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CHOTANAGPUR

Geography of Rural Settlements



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CHOTANAGPUR
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By

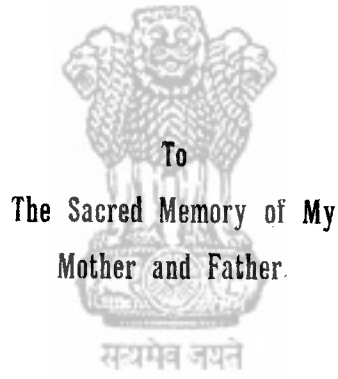
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Dept. of Geography, Ranchi University, Ranchi.



RANCHI UNIVERSITY, RANCHI
1973



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FOREWORD

Dr. Ayodhya Prasad's D. Lit thesis on Rural Settlements in Chotanagpur which has taken the form of this book, is the first detailed geographical study of the region examining in an original and searching manner the physical and economic background and the cultural complex related to the rural settlements. His treatment of the distribution, siting, density and types of settlements is as exhaustive as that of rural morphology and house types. The conclusions are thought-provoking and useful for those who would like to benefit from such an original study and from his projected picture of settlements. I can say with confidence that in every major and minor aspect of this study Dr. Prasad has been equally thorough and searching. His research will, therefore, be of great help to those who undertake similar studies on other Indian regions. Without indulging in quantification jargons Dr. Prasad has made substantial quantitative analyses throughout his thesis.

Ranchi,
The 18th September, 1972.

Enayat Ahmad
Professor and Head of the
Dept. of Geography, Ranchi
University.





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CONTENTS

	Page
Foreword : by Dr. E. Ahmad	vii
List of maps and diagrams	xiii
Abbreviation	xvii
Acknowledgement	xix
Preface	xxi
Introduction	xxv

PART I : PHYSICAL AND ECONOMIC BACKGROUND

Chapter I

GEOLOGY 3

Economic Geology and Minerals — Mineral Zones of Chotanagpur — Structure.

PHYSICAL LANDSCAPE 11

Physical Units -- Central Plateau — Lower Plateau — South Koel-Sankh Basin — Dharwarian Country — Damodar Basin — Rajmahal Upland.

Chapter II

OTHER FACTORS OF PHYSICAL ENVIRONMENT 31

Climate Humidity — Climatic Regions — Soils — Soil Types — Natural Vegetation — Forest Products — Settlements and Forest Economy.

Chapter III

AGRICULTURE 57

Extent of Cultivation — Classification of Land -- Agricultural Harvests — Agricultural Landscape — Irrigation — Industries — Mining Industry — Mining and Settlements — Manufacturing Industry — Manufacturing Belts — Cottage Manufacturing — Communication — Roads -- Railways.

PART II : THE CULTURAL COMPLEX

Chapter IV

HISTORICAL GEOGRAPHY OF CHOTANAGPUR 97

Historical Evolution of the Region — Sequence of Occupance and Peopling of Chotanagpur — Process of Aryanization — Occupance Pattern.

Chapter V

POPULATION 118

Approach -- Growth of Population -- Economic Analysis -- Distribution and Density -- Distribution of Social and Economic Groups -- Areal Variation in Population Density -- Recent Migration.

Chapter VI

CULTURAL MILIEU 151

Concept and Approach -- Cultural Location of Chotanagpur -- Cultural Drift -- Aryanization -- Cultural Types and Groupings -- Cultural Stratigraphy -- Land Tenure and Tenancy System.

Chapter VII

GEOGRAPHICAL REGIONS 178

Methods and Approaches -- Delimiting Geographical Regions.

PART III : SETTLEMENT GEOGRAPHY

Chapter VIII

RURAL SETTLEMENTS 187

Meaning and Scope -- Terminologies of Settlements -- Evolution of Settlements -- Purpose and Function of Groupings -- Size of Settlements -- Nature of Grouping -- Village : Meaning, Composition and Character -- Morphological Elements in Tribal Villages -- Rural Settlements : Definition, Meaning and Limitations.

Chapter IX

RURAL SETTLEMENTS 207

Distribution, Siting and Density — Problems and Methods —
Approaches : Quantitative and non-quantitative.

Chapter X

RURAL SETTLEMENTS 220

Regional Aspect of Variation and Distribution — North Koel-
Kanhra Interfluvium — Pat Region — North Koel Valley.

LOW-ERODED SURFACES 245

North Koel-Amanat-Auranga Basin — Chhatarpur Plain.

PENEPLANED SURFACES 254

Ranchi Plateau — South Koel — Sankha Basin — Hazaribagh
Plateau.

THE 1000 FT.-SURFACE : THE LOWER PLATEAUS 269

Chatra Plateau — Kodarma Plateau — Deoghar Erosional Depre-
ssion — Ajay Basin — Rajmahal Upland Suvarnarekha Valley —
Dhalbhum — Kolhan Highland — Panch Pargana Plain — Lower
Damodar Valley — Upper Damodar Basin — Hills and Scarps —
The 'Morvan' — Eastern and Southern Scarps — Porahat and
Saranda — Dalma Ranges — Northern Scarps — Northern Edge of
the Plateau — Northern Fringe Zone.

Chapter XI

SETTLEMENT TYPES 314

Plurality of Types — Agglomeration and Dispersal Quotients —
Causes and Effects in Settlement Geography — Factors of Agglo-
meration and Dispersal — Factors of Agglomeration — Factors of
Dispersal — Regional Distribution of Settlement Types.

AREAS OF MARKED AGGLOMERATION 341

Northern Fringe Zone — North Koel Valley — Amanat Auranga
Valleys — Inter-plateau Ridge — Upper Damodar Valley — Lower
Damodar Valley — Ranchi Plateau — Panch Pargana Plain —
Hazaribagh Plateau — Kolhan Highland.

AREAS OF MARKED DISPERSAL 359

Upper Reaches of North Koel — Kanhra Basin — Western Slopes
of Chatra Plateau and Adjoining Areas — South and South-eastern
Slopes of Ranchi Plateau — Dalma Ranges, Porahat Hilly Tract

Twelve

and Kolhan Slopes — Saranda, Dhalbhum Hills — Inter-stream
Hilly Tract — Rajmahal Hills.

AREAS OF MIDDLING TYPES 364

Sankh Basin

AREAS OF LINEAR SETTLEMENTS 366

Chaibasa Plain and Suvarnarekha Valley — Alluvial Upland and
Rajmahal Hills — Ajay Basin.

AREAS OF HAMLET-CUM-HUT TYPE 370

Northern Scarp of Ranchi Plateau — Hazaribagh Girdle — Kodarma
Plateau — South Koel-Sanjay Valley.

Chapter XII

RURAL MORPHOLOGY 376

Meaning — Constituents of Rural Morphology — Factors Influenc-
ing the Rural Morphology — Morphological Patterns — Regional
Distribution of Village Patterns.

Chapter XIII

RURAL HOUSES 399

Building Materials — Wall Materials — Roof Materials — Types
of Rural Houses — Regional Types — Ethnic Types of Houses.

Chapter XIV

SUMMARY AND CONCLUSION 444

Prospect

Photo Plates

APPENDICES I Glossary

II Bibliography

III Index

List Of Maps And Diagrams

- 1 Chotanagpur, showing Districts, Sub-divisions and Anchals.
- 2 Geology
- 3 Mineral Belts.
- 4 Relief.
- 5 Drainage.
- 6 Physiographic Divisions
- 7 Temperature
- 8 Wind Force.
- 9 Normal Annual Rainfall
- 10 Weather Phenomena.
- 11 Climatic Regions.
- 12 Soils.
- 13 Forests.
- 14 Extent of Cultivation.
- 15 Frontiers of Settlements.
- 16 Multiple Cropped Area.
- 17 Distribution of Acreage under Principal Harvests.
- 18 Agricultural Regions.
- 19 Crop Association Zones.
- 20 Extent of Irrigation.
- 21 Extent of Mining.
- 22 Area under Mining Leases.
- 23 Distribution of Industrial Magnitude.
- 24 Industrial Versatility.
- 25 Industrial Regions.
- 26 Road Pattern.
- 27 Railways.
- 28 Village Names as Cultural Indices.
- 29 Tribal Population.
- 30 Population of Scheduled Castes.
- 31 Distribution of Tribes.
- 32 Rural Population, 1881.
- 33 Rural Population, 1961.
- 34 Rural Population : Net Variation, 1901-1961
- 35 Rural Population : Variation From the Average Density of the Penninsular Upland.
- 36 Man - Land - Ratio.
- 37 Classification of Rural Working Population, 1961.

Fourteen

- 38 Rural Population : Literacy.
- 39 Rural Population : Arithmetic Density.
- 40 Rural Population : Physiological Density.
- 41 Rural Population : Agricultural Density.
- 42 Rural Population : Economic Density.
- 43 Rural Population : Anchal-wise Density.
(insets — 1 Relief, 2 Agriculture, 3 Extent of Industrialization,
4 Major Density Zones).
- 44 Sociograph.
- 45 Sociometric Curves.
- 46 Areal Pattern of Culture Distribution.
- 47 Geographical Regions.
- 48 Density of Villages.
- 49 Spacing of Villages.
- 50 Average Size of Villages by Population.
- 51 Average Size of Villages by Area.
- 52 Scatter Diagram Showing Correlationships.
- 53 Density and Distributional Pattern of Rural Settlements.
- 54 Frequency of Rural Settlements.
- 55 Index to Settlement Maps.
- 56 Kanhar Valley : Siting of Settlements.
- 57 Koel Basin : Settlements in Higher Reaches.
- 58 Valley-head Settlements.
- 59 North Koel-Kanhar Interfluvial Tracts : Valley-head and Divide
Settlements.
- 60 Valley-head Settlements on Hilly Slopes.
- 61 Valley-spur Settlements.
- 62 Inter-stream Settlements.
- 63 Settlements in the Pat Region.
- 64 Siting of Settlements on Higher Pats.
- 65 Settlements in the Barve Plain.
- 66 Panda Valley Settlements.
- 67 North Koel Valley : Settlements in the Middle Reaches.
- 68 Amanat Basin : Divide Settlements.
- 69 Amanat Basin : Strong-point Settlements.
- 70 Amanat Basin : Minor Valley Settlements.
- 71 Northern Pat Scarps : Settlements on Summits and Spurs.
- 72 Upper South Koel Basin : Siting of Settlements.
- 73 Ranchi Plateau : Large Clusters on Divides.
- 74 Kurdeg Area : Off-ravine Settlements.
- 75 Lower Sankha Basin : Hamlet-cum-hut Type Settlements.
- 76 Settlements in Middle South Koel Basin.

- 77 Mica Belt : Mining Settlements.
- 78 Deoghar Erosional Depression : Broken Rural Morphology.
- 79 Ajay Basin : Linear Settlements.
- 80 Rajmahal Hills : Linear Settlements.
- 81 Barhait Valley : Marked Development of Strassendorfs.
- 82 Alluvial Upland : Strassendorfs.
- 83 Chaibasa Plain : Even Distribution of Settlements.
- 84 Suvarnarekha Valley : Strassendorfs.
- 85 Dhalbhum Hills : Valley and Spur Settlements.
- 86 Panch Pargana Plain : Large, Dry-point Settlements.
- 87 Panch Pargana Plain : Elongated Villages.
- 88 Jharia Coalfield : Mining Settlements.
- 89 Trans - Gondwana - Trough - Country Settlements.
- 90 Trans - Gondwana Settlements.
- 91 Upper Damodar Basin : Infrequent Settlements.
- 92 Upper Damodar Valley : Riveraine Settlements.
- 93 Middle Damodar Valley : Communication Oriented Settlements.
- 94 The 'Morvan' : Valley and Foot-line Settlements.
- 95 Southern Scarp of Ranchi : Scattered Valley-head Settlements.
- 96 Porahat : Forest - margin Settlements.
- 97 Saranda : Dispersed Settlements.
- 98 Dalma Ranges : Spur, Foot-line and Interfluvial Settlements.
- 99 Inter-plateau Ridge Settlements.
- 100 Rural Morphology : Types of Elongation.
- 101 Rural Morphology : Types of Dispersal.
- 102 Types of Rural Settlements.
- 103 Layout of Villages.
- 104 Layout of Villages.
- 105 Wall Materials : Mud
- 106 Wall Materials : Brick
- 107 Wall Materials : Grass, Leaves, Bamboo and Timber.
- 108 Wall Materials : Unburnt Bricks
- 109 Wall - Material - Association Zones
- 110 Roof Materials : Tiles
- 111 Roof Materials : Thatch
- 112 Roof Materials : Brick and Lime
- 113 Roof Materials : Corrugated Iron and Asbestos Sheets.
- 114 Roof - Material- Association Zones
- 115 Rural Houses : Regional Types.
- 116 Rural Houses : Social Types.

32 pictures depicting rural houses and aspects of rural life.



सत्यमेव जयते

Abbreviation

Abbreviations have been avoided as far as possible. A few abbreviations have, however, become unavoidable.

D. G. in the foot-note refers to the District Gazetteers of Bihar and has been followed by the name of the district. Similarly the names of frequently used memoirs and journals have been abbreviated. Such abbreviations are :—

Mems. G.S I.	—	Memoirs of the Geological Survey of India.
I.G.J.	—	Indian Geographical Journal.
I.G.R.	—	Indian Geographical Review.
G.O.	—	Geographical Outlook.
G.R.	—	Geographical Review.
E.G.	—	Economic Geography.
A.A.A.G.	—	Annals of the Association of American Geographers.
G.J.	—	Geographical Journal.
S.G.M.	—	Scottish Geographical Magazine.
G.T.	—	Geographical Teacher.
P.D.	—	Publication Division, Government of India.

When we use the expression Chotanagpur Plateau, we mean the entire upland tract lying south of the Ganga Plain in Bihar. Wherever the term 'Plateau' is used with capital 'P' it refers to the Chotanagpur Plateau. The term, Ganga Plain, refers unless mentioned otherwise, to the upper and middle reaches of the Ganga Valley. Whenever the term 'plain' is written with capital 'P', it implies the Southern Ganga Plain in Bihar.



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PREFACE

In the present volume efforts have been made to study the geography of the rural settlements of Chotanagpur. By enquiry and field-work it came to our knowledge that the term 'village' in traditional sense is a misnomer or at least has a limited connotation which does not include all the rural or 'rural-like' settlements of Chotanagpur. In Chotanagpur, for example, there might be seen a solitary hut perched on a hilly spur and yet being called a village. On the other hand, a number of dwellings may be widely scattered along the course of a river or a forest-track for several miles or over a piece of land, sometimes, more than 20 square miles in area and, yet, are collectively known as a single village. There are cases in which settlements or scattered dwellings do not bear any proper name and are known and identified by places where they are located. Because of such complications in the definition and identification of villages all such types of settlements have been brought under the scope of the present study. In addition to distinct rural settlements, such settlements as are neither wholly rural nor wholly urban, nor even rurban, have also been considered. Thus the scope of the present work has been widened to include all such settlements which are not urban.

Chotanagpur Plateau, because of having a relief intermediate between that of the high Himalayas and the Ganga Plain, was hypothetically believed to have such types of settlements as are intermediate between clustered and scattered types — characteristic of the Ganga Plain and the Himalayas. This hypothesis was proved unsound by the present study. The settlements of Chotanagpur vary within a very wide range — from complete agglomeration to complete dispersal. Further, the settlements of Chotanagpur are characterised by plurality — plurality in forms, appearance, arrangement, grouping and in the combination of component units. In a largely forested and dissected tract like Chotanagpur the role of physical environment was generally believed to be absolute and determining in nature, but present study has revealed that the role of physical factors except relief, is flexible, variable and limited and, even in the densely forested hilly tracts cultural factors are quite strong to bear upon the nature and pattern of settlements.

The study is new for several reasons and in its humble way, is an original contribution to this field of geography. No such detailed study of any part of the Peninsular Upland has, perhaps, been made. In addition to the main thesis, even the introductory chapters, dealing with

general geography of the region, are the result of the author's detailed study and field-work and are, thus, new contributions to the regional geography of Chotanagpur. Though some of the methods of study are well-tryed and traditional, quite a number of them are new and have been introduced in and applied to such a study for the first time. This study is mostly based on intensive field-work and intimate personal knowledge of the region acquired during the author's long stay in Chotanagpur.

Sources

The difficulties encountered and the problems faced in the completion of this work have been great and baffling. There is a general lack of materials, data and information regarding the various aspects of rural and settlement geography of India. This is particularly true of Chotanagpur which, prior to the mineral exploitation, was the 'little known province of India' and, for the most part, continues to be so. Primitive culture, secluded way of life, unintelligible tribal languages and difficult terrain, make the region rather obscure. Most of the published and unpublished studies have, therefore, failed to do justice to Chotanagpur, particularly with its cultural geography. *Gazetteers* (old and new) and *Reports on the Survey and Settlement Operations* in various districts are of general use. Some relevant materials and information are available from highly diffused sources and, quite often, are not entirely authentic. Casual but significant remarks about the various aspects of rural life are found in numerous memoirs, travel diaries, ethnological works and administrative reports which require strenuous searching. Administrative records preserved in the various Government offices generally contain a lot of useful materials but the access to them is not always easy.

In writing this volume efforts have been made to tap all possible sources and to make use of such materials which could be made available in India. Numerous publications of the Government of India and Bihar and other agencies, e.g., Census Tables and Reports, Agricultural Statistics, Economic Statistics, Forest Statistics and Reports, Techno-economic Survey of Bihar, Damodar Valley Corporation Reports, Industrial Survey, Industrial Establishments, Mining Leases, List of Factories, List of Minerals and Mines, Labour Commissioner's Reports, Reports of the Chief Inspector of Mines and Chief Inspector of Factories, Agricultural Marketing Reports, reports on Community Development and Tribal Welfare, Forest Management and *Panchayats*, river valley development, power and irrigation projects, progress of the Five Year Plans, etc., have been studied, analysed and made use of.

The most important tool of enquiry has been one-inch maps of the Survey of India. Survey maps on other scales have also been consulted.

Relevant portions of various atlases, e.g., National Atlas, Agricultural Atlas, Lac Atlas, Climatological Atlas, have also been frequently looked into. The findings and final mappings have invariably been checked and verified with the large-scale forest and coalfield maps. These maps, mostly unpublished, are often available on such scales as 4, 8 and 16 inches to a mile.

The main sources of enquiry and fact collection have been extensive travel across the region and intensive field-work. As a member of the Post-graduate Department of Geography, Ranchi University, the author could have enough time and opportunity to make on-the-spot study of the settlements and habitat in almost all the micro-units of Chotanagpur.

Framework of this volume

The work is divided into three parts which have been further subdivided into fourteen chapters. In order to have a sound geographical basis and a proper appreciation of the relationship between the habitat and settlements a general geography of the region has been outlined in the first part. The first chapter deals with the characteristics of the physical earth. On the basis of a detailed sheet-by-sheet study and on the basis of the personal knowledge of the area the region has been divided into physical micro-units which have been referred to in later discussions. In chapter two such factors of physical environment as climate, soil and natural vegetation have been discussed. This has been done with a view to appreciate their bearings upon the rural settlements.

In the remaining two chapters of this part, the economic background of the rural settlements in their regional setting has been detailed. Chapter III thus deals with agriculture which is basic of the rural economy. Distribution of various crops, their inter-relationship and agricultural landscape have been discussed in detail. Working on Anchal-wise unpublished agricultural statistics, agricultural regions and crop-association zones have been delineated. These regions and zones have been later shown to bear upon the areal pattern of the distribution of rural settlements and houses. The distribution, location and size of industries and the density and pattern of communication lines have been examined in detail. The study of industries and communication has been utilized in interpreting and understanding the recent changes in the rural landscape.

Part Two deals with the entire cultural complex that forms the live and dynamic aspect of settlement geography and is, thus, an integral part of the thesis. This part consists of three chapters. Chapter IV

Twenty four

details the historical evolution of Chotanagpur as a cultural and geographical region. It also deals with the sequent occupance and peopling of Chotanagpur vis-a-vis the courses and processes of the history of this area. In Chapter V a detailed study of the various aspects of the rural population of Chotanagpur has been made. Four types of man-land-ratios have been worked out. By applying a mathematical formula and statistical treatment to all the economic resources of the region an economic density of population has been worked out, perhaps, for the first time, of a geographical region of India. Chapter VI outlines the cultural milieu as has evolved and obtains at present in Chotanagpur. In chapter VII, culturo-geographical regions of Chotanagpur have been delineated.

Part Three is devoted to the study of such aspects of settlement geography which are material and observable and form the integral part of the cultural impress and rural landscape of Chotanagpur. This part consists of six chapters. In chapter VIII various implications of the term 'settlement' have been examined and its meaning and scope have been fully analysed. Efforts have been made to define some of the terms of settlement geography, hitherto undefined and, also, to redefine some such terms which have been variously used. Chapter IX deals with the siting, distribution and density of settlements. In chapter X attempts have been made to correlate the siting and areal pattern of the distribution of settlements on the one hand and the factors of physical and cultural geography on the other. In chapter XI various types of settlements have been identified, defined and discussed. A statistical approach has been made, perhaps for the first time, to measure the degree of agglomeration and dispersal of settlements. Chapter XII deals with rural morphology and presents a detailed study of the morphological pattern and layout of villages. Rural houses, the smallest unit of settlement, have been discussed in Chapter XIII. Finally, in Chapter XIV, attempts have been made to sum up the study and to present a geographical summary of the main findings.

Ranchi

12th January, 1973.

Ayodhya Prasad

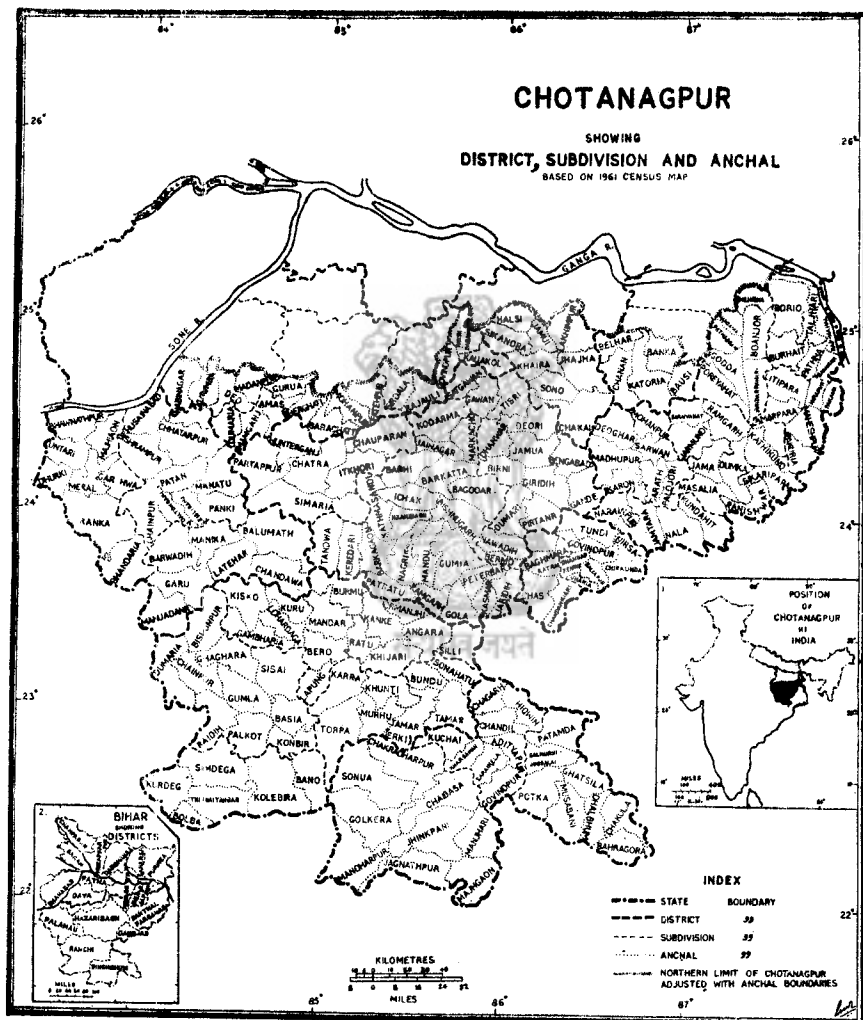
INTRODUCTION

Delimiting the Area

The area under our study is Chotanagpur. The term Chotanagpur is variously used. It is an administrative unit and refers to the Chotanagpur Division of Bihar, India (fig. 1). It is also a geographical unit, a natural division. The regions implied by the two terms, administrative and geographical, are largely conterminous, except in the north where the natural boundary of the Plateau lies in the north of the political boundary of the Division. The plateau of Chotanagpur includes, therefore, the entire administrative division of Chotanagpur consisting of the five southern districts of Palamau, Hazaribagh, Ranchi, Singhbhum and Dhanbad and all such portions of the districts of Gaya, Monghyr, Bhagalpur and Santhal Parganas which are hilly and contiguous with the highlands of the Chotanagpur Division. As regards the position of Kaimur plateau in the district of Shahabad, opinions vary widely. Most of the people are, however, in favour of treating the Kaimur plateau as a separate entity and an independent geographical region. Even from the view-point of cultural geography, the Kaimur plateau has little in common with the Chotanagpur Plateau.

The adjoining areas of Bengal, e. g., Purulia District which was extracted from Bihar in 1956, western portion of Malda, Burdwan and Birbhum districts form the last step of the Chotanagpur Plateau that descends to the lower plain of the Ganga and on the *rationale* of physical geography they are to be included in the plateau of Chotanagpur. Such areas which are physically parts of Chotanagpur Plateau but lie outside the State's boundaries have been left out of the scope of the present work. This has been done, firstly, because of the fact that outlying areas have been thoroughly integrated in altogether different cultural regions and, secondly, the difficulties in inter-State field-work, data collection, compilation of information etc. might have risked the accuracy of the work. Thus, the plateau of Chotanagpur in this work has a qualified definition and stands for those parts of the Chotanagpur Plateau which lie within the political boundaries of the State of Bihar. The political boundaries of the State have, therefore, been accepted as the limits of the Plateau in the west, south and east. In north, attempts have been made to adhere to the natural boundaries, but at places they have been compromised for valid reasons. The census figures and various statistical reports are usually based on administrative units, the lowest in the hierarchy being 'anchals'. Hence, wherever the natural boundary passes

12. Pakari Barawan
13. Kauakol
14. Nabinagar
15. Kutumba
16. Deo
17. Madanpur



Monghyr District :

1. Sikandra
2. Halsi
3. Khairā
4. Jamui

through an 'anchal'-area the boundary has been so adjusted as to include the whole 'anchal' (fig. 1).

The northern boundary of the Plateau is set by the contour-line of 500ft. (fig. 6). This line marks the foot of the escarpment that separates the Plateau in the south from the Plains in the north. Immediately south of this line the slope steepens and rises to 1000 ft. and communicates with the lower Hazaribagh plateau and its eastern and western counterparts. No parts of the Plateau, except the three outliers, viz., Khiriawan Pahar, Gaya-Rajgir ranges and Kharagpur hills which appear as rocky islands emerging out of the alluvial surface, lie north of this line. These outliers, because of their situation in an entirely separate geographical region, have little to recommend themselves for their inclusion in the present work. Geographically the whole district of Santhal Parganas forms the integral part of the Plateau of Chotanagpur, though the consideration of elevation precludes large areas of the district from being included in the plateau region of Chotanagpur. Almost the whole of the Godda Sub-division and northern and eastern portions of Sahibganj Sub-division lie below 500 ft. and form the right side of the Ganga Valley.

Administrative units included in the area under study (fig. 1) :-

A. Chotanagpur Division consisting of :

1. Hazaribagh District,
2. Ranchi „
3. Palamau „
4. Singhbhum „
5. Dhanbad „

B. District of Santhal Parganas

C. The Anchals of

Gaya District :

1. Mohanpur
2. Barachatti
3. Fatehpur
4. Amas
5. Sherghati
6. Gurua
7. Imamganj
8. Dumarua
9. Govindpur
10. Rajauli
11. Sirdala

Twenty eight

5. Chakai
6. Lakhimpur
7. Jhajha
8. Sono

Bhagalpur District :

1. Katoria
2. Chanan
3. Belhar
4. Banka
5. Bausi

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PART ONE



PHYSICAL AND ECONOMIC BACKGROUND



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THE PHYSICAL EARTH

GEOLOGY

In a study of cultural landscape, like ours, a geological background of the region may not appear quite necessary, but it becomes desirable for a better and fuller appreciation of the various cultural features upon which the geology of the area has distinct but definite bearing. It is especially so in Chotanagpur which is a geomorphic unit and a geological province. The relationship between geology and physiography, agricultural field - pattern, distribution and density of settlements, alignments of routes etc. have been referred to at suitable places in the following pages.

The basement of this region is made of gneissic granite known as Bengal gneiss or Chotanagpur gneiss. With these granitic rocks are associated sedimentary, metamorphic, igneous intrusive and extrusive rocks. Most of the rocks in this area belong to three important geological formations of India, viz., Archaean, Gondwana and Jurassic - Cretaceous (fig. 2).

The Archaeans are by far the most important formation which cover more than 90% of the Plateau surface. The Archaeans are represented by two facies : (i) sedimentary and (ii) granitic and basic intrusives. The sedimentary rocks have been grouped under the name of Dharwarian System.

The Dharwarian rocks are found in the extreme southern and northern portions of the Plateau. They are best developed in Singhbhum District. The component rocks are quartzite, sandstone, conglomerate, phyllite, schists and limestone. In Singhbhum District the quartzite is interbedded with thick masses of iron-ore and is called banded hematite quartzite. It is the most important source of iron-ore in India and for this reason the Dharwarian formation in this part has been named Ironore Series. With these rocks are associated basic lavas and intrusives which, at places, have been altered to epidiorite and various types of schists. Dharwarian rocks present a broad spectrum of metamorphism and have variously responded to erosion in outlining the surface.

The third important formation of the Plateau is known by the name of Gondwana System. This system of sedimentary rocks was originally deposited in a trough-like sinking basin of tectonic origin. The principal basin covers an elongated area conforming approximately to the Auranga - Damodar Valley. Within the principal basin there are six sub-basins' of varying sizes, viz., Hutar, Auranga, Karanpura, Ramgarh, Bokaro and Jharia. Outside the Gondwana Trough there are other basins of Gondwana formation which are important coal fields. The principal component rocks of the system are sandstone, shale and basal conglomerate. Sandstone is the dominant rock which is interbedded with coal seams. The alternation of sandstone with shale has led to the evolution of ridge-in-valley configuration that characterises the coalfields.

The basic extrusive rocks are found in three separate tracts. They are the western part of Ranchi District, the Rajmahal Hills and the bordering areas of the districts of Singhbhum and Ranchi. The volcanic rocks of the western Ranchi District are actually the outliers of the Deccan trap. The Rajmahal lava that belongs to the Jurassic period overlies the Gondwana rocks. The Singhbhum lava, poured out in the Archaean period, has been thoroughly metamorphosed, folded and uplifted. Under hot-humid climate of this area, the volcanic rocks, especially in their upper layers, have been altered to laterite bauxite.

Economic Geology and Minerals

In the geology of Chotanagpur, minerals assume great importance. They have been constantly influencing the evolution of the cultural complex of this region. Even in the ancient time the occurrences and uses of certain important minerals were known to the people which are evident by the existence of numerous sites of primitive quarries and smelting. As it is more than conjecture that minerals have been influencing the peopling of Chotanagpur and the various processes of growth and distribution of settlements, an account of the minerals becomes necessary.

Bihar is by far the largest mineral - producing State of India and Chotanagpur is the source region of the minerals of Bihar. Chotanagpur alone is responsible for 37.3% (by value) of the mineral production of India. Though Chotanagpur produces a very wide range of minerals the most important of them are coal, iron-ore, copper, bauxite, uranium, limestone and a large variety of refractory minerals.

The Dharwarian which is the most highly mineralised formation of India consists of the greatest and the most diverse assemblage of minerals. The minerals of this formation occur as bedded deposits and also

in definite veins that traverse the sedimentary rocks. The important minerals of this formation are iron-ore, copper, manganese-ore, chromite, limestone, kyanite, refractory quartzite, steatite, slate and building-stones.

Mica, copper and a few other minerals occur in veins that traverse the Dharwarian rocks. The most important mica-bearing belt is found along the northern border of the Plateau that stretches for 80 miles from Kodarma to Kharagpur. Copper lodes in large quantity occur in the Iron-ore Series of eastern Singhbhum.

In ancient time Chotanagpur appears to have been famous for the mining of gold and precious stones, but the present knowledge of geology does not suggest anything more than the uneconomic occurrences of these minerals in various quartz veins. The occurrence of diamond and other precious stones has nowhere been located so far. The only stone of ornamental value that occurs in large quantity is baryte. The occurrence of topaz, corundum, garnet, agate, amethyst and opal is of little value.

Coal seams are found in the Barakar and Raniganj stages of the Gondwana System. Altogether there are twenty-one coalfields. Most of them are located in the principal Gondwana basin. The Gondwana System is also rich in fire-clay, china-clay, glass-sand and a few other minerals which are highly valued for industrial uses.

Mineral Zones of Chotanagpur

The minerals of Chotanagpur occur in well defined belts which correspond very much to the economic regions of the Plateau (fig. 3). The structural trends of the rocks that are, in general, from east to west have influenced the localization of minerals. The mineral deposits are, therefore, found in east-west elongated zones, either in downfaulted or depositional basins or in fissures, cracks or veins. In a traverse from north to south, the mineral zones are found in the following succession (fig. 3) :

1. Mica belt — From Kodarma Forest to Gawan.
2. Coal belt — From Hutar in the west to Raniganj in the east.
3. Archæan Limestone belt — From Ramgarh to the North Koel river.
4. Bauxite - Laterite belt — From the State boundary in the west to the South Koel river (conterminous with the *Pat* region)
5. Copper belt — From Daurparan on the Brahmini river to Baharagora in Dhalbhum via Kharsawan and Seraikela.
6. Iron-ore belt — In the extreme south of Singhbhum District.

7. Manganese and Refractory mineral belt — Inbetween Copper and Iron-ore belts are found the narrow bands of chromite, kyanite, kaolin, asbestos and manganese.

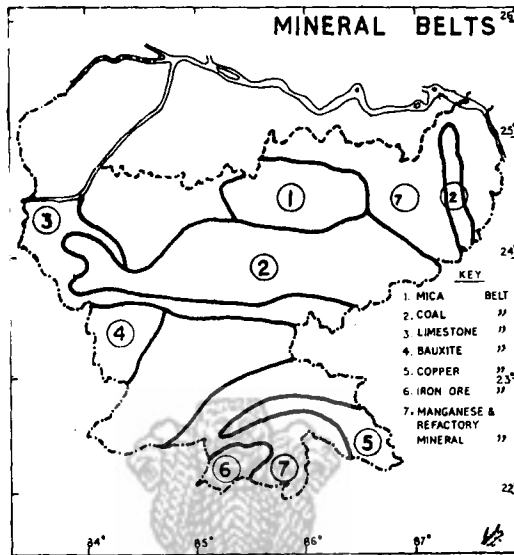


Fig. 3

STRUCTURE

The structural frame work of Chotanagpur is, in general, linked up with the Peninsular Upland. Chotanagpur, like most of its parent body, the Peninsular India, was not submerged beneath the sea since the Cambrian period, nor could it succumb to the great orogenic movements of the Mesozoic and Tertiary eras. To these movements it reacted epeirogenetically and still preserves some very significant marks of its reactions which outline the geomorphology of the area and are responsible for the distinctive physical features, bold relief and present elevation of the Plateau.¹

The structural frame of the region was laid down by the Archaean movements which folded the Dharwarian sediments and caused the batholithic intrusions into the folded Dharwarians. The Archaean folds were subjected to further movements which caused the great thrust through which welled up ultra-basic magma preserved in the Dalma and Dhanjori ranges.²

1. Dunn, J. A., Memis., G. S. I., Vol. 78, pp. 8-14 and Ahmad, E., 'Geomorphic Outline of Chotanagpur', Geographical Outlook, Vol. 2, pp. 16-22.
2. Krishnan, M. S., Memis., G. S. I., Vol. 81, 1953, pp. 3-9.

The region appears to have been quiet until the Hercynian movements which put the region in a state of great tension and ultimately led to the development of east-west linear fractures and the Gondwana Trough across the main body of the Plateau.

The Himalayan Orogeny did not affect the region directly, but indirectly produced great effects on this ancient landmass. Prior to the rise of the Himalayas, the region received immense outflows of lava in the north-eastern section which forms the Rajmahal trap. Further, during the periods of the Himalayan folding, the region appears to have responded to epeirogenetic movements in various phases which uplifted the area in four successive jerks¹ to a total of over 3,000 feet.

THE PHYSICAL LANDSCAPE

The Chotanagpur Plateau is a region of great physical inequalities and presents a rich panorama of topographical features. The general configuration of the region varies within a very wide range from the alluvial plains of the eastern Santhal Parganas and the plains of larger rivers lying below 500 ft to the series of small plateaus standing above 3,000 ft (fig.4). Between these two extremes there are the well marked surfaces of 2,000ft and 1,000ft. Thus, "there are four erosion surfaces in the region"². The upper three surfaces are quite distinct and well marked by the presence of steep escarpments, while the fourth one, the lowest, is recognised by the alignment of the nick-points in the long profiles of the rivers. Great controversies exist as to the evolution of the physiography of Chotanagpur and it is outside the scope of the present work to discuss and examine whether the four surfaces are 'uplifted peneplains',³ or have partially resulted from 'differential erosion'.⁴

The 2,000ft-surface constitutes the core of the region which comprises two small plateaus of Ranchi and Hazaribagh separated by the Gondwana Trough. To the west of the Ranchi plateau the surface rises rather abruptly by 1,200ft and forms the higher plateaus, locally known as *Pats*. On three sides, the central plateau descends to the 1,000ft-surface which gradually slopes down to still lower surface of 500ft. The transition from 1,000ft to 500ft-surface is gradual except in the north where the edge of the Plateau forms steep escarpment.

In the south, the complexion of the Plateau is totally changed and it becomes a highly dissected region that "forms rugged hill country with

1. Dunn, J. A., and Ahmad, E., op. cit.

2. Ahmad, E., op. cit., p. 16.

3. Ahmad, E., op. cit. and Dunn, J. A., op. cit.

4. Chatterjee, S. C., 'The Physiographic Evolution of Chotanagpur' Cal. G. R., 1949, p. 7.

typical mountain scenery of turbulent streams, steep hill sides and cliffs, and narrow valleys.”¹ This dissected region, extending across south Ranchi District and continuing through Singhbhum, ‘is really a prolongation of the Ranchi Plateau’,² but owing to extensive dissection it has been reduced to a lower level and presents a different landscape.

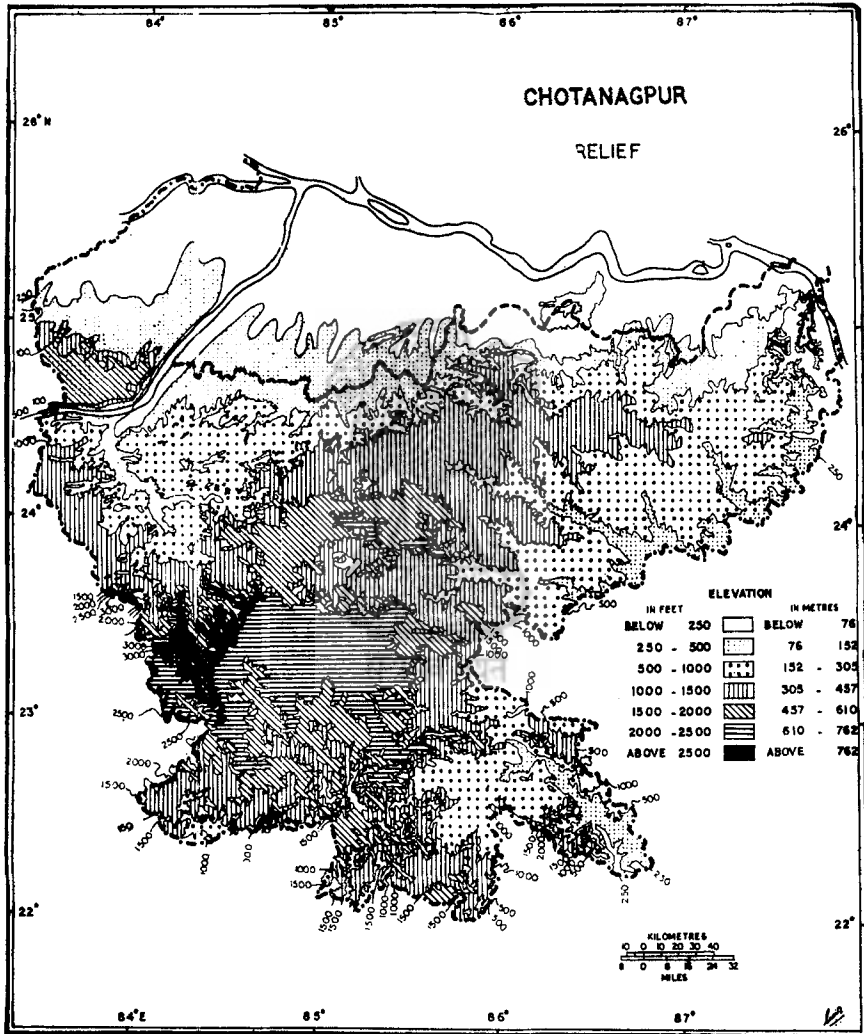


Fig. 4

The north-east projection of the region is capped with Rajmahal lava-flows (fig. 2). The lava surface is highly denuded and forms a chain

1. Dunn, J. A., op. cit., p. 11.

2. Dunn, J. A., op. cit., p. 11.

of dissected hills which, in the north, abut upon the bank of the Ganga, and in the east, gradually slopes down to the Bengal plains.

The great differences in elevation and relief bring about strong contrasts in climate, natural vegetation, surface drainage, underground water and soil profiles, which in turn influence population distribution, landuse pattern and settlement types. Extensive areas above 2000ft and greater part between 2,000ft and 1,000ft, present a variety of morphologic features which are clearly expressed in the cultural landscape. River valleys, most of them long, deep and terraced, a few of them wide with

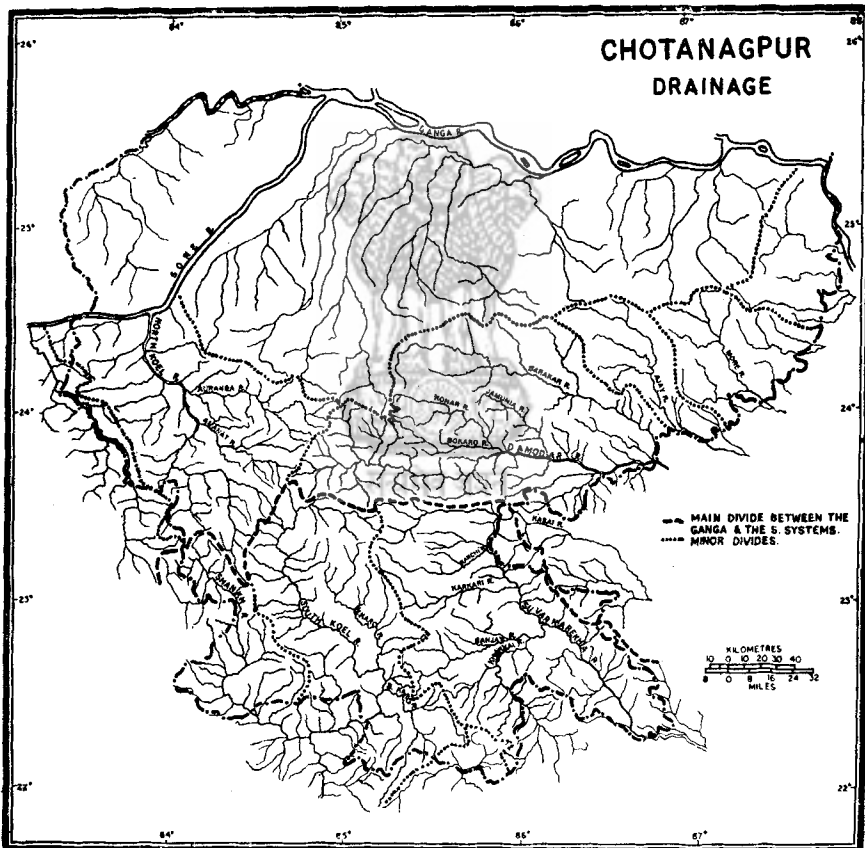


Fig. 5

gentle slopes, alternate with low elongated ridges. Sometimes hilly spurs projecting from higher tablelands are elongated into chain of hills and ridges. A deep soil mantle in lowlying flood plains contrasts with thin soil cover on the higher slopes which are extensively subjected to gully-erosion.

Besides, there are a large number of physical handicaps to occupance. The presence of steeply sloping land subjected to extensive erosion makes agriculture difficult in many parts of the Plateau. Great elevation and steep slopes facilitate quick run-off which renders the streams ephemeral and ponds empty ground-scars in summer. The impervious character of the gneissic rocks further aggravates the problem of underground water-supply. Partly because of the seasonal character of the streams and partly because of their deep channels flanked by ravined banks and bluffs, the rivers do not appear to have exercised the same amount of control over the siting of settlements and village patterns as they have done in the adjoining plains of the Ganga. Mountainous terrain, dissected surfaces and steep escarpments offer great impediments to communication and transport also. Most of the streams crossed by secondary roads are unbridged, for their seasonal flow fails to make the authority feel the urgency of bridges. There is, however, one advantage with the hilly tracts and dissected surfaces. They are mostly covered with rich forest and scrub-jungle which have been the perennial source of timber supply for various structural, agricultural and domestic uses to the villagers. The forests have influenced rural architecture and houses in the countryside of Chotanagpur have a much more plentiful use of timber than their counterparts in the Ganga Plain.

Physical Units

On the basis of elevation, morphologic features and slopes, the Plateau of Chotanagpur may easily be divided into six major divisions. Each major division is subdivided into smaller units which bear upon the delineation of the micro-geographical regions and cultural landscape and, to a great extent, account for the marked variation in settlement types and patterns.

