Government also produced a new section of elites. There were two types of the alienation of land. First, land passed from the village proprietors to 'magnates' and secondly, land also passed from one section of proprietors to another (Stok; 1970. cf. Singh, 1974: 1: 354).

Under the British rule a number of land settlements were made since 1813. There were:

First Settlement (1815-16) by Capt. Brice.

Second Settlement (1818-21) by Capt. Boss.

Third Settlement (1821-24) by Capt. Young.

Fourth Settlement (1924-27) by Capt. Young.

Fifth Settlement (1929-34) by Major Young.

Sixth Settlement (1934-49) by Major Young.

Upto the end of the sixth settlement the British Government considered the *chountra*, *sadar sayanas* and *sayanas* as agencies for distribution of lands to these areas and for revenue collections. A lumpsum amount as revenue was fixed by the Government for the whole *pargana*, and it was the *chountras* who distributed the sum proportionately over the *sadar sayana* (headman of *khut*) who in his turn, redistributed it over the village *sayana*. The village *sayana* in turn, fixed the sum to be contributed by each land owner and all were held jointly and severally responsible for the collection of revenue.

Now, the question is how far the land revenue policy of the British Government led to the emergence of the new elites and the withering away of the older landed gentry. After the promulgation of the British land revenue policy, the oldest or influential *aal sayana* became the *gaon sayana* (village head). Similarly, in the case of the *sadar sayana*, a *sadar sayana* who used to hold more *sayanas* or village head under him, was considered as more reliable than other *sadar sayanas* and considered as a member of the *chountra* because he contributed more money to the Government funds, and held more lands and more tenants.

Thus land-holding and strength of the *sayana* under control helped a *sayana* to become more powerful than other *sayanas*. So categorically

speaking, a particular *aal* from which a *sadar sayana* was selected, also became the powerful. In 1844 after the abolition of the *chountra* by the British Government, each *sadar sayana* held the position of the supreme head of the respective *khut*. The only bowed their head to British authorities but not to the other *sadar sayanas*. The centralized power of the *chountra* was decentralized among the *sadar sayanas*, to the *gaon sayana* and the *aal sayana* to check the expected conflict among the *sayanas* of the *khut*.

Mr. A. Ross, the British administrator, drew up a code of common law known as Dastur-ul-Amal. The Dastur-ul-Amal divided the cultivators of Jaunsar-Bawar into two classes, *maurosi* and *gair-maurosi*. The former were also known as the Zamindar and belonged either to the Brahman or the Rajput caste. They got right of land alienation. The *gair-maurosi* cultivators were mere tenants and could dispose off their land only to the Zamindars whose land they cultivated and to whom they paid rent. When the land was disposed off by a *maurosi* cultivators, pre-emption could be claimed by any cultivators of the *khut*. According to Dastur-ul-Amal, the *sadar sayana* should keep the Zamindar satisfied, look after the welfare of new tenants.

Elites in the present day society and their activities

After independence when the U.P. Land Tenancy Act (1949-1951) and the Panchayat Raj Act, 1956 came in force, significant changes started taking place not only in the landholding, but in the village organization also. Almost all the local people of Jaunsar-Bawar irrespective of caste and community, have been distributed land and given ownership right on it in the post-independence era. Land revenue policy comes directly under the control of the Government and is executed through the office of the Tahsildar. The Tahsildar keeps all land record and collects revenue from the villagers directly or through his assistant, the Patawari. The sale and mortgage of lands are now registered in the Tahsildar's court. The traditional *sayana* has no function at all.

As statutory *gram panchayat* has taken over the function of traditional village council, *khumri*, the election of the members of this new panchayat system is made on the basis of adult franchise. The traditional leaders or *sayanas* have no place in the new administrative organisation. Each *gram sabha* or *panchayat* is headed by an elected member called the *pradhan*, and *nyaya panchayat* by a *serpanch*. Two Government officials

such as V.L.W. (village level worker) and Panchayat secretary are attached with the *gaon panchayat* and *nyaya panchayat* to look after the duties of both the panchayats. The *pradhan* has the duties to maintain records of the population and distribution of food stuffs in the ration shop. The traditional institution *khumri* used to handle both judicial and administrative functions together in the past but when the statutory *panchayat* system was adopted the two functions were separated. The judicial function is performed by the *nyaya-panchayat* and administrative function by the *gaon sabha* or *gram panchayat*. Members of these *panchayats* are elected through adult franchise.

The *pradhan* (of a *gaon sabha*) resolves the village disputes in the *gaon sabha* with help of other members. But if he fails to resolve the case, within the *gaon sabha*, then he refers the case to *nyaya-panchayat*. The *nyaya panchayat* deals the case and tries to solve the case amicably. It has the power to impose fine upto Rs. 500/- depending on the merit of the cases. If the case fails to dissolve in the *nyaya panchayat* then it may be sent to court for further action.

There are 39 *khuts* in whole of Jaunsar-Bawar. One *gram sabha* usually consists of a single *khut*, but sometime it includes some village of another *khut* to form the quaram, *i.e.*, 1000 to 1500 population which are needed for a *gram sabha* constituency. There are 54 *gram panchayat* and 13 *nyaya panchayat* in the whole of Jaunsar-Bawar. The *nyaya panchayat* usually consists of two or more *khuts*.

In the Bawar area, there are five *gram sabhas*; these are Birnad, Naindrava, Bhatgari, Mundhol and Saingi. There is only one *nyaya panchayat* located at Birnad in Tuini. The Birnad *nyaya panchayat* is constituted for all five *gaon sabhas* of Bawar. In the *nyaya panchayat* there is a representative of low caste people. But both the *nyaya panchayat* and the *gaon panchayat* are dominated by the Khasas. There was no female representative in the statutory *panchayat*.

At present some young Jaunsaris are interested in politics. They are educated and have contact with the high Government officials. They always visit the Jaunsar-Bawar areas and enquire about the problems of the people. But some traditional leaders are not pleased with them. They are of the opinion that the prominence of the younger generation will break the traditional prestige of the Jaunsari society and their leadership will create danger to the people of this area. Though some of the

young groups whose voice is not accepted by the traditional leaders, have to face their traditional council and sometimes they are punished by their traditional council for their doing, yet these younger groups are getting more support from the people of this area.

Recently, the lower caste group such as the Koltas are getting interested to participate in political activities, but due to their poor economic condition, they cannot stand for it. Most of the lower caste people, by no means, depend merely on the local higher caste, *i.e.*, the Khasa people, in economic sphere and in social affairs also.

Summing up

To sum up, the present day elites of Jaunsar-Bawar are passing through constant operation of the processes of circulation from one elite mark to another. From the past, they were adjusted with the existing situation of those days, *i.e.*, at the time of Rajas and British rulers, they were the *sayanas*, and controlling authority of the society. Although the traditional *sayana chari* system has been partially operating still today through their traditional pattern of polity, caste extended family (*aal*) and village affiliation (*dai-chora*), yet, the modern education which produces values and political consciousness of the group, is acting as operating agency. It tries to break the traditional affiliation of caste, or *aal* or *dai-chora* and puts more emphasis on the attainment of material and human values.

Acknowledgement

I feel myself honoured in tendering my gratitude to the Director, Anthropological Survey of India, for providing me the scope to work in the projects "Customary Laws Among the Jaunsaries" and 'Culture Traits and Culture Area Survey' among the Jaunsari tribe of Chakrata Tahsil of Dehra Dun district of U.P. I will be failing in my duty, if I do not mention the name of Dr. R. S. Mann, Deputy Director, Anthropological Survey of India, for his patient approach in the discussion. Thanks are also extended to Shri M. Hazra, Shri D. P. Mukherjee for their catholic co-operation.

REFERENCES

- Bottomore, T. B. 1964 *Elites and Society*. Penguin Books Ltd. England.

- Majumdar, D. N. 1962 *Himalayan Polyandry*. Asia Publishing House, Bombay.
- Mills, C. W. 1956 *The Power Elite*. Oxford University Press, New York.
- Mosca, G. 1939 *The Ruling Class*, Mc Grawhill, New York.
- Saksena, R. N. 1962 *Social Economy of a Polyandrous People*. Asia Publishing House, Bombay.
- Singh, Y. 1974 *Sociology of Social Stratification. A Trend Report, in A Survey of Research in Sociology and Social Anthropology* by Indian Council of Social Research. Popular Prakashan, Bombay.

Role of Monasteries in the Ladakhi Life and Cultures

R. S. MANN

In the theoretical baggage which the discipline of Social Anthropology provides for, there is a very valid place for 'holism'. The inter-connectedness of diverse major aspects of living is undeniable. To what extent one influences, or is influenced by the other may not, in the event of diversity in human societies, be uniform. Other than spatial, the non-uniformity is likely to be reported when aspects of life are searched in time perspective. Such situations, however, do not rule out the existence of certain common trends in respect of interaction and inter-relationship of various aspects of life. The portrait of a social structure, depicting totality of necessary dimensions, may not be adequately sketched unless the bulk of elements are recognized in their due context in the entirety of community life. An anthropologist's approach, in this aspect, is well defined, and his/her tools are pretty sharp to grasp the ongoing life-designs of a group of people. Holistic approach, though time consuming, provides for exhaustiveness, more so when one intends to explore a style of life systematically and in the light of all permutations and combinations. Even to explain a social structure, taking only one element/factor in its relevance, itself is a bulky job, though undoubtedly far more revealing. This has been authenticated, in practical terms, through the explanation of the Ladakhi life and culture with the help of monastery and the organization thereof. When one element is taken to explain other areas of social structure, it does not claim that this element alone is solely responsible for a particular happening or trend. In certain cases, some other elements too have their score, contributing to a common direction. However, the social researcher, then, has to look for the quantum of stress, priority and viability of the element/s. Those with closer relevance might automatically find prominent place in the explanations as missing them is likely to keep explanations only halfway through. It depends on the social analyst how well he/she can highlight place of single-factor or multi-factors in the exploration and analysis of a social system, and in the interest of an exhaustive ethnography. But, as part of clarity, one has to justify the arguments while taking main and subsidiary elements as contributing to the maintenance of particular areas of social structure in time and space.

Writing on a subject like "Role of Monasteries in the Ladakhi Life and Culture", one has to search for inter-connectedness, inter-relationship, feedback arrangement, reciprocity, inter-dependence, adaptation, governance, subordination and supraordination of social and cultural traits. But such a schematic pattern is not desired to be taken within too rigid boundaries of 'functionalism' or 'structure-functionalism', aggressively highlighting their purview of 'constancy', consistency, 'no-change' etc. The latter theoretical interpretations of the concept and approach need be relaxed, more so in the light of later development of anthropological ideas, though the same may not claim to be grand theories. In the light of all-round growing social and cultural dynamism, it is left to the professional anthropologist as to how he/she makes use of the methodological tools, and to what extent. Too much of adherence to original rigidity, in terms of theorists' versions, at thinking level, might not prove that helpful in exploring and explaining the changing societies and their social organizations. At operational level one has to go in for adjustment and readjustment of ideas keeping intact the interest of research and the target. It is in the above broader purview that the Ladakhi life and culture *vis-a-vis* monastic organisation have been searched.

Monasteries and monastic organization

Amongst a few other typical features characterizing Ladakh (the most north western district of Jammu & Kashmir State of India) is one of the existence of monasteries. The latter have existed over centuries with a very close and intimate bearing on the life and culture of the people embracing Buddhistic religious faith. Many accounts on Ladakh refer to it as the land of monasteries and the Lamas (monks). In the Buddhist dominated Leh and Zaskar divisions of Ladakh, there are thirtyfive prominent *gompas* (monasteries). In addition, there are a large number of the *viharas* (smaller monasteries). The latter exist in those human settlements where the *gompas* are non-existent. However, there is a well-defined connection between a *gompa* and a *viharas* in its jurisdiction. Such a connection is represented through links of various kinds, including spiritual as well as temporal. The common masses, as also the lamas of the *gompas* as well as of the *viharas*, are well aware of such linkages and bonds. This equally applies to both 'Yellow' and 'Red' sects which exist in Ladakh. Such an arrangement throws open a strong and wider network of monastic structures, covering even the remotest localities of Buddhist habitations. There are numerous other religious structures having linkages,

of one form or the other, with the *gompas/viharas*. To any new entrant in Ladakh, it appears that religious structure might be overshadowing human life in this isolated, remote and outlying region. And the same holds true to a considerable extent. It is chiefly the *gompas* and the *viharas* which have occupied the highest elevations of human settlements, and having control over many walks of life. The monastic system is well organised in almost every respect. The organizational pattern is so scientifically designed that all activities, in and outside the monastery, get going smooth, without more of imposing supervision, or interruption. The social and religious/spiritual control in the monastery is strong and intact, and the same holds true when their extension to society is assessed. It is chiefly the religious organization of monastery which holds the key for a large number of community facts. This is uniformly applicable to monasteries of 'Yellow' as well as 'Red' sect of Buddhism.

From monasteries emanates the force of Buddhism (Lamaism), the prevalent religion among the Ladakhis. An extreme popularity of Lamaism is unquestionable. The basic tenets of Ladakhi Buddhism (chiefly Lamaism) include Gautama Buddha (Sangyas), religious principles inculcated by Buddha (Chhos Kon Chok) and the Lamas following these principles (Gendun Kon Chok). Defined under these tenets are a large number of gods, goddesses and other supernaturals which the Ladakhis recognize and respect. The monasteries also speak of the systems of demonology and idolatory. Present day Lamaism of Ladakh contains relics of Bonchos, the old religion of Tibet, and of earlier Buddhism, and its sphere is wide and complex. In it is a variety of persons and activities. Broadly speaking, there are three categories among the lamas. First is referred to as *chung-tung* which includes beginner lamas, who are freshly initiated to Lamaism. The second is known as *gheesul* in which are included those lamas who have successfully completed their five to seven years tenure as *chung-tung*. The third category referred to as the *gallong* includes those who have undergone maintenance of *gheesul* constraints and have attained twentyfive years of age. They are said to possess a deep religious understanding. In addition to above categories, there are some other sacred specialists. Like the Lamas, the Chomos (nuns) have also been categorised. A novice chomo is termed as *geyen ma*. On next promotion, she becomes *gheesul*, and finally *gallong ma*. All lamas have a hard code of conduct, bearing some relaxation for *chung-tung*. They all stay in the *gompa* campus. The apartments for senior and junior Lamas are differentiated.

Functionally speaking, every *gompa* has two sections of the Lamas. With prominent positions, their lay-out is as follows:

(1) Spiritual Section—

- | | |
|------------------|------------------------------------|
| (i) Kushok | —An incarnation. |
| (ii) Lobon | —An abbot. |
| (iii) Chos Timpa | —Who controls religious meetings. |
| (iv) Chhomspun | —Who directs the religious dances. |

(2) Temporal Section—

- | | |
|----------------|----------------|
| (i) Chhag jot | —Treasurer. |
| (ii) Nyerchhen | —Steward. |
| (iii) Nyerpa | —Storekeeper. |
| (iv) Phi-Nyer | —Farm Steward. |

In addition to above, there are the *Lamas* holding some other positions. The levels of attainment among the lamas differ. But as stated above, there are two major dimensions of monastic organization. One of these is the religious, and the other civic. However, those who perform the civic functions are also the *lamas*. The number of the *lamas* in a *gompa* is large, but only a few hold the recognised positions. The incumbents, against these positions, keep on changing as per the desire of the *kushok*. This privilege of the *kushok* is not applicable to positions attained through religious merit. The spiritual and temporal positions, in order, and as described by the informants include *kushok*, *khonbo*, *chhag-jot*, *lobon*, *nirpa*, *gey-kos*, *umjey*, *uchung*, *chhampon*, *chhamjoy*, *chhabrel*, *chama* and *kominar*. It may be mentioned here that within the defined categories or positions of the *lamas*, and even by these who are not in this network, the associated activities, either for monastery or for society, are of sufficient relevance.

Ethnic composition

In Ladakh there has been blending of various population groups. Some of the Aryans, represented by the Dards and the Mons, got mixed up with the people of Mongolian descent. Presently the Ladakhis and the Baltis represent the Mongolian element. The Baltis profess Muslim faith, and the Ladakhis are Buddhists. The Dards, the Mons and the Bedas represent the Aryan element. But because of long intermixing, the Mons

and the Bedas do not seem to be categorically different from the Ladakhis. The Dards, however, continue to be distinct. The Dardis who adopted Buddhist religion, were termed as the Dogpa or Brogpa. The population of Ladakh district now consists of the Ladakhis, the Mon, the Gara, the Beda, the Muslims (Balti, Kashmiri and Argon), the Chamspa or Chamgpa, the Christians, the Hindus of various castes, the Sikhs, Dogpa or Brogpa, the Dards and the Tibetans. The word Ladakhi does not refer to each and every inhabitant of Ladakh. Rather, it represents a specific ethnic group. The synonyms for the Ladakhi are the Bhot, Bod, Bodh, Bot-pa, Bhautta or Bota.

Monastic organisation and social structure

While discussing the role of monasteries in the Ladakhi social structure, one needs to explore the place of monastic organisation in the Ladakhi community. There is a widespread feeling and belief among the Ladakhis that they thrive well under the blessings of religiousmen chiefly housed in the *gompas*. And such a belief complex creates necessity for worship. Thus, the blessings are mainly showered by the *lamas*, through worship. Simultaneously, it is the religiousmen of monastery who are believed to have power and influence in various walks of life, including control over spirits and devils which the Ladakhis identify. Under such state of affairs, people believe anything the *lamas* suggest. Things are specially adhered to under the difficult ecological conditions for human existence, as reported in case of Ladakh. With such trends, the religious attributes, as posed, provided, encouraged and propagated by the monasteries find congenial place in social organisation, economic structure and political complex. People admit that they are highly obliged to the religious human hierarchy of the *gompa*. And a majority favourably responds to each and every call of the religiousmen. Lamaism dictates people's destiny, and the words of a *lama* act no less than the law. The Ladakhis are under the sway of the *lamas* who act as their guides, friends, philosophers, advisors, liberators, etc. Items, events or matters concerning the *gompa*, the *kushok* and the *lamas* are almost uniformly respected, without inviting objections from any corner. There is a great deal of interdependence between the members of secular and sacred orders. Monastic order takes care of the community, and community looks after the interests of monastery and its occupants. Educative role of the *gompa* is of no less value. It may also be mentioned that the secular specialists, and even the sacred specialists, other than those who form part of monastic organisation,

are having links with the *lamas*, and many a time depend upon the *gompa*. For instance, the *lharje/amchi* (medicineman) and the *chanspa* (a spiritualist) prescribe for certain remedial measures for sufferings, which are to be arranged by someone in the sacred hierarchy of the *gompa*. In any function where the *lamas* are invited, they are given the first position of respect. Entire Buddhist population has easy access to the *lamas*, and it is they who form major links between the monastery and the Ladakhi community.

Quite a few events in the Ladakhi life are based on the achievement of religious merit. And the importance of religious merit which not only helps in present life, but also paves smooth way for the next life. Along roads, path-ways and at other spots, one frequently comes across religious structures like *manes* and *chhortens*. While passing by their side, the structures are to be kept to the right side. Further, a passers-by would keep a stone on *mane* structure, thereby adding to its strength. A large number of stones, forming *manes*, are having inscriptions of sacred *mantra*, "Om Mane Padme Hum". The passers-by would also repeat this *mantra*. All this is done to acquire personal religious merit. Likewise, there is a common practice of rotating the prayer wheels containing sacred literature prepared by the *lamas*. One may do it while walking or sitting. Some carry smaller wheels in their hands, while others rotate those which are fixed at number of places. The old persons are often seen rotating the prayer wheels. Another common practice among the Ladakhis is to count the beads in a rosary. Most of the Ladakhis are seen counting the beads even when they are talking to someone. In both the above practices, the inherent idea is to acquire religious merit. More it would be when there is more rotation of the prayer wheel, and in the event of more repeated counting of the beads. It is the religiousmen who suggest to go in for prayer wheel and rosary. They also suggest for the installation of small-sized flags and banners, imprinted with the sacred *mantra* of 'Om Mane Padme Hum'. As such, the tops of the Ladakhi houses, and other points at higher elevations, where force of wind is more, are observed having rows of flags waving day and night. The background of such installation of flags is not the decoration but the religious, that is, for the acquisition of religious merit. More the flags wave, more would be the attainment of religious merit. Such an achievement assures happy and prosperous life for all inmates of the house where the flags are flying. The *lamas* prepare the flags and suggest for their installation. For general well being

and welfare, such flags are also seen hoisting on the tree tops and the monasteries. The existence of the strong concept of religious merit, and its implications, in the Ladakhi society, is the chief contribution of monastic organisation. It holds true at individual as well as collective levels. Objects of material culture, like the prayer wheels, both wooden and metallic, and the printed flags of cloth, do carry religious value as sponsored by the *lamas*.

The monastic organisation has a strong bearing to individual and public health. There are many areas where the *lamas* intervene. They lead and guide for betterment, using a variety of devices and practices. It is chiefly the *lamas* who help avoid sickness and epidemic. For such an end they either go in for the performance of a worship, or suggest some other means. The *chhasum* worship is performed by a *lama* to get rid off any eye trouble. Various kinds of amulets are prepared by the *lamas* as a safety measure for many diseases, especially caused by the supernaturals. Wearing of amulets in neck or arm is more common among the children than adults. The *sunha*, a thread-like object, prepared by the *lama* and worn in neck, provides protection against the wrath of supernaturals. The *shonge* and *chantho* are the other helpful objects. The *onpo* and the *labha* (religious person) and the *lharje/amchi* are the other persons who help cure and avoid sickness. But on many occasions they, too, depend on senior *lamas* and the *kushok* for seeking clarifications. On occasions they prescribe for worship, as means of treatment, which is arranged by the *lamas*. The *chanspa*, a spiritualist of high order, is mostly a *lama* who devotes to intensive meditation. His attainment is said to be superb, so much so that he can even foretell whether a sickman would survive or not. He is competent to ward off evil effects of malevolent spirits. A part of his common approach, he prescribes for the *lhuchas* and the *shilok* worships which are arranged in the *chotkang* (family worship room) by the *lamas*. A *chanspa* is again approached for begetting children. The religious persons, as part of their methodology, also advice to go in for the making of paintings. Such paintings, highly popular among the Ladakhi families, ensure general prosperity, better health, better future, better rebirth, etc. Two kinds of paintings, that is, 'Lhaskal' and 'Skistak', which serve the above purpose, are the prized possession of the Ladakhi families. They are displayed in the family worship apartment.

Any house construction among the Ladakhis, is preceded by a *lama's* clearance of the house site. It is he who certifies, after making religious

calculations, that the proposed site is free of evil spirits and devils. And if the devils are found prevailing around, the relevant worship is organised to make the site free of the same. This would be followed by the construction work. The moment a house is constructed, it is given a name. Such a name symbolises the family which continues to be identified with the same. (While referring to a family, the house name is always added to the name of head of the family. This is also used for mailing purpose). Naming of the newly constructed house is again done by someone in the religious order of monastery. The family/house name goes with the *khangchen* (the ancestral house). The *khaon*, a house where the sons shift after they get married, normally shares it. This is because the family worship room remains attached with the *khangchen*, and the separated sons recognise it for all purposes. Against the *lamas* services, members of the *khangchen* are obliged to spare a part of the agriculture produce for the *gompa*. The practice is not applicable to the occupants of the *khaon*. The reciprocity of relationship between the Ladakhi families and the members of the monastery is marked in some other spheres too, where the *lamas* are rewarded, in cash or kind, for their religious services. Against the services rendered by the *lamas*, the village community supplies free manpower, so frequently needed, to do various jobs in the monastery. Goba, the village headman, is responsible to depute people, by rotation, from various families work for the *gompa*. In case a family has no member to spare, it would engage someone, on payment, and put him to the *gompa* work. The deputation of a family member, for the *gompa* work, does temporarily affect the set pattern of division of labour in the family. Such an effect is also experienced when a son is spared to become a *lama*, or a daughter to become *chomo*. The *chungzung* and the novice *chomo*, while staying with the family, are not asked to do difficult jobs involving physical labour. At the same time they are given more respect and care in comparison to other members of the family. The *chungzungs* are never put to agriculture activities. Rather, they devote more to worship.

The interaction of monastery at individual and family levels is again noted in the custom of social boycott prevalent among the Ladakhis. Social ostracism is though rare but the society is not devoid of it. A person/family is socially boycotted when they challenge or threat a *kushok* or *lama*, or when some conspiracy, political or other, is detected against them. It may also be resorted to in the event of threat to community life. The *lamas* stop serving the ostracised persons denying all kinds of religious service to them. The act causes terrible demoralisation.

Beyond family, the next bigger social group is termed 'Phasphun' which is composed of a few families recognising and worshipping a common god. But they do not trace any descent from the same, and hence this group is not kin-based. The families, in a Phasphun, help each other on the occasions of marriage and death. The common *la* (god), which the families of a Phasphun or in one of the houses of a Phasphun family. But the very network of Phasphun gods is a creation of religiousmen. In fact it is for the common god that the families of a Phasphun are obliged to render help to one another.

Certain customs, rites, rituals and traditions connected to rites de passage are not free of religiousmen of *gompa* and their say. Healthy life and contentment at various stages of life cycle are sought from persons of monastic organisation. If a woman does not conceive and get pregnant for many years, after marriage, the couple approaches a *kushok*, *lama* or *chanspa* for their favour. Through their control of supernatural powers, the religiousmen help in the conception of a lady. For this purpose, the religiousmen suggest for the making of *thanka* (a religious painting). In addition, the issueless couple is also advised to perform worship in various *gompas* an act which would bless them with a child. Some are also advised to worship Dolma, a goddess chiefly meant for the welfare of womenfolk. When a woman is on family way, the *dhunuche* ceremony is performed in the seventh month. The performance of the *dhunuche* reveals the future of the child. It also helps eradicate evil star, if any, in the child's future. The *dhunuche* is performed by the *lamas* only. The *lamas* are again invited if some complications arise at the time of delivery of a woman. Mixing some butter with his sliva, the *lama* gives it to the delivering lady who swallows it. This is accompanied by the murmuring of sacred words. After one month of delivery is organised the *da-tsang*, a worship. It is done by a *lama* to purify the unclean atmosphere of the house. Name, to the newborn, is always given by a religiousman. The socially superior families contact the *kushok* and senior *lamas* for this purpose. Others may approach any *lama* or *labha*.

The Ladakhi-monastery interaction is no less in the sphere of marriage. An auspicious day for marriage performance is suggested by the *onpo* or the *lama*. The *yanguk* worship is performed by the *lamas* when the members of a marriage party reach the bride's place. Likewise, the *zabluk* worship is organised when a bride approaches the bridegroom's house. In the absence of observance of the *zab-luk*, the bride, as a stranger,

might bring ill-luck or misfortune to the family. The performance avoids the same. An earthen pot, containing dirt and left-overs of various kinds is whirled round the head of the bridegroom. This is done by a *lama*. The pot is then thrown against a stone and broken into pieces. The rite guarantees keeping away of the misfortune which might, otherwise, accompany the bride. The role of monastery is again experienced in the social custom of polyandry prevalent among the Ladakhis. The monasteries have been encouraging polyandry since time immemorial. Under the system of polyandry some females were declared surplus, and they could not get men to marry. Such a lot of women was adjusted by dedicating them to the religious order of the *chomos*. The *gompas* have been providing them all kinds of shelter. Such *chomos* lead the life of celibacy, devoting largely to the religious pursuits. It is through conversion of surplus females to *chomohood* that the *gompas* did encourage polyandry and its sustenance. Otherwise, the large number of unmarried females could be a problem for the society.

Chief causes of sickness, and consequently death, among the Ladakhis are attributed to ghost, devil and other malevolent spirits. Very notorious among the latter is, the Shinde, with its three forms, Chan, Gyapo and Teemo. Some, however, attribute that the Sangyas is chiefly responsible for life and death. When a person is about to breathe last, he/she is advised to concentrate on religiousmen, gods and *chotkang*. The *lobon*, a superior *lama*, is called for in the event of a death in family. He gives the sermon of the *phoi* or *phoa* before anyone else touches the deadbody. The sermon is believed to pave way for smooth heavenly journey, and for a better rebirth. Likewise, to make sure that the spirit of dead will not visit the family and trouble its members, the *yingshak* ritual is performed at the time of cremation. The ritual is observed by a *lama* who throws, at regular intervals, small quantity of rice and wheat grain, mustard seeds, barley, butter, *chang* (a Ladakhi drink) to the flames of the body being cremated. The ritual continues till the body is burnt to ashes. This is accompanied by another worship which a few *lamas* do at the cremation ground. In another ritual, on this occasion, a *lama* chases a *Phasphun* going round the structure where the deadbody is in flames. The *lama* poses as if he is beating the *phasphun* who carries a dish, containing *sattu* (barley flour) cakes. The dead is attracted to *sattu*. But since the *lama* drives away the *phasphun*, the spirit goes away without any fear of trouble to the family members left behind. After the cremation is over, the *lamas* continue to perform worship for a few days in the house of

the dead. One of these days is arranged *bulba*, auction of dead person's articles of personal use. Anyone is free to buy these articles. But the income received through such an auction is always given to the *lamas* and the monasteries. The ceremony of *bulba* certifies severing of dead's connection with the remaining members of his/her family. In addition to the members of family left behind, the *lamas* also bother for the welfare of the dead, and see that it goes the smooth way. Any person commits sin/s in his/her life time. Some do it more, others less. A common belief is that those who commit more sins will fail to get rebirth. Their soul would roam about here and there, and finally become ghost or spirit. In order that the soul of dead may not assume the form of ghost or spirit, the *lamas* suggest for the making of the *skistak*, a religious painting. The form of such a painting is devised by the *onpo*, and it is finally drawn by the *spon*. The painting is kept in the *chhotkang* of the person who died.

Like the areas of social organisation, as discussed above, the economic life of the Ladakhis is also not free of the influence of monastic organisation. The *gompas* are in possession of a large acreage of fertile land, and the entire produce of the same goes to it. The *gompas* being economically sound and surplus, advance loans to the needy Ladakhis. Generally, the loan is in kind, but it can be in cash too. When in need the Ladakhis borrow wheat, grim (a variety of barley), butter, *sattu*, tea, etc., from the *gompa*. The articles are borrowed for specific period. They are then returned with a significant addition to the borrowed quantity. The process helps further enrich the monastery resource. When a person fails to return, and if he has no children to do the same, his land is taken possession of by the people of monastery. Even if the return is indefinitely delayed, the *gompa* is empowered to acquire part of the land possessed by the borrower. Such land is acquired in the name of the *gompa*. The land is retained permanently if the loans are not returned. In spite of such a system, the *gompas* are preferred as loaning agencies. If there is no *gompa* in the village, people would go, through the *vihara*, to one with which they are associated. Normally, the requirements of the people are met as the *gompas* are sufficiently rich, maintaining big stores of various articles. A *gompa's* resource is strengthened by its earnings from land, livestock, offerings and contributions which the villagers make from time to time. It may further be mentioned that the *gompa* land and its cultivation are managed by the villagers, without expecting any share or remuneration. The villagers are under an obligation to supply the required

manpower for the purpose. The leadership hierarchy of the village manages to meet the demand put up by the monastery. The *lamas*, in return, also oblige the Ladakhi cultivators. In every agriculture season, the ploughing of fields is started in consultation with the *kushok* who suggests for the auspicious days. Likewise, the head *lama* is consulted prior to the start of harvesting. If the crops are affected by some pest or insect, a group of three *lamas* is approached for the *chha-chhush* worship. As closing part of this worship, the *lamas*, in turn, carry a ball-like leather article to the affected fields, accompanied by ringing of bells and singing. The leather ball is finally thrown into the river. The act is supposed to carry away the crop disease. The *sarak-doldol* is another worship performed for the protection and safety of crops from various pests. It is an annual feature. The performance is made when the earheads shoot up and are towards ripening. As part of worship, the *lamas* go through the sacred literature, keeping a heavy mass of clay in front of the images of gods and goddesses of the *chotkang*. The clay pieces are then thrown over the standing crops. The performance is an anti-pest measure. The *boamskar* worship, too, has an economic relevance. It is chiefly for the prosperity of crops. The gods, *chhok tum gyamo* and *Shanur ma gyamo*, said to be helpful for crops, remain happy after the performance of the *boamskar*. A senior *lama* and a few junior *lamas* take out sacred literature from the *gompa*. Two to three *pothis* (sacred books) are then kept on each elderly villager's head who come to the *gompa* to organise the *boamskar*. Portraits of the *chongapa* are also carried. Shouting in praise of gods and goddesses, the *lamas* and the villagers take out the procession, headed by the musicians. The processionists go round the fields, being greeted, every now and then, by the villagers. The offerings received are given to the *lamas*. The processionists are also served food arranged by the sectional heads of the village. The procession finally ends in the *gompa* where the *pothis* are deposited. The villagers, who participated, then get convinced that their crops will remain safe. The rainfall in Ladakh is very low. The agriculturists mainly depend on snow water for the irrigation of fields. The *lamas* come to their help to get more of snowfall, and more water in the springs. For rain-making, for more snowfall and for more water in the springs, the *lamas* are requested to perform the *chharbeeb* worship. The worship is specially arranged in the event of water scarcity. Lhu, Magzur and Sadak, the gods of water are kept happy through the performance of this worship. Approach of impurity to water sources is condemned.

The monastic organisation and the system of socio-political control of

the Ladakhis cannot be seen in isolation of each other. Rather, the two are intimately connected. The selection of *goba* (village headman) and members (the Ladakhis call sectional heads of the village as 'Member') is not done independent of the *lama's* will. This is particularly true for the villages having *gompas*. The villagers generally approach the *kushok* and request him to name persons for the positions of the *goba* and member. The *kushok's* nominee is not to be challenged or underestimated. Likewise, the *lamas'* intervention in decision-making and resolution of disputes is reported. In case of some major dispute or issue, the meetings of the village council are held in the campus of monastery. The religious atmosphere and sanctity around are said to have their own influence in the cultivation of justice, as also in the presentation of facts. The head *lama* is requested to intervene in major issues where compromise is not easily reached. When the village council fails to identify an offender, or when the decision is not arrived at by the council members, the religious dimension is further brought in. The persons, involved in a dispute, are made to state facts in the name of Lord Buddha. It may be stated that the people are seared of making false statement in the name of Buddha. But if the matter is still not sorted out, the village council requests head *lama* to intervene. The persons or parties in dispute are made to keep sacred *pothis* on their heads. This is done by the head *lama*. They are then made to make statements. The belief is that no one would misrepresent facts, while keeping the *pothis* on head. But if this practice also fails to resolve the matter, the persons involved are taken to the main worship room of the *gompa*. It is there that they are made to speak for or against the arguments. It is believed that the Ladakhis do not tell lie while in the sacred room. If the sanctity of the room is not maintained, by speaking the truth, the gods and goddesses of the room get annoyed and may inflict harm and injury. The feeling of respect to the sacred identity of the monastery marks the mind of the Ladakhis. And this trend is helpful in detecting and confirming the crime and the offender. Simultaneously a Ladakhi cannot conceal the facts at the cost of annoyance of the gods and goddesses.

Intervention of monastery is further reported in still wider political arena, beyond the village council. This is, however, a later development, after the regional/national involvement of the Ladakhis, at political level, emerged. Spituk, one of the villages studied, has a council with three members. One of these, *lob-zang*, is a *lama*. He is also the manager of the *gompa* and his say in secular matters is as important as in the monastic

affairs. The induction of wider political parties in Ladakh is a recent phenomenon. They mainly grew after the Indian independence in 1947, but imbibed more of force after 1962, especially since the active involvement of *Kushok* Bakula (head of Spituk monastery) in the national politics. The superior most religious position of *Kushok* Bakula remained, although, helpful to him in political life. A big force of the *lamas*, under him, having hold on the village communities proved as an added advantage to him. They helped in the election campaign for the Lok Sabha (Parliament) seat. The village councils, already so obliged to the monastic organization, impressed upon the people to support the *kushok*. Those not responding to this call might be deprived of the services of the *lamas*, was also stressed upon during the course of campaign. Further was the assertion that the supporters of the *kushok* will debar entry of the opponents in their houses. Prevalence of such socio-religious conditions guaranteed almost full support to *kushok* Bakula for his election to Lok Sabha. This continued with force at the initial stages. The mobilisation of the *lamas* for wider political ends was in addition to the spiritual role they have been playing. The elections to the State Assembly also experienced the interplay of religion, society and politics. This was specially exhibited when there was contest between *Kushok* Thikse and Sonam Wangyal. In 1969, when the National Congress was divided into Congress 'A' and Congress 'B' in Ladakh, the two sections were headed by the two heads of two different monasteries. One was headed by *Kushok* Bakula, and the other by *Kushok* Thikse. The Ladakhi society is so religion ridden, and so respectful and submissive to the monastic organization that it does not easily move without the latter's guidance. This may have been one reason why the religious colours are more actively given to the political activities, both within and beyond the village.

Persistence and Change Purview

A large number of elements of the Ladakhi life and culture continue to be dominated by the monastic organization. There is great deal of persistence and intactness. It is the monastic organization which holds religion, with its multiple attributes, and keeps it going. Religion as ideology, and religion at operational level are not much differing. This can chiefly be attributed to the hold of the *lamas* on the village community. People's reliance and dependence on the *lamas*, and on the religious baggage they carry, has not been adversely affected over the course of years. With this trend on, the place and nature of connected spirits, gods,

goddesses, beliefs, practices, rituals, rites, worship and customs have not experienced any drastic change. In a survey of three hundred families, it was reported that some 6.0% of the people have undergone change in respect of observance of religious practices. But they, too, have not done away with any practice as such; only the incidence of observance has declined. In the belief-complex, as inculcated among the Ladakhis by the religious order of monastery, some 4.0% of the people have reported change. Out of this section, 75.0% reported that they now give less recognition to the beliefs. The rest recognised them more. The change reported in the context of worship, spirits, gods and goddesses is only 2.0% each. Half of these respondents now express more belief in them than what they had before; the other half have less of it. With such shifts in the degree of belief, the connected performances have correspondingly been affected.

The traditional concepts of disease and cure among the Ladakhis, and as advocated by the *lamas*, have also undergone some change. But the feeling that the roots of disease and cure lie in religious phenomena, seems to be going strong. However, some have started taking advantage of new opportunities. Out of 300 respondents, 3.0% have stated that they get medical treatment from the formally recognised doctor alone. About 38.0% of the Ladakhis depend, exclusively, on the traditional curers. Those who depend on the religiousmen as well as the trained doctor form 59.0% of the respondents. But this lot gives first preference to the religiousmen. If and when the latter fail to cure the sick person, the trained doctor is contacted. In other words, the traditional ways of cure are given priority. And when this is so the monastic organization prevails upon the people. This makes the tradition prevail over modernity. Because of a broad and forceful cover provided by the monasteries, chances of deviancy from the prescribed norms are minimised. Birth, death and marriage ceremonies and rituals, involving religion and the religiousmen, hardly show any signs of change. The same holds true for *phasphun* organization. Since the polyandry is towards decline, the *chomo* formation, as also their role in the Ladakhi society, have considerably been reduced. But the dedication of sons to *lamahood* keeps on going strong. The three hundred surveyed families spared as many as 87 boys who became the *lamas* and joined the monasteries. Such a trend further strengthens the belief of the Ladakhis in monastic organization. There is perpetual maintenance of a strong reciprocity between the Ladakhis and the men of monastic order.

Like the social spheres, the traditional role of the *gompa* in the eco-

conomic life of the Ladakhis has not shown any significant signs of change. The loaning system remains intact, and the economically needy still bank on the *gompas*. But the number of such people has declined after the opening of new economic avenues in the area. However, as a loaning agency, the *gompa* is still preferred. The villagers continue to provide manpower and labour needed for various works of the monastery. The relationship of the *lamas* to concerned agricultural practices has not been several. Pest-control measures, provided by the *lamas*, are well in use. But in the villages around Leh (the district headquarter of Ladakh) impact of certain improved and approved agriculture practices can be noted. This is because of the Mutse Agriculture Farm from where certain innovations have diffused to the neighbouring villages. In addition to *lamas* worships, some Ladakhis make use of chemical fertilizers and pesticides as suggested by the agriculture experts. However, the traditional practices have not been denounced. Similarly, the irrigation potential is being exploited by the experts. But this, too, is in addition to what the *lamas* do to increase water supply. The taboos and imposition prescribed by the *lamas* are given respect by the people.

The 'structure' and 'role' aspects of the system of socio-political control among the Ladakhis have experienced the least change. The position of the *goba* and members *vis-a-vis*, the *kushok* have not been altered. There has neither been addition to them. The processes of decision-making, too, remain the same. The say of the senior *lamas* of the *gompa* stands, as before, in various matters. Rather, the *lamas* have intervened in political affairs born of the induction of wider political parties. However, this has not reacted to the local arrangement of social control, more so at village and inter-village levels. Position of Lord Buddha and the monastery's main worship room continue to have the same role as before. Even the people's response to them has not been affected.

Among others, one strong reason for the persistence of traditionality, in terms of interaction and relationship of the Ladakhi society *vis-a-vis* monastic organisation, can be the relative physical isolation of the region as a whole. With such a position, and under the most difficult ecological conditions, as prevalent in Ladakh, for human existence, the Ladakhis neither find any viable alternative, nor have the capacity to bear the load of deviancy from what has been in vogue for centuries. People seek, as claimed by the informants, maximum consolation from the religious cover

which the monastic order carries and provides. Sense of supernatural fear and belief, which the Ladakhis have inherited, has gone deep into their blood. This is encouraged by the religiousmen of the *gompa* who are the all round guide of their destiny. From human emotions to agriculture, the intervention of the *lamas* is not ruled out. Most of the time the interventions are asked for and respected by the people. By now the place and role of monastery and its organisation in the Ladakhi socio-cultural and techno-economic systems have assumed an inherent form. The Ladakhis, it appears, cannot live without it. And that is the reason why the Ladakhis take so much care of the monastery and its occupants. No less obliging is the *lama* hierarchy to the village communities. But whether their base of interaction is rationality oriented or born of superstition is left to their decision. However, the two seem inseparable. And it is likely that a similar situation prevails in all the high altitude regions of north-west Himalayas, inhabited by the Buddhists.

NOTE.—The data base of this paper dates back to early seventies when the author carried out an exhaustive ethnographic study of the Ladakhis, covering four villages at different locations.

BIBLIOGRAPHY

- | | | |
|---------------------------------|------|---|
| Cunningham, Alexander | 1970 | <i>Ladakh: Physical, Historical and Statistical</i> . Reprinted. Sagar Publications. New Delhi. |
| Franck, A. H. | 1907 | <i>A History of Western Tibet</i> . Patridge. |
| Ganhar, J. N. &
P. N. Ganhar | 1956 | <i>Buddhism in Kashmir and Ladakh</i> . New Delhi. |
| Mann, R. S. | 1975 | “Religious Attributes and Social Structure among Ladakhis”. Paper submitted in the seminar on Border Areas, organised by Anthropological Survey of India, Calcutta. |
| ————— | 1977 | Intra and Inter-family Relations among the Ladakhis of Ladakh. |

*Bulletin of the Anthropological
Survey of India. Vol. XXI.*

Mann, R. S.

1978

Eco-system and Society in Ladakh.
Journal of Social Research. Vol. XXI,

—————

1978

Ladakhi Polyandry-Reinterpreted.
Indian Anthropologist. Vol. 8(1).

Religious Proclivity of Lahaul : A Scion of Interaction

T. K. GHOSH

The religion of the majority of Lahaul can be said to be Buddhism. Of the three valleys of Lahaul, the Bhaga and the Chandra valleys are totally Buddhists while the Chandra-Bhaga valley abound in 70% Hindus and a fair portion of the rest are Buddhists. The remaining fraction are steeped in the belief of the ancient animistic faith of Lahaul, the Loong Pai Chos breed. This fraction consists mainly of the lower castes engaged in lowly professions. The Loong Pai Chos creed, however has also made deep inroads into the hearts of the faithfuls of both the Hindu and Buddhist Faiths. This indigenous creed has rites in which neither the Hindu Brahmins nor the Buddhist Lamas would assist, although they appease the spirits this belief contains.

Appeasement and propitiation of the malevolent and benevolent ones are the general practice of the population of Lahaul. Three religious cadres have incorporated and integrated the beliefs and doctrines of one another in such a way as to pave out a harmonious existence in unison, a rare phenomena these days, although retaining at the same time their separate identities.

Thus, for example, Buddha is said to be, as the Lahauli Hindus put it, the 9th incarnation of Vishnu and so venerated, while Mahadev is worshipped by the Lahauli Buddhists along with his consort, whose cult is widely practised in the worship of the arch goddess, Shungma, who has to be propitiated for well-being and general welfare, as well as protection from all other evil spirits. Mahadev again is the favourite deity of the Lahauli Hindus and in such congregation of beliefs and systematic co-ordination of deities have given something more common to dwell upon among both the Lahauli Hindus and Buddhists. This aspect of cohesion is also found with the third group, the animists. The spirit Lhu has thus found favour (or regarded as an element of disfavour) among all, to be duly propitiated and appeased, so that it may render no evil. Thus we see that the doctrines of all the three groups have found favour with each other, a fine example of corporate living and a respect for each other's sentiments.

This respect has also been translated into social interaction too. Their corporate sentimental understanding for each other has made them imbibe the cultural and social habits of each other and thus ensure a common culture pattern, even though coming from different backgrounds, with variations, of course, which is understandable because of the differences yet existing on account of following different religions. Religion, however, has never been allowed to impare the social and cultural interaction.