The hierarchy of divisions and subdivisions that finally emerge is as follows (fig. 6)

(1) CENTRAL PLATEAU

- (i) *Pat* Region
- (ii) Upper Sankh Basin
- (iii) Ranchi Plateau
- (iv) Hazaribagh Plateau
- (v) Fringes and Escarpments
- (vi) "Morvan"
- (vii) Inter-plateau Ridges

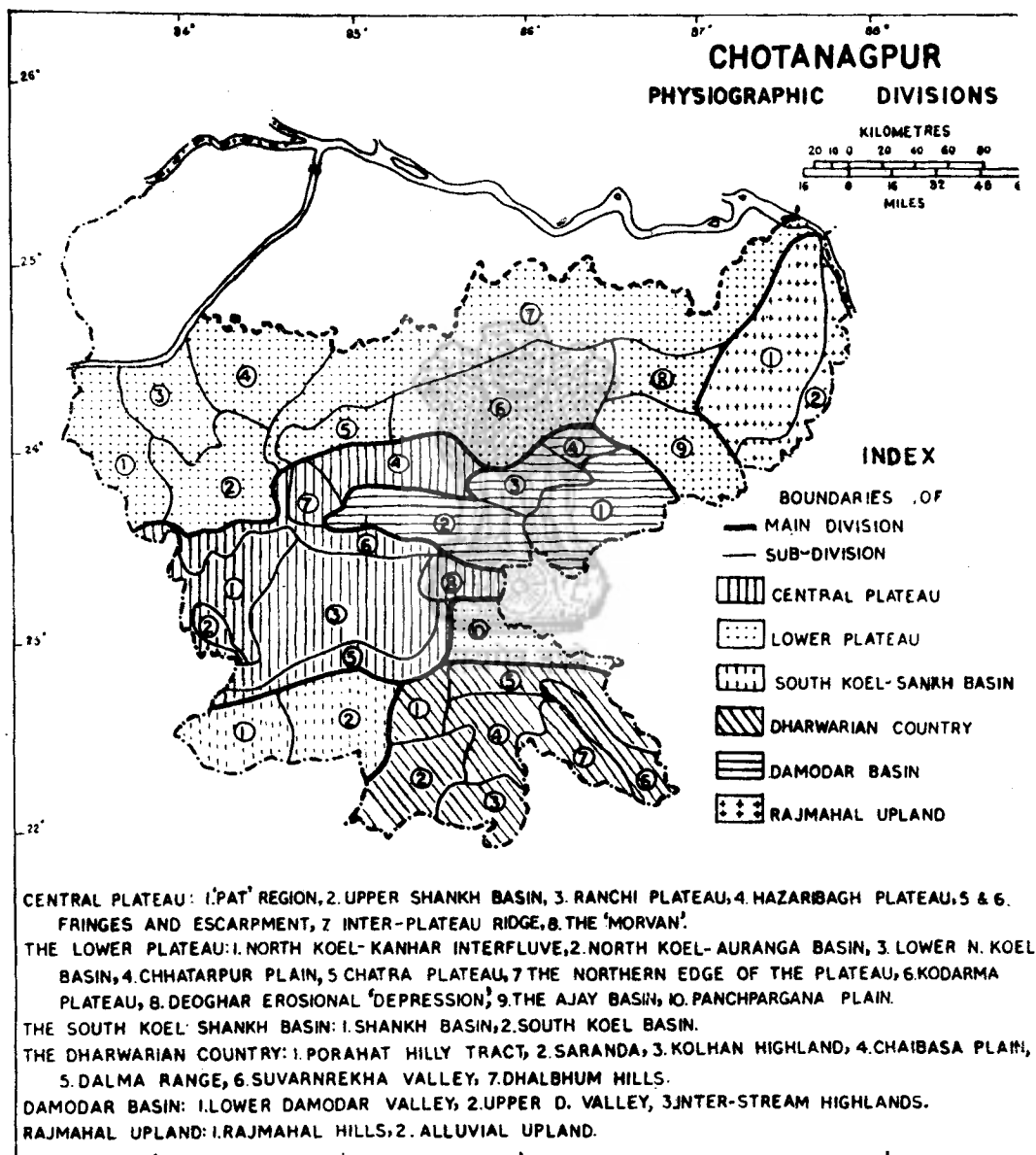


Fig. 6

(2) LOWER PLATEAU

- (i) North Koel-Kanhar Interfluvial Upland
- (ii) Upper Koel-Auranga Basin
- (iii) Lower Koel Basin
- (iv) Chhatarpur Plain
- (v) Chatra Plateau
- (vi) Kodarma Plateau
- (vii) Northern Edge of the Plateau
- (viii) Deoghar Erosional "Depression"
- (ix) Ajay Basin
- (x) Panchpargana Plain

(3) SOUTH KOEL-SANKH BASIN

- (i) Sankh Basin
- (ii) South Koel Basin

(4) DHARWARIAN COUNTRY

- (i) Porahat Hilly Tract
- (ii) Saranda
- (iii) Kolhan Highland
- (iv) Chaibasa Plain
- (v) Dalma Range
- (vi) Suvarnarekha Valley
- (vii) Dhalbhum Hills

(5) DAMODAR BASIN

- (i) Upper Damodar Valley
- (ii) Lower Damodar Valley
- (iii) Barakar Valley
- (iv) Inter-stream Highlands

(6) RAJMAHAL UPLAND

- (i) Rajmahal Hills
- (ii) Alluvial Upland

THE CENTRAL PLATEAU

It consists of the areas above 2,000ft included in the districts of Ranchi, Palamau and Hazaribagh.

Pat Region

The western part of the Central plateau that consists of "several small plateaux rising further 1,000ft—1,200ft above the Ranchi plateau (originally Chotanagpur Plateau), and representing a still older land surface which is now almost completely obliterated"¹ has been named

¹ Dunn, J. A., op. cit., p. 11.

Pat region, for the small plateaus are locally known as *Pats*. The region on the map (fig. 5) appears like a triangle with base in the north formed by the escarpment that walls up the North Koel-Auranga Basin. The eastern side is again an escarpment (to be called *Pat-scarp* henceforth) that descends to the Ranchi plateau, while the western side roughly coincides with the State boundary. The two sides meet to form the apex at Raidih which is the southern-most limit of the region.

The northern escarpment is frequently broken and cut into long projected spurs and ridges by the deep and comparatively broad valleys of the tributaries of the N. Koel. Both the *Pat-scarp* and the northern scarp have steep slopes varying between 45° to 25° . The steeper slopes are usually rocky and devoid of soil.

The most striking feature of the region is the mesa-like flat-topped small plateaus which are called *Pats*. The *Pats* have a capping of the Deccan trap which has been mostly altered to laterite. Most of the *Pats* rises above 3,500ft and some of them are above 3,800ft. The average relief is 1,000ft, but at places along the northern scarp, it exceeds two thousand feet. The *Pats* are the inter-fluvial tracts lying between various head-streams of the N. Koel and the Sankh rivers which flow at a gradient ranging from $1/3$ to $1/20$. The narrow valleys, steep-gradient and flat interfluves clearly suggest that the area is passing through a young stage of the cycle which was started *de novo* after the uplift in the beginning of the Tertiary period. The dominance of valley-deepening over valley-widening explains the existence of flat-topped interfluves and accounts for the absence of alluvial soil in the river valleys.

A unique feature of the region is that it is the highest or the lowest levels which are habitable and are given to cultivation. All other intermediate levels constitute either the steep slopes of the spurs and ridges or the precipitous scrap-faces which are very difficult to climb and are mostly rocky and forested.

The Upper Sankh Basin or Barve Plain

The Upper Sankh Basin, though lying completely within the bounds of the *Pat* region, merits a separate treatment, for, it is the only river basin west of the *Pat-scarp* which is quite broad with gentle slope and has facilitated deep soil formation. The basin is an oval-shaped tract, rimmed on all sides by vertical walls rising above 3,500ft and opens towards south near Raidih through a deep gorge. Most of the basin is above 2,000ft and only a narrow strip extending from the gorge in the south is below this mark. The excavation of an oval tract, 1,500ft below

the surrounding summit-level by the head-streams appears somewhat puzzling, for, it suggests a vertical localized erosion of the *Pat* level by 1,500ft and disposal thereof through the narrow opening of the Sankh.

Ranchi Plateau

This is the largest among the higher plateaus of this region. The limits of the plateau are precisely fixed by the 2,000ft contour on three sides, north, east and south, while 2,400ft contour that toes the *Pat*-scarp sets the western limit. This is "a region of flat or gently undulating country with occasional residual ridges".¹ The plateau resembles a table-land that slopes away in all sides except in the west.

The highest portion of the plateau is a central east-west swell by 300ft over the general level. From this central swell radiate numerous streams that drain the plateau through three master streams, the Damodar, the Suvarnarekha and the S. Koel. In the west, a distinctive feature has been added to the plateau surface by the numerous streams that sweep down the *Pat*-scarp. These hilly torrents have deposited gravel and sand that fan out from the toe of the escarpment sloping towards the S. Koel valley. This piedmont belt, lying between 2,400ft. and 2,100ft. has been thoroughly dissected and rendered useless for cultivation and settlement.

"The whole plateau represents an old land surface"² divided into *dons* and *tanrs* (lowlands and uplands respectively) rising above which are the residual hills of resistant rocks, locally known as *tongari*. These *tongaris* vary within a very wide range, rising a few feet to a thousand feet and above from the plateau level. As a rule, the *tongaris* west of 85° E latitude are higher and larger, rising above 2,500 ft, some above 3,000 ft. East of this line the summit level of the *tongaris* is 2,250ft. The two levels of the *tongaris* in eastern and western halves of the plateau support the view that "the present level represents an uplifted peneplain which in the western portion is an extension of the early peneplain east of the Netarhat lava region".³ The characteristic features of the *tongaris* are their abrupt emergence from the debris of the weathered rocks that form the top-soil. Some of them are just rocky exposures or low eminences and look like giant tortoise-shell, while the higher and bigger ones frequently assume domal shape, exhibiting bare rocks along the middle curves. But quite a few of them have been dissected by radial gullies which through headward extension have divided the hill surface into radial ridges alternating with run-off channels. Such *tongaris* in their contour-plan assume typical lotus-shape. The alternating *dons* and *tanrs*

1. Dunn, J. A., op. cit., p. 11.

2. Dunn, J. A., op. cit., p. 11.

3. Ahmad, E., 'Geomorphic outlines of Chotanagpur', op. cit., p. 17.

which constitute the universal order of relief on this plateau are actually the water channels and interfluvial ridges. These water channels, because of gentle gradient, low situation offering protection from soil-creep and sheet-erosion and a comparatively thick mantle of river-borne soil, have been terraced for paddy cultivation, while the interfluvial ridges, largely uncultivated, serve as the site for settlements.

Hazaribagh Plateau

It is the northern part of the Central Plateau which is separated from the main body by the Gondwana Trough. The two plateaus of Ranchi and Hazaribagh are, however, connected from the west by a broad ridge that forms the Auranga-Damodar divide. The Hazaribagh plateau is not a continuous surface like the Ranchi plateau. It is divided into three separate patches, arranged in an east-west elongation, by the deeply eroded valleys of the Konar and the Bokaro rivers. The topographical features of the plateau are more or less the same as those on the Ranchi plateau, except that it is more effectively dissected by the deep gullies that extend from the river beds right up to the centre of the plateau.

The Fringes and Escarpments

The surface of the Ranchi plateau that slopes away gently from the central swell suddenly, on the fringes, assume mountainous complexion and precipitous look. In the north, the slope is very steep and forms a continuous escarpment that edges the Damodar Basin. In the east and south, because of a very high degree of dissection, the escarpments are not so well-marked. This has converted the plateau edges into a succession of sharply cut ridges and spurs. The same is true of the Hazaribagh plateau.

Owing to a varying degree of erosion in different section of the plateau, the edges do not form typical escarpments. They are deeply cut and frequently broken. Along the broader river valleys, they have receded much behind the scarp-line. The edges, therefore, appear as a narrow fringe-zone of sharply-cut high hills, ridges and spurs alternating with deep valleys. Slopes are steep everywhere, whether they are along the interstream hills or along the continuous escarpments. These steep slopes are almost bare, rocky exposures, except at the intersections of two or more slopes in the river valleys along the scarp-foot which offers a sojourn for the eroded materials till they are removed by soil-creep, landslide and gully action. It is precisely these points of break in the gradients that support a stunted growth of scrub jungle.

The 'Morvan'

The division comprises the area lying between 2,000ft-1,000ft that apparently forms the plateau fringe, but is abnormally broad and gently

sloping towards the Purulia plain drained by the Kasai river. The Kasai river aligns with the upper reaches of the Suvarnarekha that flowing across this area, takes a turn at right-angle towards south, just below the 1,500ft contour.

From the study of the present alignment of the Kasai, the Suvarnarekha and the tributaries of the latter as well as the geomorphic characteristic of their valleys, it appears probable that the Suvarnarekha has beheaded the Kasai, the elbow of capture occurring near Muri where the Suvarnarekha takes a sudden turn towards south. The main force behind this capture appears to be a marked uplift of the Ranchi plateau with a reference to the southern peneplain causing a remarkable entrenchment of the Suvarnarekha and a rapid headward erosion by this stream so that it had captured the upstream section of the Kasai. This upstream section now forms the west-east headstream section of the Suvarnarekha itself.

Interplateau Ridge

The plateau of Ranchi and Hazaribagh are separated, for the most part, by the Gondwana Trough. They are joined by a broad ridge that serves as divide between the Damodar in the east and the Auranga in the west. The summit level of the ridge is 1,900ft. There are residual hills rising above 2,000ft. The ridge is made entirely of gneissic granite and, except for the lower elevation brought about by a more extensive erosion, forms the integral part of the Ranchi-Hazaribagh plateau.

LOWER PLATEAU

It comprises the third higher surface of Chotanagpur, lying between 1,500ft and 1,000ft. It covers a very wide area that "girdles the Central 2,000-foot plateau on all sides—from Palamau via Hazaribagh, Santhal Parganas, Manbhum into Singhbhum."¹ On the basis of regional variations and natural demarcation, this extensive upland has been further divided into smaller physical units.

North Koel-Kanhar Interfluvial Upland

This is the westernmost part of the Lower plateau and forms a triangular piece of land with apex at the foot of the *Pat* region and the Sone as its base. The interfluve is an asymmetrical figure—the Koel-valley flank from the divide crest to the valley bottom being gentler and six times longer than the Kanhar-valley flank. The watershed runs, therefore, very close to the Kanhar valley, leaving only a narrow strip of

1. Ahmed, E. 'Geographic Outline of Chotanagpur', op. cit. p. 16

land in its catchment. The surface is extremely rugged and the landscape presents an intricate, confused pattern consisting of narrow valleys that alternate with spurs and ridges of various shapes and sizes. Occasionally, there occur small patches of level ground enclosed by hills which are of great human use and appear to have functioned as the foci of settlement in this region.

Upper N. Koel-Auranga Basin

It comprises 1,000-foot surface bordering the *Pat* region and the inter-plateau ridge. On this surface are projected five elongated ridges from the *Pat* region. The ridges rise above 3,000ft and have very steep slopes. Like the Kanhar-Koel interfluvium it is a highly dissected surface and offers few incentives to extensive occupation. It is, in fact, one of the most densely forested tracts of Chotanagpur that has resisted to a great extent human encroachment upon Nature's domain. The landforms have been carved out of the gneissic surface, except in three isolated basins which consist of the Gondwana outcrops of Talchir, Barakar and Mahadeva Series. These basins constitute an undulating surface, lying below the level of the gneissic country.

Lower N. Koel Basin

The areas included in this division constitute the plains of the North Koel river that lie between 1,000ft and 500ft. This is a flat country with a thick cover of alluvium. The surface is even, except for a few rocky eminences and hilly spurs that are protruded beyond the borders of the region.

Chhatarpur Plains

The region includes the upper basin of the Punpun river. It is actually the extension of the 1,000-500ft. surface that constitutes the northern edge of the Lower plateau. The persistent features of topography are the broad open valleys alternating with irregular divides that frequently rise to form hills and ridges. The hills and ridges wear a weathered look. The river-beds are sandy, the slip-off slopes and the plain consisting of a very high percentage of sands form narrow sandy strips on either side of the streams that support thorny bushes and scrubs. The long array of hills on the margin gives the impression of escarpment from north.

Chatra Plateau

The Chatra plateau, lying between the Amanat Valley in the west and the Mohana Valley in the east, succeeds the Hazaribagh plateau in

the north. The summit level of the plateau is between 1,500 and 1,000ft. The two edges of the Hazaribagh plateau in the south and the Lower plateau in the north come within the closest distance, and the Lower plateau has been reduced to a narrow elongation of elevated tract. Thus, hemmed in between two dissected and scarped surfaces and drained by a thicker net of streams, the surface has been dissected in a very remarkable manner and the plateau appears as a broken country of interlocking spurs, high ridges and intricate valleys. The broken aspect is most pronounced in the west of Simaria where the two plateau-edges meet to make the region almost inaccessible from west.

Kodarma Plateau

The Kodarma plateau that extends from the Barakar-Mohana divide in the west to the source region of the Kail and the Ajay rivers in the east, is the most representative section of the Lower plateau with maximum width along the Kodarma-Bagodar line. The southern boundary is precisely defined by the steep face of the Hazaribagh plateau, while the northern boundary consists of the precipices of the plateau-edge. Although the region forms a continuous upland tract with the Chatra plateau in the west, it differs from the latter in geological characteristics and details of the topographical features. The plateau edges in the north form a well-defined watershed between the Ganga and the Damodar systems. The general slope marked by the course of the Barakar is towards south-east. The plateau is, thus, shut-up from north by the escarpment and opens to the plains of Bengal through the Lower Damodar Basin.

From Kodarma to Kharagpur Hill the plateau is flanked by the out-crops of the Dharwarians consisting of quartzite and schist which are frequently traversed by the mica-pegmatite veins. The Dharwarian quartzite, owing to its great resistance to erosion, forms ranges of high hills which are characterised by sharp crests and almost vertical sides of bare rocks, while the schists have been eroded to a lower level and have given rise to a rolling or undulating surface. In the southern part of the plateau, drained by the Barakar and Jamunia rivers, valley-widening appears to have taken precedence over valley-deepening and the valley slopes are marked by pronounced concavity.

Northern-Edge of the Plateau

The Northern-Edge of the plateau, lying between 1,000 ft. and 500 ft. levels, marks the transitional surface between the Ganga Plain and the Chotanagpur Plateau. The Edge consists of a chain of hills rising above 1,000 ft. and arranged in south-west to north-east directions,

which are, perhaps, the remnant of the fault-scarp that has receded. The recession of the scarp is not equal everywhere. West of the Mohana river, the scarp has receded to the farthest south and west of Simaria, it has actually merged with the scarped face of the higher plateaus of Hazaribagh and Ranchi. The recession of the escarpment has, probably in this part, led to the formation of the Chhatarpur plain and the lower basin of the North Koel. Similarly, east of the Kiul river, the escarpment has receded to the vanishing point, leaving behind a dissected surface studded with residual hills and ridges of resistant rocks. But, between the Kiul and the Mohana rivers the characteristics of the escarpment are best preserved, partly because of the greater resistance of the Dharwarian rocks that border the area and partly because of the streams that originate at the crest of the escarpment. Along this section of the Edge, "there is an abrupt contrast between the southern thin edge of the Gangetic alluvium and the highly dissected edge of the 1,250 ft. plateau stretching from Chauparan and Kodarma towards Giridih. In the east-west belt of the country to the north of Kodarma, the streams are rapidly cutting downwards and although the level of the intervening ridges remains at 1,250 ft., the whole belt has been dissected in a most remarkable fashion. The head-waters of these streams are extremely active and are rapidly cutting back into the plateau, removing the old soil surface and forming wide-spread bad lands along the edge of the plateau."¹

The Deoghar Erosional "Depression"

There is an extensive tract between Kodarma plateau in the west and the Rajmahal Hills in the east that has a lower level than either of the two adjoining regions. It is, in fact, a reduction of the Kodarma plateau to a lower level and represents an "erosional depression" that lies below 1,000 ft., precisely between 500 ft. and 800 ft. The summit maintains 1,000 ft. to 1,250 ft. level with a few hills rising above 2,000 ft. Except for the lower elevation, the area has the same morphological feature as the Kodarma plateau, and so, in a traverse from Kodarma to Deoghar, one fails to make any distinction between the landscape of the two regions. But, "If a traverse is made south from Bhagalpur or Monghyr, the Gangetic alluvium is seen to thin out quickly, and the surface of granite and metamorphic rocks rises gradually southwards. Projecting above this surface, there are, however, ridges of resistant rocks, but general character of the country is that of an old peneplain surface."²

1. Dunn, J. A., op. cit., pp. 8-9.

2. Dunn, J. A., Ibid, p. 8.

Panchpargana Plain

Between the "Morvan" in the north and the Dalma range in the south is a rolling country that extends eastward from the Bundu-Tamar line to the Suvarnarekha and is known as Panchpargana. Lying between 1,500 ft. and 1,000 ft. level it constitutes the south-eastern part of the Lower plateau. The slopes are gentle and the topography is tame, except along the rivers that have dug deep valleys and flow through incised meanders. Owing to the incision of the channels the river-banks have been subjected to intense gully-erosion which has led to the formation of extensive bad lands unfit for settlements. In the western portion, adjoining the Ranchi plateau, the surface is broken. The receding escarpment has left behind chains of hills and *tongaris* which normally align with the elongated spurs that project from the Ranchi plateau. These spurs alternate with the deep valleys of the rivers that plunge down from the Ranchi plateau and give rise to several beautiful water-falls.

THE SOUTH KOEL-SANKH BASIN

"South from latitude 22° 50', extending across south Ranchi District, is a dissected region which is really a prolongation of the Chotanagpur (Ranchi) plateau."¹ This dissected tract is drained by two large rivers—the Sankh and the South Koel—which, beyond the borders of Bihar, join to form the mighty Brahmani river. Of all the rivers that drain Chotanagpur, the Brahmani is the largest. Except for the last 50 miles, the river courses across a plateau surface which has experienced successive uplifts and, from the source to the mouth, its course has a clear sweep without any major impediments or break of gradient. A steep gradient, aided by increased rainfall might have led to a higher degree of dissection of a surface made of the rocks that "are of a type more readily susceptible to erosion."²

Sankh Basin

The region comprises that portion of the Sankh basin that lies south of Raidih. Here the river comes out of the Barve plain and enters a narrow valley walled on either side by steep slopes of high hills rising above 2,000 ft. For about 30 miles in this gorge the course of the river is typically straight without any major bends or meanders which are so characteristic of the lower reaches of this river. Towards south the basin becomes suddenly very broad. In this broader section of the

1. Dunn, J. A., op. cit., p. 11.

2. Ibid, p. 6.

basin, the measure of relief is low, but on the whole, the surface persists to maintain its dissected appearance.

South Koel Basin

The South Koel river commands a very large area. Deep broad valleys excavated by the S. Koel and its large tributaries penetrate far into the Ranchi plateau. The general configuration and relief are almost the same as in the Sankh basin. It differs, however, from the Sankh basin in respect of the river valleys which are broad, gently sloping and largely given to cultivation.

The southern portion of the basin is sharply contrasted with the rest of it. Here the broader valleys begin to narrow down to be finally reduced to gorge-like shape flanked by high hills of the Dharwarian rocks which are in continuation with the Dalma-Kharsawan ranges.

DHARWARIAN TRACT OF THE SOUTH

The region comprises the whole of Singhbhum District and the south-eastern corner of Simdega Subdivision. The surface is made of the Dharwarian rocks which have been variously eroded and dissected to form "a hilly upland tract containing hills alternating with valleys, steep forest-clad mountains and in the river basins, some stretches of comparatively level or undulating country."¹ In no other part of Chotanagpur so many topographical varieties and complexities are crowded within so small dimensions. The region can easily be subdivided into smaller units.

Porahat Hilly Tract

Between Deonadi in the west and Dhunadih-Karaikela in the east (i.e. 84°55'E to 85°30'E) and north of the Sanjay-Karo waterline upto the southern fringe of the Ranchi plateau, is a mountainous tract "consisting of hills, valleys, and plateaus with hill-ranges and outlying spurs running in all directions."²

The main out-crops in this area consist of gneissic granite along the Ranchi plateau, succeeded by the Dharwarian quartzite, schist and highly resistant ultra-basic intrusives which are preserved in the highest hills and ranges running in south-west to north-east directions. "Here the varying outline of the hills is a notable feature in the landscape. As a rule, they are of irregular contours and display broken outline of sharp-backed ridges and conical peaks. Some hills have a bossy

1. D. G. Singhbhum (1910), p. 2.

2. Ibid, p. 3.

dome-like form and are traversed by a network of trap-dykes"¹ which attribute a chess-board appearance to the hill-tops. Because of high hills and precipitous slopes, the area is, for the most part, virgin, clothed in thick forest.

Saranda

The hilly tract of the Kolhan, south-west of the S. Koel river, is known as Saranda Pir. In the present work, however, the region comprises the entire hilly area that extends from the Bihar-Bonai border in the south-west to Chainpur in the north-east, and is separated from the Porahat hilly tract by the deep valleys of the upper Sanjay and south Koel rivers. "It is a mountainous country with no level and undulating land except along the railway line in the valleys of the S. Koel and the Sanjay and is often picturesquely called the *Saranda of Seven Hundred Hills*."² The landscape has been sculptured out of the Dharwarian rocks grouped under the name of Iron-ore Series. The Iron-ore Series consisting of phyllite, tuf, lava, quartzite and limestone, exhibit a broad spectrum of metamorphism that has made the rocks vary within a very wide range of hardness and resistance to erosion. The rocks have responded variously to erosion and have given rise to sharply contrasted features. The general configuration of the region does not differ much from that of the Porahat hilly tract. The hills in general are irregularly shaped owing to multiple dissection. The hill-sides are usually steep forming concave profiles that converge to produce sharp-crested ridges. The hill-tops made of banded-hematite-quartzite dipping at greater angle have been weathered and spit-up into vertical columns which impart unique appearance to the Dharwarian tract.

Kolhan Highlands

It is an upland tract that lies between the Chaibasa plain in the north and the State boundary in the south and east, while the scarped sides of the Saranda hills border the area in the west. The surface level varies between 1,500 ft. and 1,000 ft., but there are hills that rise above 2,000 ft. On the other hand, the level falls below 1,000 ft. in the Baitarni valley in the south which forms the only open tract largely given to cultivation. The plateau consists of the sources of a large number of streams that radiate in all directions.

The surface on the whole is undulating. The numerous hills, ridges and dykes that rise above the undulating surface relieve the configuration of its tameness.

1. D. G. Singhbhum (1910), p. 6.

2. Ibid, p. 5.

Chaibasa Plain

Few regions of Chotanagpur have so well defined physical boundaries as the Chaibasa plains which comprises the two broader valleys of the Sanjay and the Kharkai. On the north and west, the plain is flanked by the high hills of Kharsawan and Saranda; on the south, it is bordered by the steep face of the Kolhan highland and in the east, the plain negotiates with the lowlying Suvarnarekha valley through a narrow opening between the Dalma ranges and the Dhalbhum hills. The plain lies between 1,000 ft. and 500 ft levels and is characterised by gentle slopes, low elongated swells alternating with broad elongated erosional depressions. The origin of this plain is problematic, but it is believed that the Chaibasa plain is the 'remnant of the uplifted Ranchi plateau that was lowered in the wake of the Tertiary uplift by the headward erosion and lateral cutting by rivers'¹ and "must have been extended to some extent by the recession of the scarps of the Ranchi plateau."² There is another view that it is "a separate peneplain for the Sanjay and its tributaries are too small to carve this extensive plain out of the Ranchi plateau by headward erosion."³ It is, however, important to note that the encircling hills are made of highly resistant rocks like quartzite and ultra-basic peridotite while the Chaibasa plain consists of such softer rocks as phyllite and mica-schists which by the rejuvenated streams must have been eroded faster than the hard resistant rocks of the surrounding country and led to the formation of this plain. The plain, therefore, appears to be the product of differential erosion.

Dalma Range

The Dalma range running from Ghatshila in the east to Dunadih in the west form a perfect crescent along the northern boundary of Singhbhum District. The range consists of a number of ridges with Dalma strike as their axis. The loftiest among these are the Deswar, Raisindris, Dalma and Chandri *pahars*. The Suvarnarekha flows across the range through a deep-cut valley that divides it into two parts. The eastern section consists of the highest peak of the range, the Dalma which rises 3,407 ft. above sea level and 2,500 ft. above the adjacent valley of the Suvarnarekha. The height of the peak loses much of its effect, for it is nearly the highest point in a long rolling ridge reached by gradual rise from either side.

The surface for the most part has a rocky appearance and is capable of sustaining only a limited growth of plants. The hill sides have

1. Dunn, J. A., op. cit., p. 10.

2. Ahmad, E., op. cit., p. 20.

3. Chatterjee, S. C., op. cit., p. 24.

precipitous slopes averaging 30° , but, at places, exceeding 45° . Along the inter-ridge longitudinal valleys, the slope is reduced from 5° to 3° . All these slopes are difficult to ascend and have effectively resisted human occupation, except in scattered patches of river valleys in the foot-hill zones.

Suvarnarekha Valley

It is a narrow valley, apparently cut deeper into the former plains or peneplains that are left as high terraces abutting on this low valley. The valley is bounded by the 500 ft. - contour on all sides, except in the south-east where it merges with the coastal alluvial plain lying below 250 ft. Because of the recent uplift of the whole area, evidenced by "the coastal or shore-line deposits of the Tertiary gravel, standing at 250 to 350 ft. above sea level,"¹ the valley-deepening process is still actively going on. The deepening process prevents alluvial deposition in the valley. Consequently, the valley belies the usual expectation of high fertility of the riverine tract.

Dhalbhum Hills

Between the Suvarnarekha and the Garra rivers is a rugged hilly tract that extends beyond the boundary of Bihar into Mayurbhanj and further south. The average summit level of this tract is between 1,000 ft. and 1,500 ft., but in the extreme south, there are hills rising above 2,000 ft.

The hills are much weathered and irregularly shaped. There are, however, a number of flat-topped hills abutting on the bank of the Suvarnarekha. Owing to the broken and hilly nature of the country very little area has been brought into effective human use.

DAMODAR BASIN

The basin comprises the areas lying between the plateaus of Ranchi and Hazaribagh and the valleys of the Barakar and the Jamunia rivers. Besides, the two broad spurs projecting from the Hazaribagh and Kodarma plateaus are also included. From the Damodar-Auranga divide in the west to the State boundary in the east, the level falls from 1,750 ft. to 450 ft. Residual hills and spurs further add to the variety of the topographical features and bring about strong contrasts in different sections that justify a subdivision of the basin.

Upper Valley

That portion of the Damodar basin that lies between 1,500 ft. and 1,000 ft. levels has been delimited as the Upper Valley. The contours of

1. Dunn, J. A., op. cit., p. 11.

1,500 ft. and 1,000 ft. roughly coincide with the district boundaries of Hazaribagh in the west and east. The essential constituent of the basin is the down-faulted trough which is of unequal width and is discontinuous. The northern and southern limits of the basin are precisely set by the fault-line scarps. From west to east the basin has a gradual-gentle slope averaging less than 3° , but the surface is rugged and broken. From Barkagaon to Ramgarh, the Damodar Valley is remarkably narrow, and at places, spurs from the higher plateaus come very close to each other.

The predominant rocks in the basin are shale and sandstone interbedded with carbonaceous strata. The sandstones of the Barakar and Raniganj stages are coarse-grained and softer than those of the Panchet and Mahadeva stages. Consequently, the former have been denuded to a lower level while the latter stand out as hills and ridges. Barakar and Raniganj outcrops, consisting of shale and sandstone, have the largest expanse and encompass massive hills entirely made of Mahadeva sandstone. The shales have yielded good soil which becomes conspicuous by the extent of the paddy lands. The sandstones have yielded coarse-grained sandy soil which has created extensive band lands. The northern side of the basin, east of Karanpura, is a broken forest country with few settlements and scanty population. On the other hand, the southern section is highly fertile "containing some of the best rice lands and still densely clad with jungle."¹

Lower Damodar Valley

The Lower Damodar Valley is roughly conterminous in area with the district of Dhanbad. The area is described as the "first step of gradual descent from the table land of Chotanagpur to the Delta of Bengal."² The general characteristics are those of an upland country but the relief is subdued and the undulations are less pronounced than either in the Central or Lower plateaus. Consequently, "the downs between ridges are broader and more level, the country is more open and presents the appearance of a series of rolling downs, dotted here and there with isolated residual hills, locally known as *dungaris*."³ The great variations in the physical characteristics of the Gondwana rocks and the gneissic granite find but feeble and scanty expressions in the topographical features. The rivers, except the Damodar, showing complete indifference to structure, flow at cross with or obliquely to the strikes of the rocks. They, however,

1. D. G. Hazaribagh (1917), p. 5.

2. Ibid, p. 2.

3. Ibid.

exhibit small amount of deflection in their courses where they pass from one outcrop to another.

The measure of relief is small except for the occasional rise of *dungaris* which consist of sandstone in the basin and gneissic granite on the margins. One of such *dungaris* is Panchet Hill, rising above 1,600 ft. which consists of a huge block of massive sandstone of the Mahadeva Series. Most of the lands where sandstone crops out are barren and unfit for cultivation. Throughout the basin the scenery is far from pleasing for owing to the exposures of carbonaceous beds the surface is black and looks dirty. Besides, the weathering of shale and carbonaceous rocks produces enough dust in summer.

Middle Barakar Basin

The areas lying below 1,000 ft. and extending south-eastward from the Hazaribagh-Kodarma plateau are included in this part of the basin. From Parasnath Hill to Barakar railway station, there is a continuous chain of gneissic hills and ridges that precisely marks the northern limit of the Gondwana Trough and the boundary between the Barakar and the Damodar valleys. The Barakar Valley has been scoured in the gneissic surface of the Lower plateau that must have continued upto the northern limit of the Gondwana Trough in this area. The valley attains its maximum width along the Giridih longitude. From Giridih upwards the main valley branches off into three subsidiary valleys that penetrate deep into the Kodarma plateau leaving inbetween sharply-cut tongue-like projections of the plateau. From the crest of the inter-fluvial ridges to the beds of the river channels the slopes are characterised by several breaks in the gradient and appear like terraces which were, perhaps, produced by the phased Tertiary uplift. The edges of these terraces have been subjected to extensive gully-erosion which has made their outlines broken and irregular. The valley has a gentle slope towards the Damodar and contains extensive level lands given to cultivation. The valley is not entirely featureless. On either side it is flanked by residual hills, very often mounted on projected spurs, that, sometimes, abut on river banks. Three small patches in this valley consist of Gondwana out-crops which are important coalfields outside the Gondwana Trough.

Inter-stream Highlands

The inter-stream highlands consist of two large spurs projecting from the Hazaribagh and Kodarma plateaus and tapering towards south-east inbetween the valleys of the Konar, Jamunia and Barakar rivers. The summit level of these spurs is the same as that of the Lower plateau, i.e., 1,250 ft. On one of these spurs is lumped the huge mass of the lofty

Parasnath Hills rising to a height of 4,480 ft. These spurs, though being the component parts of the Lower plateau have assumed, owing to their interfluvial situation, a distinctive character and different type of land-forms. For the most part, the spurs, owing to severity of denudation and rapid run-off, are bare and barren. From the valley profiles it appears that the streams have taken actively to lateral erosion and valley widening which are indicated by the truncation of inter-locking spurs and concave crest-line of the hills forming the backbone of the spurs. The residual hills on the spur slopes are generally bare-footed without a ring of debris around them. "A distant silhouette outline of the hills from the north shows a step-like appearance, revealing the presence of horizontal and vertical joint-planes."¹ The topography is, thus, entirely the product of differential erosion and "solely depends on differences of hardness of rocks. The Parasnath Hill consisting of a compact augite-enstatite granite, similar to pyroxene granites of the Nilgiri gneisses, owe its preservation to the relative hardness of the rocks."²

RAJMAHAL UPLAND

The region comprises almost whole of the district of Santhal Parganas except the Deoghar 'erosional depression' and the Ajay basin. It is an upland tract with a hilly backbone. In the west, the hills give way to undulating erosional 'depression' while in the south, the Ajay and the Mor rivers have scoured deep-broad valleys. In the east, the hills are bordered by a narrow strip of alluvial deposit. All these have produced a good deal of regional variations in the surface features.

Rajmahal Hills

The Rajmahal Hills are "the only considerable mass of hills which approach the Ganga in its entire course from the Himalayas to the sea."³ From Sahibganj in the north to the State boundary in the south these hills form a central block of hilly country which covers an area of 2,000 square miles.

The whole hill mass is made of bedded basaltic traps of post-Gondwana origin which attain a thickness of 2,000ft. with 100ft. of inter-trappean beds. The trap rocks are dark dolerite while the intertrappeans consist of "hard, white and grey shales, carbonaceous shales, white and grey sandstone and hard quartzose grit."⁴ The volcanic rocks have

1. Bose, S. C., The Damodar Valley Project, Phoenix Press, Cal., 1948, p. 89.
2. Vrendenburg, E. W., in D. G. Manbhum (1911), p. 28.
3. Dayal, P., Bihar in Maps, Patna, 1953, p. 12.
4. D. G. Santhal Parganas (1938), p. 5.

been, at places, weathered into laterites which cap the higher flat-topped hills.

The hills are divided into two elongated chains by the longitudinal valleys of Burhait made up of two narrow valleys of the Meral and the Gumani rivers that after joining at Burhait debouch into the Ganga. This axial valley of the hills extends over 24 miles from north to south and constitutes a five-mile wide ribbon of cultivated fields and settlements between two parallel hilly chains which are continuous from Sahibganj to Dumka for about 80 miles and are crossed only by the five narrow passes that connect the piedmont plains with the Deoghar erosional 'depression' and the Ganga Plain. The Rajmahal Hills have, thus always, been acting as a formidable barrier to communication between the South Bihar plains and Bengal. The eastern face of the hills is comparatively steep and rocky. It overlooks the alluvial surface. In the west the traps gradually thin out to expose finally the underlying Gondwana rocks in a north-south linear belt which marks the western limit of the hilly country. The interior of the hilly tract presents a varied landscape and stands in strong contrasts with the rocky exterior. "Here there may be seen hills crowded one upon another, steep narrow ravines, wide valleys, sharp ridges and small plateaux. Among these the Santhals and Paharias have their villages which are often picturesquely situated on the brow of steep hill, with cultivated fields and grass lands stretching beyond them. In the south and south-west, there are broad table-lands on the crest of the ridges, which contain stretches of arable land."¹

Ajay Basin

The Ajay river with its source below the Kodarma plateau in the district of Monghyr, drains vast area that spreads from the hilly tract in the east to the Barakar-Ajay divide in the west. The upper basin, north of Madhupur and Phulguri Hill (i. e., north of $24^{\circ}20' N$) lying above 800ft. has been included in the Deoghar erosional 'depression'. The lower basin is a gently sloping, undulating country that lies mostly below 800ft. with sizable areas below 600 ft. This lowlying country has been scoured out by the Ajay and its tributaries out of the gneissic surface and the general configuration is very much like that of the adjoining Barakar basin. The relief is subdued and the landscape is tame. The tameness is, however, mitigated to a great extent by the isolated hills and ridges that emerge in bold outlines from the eroded surface and obstruct the horizontal view. A second order of relief which is more important from settlement point of view, is presented by the combination of interfluvial swells, valleys and ravines. These eminences and ravine-fringes are

1. D. G. Santhal Parganas (1938), p. 6.

mostly covered with scrub-jungles which are the important source of multipurpose wood supply to the villagers.

The Alluvial Upland

About 120 miles long, between Sahibganj in the north and the Mor valley in the south, is a strip of alluvium that stretches from the foot of the Rajmahal Hills in the west to the bank of the Ganga in the east. This alluvial tract that girdles the Rajmahal Hills has greater elevation and steeper slope than the adjoining Ganga Plains. The transition is marked by a line of break-points in the gradient. The numerous streams with their sources on the higher slopes, emerge from the hills through deep gorges and flowing down the western flank of the Ganga Valley give rise to prominent breaks in the river gradient. Because of sudden decrease in the gradient, the streams are obliged to shed off their surplus load and have led to the formation of numerous alluvial fans. These fans have coalesced together resulting in the formation of extensive piedmont plain. The fans have been built in successive layers and look like lotus petals arranged one upon another. The streams that have built up these fans flow through cut-in channels across them which pose the problem of excessive seepage. The texture of the soil which contains a fair proportion of pebbles and sands, is relatively coarse and the soil is less fertile than the Ganga alluvium.

सत्यमेव जयते

OTHER FACTORS OF PHYSICAL ENVIRONMENT

CLIMATE

In the climatic map of India, Chotanagpur is shown to form the part of the region which is characterised by "heavy rainfall and considerable humidity."¹ The critical line that separates "Continental India" from "Tropical India" runs along the northern boundary of the Plateau. The Plateau thus lies within the tropical zone. But owing to the higher levels of the Plateau, its climate differs in many ways from the prevailing type in the neighbourhood.

The role of climate in determining the people's way of life is controversial, but the influences of climate on the evolution of cultural landscape, particularly settlements are definite and easily discernible. One of man's greatest struggles in this part of the world has been to protect himself against the torrential rain of the monsoon and the oppressive heat of the summer. Rainfall and temperature appear, therefore, to be the most important climatic factors that influence the character of settlements.

The popular division of the year into three seasons—summer, rainy season and winter—hold equally good in this part of the country also. The limits of the seasons, as elsewhere in India, are not well defined. One season gives way to another through a short transitional period of variable weather. The summer is comparatively short and less oppressive than in the Plains. By March summer sets in and spells of hot weather continue till the middle of June. In the higher parts of the Plateau the beginning of summer is slightly delayed and in certain year the whole month of March remains as cool and pleasant as the second half of February in the Plains.

In April, temperature goes on rising, the relative humidity decreases further and the air becomes hot and dry. Barometer continues to fall and the wind gains in velocity. April and May become

1. Kendrew, W. G., *The Climates of the Continents*, London, 1961, p. 185.

typically hot. May is the hottest month at all stations, except Dumka. Even in May the mean temperature, except in the Chaibasa plain and the N. Koel valley, remains fairly below 100°F. The plateaus of Ranchi and Hazaribagh with a mean temperature of 87.7°F and 88.9°F respectively remain comparatively cool throughout this period. But the coolest part of the Plateau is the *Pat* region. From the *Pat* region towards all directions temperature rises as the altitude decreases. It is 87.7°F at Ranchi, 88.9°F at Hazaribagh, 91°F at Chaibasa 91.05°F at Jamshedpur and

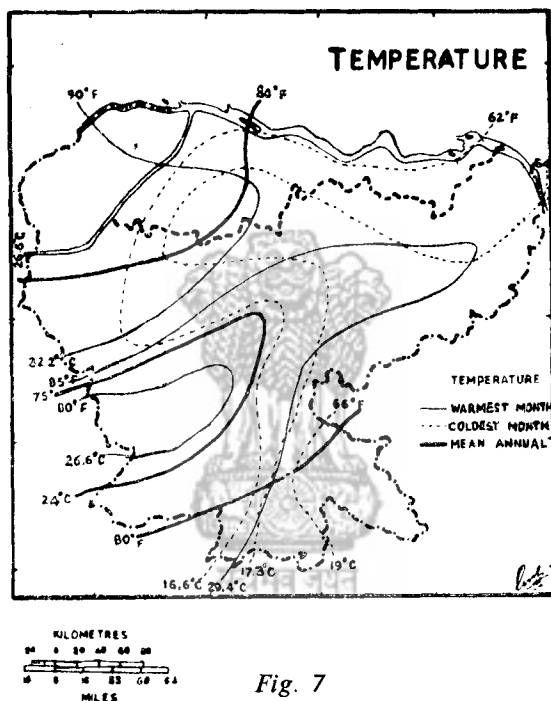


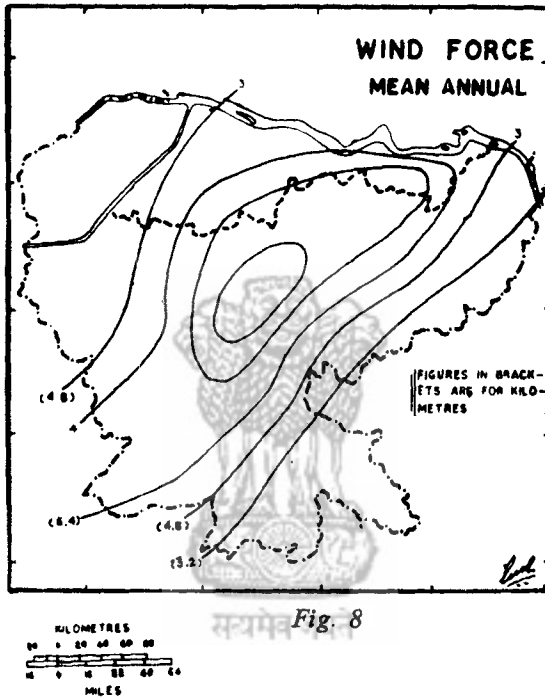
Fig. 7

94.7°F at Daltonganj. Further east from Hazaribagh, the temperature falls to 88.2°F at Dumka. This fall in temperature is due to early showers that occur in this part of the Plateau. Throughout this period, most of the Plateau remains, besides being cooler, free from the *loo* and afternoon dust-storms which are so characteristic of this period in the Plains. The sun is scorching but the shades are pleasant even when the thermometer is recording above 100°F. The thinner air of the Plateau coupled with low relative humidity reduces perspiration.

During the period of hot weather "local sea winds blow inland from the head of the Bay of Bengal... As the sea winds increase in strength and extend further inland, thunder showers also occur."¹ The moist Bay winds are forced to ascend along the scarps where they come

1. Meteorology for Airmen in India, Bombay, 1949, pp. 6-7.

in contact with dry adiabatically cooled plateau-wind and get saturated. This leads to condensation and precipitation at intervals. These intermittent showers are of great importance in toning down the summer heat. Because of intense heating and high humidity in the eastern and south eastern parts of the Plateau, the cooling effects of the summer showers are immediately lost. Their only effect is to aid to perspiration and physical discomfort.



The total rainfall of this period varies from over 6" in south-eastern Singhbhum and eastern Santhal Parganas to less than 2" in Palamau District. Ranchi gets a rainfall of 4.18" while Hazaribagh 2.45" and Netarhat 3.24".

By the middle of June the monsoon sets in. One of the immediate effects of the 'burst of monsoon' is the fall in temperature. Grasses sprout up from their dried, weathered roots and the parched surface becomes uniformly green turf. From June onwards, with the increase in precipitation, temperature continues to fall. In May the mean temperature at Ranchi is 80.7°F. It falls to 83.1°F in June, 79.0°F in July, 75.3°F in August and 74.2°F in September : in all a total fall of more than 12°F. In the Alluvial Upland of the Santhal Parganas and south-eastern Singhbhum, this fall in temperature is much less marked, perhaps, due

to high humidity. Dumka, for example, has a mean temperature of 88.2°F in May, 86.3°F in June, 83.7°F in July and 83.1°F in August, which amounts to a total fall of 5.7°F only.

With the cessation of rains by the middle of October, the sky becomes clear and the days are sunny. In the lower sections of the Plateau, especially in the N. Koel Valley, the lower plateau and the Damodar basin, the weather is warmed up and the thermometer records a slight rise in the maximum. In the Central plateau and also in the south-eastern Singhbhum and the Alluvial Upland, 30 to 35 percent of the sky still remains clouded, and even the maximum temperature goes on steadily falling. 'But even though the day is sunny and warm, the night is cooler and the mean temperature continues to fall all over the Plateau' ¹. On average the thermometer records a fall of 4°F to 6°F from September to October. In November the cold weather season sets in. Except in the extreme south and the humid alluvial upland, the mean temperature is everywhere less than 70°F. The temperature further falls by six to seven degrees and varies from 60°F to 65°F in the higher and lower parts of the Plateau. The mean minimum temperature in December is 46.5°F at Daltonganj, 50.6°F at Ranchi, 51.5°F at Jamshedpur and 51.6°F at Dumka. The *Pat* region remains the coldest part of the Plateau where the minimum falls below 40°F and in certain years to 32°F. In this part nights are chilly and hoarfrost is common. December is the coldest month all over the Plateau. January is very much like December, though the mean temperature rises over that of December by a fraction of a degree. The weather is slightly warmed up in February and the mean temperature rises all over the Plateau by three to four degrees.

The Chotanagpur Plateau is one of the rainiest tracts of Bihar. The rainfall is, however, not uniformly distributed all over the Plateau (Fig. 9). It varies from less than 50" in the N. Koel Valley and Northern Edge of the Plateau to 80" on the higher *Pats*. Most of the Plateau receives a rainfall over 50" and a good part over 60". A small area comprising the district of Dhanbad and the Ajay basin looks like a dry island receiving an annual rainfall of less than 50".

Two factors appear to account for the uneven distribution of rainfall on the Plateau. They are the relief and the layout of the tracks of the "depressions which form in the northern half of the Bay and move towards north-west or north."² Proximity to the Bay which is sometimes

1. Dayal, P., op. cit., p. 14.

1. Metereology for the Airmen in India, op. cit., p. 7.

unduly stressed does not appear to influence the distribution of rainfall much. It is illustrated by the fact that Dhanbad being nearer to the Bay than Hazaribagh or Kodarma, receives less rainfall than the latter places. Further, elevation alone does not appear to effect a higher precipitation. Elevations are of definite aid to rainfall in places where they, contrasted with lower surfaces, bring out bold relief. The areas of highest rainfall on the Plateau are precisely the areas of greatest inequalities.

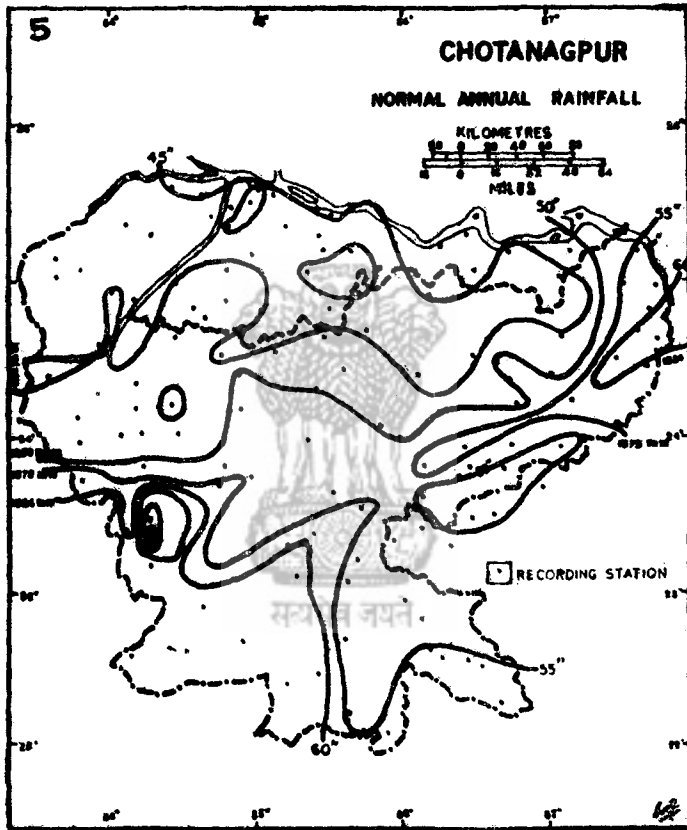


Fig. 9

A narrow belt approximately 50 miles wide between the Hazaribagh plateau in the west and the Ajay Valley in the east receives less rainfall than the places on either side of it (fig. 9). Two factors appear to be responsible for this low precipitation. From Kodarma to Dhanbad the surface is gently sloping towards the Bay and, except for the Parasnath Hills, it provides a smooth sailing for the Bay depressions. Further, this belt of low precipitation coincides with "the trough of the low pressure which extends from N.W. India towards the Bay during the period of S.W. Monsoon. The axis of this trough which is the line of lowest

precipitation also, is mostly the line of convergence of the Bay and Arabian Sea branches of the monsoons."¹ 'Thus, all the areas lying on a line from Mathura to Varanasi' and from Varanasi to Dhanbad via Buxar and Nawada, 'are drier than those on their north and south'.

The distribution of rainfall is further influenced by the normal tracks of the Bay depressions. Two of them are approximately along the lines drawn from Ranchi to Calcutta and from Daltonganj to Cuttack. A third one follows the Ganga water-line. The moist currents after crossing the Chaibasa and Panch Pargana Plains are forced to ascend by 1,000 ft. and result in heavy precipitation on the eastern scarps of the Ranchi plateau and the adjoining areas. West of Ranchi upto Lohardaga rainfall decreases, perhaps, because of the absence of marked elevation inbetween and also, because much of the moisture is expended in the eastern part. The area between Ranchi and the *Pat* scarps falls on the lee side of the Arabian Sea branch that descends the *pats*. But immediately west of Lohardaga, the winds are forced to rise by 1,200 to 1,800 ft. along the *Pat* scarps. The *Pats*, therefore, receive heaviest rainfall, exceeding 70" and at places 80" (fig. 9). The depressions that follow the southern track enter the Plateau through the Sankh and S. Koel basins and give heavy orographic rain all over this area. A third series of depressions following the Ganga water-line strike against the eastern face of the Rajmahal Hills and result in heavy precipitation in this area. In all the areas lying north and north-west of the Rajmahal Hills and the Northern Edge of the Plateau precipitation decreases abruptly by 5" to 10". "The trough does not remain stationary, but moves north and south of the normal position."² This results in pulsatory character of air movements and depressions from the Bay and Arabian Sea visit the south-western portion of the Plateau alternately. Consequently, the rainfall is heavy in this part.

By the second week of October, the monsoon begins to retreat from the Plateau. The retreat is complete by the end of the month which is followed by cold weather season. On the whole, the winter is a rainless period. The little amount of rainfall that occurs in this period is associated with western disturbances. These disturbances enter the Plateau from west and north-west and usually die out before they cross the eastern boundary of Bihar. February is the rainiest month in this period. Except the easternmost fringes of the Plateau, the entire region receives a precipitation over one inch. The excess of precipitation in this month

1. Ahmad, E., 'Ph. D. Thesis', London, 1949, p. 15.

2. Metereology for the Airmen, op. cit., p. 4.

is due to the arrival of early spring storms from the Bay. The total precipitation of the cold weather season "decreases from west to east and from south to north".¹ The eastward decrease is associated with the decreasing intensity of the western disturbances, while the northward decrease is due to the storms that enter the Plateau from south. The total rainfall of the period averages three inches all over the Plateau except in the Alluvial Upland and the Lower Damodar Basin. Even though the Plateau receives a higher rainfall than the Plains, it fails to raise a winter crop.

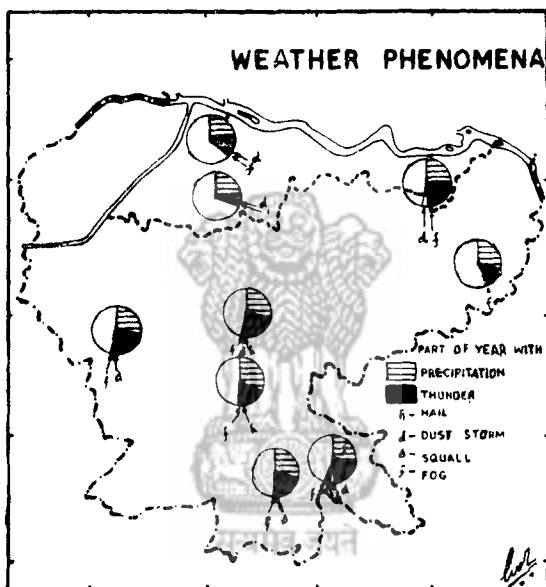
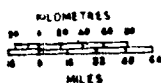


Fig. 10



The pre-monsoon period from April to May is hot and dry. The trough of the low pressure that forms over north-west India stretches upto Chotanagpur and reverses the winter winds. The air circulation over the Plateau becomes local in nature and is characterised by 'upland' and 'lowland' winds. On higher parts of the Plateau the 'afternoon dust-storms and dust-raising winds are uncommon, but they occur in the lower parts. The dry hot winds of the Plateau meet the heavy moist winds of the Bay and form a local front near the eastern scarps of Ranchi plateau that gives rise to storms, often 'accompanied by violent winds, hail and torrential rains'. Out of the four types of Nor'westers, classified

1. Dayal, P., Bihar in Maps, op. cit., p. 20.

according to the origin and movement of thunderstorm-activity, the first type "has its origin in the Chotanagpur Plateau in the afternoon, and proceeds in a N. W.—S. E. direction"¹ with varying amount of rainfall. But quite different from these cyclonic rains, precipitation on the higher plateaus occurs at intervals, perhaps, owing to the varying adiabatic lapse rate of the dry winds of the higher levels and moist winds of the lower levels, which frequently come in contact. These intermittent precipitations go a long way in reducing the intensity of heat and keeping the plateau comfortable even in the month of May. The rainfall during this period decreases from south and south-east to north and north-west. Thus, we have a rainfall of 5.36" at Dumka and 4.95" at Jamshedpur, but only 2.31" at Kodarma and 1.52" at Daltonganj.

HUMIDITY

The distribution of relative humidity in different parts of the year is of great importance. It is directly related to the growth of vegetation during the dry period from November to May. It also affects the comfort aspect of weather, especially in summer and rainy seasons. During the monsoon period the relative humidity in the Plateau is as high as in the Ganga Plain, but the Plateau is free from sultriness. This is due to thin air and strong winds that characterise the Plateau. Rain produces immediate cooling effect and if it continues for days together, warm clothing becomes desirable. From October the relative humidity begins to decline rather too fast. At Ranchi, from 84 per cent in September it falls to 69 in October, 61 in December, 60 in January and 39 in April. The situation is contrasted with that in the Plain. The relative humidity at Patna is 73 per cent in December, 74 in January and 47 in April. This partially explains why the Plain with a rainfall less than 2" during this period, raises bumper winter crops. During this long period of scanty precipitation the Plateau is the region of lowest humidity. Low humidity affects the growth of vegetation and the Plateau surface becomes almost grassless. With millions of acres of fallow land it offers only a poor pasturage to the animal. The animals suffer from stunted growth and are incapable of rendering good service and yielding sufficient milk. The dearth of good pastures and fodder-supply takes away the benefits of better climate and has prevented the development of stock-raising and dairy-farming on this Plateau.

CLIMATIC REGIONS

The variations in relief bring about variations in climatic characteristics in different parts of the Plateau. These regional variations are

1. *Meteorology for the Airmen*, op. cit., p. 3.

important. They are largely responsible for differences in agricultural activities, nature of crops and vegetational growth. On the basis of temperature, rainfall, humidity and other elements of weather the Plateau may be divided into 7 climatic regions (fig. 11).

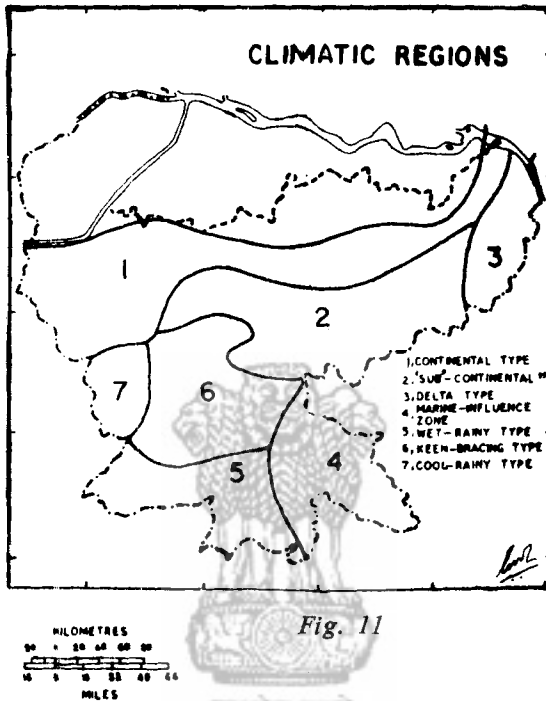


Fig. 11

1. North and North-Western part : Continental Type

It comprises almost the whole of Palamau and parts of Hazaribagh, Gaya, Monghyr and Bhagalpur districts. It presents an extreme type of climate with highest mean maxima in summer and lowest mean maxima in winter (fig. 7). The mean minimum temperature in December at Daltonganj is 39°F and the lowest minimum ever recorded is 32°F. 'There is a keen bracing sharpness in air'. Cold heavy winds blow from the wooded *Pats* to the valley of N. Koel and cause hoarfrost. "Hoarfrost has been known to form night after night for a fortnight on end, lying on the ground till 10 a. m."¹. Fog is also common and, on average, there are at least 3 foggy days in a year. In summer *loo* and dust-storms are common. In May and June the mean maximum temperature is often above 112°F. With rainfall less than 2" in pre-monsoon period, the region forms the driest tract of the Plateau. The total annual rainfall varies from 50" in south and south east to 45" and less in north and

1. D. G. Palamau, Patna, 1926, P. 16.

north-west. With 95 rainy days and 45 days with over-cast skies the region is the least cloudy and least rainy part of the Plateau.

2. *Central Zone : Semi-continental Type*

It comprises the Chatra-Kodarma Plateau, the Deoghar 'erosional depression' and the Ajay basin. In general, it shares with the northern zone the continentality of the climate, but the intensity is reduced. The diurnal as well as annual range of temperature is high, but the mean maxima are lower and mean minima are higher than in the northern zone. Precipitation is higher with much local variations due to varying relief. The total annual rainfall varies between 50 and 65 inches. The region is not immune from *loo* and dust-storms, but they are reduced both in number and intensity. Owing to greater elevation and higher proportion of wooded areas summer heat is less oppressive than in the northern tract. Winter is keen and bracing.

3. *Eastern Santhal Parganas : Delta Type*

The region comprises the Alluvial Upland and the eastern face of the Rajmahal Hills. "The alluvial strip of the country ... has the damp heat and moist soil characteristic of Bengal."¹ The Rajmahal Hills standing like a wall act as well-defined front between the hot westerly winds and the moist currents from the Bay. "The mark of separation between the heated, electric and dust-charged atmosphere of Western and Central India and the damp air of Bengal is so well-defined and so nearly stationary during the day that its height, limits and rate of progression are all capable of measurement."² The region is, thus remarkably free from *loo* and dust-storms. It lies well within the ambit of Nor'westers. With 5.36" of rainfall during the hot weather season it is the rainiest tract in this period. The total annual rainfall exceeds 60". Relative humidity remains high and even in the driest month of April it does not fall below 50%. Owing to high humidity and occasional freshets from the Bay the range of temperature is lowest. High humidity makes the weather sultry. This causes heavy perspiration. Winter is mild and pleasant. December is the coldest month.

4. *The Marine-Influence Zone*

It includes the Suvarnarekha valley and the plains of Chaibasa and Panch Pargana. The region is nearest to the sea and lies on the main tract of the Bay-depressions and the Nor'westers. For the most part of the year the winds are south-easterly. These winds bring in marine

1. Imperial Gazetters, Vol. II, 1906, p. 218.

2. D. G. Santhal Parganas, Patna, 1938, p. 24.

influence. In summer and particularly in pre-monsoon period this part of the Plateau is frequently visited by thunderstorms. On an average, 71 thunderstorms visit this area every year and at least 10 of them are accompanied by hailstones. The region receives highest rainfall, 5.36'', during the period of hot weather season. Most of the precipitation is due to Nor'westers and the thunderstorms that originate in the Bay. Annual rainfall varies between 55 and 60 inches. *Loo* and dust-storms are uncommon, but Jamshedpur is not free from the either. Winter is comparatively short-lived and milder than in other parts of the Plateau but summer is as hot as in the northern zone.

5. *The South-Western Rainy Tract*

The region comprises the basins of the Sankh and the S. Koel rivers and greater part of Singhbhum District. The great physical inequalities in this region bring about local contrasts in climatic features. Owing to inland position and the barrier of hills which intercepts the sea-breezes on the south-east, the climate is peculiarly dry. The hot westerly winds from Central India prevail and temperature rises above 112°F. But because of the dryness of air and the highest percentage of areas under forest, the summer is very much relieved of its exhausting effects. Precipitation occurs from both branches of the monsoon. Normal annual rainfall is, therefore, high—exceeding 60'', "but owing to the mountainous character of the country it varies very much in different localities."¹ In the wooded hilly tracts winter is rather severe and "the mornings and nights are bitterly cold and in the valleys, hoarfrost may be seen."²

6. *Ranchi-Hazaribagh Plateau : Keen and Bracing Type*

The region comprises the plateaus of Ranchi and Hazaribagh. The climate of this region has distinctive characteristics of its own which are not to be found in any other parts of Chotanagpur. The elevation of over 2,000 ft. has the greatest moderating influence on its climate and gives it a uniformly lower range of temperature. With mean annual temperature of 73°F Ranchi, next to the *Pat* region, is the coolest place in Bihar. Except for the two months of April and May, the mean maximum of temperature never rises above 90°F. In the second half of April and the first half of May the mercury, for a few hours during day, rises above 100°F. "But in spite of the high day temperature, the nights are cool and atmosphere is so dry that the heat is by no means oppressive."³ The hot westerly winds of the Plain do not come to this

1. D. G. Singhbhum, Calcutta, 1910, p. 19.

2. Ibid.

3. D. G. Ranchi, Patna, 1917, p. 16.

plateau ; the plateau is consequently free from *loo* and dust-storms. Refreshing showers from occasional thunderstorms and Nor'westers cause an appreciable fall in temperature. On an average, one storm visits this plateau every week during the pre-monsoon period. In certain years, during the last week of May and the first week of June precipitation from the visiting storms is so prolonged and so heavy that it is mistaken for the burst of monsoon which normally occurs in the second week of June. With rains the temperature goes on steadily falling and "the climate during this period of the years compares favourably with that of many hill stations."¹ The air is never so saturated as to make it exhausting and uncomfortable. Winter on this plateau sets in by the first week of November. The mean maxima during winter do not rise above 70°F. Strong cold winds blow during the second half of December and the first half of January and the "climate during this period of the year is extremely bracing and is not inferior to that of many health resorts in European countries."² In fact, Ranchi has the finest climate in Bihar ; here one does not prespire in summer and shiver in winter.

The normal annual rainfall varies from more than 60" in the south and south-eastern part of the Ranchi plateau to less than 55" in Hazaribagh plateau. Though Ranchi receives about 3" rainfall during the cold weather season, the relative humidity remains much below the requirements of winter crops.

7. *The Pat Region*

The climate of the *Pat* region is very much like that of the Ranchi plateau. The only difference lies in marked accentuation of certain climatic factors, e.g., the *Pats* are rainier, cloudier, cooler in summer and colder in winter than the Ranchi plateau. Nights are chilly and morning winds are piercing. In December and January the temperature on grasses falls to freezing point, and for more than twenty days hoarfrost occurs at night and remains on the grass even after sunrise. This does much damage to winter crops and the young trees, particularly on the exposed surface of the *Pats*. With about 80" normal annual rainfall this is the rainiest tract of Chotanagpur.

SOILS

Of all the factors of physical environment soil and water-forms appear to be most eloquently expressed in the general fabric of rural

1. D. G. Ranchi, 1917, p. 16

2. Ibid, p. 17

landscape. It is especially so in India where the two terms, rural and agricultural, are interchangeable in a general description of the country. Density of settlements, size of villages, richness of architectural designs and rural house-holds, all depend directly on the agricultural productivity of land. In a region like Chotanagpur where the methods of cultivation are primitive, irrigation undeveloped and the amount of rainfall much variable from place to place, agricultural productivity is largely a function of soil. In the present study, it becomes, therefore, necessary to get familiar with the main soil types of Chotanagpur. The soils of Bihar are yet to be scientifically surveyed and mapped and therefore, there is a general dearth of authentic literature on the soils of Chotanagpur.

It is now generally agreed that the types of soils in their ultimate state of evolution, are determined by the climate that prevails in the region.¹ But all other stages in the evolution of soil, i.e., from the first roughening of the surface rocks by sun-baking and moisture-soaking to maturity are largely determined by the parent rocks and topography. "Variations in the rocks cause wide differences in the overlying soils in consistency, in depth and composition."² On the other hand, "the role of topography is chiefly to determine the various stages in the evolution of soil. Maturity is reached only in residual soils which have remained undisturbed during the period required for soil evolution under given geographical conditions."³ Where topography permits a regular truncation or renovation of surface by erosion or deposition the soil remains immature.

The geological foundations of the soils of chotanagpur are laid down by the three important formations of the regions, viz., the Archaean, the Gondwana and the Jurassic-Cretaceous lavas. These formations under the local climatic conditions have given rise to four principal types of soils. They are (i) red soil, (ii) 'black clayey' soil or 'regur', (iii) lateritic soil and (iv) loose sandy soil (fig. 12).

Owing to the Tertiary uplift the rejuvenated topography and steep gradient permit a quick run-off and intensive erosion over wide areas. The constant removal of the top soils from the upland and deposition thereof in the lowland retards the pedogenic processes and, as such, the soils of Chotanagpur, except on the flat-topped *pats* and the peneplained plateau surfaces, are immature.

1. Wolfanger, Louise, A., 'The World Soil Groups', G. R., Vol. XIX, 1929, p.100 and Robinson, G. W., Soils, Their Origin, Constitution and classification, London, 1932.
2. Wadia, D.N. and others, Record, G.S.I., Vol. LXVIII, 1935, p. 365.
3. Ahmad, E., 'Soils of Bihar', Geographer, Summer, 1954, p. 12.

RED SOIL

Almost the whole of the plateau surface is covered with a type of soil which is called 'red soil' in the soil study of India. This soil has developed over the Archaean outcrops which consist of a wide range of ancient crystalline metamorphic rocks (fig. 2). Acid granites and gneisses are the most predominant rocks from which the soil has been mostly derived. Quartzitic and feldspathic rocks and a few subordinate rock-types rich in iron and magnesium-bearing minerals have few and limited outcrops. These rocks have contributed to the formation of soil sub-types under the general designation of 'red soils'.

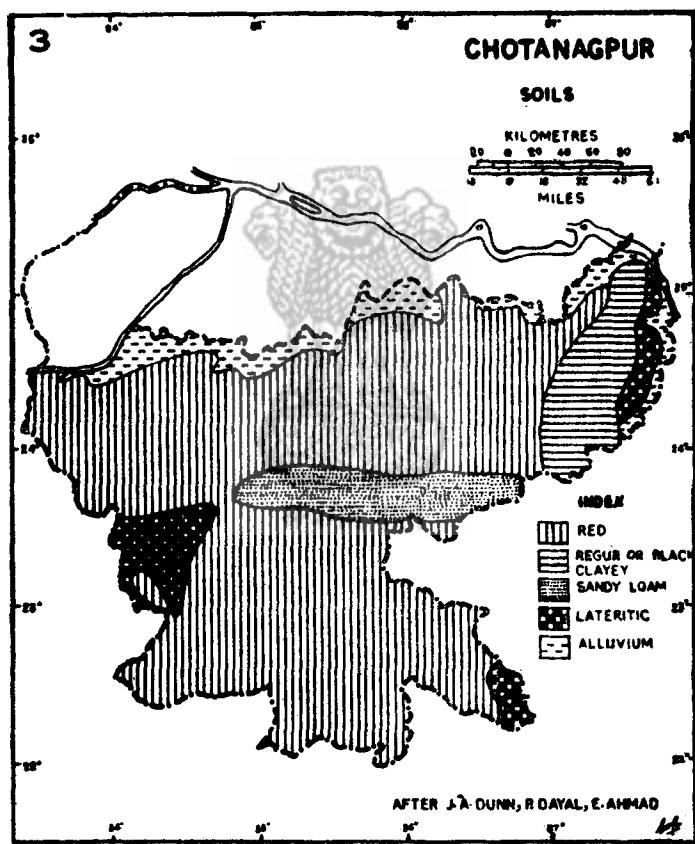


Fig. 12

The granite and gneisses of Chotanagpur are mostly acid and consist of a great preponderance of quartz, orthoclase feldspar and mica. These rocks have invariably given rise to "a rather coarse sandy soil with just sufficient clay to hold it together."¹ The 'red soil' derived from the acid granite and gneiss are poor in general fertility. They

1. Dunn, J. A., op. cit., p. 31.

usually constitute the third and second class *gora*-lands all over Chotanagpur. "On the plateau-country the granitic soil frequently contains a certain amount of iron-hydroxide which cause the soil in dry season to set almost as hard as cement at the immediate surface."¹ Such soil is completely useless for agricultural purposes and forms the barren *tanr*-lands of the region.

The 'red soils' derived from the acid rocks are, 'in general, poor in lime, magnesia, phosphates, nitrogen and humus, but fairly rich in potash derived from muscovite and orthoclase'.² At places where mica is replaced by hornblende in the granitic composition, the lime content is sufficient. Alkali content is fair which is often deposited as alkaline salts for want of proper sub-soil drainage. The colour of the soil is generally red, but frequently grades into 'brown, chocolate, yellow, grey or even black'. Several subordinate types of 'red soil' have no red colour. A few types are of lateritic origin. In fact, 'red soils' "of Chotanagpur Plateau are an incipient stage in the formation of laterite and represent very old soil surface."³ They are particularly infertile and are seldom brought under tillage.

The 'red soils' are not uniform. They comprise a number of subordinate types. The differences are the products of three variables—parent materials, slopes and drainage conditions. The archæan rocks vary within a very wide range, from typical acid, soda and potash granites and gneisses to quartzite, phyllite, schists and ultra-basic intrusives and extrusives. The soils are comparatively rich and fertile where the foundation is potash granite and gneisses, phyllites and basic rocks, but poor where acid granite and gneisses prevail. "Many of these gneisses and schists contain a large proportion of biotite and hornblende, and as they are highly ferruginous, the soils derived from them are deep red and even black in colour."⁴ Over the mica-schists the soil-cap is much more argillaceous and finer in texture. But because of the fact that mica-schists are easily eroded, they invariably form deeply incised tracts, even along small streams. These incised tracts function as broad channels for the rain-water and consequently, "the soil-cap is much more rapidly removed and is thinner than over granite."⁵ These areas are clearly noticeable over the Kodarma plateau and are lying barren or constitute the third class agricultural lands.

1. Dunn, J. A., p. 31.

2. Ahmad, E., 'Soils of Bihar', op. cit., Dunn, J. A., op. cit. and Wadia, D. N., op. cit.

3. Dunn, J. A., op. cit.,

4. Ahmad, E., op. cit., p. 20.

5. Dunn, J. A., op. cit.,

Quartzites and quartz-schists which crop-out in northern and southern parts of the Plateau, do not form extensive tracts. They appear in linear patches of small dimensions and rise above the general undulations as elongated, sharp-crested ridges. The ridge-sides are mostly bare and rocky, but along the intersection of the ridge-slopes and the granitic country, there are usually narrow belts of loose debris washed down the ridge-slopes. This foot-line debris consists of high proportion of sands and unassorted rock fragments. These materials have given rise to a very coarse sandy soil. The sandy soil, as a rule, appears in linear belts bordering the quartzite-ridges on either side. On being traversed by streams, it is easily carried down the valley and makes the river-bed sand-loaded. This is particularly noticeable along the northern edge of the Plateau. On account of low fertility and over-drainage, sandy soil forms extensive bad land which, in favourable situations, supports a stunted growth of scrubs.

"The hilly country of southern Chotanagpur including Singhbhum and south Ranchi,...provides, perhaps, the most variable soil-caps. Here, outcrops of granites, mica-schists, quartzites, phyllites, lavas, limestones and other rocks rapidly alternate. The granite and quartzite give rise to sandy soils, the mica-schists and phyllite to loams varying to clay-soils, the lava to heavy clay-soils, while the small outcrops of limestones give rise to calcareous soils. Sometimes, these soil-caps are sharply defined and, in places, give rise to remarkable contrasts in vegetation."¹

Topography appears to have been the most potent factor in bringing about local variations. The variations are of great agricultural importance and are easily recognised by the farmers. The Chotanagpur Plateau is universally characterised by two common topographic features—*dons* (lowland) and *tanrs* (upland). The uplands are capped with residual soils derived from the subjacent rocks. The lowlands consist of drift-soils which are made of transported materials or sediments. The sediments are composed of all the materials washed down by the streams from the various outcrops that they traverse, but they are thoroughly assorted according to grain size and specific gravity. The sorting of the sediments helps accumulate light loamy soils in the valley bottom. The proportion of sand and clay varies in accordance with the nature of the parent rocks that lie at some distance. Along the Northern Edge of the Plateau the streams drain the siliceous rocks and the sediments are, therefore, mainly sands. In Singhbhum and particularly in the Chaibasa plain, the rocks are argillaceous and the sediments are predominantly fine clays.

1. Dunn, J. A., op. cit., p. 31.

A transect from the *don*-bottom to the *tanr*-top presents all grades between light, clayey loams and fine silts and coarse-sandy and gravelly red soils. The gradation admits of noticeable variations in consistency, depth and fertility of soils. The texture of soils grows fine and fertility increases from the upland-crest to the lowland-bottom. This fact has been well recognised by the Survey and Settlement Operations and has been made the basis of the classification of lands in Chotanagpur.

The uplands, commonly known as *gora* lands, are capped with a thin veneer of soils. The soils consist of a great preponderance of gravels and ferruginous nodules. The latter impart a high cementing quality to the soils, for which the soils are used as common materials for surfacing the unmetalled roads. Except in flat situations the red soils of the *tanrs* are subjected to constant erosion and rain-wash. This results in regular truncation of the soil surface and does not permit the development of horizons in the soils. Thus, for the most part, the *tanr*-soils also remain immature. On the tops of the *tanrs*, the soils are infertile and have given rise to barren lands. Close to the homestead area are invariably narrow fertile belts, locally called *bari* lands. The *bari* soil receives considerable quantity of manures in the form of village refuses and is rich in organic substance.

Flanking the steep slopes and scarped faces of the Central and Lower plateaus are narrow, zigzag, irregular belts of infertile soil of very coarse texture. The soil is composed of unassorted debris that rolls down the slopes. The debris consists of coarse sand and gravel with a good proportion of stone-fragments of various shapes and sizes. This piedmont soil being loose and coarse, is quite incapable of retaining moisture and forms dry belts of bad land.

REGUR or BLACK CLAYEY SOIL

This is another type of residual soil found on the plateau of Chotanagpur. The soil is comparable to *regur* or black cotton soil of Western India. The soil has developed on the Rajmahal trap and the basic gneisses in the Santhal Parganas. The area of the black soil is by no means conterminous with the boundary of the Rajmahal trap. It is only the western flank of the Rajmahal Hills which is capped with black soil. On the eastern flank of the hills the development of this soil has been obstructed by steeper slope and heavier rainfall causing regular removal of the top-soil at a faster rate. Black soil 'is highly argillaceous with a very large clay-factor'. Its capacity to retain moisture is exceedingly high. "The characteristics are related to high clay-proportion which means larger aggregate of particle surfaces than in a less clayey or

coarser soil.”¹ Larger volume of interstices imparts the soil a remarkably high capacity to expand when wet and contract when dry. After rains the soil becomes exceedingly sticky. In summer, owing to considerable contraction wide-open cracks develop. The cracks assume a hexagonal pattern and divide the surface into disjointed blocks of clay which collapse after rains and make ploughing easier. The cracks provide a mechanism for aeration and sub-soil chemical action. The “base exchange capacity of this soil is fairly high throughout its profile. The soil is fairly well supplied with replaceable bases.”² Clay is the most important constituent of this soil. Among the accessory constituents of black soil are a ‘proportion of calcium and magnesium carbonates, iron oxide and fairly constant alumina. It also consists of a variable proportion of potash, and the proportions of phosphates, nitrogen and humus are low’.³ The causes of prevailing dense black colour which does not change for a thickness of 6 to 10 feet of the soil, is not yet definitely known. It may be “partly due to iron or to some minute quantity of a titanium-iron compound or partly to carbon and organic matter.”⁴

Terrain plays an important role in determining the thickness and the nature of the soil. The thickness of the soil-cap varies from 1 foot to 50 feet in different situations. On the upland the soil is thin, light in colour, less clayey and less fertile. In lower situations, particularly in *dons* and river valleys, the soil attains maximum thickness. Here the soil consists of higher proportion of clay than the normal, looks deep dark and becomes exceptionally fertile because of ‘secondary enrichment’ with the accumulation of finely assorted sediments brought down by rain-washing from above. The areas with thick black soil constitute some of the best paddy lands of the region. On the hill sides and tops the soil thins out and becomes almost infertile. “A very considerable extent (of the hilly tract) is occupied by mere rock, totally incapable of cultivation ... a much greater extent is covered with fragments of rocks of various sizes, yet, in many parts, such a soil is very far from being barren and such alone is the land cultivated by the mountaineers of Rajmahal.”⁵

LATERITE SOIL

Laterite soil which is peculiar to India and some other tropical countries, is found in three distinct tracts of Chotanagpur. They are the

1. Ahmad, E., op. cit., p. 21.

2. Wadia, D. N., *Geology of India*, London, 1953, p. 512.

3. Ibid, p. 511.

4. Ibid.

5. Buchanan, F., Quoted by Macpherson, H., *Survey and Settlement Report, Santhal Parganas, Patna, 1922*, p. 7.

Pat region, the eastern side of the Rajmahal Hills and the south-eastern corner of Singhbhum District. It is found on various altitudes "from the cappings on the 3000 feet plateau in western Ranchi and Palamau, down to the level of laterites at 150 feet along the eastern side of the Rajmahal trap."¹ Laterite itself, something of the nature of soil-cap, is not a soil. "It is a compact vesicular rock composed essentially of a mixture of the hydrated oxides of aluminium and iron with small amount of manganese oxides, titania etc."² Under the monsoon conditions of alternating dry and wet seasons, laterite capping can develop on any rock-surface that contains some alumina and iron. It is, however, formed far more readily over rocks like traps and ferruginous shales which contain a very high proportion of alumina and iron. But further modifications resulting particularly from tillage and actions of biologic and other soil-forming agencies, laterite is converted into a red-coloured soil.

Intensive leaching and low base-exchange capacity have attributed a marked acid reaction to laterite soil. Organic matter and other fertilising constituents are almost absent. A typical lateritic soil is, therefore, quite sterile for agricultural purposes. Under the lateritic group several sub-types are noted that differ widely in physical and chemical characteristics. The most important differences in the nature and composition of lateritic soils appear to have been brought about by altitudes, and accordingly, they have been classed into high-level laterite and low-level laterite. High-level laterite forms the capping of the *pats* and the Rajmahal Hills. The low-level laterite forms isolated patches in south-eastern Singhbhum and along the eastern flank of the Rajmahal Hills adjacent to the Ganga alluvium. The high-level laterite is thin and gravelly. Its moisture-retaining capacity is very low. It is more intensively leached than the low-level laterite. A cross-section of the *pats* reveals certain well-defined layers between the upper surface and the unaltered rock-surface below. There is generally a thin layer of red and yellow clay at the surface. The surface layer overlies a layer of hard-compact laterite, frequently exposed on the scarp edge of the *pats*. "This layer may be of variable thickness, but 1 to 8 feet is most usual. Along the scarp-edge of the plateau (*pat*) this hard laterite is typically pisolitic in structure"³ which is the characteristic of the underlying layer of bauxite. The low-level lateritic soils are dark heavy loams and clays. Their capacity to retain moisture is higher than that of the high level laterite. This might

1. Dunn, J. A., op. cit., p. 20.

2. Wadia, D. N. and others, Reeds., G.S.I., Vol. LXVIII, p. 373.

3. Dunn, J. A., loc. cit., p. 21

be due to the basic difference in parent materials. The low-level laterite of Singhbhum, for example, has been altered from the Tertiary sediments. On the other hand, the low-lying lateritic soils of the Santhal Parganas, are actually 'drift-soil formed by the deposition of lateritic sediments from the hill-tops'. Low-level lateritic soils are also poor in lime and magnesia and deficient in nitrogen and potassium. Phosphorus and organic contents become occasionally high and for this reason, the soils attain agricultural importance. The areas of such soils in the Santhal Parganas are cultivated and given to paddy.

LOOSE SANDY SOIL OF THE DAMODAR BASIN

In the Damodar valley, the geological foundations of the soils are laid down by Gondwana rocks. Sandstones and shales are the most predominant types of rock which are interbedded with coal seams and iron-stone shales. These rocks, on weathering, have given rise to "a comparatively immature soils of less variety and fertility than the surrounding country."¹ The predominance of massive and coarse sandstones of Barakar, Panchet and Mahdeva Series have led to the formation of loose soils with a very high proportion of coarse sands. The upper stages of the system formed under arid conditions, are less calcareous and more ferruginous. The soil that results from them are deficient in lime but rich in iron-content. There are a few beds of limestones and shales that have brought about local variations in soil. On the whole, the soils derived from the Gondwana rocks are 'pale, thin and sandy'. They are deficient in humus and other fertilizing constituents and, at places, have given rise to bad lands.

In the coalfields the soils are, as a rule, rather heavy loams. The rocks are alternating shales and sandstones, but the latter usually contain a considerable proportion of feldspathic grains which weather to kaolin. On the whole, the flatter low-lying coalfield country is more widely covered with redistributed surface capping than are the highlands."² Adjoining the carbonaceous outcrops, the soil takes a deep black colour, though it maintains its average texture and composition. The carbonaceous soil becomes remarkably loose in summer and regularly feeds the dust-storms that frequently rise in summer days. The shale outcrops, generally forming elongated lowlands between sandstone-ridges, have given rise to good agricultural soil with a very high clay-factor. The areas of clayey soils are given to paddy and are much valued by the farmers.

¹ Wadia, D. N. and others, op. cit., p. 368.

² Ibid.

NATURAL VEGETATION

Chotanagpur constitutes one of the most heavily wooded tracts of India. The name Jharkhand as the Plateau is popularly known, suggests that the whole Chotanagpur at one time was a dense forest. With the increase in population, multiplication of holdings and opening-up of the country by roads and later by railways, especially in the wake of mineral exploitation, timber became a marketable commodity and forest areas began to shrink. Even to-day 12,933 square miles¹ of the Plateau-surface are under forest which work up 34% of the total area of Chotanagpur. As a result of Bihar Land Reforms Act, 1950, all private and zamindari forests vested in the Government. Consequently, the forest administration and management were reorganised to meet the new situations. There are now only two categories of forests, the reserved forest and the protected forest. Reserved forests are most thickly planted and consist of the best timber reserves. They cover an area of 1,488.53 square miles² or 9% of the total forest land. The largest single tract of reserved forest is to be found in the southern part of the Plateau that consists of Porahat and Kolhan forest divisions. Other areas of reserved forest are in the *pat* region, Kodarma Plateau and the Rajmahal Hills. Palamau with 61% of its total area under forest is the most extensively forested district, while Dhanbad with only 3.7% wooded area is the least forested. The forest is fairly extensive in the districts of Hazaribagh and Singhbhum covering 43% and 34% of the total areas respectively.³ In the districts of Ranchi and Santhal Parganas the forests are, for the most part, denuded and are preserved only in the mountainous and less accessible areas. The forest areas in these two districts account for 32% and 22.22% of the total areas respectively.

Before the Bihar Private Forest Act, 1946, the forest was most wastefully destroyed. Even today, in spite of various protective measures adopted by the Forest Department, the extermination of forests is in progress over large areas. The forest of Chotanagpur, especially of Hazaribagh and Ranchi being most accessible, 'received the full brunt of the fury of cutting'. The number of saw-mills and timber-works is on increase and, in and around Ranchi town itself there are more than 100 saw mills. Besides the indiscreet acts of the people, there are several natural agencies, e. g., fire, gully erosion etc. that are reducing the forest areas.

1. Indian Forest Statistics, 1957-58, Publication Division, Government of India, New Delhi.
2. Annual Progress Report on Forest Administration in Bihar, 1953-54 and 1961-62.
3. Season and Crop Report, 1958-59, Patna.

The forest areas of Chotanagpur form two elongated belts, one in the north and the other in the south (fig. 13). The two belts are separated, except in the west, by the Ranchi plateau which is mostly denuded of forest. The Rajmahal forest forming an isolated patch is separated from the main forest area by the Deoghar 'erosional depression' and the Lower Damodar Basin. Most of the forests occupy such

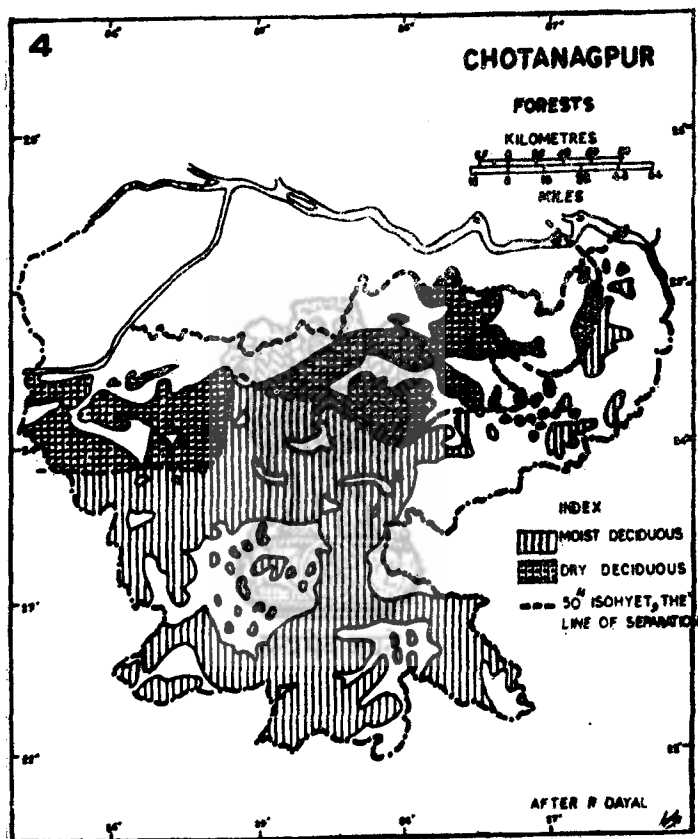


Fig. 13

areas which are classed as unculturable. They are naturally confined to hills, scarps and rugged terrains. "The descent from each plateau to a lower level is marked in all cases by a considerable belt of forest covering the slopes."¹ In addition, individual hills, infertile uplands with rocky exposures and high-lying river-terraces covered more or less with jungles are scattered all over the Plateau. In the regions largely denuded of natural vegetation, the forests have been reduced to small scrub-jungles. On the hills of Ranchi plateau, patches of such

1. D. G. Ranchi, *op. cit.*, p. 5.

jungles are known as *patras*. Besides, each village invariably consists of a grove of mango, *mahua* (*Basia latifolia*) and a large number of flowering and fruit-bearing trees along with thickets of shrubs and small thorny plants which are widely used for fencing.

Character of Forests

Forest of Chotanagpur "may be divided into :—(i) moist deciduous and (ii) dry deciduous; the line of separation being roughly the 50-inch isohyet."¹ The line of separation running along the northern *Pat* scarp and the Northern Edge of the Plateau swings northward from the west of the Rajmahal Hills (fig. 13). Thus, only a small area falls within the dry deciduous belt which includes almost whole of the district of Palamau and parts of the districts of Hazaribagh, Gaya, Monghyr, Bhagalpur and Santhal Parganas. The forests of southern Palamau, southern Hazaribagh, Ranchi, Singhbhum and the Rajmahal Hills fall within the moist category.

In the dry deciduous belt the vegetation is of semi-xerophytic type. It consists of trees and scrubs which have, quite often, stunted growth. "*Khair* and five other *Acacias*, *Bair* and four other *Zisypus* and a large variety of other thorny plants compose this scrub jungle."² Besides there are a number of dry rock-loving plants to be seen in this region' "The common plants growing in cracks of the driest rocks are *Gardenia latifolia* and *Gardenia turgida*."³ This does not mean that the dry deciduous forest is totally devoid of larger trees. They are actually in considerable number occupying 'the dry habitat on the hills and scarps of the Plateau.' In comparatively well watered areas on lower levels are patches of sal (*Shorea robusta*) forest. But even the trees of larger species in this belt yield poor and inferior timber. Bamboo and *sabai* grass, along with a large number of creepers and fibre-yielding plants occupy extensive areas of this belt.

The moist deciduous consists of damp tropical flora which are represented by a 'considerable number of such plants which are characteristic of moist tracts of Assam.' Owing to a considerable growth of climbing and ascendant herbs and shrubs during the period of rains, the jungle, particularly in damp ravines and low-lying valleys look like damp tropical forest.

Chotanagpur lies in the 'Central Indian Sal Tract' where sal is gregarious. The best growth of sal trees is invariably found in valleys

1. Dayal, P., Bihar in Maps, op. cit., p. 26.

2. D. G. Hazaribagh, 1917, p. 11.

3. Ibid.

and lowlands. On higher situations, hill sides and steep slopes, the trees are short and stunted. On drier uplands, hill-tops and slopes, sal is supplanted by trees of 'mixed-forest' type. On the other hand, in such tracts which suffer from water-logging and insufficient drainage, its place is taken by *asan* (*Terminalia tomentosa*), *semal* (*Bombax malabaricum*) and other species. In valleys and sheltered situations, *asan*, *gambhar* (*Gmelina arborea*), *kend* (*Diospyros tomentosa*) and *semal* are principal companions of sal. *Mahua* is a common tree of Chotanagpur. It grows everywhere, but in the forests *mahua* is mainly confined to hills and dry uplands. Some valuable timber yielding trees which are not native of Chotanagpur are widely planted and grow well. Important among them are *tun* (*Cedrela Toona*), *sisam* (*Dalbergia Sissoo*) and teak (*Tectona grandis*). *Harre* (*Terminalia Chebula*), *Karam* (*Adina Cardifolia*), *kusum* (*Schbichera Trijuga*) and *paisar* (*Pterocarpus Marsupium*) are also important species. In the inferior sal forests *dhuura* (*Anogeissus latifolia*), *piar* (*Buchania latifolia*), *khair* (*Acacia Catechu*) *amaltas* (*Cassia fistula*) and bamboo (*Dendro-Calamus strietus*) are interspersed with sal. Mango (*Mangifera Indica*), *jamun* (*Eugenia jambolona*), *karanj* (*Ponamia Glarbra*), *tetar* (*Tamarindus Indica*), *bel* (*Aegle Marmegoes*), *katahal* (*Autocarpus intengrifolia*) and *pipal* (*Ficus Bengalensis*) are common round the village sites. *Palas* (*Butea Superba*) grow in large number in both cultivated and waste lands.

TRADITIONAL RIGHTS AND PRIVILEGES

In the ex-private forests, the villagers have had the customary rights 'to take wood for agricultural implements, domestic purposes and fuel requirements'.¹ In certain areas they have the rights to reclaim forest lands for agriculture and to practise *jhuming* (shifting cultivation). This practice was formerly encouraged by the landlords for the higher yield of revenue. In the old Reserved and Protected forests the recorded tenant living therein or in the neighbourhood has "the privilege of collecting and appropriating *mahua* flowers and fruits and other edible and medicinal roots, flowers and fruits for his own domestic needs and of pasturing and using springs for watering his own cattle, free of charge."² He also enjoyed the rights of removing timber, fuel, bamboos etc. for the domestic uses.

With the increasing authority and control of the Forest Department over all sorts of forest, the villagers began to feel the loss of their

1. Annual Progress Report on Forest Administration in Bihar, op. cit., pp. 13-14.
2. Ibid.

traditional rights and developed hostile attitude towards the forest. Some of them have taken to destructive practices and in their daily traverses from home to work-place and back, they cut the roots of the trees that subsequently die. Sometimes, they set fire to the forest. Forest-fire yields enough temporary benefits to the villagers. They receive enormous supply of charcoal and their fields get fertilized with ashes brought down to the fields by the first monsoon showers.

FOREST PRODUCTS

The forest products of Chotanagpur which may be counted in hundreds, are customarily classified into two kinds, viz., major products and minor products. 'Major produce consists of wood proper, that is, timber, fire-wood and charcoal'. All other forest products ranging from leaves to bamboos and from ordinary gum to valuable lac are classed as minor produce.

The principal timber-yielding trees are sal, teak, *paisar*, *tun. karam*, and *gambhar*. *Asan*, *kend*, *mahua*, *dhaura*, *kusum* and several other trees yield poor timber, but they are much valued for the purpose of the local people. *Dhaunta*, *pandan*, *sidha*, and *dhelha* are small trees but they yield very hard, durable wood and are, therefore, much prized for agricultural implements. The wood of *jamun* and a few other trees do not rot in water. They are, therefore, used for *jamots* (well-curbs). *Karanj*, *castar*, *bhelawa*, *nim*, *kusum*, and *mahua* are oil-yielding tree. A large quantity of the forest-oils find their way to external markets where they are in demand for specialized and medicinal uses. *Mahua* is one of the most prized trees of Chotanagpur. Besides yielding oil-bearing fruits, it yields huge quantity of sweet fragrant flowers which are taken as food, but are much used for the distillation of country liquor. Bamboo is one of the most widely and variously used plants. It is used for house-construction, basket-making, fencing, paper-manufacturing and a host of other purposes. Besides, there are a large number of plants and grasses that yield strong fibres which are used for rope-making. The most valuable grass is *sabai*. Its fibre is very much prized for the manufacture of ropes and papers. Among the minor products, *kendu*-leaf used for *birt*-making, enjoys a very high position and yields revenue which is second to that of bamboo only.

Lac is one of the most important products of the forest of Chotanagpur. In view of the fact that lac is produced on commercial scale with scientific methods and planning, it has become a plantation product rather than forest product.

In addition to the products enumerated above, the forest of Chotanagpur yields valuable substances, like *kath*, myrabolans, silk-cocoons, honey, gum, medicinal herbs and animal products and a large variety of such substances which are little known outside but contribute positively to the economy of the forest dwellers.

SETTLEMENTS AND FOREST ECONOMY

Forest is largely negative to human occupation and settlement. The most thickly forested areas constitute the most inaccessible tracts. They are mostly devoid of or have a scanty sprinkling of population. There is something like the law of uniformity about the distribution of forest resources and their availability to meet the demand of the people who live within the forest bound. This aspect of the forest works towards the dispersal of settlements. The point will be discussed in detail in the following pages.