The Bodhs of Lahaul, nevertheless, traditionally conform overwhelmingly to the culture pattern of the Buddhists with whom they had socio-cultural affinity and interaction. However, this has not prevented their interacting socially with the Hindus and as a result of which they have imbibed the caste and class structure as well as their gods and goddesses within their cultural framework. They have also interacted freely with the spirit-worshippers, *i.e.*, the animists of the earlier Faith, from whom they have acquired the cult of appeasement and propitiation of malevolent and benevolent spirits, which are believed to exist in great numbers within the valley and the mountains that surround them.

Neither has this been a one-way traffic, nor in isolation, for the Hindus have equally borrowed and imbibed from the earlier inhabitants of the valley, *i.e.*, the Bodhs and the animists, cults and practices that have made them uniquely Lahauli, while the animists are also acculturated heavily with what is Hindu and Buddhist. The three types of faithfuls have thus partaken in the cults and sentiments of each other with a profusion that has inculcated in them some common ties that binds and transfixes them to the character of being Lahaulis as a group, a unity in diversity.

Their religious corporateness has thus given rise and fortified a common dress and food pattern as well as certain social and cultural styles and customs in common. It is a queer mixture of the origin of the Bodhs, the Hindus and the animists.

Entrance of Buddhism into Lahaul can be traced back to the 8th century A.D., when the celebrated Buddhist missionary of that era, Padma Sambhava, came to Lahaul. His name is mentioned not only in connection with the most ancient monasteries of Lahaul, but even with regard to the Hindu places of worship in the adjoining areas. It was he

who is said to have founded the renowned Guru Ghantal monastery. Buddhism has thus been extensively saturated in the region, although its dogmas bear the profound influence of the earlier animistic faith, the Loong Pai Chos breed, as well as that of Hinduism, whose followers penetrated the valley at a later date. Hence, people are so mechanically devoted to Buddhism that prayer in the area has been reduced to a sort of reflex and spontaneous action and the prayer wheel is a common sight.

Hinduism came centuries later with the Kanets immigrating into and settling in the valley. It is mainly confined to the places where this set of people settled, *i.e.*, the Pattan or the Chandra-Bhaga valley of Lahaul. Hinduism gave much of its own to the valley as much as it took from its predecessors already well-entrenched here. Temples to *devtas* and *devis*, and to snake-gods, are frequent in the Pattan.

The original faith of the valley is the Loong Pai Chos breed with its belief in spirits, benevolent and malevolent. The Scheduled castes in Lahaul are steeped in the belief of the faith, although this faith has influenced both the Lahauli Buddhism and Hinduism to a great extent. Thus the worship of Gyephan, the god of the snowy cone mountain of the same name is universal. Incidentally, Gyephan is the Patron deity of Lahaul and hence one can understand why his propitiation is universal for protection and safe conduct in an otherwise unwelcome and even hostile ecological surrounding.

The Gyephan *Devta* is a remnant belief of the earlier faith that prevailed very widely in the area before Buddhism made inroads into the region. Portions of this faith was naturally incorporated and perpetrated in the beliefs of both the Buddhists and the Hindus that followed respectively. Thus writes Rev. Hyde in 1868, quoted in the Kangrā District Gazetteer, 1897, "there existed a...religion in Lahaul before 'Buddhism' got hold of the people, and the latter has not been able to suppress it entirely".

Thus Gyephan or Gephan and Chugma are universally worshipped. It is said that evil is wrought upon those who care not for them. Stone upon stone is laid and flags are attached with prayers. The villagers also offer *ghee* and rancid butter. Another figure or spirit featuring in a universal worship is the spirit Lhu. Lhu is a spiteful spirit and universally important and propitiated to avoid reprisals, such superstitions are well

impressed upon all and centuries of development and progress have not been able to erase these out of their minds.

By and large Buddhism in Lahaul conforms to a particular Mohayan form of Buddhism, which is Tantric (mystical) in character and which is a copy from Hindu mysticism.

The Lahaulian society, whether Hindus, Buddhists or animists, is dominated by religion which forms the basis of their living and everyday activity. The general belief is embalmed in superstition, although views are changing. Participation in religious fairs and festivals or festivities is large and almost universal, irrespective of inherent beliefs.

The Buddhists have their monasteries, the Hindus their temples and shrines, and the animists their natural places of worship near streams and cataracts, and under trees and mountains. But their respective worship centres are neither segregated nor seclusive. They freely inter-communicate, even though maintaining at the same time their religious identity.

The extent of adjustment and pliability of the Buddhist Faith and its tolerance and endurance played a veritable part in the respectability of men and ideas with different sentiments, and these qualities have been responsible for its widespread perpetuation in this remote Himalayan belt, as well as its survival there. The same liberalism was meted out not only to the Hindus, who came and settled in the valley and got conditioned by the prevailing atmosphere, but also to the Christian Missionaries with whom they freely interacted but did not give in to their proselytism, formidable as the organization of the latter may have been. The interaction with the missionaries were very free, fair and sincere. But in as much as they even freely participated in their Sunday services, and that included the *lamas* too, they never took to Christianity in any big way. Thereby, the pliability and flexibility of their faith paid and worked to show the stead-fastness of its followers due to the accommodating nature it ever meted out to all, as well as its acceptability or receptiveness.

Its striking accord with its progenitor, the Loong Pai Chos creed can be well borne out by the fact that though a superior religion, it compromised with this creed to such an extent that it tolerated amicably with its continuous and simultaneous presence and perpetuation. It is permitted to continue with its faith and places of worship and incorporating much of it, so much so, that throughout the length and breadth of Lahaul, one

comes across small shrines dedicated to Gephan, the patron deity of Lahaul from the ancient animistic times. He is supposed to be consort Chugma. Chugma again is regularized by the Hindus, so as to enable them to strike out some sort of compromise formulae through which they can also participate in its worship, by associating her with Durga. The Buddhists further strikes an accord with the worship of Chugma as a consort of Shiva, who is another incarnation of Buddha, thereby giving rise to another theory that Gephan is none other than a personification of Shiva himself. It is a complicating and confusing analysis. Nevertheless, to this analysis, then, all the three types of faithful can thus freely contribute, and participate in worshipping somebody in common without any inhibition and without hurting the sentiment of anybody. And, since Christianity could not compromise with such queer confabulations, therefore it could not strike deep roots with these people, and had to opt out.

Inaction between the Buddhists, Hindus and animists has led to the implementing of the superstitions and traits of each other. Thus their cure sometimes requires the services of the *goor* or *seer*, *i.e.*, a kind of witch doctor, sometimes the services of a Hindu *bhatt* and sometimes the Buddhist *lamas* or *amchis* (indigenous medicinemen). The services of these medicinemen are requisitioned by all, irrespective of their respective faiths, as and when the need may arise, although members give preference to their own personnel first. Sometimes these medicinemen themselves suggest when and under what circumstances to requisition each other's services. Various magico-religious services and ceremonies form part of Lahauli social and religious life, every aspect of their culture being deeply impregnated with religion and magic, and recourse is taken to indigenous remedies, such as the indigenous medicineman and magico-religious ceremonies. Modern medicine is given a try only when all others have failed to initiate an effective remedy.

In spite of all this, the people have faith in their respective religions and have maintained their individual identities. The Buddhists have more faith in their *gompas* and *lamas*, the Hindus in their shrines, idols and Brahmins, and the animists in their spirits and magico-religious ceremonies and nature's gift of their places of worship or reverence. The three groups, even though co-operating with each other, have not forgotten their separate identities, nor do they tend to minimize it. The respective ceremonies are still conducted in the traditional way, despite changes around them. The fear of the unknown still works within them to adhere to the

intricacies that the situation may demand, although in no way undermining the sentiments of each other. Thus they even accepted Christianity as a form of religious revival which could well be accommodated within the framework of their own religious organization. Thus the *lamas* even joined in the religious services of the Maravian Mission while it was there. Nothing was discounted, something was just preferred.

The proclivity thus born out of this interaction among the three communities of faithfuls has resulted in a greater degree of tolerance than is found anywhere else in the country and has given them a common heritage. The cohesive factor of this tolerance is the vulcanization of each other's religious tenets and beliefs and assimilating them into each other's religions. This imbibing of each other's beliefs into their respective religions has more than been the main cause of the cementing factor. For, by doing so, they have regularized into their own beliefs the validity of each other's religious leanings, leading to, not only respect, but a bond of unity among them all, when and where they have much to share in common. This is truly a product of the great degree of interaction and co-operation that the environment may have prompted in the area. It has produced an assimilation and fusion of ideas and sentiments so that each may make the others his own. For, when man learns to respect man and share in each other's beliefs and values so as to make it their own, a common bond is created, wherein there is no room for dissent and bitterness or disrespect or dissidence. For, by doing so, they would then be exposing their own beliefs and dogmas to question, and it, in itself, would be self-defeating.

Hence, there are even festivities and rites in which it is incumbent for one another's clergy to perform. The requisition of the services of each other's officials itself displays how much they have made themselves dependent on one another and co-operate within the respective religious arenas, so as to work out a corporate living and a cohesive society, where independence of conscience is guaranteed by dependence in relative matters.

The overall religious picture, thus produced, reflects truly a unison in harmony, to realize which, has been quite a bit of achievement. It has solved their parochial problems, which may have arisen, once and for all, and has tended to set an example of true secularism in action. The hatred which so often besets to divide and disintegrate the society, arising out

of conflicting religious tendencies, beliefs and ideas, simply does not exist here.

But the combined impact of the junction of three faiths in Lahaul has resulted in a multiplicity of their superstitious beliefs. For, in addition to one's own, they have borrowed each other's versions to regard, and that has resulted in such weightiness in religious matters, that it is having an adverse effect on the educated class. For, when religion becomes weighty, logic and reason disappears and the essence is apt to get diluted to such an extent, that it tends to become so insignificant, as to get lost and disappear. And this, if not checked, results in gradual loosening of the hold of religion on the masses. This is exactly what is happening in Lahaul. For with spirits and demons, gods and goddesses, and the powers of darkness, they have all together rendered the average Lahauli totally dependant. This has led to the performance of various kinds of ceremonies, witchcraft, magic and sacrifices to ward off the evil and ensure good. Faith has become a superficial phenomena and the depth of the matter has become ineffective. Many educated men are not prepared to accept all this. They want something more logical to believe in before they can consolidate their belief in religion. They, today, want a streamlined form of belief and worship, rather than the overwhelming affair that it is, to suit their present day needs and circumstances. For with present day education, they are less inclined to be burdened with unnecessary paraphernalias and their educated mind no long is impressed with august ceremonies and overburdened articles of faith, although they still draw sustenance from it, as and when the need arises, to the extent they are able to logically or paralogically digest. It is for this reason that we find to-day a general slackening of religious tendency amongst the latest generation.

A reorientation to suit present day conditions and circumstances is required for Faith to prevail and perpetuate.

Communication Pattern in Sirmur Village

RAMESH CHANDRA

Communication is a means of 'shared behaviour', continuity of culture and affect of change in society. It is an innate instinct of human behaviour ; although among some other living beings also communication patterns have been established by sociobiologists. Among the human beings communication works as source of sharing feeling and emotions, exchanging ideas, imparting training and teaching desired material, cultural values and norms and thus maintaining culture ; instructing about certain ways of doing things, ideas, knowledge and thereby affecting some change in the receiver's perspective regarding culture with some planned and purposive communication. A mixed feeling of sharing of the cultural values and norms among themselves and transmit it to the coming up generation to let their culture continue in its consistent form on one hand, while on the other, developing it under pressure of change agents and changing conditions with the alternatives available for the betterment of the society as such, these all have bearing on communication only. In fact, communication is continuous—a never ending process with no beginning or end. "Every cultural pattern and every single act of social behaviour involves communication in either an explicit or implicit sense" (Sapir, 1930). Communication is both a process as well as an 'end product'. As a process it is defined in terms of 'transmitting information from a source to the receiver with the sole idea of causing some behavioural change on the part of receiver' (c.f. Agarwal, 1978). In the process of communication elements involved are source and receivers primarily often with some aids like agents and via-media depending upon situation in which communication takes place. For instance, communication pre-literate societies is by and large oral in nature whereas in literate societies it may be, in addition to verbal communication, through print, graphic pictures and other symbols ; still in complex situations aids like sophisticated electronic tools, *viz.*, television, radio and such other things. When communication is viewed as the 'end product' it is reflected in terms of culture that any group of people possesses ; the total socio-cultural perspective of any society has solid base on communication as their members present in their life-style. The culture can not be maintained, or exist, in its consistent form, without communication. Infact,

“Society is a sum of relationships in which information of some kind is shared. ...Human communication is something people do. It has no life of its own. There is no magic about it except what people in the communication relationship put into it. ...*To understand human communication we must understand how people relate to one another*” (italics mine, Schramm, 1973).

This relationship pattern and interaction of human beings in a group, society or culture is the ‘end product’ of communication.

Oral or verbal communication is the characteristics of rural/tribal non-literate societies ; and various communication patterns have developed on this line in such societies. However, such communication patterns are known only in exiguous manner. Nevertheless, these are so essential and important for the survival and continuity of any culture. Studies on communication patterns in India have been only a few, that too not directly since this dimension of looking at the culture could not get any attention earlier. To illustrate the point Majumdar threw light on intra-cultural communication while dealing with his data from a U.P. village (Majumdar, 1958). Damle (1956) similarly highlighted the importance of folk tale as an input of communication to teach the social and cultural ideals and thus preservation of traditional culture. Some other studies on communication patterns and communication agents in varied areas are of Dube (1967), McCormark (1959) and McKim Marriot (1959). These in general deal with communication as the ‘end product’. Studies done by Roy *et. al.* (1968), Danda & Danda (1971) and Gaikward & Tripath (1973) are in the light of developmental communication. The communication anthropology as such got its rise in India with the studies conducted during the time of Satellite Instructional Experiment done by the Space Applications Centre, Ahmedabad ; although it was also directed towards developmental communication. However, the communication anthropology but obviously lays emphasis on cultural aspects of societies as has been demonstrated, indirectly, by Majumdar, Damle and McKim Marriot in whose works stress has been on the understanding as how a cultural group communicates within itself to keep its culture alive.

Present paper is an attempt in the direction of understanding the communication patterns in operation in a group behaving as cultural entity

having some distinct social practices like polyandry which forms the basis of their social structure. These patterns have been explained in terms of:

1. Communication patterns that help in continuity of the culture.
2. Communication patterns that effect or atleast attempt to bring or cause social cultural change, and
3. Communication pattern emerging within the cultural group as effecting change or absorbing 'world view' of broader culture.

The discussion held here are based on my personal research done in Trans-Giri tract of Sirmur district of Himachal Pradesh during 1972-74. This exercise is infact, a by-product of the main research on study of polyandry (Chandra, 1975).

II

District Sirmur is situated in the south and south-east of Himachal Pradesh in the outer Himalayan range. The district is divided into three tahsils namely Nahan, Pachhad and Dadahu. The village studied in Sirmur, which I call Renuka, is situated in the trans-Giri tract of Dadahu. It is located at a height of nearly 2000 metres and is relatively an interior village of Sangrah development block. The Block headquarters is located some 10 kms. away and all developmental activities are controlled from here for Renuka. The village is a multi ethnic village having some seven ethnic groups of which the Rajput Kanet are the most dominant people from all respects. They are being followed by the Koli—a Scheduled caste people and then by the Brahmins and so on.

*Table 1**
Various ethnic groups in Renuka

Name of Ethnic group	Households	Population
Rajput Kanet	33	232
Koli	21	123
Brahmin	13	73
Dom	4	19
Lohar	2	14
Agrawal (Vaisya)	1	7
Sunar	1	1
TOTAL	75	469

* Figures were collected in 1973.

These various ethnic groups have some set order of social hierarchy, and this is reflected in their address system as well which is learnt by the children to let continue the practice. The appellation 'Sirmurese' is for all these groups in common. The Sirmurese of Renuka village follow, in the broader sense, similar cultural pattern and believe in same tradition, folklore and tales and the crux of social structure and value system. In general these people have practice of polyandry with its allied forms (Chandra, 1975). The polyandry works as nucleus of the 'domestic group' and basis of their social structure.

"The basis of economic system in this region is agriculture coupled with sheep rearing, domestication of animals (cow and some times buffaloes), recently introduced horticulture (apple orchards) and the specialized occupations depending upon one's affiliation with the artisan caste groups, viz., smithy, weaving and leather work, etc." (Chandra, 1981: 205).

The entire inter-personal behaviour and social interaction among these people is based on institutionalised behavioural pattern under the network of kinship. Society being polyandrous, there are many common terms and distinct patterns of kinship.

Though Renuka is relatively an interior village, yet it is not far from the clutches of developmental agencies. A *gram sewak* representing the Block Developmental agency, keeps constant touch with the people. One village *Batwari* also lives in the village. Besides, many other developmental agents like people from Health Department, Social Welfare Department and above all school teachers are also in touch with these people and their communication input and process has some concrete role to play in Sirmurese's life style. These communication agents work primarily for some development programmes launched by the government and other agencies working in the similar lines.

It is important to note that among the Sirmurese some people have better exposure to outside culture and are equipped with ideas of betterment or atleast can judge and analyse the weaknesses of their culture as such. These people have taken role of reformers and are engaged in the social upliftment of the Sirmurese in general. They have generated a different kind of communication pattern which works at two levels. They can be referred to as 'Local elites-cum-leaders'.

III

Communication pattern that helps in continuity

This deals primarily with intra-cultural communication. The main function of this pattern of communication is to help continue the existing culture in its consistent form. This gives the idea about the operational mechanism of day to day working with intent effort on learning and practising the same behavioural pattern as is thought model for the Sirmurese culture. The 'continuity pattern of communication' has an essential element with it for its functioning, and that is called socialization. As a matter of fact socialization and 'continuity pattern of communication' are quite interdependent for the continuity of any culture rests upon the incoming generation represented in the form of children of the society. With the socialization and 'continuity pattern of communication' the Sirmurese children are taught about the Sirmurese culture in its totality to let it continue.

The Sirmurese have ample scope to socialize their children in natural way without taking any special effort in imparting instructional communication material. This communication occurs more effectively during direct conversations are even indirect references of happenings and instances occurring in village life. The children learn about their cultural treasures, norms and behaviour pattern right from their home, peer group, elders in the village and outside to the any possible source. As a matter of fact socialization of children starts right from the household level, where child gets kin of primary level, and school for learning operational models of the society. The Sirmurese household is a unit of several brothers having a common wife, in polyandry, or wives in 'polyandry and polygyny' (polygynandry) and unmarried children as well as *dhyanti* (married girls who have not gone to their husbands' house or have come to their natal homes for long durations). In other terms the children are with their mother and her husbands. It is from their homes they start learning social relationship and kinship structure of the household level. Communication going on between different members makes them learn that all husbands of their mother stand as father only to them irrespective of the fact whether they are biologically fathered by the particular man or not. Similarly all women standing equal to their mother in relation, *i.e.*, co-wives of the polyandrous union, are addressed as mother only. To be precise, children learn the usage of kinship term *ama* and *baba* for all the males and females standing equal in status and relation. The eldest

son of the household is given different kind of communicative thought just to transform him into the next seniormost male member of the house. Children start experiencing tough life conditions and working pattern from homes only since indirect communication in terms of others doing works is seen by them. For example girls learn household chores even before they are teens in age. This is so because they remain with their mother's sisters, *phoophi* (FS), etc., in the activities of cooking, fetching water and hewing the firewood and grazing of the sheep or domestic animals. It is from these places they confront with the communication on various areas like social relationships, conjugal relations and knowledge about sex and free life that prevail among the women of Renuka and surrounding areas. Then, sharing of village information, specially regarding intimacies and pre-marital and extra-marital relations of village women—known and unknown both, with their peer group gives them a lot of understanding as how their 'world' operates. While entering into the communication with elder women or sharing their communication with others, and in some cases public discussions in the village are enough communication sources for the young people to imbibe the values of their culture. How important is the communication within the peer group, has been demonstrated by Mājumdar from a similar situation in Jaunsar-Bawar area of the Khasa who are also polyandrous. "Children playing in courtyard of a house, take counsel from the eldest child of the house and break up the play when latter signals to do so. ...Children showing and exposing their private parts and making suggestive gestures. Elder boys on the slightest pretext will touch their private parts and scratch in presence of others...." (Majumdar, 1953). The young girls even know the merits and demerits of their being passing through the stage of menstruation, child bearing and remedies from that, these all are known to them by communication—direct or some times indirect in nature. Similarly boys get to know about so called free life of the Sirmurese from their peer group, even when the young husband of the polyandrous union comes of age his common wife communicates with him as to how to do it; or he may be told by his friends on this subject.

Communication pattern with hierarchy is well taken. The Koli and other low caste people do not address the Rajput Kanet and the Brahmins by their name; whereas in the reverse case it is always that the latter two call all the lower caste people by their name irrespective of age or any other criteria. Now this pattern is either learnt or corrected in homes and communication in this regard is usually indirect, by earning from

others' way of doings, *i.e.*, their elders in the village and home. Similarly maintenance of social distance in terms of entering higher status groups' houses, temple, etc., is also communicated to the young members by their elders in practical manner; and the same may figure during conversations between the children of different ethnic status. This aspect also has a set communication sense while the children of different groups meet at any place on some social occasion, etc.

Communication of oral tradition and 'cognized model' of the Sirmuri society is done through folk songs and folk tales which are so rich in their contents. In one sense or the other they reveal the cultural values operating in the society, dealing with social life and practices specially centering round polyandry and 'free life' style. Popular *gangi* (duate songs) can be heard echoing the atmosphere of Renuka; and the singers are the young, old and even children. Often even through these *gangis* young boys and girls communicate with each other their love and fancy. The folklore contains cultural material believed to have existed in reality at one time and hence is taken as lesson to be practised.

Another dimension of intra-cultural communication is of village panchayat which is attended by all including children as silent observers. From proceedings and discussions going on openly about village affairs also communicate considerably well the behavioural pattern of the village. The disputes generally deal with frequent shifting of women from one husband unit to another, *reet* (money to be paid as marriage expenses to the former husband by those taking the woman, *i.e.*, wife of the former husband or group of husbands), paternity of the child, land and other property and problems of domesticated animals, etc. Communication of such information about 'own system' helps in the continuity of the culture to a great deal.

Communication pattern that effects or atleast attempts to bring or cause social/culture change

Renuka, as said earlier, is relatively an interior village, yet it is not far from the clutches of developmental agencies. The development Block, Sangrah takes care of this village for all sorts of developmental activities, besides some more governmental agencies as well. The *gram sevak* communicates, on behalf of the development block agency, with the Renuka people. He translates all the schemes into practice. He acts as a source of communication material of developmental nature; he also acts as a

process of communication for he interprets the developmental information to the people. He is usually charged with the information on agricultural inputs, modern methods of doing cultivation, social welfare schemes like advance of loans on various counts, subsidies available on purchase of draught animals and delivery of sewing machines to the needy and deserving people, etc. For all such communication materials the *gram sevak* communicates with the adult population of Renuka, both men and women. He infact, brings new ideas, information and betterment to the local scene.