In Chotanagpur, except for a few localities of difficult terrain, villages and forest occur in succession. There are probably not many forested tracts in India where the economy of the people is so intricably linked up with forest. Large number of villages, more or less uniformly distributed are, as it were, cloaked in forest and forest is the basic matrix in which the rural economy and culture of Chotanagpur is cast. Cases have been recorded that villages disappeared with the disappearance of forest. Such a distribution of forests and population provides "an ideal condition for the best utilization of forest. It is conducive both to the maximum production of revenue and to the conferment of optimum benefits on the local population."¹ This is illustrated by the fact that in less accessible and unpopulated forests of Saranda, Kolhan and Palamau, the Forest Department has created 220 villages to offer manual labour for the up-keep of the forest and in return, they have the privileges to reclaim land for cultivation and obtain wood from the forest for the domestic uses and fuel purposes.

1. D. G. Hazaribagh (1957), p. 52.

THE RURAL ECONOMY

AGRICULTURE

Chotanagpur approximates to that type of region where "cultural landscapes are dominated by the features of natural earth".¹ Agriculture in Chotanagpur is, therefore, grossly dependent upon natural concessions. One of the foremost factors that offsets the natural dominance on agriculture to a great degree, is irrigation which has made but little headway in this region. Scientific rotation and plantation of crops, improved seeds, chemical fertilizers, modern implements, agricultural financing and organised marketing are yet to play some significant role in the agricultural scene of Chotanagpur.

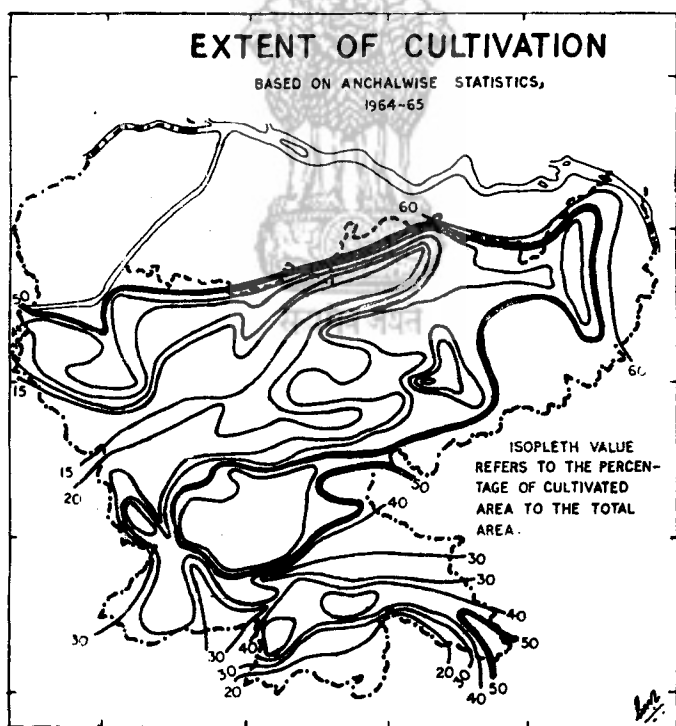


Fig. 14

1. Finch, V. C., 'Written Structures for presenting the Geography of Regions', A.A.A.G., Vol. XXIV, June, 1934, No. 2, p. 114.

EXTENT OF CULTIVATION

The net area sown² in Chotanagpur is 25% of the total area as against 46% for the whole of the State (fig. 14). Current fallows account for 8.8% while 7.9% has been classed as other fallows. The latter category includes such lands which after being cultivated for one year are left fallow for a number of years, ranging from 3 to 9 or even more. Land put to non-agricultural uses comes to 7.8%. In 1.3% of the land are maintained permanent pastures. The single largest item of use is forest that covers 34% of the total surface. 6.5% land is classed as barren and unculturable, while 8.7% has been put under the category of culturable waste. It is only this class of land that bears the possibility of future extension of agriculture.

Slope and land-use

The single physical factor that broadly determines the extension as well as intensity of land-use is slope. As the slope increases, the percentage of land under plough decreases. Areas of higher elevation are the areas of steeper slopes. Percentage of cultivated area to the total area is, therefore, everywhere less than 50 in those parts of the Plateau which lie above 1000 ft. (fig. 4 & 14) and more than 50 in areas lying below 1000ft. There are, however, five exceptions to this generalization. They are the Ranchi plateau, Chaibasa plain, Lower S. Koel valley, Upper Sankh basin and Lower N. Koel valley. The first four are above 1000 ft. but have more than 50% area under plough. The last one is below 1000ft., but the cultivated area is less than 50% of the total. The Ranchi plateau is an uplifted peneplain with subdued relief. Chaibasa plain and Upper Sankh basin are just highlying plains. The Lower S. Koel valley is broad enough to permit the extension of cultivation on to the valley sides covered with a veneer of alluvium. The agricultural capability of the N. Koel valley is reduced by the presence of extensive sandy tracts. The relationship between slope and extent of cultivation is more sharply brought about by the isopleth of 30% (fig. 14) which runs along the foot of the prominent scarps. Inside this line the intensity of human occupance is feeble and its extension is limited to valleys and lowlands. Consequently, the extent of cultivation sharply falls below 15% within an elongated belt that includes the Northern Edge of the Plateau and broken scarps in the Upper Amanat, Auranga and N. Koel basins. In the southern section of the Plateau the area with less than 30% cultivated land comprises the dissected interfluves between the Sankh and the S. Koel rivers, the southern scarps of the Ranchi plateau, Dalma hills,

2. Figures of land-use are based on the unpublished statistics for 1960-61, & '64-65 obtained from the Directorate of Statistics, Govt. of Bihar.

Porahat, Saranda and Kolhan hilly tracts. In general, the cultivated area in the Lower plateau varies from 40 to 50 percent. Two areas, the Ranchi plateau and the Alluvial Upland stand out as the regions of intensive cultivation with more than 60% of area under cultivation.

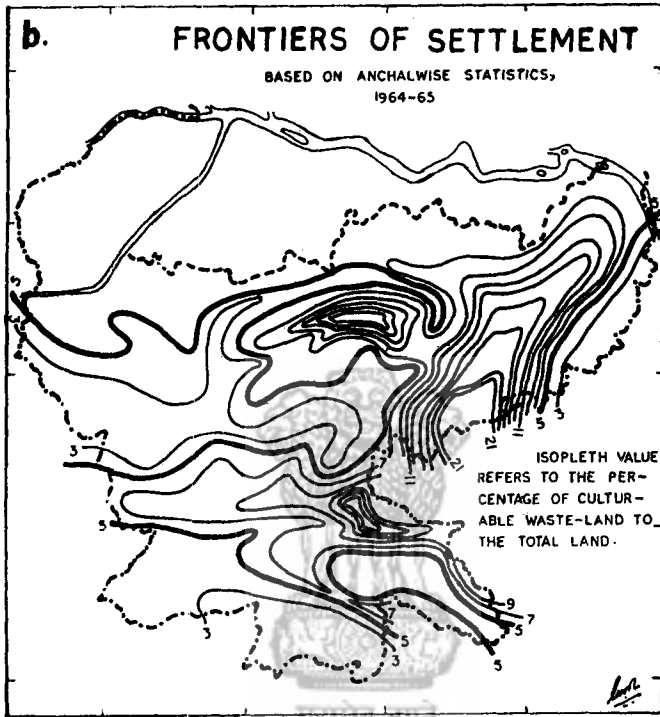


Fig. 15

In the Ranchi plateau where forest is denuded for the most part and surface is gently undulating, agriculture has been extended to the farthest limit. On the Alluvial Upland "agricultural conditions are the same as in the alluvial plains of Bihar".¹

Agricultural capability

Agricultural capability of land is again a function of slope. Fertility, thickness and texture of soil, nature of land-use, crop to be sown, form of drainage, facilities for irrigation, shape, size and pattern of plots, all manifest aspects of slope. The surface in Chotanagpur is, to a large extent, composed of long undulating ridges. Between these ridges drainage runs off to join large streams. Between the undulations lie trough-like hollows which are surfaced with alluvial soil. The ridges,

1. D. G., Santhal Parganas, Patna, 1938, p. 198.

being made up of sterile gravels and stiff clays lying on a hard sub-soil, are very poor. In local terminology, the ridges or uplands are called *tanrs* and the valleys or lowlands *dons*. It is because of this alternation of *dons* and *tanrs* that the areal pattern of the agricultural fields, particularly ricelands, typically conforms to the local drainage pattern. The upland slopes are cut into level terraces which are properly embanked to impound water. The walls of the terraced fields forming one long series of steps from the *don* bottom to the crest of the ridges vary in height generally from 1 to 5 feet. "When the slopes are too steep for terracing or the soil too stony for cultivation, the bed of the stream is levelled up and made into one long narrow rice field".¹

Shape and size of plots

Two factors, slope and water requirement of different crops, appear to have influenced the shape and size of plots. The size of plots varies inversely with the steepness of slope. On lesser slopes wider areas are to be had for easy levelling and terracing. As rice requires inundation, rice-fields have, therefore, to be cut to a size which can easily be levelled and embanked. *Bhadai* and *rabi* crops do not require water-logging and therefore, *bhadai* and *rabi* fields situated on the ridge-top or upper slope, usually assume larger dimensions. They are also free from bunding. All the embankments of the rice-fields usually align in two main directions, along the slope and across the slope. The alignment of embankments across the slope makes the fields arranged parallel to the contour lines and the aligned embankments appear as lines drawn parallel to the stream or the axis of the *don*. Because of the fact that terrace-embankments are either along the slope or across the slope, the plots assume a rectangular pattern. Wherever the gradient is 1/10 or more the plots become too narrow and too long. On such slopes "plots one furlong in length and 80ft in width are not uncommon".² On the head of a *don* or stream the contour bunds usually get curved and impart an arcuate shape to the plots. Viewed from the bottom of a typical *don*, the terraced fields appear as a series of semicircular steps leading to the top of the ridges on either side. Each contour bund consists of two faces, upslope and downslope faces. The up-slope face is usually one to three feet high. This is enough to ensure inundation of the entire field. The down-slope face varies according to the local gradient, from two to ten feet. On an average, the terrace bunds "cover 1/15 to 1/20 of the paddy area".³ The bunds offer great impediments to

1. D. G. Santhal Paragnas, op. cit., p. 198.

2. Ahmad, E., 'Bhusur Village,' Bombay Geographical Magazine, 1960, p. 48.

3. Ibid, p. 56.

movement along the slope and, as such, all movements and foot-tracks, except those which are intended to cross a *don* or stream, follow the contour lines.

CLASSIFICATION OF LAND

"The cultivated lands admit of the broad divisions into *dhankhet* (rice-land) and *gora* (bhadaï and rabi land): the former is lowland, terraced and bounded with *a'ls* (embankments) for wet cultivation; the latter are highlands where fields are not intended to retain water or detain the natural drainage'.¹ On the basis of a rough calculation of productive equivalence each one of the two divisions is further divided into three classes, first, second and third. As productivity of land is a function of situation, the classification assumes a situational pattern.

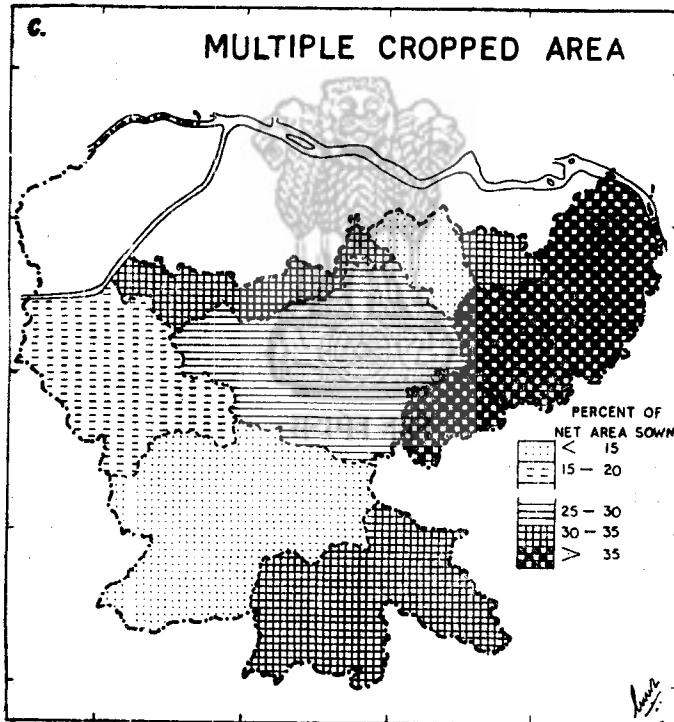


Fig. 16

The first class *don* or riceland is usually situated in the bed of a stream or immediately below an embankment. It retains moisture for the greater part of the year. Land of this class is invariably irrigated. Best of this class is usually "fed by perennial springs from which moisture oozes even in the hottest month of the year".² The first class *don* is

1. S. R. Hazaribagh, (1917) p. 6.

2. D. G. Santhal Pargana, (1938) p. 198.

everywhere the favourite habitat of slow ripening, heavy *aghani* rice. Second class *don* consists of the lower parts of the terraced slopes and is, thus, confined to narrow strips between the first and the third class ricelands. Second class riceland 'is also found in long strips in jungle where the stream has been dammed and slope above has been terraced'. Owing to less favourable situation, second class riceland receives but scanty irrigation. It, however, receives considerable moisture through percolation from fields above and through capillary action from the dammed stream below. This class of land is given to early maturing rice which is harvested by the end of *Kartik* (November).

The third class riceland consists of the higher terraced fields bounded by low embankments capable of detaining surface flow for a comparatively short period. This class of land is completely unirrigated and retains surface moisture only a little longer than the *tanrs*. The third class riceland is invariably given to *bhadai* rice which is harvested in *Asin* (October).

The productivity ratio of three classes has been calculated as 3:2:1:: first class: second class: third class *don* lands. The proportions of these lands vary widely from village to village. The prosperity of a village or a region varies directly with the proportions of first and second class land to the total riceland. Similarly the ratio between third class riceland and the total cultivated area furnishes an index of liability to famine for "the lands most liable to failure from drought are the third class rice-lands".¹

The first class upland or *tanr* known as *bari*-land includes only a small fraction of the total cultivated area. This class of land, confined to a narrow strip encircling the settlement sites, is actually an extension of the homestead area. *Bari*-land is usually fenced and constantly manured from village refuse. It is a multiple-cropped area and is given to valuable cash crops, vegetables, maize and sugar-cane.

The second class uplands are generally situated contiguous to the *bari*-land. Because of the situation, this too receives a certain amount of manures in form of overflow from the *bari*-land. The land commonly produces two crops, a *bhadai* crop followed by a *rabi* crop.

The third class *tanr* includes all the uplands and slopes to which cultivation has been extended. Such lands are situated away from village site and are never manured. In some villages it is sown with every year and in others, only once in a cycle of years. The frequency

1. S. R. Hazaribagh, op. cit. p. 7.

of cultivation depends upon the quantity of *tanrs* available and the demand for such lands in the villages. This class of land is invariably given to *bhadai* crops.

AGRICULTURAL HARVESTS

Agricultural harvests in Chotanagpur, as in other parts of Bihar, are three. They are *bhadai* (autumn or mid-monsoon crops), *aghani* (winter or end-monsoon crops) and *rabi* (spring crops).

Bhadai harvest consists of such crops which are quick-maturing, hardy and less sensitive to the fertility, texture and depth of soils. They are not fastidious about perennial water-supply and can withstand short rainless intervals without suffering from stunted growth. As a rule, none of the *bhadai* crops grown in Chotanagpur require inundation. The important *bhadai* crops grown in Chotanagpur are *gora* rice, maize (*Zea mays*), *marua* (*Eleusine coracane*), *gondli* (*Panicum Miliare*), *urid* (*Phaseolus Raxburghii*), mung (*Phaseolus mungo*), *kodo* (*Paspalum scrobiculatum*), *til* (*Sesamum indicum*) and flaxes.

There are only two main *aghani* crops, rice (*Oryza sativa*) and *surguja* (*Guizotia Abyssinica*). By the sheer fact that the crops remain standing in the fields for more than six months, *aghani* harvest dominates the entire agricultural scene.

Considering the region as a whole, *rabi* has but marginal importance. The important crops of the season are gram (*Cicer arietinum*), wheat, barley (*Hordeum Vulgare*), pulses, mustard (*Brassicas*), linseed (*Linum usitatissimum*) and *tewa* (Summer) rice.

Chief Crops¹

The distribution of the crops of the three harvests is again a function of situation which is an aspect of slope. Two factors appear to influence the extension and intensity of *bhadai* harvest. They are early monsoon showers and measure of relief. In general, *bhadai* crops occupy the highest levels of the agricultural land (fig. 17). Consequently, the acreage under *bhadai* crops varies in direct proportion with the degree of ruggedness and steepness of slopes. *Bhadai* area shrinks as the evenness of surface increases. In the elevated and rugged tracts the acreage under *bhadai* is more than average for Chotanagpur which is approximately 20% of the total cultivated area. The *bhadai* acreage exceeds 50% in a central tract that comprises the *Pat* region, western Ranchi plateau and parts of Hazaribagh plateau. In all other

1. This part is largely taken from 'Agriculture in Chotanagpur' by the author, Geographical Outlook, 1967.

areas lying below 1000 ft the percentage falls below 20. The smaller percentage of *bhadai* acreage in a large contiguous tract comprising the Deoghar erosional depression, Kodarma plateau and the northern scarps appears to be in response to low amount of rainfall, particularly in the months of May and June.

CHOTANAGPUR

DISTRIBUTION OF ACREAGE UNDER PRINCIPAL HARVESTS 1959-60

(ISOPLETH VALUES REFER TO THE PERCENTAGE OF GROSS CROPPED AREA)

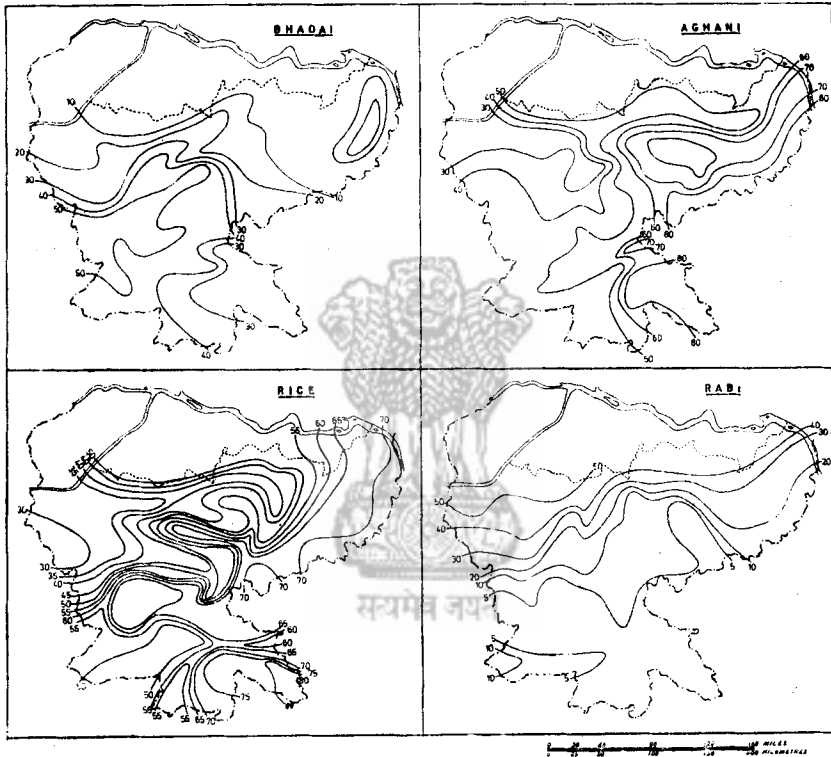


Fig. 17

Maize, after rice, is the most important food crop and is grown almost everywhere. North of the Ranchi plateau, 5 to 10 percent cultivated land is given to this crop. It becomes comparatively unimportant south of the Auranga-Damodar basin. Though the acreage under maize falls below 1% it is only next to rice in Singhbhum. Maize cultivation in Chotanagpur may be said to manifest two phases, (i) "the homestead (bari-land) cultivation to produce green cobs"¹ which find ready market in the fast-growing urban centres, and (ii) "the cultivation as a staple food grain on the hilly tracts".² The second

1. Watt, George, *The Commercial Products of India*, London, 1908, p. 1134.

2. *Ibid.*

phase of cultivation accounts for higher proportions of maize area north of the Ranchi plateau. The reduced importance of the crop in the southern hilly tracts is perhaps due to preference for *gondli* and *til* which compete with maize for soil and situations.

Marua like maize, is extensively grown, though it fails to secure even a third position in the crop list. Being "essentially a crop of undulating, well-drained soil.....that is too shallow or too poor for rice or too steep for terracing",¹ *marua* is most extensively grown in the central part of the region where it commands more than 6% of the cropped area. It attains some importance in the marginal area also where it covers less than 2% of the total cropped area.

Gondli is an important crop in the central and south-western part of the region. It is a hardy, quick-maturing and essentially dryland crop. Even the poorest soil on the ridge-top is not too bad for its cultivation. Because of the rare merit to withstand both drought and water-logging, it is preferred to other millets and is grown in sandy soils and marshy areas alike. Because of low food value and the cattle's dislike for its straw, the crop is rather unpopular and is gradually being discarded in preference to other crops.

Til is mainly cultivated in the northern part of the Plateau, where the well-drained sandy loam in the broad river valleys coupled with comparatively low rainfall offers favourable conditions for its cultivation. The crop again attains some significance in the lower Sankh basin, partly because of the suitability of soil and partly because of the influence of the *til*-region of Madhya Pradesh with which the area is contiguous

The two *aghani* crops, rice and *surguja*, represent contrasting agricultural situations. Lands on the lowest levels are given to rice while ridge-tops and higher slopes are occupied by *surguja*.

Rice is the principal crop that forms the basis of entire rural economy. So important is the role of rice that it serves as a reliable index of agricultural and general prosperity of the rural areas. More than 66% of the total cropped area in Chotanagpur as against 49% in Bihar as a whole, is given to this master crop. In fact, only such lands which are unfit for rice are made available to other crops. The two primary requirements of the crop, fertile, heavy loam and inundation of fields, limit the extension of rice cultivation only to the river valleys and terraced slopes. Rice acreage varies, therefore, in inverse proportion with the measure of relief and in direct proportion with the amount

1. Watt, George, op. cit, p. 518.

of rainfall. This relationship is clearly manifest in the orientation of the 50-percent isopleth which roughly encloses the areas of vigorous relief (fig. 17). In this zone rice acreage is everywhere less than 50% and it falls below 30% in the central western part of Palamau District where in addition to the ruggedness of surface, rainfall is the lowest in the Plateau. In such areas where evenness of surface is coupled with a higher amount of rainfall the acreage under rice rises above 80% of the total cropped area.

In an extensive tract comprising the Central plateau, Upper Damodar basin and part of Kodarma plateau, *Surguja* occupies a position next to rice only. As the crop is grown in 'rough and rocky laterite or sandy soil' it competes with millets for soils and situations. In this central tract, however, it replaces *til* to which heavy rainfall and comparative flatness of surface prove unfavourable.

From view-points of distribution and relative position in crop-economy. *rabi* in Chotanagpur, as already stated, is of marginal importance. The 30-percent isopleth which approximates to the average for Bihar roughly coincides with the isopleth of the same value for *bhadai*, except in the eastern half (fig. 17). North of this line *rabi*-acreage increases and *bhadai*-acreage decreases. South of this line the reverse is true. It appears, therefore, that the conditions which are favourable for one are unfavourable for the other. The important *rabi* crops that cover individually at least 1% of the cropped area in the *rabi* belt are wheat, barley, gram and linseed.

Among the *rabi* crops, gram alone attains some regional importance. Though gram is cultivated, to some extent, almost everywhere, it is only in the northern part of the Plateau where it gets a place of importance in the crop-economy. The area of maximum concentration comprises northern half of Palamau District and the adjoining parts of Gaya and Monghyr districts. The acreage under gram falls from north to south, apparently in response to elevation. It is, however, climate rather than slope or any other factor that accounts for the insignificant position of gram cultivation all over the Central plateau. With elevation are associated the phenomena of low temperature and heavy rainfall. As "cold is harmful and frost is fatal",¹ the higher plateau does not offer favourable conditions for gram cultivation. Moreover, cloudy weather with 5 to 7 cloudy days and 2 to 3 inches of rainfall in January and February which synchronise with flowering and fruit-setting period, further worsens the situations for gram cultivation. Relatively small acreage

1. Watt, George, op. cit. p. 299.

under this crop in the districts of Singhbhum, Dhanbad and parts of the Santhal Parganas are due to the fact that only a small fraction of land is spared by rice for other crops.

Cultivation of both wheat and barley is restricted to a narrow strip of land in the north. As barley thrives best on light sandy soils which form extensive tracts in broad river valleys, it is more extensively cultivated than wheat. Wheat for soil competes with rice and, therefore, wheat cultivation is limited to areas where rice without irrigation cannot be profitably grown. Much more important than soil and climatic factors is a cultural factor, the *ahar*-system of irrigation that accounts for the cultivation of wheat and other *rabi* crops in this part of the Plateau. The *ahar*-beds which remain inundated during the monsoon, form excellent tracts of heavy loams which, as a rule, are given to wheat, gram, *masur* and linseed. It is this fact that explains why the cultivation of linseed is restricted to the same narrow strip of land. Linseed attains some significance in the extreme south also. This is, perhaps, in response to the influences of extra-regional culture.

*Areal pattern of crop-distribution*¹

From the foregoing discussion it is clear that acreage under three main harvests assumes an areal pattern of distribution and the ratios of their combinations provide a rational and statistical basis for dividing Chotanagpur into agricultural zones. Isopleth lines of two values in each harvest-map are of critical importance (fig. 17). These isopleth lines, in terms of percentage to the total cropped area, are of 40 and 50 for *aghani*, 20 and 50 for *bhadai* and 5 and 30 for *rabi*. The area where *aghani* acreage falls below 40% of the total cropped area, supremacy of the harvest is challenged and it is generally relegated to a secondary position. On the other hand, *aghani* acreage above 50% imparts one-crop rice-economy to the area. The acreage under *bhadai* averages about 20% for the State as well as for Chotanagpur. Wherever the percentage falls below 20, *bhadai* becomes a harvest of catch-crops rather than of normal or regular cultivation. Again, *bhadai* acreage above 50% is of critical importance, for it suggests general poverty and poor economy. Acreage under *rabi* crops averages about 30% for the State and 11% for Chotanagpur, but the isopleth of 5% for *rabi* is of greater importance than the isopleth of average for Chotanagpur. The 5%-isopleth divides the Plateau into two halves. In the southern half *rabi* with less than 1% of the total cropped area becomes insignificant. Wherever the acreage under *rabi* is more than 30% it becomes the

1. Prasad, A. 'Agricultural Pattern of Chotanagpur', G. O., vol. V, 1968,

primary harvest and *aghani* and *bhadai* occupy interchangeably second and third positions. By superimposing the harvest maps, one upon another, and by tracing the eight critical isopleth lines, and by working out inter-harvest ratios and supremacy indices for different areas, several well-marked agricultural regions are out-lined. In all, there are six macro-regions and twentyone micro-regions (fig. 18).

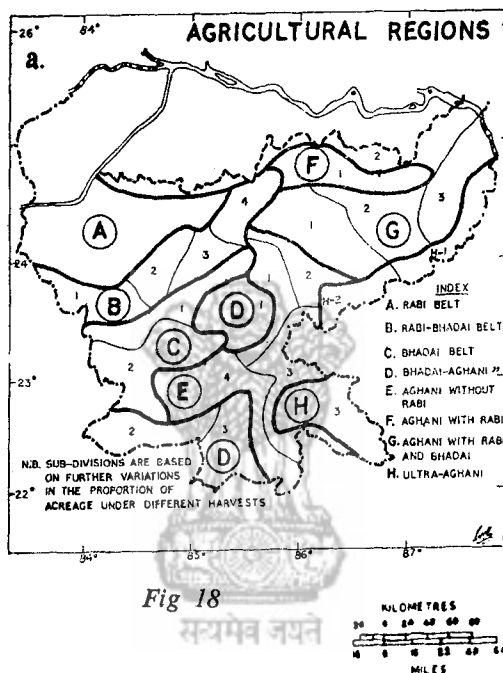


Fig 18

The various crops raised in Chotanagpur fall into two major groups—food-crops and non-food crops. Non-food crops are further classed as oil-seeds and cash-crops. The acreage under non-food crops in Chotanagpur is 5.4% as against 5.3% in the State. Again, the acreage under oil-seeds is 4.8% whereas the average for the State is 3%. The picture is gloomy in respect of cash-crops which occupy only 0.6% of the cropped area. The average for the State under this head is 2.3%. This means that the cultivators in Chotanagpur have little to sell for cash except foodgrains which are generally not surplus.

In addition to rice, there are nine other crops of varying importance. Each one of them commands no less than 1 percent of the total cropped area. These nine crops enter into a number of regional combinations. On the basis of second-most important crop (first being rice), the whole region has been divided into four major belts (fig. 19). These belts are (1) Gram belt, (2) Maize belt, (3) *Surguja* belt and

(4) *Gondli* belt. The combinations of five most important crops (other than rice), analysed in order of their regional importance, give rise to 15 sub-belts. The number of crops with more than 1% of the cropped area is the largest in the transitional zone and smallest in the ultra-*aghani* belt. In the Alluvial Upland maize after rice, is the only crop that covers more than 1% of the total cropped area.

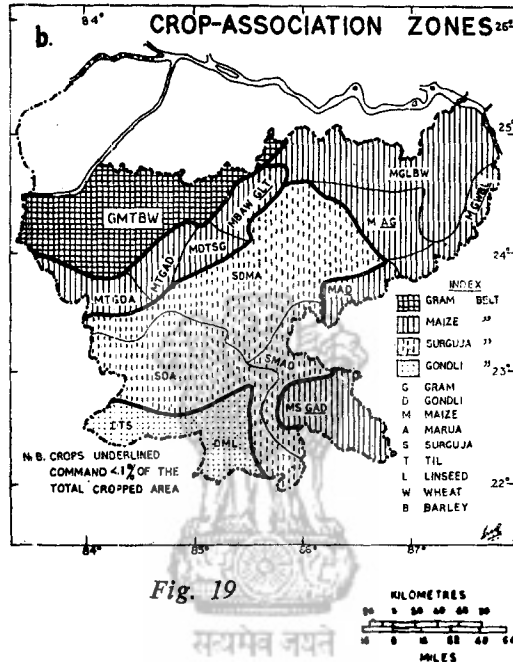


Fig. 19

AGRICULTURAL LANDSCAPE

Except in the alluvial plains of the broad river valleys and the adjoining areas of the Ganga Plain, the pattern of human occupation is monotonously the same everywhere. Villages which may be called the foci of occupation are generally surrounded by *bari*-lands. The *bari*-lands are usually enclosed either by green thickets or by bamboo-fencings. Parts of the *bari*-lands are often given to orchards and bamboo groves. Within the settlement area itself fruit-bearing trees and trees intended to supply wood, fuel and shade may be seen, usually planted in the foreground of a dwelling. These trees are valued much, because, besides serving as pointers to settlements to passersby, they attribute an aspect of life to the villages. Sometimes, the number of trees is so large and the various groves so extensive that they very often spell a sense of jungle environment (which has, however, been altered) in the continuously cultivated

and deforested peneplains of Ranchi, Chaibasa and other small areas. Next to the village-site lie the second and the third class uplands which give the impression of barren expanse for the most part of the year. Except for the foot-tracks and abandoned threshing ground, barn or hay-stacks, they bear no distinct sign of human occupancy from December to May. With the first pre-monsoon showers they become the centres of activities and by the end of June they are sown with *bhadai* crops. The erstwhile barren expanse suddenly turns into a bed of green vegetation. In the following months the scenery varies according to the nature of the plants sown. Below the *tanrs* lie the ricelands. Unlike *tanrs*, ricelands can never be mistaken for unoccupied territory, because the latter bear the unmistakable signs of occupancy, bunds and terracing. The third class riceland is sown with broadcast paddy by the beginning of the monsoon and since then, it remains green until the paddy ripens and is finally harvested. By December, all other fields except the *aghani* riceland and scattered patches of minor *aghani* crops, lose the green vegetative mantle that they wear during the monsoon period. With the harvesting of *aghani* crops by the end of December all the lands from the village-groves to the bed of the *don* stand naked and all agricultural activities recoil to the village-sites where the people devote themselves to the post-harvesting tasks of threshing and husking etc. From January to May practically no agricultural activities are seen except in the *bari*-land where vegetable or sugarcane is grown. In typical villages of Chotanagpur, people, thus, practise a sort of transhumance. With the first shower in the beginning of June they come out of the village and extend their activities to the second class *tanrs*. As the monsoon advances they move farther and farther away from the village and finally stop in the first class riceland which is generally farthest from the village site. After harvesting the *aghani* rice they return to the village where they spend the rest of the year in various minor pursuits.

IRRIGATION

Irrigation has made but little headway in Chotanagpur. On an average, only 7.7% against the State's average of 18.6% of the total cropped area is provided with irrigation facilities. Most of the existing irrigation facilities are confined to areas lying below 1000 ft in the north, north-east and south-east. The districts of Ranchi, Dhanbad and Hazaribagh with the lowest percentage of irrigated areas in the whole of the State stand out as the single largest unirrigated tract in Bihar (fig-20). The maximum development of irrigation has taken place in the district of Palamau where 20.1% of the total cropped area is irrigated.

The Santhal Parganas with 18.9% of the cropped area under irrigation is second. Hazaribagh with 11.5% and Singhbhum with 9.3% of the total cropped area under irrigation rank respectively the third and the fourth. In the district of Hazaribagh irrigation is, however, mostly concentrated in the northern and north-western parts which are contiguous with the districts of Gaya, Monghyr and Palamau. In the rest of the district the percentage of irrigated area is as low as in Ranchi.

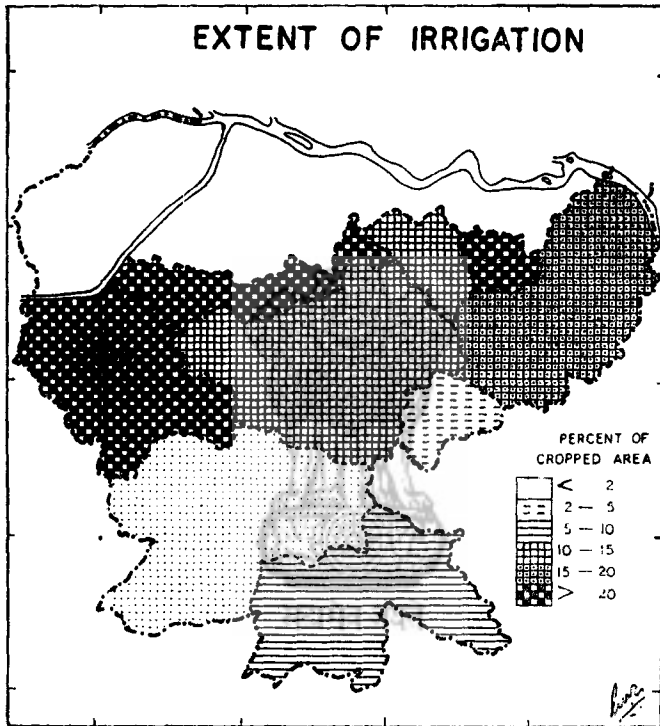


Fig. 20

From irrigation-point of view the region may be divided into two zones— (1) the central highlands and scarps consisting of undulating or broken surfaces with steep slopes and (2) the peripheral lowlying areas consisting of deep erosional surfaces and broad river valleys with plain-like characteristics. The contour of 500ft. separates the two areas (fig. 4.) In these two zones the extent as well as the methods of irrigation vary widely. The peripheral tract in the north is actually the cultural influence zone of the South Ganga Plain of Bihar and irrigation in this tract is an extension of the system prevailing in the adjoining plains. Eastern portion of this zone comprising the Ajay, Damodar and Suvarna-rekha valleys, Panch Pargana and Chaibasa plains have received the

impacts of the irrigational practices prevalent in the adjoining parts of Bengal. In the lower tracts, all the three sources of irrigation—canal, tank and well—are important. In the central higher tracts canals are almost non-existent and wells are but of little agricultural importance. In fact, the central higher tract is the north-eastern extension of the tank-irrigation region of the Peninsular India.

Methods of irrigation

The most useful and widely practised method of irrigation in the entire region consists of a succession of bunds or embankments thrown across the line of drainage, resulting in the formation of a chain of small reservoirs. In these reservoirs rain-water is accumulated. Irrigation is effected by cuts in the bunds which permit the stored water to flow down either through small artificial channels or through surface run-off. Sometimes, small embankments (variously known as *bandhs*, *ails* or *hirs*) are constructed on higher slopes of hills or ridges to store water temporarily to irrigate the fields below by permitting the water to flow down or to percolate and keep the fields moist. In the lower tract, particularly in the parts of the districts of Palamau, Gaya, Monghyr, Bhagalpur, Hazaribagh and Santhal Parganas, the embankment-and-tank system largely gives way to *ahar-and-pyne* system. The efficiency of an *ahar* depends chiefly on its position, catchment area and retentive capacity. In localities where the physical situation permits, irrigation is effected by water channels, usually called *pynes* (and *danrs* in the Santhal Parganas) leading from bunds thrown across streams to fields at lower levels. These channels consisting of a network of distributaries pass through several villages and are shared by all in the cost of construction and benefits accruing from them. Both *ahar* and bund systems of irrigation may be termed tank-irrigation. *Pyne* system is, in fact, a miniature form of canal irrigation.

Geological foundations in Chotanagpur are unfavourable for sinking wells. Wells in this region are, in fact, scanty percolation-holes, just enough to cater to the domestic needs of water. The utilization of wells as a source of irrigation is limited to two types of lands— (i) the *bari*-lands surrounding the settlement sites and (ii) the broader river valleys where the underground supply of water is usually higher than in the gneissic areas.

Most of the irrigation facilities available are used for the irrigation of paddy lands. Irrigated areas under other crops are negligible. Uplands which are mostly given to *bhadai* crops, are almost devoid of irrigation. In Palamau which has been characterized by the Irrigation Commission

as the "driest and probably the poorest district"¹ in Bihar, Bengal and Orissa, about 25% of the total ricelands receives efficient irrigation, while another 25% gets a precarious benefit from it. On either side of the Northern Edge of the Plateau, the riverain villages are irrigated through *pynes* taking off from the Punpun. Dardha, Morhar, Nilanjan, Sakari and Kiul rivers. *Ahars* and bunds also exist. In all cases the irrigated crop is predominantly rice. The second important irrigated crop is maize. In the Santhal Parganas, the Alluvial Upland needs practically no irrigation. Here, "the soil is kept moist by perennial springs or is capable of retaining water draining off higher levels".² In all other parts irrigation is absolutely necessary which is provided by bund and tank system. The higher fields on the terraced slopes, enclosed by high ridges, retain water and are practically minute reservoirs from which water percolates or is allowed to run off to the fields below. "These facilities have been so fully utilized that one-third of the rice-land receives effective irrigation and another third gets partial benefit".³ In the districts of Dhanbad and Singhbhum about 10 to 20% of the rice-lands is irrigated. In the district of Ranchi irrigation is rarely practised. Only 1.9% of the total cropped area benefits from irrigation facilities.

Except the areas lying north of the Northern Edge of the Plateau, rice commands everywhere more than 50% of the total cropped area. The water requirement of *Aghani* rice is about 40" of rainfall rationally distributed from June to October. Most of the Plateau receives a rainfall above 50" and a large part of it above 60". The normal rainfall of the region, taken as a whole, approximates to 55", about 15" more than the normal for successful cultivation of paddy. It is this aspect of rainfall that leads people to think that Chotanagpur does not, perhaps, require permanent assured irrigation. The assumption is, however, belied when other geographical realities are taken into consideration. Elevation and steeper slopes rob off the benefit of surplus rainfall as it is rapidly drained off leaving behind only a wet and moist surface. Besides, rainfall varies from place to place and from time to time. 'On an analysis of the weekly average and duration of rainfall for 21 years at the rate of 16 weeks per year from June to October, it has been found that out of 16 weeks of monsoon, there has been an average of 10 weeks of deficient rainfall and 6 weeks of surplus rainfall. Further, a study of the rainfall pattern of the last 25 years reveals that *Hathia* rains which are critically

1. Bridge, T. W., Final Report on S. & S. O., Palamau, Patna, 1921, p. 6.
2. D. G., Santhal Parganas, Patna, 1938, p. 201.
3. Ibid.

important for paddy have been failing once in three years in the south Ganga Plain and once in five years in Chotanagpur.¹

On the basis of rainfall pattern and the intensity and frequency of crop failure, the South Ganga Plain and Chotanagpur Plateau have been divided into five hydrographic zones. The total water resources of these zones are 26.99 million acre-feet which are believed "to be sufficient for supplying adequate water required for producing all possible crops every year to every cultivable acre of this region".²

The problems of utilizing the water resources in Chotanagpur are formidable. The rainfed rivers of the region remain dry for 5 to 7 months in the year. Even during the monsoon period the flow is irregular and flashy. Broken nature of the country and varying slopes limit further the utility of an irrigation project, for the ambit of irrigation has to be restricted to the lowlands only. Rocky sub-surface and low moisture-retaining capacity of soils add new dimensions to the problems. All these factors make the cost of irrigation very often prohibitive. Based on the maximum incidence of cost of Rs. 500/- per acre the expectation of the optimum utilization of water resources is limited to the extent of 9.57 million acre-feet or to 40 lakh acres of cultivated land.³

INDUSTRIES

NATURE AND CLASSIFICATION⁴

A brief discussion of the industries of Chotanagpur which is one of the most highly industrialized regions of India, becomes necessary even in the present study. The industry of the region may broadly be divided into two groups—(i) extraction industry and (ii) manufacturing industry. The first category includes mining and lumbering industries. In the second category are grouped various cottage industries, workshops and large factory establishments. Large factory establishments are town-dwellers and do not directly influence the rural settlements. Mining, lumbering and cottage industries are essentially the inhabitants of countryside and directly impress upon the rural landscape. Mining in Chotanagpur has given rise to only a few urban centres, e.g., Jharia and its satellites, Bermo, Bokaro, Mosabani and Noamundi. Mining

1. Master Plan of Irrigation in Bihar, Patna, 1959, p. 6.

2. Ibid, p. 7.

3. Ibid; also Irrigation Schemes in Bihar, Patna, 1959, pp. 1-45.

4. Prasad, A., 'Industries and Rural Settlements of Chotanagpur: a Study in Settlement Economy', Proceedings of the 53rd. Indian Science Congress, (1965), Part III, P. 202.

centres generally tend to be distributed widely, allowing each one to have sufficient area for operation. For this reason mining industry alone, if not attended by processing, manufacturing or trading activities, has nowhere produced a town, with possible exception of Noamundi in Singhbhum. Mining centres, therefore, continue to be largely rural or, at best, constitute that end of the countryside which communicate with urban areas. For lumbering centres, because of their shifting nature and *jungle* situations, rural would be an honourable adjective. Large factory establishments which have often given rise to altogether new towns like Jamshedpur, Sindri and Japla or have resulted in considerable expansions of old towns (e.g., Ranchi), have affected the rural settlements in two principal ways. Urban expansion has always been at the cost of rural landscape. Hundreds of villages have been engulfed into the urban spill-over and are thoroughly integrated with the urban complex of Jamshedpur, Jharia, Dhanbad and Ranchi. The convergence of raw materials from various parts upon the factory site and out-flow of finished goods from it follow definite routes across the countryside. Along these routes of industrial traffic many new and important features have been added to the existing cultural landscape. Such features are particularly numerous along the trunk routes and National Highways (e. g., on Patna-Ranchi, Ranchi-Jamshedpur, Ranchi-Dhanbad and a few other roads).

MINING INDUSTRY

Though with giant factories like those of Jamshedpur, Sindri and Bokaro, Chotanagpur enjoys a prestige position in the industrial map of India, mining continues to be the most important single industry of the region. In the year 1961, there were 1,205 working mines, employing 2,49,128 persons¹ which were more than double² the number of factory workers in the same year. Out of 46 minerals of importance mined in India, 31 were reported from this region. In that year Chotanagpur produced minerals worth Rs. 60,75,95,536 which accounted for 37.3% of total value of all the minerals produced in India. In three minerals, copper, kyanite and gravel, entire productions of the Union came from Chotanagpur alone. In the same year Chotanagpur produced 50% of the total coal production of India, both by weight and value. Chotanagpur's contribution to India's total in mica by value was 61%. Its contributions to the total value of china-clay, stone and laterite were respectively 50, 52 and 78 percent. It produced 22% iron-ore, 30% bauxite, 24% fire-clay,

1. Annual Report of the Chief Inspector of Mines, 1961, p. 21.

2. Annual Report of the Chief Inspector of Factories, Bihar, 1961, p. 3.

33% graphite, 18% limestone, 19% chromite, 28% white-clay, 26% quartz and 10% asbestos (all by value).

A large number of minerals find respectable positions in the list of mineral products of India, but their regional importance is much minimised by the overwhelming importance of coal. In 1961, coal alone employed 81.6% of all the mining workers of Chotanagpur. About 27 million tons of coal produced were valued at Rs. 519.4 millions which

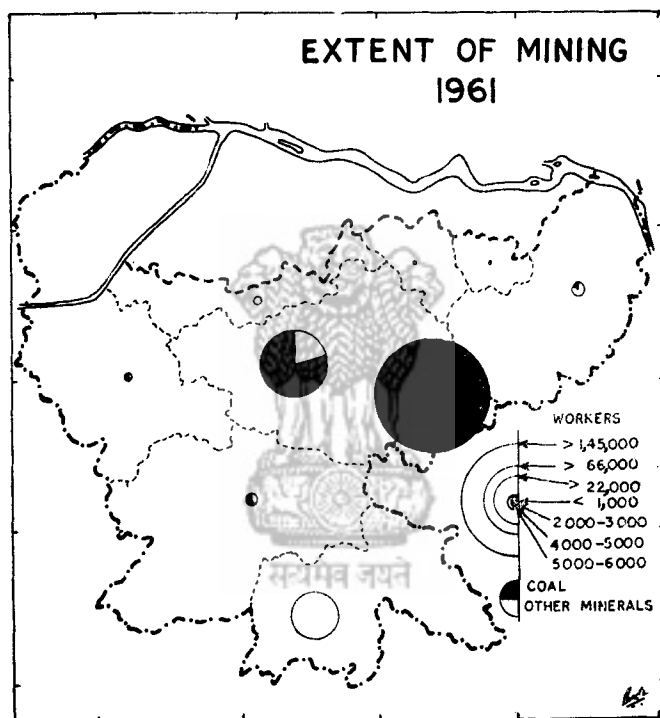


Fig. 21

accounted for 85.6% of the total value of all minerals produced. Next to coal, iron-ore mining is most important. The 32 iron-ore mines employed 4.3% of total workers and produced 3.6% of all minerals by value. Next comes mica which with 6% of total workers accounted for 2.4% of the total minerals produced. Copper mines, employing only 1.7% of workers produced 3.8% minerals. Limestone mines with 0.7% of total workers contributed 2% minerals by value.

The distribution of mines, as previously alluded to, is confined to the two mineral-bearing formations, the Dharwarians and the Gondwanas which are exposed in three well-marked east-west elongated areas

(fig. 2 & 3). The Gondwanas yield coal, fire-clay, feldspar and quartz. All other minerals are mined from the Dharwarians, the exceptions being bauxite and laterites which are obtained from the Cretaceous cappings of the *Pat* regions. The gneissic areas, except for stone quarries, are largely without mines. The district of Dhanbad with 57.2% of the total workers engaged in mining, produced 57.1% of the total mineral production of Bihar by value. Hazaribagh and Singhbhum districts, with 26.1% and 8.8% of total workers, produced respectively 29.2% and 9.4%. The remaining districts of Ranchi, Palamau, Santhal Parganas and parts of Gaya, Monghyr and Bhagalpur employed respectively 1.6, 0.8, 2.1, 0.8, 0.3 and 0.1 percent of total workers and produced, in the same order, 1.1, 0.5, 0.9, 0.2, 0.05 and 0.02 percent, by value, of the total minerals of Bihar (fig. 23)

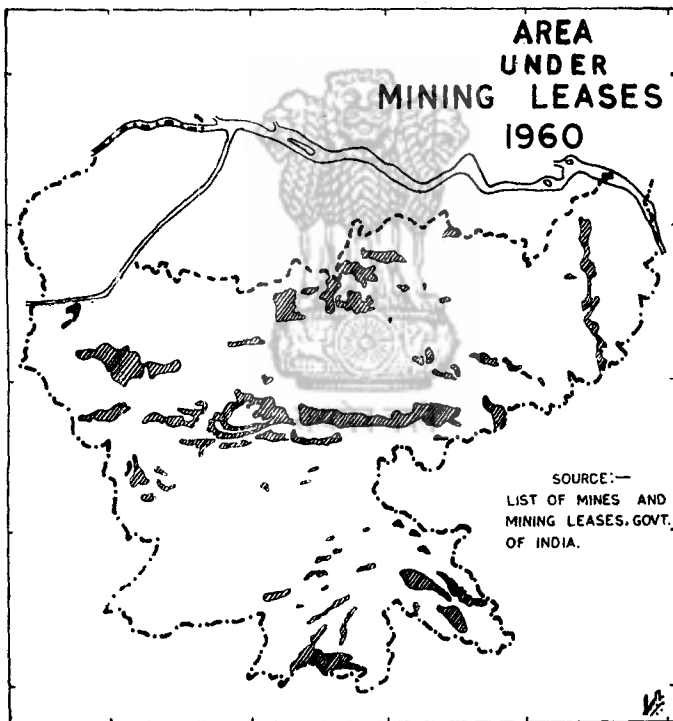


Fig. 22

Mining and Settlements

From view-points of settlement geography mining industry may be classed into two : (a) large-scale concentrated mining and (b) small sporadic mines. Large-scale concentrated mining of such minerals as are also processed or finished at the mining sites, gives rise to various

related industries and finally leads to the growth of mining towns. Such are the minings of coal, iron-ore and copper which have produced the Jharia coalfield conurbation, Bermo, Bokaro and Noamundi towns. The obvious influence of such mining industry has been rather negative to the countryside, particularly to the rural settlements, for they have caused the obliteration of a large number of villages. They have also deprived the villages of the hundreds of square miles of agricultural and grazing lands. Further, they have erected towns on the original rural surface which function as the containers of the most of the benefits accruing from the mining industry. The second category includes mines which are comparatively small in size, are widely scattered and do not produce enough to induce generally the growth of towns. Such mining centres are conveniently contained in the rural landscape. The surface features of mining at these centres are improvised and do not differ much from the features of rural landscape. This is particularly true of mica mines, quarries of bauxite, laterite, chromite, kyanite, china-clay, limestone, gravel, stone, quartz and silica. At these mining sites the top-works, e. g., offices, sheds and stores are not much different from the rural houses. The supply of labour at these mines "are mostly from local and neighbouring areas".¹ For these workers who "stay in their own houses",² the mine is just another place of work in their village compass.

In addition to the mines which are subject to control under the Mines Act, thousands of unlicensed quarries, particularly in inaccessible hills, are worked by the villagers in their spare time. From March to June the villagers have practically nothing to do in their fields. During this long leisure period they go to forests to collect forest products or to their permanent or semi-permanent quarries to dig out minerals and stones. Villagers' quarries are particularly numerous in the districts of Palamau, Ranchi, Singhbhum and Santhal Parganas.

One of the direct impacts of the mining industry on the villages is recorded in the reduction of areas for other types of land-use. A total of 2,186.68 square miles³, amounting to 6.5% of the total geographical area of Chotanagpur, have been leased out for mining which bear the grim prospects of being reduced to scars in the rural landscape (fig. 22). In the district of Hazaribagh, 1,021 square miles are under mining leases. In the district of Palamau, Singhbhum, Dhanbad and Ranchi, the areas leased out are respectively 376, 232.5, 192 and 164.5 square miles. In all

1. Annual Report of the Chief Inspector of Factories, op. cit. pp. 13-14.

2. Ibid.

3. List of Mines and Mining Leases, Indian Bureau of Mines, 1960. pp. 123-47.

the remaining districts, except in the Santhal Parganas, the areas under mining leases are less than 20 square miles. Considering in terms of percentage to the total district areas, Dhanbad with 17.5% of its total area under mining leases, becomes the most extensively mined district. Hazaribagh, with 14.5% of its area under mining, comes next. The districts of Palamau, Singhbhum and Ranchi have respectively 7.5, 4.7 and 2.3 percent of their total areas under mining leases. The figures for the districts of Santhal Parganas, Gaya, Monghyr and Bhagalpur work out less than one percent.

MANUFACTURING INDUSTRY

Chotanagpur is considered as one of the most highly industrialized tracts of India and pictures in the industrial map of the world also. Judging either by the number of factories or by the size of employment the picture presented is, however, not very impressive. In the beginning of 1964, there were in Chotanagpur 808 factories¹ registered under the Factory Act of India. These factories employed, on an average, 1,29,390

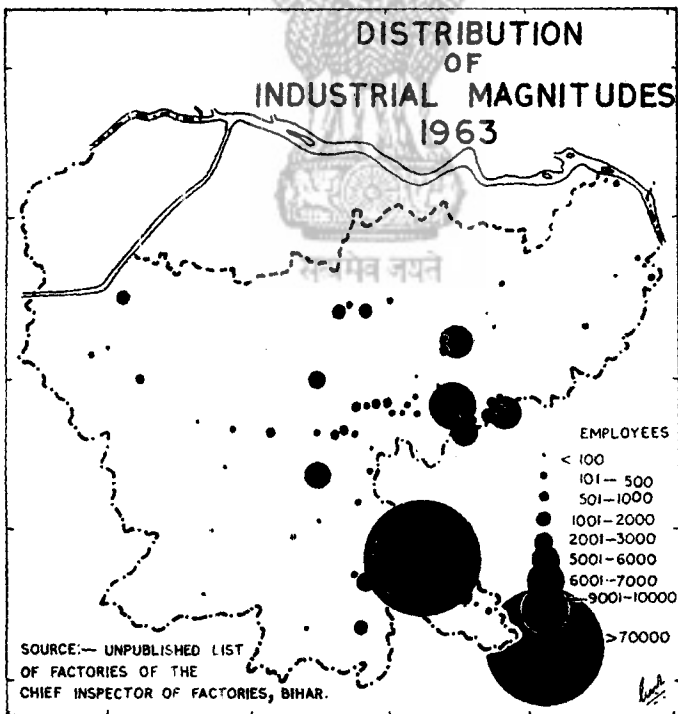


Fig. 23

These figures include the factories under Section 85 of the Factory Act, Govt. of India.

daily workers which amount to less than 4% of the total factory workers of India in the same year. The industrial importance of Chotanagpur is, therefore, not due to either the number of factories or the size of employment, but due to the nature and products of the factories. Chotanagpur is essentially the region of heavy and basic industries. All other important industries, except timber and cement, have developed as ancillary to either the heavy metallurgical industry at Jamshedpur or to extensive coal-mining in the Damodar valley. The credit for bringing Chotanagpur on the industrial map of India goes in full to the Tata Iron and Steel Company which being one of the largest steel producing concerns of the world, enjoyed a virtual monopoly of steel production for over half a century. The heavy and basic character of Chotanagpur industry has been further promoted by the establishment of the factories of the Heavy Engineering Corporation at Ranchi and the Steel Plant at Bokaro.

The factories of Bihar have been classified into 30 groups by the Directorate of Factories. For convenience, they have been regrouped here into 10 major types only (fig. 23 & 24). Metallurgical, including all types, constitutes the largest manufacturing industry of the region. It employed more than 35% of the total factory workers¹ of which 18.3% was employed by iron and steel industry alone. 14.2% was employed by a large variety of factories engaged in metal casting, forging, fabricating, re-rolling, tinning, plating, galvanizing and the like. Mica-splitting and smelting (of other than iron-ore) shared 10% of workers. Engineering with 23.8% of total workers, is the second largest industry. Refractory and ceramic industry with 11.3% of the total workers, occupies the third place. Chemicals, cement and cement-concrete, fuel, power and gas employed respectively 6.5, 4.6 and 3.5 percent of the total factory workers of the region. A large number of other factories grouped as miscellaneous, employed the remaining 3% of the total workers. Textile manufacturing, except in the form of cottage industry, is practically non-existent in Chotanagpur. Four textile factories employing only a small number of 406 workers were reported.

Bases of Industries

The primary bases of factory industry in Chotanagpur are three : (a) mineral, (b) forest and (c) agriculture. The growth of organised factory industry has been synchronous with the growth of mining industry. In location, the mining and factory industries are homologous and assume the same areal pattern of distribution (fig. 3 and

1. All figures refer to 1964—Source, Directorate of Factories, Government of Bihar, Ranchi.

21, 23 & 24). The stages of industrialization and the size of factory industry in various parts of Chotanagpur vary directly with the quantity and variety of minerals produced. The most mineralized tracts are, therefore, the most industrialized parts of the Plateau. Singhbhum, Dhanbad and Hazaribagh being the most heavily mineralized, are also the most highly industrialized districts. With about three fourths of the total registered factories, the three districts employ more than 91% of the total factory workers of the region. Singhbhum with 59% of the total factory workers, tops the list of industrial districts. Dhanbad with 18%

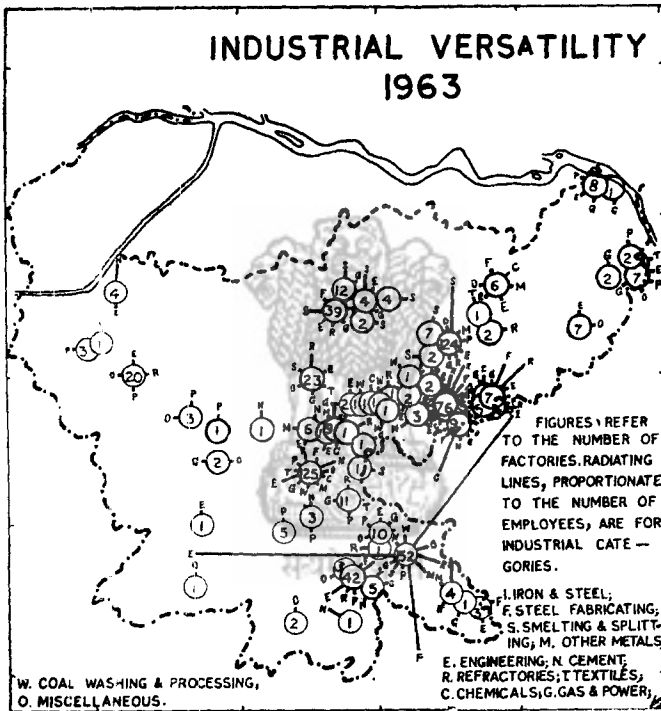


Fig. 24

and Hazaribagh with 14.4% of the total factory workers rank respectively the second and third, while Ranchi and Palamau with 5.6% and 2% of the total factory workers, occupy respectively the fourth and the fifth positions. The Santhal Parganas are essentially a non-industrial district. The few small factories that the district possesses, employed only 1.2% of the total factory workers of Chotanagpur. A vast contiguous area in the north, comprising almost the whole of Chatra Sub-division of Hazaribagh, portions of Gaya, Monghyr and Bhagalpur and about three-fourths of the Santhal Parganas (lying between the Main Railway Line and the eastern

face of the Rajmahal Hills), constitutes an entirely non-industrial tract of Chotanagpur. In 1964, not a single factory, except a few rice and flour mills, was reported from this vast tract. Two factors appear to have prevented the growth of factory industry in this area. As compared to other parts of Chotanagpur, the area is poor in mineral resources. Whatever little amounts of mica and china-clay are mined from small sporadic occurrences, they find their way to the factories located in the main mica-belt and the Damodar valley. The coalfields of Chope and Itkhori on the Chatra plateau are too small to attract manufacturing industries. The same is true of the Ajay valley coalfields. Besides they lose the initiative because of nearness to Giridih, Jharia and Asansol coalfields. The Rajmahal coalfields, owing to poor communication and poor quality of coal, are still awaiting effective exploitation. This non-industrial belt forms actually a cultural and economic frontier between the mineralized-industrialized Plateau in the south and the agricultural plain in the north and, thus, suffers from remoteness from the foci of economic activities on either side.

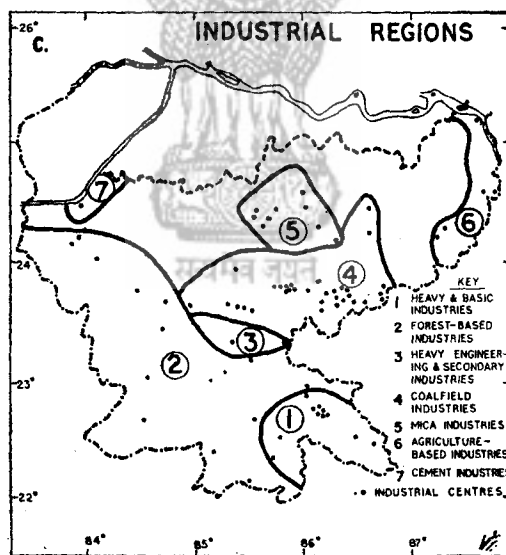
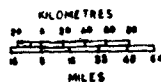


Fig. 25



MANUFACTURING BELTS

The areal distribution of factories in Chotanagpur may be delineated into seven well-marked manufacturing belts (fig. 25). They are the belts of (1) heavy and basic metallurgical industry, (2) forest-based industry, (3) heavy engineering and secondary industries, (4) coalfield

industries, (5) mica-splitting industry, (6) agriculture-based industry and (7) cement industry.

Heavy and Basic Metallurgical Industry Belt

The belt has the highest concentration of factories which employed 58% of the total factory workers in 1964. The cycle of industrial growth has attained maturity resulting in a high degree of ramification. Jamshedpur is the hub of this region. The 'Tisco' is the basic of all industries which have developed subsequently to the establishment of the steel mills. Engineering, next to metallurgical, is the most important industry.

Forest-based Industry Belt

Forest supports a large number of cottage industries, but the types of factories based on forest-products are few. In 1964, only two types, timber and furniture and shellac factories were reported. Chakradharpur is the most important centre for timber industry and Daltonganj is the most important centre of shellac manufacturing. This belt of forest industry with an area more than that of all industrial belts put together, shared only 2.5% of the total factory workers.

The Belt of Heavy Engineering and Secondary Industries

With the establishment of the factories of the Heavy Engineering Corporation (H.E.C), Ranchi has emerged as one of the biggest industrial centres in this part of the country. Subsequent to the opening of the H.E.C, a large number of factories have sprung up in Ranchi and its vicinity. Two factors, its geographical position and the advantage of developed city, appear to have weighed heavily in favour of Ranchi for the location of the H.E.C. Being situated in the midst of the sources of fuel, power and metal supply and also, the various points of consumption of its products, Ranchi, a nodal city of Chotanagpur, is ideally situated for the development of such industries for which steel and other metals are raw materials. This newborn industrial belt with 4.7% of the total factory workers, ranked fourth among the industrial belts of Chotanagpur.

Coalfield Industrial Belt

Variety is the chief characteristics of the coalfield industrial belt. This belt with 24.6% of the total factory workers, has the largest number of factories, rather evenly distributed. Except iron and steel, there is not a single item on the list of factory products of Chotanagpur which is not being turned out from the coalfield factories. With the establishment of the Steel Plant at Bokaro, even this gap is to be filled up very soon. Manufacture of refractories and ceramics with about one-third of the total workers of this area, constitutes the largest coalfield industry.

Chemical, metallurgical and engineering are the next three most important industries. Jharia-Dhanbad is decidedly the principal focus of this area. Kumardubi, Bokaro and Ramgarh are the foci of second order.

Mica Splitting Belt

It comprises most of the mica mining area with easterly extension upto Giridih. Hundreds of splitting factories employ about 9% of the total factory workers of Chotanagpur. Giridih, situated outside the mica mining area, is the principal centre of mica industry. Because of coal, Giridih was linked with Calcutta much earlier than Kodarma could afford railway facilities. Exploitation of coal preceded mica-mining and Giridih became an important trading centre. Being nearest and easily accessible from the leading mica mines, Giridih was the obvious choice for the location of mica splitting industry. With the construction of railway and roads across the mining area, Tilaiya emerged as the second most important centre of mica splitting.

The Belt of Agriculture-based Industry

In this narrow belt which includes the Alluvial Upland and the Sahibganj area, industrial progress is at the lowest level. The 35 factories reported from this area employed less than 1% of the total factory workers of Chotanagpur. The area, however, enjoys the singular distinction of having the largest number of rice mills among the industrial belts of Chotanagpur.

Cement Industry Belt

Japla is the largest cement manufacturing centre in Chotanagpur. It is, in fact, the southern focus of the Sone Valley Industrial Belt which, for the most part, lies outside Chotanagpur.

Cottage Manufacturing Industry

In cottage manufacturing, Chotanagpur has a very rich tradition. Both from the view-points of the number of people engaged and the bulk and variety produced, cottage manufacturing industry is second only to agriculture. It is unfortunate that no real survey of the cottage industry of this region has been done. Any account of cottage manufacturing industry is, therefore, hardly expected to rise above general estimates and qualitative statements.¹ Four factors appear to have been

1. The D.V.C. collected data of Cottage Industries from five villages of Hazaribagh district. The villages selected were important ones, each one with a population of 1,500 to 2,000. It was found that in the five villages, 2,423 persons were engaged in ten trades, e.g., weaving, oil pressing, leather-goods making, black smithing, gold-smithing, carpentry, manufacture of brass and bell metal utensils, earthen pots, stone articles, bamboo and rope-making.

favourable to the development of cottage industry of this region. They are (a) comparatively long period of leisure from agriculture, (b) abundance of forest and mineral resources, (c) isolation from areas of advanced manufacturing and trade and (d) low yields of agricultural crops. As already mentioned, the monsoon agriculture of Chotanagpur grants a five-month leave from the fields. Poverty of soil and primitive methods of agriculture seldom leave any surplus with the farmers to be marketed. The farmers have, therefore, little money to buy other necessities and to pay off taxes. This no-surplus agricultural economy has virtually goaded the people to keep their requirements to the minimum and to produce everything of their requirements from the immediate environment. Luckily, almost every Chotanagpur village enjoyed till recently an environment which could supply plenty of raw materials from forest to be processed and manufactured in their household workshops to cater to the needs of the village community. Historical isolation and difficult transport, generally counted as negative factors in the economic development of the region, have actually aided to the development of cottage industry in Chotanagpur. Because of shut-in mentality and paucity of fund, the Chotanagpur people could seldom afford to go to outside markets and, as such, could not produce a trading community. It is interesting to note that the tradesmen living in Chotanagpur today are all migrated from the neighbouring plains. Its mobility owing to the broken nature of the country has been restricted and long journeys, very often, halted by recurring scarps. Peddlers with pack animals or cart-loads were rarely seen in the interior of Chotanagpur. All these factors combined to produce a situation conducive to the growth of cottage industry. The same factors of isolation and difficult transport have, however, acted adversely to the development of cottage industry on modern scales and Chotanagpur, in spite of abundant resources, could not develop a cottage industry as organised and advanced as in the Punjab or Madras. Even, today, cottage industry in Chotanagpur, continues to be primitive—a natural in-growth of local conditions.

The sources of raw materials in Chotanagpur are four and cottage industry is, therefore, divided into four classes, based on agriculture, animal products, forest and mineral wealth.

Manufacturing based on agricultural products are cloth weaving, oil pressing, food processing, liquor distillation and *gur* making. Based on forest products are the manufacture of shellac, *tussar*, mats, ropes, match boxes, agricultural implements, timber, toys, a large variety of wooden articles, *kath* (catechu), colour, oil and charcoal. The animal products support the manufacture of *ghee*, hides, leather and a few minor articles,

e. g., comb and paint-brushes. *Biri* manufacture makes use of both agricultural and forest products. Some of the important cottage industries based on minerals and rocks are mica splitting, iron smelting, lime burning, stone cutting, clay-pottery, manufacture of stone wares, grinding wheels, slabs, slates and building stones. A fifth category of cottage industries is based on finished metals obtained either from village furnaces or from markets. The chief products of metal industry are agricultural implements, domestic aids, nails, cutlery, carpentary tools and brass and bell-metal utensils.

Cloth weaving is perhaps the largest and most representative cottage industry of Chotanagpur. In 1964, the total number of working looms in Chotanagpur was said to be about 75,000,¹ providing employment to about an equal number of weavers. The district of Santhal Parganas, Ranchi, Singhbhum and Hazaribagh are most important in this respect. In the Santhal Parganas alone, the number of working looms was more than 30,000, amounting to 40% of the total looms of Chotanagpur. The districts of Ranchi, Hazaribagh, Singhbhum, Palamau and Dhanbad share respectively 20, 14, 12, 8 and 6 percent of the total looms of Chotanagpur. Most of the looms are of primitive designs. The Fly-shuttle looms are few and are mostly installed in urban centres. The hand-woven clothes, though coarse, are highly durable and comfortable in the plateau climate and are, therefore, preferred to mill-made clothes by the *Adivasis*. Sarees for *Adivasi* women are made of special designs. The handloom clothes are so much in vogue with the local people that in certain areas, e. g., Chhechhari basin in Palamau², mill-made cloth is a rarity. The products are in surplus and are exported to markets outside the Plateau. Bed-sheets and *chadars* of Ranchi are much in demand in the Plains.

Tussar manufacture is carried-on on a large scale in various parts of Chotanagpur, particularly in the districts of Santhal Parganas and Singhbhum. "Singhbhum and Santhal Parganas are the leading districts contributing 50 and 25 percent respectively to Bihar's production. About 36,000 persons, mainly *Adivasis*, are engaged in rearing the silk cocoons."³ It is estimated that in Kolhan and Porahat areas of Singhbhum about 10,000 persons⁴ are engaged in *tussar* production which is an occupation subsidiary to agriculture for the Ho *Adivasis*. Reeling is done generally by crude method. Weaving is less organized and most of the silk produced is transported to weaving centres, e. g., Bhagalpur, situated outside the Plateau.

1. Annual Report of the Bihar Handloom Co-operative Union, Pat., 1964.

2. D. G. Palamau, (1964), p. 23.

3. Techno-Economic Survey of Bihar, Bombay, 1959, p. 190.

4. D. G. Singhbhum, Patna, 1961, p. 193.

Biri making and shellac manufacturing are other two organised cottage industries. In Singhbhum District 343 registered and several thousand unregistered *biri* manufacturing units provide 30 to 40 thousand workers with employment. "The sales tax paid to Bihar Government amounts to several lakhs of rupees and about 25 lakhs of rupees are paid as Central Excise Duty on the tobacco consumed."¹ Chakradharpur and Manoharpur are the largest centres of *biri* manufacturing.

Manufacture of shellac, though carried-on in large factories too persists to continue an important cottage industry. In the district of Palamau alone, the total number of persons engaged in domestic manufacturing is estimated to be about 40,000 as against less than 2,000 in shellac factories.²

The manufacture of rope, baskets, mats and a large variety of bamboo and wooden wares is carried-on in almost all the villages which get a supply of raw materials from nearby forests. Thousands of tons of charcoal are produced in the forest-villages of Chotanagpur.

Chotanagpur villages are the main suppliers of charcoal to the people of the Plain. Catechu and oil are the two other important products of the forest-based industry bulk of which is marketed outside the region. Palamau District and Chatra Sub-division of Hazaribagh are particularly important for *kath* (catechu) manufacture. Daltonganj is main trading centre which exports about 3,000 *maunds* of *kath* every year.³ Oil in huge quantity is produced from the seeds of *karanj* and *mahua* trees which is mostly consumed in soap manufacture. Country liquor and *handia* (humorously called rice-beer) are produced in large quantity in almost all the villages for local consumption.

Mica splitting, though practised on a large scale, is essentially a cottage industry and much splitting work is done in ordinary households. The total number of persons engaged in mica splitting industry is estimated to be more than 40,000,⁴ out of which only 10,000 workers are reported to be employed by registered factories.

The manufacture of iron and iron goods had a history of several thousand years. Even today, more than 15,000 persons are believed to be engaged in the manufacture of iron-goods in Hazaribagh, Ranchi and Palamau only. Vendra in Hazaribagh with more than 800 blacksmiths' workshops has earned a reputation for high quality of tools and cutlery.⁵

1. D. G., Singhbhum (1961), op. cit., p. 194.

2. D. G., Palamau 1964, p. 234.

3. Ibid, p. 240.

4. Annual Report of the Chief Inspector of Factories, 1964, p. 4.

5. D. G., Hazaribagh, 1957, p. 150.

COMMUNICATION

Throughout the ancient and mediaeval periods Chotanagpur continued to be one of the most inaccessible and least known parts of India. About two hundred years ago when Chotanagpur passed under the Rule of East India Company, no roads, even in the mediaeval sense, were in existence. There were some ancient trade routes connecting the Chatra-Kodarma plateau with the Ganga Plain. The first road to be constructed in Chotanagpur was the Benares Road, the precursor of the Grand Trunk Road. The real beginning of modern road development was, however, to be delayed by half a century. "On the establishment of the Agency in 1834, roads were constructed from Ranchi to the headquarters of the surrounding districts"¹, and in 1888, in the district of Ranchi alone, there were 700 miles of roads in existence. Two historical events speeded up the work of road development in Chotanagpur. The Revolution of 1857 made the British administration realize the urgency of the construction of good roads. The American Civil War resulted in great demand on the cotton produced in Chotanagpur, particularly in the district of Palamau and the Government was urged to build good roads to facilitate the movement of cotton.² By the end of the 19th century, the net was complete and almost all the important places were connected by roads. Further, with the beginning of mineral exploitation Chotanagpur ushered in the era of modern transport. Within half a century, thousands of miles of macademised excellent motorable roads came to blackline the one-timed virgin surface of foot-tracks. Then came the World War II and the heavy demand on bamboo and timber stretched the roads to the farthest corners.

Four factors have especially been obstructive to road development in Chotanagpur. Broken surface assuming, quite often, mountainous complexion, always proved difficult to be traversed. The steep escarpments that wall up the plateaus from below, offer but few passes to communicate with. Fine texture of drainage presents a unique problem. The roads have to cross a number of streams of varying sizes within a comparatively short distance. These streams with incised channels are not only difficult but also costly to be bridged. Heights as well as depths have, therefore, been equally difficult to negotiate with. Poor subsistence economy offered little inducement for huge investments in roads. The situation was further aggravated by sparse population and general backwardness of the people which bore no promise of heavy traffic and good return. Chotanagpur had, therefore, to wait for better

1. D. G., Ranchi, 1917, p. 175.

2. D. G., Palamau, 1926, p. 147.

technology and additional inducements which came from the hidden wealth of minerals.

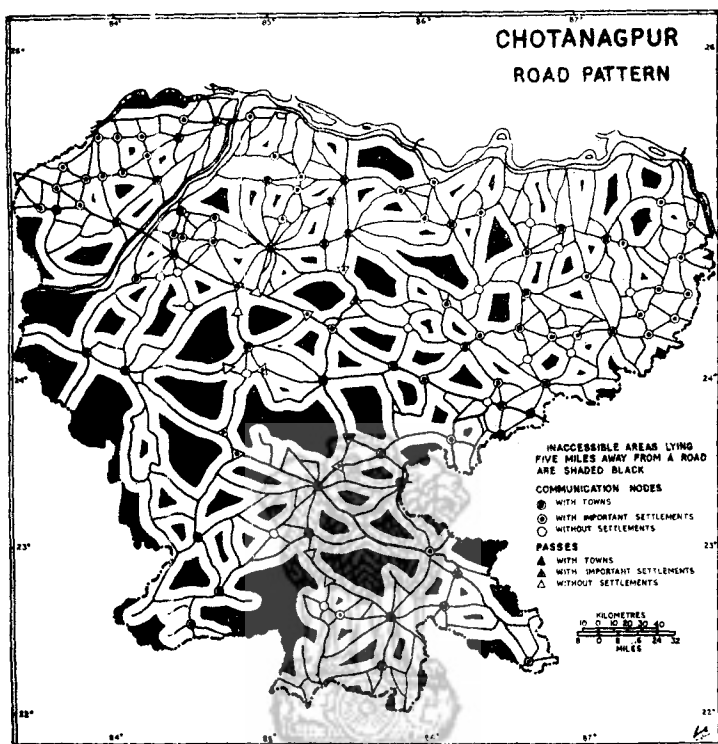


Fig. 26 नयन

Density of roads and accessibility

At present, there are altogether 10,024 miles (16,067 k. m.) of roads in Chotanagpur. Out of this total, well over 3,000 miles are excellent all-weather motorable roads. Two National Highways— No. 2 (Grand Trunk Road) and No. 33 (Patna-Singhbhum Road) — traverse the region from east to west and from north to south respectively. National Highway No. 32, connecting Dhanbad with Chandil, lies mostly in this region, while the National Highway No. 6 passes through the south-eastern corner of Singhbhum. Besides, there are a number of trunk roads connecting all the important places. Even the unmetalled roads in Chotanagpur, owing to the rocky surface and hard-sandy gravelly-lateritic soils, are good enough to be used during monsoon. The average density of roads in Chotanagpur works out to be 0.32 miles in every square mile of area and the man-road ratio comes to one mile for every 1,366 persons of this region. The density of roads varies widely in different parts of the Plateau. Two factors, the quantum of economic

development and measure of relief appear to be mainly responsible for variations. There are three well-marked areas of low density (fig. 26). In the north, an elongated belt of low density stretches from the Madhya Pradesh-Bihar border in Palamau to the easternmost projection of the Rajmahal Hills in the Santhal Parganas. This belt with a large number of inaccessible patches stand out in the sharp contrast with the plains lying immediately in the north. The area includes a chain of residual hills arranged in south-westerly to north-easterly direction and the northern scarped face of the Plateau. Another area of low density forms a triangle between lines drawn from Garhwa to Tundi in the north and Chainpur to Tundi in the south. The Uttar Pradesh-Bihar border serves as the base of this triangle. The area includes the *Pat* region and its adjoining hilly tracts in the north-west and erosion surfaces and scarped lands between Hazaribagh and Ranchi plateaus. The third area of low density girdles the Chaibasa plain and the Suvarnarekha valley from the north. It comprises the southern escarpment of the Ranchi plateau, Dalma Ranges, Porahat hilly tract and the South Koel-Sankh basin (fig. 6). There are seven areas of fairly high density of roads (fig. 26). They are (1) the Chaibasa plain-cum-Suvarnarekha valley, (2) Ranchi plateau, (3) Lower N. Koel basin, (4) Hazaribagh-Chatra plateau, (5) Kodarma-Giridih area, (6) Lower Damodar basin and (7) major parts of the Santhal Parganas lying south of the Madhupur-Rajmahal line.

The inaccessible areas of Chotanagpur amounting to 30% of the total area, have been mapped out by taking five-mile wide strip on either side of a road. Five-mile stretch is a convenient distance to be covered in two hours on foot. The generalization, however, suffers from the limitation put by the varying degree of usefulness of roads and by the nature of terrain. Some of the minor *kachcha* roads of the interior hardly attract any traffic from villages other than those situated on the road sides.

Road Pattern

Alignment of roads has faithfully followed the guide-lines of topography. From the view-point of communication, Chotanagpur consists of three types of surfaces—(i) hilly and scarped surface, (ii) plateau and erosion surfaces with a fairly high degree of evenness and (iii) even surface of broad river valleys and piedmont zones. In Chotanagpur, the roads, as a rule, follow the crest-lines of interfluvial ridges and avoid ravined river banks and hills. The roads meet the scarp-lines at right angle, cross them through passes and converge at central points of the areas edged by the escarpments. The convergence of roads at these

points has given rise to important nodes (fig. 26). There are altogether ten important nodes, each one having a convergence of more than five roads. With one exception, Katoria in Bhagalpur, all the nodes are accompanied by important towns which are regional foci. The most important road-pattern in Chotanagpur is, therefore, radial. Two other patterns are discernible: they are rectangular and dendritic. Rectangular pattern is seen in the Santhal Parganas. Two factors, lower relief and absence of big towns like Ranchi, appear to be primarily responsible for such a pattern. The Santhal Parganas and the adjoining areas in the north are entirely agricultural and least urbanised. Consequently, instead of a few urban centres large number of important villages and market places are evenly distributed. Roads in such an unurbanised agricultural country are required to connect large number of villages and, as such, do not tend to converge upon a few important centres. These village-roads are necessarily short and local and when they meet at places of convenience or local importance, they produce a typical rectangular pattern. The dendritic pattern obtains in such areas where the roads following the interfluvial crest-lines, descend to a lower level. In the upper reaches, the roads, owing to larger number of ridges, are numerous, which on coming down, merge (like tributaries of streams) with a single important road. The pattern is best developed in three areas. The roads running down from the *Pat* region and the Damodar-Auranga divide collect at Daltonganj to flow down, as it were, through a single master channel, i.e., the Daltonganj-Aurangabad road. The same pattern prevails in the S. Koel-Sankh basin and in the eastern parts of Ranchi and Singhbhum districts. The radial and dendritic pattern of roads are largely responsible for giving rise to a few but larger nodes in the Plateau than in the adjoining Plain.

Roads and settlements

Chotanagpur is a typical example of the relationship between the development of communication on the one hand and the transformation of socio-economic conditions and the transplantation of settlements on the other. The fixed nature of modern highway in a region of foot-tracks and human transport agencies has brought about a revolutionary change in the cultural landscape. 'Formerly, goods and passengers were to be transported in a single journey from the place of origin to the place of delivery, for bullock-carts, pack animals or human agencies of transport could go right upto the door-step of the employer. Today, the same journey has to be broken into three stages. Goods or passengers have first to go to the fixed points on modern highways, a railway station or a bus-stand, to get into a train, a bus or a truck which would

deliver the loads again on fixed points from where the third journey begins for the final destination. Naturally, the settlements situated even at a short distance from modern highways suffer from definite disadvantages. It is this fact of modern transport which has shaken the villages from their old moorings, has produced a situation of 'human transplantation'¹ and has finally led to the re-allocation and regrouping of forces of distribution and siting of settlements in the Damodar basin and Singhbhum District where extensive exploitation of mineral wealth attended by a multitude of factories, has produced 'increased and improved means of transport'.

RAILWAYS

The history of railway development in Chotanagpur dates back to the earliest period of railway construction in India. In 1951, the Loop Line of the Eastern Railway (E.R.) was opened to traffic (fig. 27).

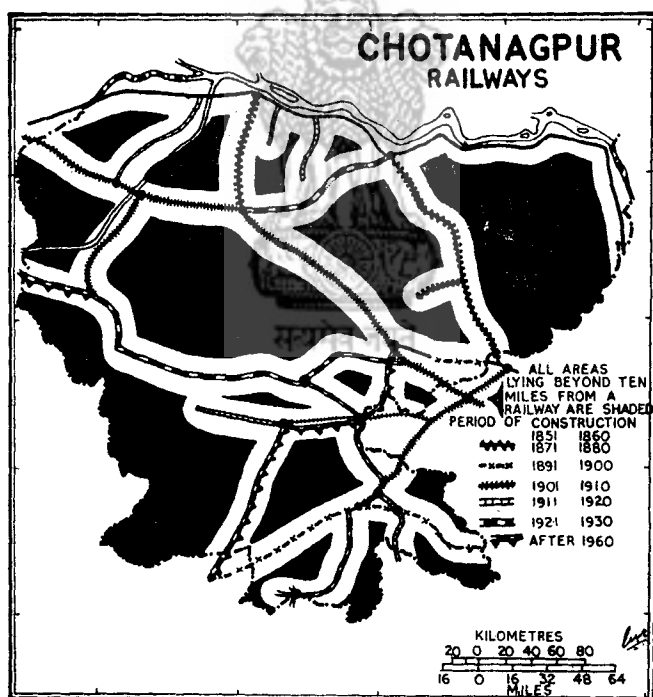


Fig. 27

In the same year another branch of E.R. which subsequently became the Grand Chord Line advanced upto Barakar in Dhanbad. By 1871, the Main Line was laid down. It passed through the western part of

1. Brunhes, J., *Human Geography*, London, 1952, p. 95.

the Santhal Parganas. By the close of the 19th century the Howrah-Nagpur line passing through Singhbhum, was completed. The first decade of the present century recorded intense activities of railway development in Chotanagpur. During this period, the Grand Chord line that passed through the heart of the Plateau was completed. Four other lines, connecting Daltonganj with Dehri-on-Sone, Gomoh with Adra and Kharagpur via the Jharia Coalfield, Ranchi with Purulia and Sini with Purulia, were also completed. During the period 1921-30, two important lines connecting Gomoh with Daltonganj via Barkakhana and Gomoh with Chandil via Muri, were completed. From 1930 followed a sterile period of railway growth and after a long gap of 30 years a new line was constructed from Chandrapura to Ranchi via Muri. This line which replaces the former narrow-gauge line between Ranchi and Muri, made Ranchi directly accessible by the network of broad-gauge lines. On the other hand, the new line, a short-cut between Gomoh and Muri, committed a sort of 'traffic piracy' and deprived the old Gomoh-Muri line via Barkakhana of the bulk of its traffic. A new line intended to supply coal to the steel plants at Rourkela and Bhilai was constructed between Ranchi and Rourkela. The new line between Daltonganj and Robertsganj also opened the region to the cement manufacturing zone of central India. The continued growth of railway in Chotanagpur has produced remarkable effects on the economy and settlements in this region. So obvious is the impact of railways that the rural landscape has changed directly with the density of railway lines.

In railway communication today, Chotanagpur is better off than other parts of Bihar. The south-eastern part of the Plateau comprising the Lower Damodar Basin, eastern half of Ranchi plateau and the district of Singhbhum, is served by one of the thickest networks of railways in India. In 1964, there were a total of 1,728.26 k.m. of railway lines. The district of Singhbhum with 398.7 k.m. of railway lines possesses the largest railway system. Dhanbad with 324.7 k.m. is a close second. Besides, there is a thick network of railway tracks serving the coalfields of Dhanbad and Hazaribagh districts. In railway communication Palamau with a single line of 184. k.m. is least developed.

There are four large areas which are yet to receive the benefit of railway transport (fig. 27). A crescent-shaped area, stretching from the Grand Chord line is Shahabad to the newly constructed Ranchi-Rourkela line constitutes the largest single tract without railway lines. The fact that the area is contiguous with the parts of Madhya Pradesh and Orissa, forming together a vast communication void, renders it

much more inaccessible than ordinarily conceived. The second railway-less tract is a triangular area bounded by the Grand Chord and Gomoh-Daltonganj-Dehri-on-Sone lines. The third one is the area comprising most of the Santhal Parganas, south Bhagalpur and South Monghyr districts. Another comparatively small area includes parts of Hazaribagh, Gaya, Monghyr and Bhagalpur districts. All these areas without railways, if put together, account for two-thirds of the Plateau as compared to 30% of the area inaccessible by roads.



PART TWO



THE CULTURAL COMPLEX



सत्यमेव जयते

HISTORICAL GEOGRAPHY OF CHOTANAGPUR

HISTORICAL EVOLUTION OF THE REGION

No systematic history of Chotanagpur has been written. Historical references to this region are few and not wholly reliable. Besides, all the areas included in Chotanagpur do not have uniform historical traditions. They also differ widely in their social and cultural make-up. Northern part of the Plateau, particularly the portions of Palamau, Gaya, Monghyr, Bhagalpur and the Santhal Parganas, are actually the upward extension of the Ganga Plain. This part of the Plateau has, therefore, shared the historical vicissitudes and political developments with the plains in the north. The history of this area is closely linked up with the history of Magadh which can easily be traced back to the Vedic and even the pre-Vedic periods. Difficulty arises with the southern part of the Plateau that lies south of the Damodar-Auranga water-line. Throughout the ancient and medieval periods this part appears to be little known. References to this region are casual, indirect and indefinite. These casual references of Chotanagpur may be pieced together to draw a historical time-scale.

To trace the historical evolution of this region as a social, cultural and political entity a geographical approach to the problem is likely to be more helpful. Chotanagpur is surrounded by the Ganga Plain in the north and east and by the coastal low-land in the south-east (fig. 1). In the south, it is continuous with the hilly tracts of Orissa and in the west, with the hilly tracts of the Madhya Pradesh which are extended upto the Aravallis in Rajasthan. In fact, from the Aravallis in the west to the Rajmahal Hills in the east and from the Vindhyan foot-line in the north to the Narmada-Mahanadi water-line in the south, lies an extensive tract of hills, ranges and plateaus. This east-west elongated hilly tract, occupying a central position between North and South India, has been aptly called the *merudand*—the backbone of India. The Dravidians and Pre-Dravidians, after being driven out of the Indo-Gangetic plain by the Aryan, moved towards south and took shelter in this central hilly tract. Here, also, they could not

remain immune from the Aryan penetration. The Pauranic story that Agastya Rishi through his preachings made the Vindhyan Mountain lie before him and opened the road to South for Aryan expansion, suggests an early subjugation of the western part of the central hilly tract. The Malawa plateau served as a foot-board between the North and the South. The eastern part of this central hilly tract appears to have remained in comparative isolation. But in view of the fact that the Ganga Plain in the north and east and the coastal plains of Orissa in the south-east were thoroughly settled by the Aryans at an early period, it is unlikely that Chotanagpur could completely escape the Aryan penetration and influence.

Reference to the territory that constitutes the present State of Bihar is casual in Vedic literature. The Rig-Veda mentions a territory called 'Kikata' which is interpreted as a synonym for Magadh¹. Scant reference to this part of the territory in the Vedic literature is perhaps due to the fact that eastern India, particularly the Middle Ganga Plain, was the stronghold of the Asur people². Several powerful Asur kings ruled over Bihar throughout the Vedic and post-Vedic periods. One of them was Jarasandha who ruled Magadh during the Mahabharat period. As Jarasandha is acclaimed as a 'conquerer of all earth', Chotanagpur might have been included in his imperial territory. Under the command of the successor of Jarasandha the Karusas and Munda armies fought against the Pandavas in Mahabharat³. In the Pauranic literature mentions have been made of 'Karush' and 'Pundras' as states in South Bihar. Karush was ruled by Karusas who perhaps came to be known as Kharwars. The Kharwars are found today scattered over the district of Palamau. Chero, another tribe of Palamau finds laudable mentions in the Aitrey Aranyaka. Evidences are available to show that Chotanagpur, at least the northern part of it, was in direct communication with Magadh and the eastern Uttar Pradesh. Parswanath, the 23rd Jain Tirthankar attained 'nirvan' probably in the 8th century B. C. at the summit of Parsvanath Hill⁴. With the foundation of Magadh Empire by Shishunag and later consolidated by Bimbisara, Magadh became the seat of power and culture and continued to be so for about a thousand years. In fact, from the 4th century B. C. to the 6th century A. D. the history of India is the history of magadh. The two capitals of this mighty Empire, Rajgir and Patna, are not very far from Chotanagpur. It is, therefore, improbable that this region could remain unaffected and unmolested. In the Kautilya

1. Diwakar, R. R., *Bihar Through the Ages*. Calcutta, 1959, p. 93.
2. Whether the Asurs were Aryan or Non-Aryan is a disputable question.
3. Mahabharat, Parvas 117 (23) and 117 (25).
4. Mukherjee, R. K., *History of Hindu Civilization*. Bombay, 1956, p. 173.

Arthasashtira reference has been made to the enormous mineral wealth of the Empire lying in the hilly tract south of the Ganga. Ashok, the Great, on his 'Kalinga Campaign', is said to have led his troops through the eastern part of Chotanagpur. Samudragupta "marching due south from the Capital through Chotanagpur, directed his attack against the kingdom of south Koshal in the valley of Mahanandi"¹ and "the Chief of the forest tracts of Chotanagpur and Madhya Pradesh were reduced to vassalage by Samudragupta."² Samudragupta was perhaps the first Emperor who brought this region under an effective governmental control. Since then, all the Magadh Emperors appear to be well acquainted with the Chotanagpur terrain. This is evidenced by the fact that Kumargupta following a short-cut through Chotanagpur forestalled Mihirkul and thoroughly defeated him in Bengal. During the later Gupta period Chotanagpur appears to be the refuge of rebels and restive chiefs. The later Guptas had to drain much of their resources and energy in encountering surprise raids from the hilly tracts of Chotanagpur.

After the fall of the Gupta Empire chaotic conditions prevailed all over the country. In Chotanagpur which had already turned to be a haven of bandits and raiders, life and property became insecure. Trade routes were left undefended and, perhaps, all cross-country movements stopped. It was perhaps during this period that various Hindu and Jain settlements along the trade-routes connecting Patna and Tamralipti through Dhanbad and Manbhum were deserted. Enormous ruins of these settlements punctuate this ancient route even today. The published chronicles of Chotanagpur Raj and unpublished geneological account of the Palkot House (a branch of the Nagbansi rulers) claim that the Nagbansis have been ruling over the Central plateau since 64 A. D. These chronicles are, however, subject to serious doubts and they are not likely to be accepted as valid historical documents. During the period of political chaos that followed the fall of the Gupta Empire in the 6th century A. D., the vassal chiefs in Chotanagpur, perhaps, declared themselves, independent. One of these chiefs who belonged to the Nagbansi family assumed subsequently a royal title and ruled over the larger part of the Plateau. They could not, however, rise over from the status of a local chief. Their status, in fact, kept changing from complete independence to complete subjugation and under the British Rule they were ultimately reduced to the status of *zamindars*.

At the beginning of the 6th century A. D. Sasanka rose to prominence and extended his sway over Bihar, Bengal and Orissa. In the

1. Jayaswal, K.P., *History of India*, p. 136, cited in D.G. Hazaribagh (1957) p.228.
2. Diwakar, R. R. loc. cit., p. 255.

west, his kingdom was extended upto Surguja and Varanasi and Chotanagpur, for definite, became a part of his kingdom. Yuan Chwang who traversed eastern part of Chotanagpur on his way to Pataliputra from Tamralipti has referred to Sasank who ruled this part of the country.

In the 8th century A. D. the Palas rose to power. At the prime of their glory they extended their sway over Bihar, Bengal, Orissa and eastern U. P. It is uncertain whether they actually controlled the hilly tracts of Chotanagpur. From the 8th century A. D. to the 15th century A. D. Chotanagpur appears to have passed into complete obscurity. Historical accounts of this period are silent about this region. During this long period the major part of Chotanagpur, particularly the higher plateaus eluded the various powers that rose and fell in the Plains. It, therefore, could not be the part of any larger state and, perhaps, had no real and effective government. The Nagbansis rose to power, perhaps, during this period of isolation and confusion and through multilateral tribal hierarchy continued to maintain their sway over most of the higher plateaus. The lower plateaus, particularly the northern and eastern parts, the Suvarnakha valley and the Chaibasa plain could not, however, escape the consequences of various political changes that took place in the Plains. Throughout the historical periods the tides of historical and political developments continued to impinge upon and ebb away from the marginal areas of the Plateau.

After the lapse of several centuries Chotanagpur once again features in history during the reign of Sher Shah. Sher Shah was obliged to invade Palamau because of the "recalcitrant attitude of the Chero tribes and the strategic importance of their territory."¹ In 1538 Sher Shah sent his troops for the second time to Palamau and Hazaribagh to subdue the Cheros who 'held the road to lower Bengal' and practically blocked all communications. The fact that Sher Shah 'marching south through the jungle tract of Jharkhand took the Bengal King by surprise', shows that at least northern part of Chotanagpur was under the effective control. As regards the southern part of the Plateau, there is no record to prove that Sher Shah ever extended his authority over to the Ranchi plateau and Singhbhum District. After the fall of the Sur dynasty the Afgans retired to the 'Jharkhand' where they maintained their strongholds till they were finally routed by the Akbar's army. Palamau which continued to be hostile, was invaded in 1574 by the Mughal armies with Raja Mansingh at command. After capturing the territory he stationed his troops permanently in Palamau which were driven out after the

1. Bradley-Birt, F. B., Chotanagpur, London, 1905, p. 89.

death of Akbar. In 1589 Raja Mansingh marched his troops through the west of the Rajmahal Hills to Burdwan to reconquer Orissa. In a later campaign he marched through 'Jharkhand' to Midnapur. To commemorate the vigorous campaigns of Mansingh across this territory, the two districts of Chotanagpur, Manbhum and Singhbhum, were named after him. Chotanagpur was again invaded during the reign of Jahangir. Raja Durjan Sal, the powerful ruler of Chotanagpur was made captive and was imprisoned for fifteen years in the Gwalior Fort. This brought Chotanagpur under the effective control of the Mughals. During the reign of Aurangzeb Chotanagpur was invaded by the Mughal armies several times. To ward off the frequent Maratha incursions Aurangzeb was particularly worried to have the full control of the various passes. During the reign of the later Mughals, the Maratha armies very often marched through Chotanagpur and exacted tributes.