There is a High school in the vicinity of Renuka village. This school also sets a pattern of communication for Renuka people—the pattern of instructional communication for Renuka young generation in terms of students, and bringing or causing some change in the thinking pattern of the adults. The school system or instructional communication causes effective change in orientation of the young pupils by exposing them to the larger social values and complex life style through various courses dealing with variety of information, knowledge and inspiration to adopt those values. More often than not the teachers come from lower plain areas and having different social system specially not having practice of polyandry and things of that kind. As such their presence, behaviour and interaction with the Renuka people causes considerable effect on the people to take some, if not full, thoughts and ideas which may better their style of thinking in the social and economic set-up that otherwise is quite traditional in looks and approach. Thus school has become sharp tool of communication for it cuts both ends—young children as well as their parents—to bring change or atleast tries in that direction. The villagers communicate with school custodians, the teachers, with expectation of gaining some better from them; and this communication pattern is maintained at a formal level without allowing much intimacy to it. Likewise, change agents from the Health Department, Family Welfare, Social Welfare and other organizations set pattern of communication highlighting the motives of their working in the interest of the people. There is no denial to the fact that this pattern of communication has been effective; and positive results are being experienced by those involved in it.

Communication pattern emerging within the cultural group as effecting change or absorbing 'world views' of outside world

The communication pattern has now come to stay in Renuka. In each society or culture comes a time when its own members are able to

interpret and reinterpret their own cultural values and can make some judgement about it. This stage creates movements in the society from within, *i.e.*, by its elites and other awakened members. However, it is a time consuming phenomenon as the society has to pass through the stage of exposure and opportunity to learn new experience. With the considerable and constant contact with the communication agents described earlier. Renuka has and can boast of having elites and awakened people who have good knowledge of outside world and the life style of different pattern prevailing in larger social milieu. There are some village people quite versed with the idea of change in the positive direction. Such persons hold positions as government servants, school masters and are also in fore front of politics. Knowing so well about their culture and its weakness (in their sense of understanding after comparing it with other cultures). These elites when confronted with outsiders try to refrain from divulging their cultural practices or, on deep query leave no stone unturned to hide what they think 'not good' portion of their culture. This has obvious reference to the practice of polyandry, child marriage, custom of *reet* and 'double standard of morality' for their women and aspect of paternity, etc. This function of them can easily be termed as 'Absorbing effect' since they try to conceal, or 'not let the things go out' to 'outsiders'. This is just one aspect of absorbing effect. The other one is that they at the same time, also keep abreast with the so called 'good' of the outside culture with them to be imparted to their own people at proper times. For this they take opportunities like social festivals, religious congregation of their people and personal discussions, etc. I had attended some such events during my course of stay and found that in such gatherings they ridicule their cultural practices for want of enlightenment of the people. While doing so they show an inclination towards 'modern complex life style', monogamy being practised by others and high education, etc. Since they belong to the same culture, their words have more effect on their people as the dimension of homophyllic communication creeps in the situation. This pattern of communication is getting momentum in the Sirmuri society with the increasing number of educated youths and ever increasing exposure to outside world.

IV

Among the Sirmurese, like any other society, these communication patterns, as described above, work simultaneously. All the three patterns have their own intrinsic value for the first one works in the interest of

cultural continuity, second one is compulsive force from the 'dominant culture group'; and the third one has come up from within the group as a result of synthesis of the first two patterns of communication. No doubt, each pattern is independent of its own, yet it derives force from the other patterns. However, by and large, it is seen from the case of the Sirmurese that the first pattern that works in the interest of continuity, is stronger than any other for the cultural continuity is an important dimension of any culture for its survival and perpetuity. Nevertheless, patterns causing changes or are attempting that, are in vogue and making their dent visible since no society can keep its members traditional in the true sense of it and no culture can preserve itself without change. Above all, communication is effective and generates change for good. The Sirmuri communication patterns only add substantial evidence to this fact. The communication pattern emerging within the group is somewhat a new dimension of communication for it is to be found only in the societies or culture where the compulsive force from the dominant culture group has already been effective for a considerable period of time. However this new dimension is quite forceful in achieving its target of transformation of the society in desired direction of those 'local elites' and leaders involved in the process. The Sirmuri society has considerable strength of such pattern, and hence may show some positive changes in its culture due to the communication patterns operating in the society.

REFERENCES

- Agrawal, B. C. 1978 *Satellite Instructional Television Experiment: Television Comes to Village*. Bangalore.
- Chandra, R. 1975 Polyandry in a Himalayan Village. *Bulletin Anthropological Survey of India*. Vol. XXIV (3 & 4), Calcutta.
- _____ 1977 Socialization and Polyandry in 3rd Proceedings of Ethnographic & Folk Culture Society, Lucknow.
- _____ 1981 *Sex Role Arrangement to Achieve Economic Security in North Western*

- Himalayas' in Asian Highland Societies.* Ed. C von Fürer-Haimendorf
Sterling Publishers, New Delhi.
- Damle, Y. C. 1956 Harikatha—A Study in Communication in *Bulletin of Deccan College*, Poona.
- Danda, A. K. & D. Danda 1971 *Development and Change in Basudha: Study of West Bengal Village.* National Institute of Community Development, Hyderabad.
- Dube, S. C. 1967 A Note on Communication in Economic Development. in *Communication and Change in developing countries.* Hawaii.
- Fischer, J. L. 1973 Communication in Primitive System. in *Hand Book of Communication*, ed. Solapool & Wilbur Schramm, Chicago.
- Gaikward, V. R. & B. L. Tripath 1973 *Rural Social Structure and Communication in an Indian Village.* Indian Institute of Management, Ahmedabad.
- Majumdar, D. N. 1953 Children in a Polyandrous Society. *The Eastern Anthropologist*, Vol. VI (3 & 4).
- 1958 *Caste and Communication in an Indian Village.* Asia Publishing House, Bombay.
- Marriot, McKim 1959 Changing Channels of Cultural Transmission in Indian Civilization. in *Intermediate Societies: Social Mobility and Social Communication.*

- Parmar, Y. S. 1975 *Polyandry in the Himalayas*. Vikas Publishing House, New Delhi.
- Philip, Mayer (ed.) 1970 *Socialization: the approach in Social Anthropology*. Tavistock Publications, New York.
- Roy, Pradipto, et. al. 1968 *Communication in India*. National Institute of Community Development, Hyderabad.
- Sapir, E. 1930 'Communication'. in *Encyclopaedia for the Social Sciences*. Vol. 4.
- Solapool & Wilbur Schramm 1973 *Handbook of Communication*. Rand McNally College Publishing Company, Chicago.

Health practices of the Jaunsaris : A Socio-cultural analysis

S. N. H. RIZVI

The study relates to the Jaunsaris, a tribal population of Jaunsar Bawar in the hilly region of the district, Dehra Dun, Uttar Pradesh. This region is divided into 39 *khats* and 385 villages. It is somewhat oval in shape and situated in the north of Dehra Dun district.

Jaunsar-Bawar is surrounded by Tehri Garhwal and Uttar Kashi in the east and north respectively and Bushahr, Raiengarh, Taroch, Jubbal and Sirmur in the west and beautiful Doon valley in the south. This region is situated at the north-western end of U.P. covering an area of 343.5 square miles.

The whole body of literature and data on traditional medical beliefs and practices that had been gathered by anthropologists in earlier years, their information on cultural values and social forms, and their knowledge about the dynamics of social stability and change, provided the needed key to many of the problems encountered in these early public health programmes. On the basis of the studies of cultural values and social norms, the anthropologists were in a position to explain to health personnel and administrators that how these traditional beliefs and practices conflicted with western medical assumptions, how socio-cultural factors influenced health and diseases, how these cultural factors took care of health and cured illness, and how health and disease were simply aspects of total culture patterns, which changed in the company of broader and more comprehensive socio-cultural change.

Problems of health and illness are inextricably related to physical, behavioural and environmental factors. Each of these factors contributes to the kinds of problems encountered in medical management (Katz & Zlutnick, 1975: 1).

In 1872, a Public Health Association was established in America by the name of the American Public Health Association (APHA) and the official seal of APHA at that time depicted the figure of a woman kneeling, hands outstretched, beneath a tree. Upon the seal, these words

were inscribed, "And the leaves of the tree were for the healing of nations".

Health is no doubt a major concern of community development. One of the aims of the office of the Ministerial Assistant on the community development, the official arm of the Indian Government responsible for community development, is to "Improve health and sanitation—by developing an understanding of basic public health theory and practice to replace as inevitable" (cited in News Letter—April of Indian National Commission for UNESCO, 1975: 19).

In spite of tremendous strides in medicine and technology, problems such as malnutrition, communicable diseases, parasitic infestation and such others continue to take a heavy toll of life of the people especially in the disadvantaged areas. The low health status of people in these areas has not only manifested itself in terms of morbidity and mortality rates, but has also affected human development and the capacities of individuals to lead a full productive life (*ibid*).

The growing recognition of the value of the behavioural sciences to medicine and public health during the past few years has brought about diversified researches and studies along the socio-cultural and psychological aspects of community health and how these forces are related to the acceptance of health measures. While most of these studies have been conducted abroad, a few such studies have been undertaken in India. But the interest in studies of public health and medicine in India is comparatively of recent origin.

Elwin started work among the tribes of Mandla with a small medical center in Patangarh and as he came to study tribal cultures in totality he tried to see the relation of culture to health and medicine (Elwin, 1941, 1942, 1943 and 1950). All these help to understand the place of culture in tribal health and medicine.

Gould (1957) observed the occurrence of an interaction in the folk culture between systems of primitive and scientific medicine. This interaction tends to create a division of function between the villages and the scientific modes of healing in which the former tend to serve the chronic non-incapacitating dysfunctions while the later serve critical incapacitating dysfunctions.

Khare Observes :

“A detailed account of the concept of Jamega (tetanus) clearly reveals gradual elaboration and sanskritization of ideas regarding diseases as we move from lower castes to higher castes. The higher castes think about a disease more with the help of the ideas embodied in the greater tradition, while the lower castes largely seek explanations in spirits, impersonal forces, and tribal gods. These latter beliefs are mostly local in contact. There is also a difference in the elaboration of ideas as we move from lower to higher castes” (1963: 38).

Leslie (1967) has also proposed a somewhat similar approach which focuses attention on the social settings and networks of communication within which health traditions are modified. He suggests that:

“New research may conceive of popular health cultures as little traditions in relationship to the great traditions of modern and indigenous medicine, with different levels of tradition undergoing processes of sanskritization, modernization and parochialization” (1967: 38).

Hasan (1967) in his study “Cultural Frontiers of Health in village India”, noticed two types of social and cultural factors that affect the health of any community.

(a) Factors that directly affect the health of the community because certain customs, practices, beliefs, values and religious taboos, etc., create an environment that helps in the spread or control of certain diseases, (b) Factors that indirectly affect the health of the community as they are related to the problems of medical care to the sick and invalid.

Madan (1969) has examined certain influences like rural or urban upbringing, age, education, occupation, income and religion of person on his acceptance of modern medicine for himself and for planned change.

During a microbiological study in Vellore, Lozoff *et. al.* (1975), noticed that children with diarrhoea who became severely dehydrated, were not often brought for allopathic treatment. Diarrhoea was considered an individual disturbance of function that allopathic medicine could appropriately treat. Allopathic medicine interprets dehydration as

a complication of the physiologic disturbances of diarrhoea; proper fluid management is the treatment for both diarrhoea and dehydration. In contrast, dehydration was believed to indicate a state of pollution that required ritual purification (1975: 353).

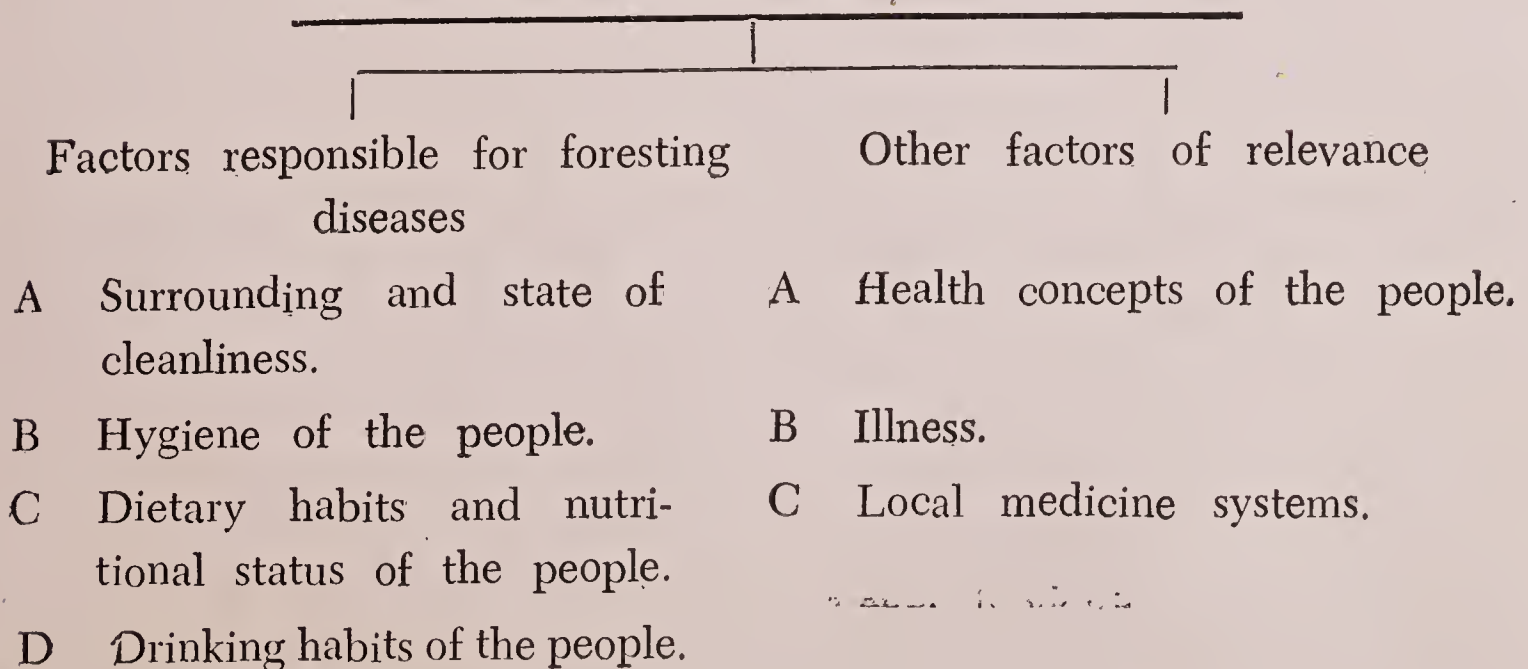
In recent years, modern medicine and techniques are being utilised for purposes of checking and preventing diseases and of improving public health. Scientific investigations have been initiated in a number of disciplines to attack the vital question of assessment of health of a community.

Great interest has been shown in it also by the Ministry of Health and Family Welfare of the Government of India, as well as State Governments. Occasionally, these studies have found their way into the decision-making process of the Government and influenced them to some extent.

The study was undertaken to examine the state of health and the effect of different factors on health among the Jaunsaris. It was realised that, climate and geography, belief, isolation and poverty influence attitudes with regard to health, and states of illness, to a very great extent.

The factors affecting the health of the Jaunsaris can be divided into two: The first category includes those factors which are responsible for fostering diseases in the people and the second category all such factors which affect the health of the people in an indirect way—including attitudes and customs of the community and some demographic features of the population.

Factors affecting the health of the Jaunsaris



Surroundings

The natural resources that surround human habitations are agents influencing the state of fitness of a community. Use of available natural resources can be off benefit but improper use or misuse of these will cause a number of problems of great concern.

Water

The survey of sources of water has clearly revealed that the Jaunsaris suffer from lack of clean water to drink, although water as a cleansing agent and for domestic purposes is obtainable and not far from their reach. The water is probably heavily polluted due to waste thrown in it. While the same water at one place is used for drinking, at a nearby place it may be used for washing. *The same water resources are used for all purposes.* The idea of purity of water conveys hardly anything to the Jaunsaris, and they make no effort to preserve the cleanliness of the drinking water. Therefore it is possible that contaminated water could result in a number of *water-borne* diseases, *e.g.*, cholera. Even when people are ill their faeces and vomit are conveyed to the same water resources that are used for all purposes, as the clothes of patients are washed in such water, sometimes their excreta are thrown into them, and the dead bodies of cholera affected people too.

Housing

In Jaunsar-Bawar area the houses are nucleated. Despite the abundance of space, houses are of very small size (crowded), possibly due to the cold climate and hilly topography. The houses have hardly any arrangements for light and air, though both are available in abundance. Poor lighting during night hours, absence of suitable exits for smoke, *i.e.*, too much smoke in crowded and ill-ventilated houses may be the cause for prevailing eye troubles. Non-availability of fresh air during night time (sleeping time) favours respiratory troubles. The traditional customs, ignorance (illiteracy) and poverty on the one hand and the cold climate on the other are the main causes for the Jaunsaris living in this fashion.

Absence of an efficient drainage system in the Jaunsari villages favours germs of different bacterial diseases, *e.g.*, diarrhoea, dysentery, typhoid and paratyphoid fevers. Flies which also breed in the dirty water of ditches, may carry the polio virus from sewage to food during

the monsoon; and this may be aggravated by the habit of defecation in the open.

Since the Jaunsaris do not have a clear idea that flies and insects are responsible for transmitting diseases, they do not take measures to check their breeding, just as they do not bother to purify drinking water.

The Jaunsaris are also not aware of the fact that certain diseases may be caused or carried to man through animals and they keep some of their domestic animals inside the house. So domestication of animals unconsciously plays a definite role in perpetuating an insanitary environment and certain infectious diseases are transmitted to man by animal sources of infection such as urine, faeces, wool, hair, saliva, etc.

Certain intestinal parasites like *Tapeworms* and *Ascaris* complete their life cycle in two stages (one within cattle and other animals, and the other in man). In this way these intestinal parasites infest man. The presence of these host animals close to the Jaunsari habitations certainly increases the chances of infection.

Smiley and Gould (1943) indicated that, "The bacilli and spores of tetanus (lockjaw) have their natural habitat in the intestines of horses, cattle and certain other domesticated animals". Rabies and plague are known to be transferred to human beings from other animals. Tapeworms and other intestinal parasites of hogs, cattle, dogs may secondarily infest man (cited in Hasan, 1967).

Excreta Disposal

Improper disposal of night soil and human excreta are responsible for (i) direct infection in man; (ii) the contamination of soil or of ground or surface water; (iii) the possibility of disease transference to man through the agency of insect or animals.

The habit of going outdoors for defecation is another factor responsible for hookworm infestation. The eggs of hookworms pass out with faeces and are deposited on the soil. These may be scattered to nearby soil by rains and wind. Where the soil is particularly sandy, moist and warm, these eggs may develop into larvae. These larvae usually find their way back into the human body through the skin of the bare foot. The retention of wet soil or mud between the toes greatly favours the larvae's entry into the human body.

HYGIENE OF THE JAUNSARIS

Teeth cleaning

The Jaunsaris bother very little about basic hygienic practices. They appear to be less conscious of the *utility* of cleaning the teeth. As age increases the regularity of cleaning the teeth decreases, while the frequency of cleaning the teeth increases with education. We can predict that literacy may bring about a change among the Jaunsaris in dental hygiene.

The habit of not cleaning the teeth is responsible for the foul breath from their mouth, and may cause tooth decay. Those who clean their teeth with 'datoon' do not seem to have dental problems.

Bathing

Bathing too is related with climate, belief, and level of literacy. Among the Jaunsaris bathing is more a matter of ritual and means usually throwing a small quantity of water on the body. Due to the cold climate, rarely they take bath. Most of them do not bath for quite long. Most Jaunsaris do not use soap or any other cleaning agent. Poverty and ignorance are probably responsible for this. The frequency of bathing is higher with increase in education.

A number of skin diseases are often reported among the Jaunsaris because they do not clean their skin regularly and properly. Scabies is the most common disease.

They do not use soap or any other germicide for washing the clothes which is necessary for removing the dirt and killing the germs.

The Koltas and Bajgis who are at the bottom of the caste hierarchy (and economically weaker too) change their clothes once a fortnight or once a month. On the other hand the Brahmins and Rajput (economically better off) have sufficient clothes to change at least once a week.

Due to ignorance of causes of infection and germs, the Jaunsaris never bother about the sterilization of instruments used in shaving and hair cutting.

Besides, other practices prevalent among the Jaunsaris are unhygienic. The Jaunsaris always sleep inside the house and due to shortage of space,

close to each other. In such a situation, coupled with the low frequency of bathing, washing and changing of clothes, louse infestation is prevalent among the Jaunsaris. Lice are known to be carriers of epidemic typhus and relapsing fever.

Nutrition

Jelliffe (1957) who encountered a great deal of kwashiorkor and other nutritional deficiencies in children in West Bengal, has described some of the cultural "blocks" that aggravate the basic dietary limitations of that region due to poverty. Among these "blocks" the adequate infant nutrition in West Bengal are those based on the classification of foods as "hot" and "cold". Foods classified as *garam* ("hot"), which include eggs, meat, milk, honey, sugar, and cod liver oil, are not given to children during hot weather (which lasts during a large part of the year) or when children are suffering from illness. In all of these ways cultural practices add to the already serious limitations in nutritional possibilities open to poor village mother in West Bengal".

In the north Indian village of Chinaura, Hasan found that people "generally believe that it is the adequate quantity of food that is important. The idea of quality is restricted to certain foods recognised to be strengthening.... No distinction is made between protective and energy producing foods" (1967: 57).

Faster and Anderson write that:

"a major gap in the traditional dietary wisdom of tribal and peasant people is their frequent failure to recognize that children have special nutritional needs, both before and after weaning. Too often children are considered, for nutritional purposes simply as little as adults" (1978: 273).

For the Jaunsaris it is necessary to eat a good quantity of food to maintain their health. They believe that those who do not eat much food will grow weak. A good appetite is directly related with the health. Sometimes illness, may only partly result in the withdrawal of some food items from their diet. During the lactating period, foods are selected carefully not because of their positive nutritive value, but because will not give pain to the mother or illness to the child through the mother's milk.

Items of daily diet

The Jaunsaris are non-vegetarians but the frequency of eating meat or fish is very low and the overall situation is that the items of their daily diet are derived mostly from plant foods, mainly cereals, pulses, vegetables, oil and fats.

The Jaunsari diet generally includes cereals while foods which contain protein, such as meat, fish or egg enter rarely into their diet. Among vegetable foods, pulses and nuts are the known rich sources of protein, but the Jaunsaris do not take an adequate amount of pulses too, and their diet is in general, unbalanced. The food of most of the Jaunsaris is deficient in (i) protein, (ii) certain mineral elements particularly calcium and (iii) vitamin A, etc. On the other hand the Jaunsaris get a sufficient amount of carbohydrates and fat in their diet, which are necessary for hard and prolonged labour in a cold climate.

Seasonal foods

The geography of Jaunsar-Bawar plays an important role indeter-
mining the dietary habits of the Jaunsaris. Their diet includes all those vegetable foods which are grown in the area, varying from season to season.

Festive foods

Meat and bread are cooked on feast days. Meat is a special dish reserved for religious festivals. In one of their greatest festivals, *Maagh*, they cook meat daily during the month, because they sacrifice goats or sheep daily. They shut up sheep in a room and fatten them on oak leaves. Each man takes his turn for killing a sheep and hosting a feast for his kinsmen.

The dietary requirements of a person depend on age, sex, physical work and other special conditions like pregnancy or lactation.

SPECIAL FOODS

(a) Feeding of the infant/neonate

Neonates and infants are usually suckled by the mother and breast feeding usually continues upto the age of two to three years or till the delivery of the next child whichever is earlier.

The infants usually start eating cereals at the age of six to seven months or at the most eight months, while they still continue to be breast fed. The semi-solid foods which are given to the child in the initial phase are *Kangni* which is prepared with rice cooked in surplus water to make it dilute. Bread is also started at this age.

The semi-solid and solid foods which are given to a child in the initial phase continues upto the age of three years, there after they are considered, simply as grown up people and the same items are given with no special nourishing foods added.

(b) *Feeding of lactating women*

A lactating woman is given special foods only for the first few days after child birth (no special foods are given to a pregnant woman, she eats the same food as other family members). The special foods given to lactating women are as follows:

- (i) *Khindari*: It is prepared by mixing wheat flour and jaggery in boiled water and then cooking them together
- (ii) *Halwa*: It is made with wheat flour, ghee and sugar.
- (iii) *Roti*: A bread of wheat flour and ghee (clarified butter) is given.

Pregnant and lactating Jaunsari women do not regularly eat food rich enough in Vitamin A (milk, eggs, green leafy vegetables, carrots, fruits, *e.g.*; papaya and mango contain a lot of Vitamin A), Vitamin C (oranges, lemons, tomatoes, guava, pawpaw, mango and green vegetables contains a lot of Vitamin C), and Vitamin D (liver, milk, egg-yolk, fish liver oils are foods rich in Vitamin D) and calcium.

The food provided to them is poor for their nutritional requirements, they do not get the required amount of calories, protein and vitamins in food. Some special dishes given to lactating women, only for a few days after the delivery of the child, also do not fulfil their special needs.

Traditional food habits, and poverty are the main causes responsible for an unbalanced diet. Their diet includes seasonal foods which to some extent effects a balance in the diet, but in fact they do not eat sufficient amounts of seasonal foods to make more than a marginal difference.

They eat meat regularly in the festive season (and rarely during the rest of the year) not from the nutritional point of view but because it is their custom.

Withdrawal of food items from ill people's diet without nutritive substitutes may also be responsible for deficiency, *e.g.*, during stomachache while a liquid diet is given and coarse cereals are avoided there is no strengthening supplement included. When a person suffers from cold curds, rice, etc., are avoided and eggs and tea as warming foods are given according to their classification of hot and cold foods, but not keeping in mind nutritive value. Similarly, in case of heat stroke patient is given cold food items, *e.g.*, *sharbat*.

Special diets which are given to the children and women could balance the diet to some extent, but actually they do not get it for a reasonably long period, *e.g.*, children are given such foods which are easily digestible mostly semi-solid food upto 3 years of age and lactating mothers are given nutritive food but for too short a time.

Drinking habits

Drinking of country made liquor, is, common among the Jaunsaris. While alcoholic drinks are strongly disapproved of by the Brahmins, and their intake is regarded as an offence (due to superstition), the Rajputs, Bajgis and the Koltas are addicted to liquor. Among these people, it is held that the use of alcohol or liquor tends to develop a permanent increase in the body activity and a moderate use of liquor increases the power of endurance of the drinker.

According to Roy (1979), "In fact alcohol is not a stimulant. It depresses all vital organs. It does not stimulate intellect. It does not remove physical tiredness. It causes heat loss. Alcohol is not necessary for any normal human activity". He writes that, "In India, the risks of alcoholism are increased by our low-protein high-carbohydrate diet and general habit of over-eating, high incidence of parasitic infections of liver, climatic conditions and strong social disapproval.

The Jounsaris over indulgence in the habit may also be regarded as a typical case of the above and the enforcement of prohibition could be substituted in place of the factor of strong *social disapproval* mentioned by Roy.

As a contrast, Elwin (1964), has written of the NEFA tribals, that "while rice beer is a thing which should not be banned but should actually be encouraged, for it is nothing more than a nourishing and palatable soup with a kick in it, there can be little doubt that distilled liquor, which has been positively supported by Governments in order to inflate their revenues, is injurious".

Further, that "there are many people, greatly admired by society, who have devoted their entire lives to robbing the tribal folk of what little they have. They turn them into vegetarians and thus take from them an essential item of their diet and give nothing in its place. By introducing prohibition among them they rob them of a *much needed tonic...*" (*ibid.*).

Regular and moderate use of local beer among the Jaunsaris may act as an appetiser, and counteract the effect of highly contaminated drinking water help to check stomach diseases and keep the digestion healthy. On the other hand, the excessive use of distilled liquor is bound to be injurious to health and responsible for the prevalence of disease. There is a Jaunsari belief that excessive drinking is responsible for tuberculosis but those who have it do not give up drinking, despite this.

Smoking

Researches have shown that smoking has a casual relationship to lung cancer and other cancers, cardio-vascular diseases, respiratory diseases, gastro-duodenal ulcer, etc.

Several studies have shown that the children of parents who smoke are more liable to chest diseases than the children of parents who do not smoke. The risk increases with the number of cigarettes smoked daily by the pregnant women (Dhillon, 1979).

Smoking of *bidis*, *hukka*, *chilam*, as well as cigarettes is quite popular among the Jaunsaris. Not only males, but females and children smoke profusely. The habit of smoking *hukka* is comparatively less harmful than the smoking of *bidis* or cigarettes, because a part of the nicotine is absorbed by the water.

They not only smoke outside the house but inside too. In this way, the spread of the 'habit' may be likened to a communicable disease,

the agent being cigarette or any other smoke. All those who smoke, endanger the non-smokers. The habit of smoking among pregnant women is a risk to unborn children.

We can conclude that the fact of a number of the Jaunsaris suffering from respiratory diseases may be due to excessive smoking. There is a Jaunsari belief that tuberculosis can be caused by excessive smoking, but people do not give up smoking, even after having contracted the disease.

Health concepts

To the Jaunsari people, the term *health* means "right condition of the body", "the proper functioning of the body is known as health". Those who are regarded as healthy, can take heavy food, have a good muscular body and are able to work hard. They believe that for proper health it is necessary to be free from all kind of mental tensions too.

Disease or illness means a person is not feeling well. As most of the diseases are thought to be due to sins, crimes, and to people's disobedience of natural and religious laws, the cure prescribed for such type of *illness* or *disease* as reparation is the action of appeasing the gods by prayers, vows, invocations, holy-baths and sacrifices, etc.

The Jaunsaris still believe in luck, charms, talisman and horoscopes. Disease, disability and mental illness are attributed to supernatural causes as being a divine punishment for man's sin. The era of spirits and demons is still prevalent in the Jaunsari society. Priest and magician rolled into one is still present in various forms.

Faith exerts a great influence on the Jaunsari daily routine of life because they are highly fatalistic and this faith acts as a soothing balm to the Jaunsari people involved in calamities such as epidemics. A kind of medicine used for treatment called "*Temple medicine*" is still prevalent in the area.

Nurge, discussing the medical beliefs and practices in a Phillipine village, speaks of *super-natural* and *natural* causes of illness. The former are agents of disease such as spirit-gods, witches, and sorcerers. The latter include indigestible foods, sudden change in temperature, strong winds, and blood or air "trapped in the body" (Nurge, 1958).

Harley found that among the Mano of Liberia, "Disease is unnatural, resulting from the intrusion of an outside force" usually directed by magical means. Disease and early death "are thought to be caused by external forces, or witchcraft" (Harley, 1941).

Harley lists sixteen non-natural causes of illness and death, including witchcraft, poisoning, broken taboo, fetish power, and animals. "Natural" causes are limited to simple ailments treated with herbal remedies, old age leading to death (an event he describes as rare), and sacrifice of a slave or child (*ibid.*).

Between the situation in Nigeria and that in Northern India there are several close correspondences. Thus, in Ibadan, and even more in the neighbouring Ijebu ode area of Western Nigeria, the power of cursing is openly acknowledged and respected. A cursing medicine is often prepared and the resultant mixture is touched with the tongue, whereupon the operator blows or breathes its essence in the direction of his victim at the same time as he utters the all-powerful words of the curse. Similarly in Northern India it has been reported, that, 'when acute infections require that a spirit be exorcized the magician blows on the affected part through a tube, whispering at the same time his erect herbal formula until the sprit departs' (Maclean, *et. al.* 1971).

Cause of illness

According to the Jaunsari beliefs the causes of illness are classified into three categories:

- I. Diseases produced exclusively by supernatural power—deities, spirits, ghosts and other non-material entities.
- II. Diseases produced exclusively by magical means—sorcerers and witches.
- III. Diseases produced by natural (non-supernatural) means.

A "health care" system is concerned with the ways in which people organize to care for the patient and to utilize disease 'Knowledge' to aid the patient. This system involves the interaction of a number of people, minimally the patient and curer.

Diseases recognized to be produced by any of the three mean, *viz.*; supernatural, magical, natural (non-supernatural) are cured in different

ways and the cures are found to be very effective in cases of supernatural, magical and a number of natural illnesses.

I. *Illness recognised to be caused by supernatural being*

This category is one in which illness is believed to be supernatural being (a deity or a god), or a non-human being (such as a ghost, ancestor, or evil spirit).

This category is sub-divided according to the type of causative agent recognised by the Jaunsaris. (a) evil-spirit; (b) wrath of local deities, sins, crimes, and disobedience of religious laws; and (c) ghost intrusion.

(a) *Evil—Spirit intrusion*

“An immaterial non-divine, being of fairly independent existence associated with a particular natural feature is known as a spirit. Spirits which cannot be perceived directly by the sense may be of different kinds, *e.g.*; a disease may be regarded as due to a spirit or having one” (Hasan, 1967).

The following is the list of diseases named after the evil-spirits causing them among Jaunsaris. (i) *Matri*, (ii) *Jimbhoot*, (iii) *Opara*, (iv) *Chaad-rooiain*, (v) *Mushar*, (vi) *Ukrava*.

One of the commonly recognised evil-spirits in Jaunsar-Bawar is known as *Matri*. This evil-spirit is recognised to be responsible for attacking persons of all ages specially young ones and children. In children it causes formation of “white curtain in eyes”, tongues without the power of speech. At other ages it causes numerous defects, *i.e.*, a person cannot work properly, becomes yellowish, feels weakness. It is believed by the Jaunsaris that this evil-spirit intrusion is due to the passing of a person through the forest after sunset. To avoid the intrusion of this evil-spirit they try not to move anywhere outside the house after sunset and try to return home before sunset if they are way from their houses.

On enquiring the Jaunsaris about the symptoms of *matri* intrusion, it became known that the attack of *matri* is on the limbs, *i.e.* on the upper as well as on the lower limbs and after a few days of the attack it is very difficult to take any sort of work from the affected limbs. Sometimes the attack of this evil-spirit causes excessive weeping

and/or laughing. It is also believed that due to the intrusion of *matri* a person is found to be always ill, sometimes unable to see and hear properly.

The other evil-spirit recognised in this area is *Jimbhoot*. This evil-spirit is thought to be responsible for attacking persons of all ages irrespective of sex. The individual attacked by this evil-spirit starts taking food much in excess of his/her normal diet and the face of such a person looks somewhat changed.

The third evil-spirit recognised in this area is *opara*. It attacks mostly people of young ages. The person attacked by this evil-spirit starts moving his head and gets a condition like locked jaw.

The other evil-spirit is *chaad-rooiain*, under whose influence the soul of the attacked person strays about and the heart is not in its right state. "is rog men rogi ki atma bhatakne lagti hai our dil thikane men nahin rahta hai".

(b) *Wrath of local deities*

Among the Jaunsaris, it is still believed that many diseases are due to curse of some god or goddess. For example leprosy (*Kodh*) is considered to be due to the wrath of a local deity for sins committed. It is believed that no treatment can be useful in leprosy except that gods and goddesses be propitiated by saying prayers and taking bath in the holy river (Ganges). In olden times the afflicted person immolated himself/herself. When a leprosy afflicted person dies his body is buried instead of being burnt. On the other hand instead of weeping and lamenting his relatives rejoice, this brings the family deliverance. Sometimes the afflicted person commits suicide by jumping into the river so that he may not have this disease in the next birth.

Another example, measles (*Phaash*) is considered to be due to the curse of a goddess and appeasement of this goddess is done by not frying of foods in oil or ghee in the house. Tribal priest (*Pujari*) chants the *mantra* to stop it spreading in the family and village, and gives a talisman to the patient.

(c) *Ghost intrusion (Bhoot Paret)*

The Jaunsaris believe that persons dying unnatural deaths became ghosts. The ghost haunts the place where they had lived and clings to any

person who passes by the place quite alone or in the night hours. As soon as a man is possessed his face undergoes change and he begins to babble meaninglessly. His eyes widen and he develops a large appetite so that he alone can eat up all the food in the house prepared for all the members of the family. If a person falls unconscious immediately after his return home from outside during night hours it is deemed that he has been possessed by a ghost.

Pandits or exorcists are called in to rid the men of the ghost. It is said that exorcists too work through the power of local deities and they make the patient sit before them and toss grains of rice on their palms. They ask their gods what is the matter with the afflicted person. A crowd is seated round the man who is being relieved of the ghost. The pandit or exorcist then tells what has happened to the affected person. He tells in detail of whether he has been scared by something in the darkness or has been possessed by a ghost. The exorcist drives away the ghost by spells or by blowing grains of rice and asking the person to eat them or sometimes a sacrifice on behalf of the afflicted person is made and this rids the person of the ghost.

II. *Illness recognised to be caused by magical means*

In this category illness is believed to be caused by the intervention of a human being (a witch or sorcerer). The category is sub-divided according to the type of causative agent recognised by the Jaunsaris.

(a) Evil-eye ; (b) Witch ; (c) Sorcerer.

(a) *Evil-eye* : (Jaunsaris called it *Raag*). One of the common and interesting beliefs among the Jaunsaris connected with health and disease is the effect of evil-eye. Each and every individual is considered to be in the possession of a certain amount of supernatural power. It is believed that the evil-eye has the worst effect on children. Whenever anyone remarks that a child is very beautiful, strong and intelligent, the child immediately develops signs of disease, gets weaker and weaker or everything about his appearance becomes deformed. Even grown up persons are believed to be affected by evil-eye.

If a person observes and watches another person wearing fine dress, eating good food and living stylishly and filled with a desire to live, dress as finely and live as happily and eat as nicely as the person he observes, the person who has been observed is adversely affected.

For getting a person cured of evil-eye a tribal pandit instead of a physician is consulted and the pandit resorts to one of the following method.

- (i) Pandit blows some ash and gives it to the patient to keep it, he offers some worship.
- (ii) Pandit makes an amulet and gives it to the afflicted person, he spells some charms on mustared seeds and hands these to the afflicted asking him to wear them round the neck (Jaunsaris called it *Bujri*).
- (iii) Kneaded flour is cooked and thrown after revolving or rotating it round the afflicted person.

The Jaunsaris strongly hold that there is no way of curing a person of evil-eye except talisman, spells and prayers or offerings and they also believe that if scientific methods of medicine are used such a patient's condition will worsen and deteriorate again instead of improving.

Certain preventive measures are also taken against evil-eye. Among children a black spot is marked on the forehead from the carbon deposited in the *chulha*. The idea is that due to this black spot the spectator will not be able to judge the beauty correctly and hence the spectator will not be able to comment on the beauty of the child and in this way the child will be protected from the evil-eye.

Foster and Anderson in their discussion about disease etiologies said that, "The evil-eye is also difficult to categorize. In the Near East, the Mediterranean, Latin America and other parts of the world, it is thought by many that a human agent, as a consequence of envy, consciously or unconsciously produces illness in another person or causes damage to some possession of the individual envied. Most commonly the envied object is a beautiful, healthy child, but domestic animals, automobiles, or almost any other object that one might desire is a potential victim of the "eye". The glance of the envious person is believed to cause the child to fall ill, the animal to sicken and die, or the automobile to break down. If the envy actually exists (often people simply suspect, or fear, that they are being envied) and it represents symbolic aggression, then the evil-eye would conform to a personalistic model. Yet people accused of having the evil-eye may not intentionally

cast a spell they may have the power in spite of themselves, and it is sometimes unknown to them. In the absence of intent it is harder to classify the cause as personalistic" (Foster and Anderson, 1978).

(b) *Witch*: Witch or in Jaunsari language a *Dankan* or *Daain* is supposed to possess mysterious supernatural powers of casting an evil-eye with disastrous results to the person on whom it is cast. According to the Jaunsari belief a child (male or female) born on the darkest midnight of the month of *Bhadon* is supposed to have this power. On whom so ever he casts his eye he brings a series of misfortunes. Females born on the darkest night yield this power most effectively and it is said that it is difficult to escape from their evil spell. The person yielding such a power is not aware of this power in him/her. The pandits either managed to kill a witch or try to word off the evil power by incantations or other rituals but such rituals are too costly and hence cannot be adopted to cope with all cases of evil-spell. The witch has a power on any person whom she loves or hates and the rest are not affected or seldom affected.

(c) *Sorceress*: An individual person usually female who has magical powers to do evil, is called sorceress (*Pishaach*). It is believed that the eyes of a sorceress are so powerful that as soon as she looks at any person, he/she feels some sort of trouble. Many Jaunsaris told the researcher about the presence of sorceress in different villages in the form of village women.

Certain preventive measures are also taken against all sorts of illness caused by supernatural as well as magical means; e.g., charms and amulets.

It is therefore, clear that these tribal people have 'preventive magic' and the aims and objectives of preventive medicine based on science because both magic and science are used by the human beings to reach the same target. No doubt there is a difference between magic and science because magic is based on the faith of the people in supernatural forces while science depends on physical/natural causes.

From the observations we can infer that the Jaunsaris suffer from psychosomatic illness too, but they do not think so. Their pandits cure the psychic condition by driving away ghosts and spirit and thus cure the afflicted person.

III. *Illness recognised as caused by physical (non-supernatural) sources*

In this category illness is explained as being caused because of the disobedience of natural laws. The treatment for the diseases coming under this category includes certain "materia medica" of flora, fauna and minerals.

Contact with outsiders such as researcher/training personnel, administrators, etc., have also taught Jaunsaris to attribute "physical" or natural causes to a number of maladies. They define a number of physical or natural causes of disease which operate directly on the organism to produce illness. Some such causes are reported below:

- (i) Tuberculosis (*tapedik*): According to the Jaunsari this is caused due to excessive smoking, alcohol drinking, intercourse and work done.
- (ii) Rickets (*Sookha raag*): Due to under nourishment.
- (iii) Marasmus (*Shookh*): This disease is also caused due to under nourishment.
- (iv) Syphilis (*Aak Shak*): Polyandry is the main cause recognised for this disease.
- (v) Gonorrhoea (*Dhaak Sujak*): This is also caused due to the polyandry.
- (vi) Boils (*Sheran*): This is caused by physical forces.

Sl. No.	Local Name	*Englist Version
1	<i>Aage, paanche sond</i>	Summer diarrhoea
2	<i>Saunipaat</i>	Typhoid & para typhoid
3	<i>Dam</i>	Bronchial asthma
4	<i>Khoong</i>	Bronchitis
5	<i>Jakham</i>	Influenza
6	<i>Gathia Bai</i>	Rheumatic fever
7	<i>Gathia Bai</i>	Rheumatic arthritis
8	<i>Gathia Baad</i>	Gonococal & Syphilitic arthritis
9	<i>Tapedik</i>	Tuberculosis
10	<i>Sookha Roag</i>	Rickets

Sl. No.	Local Name	*English Version
11	<i>Shookh</i>	Marasmus
12	<i>Aak Shak</i>	Syphilis
13	<i>Dhaak Sujak</i>	Ganorrhoea
14	<i>Sond aur juney</i>	Worms
15	<i>Garam Bai</i>	Intestinal-amoebiasis
16	<i>Zahar Vaat</i>	Jaundice
17	<i>Dhaak</i>	Leucorrhoea
18	<i>Sheran</i>	Boils
19	<i>Garmi Lagna</i>	Heat Stroke

Table 1: Medical facilities available in Jaunsar-Bawar area

Sl. No.	Medical facility	No. of villages having such medical facilities	Total numbers of centres
1	Hospital ...	6	6
2	Dispensary ...	9	12
3	Maternity & Child Welfare Centre.	8	8
4	Health Centre ...	2	2
5	Family Planning Centre ...	2	2

Out of 385 villages situated in Jaunsar-Bawar area, only 27 villages have one or another kind of medical facility as listed above.

The Jaunsaris use household remedies for a number of diseases, on the other hand 'herbalist' is consulted for certain specific diseases. No doubt the medical facilities available in the area are insufficient, but whatever facilities are available, they do not use or are reluctant to use.

*As described/identified by doctors practising in the area according to the allopathic system.

They prefer not to go to the allopathic doctor. In the case of diseases of early childhood, and others which are beyond the power of their household remedies to cure they go to the allopathic practitioner, occasionally. This is partly also because they have to cover long distances for consulting the doctor.

Most of their manifestations of illness are due to indirect factors, *i.e.*, supernatural or magical causes which cannot scientifically explain illness. Since they believed to be caused due to the mysterious forces, they do not know or think that surroundings, hygiene and dietary habits may produce disease. Chronic disease were not the usual ailment that people suffered from.

In fact the majority of the Jaunsaris were found to suffer from a number of afflictions which can be overcome without any treatment, *e.g.*, stomachache, headache, bodyache, etc. Further, 'social factors' have a profound influence or the tolerant acceptance of many disorders. However, in spite of potentially unhealthy ways of life many Jaunsaris are not in chronic ill health and most people who survive serious illness keep quite fit. Local medicinemen are consulted in most of the diseases. Allopathic doctors are consulted only when either the cause of the disease is not understood, or when the illness turns serious in spite of the treatment done by the local medicinemen.