The new era in the history of Chotanagpur, in fact, in the history of India, begins from 1765. The battle of Buxar won by the Britishers in 1765 "finally riveted the shackles of the Company's rule upon Bengal and, one may add, upon India."¹ With the grant of Diwani to the Company by the Delhi Emperor, Chotanagpur with other parts of Bihar passed under the British Rule. After this grant of Diwani the British authority was firmly established in the plains of Bengal and Bihar. In the hilly tracts of Chotanagpur, the gradual extension of British authority led to clashes with the old and prevailing interests of the local Rajas, Chiefs and tribal communities. During the long period of British Rule from 1765 to 1890 A. D., Chotanagpur could not reconcile with its lot. Numerous uprisings of the Santhals, Bhumij, Mundas and Cheros recurred at short intervals. The British Rule in Chotanagpur could not, in fact, achieve the same perfection and thoroughness as it did in the Plains and much authority continued to remain in the hands of the local Rajas and tribal Chiefs. The Britishers, also, were mainly concerned with the military and revenue administration. A real civil administration, particularly in rural Chotanagpur made its first beginning in 1936 with the formation of the Congress Ministry under the India Act of 1935.

After the grant of the Diwani the British administration made symbolic beginning with the creation of the district of Ramgarh Hill Tracts. This district comprised the present district of Hazaribagh, Palamau, Dhanbad and portion of Gaya and Monghyr districts. To these was added the Chotanagpur Raj as a tributary estate. The headquarters of this giant district were alternately at Sherghati and Chatra.

1. Diwakar, R. R. (Ed), op. cit., p. 585.

Besides, an infantry unit called Ramgarh Battalion was stationed at Hazaribagh. Under the Regulations of 1883, the district was made a part of the South-West Frontier Agency. The creation of the Agency marks an important turning point in the social history of Chotanagpur. Ordinary laws of sale and purchase of land were suspended. New laws were enforced under which sale, alienation or even mortgage of hereditary or immoveable properties was not permitted without the sanction of the Agent. This went a long way to curb the immigration of the people from outside of Chotanagpur. Because of the frequent changes in the territorial jurisdiction of the various administrative units, the political map of Chotanagpur could not take a permanent shape until 1912 when Bihar was separated from Bengal and made into a separate province. Since then, the political map of Chotanagpur remained, for the most part, unchanged. After Independence, in 1950 the two princely states of Seraikela and Kharsawan were integrated with the district of Singhbhum. Again, in 1956, on the recommendation of the States Reorganisation Commission an area of 2,407 square miles constituting the district of Manbhum was transferred to Bengal. By this transfer Chotanagpur was deprived of, besides territory and people, its pleasing symmetrical shape.

SEQUENCE OF OCCUPANCE AND PEOPLING OF CHOTANAGPUR¹

With the historical traditions lost in obscurity, the courses of settlement and peopling of Chotanagpur are difficult to be traced with certainty. The problem becomes still difficult in the absence of written history and records of migrations of the various peoples who live in Chotanagpur today. No work has been done on place names, family traditions, family gods and rites and their correlation with those in other parts of India. Some commendable work on the ethnography of Chotanagpur has been done, but they too are deficient in historical contents and much so in information regarding historical migration.

The people

At present the ethnography of Chotanagpur is as varied and complex as in any other part of India. People from almost all parts of the country belonging to a large number of social and religious groups are permanently settled in Chotanagpur. Apart from various Indian communities, Europeans, Chinese and Afghans are frequently met. But, by and large, the demography of Chotanagpur may be said to be of two major types—tribal and non-tribal. The Auranga-

1. Prasad, A., 'Sequent Occupance and Peopling of Chotanagpur', Proceedings of the 54th Indian Science Congress (1966), Part III, p. 260.

Damodar water-line is a great demographic divide. South of this line, the population is predominantly tribal and north of it, except in the central hilly tract of the Santhal Parganas, it is predominantly non-tribal (figs. 28 & 29). In non-tribal part of the Plateau, the tribal people are the inhabitants of difficult terrain of hills and forests. They are the occupants of the less favourable and marginal lands. In the tribal part, they are the real masters and occupy both good and bad lands. But, even in the tribal areas, the non-tribal population appears to have a privileged position. They are mostly in possession of the best lands in broad river valleys. The non-tribal population is largely Hindu and consists of all the major castes represented in the northern Plains. Non-tribal Muslims, constituting a small percentage of the population, are found in the northern part of the Plateau. The Muslims of Ranchi District are mostly converts from the tribals. The tribal population forms two main religious groups—Christian and non-Christian. Non-Christians are generally included within the Hindu religious fold.

The various tribes living in Chotanagpur number twentyfour, five of them, the Mundas, Santhals, Hos, Bhumij and Oraons are most numerous and better known. The other important tribes, though small in number, are Kharias, Cheros, Paharias, Asurs and Savars. The first four—Mundas, Santhals, Hos and Bhumij belong to the same ethnic group variously called pre-Dravidians, Austro-Asiatic and Proto-Mediterraneans. Oraon is a Dravidian tribe. Paharias, Cheros and Kharias are believed to be of Dravidian origin and are akin to the Oraons. Asur is perhaps older than all other tribes and represents a 'subterranean' ethnic element in the demography of Chotanagpur.

Pre-historic settlements

The tribal people are known as original settlers (*Adivasis*) but neither the Mundas nor the Oraons are the original settlers of Chotanagpur. Their own legends and historical traditions prove beyond doubt that they came to Chotanagpur from outside. Chotanagpur was perhaps settled in the earliest period of human history. Traces of Palaeolithic and Neolithic ages have been found in various parts of Chotanagpur. 'Quartzite axe and spearheads have been discovered in the Jharia coalfields, and a number of chert-flakes and knives have been found at Chaibasa and Chakradharpur. A large number of stone implements and stone-celts have been found in various parts of the Plateau, particularly in the districts of Ranchi, Palamau, Singhbhum and Dhanbad. The Stone Age appears to have been succeeded by Copper

Age which is evidenced by the finds of copper celts.¹ Cinerary urns are also occasionally found. These urns contain pieces of brass and bits of copper. "The pottery is of entirely different type from that now made among the Mundas, being stronger and ornate."² All these remains prove that a civilized race dwelt in the country long before the immigration of Kolarian³ tribes.

Little can be said about the people who lived in before the Kolarian tribes entered the Plateau. They were iron-smelters and knew perhaps the use of other metals, e.g., brass and copper. They had a developed art and fixed economy. They lived in permanent villages, located in river valleys and carried on agriculture. Whether they herded animals is difficult to say. The few thousand Asurs living in the western part of Ranchi District, are believed to be the descendants of the same people. These people were vanquished and overtaken by the Mundas.

Aryan expansion

Among the present tribes, the Asurs and the Mundas are definitely the earliest settlers of Chotanagpur. The Munda legendary tradition refers to a state of continuous migration. When the Aryans came to India, the country was in the occupation of a people who were perhaps the ancestors of the Mundas. Defeated and vanquished by the Aryans, the Mundas took to flight and marched towards the east following the Ganga. As the immigration and expansion of the Aryans continued for several centuries, the resistance and retreat of the Mundas and other tribes must have been protracted over a long period. The conflicts between Aryans and non-Aryans appear to have lasted from the Rig-Vedic period to the Mahabharat period, a time-span of about 4,000 years. In their eastward flights from the Aravallis and the Punjab, the Mundas appear to have settled down at various points between Delhi and Patna which they subsequently vacated on the spur of the fresh waves of more intolerant Aryan immigrants. Now many authorities agree that the first wave of Aryan immigrants to India and Persia consisted of the people who were called Asurs by the later Aryan immigrants. The fact that the Asurs have been recognised as first born of Brahmin in Vishnu Purana and have been acknowledged as the elder brothers of the gods (*devas*) in Mahabharat, or the sons of Dity, the first wife of Manu, or the descendants of Danu, lend support to the view that the Asurs were

1. D. G., Ranchi, op. cit., p. 20.

2. Ibid.

3. The tribes of Chotanagpur particularly the Mundas were collectively known as Kols in Sanskrit literature.

Aryans. Numerous references as to their intermarriage with the later and Vedic Aryans are contained in the various ancient scriptures. Thus, the Asurs being the first Aryans to come to India settled much earlier in the Plains than the later Vedic Aryans and perhaps, succeeded in establishing peaceful and harmonious relations with the pre-Aryan aboriginal settlers. This must have resulted in exchange of ideas and culture between the two. The Asur Aryans and the Mundas resisted the Vedic Aryans perhaps jointly and were jointly condemned by the latter. The protracted Devasur Sangrams (the war between gods and demons) established the superiority of the Vedic Aryans over the non-Vedic Aryans. Even then, certain strongholds and kingdoms of the non-Vedic Aryans, particularly in the eastern U.P. and Bihar, e.g., Karush, Pundras and Magadh continued to flourish till the Mahabharat period. The Mahabharat stamped perhaps the final victory of the Vedic Aryans over the non-Vedic Aryans, for even in Magadh, mighty Jarasandh was succeeded by the followers of Vedic and of Brahmanic culture. The aborigines, most probably the Mundas who were living in eastern U.P. and the Plains of Bihar in peace and harmony and, perhaps, under the suzerainty of the Asur rulers like Jarasandh, were given once more a severe jolt and shake-up and were forced to migrate. The docile and submissive sections of the Mundas remained in the Plains and were absorbed in the Aryan social hierarchy under the name of 'Shudras'. The fact that the Mundas lived for long in the territory from Allahabad to Bhagalpur is supported by a large number of place names which are believed to be of Mundari origin.

Munda immigration

After being uprooted once more from the Plains, the Mundas appear to have taken to an easterly march. On entering into Shahabad District, these migrants were divided into two branches. One of them continued to follow the Ganga, remained for sometime in Bhagalpur and finally took shelter in the hilly tracts of the Santhal Parganas. Some of them perhaps proceeded still further and spread out in Bengal from where being pressed by Aryan expansions escaped to the hills of Assam and Orissa. Another branch, perhaps equally strong in number proceeded up along the Sone. They were halted by the Kaimur scarps where they settled down for sometime and made Rohtasgarh into their strongholds. Later, they crossed the Sone and following the North Koel river entered Palamau. In Palamau, the Mundas could not settle down. Owing to the contiguity with the Ganga Plain, lower relief and broader fertile valleys, the Aryans must have been treading upon their heels in Palamau. Consequently, the Mundas continued to move southward and fanned out in small batches along the various tributaries of

the North Koel. Two of the most important tributaries of the North Koel are the Amanat and the Auranga which meet the main stream within a short distance of 30 miles. Some of them must have taken to the Amanat course and reached the foot of the western scarp of the Hazaribagh plateau near Simaria. Here, only the more adventurous and small in number might have managed to scale over the scarp. They probably followed the head-streams of the Damodar which originate within a few miles of the Amanat head-stream.

The bulk of Munda migrants continued to move upstream along the Koel. They again bifurcated at the confluence of the North Koel and the Auranga. The Auranga, over here, is a larger and broader stream. The bulk of the Mundas, therefore, must have taken to the easterly Auranga course and reached Chandwa, located on the Auranga-Damodar divide. The divide is comparatively flat and open and connects the Hazaribagh plateau with the Ranchi plateau. It also opens to the west and east through the valleys of the Auranga and Damodar. Two places, Chandwa and Ramgarh, appear to have assumed unique significance in the migration history of Chotanagpur. Located on the two passes across the northern scarps of the Ranchi plateau, the two places function as natural cross-roads and are the most important nodes in the communication system of Chotanagpur (fig. 26). They serve as foot-boards between lower and upper plateaus. The Mundas took advantage of the Chandwa foot-board and from here, according to their own tradition, a compact body of 21,000 entered the Ranchi plateau.

From Chandwa some of the migrants continued to move eastward along the Damodar and on the border of Bihar, they were to encounter the Aryans and other people who had arrived earlier. They were naturally forced to take a southerly turn and spread out in the hills and forests of Manbhum, Singhbhum and Orissa. These people most probably became the ancestors of the Bhumij.

The band that entered Ranchi District was perhaps the largest group of the Mundas that settled down in the upper basin of the South Koel river. They founded villages, reclaimed jungles and practised agriculture. Two of the first founded villages are Korambe and Sutiambe. "These two villages... are still mentioned by the Mundas of the Central Plateau as the cradle of the 'Konk Pat' (Central Plateau) Mundas."¹ The first extensive Munda settlements thus grew in the north-western parts of the Ranchi plateau between Lohardaga and Ranchi.

1. D. G. Ranchi, op. cit., p. 22.

On the confluence of the Auranga and the North Koel a branch of the Mundas split up from the main body and following the North Koel river, entered the Chhechhari basin and the '*Pat*' region through various passes and gorge-like valleys that breach the continuity of the '*Pat*' scarps. Most of these people, owing to the higher measure of relief, steepness of slope and narrowness of valleys must have been obliged to continue their forward march. Thus traversing the *pats* they entered the Ranchi plateau from the west, where they rejoined their long-separated kinsmen. Those who could manage to cross the divide between the Burha and the Sankh rivers landed into the Barve plain. From here the further movement followed the Sankh river and after traversing the south-western part of the Ranchi plateau reached the confluence of the South Koel and the Sankh rivers. From here, though most of them moved downward into Orissa, some of them might have taken to the upstream course of the South Koel and entered the western part of Singhbhum District. Another branch of the Mundas that split off from the main body of the settlers in the western part of the Ranchi plateau, made a traverse of the Ranchi plateau and following the course of the South Koel river, entered Singhbhum from north. These people were joined by those who came from west. They settled down in the hilly tracts of Porahat, Saranda and Kolhan and "became the ancestors of the Hos of the Kolhan."¹

The Munda immigration appears to have been followed by four major immigrations of the Oraons, Cheros, Kharwars and the people of Aryan origin. It is, however, difficult to determine the sequence of immigrations, particularly in areas outside Ranchi plateau. In view of the enormous time that elapsed between the Munda and Oraon immigrations, it is misleading to say that the Oraons succeeded the Mundas. Even if the question of early (pre-Munda) settlers is left out, the Mundas do not appear to be the first settlers in various parts of the Plateau, and Oraons were definitely preceded by many other settlers. As has been said earlier, the Aryans entered the northern part of Chotanagpur immediately after or perhaps simultaneously with the Mundas. In many isolated areas, particularly in the Lower plateau, the Aryans might have preceded the tribal penetration. When the ancestors of the Hos entered Singhbhum, part of the district was held by the Bhumij and Jain Sravaks. The Hos settlers appear to have subdued the Bhumij and "broken up the early settlements of the Sravaks."² In the eastern section of the Lower plateau that includes the Ajay and the Damodar basins, Panch

1. D. G. Ranchi, *op. cit.*, p. 22.

2. Roy, S. C., *Mundas and Their Country*, Calcutta, 1912, p. 129.

Parganas, Suvarnarekha valley and Chaibasa plain, none of the present tribes appear to be the original settlers. The fact that Jain civilization flourished in this part more than 2500 years ago suggests that the Aryans entered this part of Chotanagpur about the same time at which the Mundas entered the Ranchi plateau. This is testified by the ruins of the numerous Jain temples aligned along the important trade routes. These temples were built more than 2500 years ago. On another route that connected Tamralipti with Varanasi via Lohardaga, Chandwa, Daltonganj and Rohtas, ample remains of Hindu temples and settlements have been discovered. All these prove that Chotanagpur was never in sole possession of the *Adivasis*. The evidences of early Aryan settlements lead us to conclude that when the Mundas were expanding in the Central plateau, the Aryans were also establishing themselves in various parts of Chotanagpur, particularly in the Lower plateau. Even on the Ranchi plateau, particularly along the trade routes some Aryan settlements grew much earlier than the Oraon settlements.

There is fundamental difference between the Aryan and non-Aryan immigrations that makes the task of determining the sequence difficult. The Aryan immigration has been a slow and steady process, protracted over a very long period. It started perhaps as early as the Munda immigration and is continuing even upto the present day. The tribal immigrations appear to be shortlived phenomena marked by abrupt beginning and abrupt end. It is quite reasonable to think that when the last bands of the Mundas or the Oraons entered the Plateau, they left no trail behind and their immigration stopped instantaneously. Once uprooted from the Plains, no tribal colonies were left behind to feed a continuous stream of migration.

Oraon immigration

The Oraons who were the second largest tribe to enter the Ranchi plateau, claim their descent from Ravan (the King of Lanka) and "it seems pretty certain that they have lived in southern India."¹ They were driven from South India by the Aryan expansion. This event appears to have occurred during and after the Ramayan period. As there is no mention of Oraons in Mahabharat, the Oraons probably did not enter Northern India when the great war was fought. Their settlements in the U. P. and Shahabad must have taken place at a much later date. The Oraons while in the Plains, assimilated certain Aryan traits and picked up a few Aryan rituals and legends. Their vocabulary was enriched and their way of life improved. They were perhaps well established in the Plains

1. Roy, S. C., op. cit., p. 124.

when they were attacked by the Cheros and the Kharwars and were uprooted from their stronghold of Rohtas. Here, they appear to have split up into two branches. One branch following the Ganga entered Bhagalpur and finally took refuge in the Rajmahal Hills. The present 'Male' tribe of the Rajmahal Hills are the descendants of these Oraon immigrants. The second branch, by far the larger of the two, turned towards south and after crossing the Sone, entered Palamau. Proceeding up the North Koel river, they followed the same route as was done by the Mundas and finally, emerged, perhaps through the Chandwa pass, into the north-western part of Ranchi District. Here they found the forest country already opened up for them by the Mundas. The Oraons, according to their own tradition, were received in friendly manner by the Mundas, but soon after, a long continued struggle appears to have taken place between the two. The Oraons being a prolific race with advanced culture and better weapons proved superior to the pioneer Munda settlers. The Mundas finally gave way to the Oraons in their ancestral land and moved towards south and east where they are still found in largest number. "The traces of the Munda occupation of the west and north-west of the district, now occupied almost solely by the Oraons, may be found in the Mundari *sasan diris* (burial grounds) which occur in many places, in the Mundari names of villages, in the organization of the Oraon villages which, in many particulars, resembles that of the Munda village."¹ The north-western part of the Ranchi plateau, thus, appears to be the last land to be colonized by the Oraons.

Chero and Kharwar immigration

The last people to enter Chotanagpur appear to be the Kharwars and Cheros. The Kharwars and Cheros are mostly found in the district of Palamau. Nothing can be said definitely about the original homes of these two peoples. The Chero traditions suggest that they "formerly lived in the sub-Himalayan tract called the Morang, but migrated to Kumaon and thence made their way south to Bhojpur, i.e., Shahabad where they reigned for seven generations."¹ But the fact that both of them are 'clearly of aboriginal descent and exhibit an unmistakable Dravidian physiognomy' suggests some connection with the Dravidians of the south. They actually represent a hybrid group of people, so that the highest among them have become Chauhan and Chandrabansi Rajputs, while the lowest are still classed with the aborigines. Sometimes in the past, they were also living in the Aravalli-Bundelkhand region from where they were driven away by the Central Asian tribes who

1. D. G., Ranchi, op. cit., p. 22.

1. D. G., Palamau, op. cit., p. 22.

colonized this area during the 7th and the 8th centuries A. D. Later, the conquest of this region by the Afghans obliged them to continue their wanderings until they entered Shahabad and established themselves as rulers. The Kharwars and Cheros who were responsible for driving out the Oraons from Shahabad and Palamau, lived perhaps as neighbours and partners. This is supported by the fact that 'the army that conquered Palamau consisted of Kharwars and Cheros under the command of a Chero Chief.' Palamau was then ruled by Raksel Rajputs and the inhabitants were Mals. The Mals have nearly disappeared from Palamau, but they are still found in Surguja.

Other Immigrants

Subsequent to the Chero conquest of Palamau, a large number of Chauhan and Rathor Rajput families migrated to Bihar. They presumably came from Bundelkhand and Agra region. Most of them appear to have settled in Shahabad and the adjoining parts of Patna and Gaya districts. Quite a large number of them entered Palamau and proceeding further came to the Ranchi plateau. The family records of the Chotanagpur Raj reveals that during the 17th century, the Raja of Chotanagpur recruited a large number of Rajputs in his army to suppress the recalcitrant and rebellious tribal Chiefs. These Rajputs were granted land by the Raja and settled down permanently in Ranchi District. Later, they asserted an equal social status with the ruling families and demanded marital relation with the latter. To ward off their demand the Raja declared them to be Nagbansi and consequently no intermarriage could take place. The Rajput families of Singhbhum are the descendants of the Rathor Rajputs who came to the district during the campaign of Mansingh. The rulers of Saraikela and Kharsawan are also the descendants of a Rajput soldier who was a personal guard of Mansingh.

The large-scale and phenomenal tribal immigrations played an important role in the peopling of Chotanagpur, particularly the Central plateau. The role of non-tribal immigrations, though smaller in size, was not less significant, for they have been responsible for the introduction of the Aryan culture of the Plains into this Plateau. Besides, they have functioned as civilizing agents among the tribal settlers. The non-tribal penetration into Chotanagpur appears to have taken place mainly from three sides, north, east and south-east. In the north, though the Edge of the Plateau is high and precipitous it is by no means unsurmountable. A large number of streams that originate from the Chatra-Kodarma plateau and meet the Ganga, have cut numerous valleys across the scarp. These valleys have been functioning as veritable gate-ways to Chotanagpur. Once the people climbed on

the Plateau through the valley passes, they were not likely to stop unless they reached the northern scarp of the Ranchi plateau. This scarp, being high, appears to have acted as formidable barrier and largely discouraged further movement towards south. Most of the migrants decided probably to abandon the adventure of climbing on the scarp in preference to an easy down-grade movement along the Damodar. The eastern scarp of this plateau has been equally discouraging. Ranchi plateau was, thus, cardoned off by the precipitous bounding scarps and was saved from large-scale non-tribal penetrations. The small scattered non-tribal population that we have in Ranchi District appears to have entered mainly from three sides, north-west, south-west and east. As has been said earlier, the non-tribal people, after colonizing Palamau, entered Ranchi plateau through Chandwa pass and 'settled mainly in the valleys of South Koel and Roro rivers.' Into the eastern part, the non-tribals entered in a spill-over manner from the plain of Purulia. In the south-western part some non-tribal people came from Orissa through the valleys of South Koel and the Sankh rivers. These migrants from east and south-west represent only a small proportion of the non-tribal population, for the bulk of it appears to have come from north. This is supported by the fact that the non-tribal language, 'Sadani' or Nagpuria which is actually the *lingua franca* of the Central plateau, is a variation of Magahi (and not of Bhojpuri as claimed by Grierson). Again 'the language spoken in the Panch Pargana plain is a purer form of Magahi than Nagpuria.'¹ It means that even in the eastern parts of the Plateau the bulk of the non-tribal immigration must have been from north across the Damodar-Suvarnarekha divide lying beneath the scarp.

In the district of Singhbhum, the non-tribal people mainly came from the south-east through the Suvarnarekha valley. After occupying the available space in the Suvarnarekha valley and Chaibassa plain, they proceeded up into the valleys of the headstreams of the Sanjay and the Kharkai rivers. Here they were probably resisted by the Hos and stopped in more accessible and broader valleys.

In the north-eastern part of the Plateau the major non-tribal colonization appears to have proceeded up along the courses of the Sakari, Kiul and Chandan rivers and after entering the head-waters of the Barakar and Ajay, proceeded down to the Lower Damodar basin. In this part the scarps are non-existent and the slope is gentle and gradual. Extensive erosion has reduced the surface to a lower level which has facilitated a more effective occupance of the land. Consequently, the non-tribal population is larger than either in the west or east of the

1. D. G. Ranchi, op. cit., p. 59.

Ajay-Kiul water-line. From Sahibganj in the Santhal Parganas to Chas in Dhanbad, the non-tribal population has actually been spilled over from the adjoining plains of Bengal. This has resulted in close social and linguistic affinities with Bengal.

PROCESS OF ARYANIZATION

The process of Aryanizations (or Hinduization) started at a very early period in various parts of Chotanagpur. But in the Central plateau, it appears to have gathered momentum only during the last few centuries.

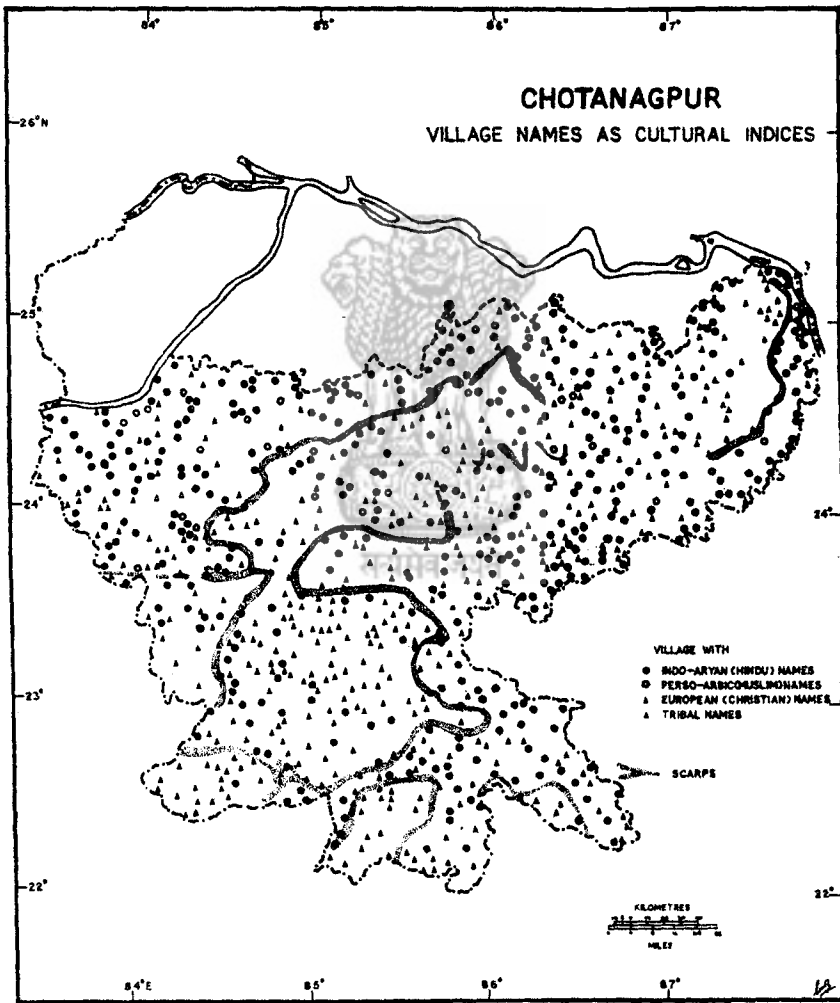


Fig. 28

This fact is clearly brought out by the two maps showing the distribution of villages with Aryan and non-Aryan names (fig. 28) and the distribution of Scheduled Caste and Scheduled Tribe population (figs. 29 & 30), Scheduled

castes which constitute the service-class in the Hindu village community and were created in the beginning by the inclusion of the non-Aryan families in the Aryan social system, appear to vary in number directly with the extent of Aryanization of the Plateau. Consequently, they constitute 15 to 30 percent of the total population in the northern half of the Plateau. In the southern half their population falls below one percent. Most of the Scheduled Castes that are found in the southern part of the Plateau, particularly in Ranchi District, are unmistakably

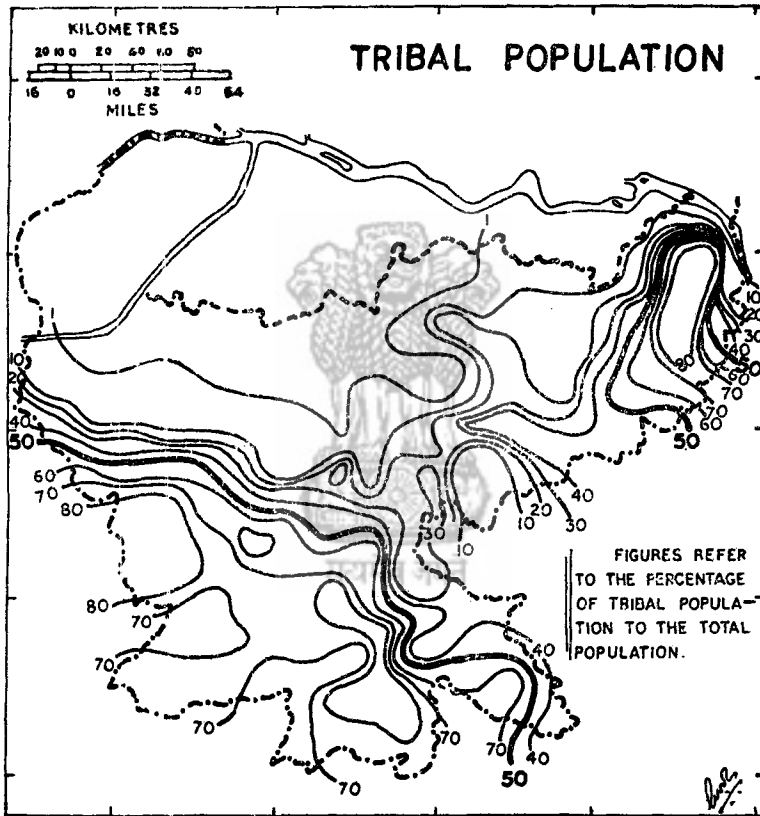


Fig. 29

Hinduized tribes. Had Hinduization attained its fullness in this part of the Plateau, most of the *Adivasi* population would have been given the status of Scheduled Castes in the Hindu society. Similarly, villages and towns with unmistakably Hindu (or even Muslim) names are most numerous in the northern part of the Plateau (fig. 28). They are also in appreciable number in the lower Damodar basin, Suvarnarekha valley and Chaibasa plain. Such villages are few in Ranchi District and most of them are situated in western and eastern parts of the district.

In view of these facts of social geography of Chotanagpur, the Nagbansis' claim of 19 centuries of continuous rule does not appear tenable. According to the family legends of Chotanagpur Raj, Phani Mukut Rai, the founder of the ruling dynasty, was brought up by a Munda Chief and was unanimously elected the overall Chief of the entire Munda community. The incident is said to have taken place in 64 A.D. But 'Rai' is definitely not an ancient title. One does not come across such a title before the 8th century A.D. 'Rai' appears to be the most common

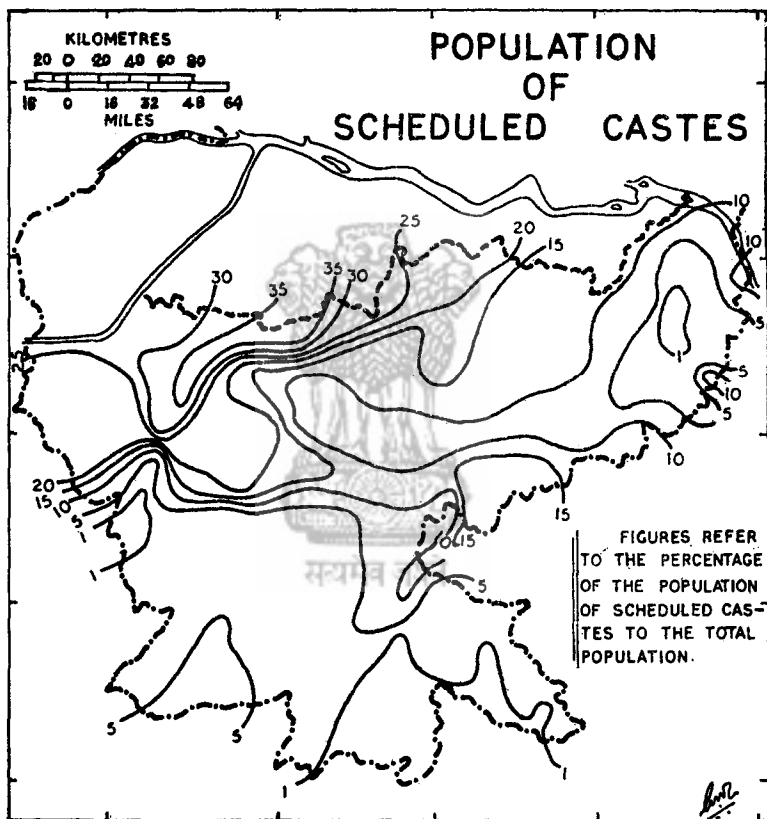


Fig. 30

title worn by the Chero Chiefs who established their rule in Shahabad, Palamau and parts of Hazaribagh district probably in the 10th century A.D. Scant impact of Aryanization and Hindu culture on the *Adivasis* of Ranchi District also suggests a late beginning of the process. In all probability, it appears that Phani Mukut Rai was a Chero Chief who either by entering a matrimonial relation with some old settled Nagbansi families or with their connivance managed to get accepted as the overall chief of the Munda country. Later, after assuming the title of Raja, he might

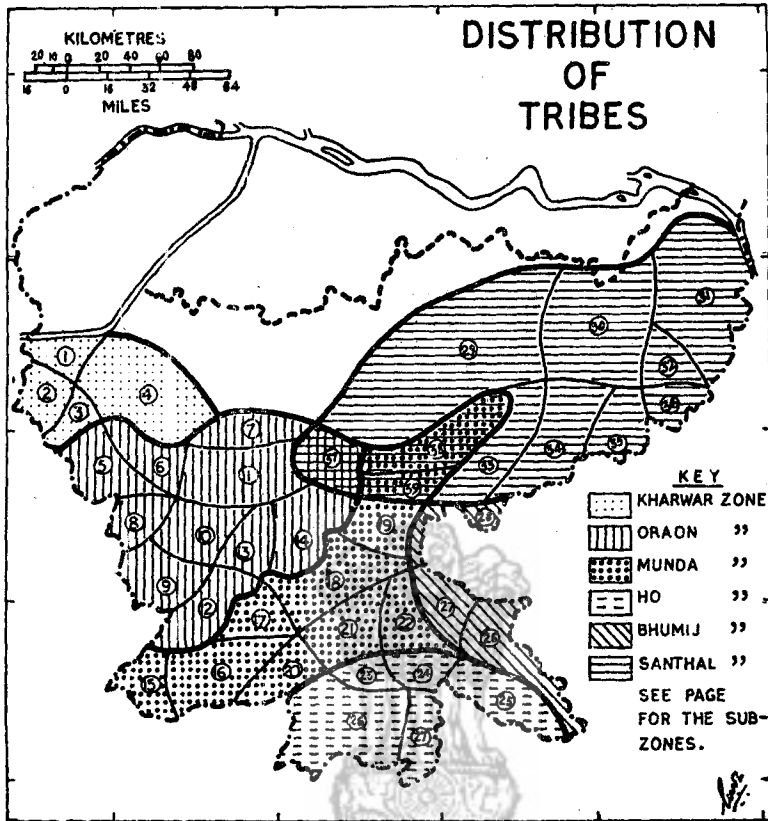


Fig. 31

Chero-Kharwar Zone : 1. Chero only, 2. Chero, Korwa, 3. Korwa, Kharwar, Oraon, 4. Chero, Kharwar, Oraon.

Oraon Zone : (associate minor tribes) 5. Korwa, Parhaiya, Kharwar, Birhor Kisan, 6. Kharwar, Chero, Birhor, Kisan, Nagesia, 7. Birhor, Kharwar, Bedia, Munda, Lohra, 8. Kisan, Kharwar, Korwa, Lohra, Birjia, Birhor, Asur, Nagesia, 9. Asur, Birjia, Korwa, Birhor, Munda, Lohra, 10. Munda, Asur, Lohra, Birhor, Mahli, Birjia, 11. Munda, Birhor, Kharwar, Lohra, Birjia, 12. Munda, Kharia, Korwa, Lohra 13. Munda, Asur, Lohra, Mahli, Birjia, 14. Munda Mahli, Lohra.

Munda Zone : 15. Oraon, Kharia, Gond, Korwa, Chik Baraik, Lohra, 16. Oraon, Kharia, Gond, Lohra, Birjia, Chik Baraik, 17. Oraon, Kharia, Chik Baraik, Lohra, 18. Oraon, Lohra, Mahli, 19. Mahli, Lohra, Bedia, 20. Oraon, Kharia, Gond, Lohra, Birhor, Birjia, 21. Oraon, Birhor, Lohra, Mahli, 22. Oraon, Lohra, Mahli, Bhumij.

Ho Zone : 23. Munda, Oraon, Lohra, Mahli, 24. Munda, Mahli, Lohra. 25. Munda, Bhumij, Gond, Savar, Kharia, 26. Oraon, Munda, Gond, 27. Munda, Gond, Bhumij, Kharia

Bhumij Zone : 26b. Mahli, Kharia, Lohra, 27b. Mahli, Lohra, Bedia, 28b. Santhal, Bedia, Mahli.

Santhal Zone : 29. Karmali, 30. Sauria, Paharia, Mal Paharia, 31. Sauria Lohra, 32. Mal, Sauria Lohra, 33. Karmali, Bedia, Mahli, 34. Karmali, 35. Karmali, Mal, Mahli, 36. Sauria Mal, Mahli.

Tribal Contact Zone : 37. Santhal, Munda, Oraon, Birhor, 38. Santhal, Munda, Oraon, Karmali, 39. Santhal, Munda, Oraon, Bedia.

have reconstructed his geneology in the frame-work of the Nagbansi legends. It is supported also by the fact that the Chotanagpur rulers began to enter matrimonial alliances with the Rajput ruling families of Panchet, Singhbhum, Orissa and Madhya Pradesh only after the 11th or 12th century A.D. The expanding matrimonial connexions were followed by a speedy colonization of the Plateau by the non-tribals. "Rajputs and Brahmins from the Plains were invited to settle in the country and to assist the Raja in his administration and expeditions against his neighbouring states or in controlling his own vassals."¹ These people who were granted land and right to collect taxes, soon began to dispossess the aboriginal communities of their rights. "Thus began the struggle between the aboriginal cultivators and the alien landlords which has continued unceasingly till the present day."²

The Mundas reclaimed the virgin jungles and founded villages. In course of time the Mundas as well as the Oraons came to have a tribal organization. The fact that the tribal organizations still survive and had been quite a force till recently, proves that the Aryanization of this region was started late. Before this process of acculturation could intensify and embrace the whole Plateau its pace was retarded by the introduction of Islam. During the Muslim period, particularly under the Mughal regime, large-scale conversion to Islam among the *Adivasis* took place. Sometimes, the entire village communities were converted to Islam. Even today villages with hundred percent Muslim population bear Mundari or Oraon names. Islamic influences were yet to express themselves in the cultural matrix of the region, either by changing the place names or by building towns and villages with Islamic names, when the Christian missions started their work in Chotanagpur. The spread of Christianity among the *Adivasis* was extremely rapid and within a short period of hundred and twentyfive years this new religion claimed more than 40% of the *Adivasi* population.

OCCUPANCE PATTERN

The peopling of Chotanagpur, though started thousands of years ago, is far from complete. This is supported by the fact that during the last hundred years, the number of immigrants to Chotanagpur has been larger than in any other past centuries. With the construction of modern roads and railways, Chotanagpur became thoroughly accessible. Forest products, particularly lac and timber became marketable commodities. Human occupance was consequently extended to the interior

1. D. G. Ranchi, op. cit., p. 25.

2. Ibid.

Human occupation of land in Chotanagpur may be classed into four. The most extensive occupation is due to agriculture which is limited to river valleys, rolling plains and undulating erosion surfaces. High proportions of fallow lands and culturable wastes offer scope for the future expansion of occupation. The second type of occupation, scanty and feeble, is seen in the areas of Reserved Forests where villages have been established to supply labour for the upkeep of the forest. A third type of occupation has resulted from mining activities which are limited to the mineralized tracts. Expansion of industries has produced the fourth type of occupation which is mainly urban in character.



POPULATION

APPROACH

A geographical study of population concerns itself with three 'definite groups of facts': (1) distribution, (2) arrangement or pattern and (3) migration of population¹. To these three one may add a fourth group of facts relating to the trends of population growth within specific time limits. As area differentiation is emphasized, in certain sectors, the real theme of geography in general, so the real goal of geographers in "all analyses of population is an understanding of the regional differences in the earth's covering of people".² A geographical study of population is, therefore, to be oriented, in the first place, to describe and interpret the areal contrasts in number and density of population and, in the second place, to endeavour to bring out the relationship between population and facts of geographical resources, pattern of economic production and social conditions. To approach population study from environmental types or habitat to number and density of population is unscientific for it suffers from a *priori* concept. In view of 'the distant beginning of present population and the obscure and complicated considerations determining its distribution, natural settings alone cannot be expected to explain all the fascinating and complicated demographic phenomena.'³

The term distribution as conceived in geography will come, on analysis, to refer to the placing of men during that part of human life-span only which is spent in an inactive subconscious state. This state is achieved in sleep which takes place under the roof of human dwellings. This sleeping life is generally spent in groups called family or household. While in action, a man is seldom static and fastened to a particular point in space. Geographical distribution of population is, therefore, the distribution of families or households which would ultimately mean the distribution of human dwellings and settlements. The active part which is incidentally the major part of life, represents that aspect of population distribution which is dynamic. This dynamic aspect of

1. Fawcett, C. B., 'Whither Population: Distribution and Trends of Movement', *Geog.*, vol. XXII, 1937, p. 14.
2. Trewartha, G.T., 'A Case for Population Geography,' *A.A.A.G.*, vol. XLIII, June, 1953, No. 2, p. 87.
3. Brunhes, J., *Human Geography*, London, 1952, p. 45.

distribution relates to an area of activity rather than a fixed point in space. This area of activity is actually an economic area. The nature and limits of the economic area vary in accordance with the nature and organization of economic activities and pattern of production. This lends support to the view that the characterization of the distribution of population "acquires a synthetic, general-economic-geographic significance",¹ and that the "distribution should be studied in its

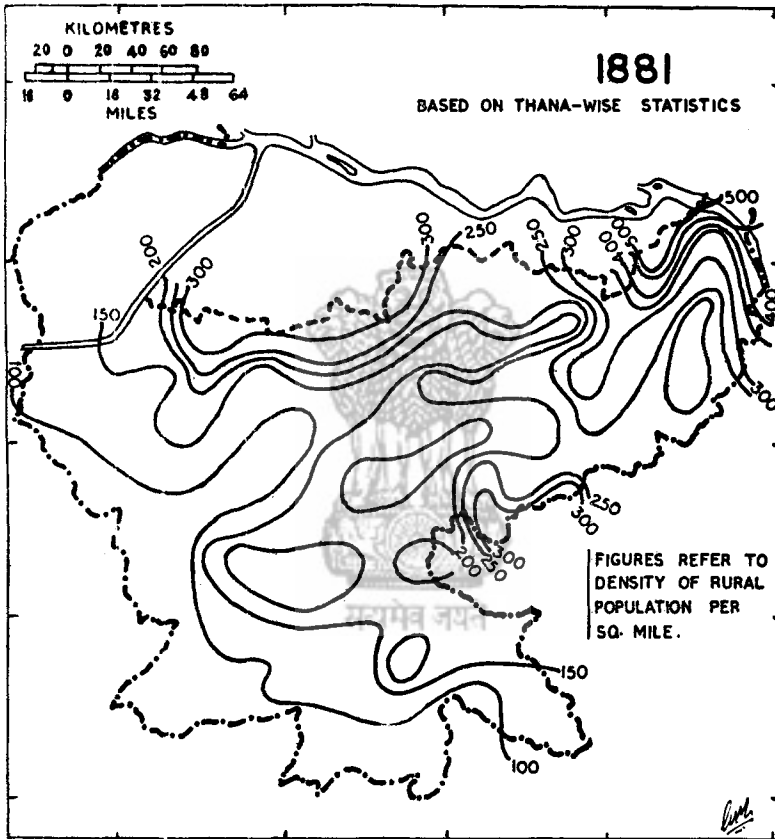
CHOTANAGPUR**Rural Population**

Fig. 32

relation to the geography of production."² This economic area of dynamic distribution of rural population is village known as *Mauza* in Hindi. Within this economic area are contained the dwellings also which are related to the static distribution of population. This analysis leads to the conclusion that the distribution of population should actually mean the distribution of *Mauzas* which would be dealt with in the following chapters.

1. Harris, Chancy D. (Ed.), *Soviet Geography*, New York, 1962, p. 143.
2. *Ibid.* p. 145.

GROWTH OF POPULATION

As we have discussed earlier, Chotanagpur continued to be cut off from the main currents of historical developments. A fuller knowledge of the terrain, people and culture of this region is not available until the region was brought under the effective administrative control of the East India Company. The military and administrative officers of the

CHOTANAGPUR

Rural Population

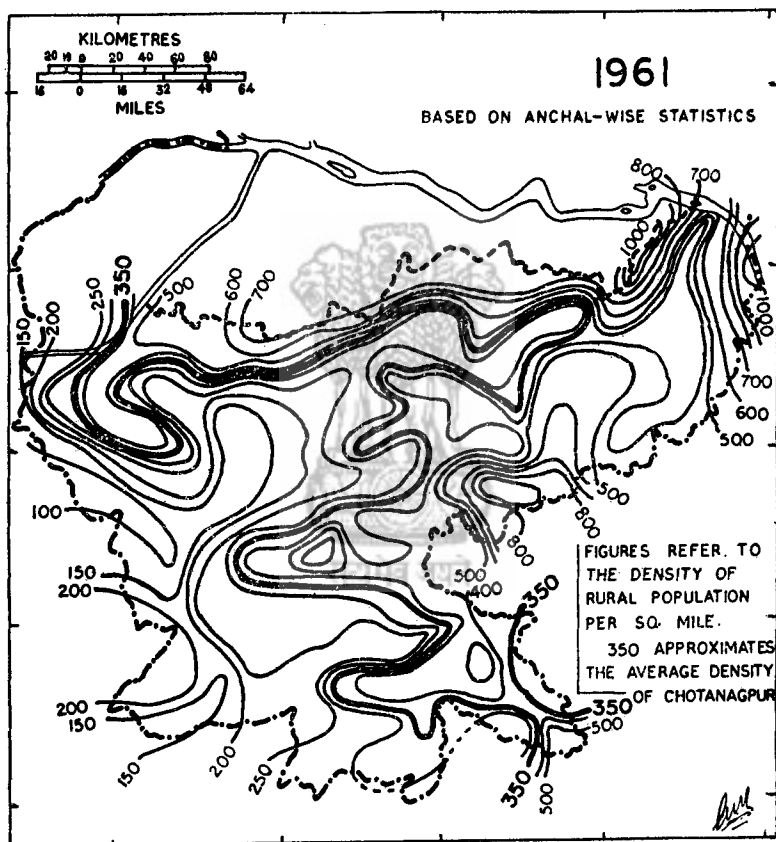


Fig. 33

Company who traversed the country on their periodic visits for tax collection made stray observations and comments on the land and people of the various parts of Chotanagpur. None of them attempted to make an estimate of the population of the entire hilly region. The usefulness of their comments is reduced further by the various changes in the territorial jurisdiction and nomenclatures of administrative units. The changes have been so sweeping that some of those units are beyond recognition today.

For the first time in 1874, Chotanagpur with other parts of India was covered by a regular census. Because of a high degree of improvisation in the methods of the census machinery, the correctness of the figures is in serious doubts and this census is seldom considered to be the starting point in a population study of India.¹ The census of 1881 is, therefore, a safer and more dependable point to start with. In 1881 the total population of Bihar was 2,58,63,139 which gives a density of 386 persons per square mile. Out of this total as many as 60,93,127 persons were living in 33 362 villages and towns of Chotanagpur. These villages and towns were composed of 10,60,087 houses. The average size of households consisted of 5.3 persons. Since then, the population of Chotanagpur grew by 125.1% and the density increased by 219 persons per square mile (fig. 32, 33). In 1881 the total population of Chotanagpur accounted for 23.6% of Bihar's total which changed to 29% of Bihar's total in 1961.

POPULATION VARIATION SINCE 1881.

Table — A
(in percent)

Decade.	India	Bihar	Chotanagpur (Proper)
1872-1881		+ 17.10	+ 34.0
1881-1891		+ 5.30	+ 9.5
1891-1901		0.00	+ 6.00
1901-1911	+ 5.73	+ 3.67	+ 14.21
1911-1921	- 0.31	- 0.66	+ 2.14
1921-1931	+ 11.01	+ 11.45	+ 17.78
1931-1941	+ 14.22	+ 12.20	+ 13.26
1941-1951	+ 13.31	+ 10.27	+ 11.18
1951-1961	+ 21.50	+ 19.77	+ 21.10

Table — B

Decade	India	Bihar	Chotanagpur*
1881-1921	—	+ 9.7	+ 45.4
1921-1961	+ 70.73	+ 66.3	+ 80.0
1881-1961	—	+ 76.0	+ 125.4

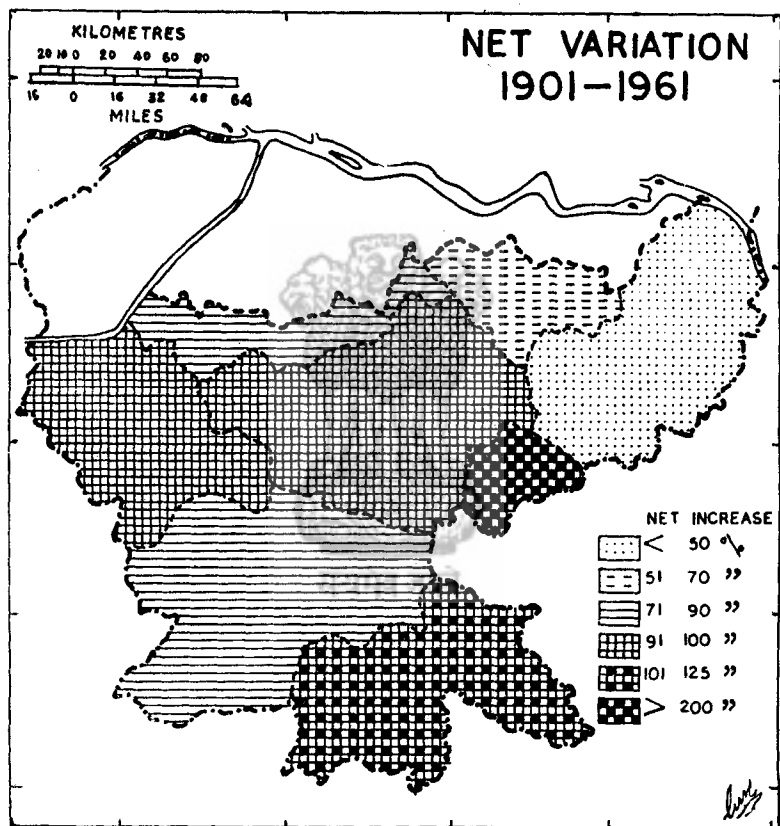
* Refers to the region in the geographical sense; it is not exactly coterminous with administrative 'Chotanagpur'.

The above tables make it clear that before 1921, the "Great Divide"² in Indian Census, the pattern of growth is entirely different from the pattern of growth after that year. Prior to 1921, the population

1. Gait, E. A., *Census of India, 1901, Provincial Table*, Calcutta, 1902.

2. Gopalaswami, R. A., *Census of India, 1951*, vol. I, Part 1-A, P. XIII.

grew haltingly at a very slow rate. In the following years the rate is accelerated and the population recorded a steady growth. During the span of 40 years that preceded 1921, the population of Bihar grew by 9.7% or by 2.4% per decade, but during the next 40 years that followed the 'Divide', the population grew by 66.3% that gives a decennial average of 16.6%. On the other hand, the pattern of growth in Chotanagpur in two forty-year periods is the same : the growth being steadier and the rate faster

CHOTANAGPUR**Rural Population***Fig. 34*

both after and before 1921 than in the rest of Bihar. Between 1881-1921, the population of Chotanagpur grew by 44.4%, giving a decennial average of 11.4%. This is a much higher rate than the average for Bihar. After 1921, though the rate of growth of population in Chotanagpur was faster than in the preceding years, it was by no means abnormally high as is the case with Bihar. During the last 40 years, the population of Chotanagpur recorded a growth of 80.6% which gives a decennial average of 20%. Thus the rate of growth after 1921 almost doubled itself.

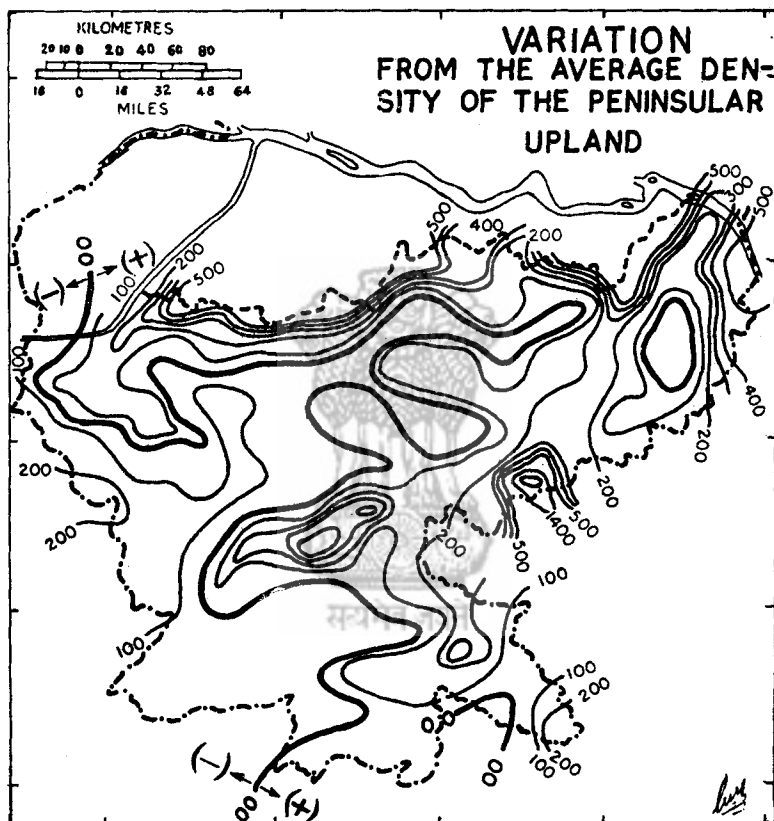
Within the span of 80 years the population received a set-back in two decades, i.e., 1891-1901 and 1911-1921. The closing years of the last century were years of acute famine. Millions died of these famines. The period between 1911-1921 synchronizes with periods of epidemics, flu and plague which took heavy toll of life. The startling growth after 1921 is attributed to improved sanitary and health conditions. The epidemics were largely controlled and enormous "abnormal deaths (that) used to claim a great many victims in the earlier period,"¹ were prevented. The death rate declined and the growth recorded a faster speed.

The trends of growth during the period from 1891-1951 were reviewed in the census report of 1951. For this purpose the country was divided into 15 sub-regions. Seven out of these fifteen sub-regions recorded no increase during 1891-1920 and the population remained stationary. In remaining seven sub-regions, consisting of the plateau and hilly tracts, population continued to grow. Even during the two decades of famine and epidemics, the population of Chotanagpur escaped the all India pattern of decline. The population of India decreased by 0.2% and by 0.4% respectively during 1891-1900 and 1911-1920. During the same periods the population of Chotanagpur grew by 6.0% and 2.14% respectively.

The pattern of population growth in Chotanagpur appears to be quite different from that in the rest of Bihar. Abnormal rise by 34% during 1872-81 is attributed to the errors in enumeration in the first census. The following decade recorded a growth of 9.5% in Chotanagpur as against 5.3% in Bihar as a whole. A faster rate of growth in Chotanagpur is attributed to various causes. In the later half of the 19th century, the foundations of the heavy industrial complexes of today were laid down. An impressive beginning of the net-work of excellent roads and railways (fig. 26 and 27) that serve the Plateau today was made. Reforms were introduced in land-tenure and tenancy. Forests began to recede as the region became more and more accessible. Cultivation which was hitherto localized in the river-valleys and peneplaned plateau-surfaces was extended to areas reclaimed from forest. Increased accessibility, land reforms, extension of civil authority to the hitherto uncontrolled and ungoverned hilly, forested tracts, largely changed the agricultural practices and land tenure. This, in turn, led to the gradual cessation of shifting cultivation and its replacement by sedentary intensive cultivation. The two railways that penetrated the Plateau from east and south-east introduced new elements in the organization of rural economy. Before the region was opened up by roads and railways, even the agricultural resources of the region were not utilized to the extent to which the

1. Gopalaswami, R. A. *Census of India, 1951, vol. I, Part 1-A (Report)*, p. 124.

resources of the Plains were tapped. Chotanagpur thus offered an economic accommodation to a larger population even before the mining and industries could make any headway. These factors account for a higher rate of growth of population during 1881-1891. In the following decade, 1891-1901 when both, a famine and plague raged over extensive areas of the country, the population of Chotanagpur recorded a growth by 6%.

CHOTANAGPUR**Rural Population***Fig. 35*

Isopleth values refer to the departure from the density of rural population (per sq.mile) of the Peninsular Upland for the year 1961.

The growth, though less than in the preceding decade, is highly significant, for in the rest of Bihar and in India as a whole, the population declined appreciably. There appears to be two possible explanations of this phenomenon. Chotanagpur where the rainfall is heavier than in the plains of Bihar, might not have suffered as much as the latter in the event of the failure of monsoon that caused famine twice during the decade. Again, incidence of plague was probably not so high in Chotanagpur as in the crowded plains. Better sanitary conditions provided by

hilly terrain and superior climate of the Plateau must have acted as natural preventive measures. Sparse population and less mobility due to broken nature of the country might have reduced the rate and scope of propagation of the plague infection. Immigration to the Plateau, even in the absence of any new economic opportunities, was large, particularly from Bengal. Extensive colonization of the Plateau by the Bengalis started much earlier and places like Deoghar, Madhupur, Giridih, Ranchi and Hazaribagh were fast growing as Bengali centres. It is possible that in the wake of acute famine and pestilences besides plague (e.g., Kala-azar, malaria, cholera and dysentery) a large number of Bengalis migrated to the Plateau from the unhealthy environments of the Ganga Delta. All these factors combined to raise the population of Chotanagpur even though hardships persisted.

"During the next decade (1901-1911), the seasonal conditions were much more favourable",¹ and a rise in population was registered all over the country. The population of Chotanagpur grew by 14.21% as against 3.67% in Bihar and 5.7% in India as a whole. Several factors favoured a higher rate of growth in Chotanagpur. In the first decade of the present century, the Grand Chord Line, the main artery of the coal-field, was completed (fig. 27). Three other lines were also laid down. They created quite a network of railway lines in the middle-eastern part of the Plateau. Another line joined Daltonganj with the Chord Line. Mining operation in the Damodar valley started expanding and industrial installations began to emerge in the coalfield area. Giridih developed as the headquarters of mica splitting and trade. With the multiplication of economic opportunities several parts of Chotanagpur began to function as veritable receptacles of the streams of migrants which are continuing steadily even today. Urbanization showed an upward trend. New centres began to emerge and old ones started expanding. All these proved conducive to a higher rate of growth.

The following decade (1911-1920) was extraordinary in many ways. "Sharp increase in attacks and deaths from plague, cholera and malaria epidemics occurred in widely different parts of the country. Economic disorganization — the aftermath of the War — coincided with two successive bad seasons and extensive crop failures..... But all these misfortunes paled into insignificance when a world-wide epidemic of influenza swept the country,"² in two successive waves. The pattern of growth during the decade reflected the conditions thus described and the population of India declined by 0.4% and of Bihar by 0.66%. But, even during this

1. Gopalaswami, R. A., *op. cit.*, p. 129.

2. *Ibid.*

period of stormy misfortunes Chotanagpur registered a growth of population by 2.14%. The only explanation of this departure from the general pattern appears to be the huge immigrations into the mining and industrial areas of Chotanagpur, for in all the districts except Dhanbad, Singhbhum and Palamau, the population actually declined.

During the next four decades the pattern of growth of population in Chotanagpur reflects the general favourable conditions prevailing in the country. The population grew at the rate of 2% per year. The total population of the region in the last forty years (1921-61) grew by 80.1%. During the same period the population of India registered a growth by 70.73% and of Bihar by 66.3%. A higher rate of growth in Chotanagpur is quite in agreement with the expanding economy of the region. The Damodar valley, Singhbhum District and eastern part of Ranchi District emerged as major industrial regions (fig. 23&25). A number of other centres of industries in the Kodarma-Giridih belt and Palamau District also sprang up. Communication improved and lakhs of acres were added to the existing agricultural land. Agricultural pattern and crop association also changed to a great extent. *Gondli* and *marua* which once commanded the largest acreage after rice in the higher plateaus have been largely replaced by superior millets, maize and other heavy yielding crops. In all the decades that followed the 'Great Divide' of 1921, the population of Chotanagpur grew, therefore, at a faster rate than in the rest of Bihar.

The pattern of growth has not been uniform all over Chotanagpur (fig. 34). During the eighty-year period from 1881-1961, the rate of growth in the five districts of Ranchi, Palamau, Hazaribagh, Dhanbad and Singhbhum has been much higher than the average for Bihar. In remaining four districts of the Santhal Parganas, (parts of) Gaya, Monghyr and Bhagalpur, the growth has been lower than the Bihar's average. Dhanbad with a growth by 318.3% leads all other districts. Next comes Ranchi with a growth by 202%. Singhbhum with 192% comes third. Hazaribagh and Palamau with 116.9 and 116 percent occupy fourth and fifth positions respectively. The areas which registered a growth less than the average for Bihar are contiguous with the plain, forming the northern fringe of the Plateau. In this area, the agricultural economy having no scope of expansion, is actually stagnant. Because of being contiguous with the thickly populated plains in the north, this area was fully settled at a very early date and always remained one of the most thickly populated tracts of Chotanagpur (fig. 32&33). With pressure on land being one of the heaviest, this area has been sending out waves of emigrants to other parts of Chotanagpur and to areas outside the region.

All these factors affected the growth of population in this part and resulted in contrasting patterns of population growth.

The contrasts in regional pattern of growth are brought out rather more sharply during the last sixty years that followed the close of the 19th century. During this period mining and industries expanded greatly. Jamshedpur grew as the largest steel city of India, Ranchi expanded beyond expectations and the coalfield conurbation with Jharia and Dhanbad as two foci came into being. The Sone valley industrial belt extended upward into Palamau. The total result was a sharpening of contrasts between the areas of purely agricultural economy and the areas of mining and industrial economy. The same contrasts were reflected upon the pattern of population growth. Commensurate with the economic progress, the population in the two most heavily industrialized and most extensively mined districts of Dhanbad and Singhbhum, grew by 206.4% and 125.3% respectively. The population of Hazaribagh, Palamau and Ranchi grew respectively by 95.85, 91.57 and 81.57%. On the other hand, the population of the Santhal Parganas in sixty years could grow by 48.2% only. The rate of growth in the districts of Gaya, Monghyr and Bhagalpur remained as low as in the Santhal Parganas.

Changes in the density of population have been fast and impressive. The density of population increased from 175 in 1881 to 394 persons per square mile in 1961. (fig. 32&33). To every square mile of Chotanagpur were, thus, added 219 persons since 1881. In the district of Dhanbad, the density rose from 249 to 1045 and in Singhbhum, from 121 to 398 persons per square mile. With the enormous growth of population and the introduction of new factors of production in different parts of the Plateau great changes in the areal pattern of density appear to be quite natural and logical. But when the two density-maps of 1881 and 1961 are compared, the expectation is largely belied, for the general picture of regional variation in density continues to be more or less the same. The areas which were most densely populated in 1881 are most densely populated even today. The same is true of the most sparsely populated areas. The western part comprising parts of Ranchi, Palamau Hazaribagh and Singhbhum districts persisted to remain the most sparsely populated tract throughout this long period. The Northern Fringe Zone with an average density of 343 persons per square mile was the most densely populated tract of Chotanagpur. Next in order was the Santhal Parganas with a density of 286 and Dhanbad with 249 persons per square mile. Besides, there were three areas where the second order of density, between 200 and 300 persons per square mile, prevailed. They

were the Kodarma-Giridih belt, Ranchi plateau and Chaibasa plain. The isopleth of 100 in the density map of 1881 and the isopleth of 250 in the 1961-map follow almost identical course (fig. 32 & 33). All other isopleths in the two maps, except for their different values, are also identical in alignment. In three areas, however, the density picture is appreciably changed. They are the Upper Damodar basin, the eastern part of Ranchi plateau and the Lower Suvarnarekha valley. These areas in 1881 were sparsely populated having less than 200 persons per square mile. But owing to the subsequent extension of mining and installation of factories they emerged as densely populated areas in 1961. There have been other changes too. The densely populated tiny patch in Panch Pargana expanded to include large areas. The Northern Fringe Zone and the lower Damodar basin exchanged their positions, so that the most thickly populated tract is not the fringe zone but the Lower Damodar basin. Thus, except for details the two maps present almost identical picture of regional variation in the density of population.

*Numerical Analysis*¹

The total population of Chotanagpur as enumerated in the Census of 1961 is 1,37,18,887. Of this total, 1,23,25,760 persons were classed as rural and 13,93,124 persons as urban. Out of 34,776.4 square miles of the total area of Chotanagpur 34,434.8 square miles are shown as rural. The remaining 341.6 square miles constitute the total urban area of the region. This means that the rural population representing 90% of the total population is spread over 99% of the total area. On the other hand, urban population representing 10% of the total population is concentrated in 1% of the total area. The corresponding figures for Bihar, Peninsular India² and India as a whole are given below.

	Rural Area.	Rural population	Urban Area	Urban Population.
Bihar	98.8%	91%	1.2%	9.0%
Peninsular India	98.8%	80.6%	1.2%	19.4%
India	98.8%	82.0%	1.2%	18.0%
Chotanagpur	99.0%	90.0%	1.0%	10.0%

Chotanagpur accounts for 52% of the total rural area and 29% of the total rural population of Bihar. The ratios between area and population of the two regions are respectively 1:2 and 1:3.4 which means that every land unit in Chotanagpur is short by one-third of its proportionate population (fig. 36)

1. Prasad, A. 'Rural Population of Chotanagpur: its Distribution and Density Pattern', Proceedings of Summer School in Geography, Patna University, 1967'.
2. The terms Peninsular India and Peninsular upland refer to the entire upland country lying south of the Ganga Plain.

About 1.25 crore persons living in the rural area of Chotanagpur have been grouped into 20,92,875 rural households. These households were contained in 17,79,988 census-houses. The census-houses are further grouped into 34,274 inhabited villages of various sizes, ranging from villages having less than 200 persons to those with more than

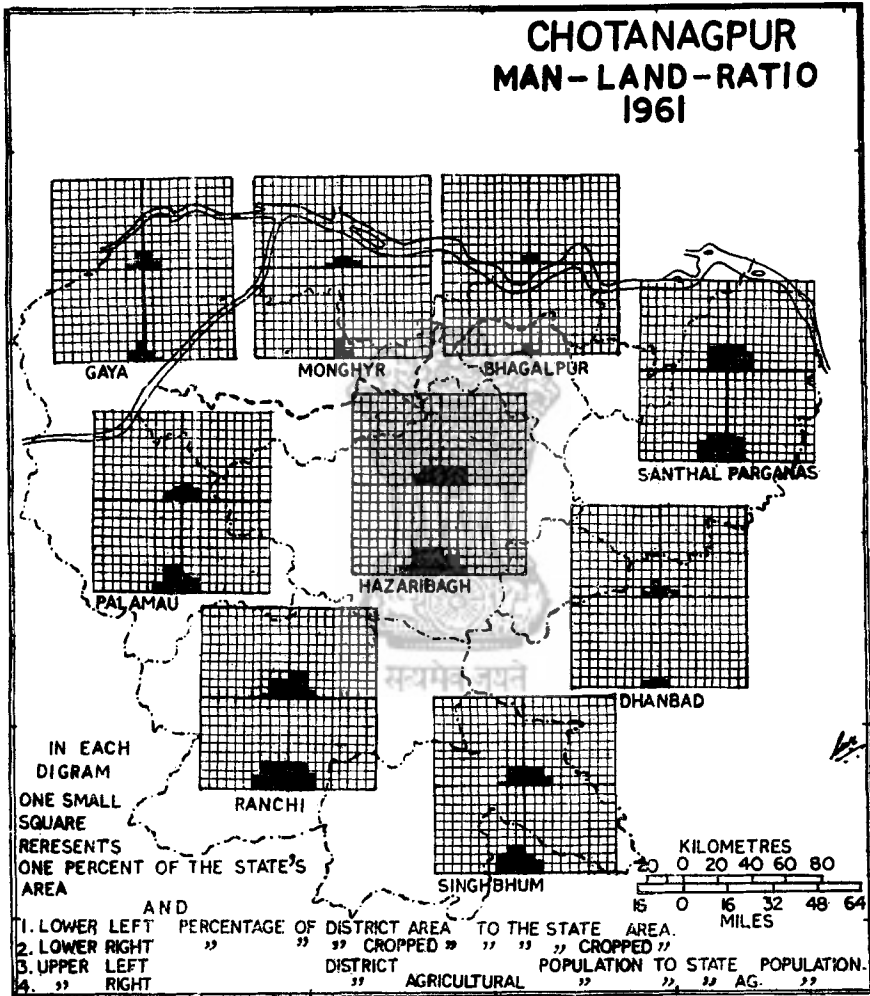
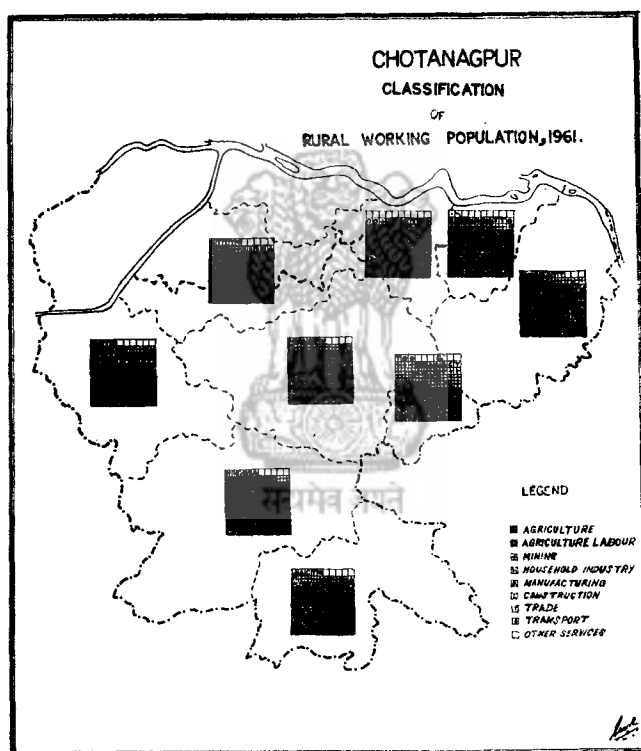


Fig. 36

10,000 persons. On an average, a village in Chotanagpur consists of 360 persons. The average number of houses and households per village is 53 and 70 respectively. The average size of a household is 5.3 persons and the average population of a census house is 6. Thus, every census-house consists of more than one household.

Economic Analysis

An economic analysis of the population of Chotanagpur makes some interesting revelations. In the census of 1961 population has been classified into two major economic groups of workers and non-workers. The percentage of workers to the total rural population of Chotanagpur is 49.3 as against 42.2 for the whole of Bihar. This percentage is highest (58.9) in the district of Ranchi (fig. 37). The Santhal Parganas with 53.6% comes next and Monghyr with 40% is ranked lowest. A higher percentage of working population for the districts of Ranchi and Santhal Parganas is rather problematic, for the rural economy of these districts

*Fig. 37*

is least diversified. Working population engaged in agriculture accounts for 39.4% for Chotanagpur and 40.8% for the State. The figures for Ranchi, Singhbhum and the Santhal Parganas are 52%, 46.3% and 45.5% respectively. The higher percentage of working population in these districts appears to be related to social and ethnic rather than economic factors. These are the districts which have the largest tribal population. The percentage of tribal population in these districts are 61.6, 47.3, and 38.2

respectively (fig.29). In tribal communities of Chotanagpur, the number of female workers is as high, if not more, as the male workers. In non-tribal communities only a small fraction of female population is economically active. This is quite likely that the difference between the proportions of tribal and non-tribal female workers is expressed in the overall percentage of the total working population. This is supported by the analysis of the *anchal*-wise figures. All such *anchals* which have a higher percentage of tribal population to the total population, have also a higher percentage of total working population.

Composition

An aspect of economic study of population is the study of caste composition and social order of population. In India, and particularly in Bihar, caste is a tripple entity. It is a social entity for it provides the rigid frame for entire social, civil and matrimonial relationships. It is an economic entity, for castes, in general, are economic classes. There are rich castes and poor castes, landed castes and landless castes. And, lastly, it is a political entity, for political functions and power as well as political organizations have mostly a caste-wise distribution and ownership. In Chotanagpur, in addition to the caste-complex, the population assumes an ethnic complex. The entire population is, therefore, divided into two major ethnic groups—tribal and non-tribal. According to 1961 census, the tribal population of Chotanagpur is 40,11,736 which accounts for 32.5% of the total population of the region. The tribal population varies from less than 0.5% in parts of Gaya to more than 61% in Ranchi District (fig. 29). Ranchi with 61.6% of its population as tribal is predominantly a tribal district. Singhbhum with 47.3% and the Santhal Parganas with 38.2% population under this head are respectively second and third most important tribal districts. In all other districts the tribal population is less than 20%. An interesting aspect of the distribution of the population of Scheduled Castes and Scheduled Tribes in Chotanagpur, as mentioned earlier, is that the two appear to be antilogous, so that one appears to replace or substitute the other in areal pattern of distribution (fig.29&30). The decrease in one's population means increase in others. Hence, the districts of Ranchi, Singhbhum and Santhal Parganas have smallest population of Scheduled Castes, accounting for not more than 3% to 8% of the total population. On the other hand, in the district of Gaya where tribal population is negligible, the Scheduled Castes account for 30.2% of the total population.

In non-tribal areas, Scheduled Castes largely constitute the agricultural-labour and domestic-service classes. They are generally landless people and represent the lowest level in the economic ranking of the

social groups. Their houses usually constitute a separate sub-entity in the rural landscape. More or less, similar status is held by the tribal people in areas where they are in small minority. On the other hand, their lot is quite different in areas where they form bulk of the population. In such areas entire economic scale from landed aristocracy to landless labourer, is constituted solely by the tribal population. Tribal economy is poor and backward. Their social organizations, customs and manners and dietic and living habits are also quite different from those of the non-tribal people. The tribal way of life is, therefore, strongly and distinctly expressed in the cultural landscapes of the tribal countryside.

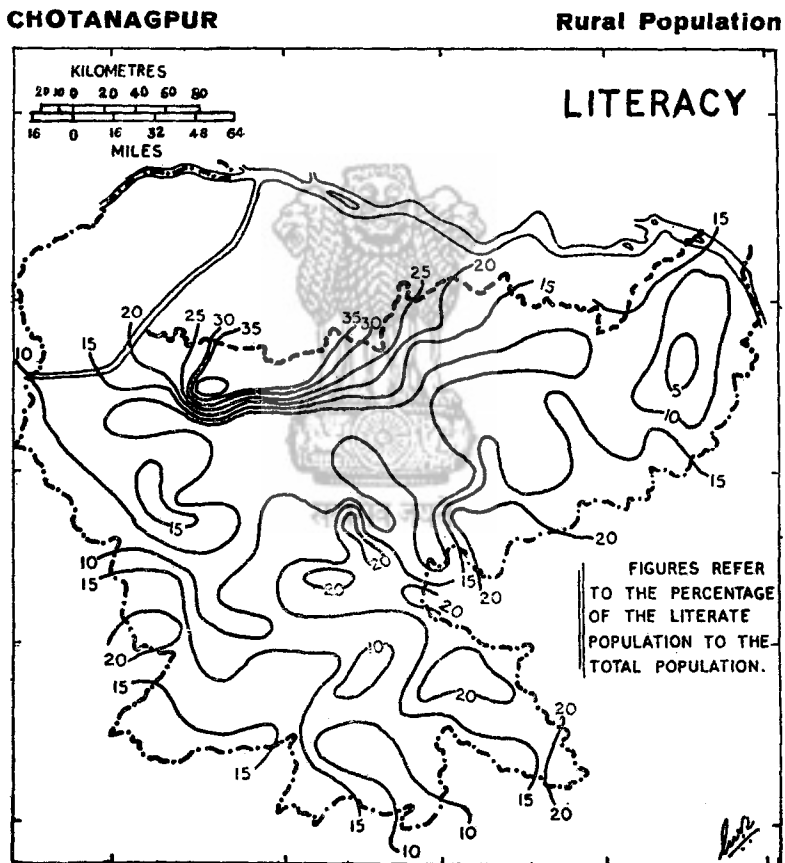


Fig. 38

Socio-economic status of the Scheduled Castes and Scheduled Tribes is contrasted by another cultural factor, i.e., education. The Scheduled Castes, irrespective of their location in tribal or non-tribal areas, represent the most illiterate section of the society. Owing to a very low percentage of literacy the members of this community are smallest in number in all such jobs which demand a higher standard of education,

training and skill and, in return, impart social status, respectability and higher values on economic scale. On the other hand, the Scheduled Tribes in tribal areas are on par with non-tribal communities. In fact, they are more literate and better educated than a large number of non-tribal communities living in the tribal part of Chotanagpur. They are, however, not quite different from the Scheduled Castes in non-tribal areas. A lower percentage of literacy in tribal south (fig. 31) is, therefore, not so much due to a higher concentration of tribal population as due to the general backwardness and poverty of the entire population. Similarly, a higher percentage of literacy in non-tribal north is attributable to a higher percentage of socially advanced and affluent people.

CHOTANAGPUR

Rural Population

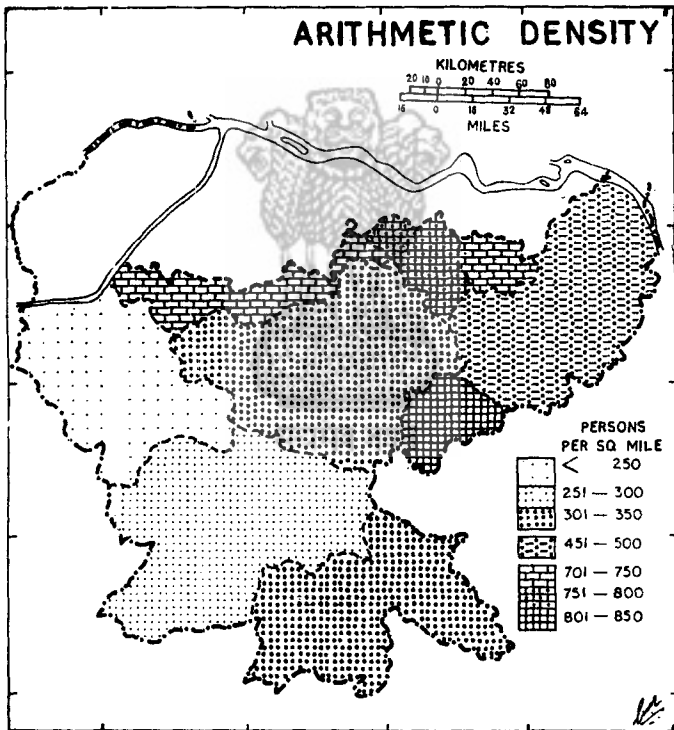


Fig. 39

MAN-LAND RATIOS

With more than 1.23 crores of people and 34.4 thousand square miles of land, the simple man-earth ratio for Chotanagpur, per 1961 census, comes to 354 persons per square mile of the rural area (fig.39). This works out a per capita geographical area of 1.84 acres. The corresponding ratios for India and the Peninsular Upland in the same year are respectively 273 and 293 persons per square mile. Thus, every

land unit of Chotanagpur contains a population larger by 57 persons and by 81 persons than the average land units of India and the Peninsular Upland respectively (fig. 35). This means that the population pressure in Chotanagpur is higher than in either India or the Peninsular Upland considered as a whole. The ratio is reversed when Chotanagpur is compared with Bihar as a whole. The arithmetic density for Bihar in 1961 comes to 643 persons per square mile of the rural area or roughly one person in one acre of land. This is higher by 289 persons per square mile than the average arithmetic density for Chotanagpur (figs. 36 & 39).

CHOTANAGPUR

Rural Population

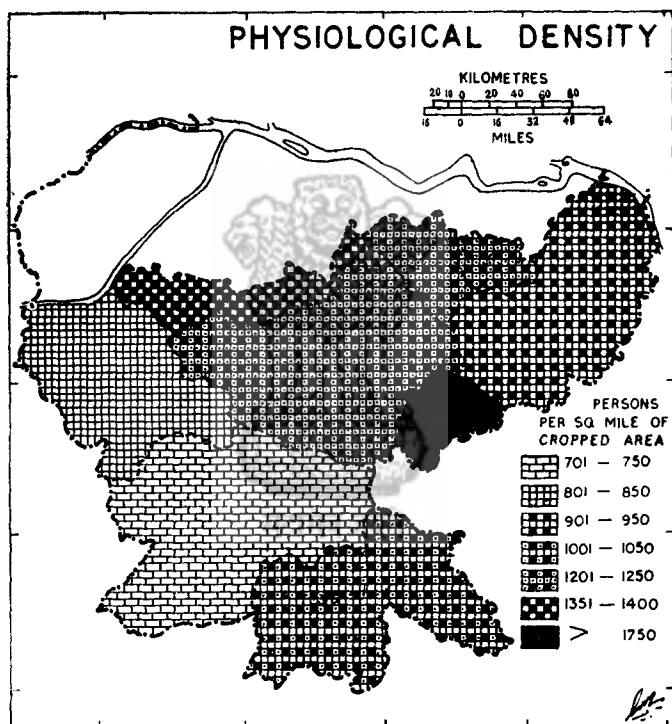


Fig. 40

In fact, every land unit of Chotanagpur contains, on average, 55% of the average population contained in a similar land unit of Bihar as a whole. This simple man-land ratio is, however, misleading, for it leads to the obvious conclusion that the population pressure on land in Chotanagpur is lower than in other parts of Bihar. The pressure of population on the land resources of Chotanagpur is, in fact, as high as in the densely populated tracts of Bihar.

In any analysis of man-land ratio the characteristic of the physical earth of Chotanagpur must be given due consideration. Owing to the

hilly nature of the country, the actual land resources available to be harnessed for human well-being in Chotanagpur are fewer and poorer than in the plains of Bihar. This fact is clearly borne out by a comparison of the relationships between agricultural land and rural population of the two major divisions of Bihar. Chotanagpur accounts for 52% of the total geographical (rural) area of Bihar but contains only 29.5% of the net cropped area of the State. The total rural population of Chotanagpur is also 29% of the total rural population of the State (fig.36). The parity

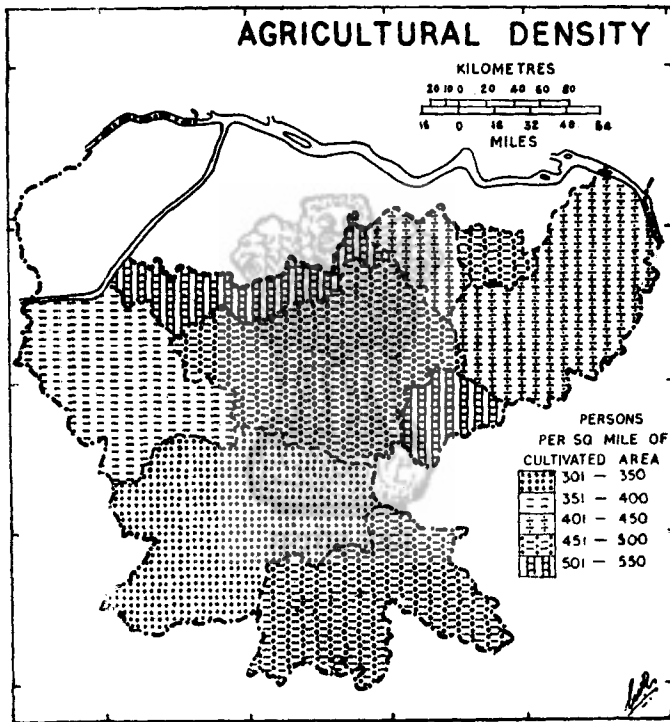
CHOTANAGPUR**Rural Population**

Fig. 41

between two percentages relating to net cropped area and rural population naturally suggests almost an equal physiological density in Chotanagpur and the plains. The average physiological density¹ of the whole of Bihar is 1083 and that of Chotanagpur is 977 persons per square mile of the cropped area. The physiological density in the district of Dhanbad is highest: not only in Chotanagpur but in the whole of Bihar. With 2% of the total rural population in only 0.8% of the cropped area of Bihar (fig.36) the district has a physiological density of 2,355 persons

1. The physiological density is conceived here as the ratio between the total cropped area and total rural population and not the total population.

per square mile. The district of Ranchi with 735 persons per square mile has the lowest physiological density (fig. 40).

The rural population, though largely agricultural, does not entirely depend on agriculture alone. In the census of 1961, the rural working population has been classified into nine economic and industrial categories (fig. 37). Two of the categories are those of cultivators and agricultural labourers. These two are entirely dependent on agriculture

CHOTANAGPUR

Rural Population

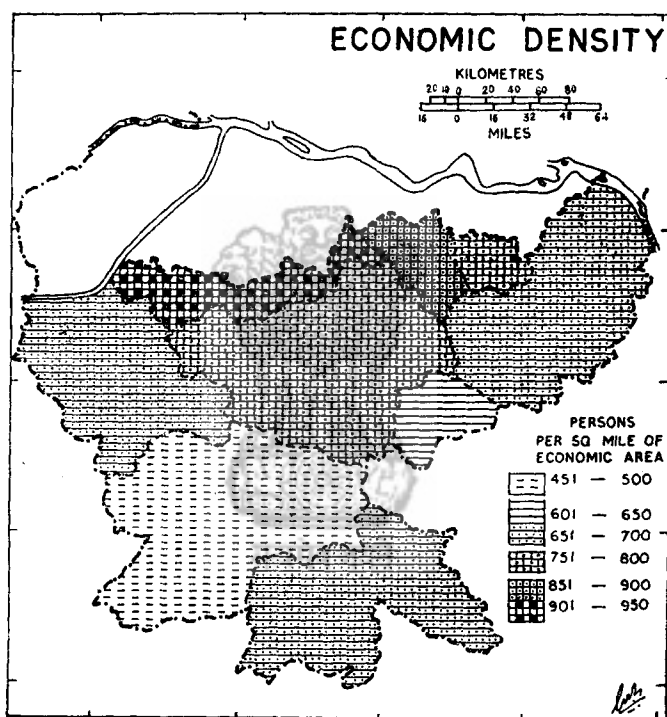


Fig. 42

and the sum of the two may be taken as the total agricultural population of a region. The relationship between the agricultural population and the cultivated area is direct and obvious. This relationship, called agricultural density of population (fig. 41), presents a better and more realistic picture of the pressure of population on land. In two previous considerations, the average population pressure on land appeared to be higher in Bihar as a whole than in its Chotanagpur region. The picture changes when agricultural density is taken into consideration. The agricultural density in Chotanagpur is 447 persons as against 376 persons per square mile of the cultivated area for the whole of Bihar. This leads to the obvious conclusion that the pressure of population on the

agricultural resources of Chotanagpur is heavier than in other parts of Bihar. In view of the fact that fertility of soil and general agricultural conditions in Chotanagpur are poorer than in the plains, the real pressure on land is still higher than suggested by the agricultural density. It is interesting to note here that agricultural density is almost equal in various parts of the plateau. The regional variation in agricultural density is highly subdued and the difference between the highest and the lowest density is very small (fig. 41). The highest density again obtains in Dhanbad and is the lowest in Ranchi. The respective values for the two districts are 513 and 349 persons per square mile of the cultivated area. Pressure on agricultural resources is generally high in the areas which are contiguous with the plains. Except Ranchi and Palamau all other districts of Chotanagpur have a higher agricultural density of populations than the average for Bihar as a whole.

Besides agricultural resources, a land is endowed with many other economic resources which are utilized by the people to earn a living. The relationship between man and land is, therefore, complex and intricate. Each one of the densities previously worked out reveals only a particular aspect of man-land ratio. Attempts have been made here to present a more realistic picture of the relationship between man and land by working out an economic density of population for the Chotanagpur region (fig. 42). Economic density of population is conceived as the ratio between the total rural population and the total economic area of the countryside. Economic area has been obtained by converting all the economic resources into land units. This has been done by calculating, in the first place, an average yield (in terms of rupees) per acre of agricultural land for each district and for the whole region. In the second place, the value of the total agricultural production for each district has been calculated on the basis of the prices quoted in the Season and Crop Report for 1959-60. These values of the total agricultural production have been divided by the 'standard per acre yield' in terms of rupees. This gives us the standard acreage for each district. All other economic resources have been substituted by the total annual earnings of people engaged in occupations other than agriculture. By doing so, statistical values for the economic resources of each district are obtained. Further, the total earnings of non-agricultural population of each district were divided by the standard per acre yield in terms of rupees. Non-agricultural earnings are, thus, converted into standard units of agricultural land. By summing up the standard agricultural acreage and the land-equivalents for other earnings in each district, economic area for each district is achieved. Lastly, the total rural population was divided by total economic area to obtain an economic density of population.

The average economic density of population in Chotanagpur comes to 744 persons per square mile of the economic area (fig. 42). This is more than double of the simple arithmetic density and 76 % of the physiological density. This leads us to the obvious conclusion that actual pressure on land resources is much higher than what the arithmetic density suggests and about 3/4ths of what the physiological density shows. A comparison between the two ratios, i. e., physiological and economic densities, offers several clues for appreciating the various aspects of man-land ratio. The difference between the two ratios may serve as a reliable index of economic versatility and prosperity of a region. The greater the difference the higher is the economic versatility and prosperity. The regional variations in economic density of population in Chotanagpur are highly interesting and significant. The district of Dhanbad which ranked first in the three density maps goes down to the last but one position in the economic density map. The lowest density of 548 persons per square mile of the economic area is obtained in Ranchi. The figure for Dhanbad is 605. This is an interesting revelation that the pressure on economic resources in the most thickly populated district of Dhanbad is one of the lowest. On the other hand, in the most sparsely populated district of Palamau the pressure on economic resources with 670 persons per square mile of the economic area, is one of the highest. The highest pressure on economic resources is felt in the parts of Gaya District where the economic density of population is 910 persons per square mile of the economic area.

The four types of man-land ratios reflect themselves upon the cultural landscape, particularly upon human settlements in different ways. There is direct relationship between the number of persons and number and size of settlements in a given units of land. The size of population engaged in agricultural and non-agricultural pursuits introduces, apart from being responsible for sustaining the entire cultural complex, an element of richness and variety in the cultural landscape.

The pictures presented by the four density maps (figs 39,40,41,42) are not identical. Nine districts included in Chotanagpur, exhibit seven arithmetic density classes, ranging from less than 250 to more than 800 persons per square mile of the geographical area. Two classes, 301-350 and 701-750 persons per square mile, are represented in more than one district, while all other classes have single district representation. The two ends of the density scale are represented by the districts of Dhanbad and Palamau. Palamau being on the lower end of the scale has a density of less than 250 persons per square mile. Except for

Dhanbad, the picture presented by the map of physiological density bears no semblance with the previous one. Dhanbad alone with the highest physiological density maintains its relative position in the density scale. The lower end of the scale is represented in this map by Ranchi District. The density classes are also reduced in number from seven to six. There is, however, a good deal of similarity between the pictures presented by physiological density and agricultural density. On the lower end of the scale of agricultural density again is Ranchi. On the upper end is placed Gaya in addition to Dhanbad. The picture again changes rather more strikingly when we look into the map of economic density. Dhanbad which has figured always as the most densely populated district, makes a sharp descent from top to almost bottom position. In this map, the two ends of the scale are represented by the districts of Ranchi and Gaya, Gaya being on the upper end. The districts of Palamau, Singhbhum and Santhal Parganas, occupying an intermediate position, fall actually in that density class which is average for the region.

The figure No. 36 reveals some of the most important realities of the population and agricultural geography of the region. The diagram is so devised that it presents a synthetic picture on a comparative scale. Each one of the nine located diagrams is, in fact, a combination of four diagrams, showing percentages of district-area to the State's area, district-cropped area to the State-cropped area, district-population to the State-population and district agricultural population to the State agricultural population. From these diagrams two facts are quite clear. In all the districts the cropped area is smaller in view of the geographical area. On the other hand, in all the districts, except Dhanbad, agricultural population is proportionately large. This leads to the obvious conclusion that with less land to cultivate dependence on agriculture is higher and the rural economy is less diversified.

DISTRIBUTION

Distribution of population implies exact placing of population. To prepare such a distribution map is extremely difficult unless the map is on a very big scale where dots can be placed exactly on settlement sites. To show distribution by placing dots arbitrarily serves no purpose. In the present work, therefore, a detailed density map (in preference to an inexact distribution map) has been prepared (fig. 43). The areal units of this density map are *anchals* which are the smallest administrative units. Altogether 213 *anchals* are included in Chotanagpur region. The average area of each *anchal* is 161 square miles and average population is 72.8 thousands.

Local variations in density present a sharply contrasted picture. Density varies from less than 100 to more than 4000 persons per square mile. One of the most apparent relationships is noticeable between the density of population and measure of relief (fig. 43 inset 1). The ratio

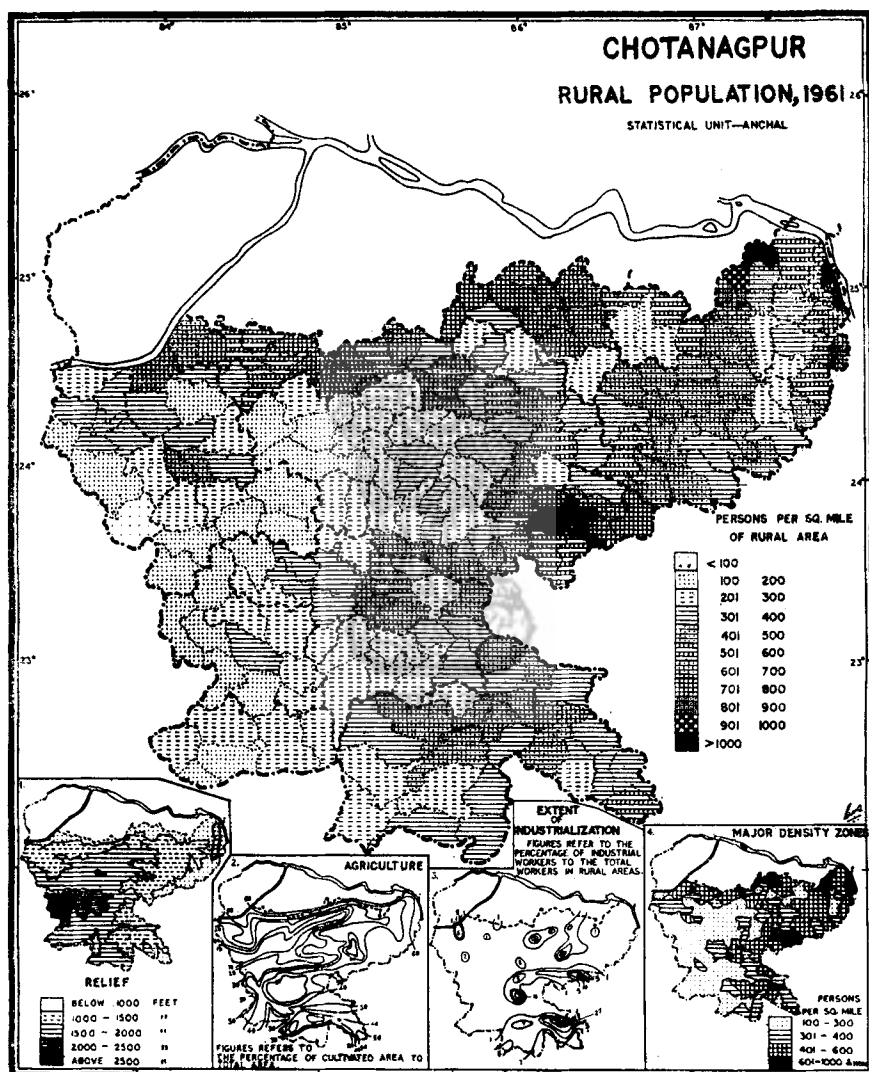


Fig. 43

between relief and density is inverse. Density of population increases as the measure of relief decreases. The *Pat* region which is the area of highest relief, stands out most conspicuously as the area of lowest density. From here, as the land slopes down, density increases. There is

a good deal of agreement between the areal pattern of population distribution and the areal pattern of the distribution of hills and ranges.