That the people are not accepting modern scientific medicine in this region is due to the following reasons:

(a) the modern medical facilities are very meagre; (b) medical facilities are at great distances from most of the villages; (c) villages in the interior do not have modern medical facilities; (d) the existing medical aid centres do not have sufficient stocks of medicine or other equipments and (e) most of the elder people refuse or reject modern scientific medicine and dissuade the young ones from consulting modern medical practitioners.

In evaluating how far modern scientific medicine has been accepted by the Jaunsaris, it is important to remember that these people spend very little money (and sometimes nothing) on the treatment of illness either by priests or through herbalists; because payment here is indirect, in the form of kind. Traditional medicine does not have to be purchased as these are prepared from common plants and animals found in the region.

REFERENCES

- Dhillon, M. S. 1979 Smoking or Health, the choice is yours. *Swasth Hind*, Nov.
- Elwin, Verrier 1941 Dreams of Indian aboriginal lepers. *Man in India*, 41(21).
- 1942 Suicide among the aboriginals of Bastar. *Man in India*, 22 (2-3).
- 1943 *The Aborigines*. Bombay, Oxford University Press.
- 1950 Tribal religion and magic in middle India. *Geographical Magazine*, 22.
- 1964 *The Tribal World of Verrier Elwin: An autobiography*. Bombay, Oxford University Press.
- Foster, G. M. & B. G. Anderson 1978 *Medical Anthropology*. New York, John Wiley & Sons.
- Gould, H. A. 1957 The Implication of Technological Change for folk and scientific medicine. *American Anthropologist*, 59.
- Harley, George W. 1941 *Native African medicine: With special reference to its practice in the Mano tribe of Liberia*. Cambridge, Mass: Harvard University Press.
- Hasan, K. A. 1967 *The Cultural Frontiers of Health in Village India*. Bombay, Manaktalas.
- Jelliffe, D. B. 1967 *The Assessment of the Nutrition and Status of the community*. W.H.O. Monograph Series, 53.
- Katz, Rogert C. & Steven Zlutnick 1975. *Behaviour Therapy and Health care: Principles and Application*. Pergamon General Psychology Series, Vol. 43.

- Khare, R. S. 1963 Folk medicine in a North Indian Village. *Human Organisation*, 22(1).
- Leslie, Charles 1967 Professional and popular health cultures in South Asia. Needed research in Medical Sociology and Anthropology. in Morehouse, Ward (ed.) *Understanding Science and Technology in India and Pakistan*. New York, Occasional Publication. University of the State of New York.
- London, J. B. (ed.) 1976 *Social Anthropology and Medicine*. A.S.A. Monograph 13. London, Academic Press.
- Lozoff, Betsy ; K. R. Kamath & R. A. Feldman 1975 Infection and Diseases in South Indian families ; beliefs about childhood diarrhoea. *Human Organization*, 34(4).
- Macleane, Una 1971 *Magical Medicine : A Nigerian Case Study*. Penguin Books.
- Madan, T. N. 1969 Who chooses modern medicine and why? *Economic and Political Weekly*, 4(37).
- Nurge, Ethel 1958 Etiology of illness in Guinhangelan. *American Anthropologist*, 60.
- Rizvi, S. N. H. 1980 Jaunsariyen mein parivar akar evam prajanom pratiroop. *Manav*, 8(1).
- Roy, K. B. 1979 Alcohol habit—a medical view. *Swasth Hind*, July.

Native Himalayan Medicine with special reference to its practice in the Jaunsaris

S. NAZAR RIZVI

A century or more ago, anthropologists engaged in fieldwork because of the traditional ethnographic interest, covered various aspects of human culture, including primitive medicine, witchcraft and magic. The diligence of early anthropologists and of explorers and missionaries who gathered data on the magical beliefs and practices of the people, whom they encountered or among whom they worked, is well-illustrated by the first comparative worldwide survey of beliefs about disease causation now nearly half a century old—that cites 229 sources, a high proportion of these is ethnographic (Elements, 1932).

Since the beginning of colonisation the imperial powers were engaged in the administration of the alien people. In this process they encountered people who were to be controlled either by force or conciliation. The administrators coming into direct contact with these people, noticed strange customs and habits among them, which were intriguing and fascinating enough to be reported as curiosities in journals and serious social science publications.

Migration of European people into the New World also resulted in conflict and contact with indigenous people. Typical researches undertaken as a consequence by anthropologists and other behavioural scientists are: “Anthropological data on the problem of instinct” (Mead, 1942); “Doll play of Pilaga Indian Children” (Henry and Henry, 1944); “Sibling rivalry in San Pedro” (Paul, 1950); “Primitive Psychiatry” (Devereux, 1940); “Elements of Psychotherapy in Navaho Religion” (Leighton and Leighton, 1941), etc.

The present paper deals with the manner in which problems of health and disease are solved by the Jaunsaris by utilising the flora and fauna available in the Himalayas. The paper has also described the indigenous system of medicine among the Jaunsaris and the way it is integrated into their culture as a whole.

In Jaunsar-Bawar area different kinds of medical practitioners such as priests, magicians, exercists and quacks, are abound. Many cures are

effected by one or many people treating a single patient at a time or in succession.

In most of the diseases recognised to have been occurred due to natural causes, specific indigenous medicine (harbs) are commonly used. Some of these are really quite effective. The Jaunsaris have an extensive knowledge of drugs which they have gained by bitter and successful experience. Their faith in local drugs was probably strengthened with recoveries from illness, many times in succession.

The Jaunsaris in general, are not very clear in their ideas about health, disease and treatment. They depend upon the advice of their village elders and experts. Thus, the *health care system* is an informal and undefined system, with no individual cures for many ailments. Isolation of patient and special arrangements for ill people are almost never prescribed.

Among the Jaunsaris in fact, most of the customs and practices with regard to health and disease, have no modern scientific basis, yet traditional medicine is successful in this area at least in a limited manner. If the patients are cured by traditional medicine the credit goes to the treatment applied; if it fails, it is not because of the treatment was wrong but that the patient was beyond help. The effectiveness of the traditional medicine in the area depends on the following factors:

(a) A number of effective means are found in it, *e.g.*, massage, blood-letting, bone-setting, and certain efficacious materia medica of floral and faunal origin.

(b) It carries with it certain psychotherapeutic qualities because treatment is a process not merely of consultation of specialists but relatives and friends, whose presence helps to cheer the diseased and invalids by removing his loneliness.

(c) Another important explanation for the success of folk medicine is that majority of those falling ill, may be cured easily because their body resistance is usually strong enough to ward off ordinary maladies, but all the same they need some treatment whether it is blowing and conjuring or wearing of charms or amulets or a decoction of some herb. Traditional medicine gives great psychological satisfaction to the patient just as pills, capsules and injections help urban and literate patients.

In Jaunsar-Bawar the medicine man (herbalists) acquire their skills from their parents. The herbalists do not tell the name of the herbs, etc., to others except their son. Though interest and observation herbalists may learn about the different plants that grow in the vicinity or in the forests of the Himalayas. They also note the effects of different food and herbs on patients; in this way they build reputations as home curers for common ailments for example cold, fever, headache, bodyache, bone fracture, snake bite, dysentery, and the like.

The Jaunsari remedies also like most folk medicine, are based on trial and error experience of previous generations, and have survived in the culture as a consequence of their effectiveness. The medicine man and his helpers without having even an elementary knowledge of the structure of the body (*i.e.*, anatomy and physiology) as well as the nature of disease, are able to get remarkable success in curing disease, because they pay considerable attention to the patient's emotions, attitudes and social pressures, etc., and in such a way they made a patient better even through "unsophisticated" use of psychosocial therapeutic measures.

Correspondingly, in Jaunsar-Bawar, many people are in chronic ill health or are less healthy than they might be, because of the assault of a multiplicity of parasitic infections, *viz.*, bouts of fever, attacks of jaundice consequent on virus infection, skin conditions of various kinds, and so on. Many of these illnesses are not so much dramatic as debilitating, and their ultimate physical causes are beyond the capacity of folk medicine to discern. Their impact is often felt seasonally and irregularly, interfering for a time in the plans and purposes of the patient without actually endangering his life.

It should be reiterated, however, that the Jaunsar medicine is conspicuously unsuccessful in treating the diseases of early childhood/childhood, which causes a very high frequency of infant and child mortality.

The household remedies which are used by the Jaunsaris for certain ailments are as follows:

1 Fever:

- (i) Dried petals of *banafshah* (*Viola serpens*) flower are boiled in water and the decoction is used as potion.
- (ii) *Podina* (*Mentha arvensis*) grass is boiled in water and mixed with jaggery and the contents is given as potion.

2 Fever caused by cold:

Tea prepared by *banafshah* (*Viola serpens*) is used.

3 Fever caused by heat:

- (i) *Kheera* (Cucumber) leaves are crushed and its juice mixed with a little water is given to the patient to drink.
- (ii) Hot tea mixed with *zira* (*Cuminum cyminum*) seeds and *adrak* (ginger) is administered as potion.
- (iii) The grain of *ajowan* (*Trachyspermum ammi*) is boiled in water and the vapours is inhaled.
- (iv) *Charoita* (*Swertia* and *Gentiana* sp) is crushed, mixed with water and used as potion.
- (v) The tea prepared by *kachoor* (*Hedychium spicatum*) is used as potion.
- (vi) *Kodhu* (*Rudus lasiocarpus*) leaves are boiled and the content is used as potion.
- (vii) The tea prepared by *ajowan* (*Trachyspermum ammi*), *banafshah* (*Viola serpens*), *kalimirch* (Black pepper), *adrak* (Ginger) and *Sonth* (dry ginger) is used.

4 Heat/sun stroke:

- (i) *Nilkanthi* (*Chrozophora prostrata*) leaves are boiled in water and the potion is used.

5 Stomachache:

- (i) *Kachoor* (*Hedychium spicatum*) boiled in water and mixed with jaggery is used for drinking.
- (ii) Hot ashes are collected in a bowl, some water is sprinkled on the ashes, and the bowl is wrapped in a cloth and placed on the stomach.

6 Dysentery:

- (i) Three or four dozes of *adrak* (Ginger) mixed with jaggery is to be eaten.
- (ii) Small globules of *til* and jaggery are prepared and sucked three or four times a day.

7 Scabies:

- (i) The juice of *nilkanthi* (*Chrozophora prostrata*) leaves mixed with butter is applied.
- (ii) The juice of *tambaco* (Tobacco) leaves is applied on the affected part.

8 Typhoid:

- (i) *Kodhu* (*Rubus lasiocarpus*) leaves are crushed to pulp and mixed with water and jaggery or sugar and the mixture is used once daily for about three to six days. Patient is cured of fever in a couple of days.

9 Cold:

Egg, milk, *manduva* wine, opium and clarified butter are mixed and used as potion.

10 Cough:

- (i) The *nimbu* (lemon) is roasted among embers and is to be eaten.
- (ii) The shell of *chota anar* (small pomegranate) is ground and used orally.

11 Earache:

Either the leaves of *nitkanthi* (*Chrozophora prostrata*) are rolled up and put into the ear or the juice of *nilkanthi* leaves (*Chrozophora prostrata*) is dropped into the ear cavity.

12 Headache:

- (i) The pulp of ground *timoor* (*Zanthoxylum alletum*) and *chaamar* (*Glochidion velutinum*) leaves is applied on the forehead.
- (ii) *Timoor* (*Zanthoxylum alletum*) leaves are ground and mixed in bath water and the water is heated. The patient is required to bathe in it.

13 Swelling on the gums:

The root of *ninai* (*Arundi neria jaunsarensis*) is dissolved in cool water and their solution is applied on the gums for 7 to 10 days.

14 Burn:

A slice of *alu* (Potato) is put on the burnt part.

15 Bone fracture:

Haldi (Turmeric) and wheat flour are fried and put on the affected part and then bark of *bimal* (*Gravia oppositiaefolia*) is placed on it and bandaged.

Other ailments which necessitate the services of the 'herbalists' are listed with a brief description of the preparation and use of the medicine.

There are, however, a very wide variety of locally trusted 'remedies for snake bite'.

Snake bite

1 On 20th of 'gate' (Hill Calender date) some person without washing his face and rinsing mouth and without talking to any one goes out to pick 1-2 kg. of *bhang* (hemp). This *bhang* is then mixed with quarter or half kilogram of *ghee*. Now the preparation is hung on the ceiling, it is believed that the *bhang* gathered on this particular day with the aforesaid precaution turns poisonous.

Whenever, a person is bitten by snake the kept *bhang* is fried in *ghee* and every 2—4 hours the patient is asked to drink it. Before drinking it the affected person is given *bhang* to eat to take its poisonous quality (property) off. Then charms and other incantations are used.

2 *Datura* (*Datura stramonium*) leaves are spueezed for getting juice. The juice is mixed with hot *ghee* and the patient is made to drink it thrice or four times a day. When the affected person has vomited many times, he is cured.

The man bitten by snake is placed in a cool place, is not allowed to cross the door, house is not cleaned with broom, the corner of the women's cloth is not allowed to touch that person.

Bleeding and healing of a wound

There are a number of local remedies for bleeding and healing of a wound. *Podina* (*Mentha arvensis*) is crushed and its juice is applied on the wound or the paste is applied on the wound.

The root of *kachoor* (*Hedychium spicatum*) is dissolved in water and the prepared mixture is applied on the wound.

Chaamar (*Glochidion velutinum*) leaves are crushed and the paste/juice applied on the wound.

The abrasion of skin is filled with clay or bandaged.

REFERENCES

- | | | |
|--|------|--|
| Clements, Forrest E. | 1932 | Primitive Concept of Disease. <i>American Archaeology and Ethnology</i> , 32(2). |
| Devereux, George | 1940 | Primitive Psychiatry. <i>Bulletin of the History of Medicine</i> , 8. |
| Henry, Jules &
Zunia Henry | 1944 | <i>Doll play of Pilaga Indian children</i> . American Orthopsychiatric Association Research Monograph, 4. |
| Leighton, Alexander H. &
Dorothea C. Leighton | 1941 | Elements of Psychotherapy in Navaho religion. <i>Psychiatry</i> , 4. |
| Mead, Margaret | 1942 | Anthropological data on the problem of instinct. <i>Psychosomatic Medicine</i> , 1. |
| Paul, B. D. (ed.) | 1955 | <i>Culture and Community: Case studies of Public Relations to health programmes</i> . New York, Russell Sage Foundation. |

The Garhwalis of District Chamoli

S. S. SASTRY

Introduction

This article is confined to the Garhwalis of Chamoli district. Chamoli district falls on the international border in the Central Himalayas.

Three villages which are at different altitudes were studied intensively for this purpose. The high altitude one is near the international border. Rest two are situated in the middle and lower altitudes. Thus, three different ecological zones of the district were studied.

Kailashpur, the high altitude village, is situated at an altitude of 11,300 ft. above the mean sea level. At altitudes of 5,000 ft. and 2,624 ft. above the sea level, Mandal, the middle altitude village and Gabnigaon, the lower altitude villages are respectively situated. The high altitude village Kailashpur is accessible on foot only. It is about ten miles from the last inhabited village, Niti which is very close to the Tibetan border. Malari, the last bus stop of the Niti valley, is about 5 Km. from Kailashpur which is situated on a ridge. Gopeshwar, the district headquarters of Chamoli is about 13 Km. from Mandal and a regular bus connects the village with the district headquarters. Mandal falls in between Bodrinath and Kedarnath. Ukhimath, the sub-divisional headquarters is about 15 Km. south of Gabnigaon. The village falls on Rishikesh-Kedarnath road and is situated on the top of a hillock at an altitude of approximately 500 ft. from the road side. Kailashpur comes under Joshimath tahsil, Mandal under Chamoli tahsil and Gabnigaon under Ukhimath tahsil.

Two ethnic groups, the Bhotia and the Dom inhabit the village Kailashpur. Fortytwo families of the Bhotia and six Dom families comprising a total population of 245 have occupied the village at the time of survey. Three ethnic groups, the Brahmin, the Rajput and the Dom inhabit both the middle and lower altitude villages, Mandal and Gabnigaon respectively. The total population of Mandal village comes to 302; here the Brahmin have 10 families, the Rajput 29 and the Dom 12. The total population of Gabnigaon village numbers to 248; here the Brahmin have 10 families, the Rajput 20 and the Dom 13.

Fieldwork was carried out in all the three villages for about a period of five months. Standard anthropological techniques like observation, interview, census, biographies and genealogical method, etc., were used for collecting data.

Setting

Chamoli is one of the three newly created border districts of the new Uttarakhand division. Before the formation of the new district, it was a sub-division of the district Garhwal. The district entirely lies within the Himalayan mountain system. On the north, snowy ranges separate Chamoli from Tibet. On the south, it is bounded by districts Garhwal and Almora. Its eastern boundary runs along Almora for some distance and thereafter along Pithoragarh. West of Chamoli is bounded by Uttarakashi and Tehri Garhwal districts. Area of the district according to Surveyor General of India is 9,130 Sq. Km. (3,525 Sq. Miles). The total population of the district is 2,53,137 out of which males are 1,20,092 and females 1,33,045.

All the four tahsils of the district, Joshinath, Karnaprayag, Chamoli and Ukhimath are entirely rural and there is no town in the district. Joshimath is the largest of the four tahsils and Ukhimath the smallest. Rishikesh, the nearest railway station, is 127 miles from the district headquarters. Only one motor road passes right from Rudraprayag to Joshimath through the heart of the district linking prominent places. From Joshimath one road leads to the Mana valley and the other to the Niti valley. One motor road also runs from Rudraprayag upto Kund on way to the holy place Kedarnath.

Steep mountain ridges interspersed with deep glens occupy the country side. The Nanda Devi range and the Badrinath range are the principal mountains of the district. The district is mainly drained by the Alaknanda and its tributaries. During winters snow rarely falls below 4,000 ft.

Rabi and kharif harvests are common in the greater part of the district. Wheat and barley are the chief crops of rabi and those of kharif are rice and mandua. Kharif is the more important one.

Material culture

Villages in this region seems to have been made with no specific

plan. The houses are constructed in clusters on patches of cleared or levelled slopy ground. The houses are either *Bhimunda* (single storied) or *Dopra/Dumanjil* (double storied) type. These houses are so devised as to get relief from the inhospitable weather of the country. The houses are not very much in height and the doors and windows are smaller in size. They do not have any ventilators. The roof consists of a slopy structure of timber covered with slate slabs or *pathal*, with heavy terraces of mud to keep these *in situ*. In the high altitudes, planks of *Devdar* wood are used instead of slate slabs on the roofs of the houses. The side walls of the houses are built of stone slabs joined with mud and plastered with mud and cow dung. The sophisticated masonry houses are of rare occurrence.

Men wear woollen coat and trousers and women's traditional dress is *lawā*. *Lawā* is made of coarse wool. It keeps the body well protected from cold. It has been noticed that now-a-days the use of *lawā* is confined to elderly women whereas the younger women are more and more leaning towards *sari*. In the high altitude village where cold is severe, the younger women too put on *lawā*. Women wear full sleeve shirt, which is a slight modification of the shirt worn by men. Those who wear *sari* use blouse. During winter, women wear *angra*, a type of double breasted woollen jacket.

Women have a great variety of ornaments either of gold or of silver. *Nathula*, a big size nose ring of gold, *gulband*, a golden necklace having a locket, *hansuli*, a round ornament of silver worn round the neck, are some of them. *Murkhala* is a peculiar type of ear ring worn on the cartilage of each ear. Mainly, elderly women of the Dom have been found using it, though among the high castes its occurrence is not absent. Among the women of younger generation *jhumka*, a ear ring either of gold or silver is popular. The silver bangle is called *dhagula*. *Jhinwari* and *paizini* are worn round the ankles. The use of ornaments in daily life is not conspicuous. The womenfolk are, however, fully dressed with ornaments at the time of fairs and festivals.

Food and Drinks

Rice, wheat and *mandua* form the important items of food. They take rice during day time but at night take *roti*. Tea is the most important drink and is consumed several times throughout the day. Salted tea is consumed by the Bhotia of the high altitude village along-

with *sattu*. The contraption for preparing it is known as *dong* or *dugma*; it is a cylindrical wooden vessel with a stirrer for mixing butter, salt and tea decoction. The decoction is made from the bark of *thuneer*. *Sattu* is prepared either from wheat or barley. After drinking several cups of salted tea, in the end, *sattu* and sugar are mixed with salted tea into a handful and is eaten both the times. A craze in their smoking habit is observed. Cigarette is gradually replacing the indigenous *hukka*.

High altitude villagers are fond of drink. They prepare *jan* and *daru* in their households. Beer is known as *jan* and the distilled liquor as *daru*. *Jan* and *daru* are made out of rice, wheat, barley, etc.

Transhumance

Due to heavy snow fall during the winter, the people of the high altitude village Kailashpur migrate to the warmer river valleys like their compatriots. Kailashpur people migrate to village Bajpur in Chamoli tahsil from the last week of September to the mid of October. From November to April, they reside in Bajpur. From the last week of April till the middle of May, migration from Bajpur to Kailashpur takes place. During the period, May to September, Kailashpur is inhabited. People of Gabnigaon and Mandal villages are not transhumant. The low altitude village Gabnigaon never experiences any snow fall.

Traditional economy

The traditional economy of the Bhotia of village Kailashpur was trade with Tibet on the one hand and with lower hills of the region including the plains of India on the other. Atkinson wrote on the Bhotia trade as follows: "The chief exports were food grains such as barley, wheat, rice, *phapar*, *jhingora*, *madua*, cloth of all kinds, *gur*, tobacco, sugar, etc., and the imports were salt, borax, ponies, goats, sheep, wool and woollen goods of all kinds, rugs, tea, gold, etc. Salt and borax were taken in exchange of grains, as a rule, while for other articles the Bhotia used to give either cash or piece goods. Credit was occasionally allowed but never for long. Each Bhotia trader had a special correspondent or *mitra* in Tibet. The means of transportation for carrying goods of trade were goats, sheep, mules or horses. The internal trade between the Bhotias and the villages of lower regions of the district was usually conducted by barter, the object of which is the acquisition of food grains in lieu of salt and other Tibetan goods. After doing business in

the district, in winter, the merchandise which has not been disposed on the way reached the plains at Kotdwara or Ramnagar where it was sold for cash or exchanged for grains at advantageous rates". That sort of trade came to an end for the Bhotia during the Chinese occupation of Tibet in early sixty.

Sheep and goat rearing is one of the important economic pursuits of the highlanders. These animals provide wool for their woollen industry and acted as carrier flock for transportation of goods.

Agriculture is a subsidiary occupation for the Bhotia. It is confined to the summer months at their high altitude abode Kailashpur. With the help of hoe they conduct the agricultural operations as it is not possible to use the plough in such small, steep, irregular shaped plots.

Traditionally, Mandal, the middle altitude village and Gabnigaon, the low altitude village have got their economic footing in agriculture. Ploughing is possible in the fields of these two villages due to mild slopes and less undulation. The traditional economic activity of the Dom in these two villages centred round ironsmithy, carpentry, basket making, etc., besides tilling. Insignificant occupations like hunting, fishing and gathering were not absent. Besides, many people from these two villages got themselves absorbed in the army during pre-independence days.

Cultivation

Agriculture is the main occupation of the low and middle altitude villagers. For the high altitude villagers it is an occupation of six months only as they migrate to downward river valley village during the winter.

In low and middle altitude villages, two crops Rabi and Kharif are raised whereas only one crop is raised in the high altitude village. Wheat and barely comprise the important Rabi crops. Major Kharif crops are paddy, *mandua*, *jhingora* and pulses like *moong*, *urad* and *bhat*, etc. At Kailashpur, the high altitude village, barley, *una*, *ogal*, *fapar*, wheat, *china*, *kauni* and potato crops are grown. Among these *jou* and *una* (Tibetan barley) are the important ones. Mustard, *ogal*, *china* and *tori* have the merit of not being injured by the mists. *Fapar* yields from thirty to forty times and does not require irrigation at all. Potato is the commercial crop. Malari which is five kilometers from Kailashpur is the potato *mandi* (wholesale market) of this region. Potatoes are sent

to plains from Malari via Kotdwar, Rishikesh and Ramnagar. By the middle of September crops are ready for harvest.

Villagers inhabiting all the three different altitudes have small land holdings. There is no landless household in all the three villages excepting one Dom household at the low altitude village Gabnigaon. Mandal villagers have larger landholdings compared to those of the low and high altitude villagers. This is due to the fact that Mandal has a large chunk of level land compared to the other two villages.

Land under cultivation in all the three villages is near their habitat. The land is mainly classified into two types, *viz.*, *abbal* and *doyam*. The local classification, however, is three fold: *abbal*, *doyam* and *viran*. Plain and level land with black and soft soil is known as the *abbal* or *talaon* (*maidani*). *Abbal* land is irrigated one, and transplantation takes place in these fields. *Doyam* land is stony and sandy. It is unirrigated and terraced. The yield from *abbal* land is more compared to that of the *doyam* land. Those fields which are far away from the village and whose crops are eaten away by cows and birds, etc., fall into the *viran* variety. Second type land is commonly found in all the three villages and here the dependence on rain is total. Terrace cultivation is practised in all the three villages as the whole district falls in the Himalayan mountain system. By building up stone wall at the lower part of the slope and excavating the upper part until the whole becomes approximately level, terracing is done. The Soil Conservation Department of the Government of Uttar Pradesh assists the villagers in having 'risers' scientifically constructed these days.

In these three villages no improved agricultural implements are in use excepting *danala* or garden rake. The traditional plough used by these villagers is small compared to its counterpart in the plains.

Major crops in both the low and middle altitude villages are wheat, paddy and *mandua*. Minor crops are *chua* and *makka*. *Urad*, *bhat* (soya-bean) and *masur* are the pulses grown. Potato has become the important crop. At Mandal village *malta* a citras fruit, is grown in abundance. It is exported to Kotdwar. Mandal villagers own land at Anasuya and there they grow oranges, lemons, peaches and walnuts. Green vegetable like *palak*, *rai*, *methi*, etc., and other vegetables like cauliflower and garlic are grown in their *sangwada* (kitchen garden) during winters. Vegetables

like brinjal, tomato, *lauki*, chilli, etc., are grown in rainy season. Tobacco is grown near the cattle-shed and in courtyard.

Preparation of the fields

On the sides of the fields stone walls are erected and thorny bushes are grown so as to save the crop from the deprecation of the cattle. With the help of *sabbal* stones in the fields are removed. Twice in a year fields are manured; once at the time of sowing and secondly after the crops come up.

Cropping pattern

Multiple cropping is the practice. Several crops are raised to bring all round sufficiency. Agricultural calendar of the villagers is as follows:

Chait-Baisakh (March-April): Fencing preparation takes place. Fields are manured with dung and ploughed; *Pata* is operated upon and again ploughed. Paddy is sown. On the sides *til*, *bhangjira*, *jhangora* and *kauni* are sown.

Baisakh-Jeth (April-May): Harvesting of wheat and barley; *mandua*, *chua*, *gehat* and *bhat* are sown either mixed or separately.

Jeth-Asad (May-June): Weeding operation is performed in the paddy fields. In the *talaon* land ploughing is performed and transplantation of paddy takes place.

Asad-Savan (June-July): Again weeding takes place in the paddy fields and the same is performed in the *mandua* fields. *Arisari* is performed, *i.e.*, densely grown plants are culled out and planted in a sparsely grown area.

Savan-Bhadaon (July--August): Weeding operation is performed.

Bhadaon-Asoj (August-September): Harvesting of paddy and *jhangora* takes place.

Asoj-Kartik (September-October): *Mandua* and *dal* are harvested. Fields are manured with cowdung and ploughing is performed. Fields are prepared for rabi crop and wheat is sown.

Kartik-Margsir (October-November): Weeding is performed in wheat fields.

Push-Magh (January-February): Grass is collected from the forest to feed the cattle.

Fagun-Chaitra (February-March): Manure preparation and repairing of 'risers' for kharif. Along with *mandua* usually *urad* is sown. For harvest both these get ready simultaneously. For four months land is left fallow after harvesting *mandua* in Kartik and in the month of Chait paddy is sown.

First *kouni* is reaped. It is carried home after removing its ears. After reaping paddy *kunki* is prepared, *i.e.*, it is bundled into *katha* and all these bundles are arranged in a circular fashion in the middle of the field. *Kunki* is left for drying up for three to five days and sometimes even for seven days. *Kunki* is spread on the mat and threshing is done with feet. The grain is taken home for *ponna* (winnowing) in baskets and bags. *Palal* (stalks) are made into bundles and stalked on the trees after spreading and drying in the field. It is used as cattle feed in winters. After reaping, *til* and *bhangjira* are brought home; with heavy *lathi* threshing is performed after drying. *Mandua* is threshed in the field and wheat in the courtyard. While threshing with bullocks, the mouths of the animals are closed with bamboo *katora*.

Kural cultivation

When it rains heavy only steep hill side is cultivated. In the *kural* cultivation as in shifting cultivation the plots chosen are prepared by felling the trees and clearing the shrub. The dried wood and the leaves are burnt and the ash thus formed acts as manure. Seeds are then broadcast. The land is only hoed and no ploughing takes place. The *kural* is neither irrigated nor weeding operation is performed. *Fapar* and *ogal* are the crops grown in the *kural*. The land is left fallow for two or three years after every harvest. This cultivation is practised in the high altitude village, Kailashpur.

For two *kalu*, *i.e.*, one and a half *patha* (20 *patha*=1 md.) of wheat sown in one *nali* of land, they harvest sixteen *patha* of wheat. For two *patha* paddy sown in one *nali* of *ukhad* (unirigated) land they harvest twentyfive *patha* of paddy. For one *patha* of *mandua* sown in one *nali*, they harvest one and a half maunds of *mandua*. For one *patha* of *jhangora* sown in one *nali* of land they harvest twelve *patha* of *jhangora*. These days improved variety of seeds are in use. They are

successful specially in the context of wheat. Earlier, wheat used to get black and at the time of eating foul smell emanated. Now, the villagers have found that the new seeds are safe from this *kalendu* disease. Through Gram Sevak, *redla* an improved variety of wheat, is supplied to the villagers.

For three months only, normal crops can feed the villagers. Exceptionally good yield can sustain for six months.

Division of labour

Men's work: Repairs of the fields, ploughing the fields, transporting manure and threshing grain, etc.

Women's work: *Kaman* operation (the land which is not ploughed is operated with *kudal*), manuring the fields, broadcasting seeds, weeding, threshing, etc.

Labour requirement: In agricultural activities like manuring the fields, spirit of co-operation is seen. Villagers help each other turn-wise. Bullocks are also provided to the needy villagers by those who have and at the time of threshing also they co-operate. To those who help in the fields only food is offered. This is called *madat*. Thus, a spirit of healthy co-operation is seen among the villagers.

For cultivating one *nali* of land three to four hands are required. At the rate of Rs. 3/- per day a labourer is paid. He is given *roti* as well as grain. Without *roti* and grain a labourer is paid at the rate of Rs. 5/- per day. Both the sexes work as labourers. For manuring, *nilai*, *oudai*, reaping and threshing operations labour is required. The Dom as well as *savarnas* (compatriot) are employed in the fields.

In Mandal, *gul* (canal) for irrigation was constructed during 1931-33. Irrigation Department took it up in 1958 and within three years *pakka gul* (cemented canal) came up. The river feeds the canal from above. For a distance of one mile and six furlongs this canal is connected. Since 1968, it is under repairs. Before sowing wheat in October/November, Minor Irrigation Department repairs the canal. From Andher Gaddi Gabnigaon canal comes. Water is shared by all the families on mutual agreement and no quarrels take place usually.

Communal grazing ground

Three acres of jungle is possessed by Gabnigaon forest panchayat.

From the forest, grass and wood are collected. Jungle is divided into two portions; in one portion, anybody can cut the grass as he likes whereas the other portion is closed for six months. One can collect only one head load of grass from the latter. Womenfolk usually go together for collecting grass.

Occupational pattern

For the Bhotia of Kailashpur, trade with Tibet has completely ceased after the closure of border in 1962. Thus, a community which was wholly relying on trade, undertook several new occupations after the closure of the border like settled business, contracts, Government service, transportation business with the help of goats and sheep besides their traditional agriculture, animal husbandry and woollen industry. The villagers of middle and low altitude villages received new opportunities after independence with the development of communication, spread of education, initiation of developmental programmes, etc. Therefore, diversification of economic activities was found at Mandal and Gabnigaon villages. In addition to their traditional occupation of cultivation, these people have embraced a variety of non-traditional occupations like service, teaching, labour, business, etc. The Dom community members of both these villages also have also taken to several new occupations.

Craft work and household industry

The traditional occupation of one Dom family in Kailashpur is blacksmithy preparing and repairing agricultural implements. The rest of the Dom families of this high altitude village are engaged in tailoring. These people with their sewing machines, go to attend the job in nearby villages when they find employment. In the village Mandal, the traditional occupation of 11 out of 12 Dom families is basket making. These families prepare and sell bamboo baskets of different sizes and shape, mats and rope. Out of these eleven families one is a carpenter-cum-blacksmith. The occupation of the twelfth family among the Dom is tailoring. In the low altitude village, Gabnigaon, out of 13 Dom families two are engaged in blacksmithy. Three Chamars have their roadside shops—two at Chandrapuri and one at Saudi. All the thirteen families are engaged in oil pressing.

All the Bhotia females of Kailashpur are occupied in agriculture and manufacture of wool and woollen garments. The Bhotias sell these woollen

goods in their winter encampments. One of the major occupations of the Bhotias in their low altitude abode remains spinning, weaving and selling these articles.

Spinning and Weaving

One of the important traditional occupations of the high altitude villagers is spinning and weaving. They spin even while walking. During the night after dinner, females assemble in groups and gossip while spinning wool. Whenever any member is free from work he/she spins. After preparing sufficient quantity of yarn, it is doubled and twisted to make it strong to weave. Then they wind, warp and weave. Weaving is done by females exclusively.

Some of the typical woollen goods prepared by them are as follows:

Dan or *Sab*: *Dan* is a small pile carpet. Two months time is taken by a family to prepare a *dan*. With coloured *yarns* of raw wool bed size *dan* is prepared.

Pankhi: *Pankhi* is a local type of woollen shawl.

Asan: Small sized *dan* is *asan*.

Chukti: *Chukti* is a blanket for personal use as well as for sale. Out of eight seers of raw wool a waman prepares it within a fortnight.

Beside the above mentioned articles, *lawā*, serge and sweaters are prepared by every household. In their winter encampments they sell all these goods. Therefore, trading of woollen goods is as important feature of their economy.

Collection of forest produce

Dum, *jambu*, *dalu*, *tatri* and *bhojpatra*, etc., are collected by the high altitude villagers from the forest. *Tatri* and *dolu* roots are sold. At Bareilly and Calcutta, tincture is made out of *dolu* from roots. From both these places agents come to collect *dolu* from the villagers. *Bhojpatra* are used for writing *dinpatta* at the time of fixing marriages and also used as roofing material.

Herbs: In addition to the above, *masi* (*dhup*), *kulki*, *atish*, *salampanja* and *guchha* are collected by the high altitude villagers. These medicinal herbs are purchased by the agents of several concerns. *Guchha*, a high altitude mushroom is an upper class delicacy.

Social organisation

The Brahmins, the Rajputs and the Doms are the three ethnic groups inhabiting the middle and low altitude villages. The high altitude village Kailashpur is inhabited by two ethnic groups, the Bhotia and the Dom.

In the village Mandal, the Rajputs dominate numerically; they are 180 out of a total population of 302. They are segmented into the following *jats*: Bist, Jhinkwan, Farswan and Bartwal. All these subdivisions enjoy the same status. Only one *jat*, Semwal, is found among the Brahmins of the village. The Brahmins accept *pukka* food from the Rajputs. The Rajputs will not accept *kachcha* food from Brahmins except from their *gurupurohit* (those who officiate on their *janau* ceremony). The Doms are segmented into two endogamous *jats*: Rudiya and Dholi. The Rudiyas consider themselves superior to the Dholi. Only one family of the Dholi is inhabiting Mandal. When the Rudiyas offer food the Dholis accept but when the Dholis offer food Rudiyas do not accept. The Doms accept food from the Brahmins and the Rajputs. All the communities eat food cooked by the Sarola Brahmin.

In Gabnigaon, the low altitude village, the Rajputs of the following *jats* are found: Badiyari, Negi, Panwar and Gusain. Excepting the Gusain rest of the *jats* are not endogamous. Only one *jat*, the Nautiyal, is found among the Brahmins of the village. Among the Doms, two families of the Lohar (blacksmith), twelve families of the Badai (carpenter) and one family of the Dholi (drummer) are found. Carpenters enjoy the same status as that of blacksmiths, and both are endogamous *jats*. The Dholi plays drum during marriages and other auspicious occasions. Except the Gusain rest of *jats* in Gabnigaon practise village exogamy.

The Bhotia is a generic name for the non-Tibetan folk inhabiting the Nepal-Tibet border regions of the Himalayas whose traditional occupation was essentially trade with Tibet on the one hand and their respective regions on the other. The Bhotia of Chamoli district are divided into two broad endogamous groups; the Marcha and the Tolcha. The Bhotia of village Kailashpur are divided into four *jats*. Familywise, they are one of the Fonia, one of the Pal, five of the Sayana and forty of the Dungriyal. The Dungriyals are supposed to have migrated to Kailashpur village from Dungar village of Karnaprayag tahsil. The Pal and the Fonia come under the category of the Marcha. The Sayanas migrated to this village from the Johar valley of Pithoragarh. The

Marchas and the Tolchas consider themselves as the Rajputs whereas the Rajputs consider these two groups as the Bhotia. Out of the six Dom families inhabiting the village, one belongs to the Lohar *jat* and the rest five to the Dholi. These two are endogamous groups and their main occupation is tailoring.

Most of the families in these villages are nuclear. Wife, husband and unmarried children comprise the nuclear unit. As long as mother and father are alive, the family is undivided. After the death of the parents, brothers get separated. This tendency to get separated is more accentuated after independence.

Birth : On attaining the fifth month, the pregnant woman abstains from eating dishes which are considered to be hot. She also abstains from lifting heavy loads.

At the time of delivery, woman is taken to the cattleshed. Hey is spread on the floor. One elderly woman of the locality assists her. The *dai* massages the pregnant woman with mustared oil when the labour pain starts. The midwife cuts the umbilical cord (*nal*) with a sickle and then gives bath to the baby with hot water. Mother is given rice fried in ghee and *garam masala* (spices). On the second day, two women go to the riverside and arrange hot water bath there for the mother. She washes the cloths at the riverside and after having bath returns to the cattleshed with wet clothes. Back at the cattleshed only, she changes her clothes. Regularly she is massaged and for five days abstains from taking roti and milked tea. Rice, *halua* and tea without milk are provided to her along with *garam masala*. For three days, she does not go near the fire. On the fifth day, the child is offered a new cloth.

On the day of birth of the baby, the *purohit* is invited by the family to prepare the *varshphal*. On examining the horoscope and the *varshphal*, the Brahmin finds out which *grahas* are not favourable to the baby. And on the inauspicious day of the baby, the *grahas* are worshipped. On the day of birth of the baby Ganesh or any other *ishta devta* (family deity) is worshipped alongwith the worship of seven *chiranjiv* (immortals), e.g., Asvathama, Bali, Hanuman, Vyas, Vibhushan, Narad and Markandeya. Kinsmen are invited on this day for *prtibhoj* (ceremonial feast).

On the sixth day after the birth of the baby, *shasthi puja* is per-

formed. On the eleventh day *namkaran* ceremony is observed. Some people take letters from grandfathers name, other from that of father and some other from *rasi* (zodiac).

Marriage: Among the people of all the three altitude villages marriage by negotiation is the common practice. Adult marriage is the norm. Marriage by exchange is not uncommon. Both cross and parallel cousin marriages are prohibited. Levirate and sororate are practised. Divorce is permitted. Widow marriages are not celebrated though she takes another man. Bride-price is the norm. One case of polygyny is found in the village Kailashpur. Marriage among the Bhotias is usually celebrated in their winter abodes.

Within a radius of forty miles distance, the search for the bride takes place. Usually through relatives they come to know the whereabouts of the girl. The girl's horoscope is compared with that of the boy, and if both the horoscopes match only then the boy's side proceeds further.

Marriage is performed in two ways: 1. Kanyadan, 2. Take ki Shadi. In the first type the father of the boy alongwith his near kins or village elders and sometimes alongwith the Brahmin (*gurupurohit*) visits the bride's village. The *tika chandan* ceremony is performed in the bride's house; *hallua*, *puri*, *laddu*, etc., are distributed to the villagers. Later on, the bride's father also goes to see the groom's place. There, he distributes sweets to the villagers. The *dinpatta* is prepared by the boy's house and sent to the girl's house. Details of marriage are written in *dinpatta*. Then *sarvarambh* starts on both the sides. Both the sides equip themselves with necessary things like pulses, grains. etc., for celebrating the marriage and guests are invited. On the stipulated day, *mangalsnan* is taken by both the bride and the groom. In *mangalsnan* (ceremonial bath) rice, mustard and turmeric are mixed in oil and the paste is anointed to the body and washed in water in which *dub* grass is sprinkled. The groom is considered as Vishnu and the bride, Lakshmi. At one *muhurat*, nose ring is given to the bride and *sera* to the groom separately and *navagraha puja* is performed. After eating, the groom's party proceeds to the bride's village.

Varnarayan performs Ganesh worship at the bride's place. At the time of *dinpatta* itself, the groom's side pays the cash to the bride's. The guests of *varnarayan* are offered *gandhaksh* and are entertained with tea, *bidi* and *sut* powder. The womenfolk sing *mangal* (auspicious) songs

and make necessary arrangements for the guests to sleep. Drinks are offered to the party and food is served.

Bardali : The bride's relatives offer fruits, coconut, dry fruits and *mewa* ceremonially (to the accompaniment of *bajegaje*) with the help of a Brahmin. The first offering goes to Lord Ganesh. In turn, the bride's father offers *gandhaksh* as well as tobacco to the guests.

Dhulargh : Ceremonially *varnanarayan* (the groom) is brought from his room and the bride's father washes his feet and takes him to *bedi* or *mandap* (ceremonial platform). His friends also accompany him to the *mandap*. Brahmin officiates the rituals.

Take ki sadi : In this type of marriage, cash payment is made to the bride's side and the marriage is performed at the groom's place. In the *barat* (groom's party) which goes to the bride's place to fetch her, bridegroom is not included. And the marriage is solemnized at the groom's place.

This second type, marriage by purchase was common and is even now prevalent in the low altitude village, Gabnigaon. Where the contact with the outside world is much more, as in the case of village Mandal, the villagers have accepted *Kanyadan* marriage. In *Kanyadan* type also, bride-price is very much in vogue. Some fathers of the brides demand five to six thousand rupees even.

Recent changes : The Brahmin no longer accompanies the party which goes to negotiate for a bride. These days, the girl's side takes the initiative and the *kanyadan* marriages are performed. Bride-price has been replaced by dowry. Utensils were presented to the groom's side earlier. Presents now-a-days include Radio and Sofa-sets, etc.

The bride-price was less earlier among the Bhotia. These days, one has to pay a heavy amount for fetching a bride. *Nath* (nose ring) made of gold was presented to the bride earlier. But these days other golden ornaments are expected from the male's side besides the nose ring.

Death : In all the three altitude villages, children upto the age of ten years are buried after death, and the rest are cremated. On the eleventh day after death *kriyakarm* is performed and *barsutta* within one year.

Parda : The Bhotia women of village Kailashpur and the womenfolk of Mandal village observe *parda* whereas the womenfolk of Gabnigaon are free from it. The womenfolk of Gabnigaon participate freely in all village activities and are more open.

Political organisation

Total number of the *gaon sabha* in Chamoli district is 508. They undertake municipal as well as development work. Source of income for *gaon sabha* is taxation.

The Nyaya Panchayat is formed by the District Magistrate out of a group of *gaon sabha*. Six to eight Gaon Panchayats go in to make one Nyaya Panchayat circle. The Secretary is appointed. The *Panchayat sevak* is a government servant. The *gaon sabha* has got the Pradhan whereas Nyaya Panchayat, Sarpanch and Sahayak Sarpanch. Panchayat house is the community house in Kailashpur village. Road maintenance is done by the villagers. One third of the expenditure is contributed by the Block. No much of affect of regional politics could be seen in village Kailashpur. No clash occurs between the formal village panchayat and the statutory panchayat. The panchayat sitting is from Ashad to Ashad (June—June). At the time of worship of the village deities, informal village panchayat sits and decides the programme of action in detail. Two persons are chosen as conveners for celebrating the collective worship of the village.

If someones cattle, etc., depredate the fields of the villagers and spoil the crops, he has to pay the fine to Panchayat at the following rates: Re. 1/- for horse, 0.50 p. for cow and 0.12 p. for a sheep. Panchayat wields real authority in there matters. In case of abduction of women, elopement, etc., Panchayat plays a vital role in solving the problem of the aggrieved party.

The Kailashpur Gramsabha is composed of three villages, namely, Kailashpur, Mehargaon and Gurgutti. Total population of this Gram Sabha is 850. Panchayat consists of nine members; one Pradhan, one Up-Pradhan and seven members including one Schedule caste. Monthly once a meeting is held; eighth of every month is fixed for the meeting. The Panchayat Raj system came into vogue in 1949. Before March, 1972, Nyaya Panchayat was in operation and now it is a defunct body.

Conclusion

The conspicuous feature that emerges out of this study is the unity in the social organisation of the people of the three altitude villages. Middle and low altitude villages have the same ethnic composition. In respect of the ethnic composition, the high altitude village differs; it is inhabited by the Bhotia. Bhotias inhabiting the high altitude village are known as the Tolcha.

Real change in the life style of the villagers of Kailashpur took place after the stoppage of trade with Tibet in early sixties. The villagers have started taking to economic pursuits like cultivation, ferry trade, government service and labour. The conspicuous change is in the sphere of education. Earlier the Tolchas of village Kailashpur did not bother to send their children to schools and colleges as they were fully occupied with Tibatan trade. Now, they find education a must for gainful employment. Almost all their children are sent to schools/colleges by their parents these days.

The Block has successfully introduced apple trees in village Kailashpur. It has also provided sewing machines to five families of the Dholi.

In Mandal and Gabnigaon, the middle and low altitude villages, the main change is in the shift from the traditional occupation to government service. Occupations like sheep rearing, spinning, weaving and domestication of cattle have lost their significance in these two villages. These two villages fall on the *jatra* route. For catering to the needs of the pilgrims, the villagers used to open ration shops and hotels on the way side and subsequently *chattis* (market places) sprang up. With the opening up of roads and introduction of buses villagers had to close their shops as the pilgrims no longer walk to Kedarnath and Badrinath. Thus, one comes across dilapidated houses on the way side in these two villages, the remnants of the market place which used to throb with excitement during the *jatra* season. New avenues of employment have been opened up since sixties for the villagers with the opening of roads, and this has exposed the villagers to new ideas and innovations. Some improved varieties of wheat such as Redla, Punjab-551, S-227, Kalyan Sona and fertilisers have been successfully introduced by the Block in these two villages. *Malta*, orange and lemon trees have

also been introduced in these two villages. In the dress pattern significant change could be seen; *lawā* (woollen cloth) has been replaced by *sari* because of the stoppage of trade with Tibet.

The Bhotia have realised that their interests are best served by identifying themselves with the caste Hindus of Garhwal. However, the way of life of the Tolcha is very much akin to the Garhwalis. They are gradually becoming more and more interested towards the Hindu cultural elements and have started borrowing them in order to get a place in the Hindu social system.

The social organisation of all the ethnic groups is more or less similar. Family is nuclear and joint families are a rarity. Property inheritance and reckoning of descent takes place along the male line. Residence is patrilocal.

Ecology has direct bearing on the culture of these villagers. Its all pervading affect is reflected in several cultural items like transhumance, spinning, weaving and trade as well as in dress, house construction, cultivation and other aspects of material culture.

The main change is in the sphere of education after independence. The economy of the villagers has been improved by the developmental programmes of the Block. Those high altitude villagers who have taken to shop keeping in their winter settlement have stopped migrating to the high altitude village and got settled in low altitude villages permanently. Shoshit Samaj Dal, a voluntary organisation for the uplift of the Schedule castes is very active in Mandal village. The president of the Chamoli district unit, Bachan Lal, comes from this village. Leather Training and Shoe Making Centre, Chandrapuri situated at Chandranagar in 1967 (established under the Industries Department of U.P.) is training the Dom boys of village Gabnigaon in shoe making. The Bhotia have been declared a Scheduled Tribe since June 1967 and so the Tolchas of village Kailashpur are deriving several benefits from the developmental programmes.

REFERENCES

- | | | |
|-----------------|---------|---|
| Atkinson, E. T. | 1882-86 | <i>The Himalayan Districts of the North Western Provinces of India—Three Volumes.</i> |
|-----------------|---------|---|

District Gazetteer of
Chamoli

Unpublished Chapters at the D.C.'s
Office.

Sastry, S. S. & J. C. Das 1980

Society and Culture among the
People of Chamoli District: Struc-
ture and Change. Unpublished
report.

Rural life in the Himalayas : An analytical exposition of a Garhwali and a Kinnauri village

M. K. RAHA

J. C. DAS

J. SINGH

Mahatma Gandhi's keen interest in village India had a strong basis as in India its 560 thousand villages have given shelter to the majority of its population. The way of life in village India still maintains, to a great extent, our century old tradition despite of the fact that the waves of modernization, industrialization and various other forces have had their impacts on the village life. The tradition of the Indian villages continues to be unique, and this uniqueness has patterned the culture and civilization of India. Side by side, the cultural diversities have offered a special identity to each of these villages and added a particular characteristic to them so that each village can be identified from the other.

The village life in the Himalayas has its own uniqueness though it also shares the Great Indian tradition being the part and parcel of India. But the diversities are quite prominent and possibly besides many factors, the ecological factors are responsible for this distinctiveness to a considerable extent. The peculiar ecology of the Western and Central Himalayas has definitely moulded the life and activities of the villages there, and as such has given something special that has made them distinct from the village of the plains India. The rugged and unkempt mountaneous terrains of the Western and Central Himalayas which share both arid and monsoon zones, thick forest and snow-clad areas, beautiful valleys and dangerous gorges, have in a natural way, contributed to the uniqueness of the village life here.

Apart from all these, the ethnic composition of the Himalayan villages shows some uniqueness. The multi-caste villages of the Western and Central Himalayas are generally composed of three main castes only, *viz.*, the Brahmin, the Rajput and the artisan groups (Silpkar). The last group consists of only a few castes who, as a category, are classed as the *Dom*, and so untouchables. Contrastingly, the caste composition of the plain villages is extremely elaborate. The multiplicity

of castes results in broader horizon of interaction among various castes and ethnic groups; and the nature of interaction is also more complex. Further, inter-dependence between the non-artisan and the artisan castes is comparatively more in the Himalayan region because of the lack of option for them.

The two areas, Uttarkashi and Kinnaur

Both the districts, Uttarkashi in Uttar Pradesh and the Kinnaur in Himachal Pradesh are recently formed. The district of Uttarkashi has come to existence in 1960 and is situated on the northernmost part of Uttar Pradesh. The district has a population of 147, 805 persons spread over an area of 8016 Sq. Km. giving an average of 18.44 persons per Sq. Km. During pre-independence period this district was a part of the feudal state of Tehri-Garhwal. The whole district comes under monsoon zone and the Ganges and its tributaries form the main river system. There are 671 villages in this district, and, almost all are situated below 10,000 ft. Of these 671 villages 662 are inhabited. The average population per inhabited village is 182 (according to 1961 Census). The villages are mostly (96.4%) small sized, and the population is below 500. There is no village having more than 2000 population. Hinduism is the dominant religion of this district, Buddhism and Islam have been embraced by comparatively smaller sections.

In Uttarkashi district the ethnic groups may be divided into two categories—the Beeth and the Dom. The former category includes the Brahmin and the Rajput castes while latter covers all the artisan castes such as the Mistry, the Bajgi, the Dom and others. Besides there are a few tribals (Buddhist Jads), the Muslims and the Christians.

The district of Kinnaur is situated in the north eastern part of Himachal Pradesh bordering Tibet. As a separate district, Kinnaur came into being only in 1st May 1960. Before it became the full-fledged district it was under Mahasu district. During pre-independent period, it was a part of the erstwhile Bushahr State. At present the district is divided into three sub-divisions namely Pooh, Kalpa and Nachar.

Considering the altitude and other geographical factors, the whole district may be considered as cold and somewhat dry. The climatic condition varies from area to area. The monsoon rain reaches only in lower parts of Kinnaur, the Sutlej valley and the Baspa valley resulting

in the growth of forests there. And the area beyond Kalpa covering the Pooch sub-division, is arid and almost devoid of vegetation. The Sutlej and its tributaries form the main river system.

Culturally the district may be divisible into three zones. Zone—I covers most part of Pooch sub-division and is characterised by the dominance of Buddhism. The whole of Nachar sub-division comes under Zone II where Hinduism has established its monopoly. But Zone III, which covers the central part of Kinnaur and includes Kalpa sub-division, bears the peculiarity of the co-existence of these two religions.

In Kinnaur, there are a total of 77 villages which are situated either on the slopes or on the valleys. The houses are usually found to be hurdled together. Here in this district the settlements situated on high altitudes between 6,000 ft. to 14,000 ft. above mean sea level, have been grown up round some temple or monastery or some market and trade centres. Some peculiarities which one notices in the villages of Zone—I and III but cannot find in the Garhwal villages, are the presence of *chorten*, the Buddhist shrines, *mane*, the tomb of loose stone slabs engraved with *om mane padme hum*, *kanakani*, the village gate which prevents the entry of the evil spirits, *tharchok* or prayer flag in the house, etc. But these are not found in the villages of Zone—II as well as in Garhwal villages naturally due to the absence of any Buddhist influence.

Unlike the Garhwalis, the Kinnaurese have been declared as the Scheduled Tribes, and the some artisan castes among them as the Scheduled Castes. Like the ethnic groups of Garhwal the ethnic groups here are divided into two groups the Khosia and the Beru. The former group comprises of only the Rajput as unlike Garhwal, the Brahmins here are conspicuous by their absence. The Beru group is further divided into Domang which includes the Lohar and the Badhi, Chamang covering the Koli and the Chanalas including the Nangalu (basket maker). Distinct ethnic group-wise division of villages is found. The two major ethnic groups, the Khosia or the Rajput and the Koli live in two different hamlets of the same village. The hamlet occupied by the Rajputs (*khosiarling*) covers the better and convenient part of the village usually on the higher levels and on the road side areas. The hamlet of the Koli (*chamraling*) is situated on the lower and less convenient areas of the village.

*The two villages, Himgiri and Kailash**

The village Himgiri in Uttarkashi district is situated in the Bhatwari (Taknour) Block of Bhatwari Tahsil. The village has an area of 624 acres with a population of 113 souls according to 1961 Census. At an altitude of 8,500 ft. the village is situated on the Uttarkashi—Gangotri Jatra Road, and not far from Gangotri, a sacred place for the Hindus. This village gives shelter to many pilgrims during *jatra* season. The river Bhagirathi is flowing in front of the village. In the past this village was a trade centre for the Tibetans.

The present Himgiri village has been resettled on the ruins of the old village most part of which was completely destroyed by the devastating fire in the winter of 1972. Another new settlement given a new name, 'Agyan', emerged out by the side of the old settlement. The old settlement has three hamlets—the uppermost hamlet is called as Matkhola resided by the Mandan group of the Panwar Rajput. The hamlet situated in the middle is known as Majkhola where the Lapkyan and the Dingral Rajput live. The lowermost stratum of the village, known as Bilkhola, is resided by the Galan Rajputs. The Scheduled Caste households are situated in between the two Rajput hamlets, and they do not constitute a hamlet. The village has a Basic School. A few Dharamshalas have been constructed in the village for the pilgrims as the same is situated on the *jatra* road. In recent years some temple has been excavated near the bank of the river Bhagirathi. It is believed that there are 108 temples buried under the mud on the bank of the river due to a flood in Bharirathi in ancient times.

The present day Himgiri has been expanded much, from 27 households and 113 soul in 1961, it has expanded to 76 households and 404 individuals in 1974-75. Here the Rajputs are the numerically dominant groups occupying 84.21% of the total households. The rest, *i.e.*, 15.79% belong to the Scheduled Caste. Of the total of 64 Rajput households the majority (90.31%) are owned by the Panwar Rajputs and the rest are shared by the Negi, Rana, Rawat and the Gaddi. These 76 households of this village have a total of 404 individuals of which 89.11% belong to the Rajput and the rest (10.89%) to the Scheduled Castes. Again the Panwars contribute the major share (81.68%) of the Rajput populations.

* Pseudonym has been used for both villages studied for obvious reasons.

The village Kailash is situated in the Pooh sub-division and under Pooh development Block. The new Hindustan Tibet Road (National Highway No. 22) has passed just by the side of this village and parallelly flows the Spiti, a tributary of the river Sutlej. Situated at an altitude of about 11,000 ft. in the dry, rugged, arid, mountainous area the village is situated on a beautiful flat land. Some trees have increased the beauty of this barren rocky village in the Hungran valley. The village is about 130 Km. from the District Headquarters, Kalpa and about 50 Km. from the sub-divisional Headquarters, Pooh and is very close to the Indo-Tibetan border. As one enters the village, one crosses the village gate, *kankani* and also the *mane*, which is situated by the side of the gate. The *chorten* has been erected in various places, and definitely from four sides four *chortens* are guarding the village. The small bridle path leads to the village through the *kankani*. Prayer flags are found hoisted in many housetops.

The village is divided into two main parts. The area which is resided by the Rajputs, is called the *khosiarang* and is the best and higher areas of the village. The *chamraling* or the area resided by the Scheduled Castes is not very convenient one. There is one monastery for the Buddhists and one temple of the deity Dabla. For the education of the children there is one Primary School also. The inhabitants of this village are generally Buddhists but they also keep faith on the Hindu deities.

Only a few ethnic groups constitute the village population at Kailash. They are the Khosia or the Rajput, the Koli, the Lohar, the Badhi and the Nepali. They are grouped into two sub-divisions—the Khosia and the Beru. The Khosia sub-division includes the Rajput only while the Beru is formed of the rest of the castes excluding the Nepali. There are two Nepali households, and the owners came here to work as labourers for road construction. Later on they settled here after marrying some village women. In this village there are a total of 131 households of which majority (88.55%) belong to the Khosia sub-group while only 9.92% belong to the Beru. Under this Beru sub-division again the Koli win the major share (76.92%). These 131 households have a population of 658 individuals of which 49.24 are males (324) and 50.76 females (334). Of this total 88.94% of the population belong to the Khosia sub-division. The rest of the population comprises the

Beru (9.24%) and the Nepali (1.67%). Among the Beru, the Koli are numerically dominant.

Economy

Agriculture, trade and animal husbandry were the traditional occupations of the inhabitants of both villages, Himgiri and Kailash. Trade with Tibet stopped with the closure of the border with Tibet. But the other two occupations still persist.

In the present days agriculture forms the basic economy of the village Himgiri. The inhabitants mostly involve themselves in agriculture. Of the total male workers 94.20% have agriculture as their major occupation or one of the occupations. But all the female workers of this village are cultivators. 31.16% of the total male workers and 86.51% of the total female workers have cultivation as the only occupation. Alongwith agriculture some of the villagers here remain engaged with such occupations as labour, service, horticulture, animal husbandry, etc. Only a few male workers do purely non-agricultural jobs like labour, service (Civil and Military), etc.

Of the total number of workers, 87.88% are the Rajputs and 12.12% are the Scheduled Castes. Among the Rajputs 59.48% are the agriculturists, and 21.55% have both agriculture and animal husbandry as major occupations; only 6.03 have both agriculture and service.

Most of the households (96.05%) of this village possess land. The average per household land holding is 3.92 acres. Among the Rajputs the Rawats have the largest average land holding (4.83 acres per household) followed by the Panwar who have 4.42 acres per household on an average. The Scheduled castes in this village also have somewhat better land-holding (2.52 acres per household on an average).

A kind of symbiotic relationship exists among the inhabitants of the village, Himgiri. This type of work exchange does not only exist among the members of the same ethnic group but also extend between the members of various ethnic groups. Particularly among the Rajput and the Scheduled castes this type of mutual relation operates actively.

The people of Kailash remain busy with various types of occupations. In this village workers constitute 66.11% of the total population. Though agriculture is their main occupation, yet because of the ecological condi-

tion which prevent the inhabitants from doing agriculture from December to April because of the snow fall, they diversify themselves in various other occupations.

Cultivation is the main occupation of the largest number of both male and female workers of this village (20.56% and 68.33% respectively). The next higher frequency goes to those male workers (17.29%) who have cultivation and mule-teering as their major occupations, and for the females (22.17%) cultivation and sheep and goat rearing. Ethnic group-wise occupational distribution shows that largest number of the Rajput males (23.16%) and females (68.53%) remain engaged in cultivation. In case of other castes, both cultivation and weaving for the males and cultivation alone for the females are main occupations.

At Kailash 96.18% of the total households possess land. That means only a few households are landless. Of the landowning households, 97.41% of the Rajput households, 80.00% of the Koli households and 100.00% of the households of the other castes have land. The average land holding among the villagers is 2.09 acres per household. Among the Rajput it is 2.14 while among other castes 1.35 acres per household.

Like the inhabitants of Himgiri village, the villagers of Kailash also have same type of symbiotic relations. Here the Rajput are basically landowners and agriculturists, and all the artisan castes are actually serving them from time immemorial. In exchange for their services these artisan castes used to get some fixed quantity of cereals from the Rajput. This type of symbiotic cooperation between the Rajput in one hand and these various artisans on the other, is known as *shingmo* or *halas*, when the relationship exists in the agricultural field, and *binana* or *zoshit* when the same is in the non-agricultural field.

Village organization

Sayane council (council of elders) is the traditional institution of the Panchayat in Himgiri, though in the present days its importance has much been denuded. The wise and elderly persons used to function as the members of this council for which there was no fixed number. This council acted as the disciplinarian of the villagers and used to judge the cases of the villagers. But with the introduction of the statutory Panchayat system, the traditional caste council was gradually losing its importance. The villagers depend more on the statutory Panchayat now.

In the past, before the introduction of the statutory Panchayat

system, Kailash had its own council, called *char bhai* to look after the administration of the village. There were four members in this council, *mukhiya*, *char*, *halmandi* and *toknya*. During the session, besides the above four members some elderly and experienced persons of the village mostly from the Rajput caste, were also invited to participate in the deliberation of the traditional council. Both higher and lower (untouchable) castes were in the council.

The *char bhai* used to run the administration and also the judiciary without any written laws and codes. Everybody welcomed it. The role of the *mukhiya* and other members was important in all important events of the village life.

Since 1956 the district of Kinnaur has adopted the statutory Panchayat system. Both Gram Panchayat and Naya Panchayat are there.

In the present days the Panchayati Raj system in this village has officially replaced the old traditional council, *char bhai*, yet in some cases the latter still functions as and when any socio-religious problem arises.

In Kailash in addition to the village councils both traditional and statutory, the deity and the monastery have very important role over the village administration and judiciary. If the council fails to solve a problem the case is referred to the deity or the monastery authority for solution.

Household

In both villages the household forms the smallest social unit. At Himgiri the size of the households varies from one membered household to twelve membered household. The households with five members have the highest frequency (15.79%). Next higher frequency goes to those with six members (14.47%) followed by those with three members (13.16%). Actually largest number of households (69.73%) have members up to 6. Ethnic groupwise distribution of households reveals that among the Rajput largest number of households (17.19%) have five members, followed by those with six members (14.06%). Households with three, four and seven members have an equal frequency (12.50%). Among the Scheduled Caste, on the other hand, households with two members have the largest frequency (25.00%) followed by those with one, three and six members (16.67%).

In this village the nuclear households have the highest frequency followed by the extended ones. The households here are all patrikin oriented, the residence being patrilocal.

At Kailash the household, *i.e.*, *kim* has also varied sizes. The average size household here is 5.04. The households with six members have the highest frequency (18.32%) followed by those with five and three members (14.50%). Households upto six members share the major frequency (76.33%). Among the Rajputs, similarly, households with six members have the highest frequency (18.10%) followed by those with five and three members each having 14.66%. Among the Koli on the other hand, households with four, five, and six members share equal but largest frequency (20.00%) each. In case of other castes, households with two, three, six, seven and nine members share equally (20.00%) each.

The typical household in Kailash is polyandrous/polygynandrous one where the husbands who are brothers, live with their common wife/wives and the common children. Among the Rajputs here 27.59% of the households are polyandrous/polygynandrous while among the Koli it is 30.00%. But the past popularity of the polyandrous household is gradually receding possibly because of the increased interest among the Kinnaurese on singular marriage. Many other factors like education, modernization, etc., are also responsible for this.

Another interesting system connected with the households in Kailash is the *nangma-gangun* system. Here the parents usually move to a separate household (*gangun*) with their unmarried daughters leaving the natal household (*nangma*) to their married sons and their common wife. In the natal household the eldest brother becomes the head of the household and other brothers remain under his authority.

Religion

In Himgiri the villagers follow Hinduism predominantly. No other religion exists there. As the village is situated on the *jatra* route and as the village is quite near to Gangotri, the Hindus here are somewhat orthodox. The presiding deity of this village is Hameru who is also known as Samasu. Sameswar Mahadeo is somewhat recent name for this deity equated with Lord Siva. The abode of this deity is a temple in the old settlement which was also burnt in last fire but re-erected. The other more important deity is Nagraj who also resides in a temple. The

regular worship is celebrated in both temples and some festivals are observed there in different seasons.

The co-existence of both Buddhism and Hinduism is the unique feature of the people of Kailash. Buddhism here centres round the monastery where a group of Lama performs all the religious paraphernalia. The monastery is also a training centre. It as well guides the people in their religious activities. The deity Dabla represents the local form Hinduism among the people of Kailash. The deity has his abode in a temple. Though these are two different religions, yet people follow both. The same person, who goes to monastery for prayer, also comes to temple to perform some religious rites when required.

At Kailash, religion plays very important role in almost every sphere of life. In all crises of life like birth, marriage, death or any religious festivity, or even when they face any serious problem, people take advice and suggestions from the deities and the temple or monastery functionaries and also from the *Lamas*. In the past also, when the deity was the authority in socio-religious and administrative activities of an area, everything there was done with the consent of the deity.

Thus it is seen that the rural life in the Western and Central Himalayas represented by the village folk living there has a common and unique rhythm. In spite of various differential factors segregating the various aspects of life, the people here have compromised in certain levels and brought commonness there. The Himalayas with unique ecology and other factors, have shaped the life here and has given certain unity of characters in the midst of various diverse factors. Further the distinctiveness of the Himalayan rural life has given it some special entity, and thus distinguished it from the rural life of the rest of India.



ABOUT THE EDITORS

Dr. MANIS KUMAR RAHA (b. 1937) M. Sc., Ph.D., who completed a course on Management Development Programme for Educational Administrators in the Indian Institute of Management, Calcutta, is now employed in the Anthropological Survey of India as the Joint Director. His publications include besides eighty articles and thirtyfive book reviews, the following books:

The Oraons of Sunderban (1963), *West Bengal Tribes Through Photographs* (1966), *Handbook on Scheduled Castes and Scheduled Tribes of West Bengal* (1966), *The Malpaharias of West Bengal* (1966), *The Rabhas of West Bengal* (1967), *Kamakhyaguri* (1974), *The Kinnaurese of the Himalayas* (1985), *The Himalayan Heritage* (1987), *Polyandry in India* (1987), *Matriliney to Patriliney* (1989), *Tribal India: Problem Development Prospect* (1989), and *Tribal Situation in West Bengal* (1990). His forthcoming books are *Polity, Political Process and Social Control in South Asia* (1992) and *The Karens of Andaman*.

SHRI PALASH CHANDRA COOMAR M.Sc., Senior Technical Assistant in the Anthropological Survey of India, who is working on different research projects, has written a number of articles and book reviews and also co-edited the books, *Polyandry in India* (1987) and *Tribal India: Problem Development Prospect* (1989).