Areal Variations

The population in Chotanagpur is so distributed that the Plateau appears to be divided into almost two equal parts, representing the two extreme conditions. (fig. 34) In one of them the density is less than the average, while in the other part, it is higher than the average for Chotanagpur. One is naturally thinly populated, while the other is thickly populated. The thinly populated part comprises the central highlands which form a triangle of sparse population. The two sides of the triangle are formed by the lines drawn from Bhawnathpur in the north-west (on the Sone) to Banka in north-east, and from Banka to Bolba (in Simdega Sub-division) in the south-west. The State boundary in the west serves as the base of this triangle. In this vast triangular area, except for two small patches, the density is everywhere less than 300 persons per square mile. Outside this triangle lie three areas of low density. They are the Rajmahal hilly tract, Parasnath hills and Dhalbhum hills. The areas of high density forms a crescent that girdles this triangle of sparse population from three sides.

Major Density Grades

The density of population in Chotanagpur varies within a very wide range. With some justifications the entire range of variation can be divided into four important density grades, i.e., from (i) less than 300, (ii) 301—400, (iii) 401—600 and (iv) 601—1000 and above (fig. 43 inset/4). Under the first density-grade comes 41.6% of the total rural area and 24.5% of the total rural population of Chotanagpur. The overall density in this area is 214 persons per square mile which is less than the overall density in India. Such areas may, therefore, be called very sparsely populated. The areas falling within 301—400 density-grade account for 20.8% of the regional total and contain 21% of the total rural population. The overall density in such areas is 359 which almost equals the overall density (354) for the region. Land and people are thus evenly balanced. In the density-grade of 401-600 are included 29.4% of area and 37.5% of population. The overall density is 450 persons per square mile. This is more than double the density in the first-grade areas and may be called densely populated. The last density-grade, 601-1000 and above comprises 8.2% of the total rural area and 17% of the total rural population. The overall density is 749 persons per square mile. Thus, every unit of land in this grade contains a population more than double of its proportionate share. These areas may, therefore, be called thickly populated.

Densely Populated Areas

The girdle of high density is almost continuous but it is not uniformly populated. The density varies from 400 to more than 1000 persons per square mile. Besides, small areas of very low density are also included. These variations do not, however, fail to give an impression of high density. Within the girdle there are seven areas of comparatively high density. They are the (i) Northern Fringe zone, (ii) district of Santhal Parganas, (iii) Damodar valley, (iv) Kodarma plateau, (v) Ranchi plateau, (vi) Panch Pargana plain and (vii) Suvarnarekha valley-cum-Chaibasa plain. The Northern Fringe zone comprises parts of the North Koel valley and of Gaya, Monghyr and Bhagalpur districts. The area and population included in this zone are respectively 9% and 15.5% of the regional total. The overall density comes to 620 persons per square mile.

Except for the central hilly tract and two small areas in the southern and western parts, the whole district of Santhal Parganas has a density higher than 400 persons per square mile. The district of Santhal Parganas is one of the two regions, the other being the Damodar valley, where the density in certain parts exceeds more than 1000 persons per square mile. The densely populated parts of the district account for respectively 12% and 17% of the total rural area and population of Chotanagpur. Overall density comes to 508 persons per square mile. Though the district as a whole is densely populated, the Godda-Pakuria line divides it into two density tracts. North of the line, the density is much higher, ranging from 500 to more than 1200 persons per square mile. South of the line the density is uniform, varying between 400 and 500 persons per square mile.

The thickly populated areas of the Damodar valley respectively account for 5% and 10.5% of the total rural area and population of Chotanagpur. The area has an overall density of 720 persons per square mile. The density varies very sharply between upper and lower reaches. In the upper valley the density varies between 400 and 700, but as one crosses the border of Hazaribagh and enters Dhanbad district, the density suddenly rises from 500 to 1100 and, after a few miles, it abruptly changes to 2445 and 4453 persons per square mile in the rural *anchals* of Dhanbad and Jharia. This is perhaps the highest rural density recorded anywhere in India and is higher than the urban density in many parts of the country. The entire population classed as rural by the Census Authority is difficult to be accepted as rural. All the people who are living in thousands of tenements, sheds and temporary structures in the Jharia coalfield have nothing to do with the economy and

life of the countryside. They do not carry on agriculture or any other rural occupation. They live on coal and associated industries. By professions they are non-rural. They are, however, not considered urban for their dwellings are scattered all over the coalfield and do not form a cluster or congregation giving rise to urban complexes governed by municipality. They were, therefore, not considered urban and were put under the former category by the Census Authority.

The eastern part of the Ranchi plateau has a fairly high density ranging from 400 to 700 persons per square mile. With 3% of total area, it contains 4% of the total population of rural Chotanagpur. Within the densely populated areas are included small sparsely populated patches also.

The Panch Pargana plain lying between the eastern scarps of the Ranchi plateau and the Dalma ranges stands out as an isolated patch of high density. It covers an area of 247 square miles. The average density is between 400 and 500 persons per square mile.

A fairly extensive area of high density lies in the Singhbhum district. It comprises the Chaibasa plain and the Suvarnarekha valley. The area and population included represent respectively 3.6% and 4.7% of the regional total. The overall density is 470 persons per square mile.

Outside the crescent of high density (fig. 43) two areas with a fairly high density become quite conspicuous within the triangle of sparse population. They are the Kodarma plateau and the Daltonganj area. An elongated area of 725 square miles extending from Kodarma to Giridih appears as an island in the midst of thinly peopled areas. The overall density in this area is 495 persons per square mile. The Kodarma-Giridih area appears as a connecting strip between the Northern Fringe zone and the lower Damodar valley across the triangle of sparse population.

An area of 348 square miles about Daltonganj with a density between 400 and 500 becomes conspicuous because of its position in the midst of a very thinly populated area.

DISTRIBUTION OF SOCIAL AND ECONOMIC GROUPS

Settlements are not simply the aggregation of individual dwellings, night shelters or retiring places, but are actually the material framework of the way of life of a people. Way of life or economy is an aggregate expression of the hundreds of realities and aspects of life. Two factors, economic activities and social make-up, are above all the factors that give meaning and name to an economy. Human being are,

therefore, liable to groupings or classification. Two of the primary and most significant groups are economic and social. Caste, as has been stated earlier, is a tripple entity—economic, social and political. A distribution map of caste-wise population presents, therefore, the distribution-picture not only of economic and social classes, but also political groups and associations, education and general advancement. Unfortunately, caste-tables have been dropped from the publication scheme of the National Census. The 1961 Census gives information regarding two communities only, the Scheduled Castes and the Scheduled Tribes. A study of the distribution of tribal population (fig. 29 & 31) with distinct culture and economy is of great importance in the understanding of the cultural landscape of Chotanagpur.

The *Pat* region has the highest concentration of tribal population (fig. 29). In this area, the tribes constitute more than 80% of the total rural population. The tribal population from here, falls rather abruptly towards north and gradually towards east and south. The isopleth of 50% population as tribal, encompasses a large contiguous tract consisting of most of the Ranchi plateau, South Koel-Sankh basin, Porahat, Saranda, Kolhan highland and Dhalbhum hills (fig. 29). South of this line, the tribal population is everywhere above 50% of the total. There are small patches in the *Pat* region and Sankh-South Koel basin, where almost 100% population is tribal. The rural scene in this part of the Plateau wears a distinctly tribal complexion. Such a distribution of tribal population divides Chotanagpur, as already stated, into two halves—tribal and non-tribal. The dividing line is, however, not the 50% isopleth but the 10% isopleth. From the 50%-line the tribal population falls rather sharply and within 15 to 20 miles it is reduced to 10% and, a little farther, to almost a negligible quantity. The tribal people appear to have accepted more difficult terrain in comparatively inaccessible areas. In the Santhal Parganas, the central hilly tract appears as a tribal island with more than 50% tribal population. Immediately beyond the hilly environs, the tribal population falls abruptly and is almost missing from the adjoining Ganga Plain. On the other hand, the hilly, rugged and scarped area in the northern part of the Plateau is almost devoid of tribal population. This is perhaps due to a greater degree of accessibility, proximity and contiguity with the Ganga Plain.

The rural economy of Chotanagpur, as previously discussed, is predominantly agricultural. In all, except the two districts, the agricultural working population is more than 80% of the total working population (fig. 37). The two exception are the district of Dhanbad and Bhagalpur with respectively 55% and 77% agricultural working population.

In Dhanbad a large number of people classed as rural, earn their livelihood from mining and various other related industries. In Bhagalpur, smaller agricultural population appears to be related to a better developed household industry.

Factors of Areal Variations in Population Density

The nature and characteristics of physical earth appears to have influenced largely the distribution and arrangement of rural population in Chotanagpur. But to say that "the population density is largely arranged as environmental types"¹, is over-simplification and over-generalization of the facts of population geography. The relationship appears to be stronger and clearer between the distribution of population and "the territorial organization of economy"². The influence of the natural conditions on population distribution and its pattern appears to "manifest itself only through an intermediate link—the distribution and territorial organization of production"³. As the rural population of Chotanagpur is largely agricultural "the distribution of population is directly related to the natural facilities available for cultivation."⁴ The most important single factor as stated earlier, is an aspect of relief i.e. slope which broadly determines the extent and intensity of landuse, agricultural practices, yield per acre and the nature and variety of crops to be raised (fig. 43). The territorial organization of agricultural production is finally shaped by a number of social and cultural factors. Irrigation, use of fertilizer, selection of crops, marketing of products are all related to social and economic attitude of the different groups of people. Hence, the relationship between the extent of cultivation and the distribution of population is more easily recognizable than the relationship between environment and population distribution. This relationship is clearly brought out when the two maps showing the distribution of cultivated areas and the distribution of population are compared. (figs. 14&43) It appears that the density grade of 200 is associated with such areas which have about 30% land under cultivation. The courses of the two isopleths for these two values are more or less identical (figs.14/33). On the whole, the two maps exhibit a good deal of agreement. The deviations in the courses of the isopleths in the two maps are due to local variations in the land-productivity and the degree of diversification of rural economy. The deviations are most noticeable in four areas—the

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1. Ahmad, E., 'Rural Population of Bihar', G.R. vol. L1, No. 2, P 253 & Bihar, Ranchi, 1955, p. 221.
 2. Harris, Chancy D. (Ed.) op. cit., p. 145.
 3. Ibid.
 4. Dayal, P., Bihar in Maps, op. cit., p. 38.

Damodar valley, mica-belt, Ranchi and Jamshedpur areas. In these areas the rural economy is more broadly based and the industries are numerous. The disagreement between the two isopleth maps is easily understandable, if they are compared along with other maps of economic geography, e.g., the map showing the distribution of mines and factories and the map of communication (fig. 21,23,26,27).

In the western part of the Plateau that comprises the North Koel-Kanhar-interfluvium, Upper North Koel-Auranga basin, the *Pat* region and most of the Lower Sankh basin, the density is below 200 persons per square mile. Other areas of the same density are the Auranga-Damodar divide and the western scarped faces of the Hazaribagh-Chatra plateau. These are precisely the areas where the cultivated land is less than 30% of the total area. Besides being hilly and rugged these areas are covered in parts with thick forest and 'forests are largely negative with respect to population'¹ and agriculture. The lowest density, less than 100 persons per square mile, is seen in the south-west corner of Palamau District. Here, cultivation is limited to 13% of the total area which is lowest in Chotanagpur. This lowest density area is succeeded on three sides, north, east and south, by areas having a density between 200 to 300 persons per square mile. The extent of cultivation also increases from 30 to 40 percent of the total area. Adjacent to the 200-density area are three patches where the density rises rather abruptly. They are the North Koel valley, the north-western part of Ranchi plateau and the Daltonganj area. In the first two, the percentage of cultivated area also rises abruptly. In the Daltonganj area, the abrupt rise appears related to the growth of shellac manufacturing, timber, catechu and a few other small-scale industries in Daltonganj and its surroundings. A density between 300 and 400 persons per square mile is found in widely scattered areas. In all such areas the extent of cultivation varies between 40 to 60 percent of the total area. There are three notable exceptions to this generalization. They are the south-western part of Ranchi plateau, the Dalma ranges and the Saranda-Kolhan area of Singhbhum. In this part of the Ranchi plateau, the cultivated area is more than 60% of the total, but the density falls below 300 persons per square mile. There appears to be two explanations of this phenomenon. This part of the Plateau is one of the most inaccessible tracts of Chotanagpur. The agricultural production is considerably low. Owing to the extensive deforestation of the plateau, cultivation has been extended to all possible land irrespective of its productivity. This is supported by the fact that *tanr* acreage is much higher than *don* acreage. Extensive areas remain fallow. The poverty of land

1. Ahmad, E., Bihar, op. cit., p. 256.

and predominance of *tanr* have made this area primarily a Bhadaï region with *surguja*, *gondli* and *marua* as the most important crops after rice (figs.17,18,19). *Surguja* is an oil-seed of very low quality. *Gondli* and *marua* are the poorest varieties of millets. The yield and food-value of these millets are the lowest. This area, in spite of a higher percentage of land under plough is, therefore, not capable of supporting a large population. In two areas of Singhbhum District percentage of land under plough is low, but the density of population is high. The area beneath the Ranchi plateau, particularly east of Saraikela, is capable of supporting a larger population than its agricultural capability can permit. This is mainly due to a high degree of industrialization and excellent network of railways and roads. The north-western part of Singhbhum, though hilly and forested, with lesser amount of cultivated land, has extensive mining industry. Besides, it is an important silk-rearing area. It supports, therefore, a larger population than non-mining forested, hilly areas of Saranda and Dalbhum.

All the areas having a density higher than 400 persons per square mile might be put under two economic categories — (a) agricultural and (b) agro-industrial. The rural economy in the Northern Fringe zone and the Santhal Parganas is purely agricultural. Except a small area on the Sone side, factories are completely non-existent in the entire Northern Fringe. In the Santhal Parganas also no other factories except a few rice and flour mills are found. The higher density of population in this part appears mainly due to intensive cultivation and higher productivity of land. A higher agricultural production has been possible by the inclusion of extensive alluvial tracts in the broader river valleys. In these river valleys agricultural conditions are the same as in the southern Ganga Plain. Besides, to this part of Chotanagpur, the agricultural practices, particularly the *ahar* and *pyne* system of the south Ganga Plain of Bihar, have been extended to the fullest extent. Consequently, the crops and their associations are the same as in the rest of the district of Gaya. Unlike the hilly parts of Chotanagpur this is a three-harvest area. All these factors have made the area capable of supporting a larger population. These agricultural conditions are better pronounced in three small areas which have a much higher density (700-800) than the rest of the Fringe zone. These patches are the alluvial plains of such important streams as the Punpun, Phalgu and Sakari.

As has been stated earlier, west of the Godda-Dumka line the density is uniform with 400-500 persons per square mile. The only exception is the dissected interfluvial area between the Ajay and the Mor rivers where the density is less. The western half of the district

is one of the few highly developed agricultural tracts of Chotanagpur. The surface, eroded to a much lower level, has permitted the formation of thicker soil covers. Subdued relief has facilitated the extension of agriculture to a much larger area. Between 40 and 60 percent of land is cultivated. Rainfall is also higher than in the adjacent Kodarma plateau. Agriculture in this part is therefore, on a much sounder footing and is capable of supporting a larger population. North of the Godda-Dumka line, the low density area of Rajmahal is surrounded by the alluvial strip where the agricultural conditions are the same as in the adjoining Ganga Plain. As one moves away from the Rajmahal axis the density as well as the extent of cultivation increases. Within the alluvial strip the density, therefore, varies from 500 to 1000 persons per square mile.

Higher density in the Kodarma-Giridih belt is obviously due to the concentration of mica-mining and mica-splitting industry in this area. This is important to note that except Jhumri-Tilaiya and Giridih all other centres of mica splitting are rural.

Though agriculture is as important in the Damodar valley as in any other part of Chotanagpur, the higher density of population is obviously due to the extensive coal-mining and other coalfield industries. Mines are, as explained earlier, mostly rural in location. The people engaged in mining, therefore, swell the rural population. The highest degree of urbanization in the coalfield has changed the organization of agricultural production for the better. Large areas, obviously withdrawn from customary crops, have been given to vegetable farming. This means not only a changed but also greater demand on land resources. Consequently, a better utilization of land resources employing thereby a larger number of people, is seen in the Damodar valley. This has resulted in a higher density of agricultural population in the district of Dhanbad than in any other district except Gaya. Thus, in the Damodar valley, even agriculture is supporting a larger population than in other areas of similar agricultural facilities.

A higher density of population in the eastern than in the western part of the Ranchi plateau is again due to a higher degree of urbanization and industrialization of the area. A higher degree of urbanization results in urban spill-over of economic activities to the rural areas. Thus, provided with better opportunities, rural population grows along with urban population. Besides, this area is better served by roads and railways.

In the Panch Pargana plain, a higher density of population is mainly due to better agricultural conditions. Shellac manufacturing carried-on on a comparatively large scale appears to be a contributory factor.

In the Chaibasa plain and the Suvarnarekha valley, agricultural conditions are almost the same as in the western part of the Santhal Parganas. Consequently, the same order of density prevails over here. Besides, the urban and industrial influence of Jamshedpur, extensive mining of metallic ore and a thick network of communication lines have also added to the rural population of this region. The Suvarnarekha valley is one of the earliest settled tracts of Chotanagpur. Because of being contiguous with the densely populated plains of Bengal and Orissa it has always been receiving immigrants from the latter. The rural economy is non-tribal, better organized and capable of supporting a larger population.

RECENT MIGRATION

Historic and pre-historic migrations of peoples in relation to Chotanagpur have been examined earlier. With the entry of the Asurs, Mundas, Oraons, Cheros, Rathors and other people of Indo-Aryan descent, Chotanagpur was largely occupied and settled. But large areas inbetween the settled tracts continued to be unoccupied and unsettled. The proportion of such areas dwindled gradually in the past and rapidly in recent times. It was these areas which functioning as population-vacuum and pioneer's fringe encouraged intra- and extra-regional migrations. These migrations have been slow but steady and helped push the frontiers of human occupance to extreme mountainous and *jungle* tracts. These slow, imperceptible movements of people might have come to a practical halt had there been not opened new opportunities by the exploitation of mineral and industrial resources which started in the mid-nineteenth century and are still going-on on an accelerated speed.

Geographical basis of migration

In order to appreciate the pattern of migration in Chotanagpur, a review of the geographical background of migration is not only desirable but also essential. Distribution of population, though related to a number of physical and cultural factors, exhibit in general, the pattern of productivity of land. When the productivity of land fails to meet the requirement of an increase in population, the land becomes over-populated. Over-population results in complex phenomena of population-dynamics. As population increases, new contacts with soil are established. In addition, number and kind of contacts between man and man also multiply.

All these result in a three-dimensional increase in productivity—productivity increasing along the horizontal plane as a result of new contacts with the soil and along the vertical plane as a result of increased contacts among the people. Even then, after a certain limit, the productivity of land begins to fail in meeting the requirements of the growing population and emigration becomes inevitable. Population may, therefore, be said to be resting on a tilted plane of economy. The tilt, in fact, is the ratio between the wants of population and the means of fulfilment, i. e., the productivity of land. Slope of economic plane may be steepened due to internal or external causes. The internal causes may be such as the deterioration in the productivity of land due to some natural or cultural causes or increase in population itself. Among the external causes the increase in the productivity of some neighbouring land is of great importance. Thus in either case emigration takes place to re-adjust the balance of population dynamics.¹

The economy and its regional pattern in Bihar have changed much in recent times and are bound to change further with the march of industrialization. The scope of industries in the Gangetic Bihar is largely limited to fabrication and agriculture-based industries. Chotanagpur, on the other hand, has immense potentialities for basic and heavy industries of which only a fraction has been exploited so far. The entire economic plane of Bihar will, therefore, continue to be tilted towards Chotanagpur to effect a steady and huge outflux of population from the Gangetic Bihar. The migration of population, both occupational and spatial is effected everywhere, but the volume and velocity of migratory currents are controlled by the relative density of population and the available accommodation in the local economic build-up. Consequently the resulting tilt in the economic plane makes fewer people move from a sparsely populated area. On the other hand, much voluminous emigratory currents originate from densely populated areas. The outflow of population from the Gangetic Bihar increases also because of the existence of a number of socio-economic strata. The more advanced and complex the economy, the more numerous are the socio-economic strata. In such an economy, when the economic balance of population-dynamics is disturbed, each economic stratum of the society is likely to shed off some of its people, with the result that the total shed-off becomes larger than the total from a fewer strata society. A higher standard of living and advanced culture also steepen the slope of the plane of population-repose in the Gangetic Bihar. Chotanagpur has a simpler socio-economic

1. Prasad, A., 'Population Distribution and Dynamics of Labour Supply in Bihar', G.O., vol. I, No. 2, 1956, p. 31.

structure. The number and intensity of social contacts and economic coercions, owing to sparse and scattered population, are less and, as such, emigrating tendencies are few, feeble and of intra-regional nature.¹

Economic basis

The nature of migration may be viewed from a different angle too. The attraction of the growing industries in Chotanagpur is urban in nature. 'The urban centres are a kind of colony which the rural people re-populate each year. The movement from rural areas to urban centres is mostly of selective nature, for the town attracts the extremes, while the country retains the means.'² The migration from rural to urban centre is selective in terms of age and sex also. People migrate to the city mostly during early adulthood. Again, males out-number the females, the males being about twice the female migrants in Chotanagpur. This obviously suggests that migration for a large number of people is a temporary phase and after a certain period, they go back to their native places. The 'backwash' gives a sort of permanency to the migrating currents. The 'outwashed' people from urban and industrial centres go home with many interesting tales of urban life to tell. Besides, these town-returned people, because of better clothing and improved speech, get a sort of distinction among the rural folks. All these offer incentive to the young rural folk to emigrate. Education, particularly higher education, functions as a preparatory training for the final migration to towns. The educated persons are followed by a number of unskilled people who take up the job of peons, cooks and domestic servants. This group of people mostly belong to the landless-agricultural-labour class. They are most untied with soil and given a chance, easily migrate to towns. The number of such agricultural labourers is by far greater in the Gangetic Bihar than in Chotanagpur. All these factors tend to make the Gangetic Bihar a full hive sending off swarms of migratory people to Chotanagpur.

Chotanagpur is like a large receptacle of immigratory currents but, emigration from Chotanagpur is not entirely missing. The number of people emigrating from Chotanagpur in 1951 was more than 35% of the total number of immigrants to the region. No region, whatsoever the state of economy, can be absolutely either immigrating or emigrating area. Even from an area like the district of Dhanbad which has a fast developing economy, a sizable number of people emigrate. With the introduction and organization of new means of production the economic balance is

1. Prasad, A., op. cit., pp. 31-35.

2. Smith, T., Inno, *The Sociology of Rural Life*, New York, 1947, pp. 25-27.

disturbed and a large number of people are shaken off from their old moorings. With the expansion of mining and industries, many people lose their jobs and in such changing conditions life becomes hard. It is not easy to take up new opportunities, for, in many cases, the problem of economic adjustment is the problem of occupational migration. For many people, change of occupation is more difficult than the change of place. The result becomes emigration even from a fast developing area. Most of the emigrating people from Chotanagpur belong to the poor agricultural labour-class who are much in demand in the neighbouring agricultural districts. A large number of agricultural labourers migrate to the neighbouring districts of Gaya, Monghyr and Bhagalpur, particularly during the harvesting seasons.

From the population map of Bihar, it appears that the centre of highest density which coincides with the epicentre of emigratory waves, lies within a circle that passes through the three points of the towns of Patna, Chapara and Muzaffarpur (fig. 1&43). The outer circle of highest density encompasses the districts of Patna, Saran, Muzaffarpur and Darbhanga and parts of Champaran, Monghyr and Shahabad districts. The main currents of migration, therefore, pass through Patna and Gaya along the Grand Chord Line and enter the labour-thirsty industrial belts of Bihar and Bengal.¹

Within Chotanagpur itself, regional variations in the economic pattern attain great significance. The line joining Sherghati in Gaya with Manoharpur in Singhbhum via Chatra is the most important economic divide in Chotanagpur. West of this line the entire area is suffering from a primitive stagnant agricultural economy. Though the area has a very sparse population, it is one of the poorest tracts in India and has little to offer to the growing population. East of the line are concentrated large-scale mining and industrial installations which are expanding every year. Consequently, there is a continuous and permanent flow of population from west to east. Another economic divide runs along the Kiul-Asansol line and separates the agricultural Santhal Parganas from the industrial districts of Chotanagpur. Unlike the western agricultural tract, this region has a higher density of population. The volume of emigration is, therefore, large from the Santhal Parganas than from any other districts of the Plateau, except Hazaribagh. Within the industrial part also, there are agricultural pockets of varying size and density (of population), which send off surplus people to the industrial centres within and outside the districts. These account for secondary, short-distance migration.

1. Prasad, A., op. cit., p. 34.

Extra-regional factors

The continuity of Chotanagpur with the Uttar Pradesh and Madhya Pradesh in the west, Bengal in the east and Orissa in the south (fig.1) is another geographical fact of significance in the inter-State migration. Contiguity with these States has produced economic, social, cultural, linguistic and ethnic affinities in the border areas. These affinities work in many ways to effect migration. One form of resulting migration is matrimonial. Another is seasonal and temporary migration of agricultural labourers. A third form of short-lived migration results from the fact that the border people have least regard for the political boundaries which they cross very often to go to *hats*, markets, fairs, educational institutions, health centres and religious places. A large number of people, thus, become daily commuters in the bordering areas.

'Between the U. P. and Bihar no physical barrier of any importance exists. The various trunk roads and railways that cross the two States further reduce the significance of political boundaries. The people on either side speak the same language and practise the same economy'¹. These factors have produced a steady inter-State movement of people. Some of these migrants travel a longer distance and enter Chotanagpur through Palamau and Gaya.

Chotanagpur shares a larger boundary with the Madhya Pradesh than with the U. P., but the movement of people between the M. P. and Chotanagpur is slow and scanty. The western slope of the *pat* region acts as a formidable physical barrier between the two regions. Absence of roads and railways, excepts in the extreme south, renders major part of the boundary a real line of separation. The economy on either side is extremely poor and backward. The *Adivasi* settlers, because of their insular nature and primitive way of life, seldom have any incentive to cross the border. Situation is different in the southern section. Here, the Howrah-Nagpur railway functions as a line of movement and migration has become a regular feature.

From the point of view of migration the boundary between Orissa and Chotanagpur is a live one. It is a line of meeting rather than a line of separation. Besides being contiguous, the terrain is similar on either side. Some of the important rivers with broad valleys like those of the Suvarnakha, South Koel and Sankh, open the Ranchi plateau and Singhbhum to Orissa. The southern scarp of the Ranchi plateau cuts off Singhbhum from Ranchi and attaches it to Orissa. In other words, the scarp practically shuts up the Ranchi plateau from Singhbhum and

1. Ahmad, E., Bihar, op. cit., pp. 284-285 and 288-289.

Orissa. Singhbhum and adjacent parts of Orissa were being ruled by such families which have had numerous matrimonial relations with the ruling families of Orissa.

All along its eastern border Chotanagpur communicates with Bengal directly and thoroughly. The descent from the Plateau to the plains of Bengal is gradual and easily walkable. A large number of rivers with broad valleys and gentle slopes enter Bengal where they fan out to meet the Ganga. The broad fertile valleys of these rivers appear as arms of Bengali colonization penetrating deep into the Plateau. The eastern section of the 1000' - surface is so much under the cultural, linguistic and ethnic influences of Bengal that it may be called the hillward extension of Bengal. Absence of strong political power and superior culture in the historic period made this region more susceptible to Bengali colonization. Moreover, the political authority of Bengal was frequently extended over to the eastern portion of Chotanagpur. During the British period Chotanagpur along with other parts of Bihar was reduced to the status of an appendage to Bengal. It is in this period that a large number of Bengalis settled down in Chotanagpur and established Bengali colonies even in the interior of the countryside.

Nature of migration

In 1951, Census,¹ 2,36,436 persons born in Chotanagpur were enumerated outside the region. In the same year out of the total number of persons enumerated in Chotanagpur, 6,72,751 persons were born outside the region. This means that immigration to Chotanagpur far exceeded the emigration from the region. The district-wise break-up of statistics makes some interesting revelation. To all the districts immigration is larger than emigration from them. In three out of the six districts,² the departure between the two is extremely narrow. The districts of Santhal Parganas actually represents that critical state of migration where the two processes are evenly balanced. In the districts of Dhanbad, Singhbhum and Hazaribagh, the departure between the two processes is very wide. This is widest in Dhanbad where the immigrants are six times the total number of emigrants from the district. Dhanbad alone accounts for 32.5% of the total immigrants in this region. Immigration to Singhbhum is equally large (28.7%), but what makes Singhbhum unique in the migration map is the fact that emigration from the districts is negligible, representing less than 1% of the total emigrants from the region.

1. The Migration Statistics of 1961 are yet to be published.

2. Migration figures are available on district basis only. It is, therefore, not possible to examine migration in parts of the districts included in the region.

The figures for emigration from the region do not represent the real loss of population, for most of them refer to short-distance, inter-districts migration. Of the total number of persons emigrating from the six districts of Chotanagpur, 66% remained within the region. Only 34% of the emigrating people could actually cross the regional boundary and moved to such destinations as the Hooglyside conurbation, Calcutta docks and Assam tea gardens. Only from two districts of Santhal Parganas and Palamau more than 50% of the emigrating people could move out of the region. From the remaining four districts more than 80% were retained within the region. Thus the actual emigration from Chotanagpur is much less than what it appears from the statistics. On the other hand, out of the total immigrants only 23% were of intra-regional origin and 77% came from outside. These facts lead to the conclusion that Chotanagpur is largely an immigrating region. Immigrants are largely of extra-regional origin. Emigration is largely intra-regional representing an aspect of intra-regional dynamics of population.

Separate figures for rural and urban migrations are not available. Direct observations suggest that emigration is largely from rural areas, while immigration is almost exclusively to the urban, industrial and mining areas. This is supported also by the fact that only 2.7% of the total migrants from Pakistan practise agriculture and are probably settled in the rural areas. Emigration, however small, is of great significance in the rural demography. The significance is further enhanced by the fact that immigration to rural areas is practically nil and, therefore, the effect of emigration has no counter-effects. Though emigration causes depopulation and creates void in the distributional pattern of population, in family and community, it has some salutary effects on the rural scene. It reduces the pressure of population on soil, releases space and creates extra accommodation in the existing houses. Emigrants remit part of their income to their rural home. This goes to improve the rural economy and bring prosperity in the emigrants' family. The prosperity manifests itself through the purchase of land, construction of new and better houses and better schooling to the children. All these ultimately find expressions in the rural settlements. Emigration has some negative effects too. The fact that emigration retards population growth and creates accommodation within the existing four-walls, it acts as a limiting and restricting factor against the expansion of settlements.

Characteristics of immigrants

The total immigrants into the six districts of Chotanagpur in 1951 were 6,72,751. This accounts for 6.2% of the total population of the districts. These immigrants may be grouped under four classes— (i)

immigrants from adjacent territories which are contiguous with Chotanagpur; (ii) from other parts of India; (iii) from foreign lands and (iv) inter-district migrants. 61.9% of the total immigrants are from States and territories which are contiguous with Chotanagpur. Such territories are West Bengal, Orissa, M.P., U.P. and Gangetic Bihar. From the Gangetic Bihar alone the immigrants accounted for 30.5% of the total, while 31% came from the four neighbouring States. Bengalis constituting 10.7% of the total lead immigrants from all other States. Immigrants from the U.P., M.P. and Orissa respectively account for 9.3, 5.9 and 5.5 percent of the total. Six percent of the immigrants came from other parts of India. Foreigners in Chotanagpur were 9.1% of the total immigrants, about half of which came from Pakistan. All these immigrants put together account for 77% of the total. The remaining 23% are represented by the inter-district migrants. Thus, out of the total number of persons born outside the district of enumeration, 53.5% were born in Bihar. The real immigrants who came from outside the State account for 46.5% only.

Gaya with 10.2% leads all the other districts of Bihar in sending immigrants to Chotanagpur. Other districts in order of importance are Bhagalpur (8.2%), Shahabad (3%), Patna (2.5%), Monghyr (2.2%) and Saran (1.6%). Immigrants from the remaining districts of the Plain represent less than 1% of the total. The intra-regional migrants of Chotanagpur number 1,56,150 which account for 23% of the total immigrants from the districts of Chotanagpur. The number of intra-regional emigrants from all the districts, except, Dhanbad and Singhbhum, is much larger than the number of intra-regional immigrants to the districts. It means that the four districts of Ranchi, Palamau, Hazaribagh and Santhal Parganas constituted an emigrating zone for the immigrating areas of Dhanbad and Singhbhum. The inter-district migration takes place largely between adjacent districts. A good many of them are daily commuters and periodical visitors. The migration for most of them is, therefore, a temporary affair.

The distribution of various groups of immigrants reflects, besides the pattern of movement, the nature of professional training and skill, social affinities, mental attitude and general background of life and work. All over the State of Bihar, the Bengali immigrants are generally the town-dwellers, but in Chotanagpur quite a large number of them are settled in villages. The largest concentrations of Bengalis are found in the eastern part of the Plateau where the Bengali way of life and culture are richly expressed in the rural scene. Bengalis' aversion to the acceptance of the others way of life makes them conspicuous as undiluted

substance in the rural masses. On the other hand, immigrants from the U.P. that constitute the second largest group of outsiders, are almost inconspicuous, for they easily mix up with the non-tribal Bihari population. The U.P. people are mostly town-dwellers and only in the district of Palamau and adjoining parts of Hazaribagh, they are found in villages also.

More than 82% of Oriya immigrants are concentrated in Singhbhum. Most of the remaining 18% are in the south-western part of Ranchi District and in the Damodar valley. In the bordering areas of Chotanagpur and Orissa, matrimonial migration is fairly large. Owing to the extension of Tata's mining into Orissa, a large number of them are frequent visitors and daily travellers. Like the Oriyas, the migrants from the M.P. are largely concentrated in Singhbhum and South-western part of Ranchi District. Outside the Singhbhum-Ranchi belt the largest concentration of the M.P. migrants is in Hazaribagh District.

Among the non-adjacent States, only four, Madras, Punjab, Rajasthan and Bombay, have some significant representations in Chotanagpur. The immigrants from these States account for 6.4% of the total immigrant population. Among these the Madrasis constitute the largest group. The Punjabis and the Rajasthanis constitute respectively 2.3 and 1 percent of the total immigrant-population. Immigrants from Bombay are less than one percent. Punjabis and Rajasthanis are widely scattered and are found in towns of all denominations. Madrasis and Bombay people are concentrated only in industrial areas and big towns.

An analysis of the district-wise figures of migration shows that three districts, Hazaribagh, Dhanbad and Singhbhum, are the destination for most of the migrants. Dhanbad is the largest recipient of immigrants from all the districts of Gangetic Bihar, except Champaran, Monghyr and Purnea. The largest bulk of immigrants from Champaran and Monghyr is received by Hazaribagh and from Purnea by the Santhal Parganas. It is natural for the migrants to enter in largest number from Monghyr into Hazaribagh and from Purnea into the Santhal Parganas, for they are contiguous (fig. 1). There does not, however, appear any simple explanation for why the largest number of people migrated from Champaran enter Hazaribagh, except that Hazaribagh with immense scope of employment, comes first in their way.

CULTURAL MILIEU

CONCEPT AND APPROACH

Cultural landscape is the humanized aspect of natural earth. It is a human surface, a cultural surface that results from man's living upon and using a portion of the earth. It is an aggregate expression of the cultural impress on the land; an aspect of a culture which is written upon the earth surface and is very much a part of it. Cultural landscape may be regarded as the material surface of a culture, its countenance and appearance. It is that form of a culture which is external, material and observable. A culture is the product of man's society and environment. A cultural landscape may, therefore, be viewed as the concretization of the relationship between man and his environment. This relationship might have been simple and straight in the earliest periods of human history and is still believed to be so in isolated primitive society. In modern society with advanced science and technology, this relationship has become exceedingly complex. This relationship is more than either influence, adjustment or adaptation to environment.

Historical development of human activities in any particular place and the world over has led to profound modifications in human equipments and in human motives. These in turn have changed many of the facts of human geography in course of history¹. Environment is thus neither static nor absolute. It changes, evolves and is influenced and modified by factors lying outside the territorial perimeter of a particular environment. Further, the same environment means different things to different peoples in different periods. The understanding of a particular environment and its significance to man is always in relation to a specific point of time and a particular group of human beings. The environment in which man lives, which he makes use of, by which he is influenced, to which he adjusts, adapts or reacts is such a complex assemblage of highly inter-related and integrated facts of man's own life and his earth that it is almost impossible to segregate and analyse them separately and isolate their roles in the influences upon man's life and his

1. Forde, C. Daryll, 'Values in Human Geography', *Geog. T.*, vol. XIII, No. 73, p. 218.

doings. These facts are as much human, social or cultural as natural. Man's environment is, therefore, neither absolutely natural nor wholly artificial. It is a grand combination and a queer mixture of the two. It is an expression in totality — a totality of everything that is natural, physical and artificial or cultural in man's life and his activities. The recognition of the double aspects of environment is easy, but it is difficult and perplexing to say how much of this environment is physical, nature's gift or nature's mandate and how much of it is the creation of man and his society. Equally difficult is to judge and evaluate the relative and absolute roles of various elements of physical and non-physical environments. There is, however, no dispute today as regards the double make-up of man's environment, that man's environment consists of two groups of elements — one essentially natural and the other essentially man-made. The two groups of environmental elements are summarised as natural environment and cultural environment. "Thus inter-wrought with natural forces are the human and social factors, ever more powerful since the dawn of history."¹ In modern society of advanced technology, particularly in large metropolises, cultural rather than physical environment appears to dominate the economy of the people, social behaviours and individual habits and man's emotions and aspirations. In modern metropolitan society the problem of adjustment is not so much with physical environment as with social environment. The total environment of today, complex as it is, becomes more so because it changes and, also, because man exchanges one environment for another. "By our social memory we carry the old environments into the new and thus, we 'compound' environments and this ends in making environment coextensive with the world"² and co-variant with time, place and people

The quality and variety of cultural landscape, its type and pattern largely depend upon man's own characteristic. Out of infinite ways of life it is he who has to select one for him, and out of infinite uses of earth and its resources, it is again he who has to decide and select the most suited to his economic well-being and social requirements. Every such choice and selection depends upon mental and material equipments of man and the stage of his culture. The struggle for economic well-being in any circumstances is "shaped by three main factors: the opportunities which the environment furnishes, the characteristics of people themselves and the stage of culture at which they are living. The three factors may be summarised as geographical, 'racial' and historical. Every important

1. Bringham, A.P., 'Problems of Geographic Influence', A.A.G. vol. 5, 1915, p. 3.

2. Bringham, A. P., loc. cit., p. 8.

human achievement has been a matter of time and people as well as of place".¹

In previous chapters various facts of physical geography which have direct and indirect relationship with cultural landscape, have been examined. Facts of cultural geography, e. g., history, economy and population have been discussed in detail. Besides there are certain aspects of cultural geography, the non-material aspects of culture, social organization and institutions which deserve to be examined to complete the picture of the cultural environment of Chotanagpur. In addition to the economic way of life and the density and distribution of population, such aspects of people as education, religion, customs and manners, diet, clothing and living habits, prejudices and inhibitions, intra- and extra-regional and cross-cultural relationships find laudable expressions in the cultural landscape of a region.

CULTURAL LOCATION OF CHOTANAGPUR

Physical geography and courses of history appear to have rendered Chotanagpur a cultural island. It is a wedge of tribal culture extending from the tribal core located in Central India and penetrating deep into the area of intensive Aryan culture. Chotanagpur, as stated earlier, thus constitutes the eastern section of the central hilly tract of India which, since the dawn of history, has been acting as inner frontier — a frontier between North and South, between Aryan culture and Dravidian culture. It has been always looked to as a shelter, an asylum by the less fortunate people who have been obliged to move out from their earlier homes located in the Plains of the Ganga and the coastal lowlands of the South. This central hilly tract, thus, became a tribal haven, a real habitat of primitive culture and society. Difficult terrain, higher relief, dense forest, wild beasts and notoriety of tribal ways of life continued to discourage the inflow of non-tribal people and culture till the territory was opened up by modern roads and railways. Even when the Ganga Plain in the north and east and coastal plains in the south-east became the strongholds of Aryan culture and power and civilization reached a high level, Chotanagpur could persist to remain an area of primitive culture.

CULTURAL DRIFT : courses and processes of acculturation

Throughout the historical periods it could, however, continue to receive a scanty overflow of people and culture from the Plains. Pioneers and adventurers, social and economic rejects, politically or otherwise

1. Whitbeck, R.H., 'Adjustment to Environment in South America : An Interplay of influence', A.A.A.G., vol. XVI, March, 1926, No. 1, p. 4.

banished people continued to enter this territory at all times and settled their colonies at points of convenience and natural favour. The processes of Aryan colonization and occupation of land in Chotanagpur have differed in different parts of the Plateau (fig.46). In the northern half and the eastern marginal areas of the Plateau, it has been a transitory process, involving the upward movement of the entire society and its cultural pattern. In the southern half, particularly in the Ranchi plateau and further south, the process has been different. Movement in and colonization of this

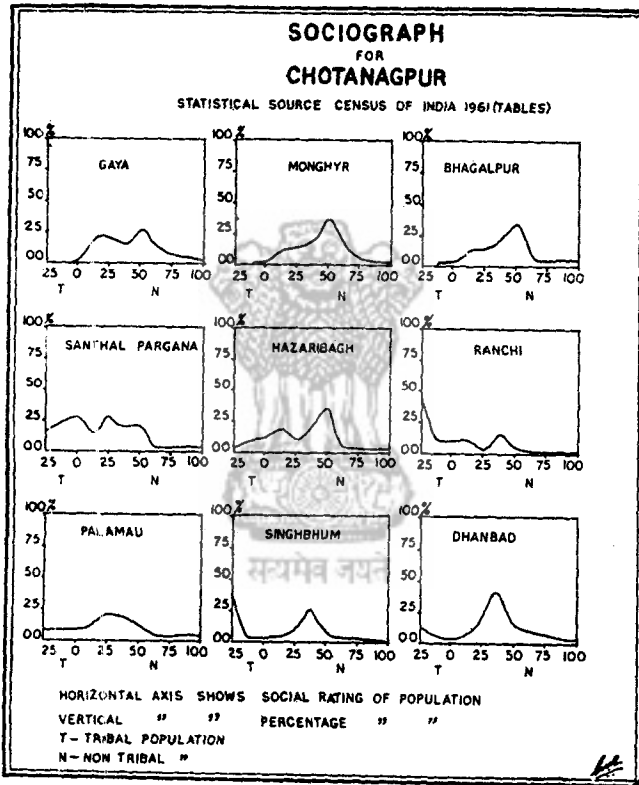


Fig. 44

part of the Plateau have been stray, fitful and linear along established routes or river valleys. Never a complete society or a complete segment of the Hindu society was uprooted from the Plain and settled in Chotanagpur. Such a process of migration led to an assortment of people and cultural elements that entered Chotanagpur. Of the hundreds of castes, precisely arranged in the social scale and occupying specific positions in the elaborate hierarchy of the Hindu society of the Ganga Plain, only a few are represented in Chotanagpur. Even these few are exceedingly small in number as compared to their counterparts in the Plain.

An economic analysis of the various Hindu castes found in Chotanagpur reveals that they broadly fall into three categories : martial communities, functional castes and promoters of economic exploitation of resources, trades and commerce. In the plain, the greatest bulk of the population is constituted by a large number of such castes which occupy middle position in the social scale (figs. 44 & 45). The second largest bulk of population is constituted by Scheduled Castes—the service classes. The middle classes of the Plain have a very poor representation in the Plateau. The social position of the few middle castes found in

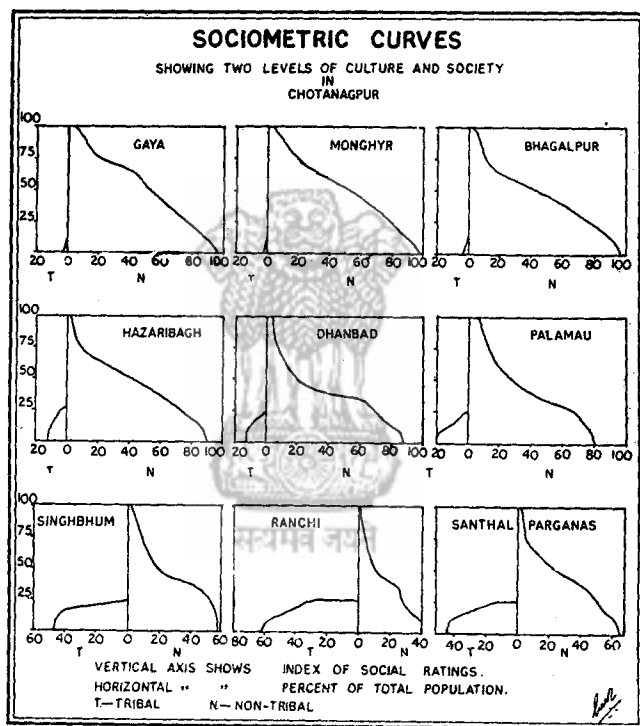


Fig. 45

Chotanagpur is controversial. They are often rated low by the Plains-people. Most of the Scheduled Castes of the Plain are unrepresented in Chotanagpur. Among the higher castes all, except one, are found almost evenly distributed in the Plateau, though their number is small and constitute less than five percent of the total population of Chotanagpur. Most striking difference in the social complex of Chotanagpur is brought out by the large tribal population. Tribal population, particularly tribal culture is almost missing in the Plain. These facts of social morphology are clearly exhibited by two sets of diagrams, the sociometric curves and the sociographs drawn (figs. 44 & 45) for each district of Chota-

nagpur. These graphs make it quite clear that there are two societies and two cultures, living side by side in Chotanagpur. One is the primitive culture of the aborigines and the other is the advanced culture of the immigrants. Though living in juxtaposition, the two cultures maintain two distinct levels allowing a big gap inbetween. Immigrants' culture is of Aryan origin that transplanted itself from the Plain to the Plateau. The tribal culture is largely a product of the local conditions and is highly adapted to the environment.

The Hindu migrants, owing to the assortment of cultural elements and scanty and scattered colonization, could not produce an all-embracing dominant Hindu society and culture. Except in the northern part, the people of the Aryan descent continue to live in minority and in many areas of tribal concentration, their proportion is insignificant. Bulk of these migrants constitutes such functional castes as weavers, oilmen, blacksmiths, carpenters, potters, barbers and the like. In the Plain, even today, these castes occupy a low position in the social hierarchy. They are poor and backward. They have an impoverished culture and weak tradition. Their customs, manners and rituals are inexpensive and improvised copies of those observed in higher and well-to-do sections of Hindu society. The culture that they carried to Chotanagpur was, therefore, a poor, incomplete, rough and truncated version of the glorious Hindu culture that flourished in the Plain. As stated earlier, a complete segment of Hindu society never entered the Plateau at a given point of time. In fact, the Hindu migrants consisted of fragments or isolated individuals of a highly sophisticated society. They, therefore, could never have the perfection and fullness of the society that they left behind. As the migration was mostly in the forms of individual enterprise, a migrant group did never consist of all the social classes, functional castes, craftsmen and specialists which are essential components of every village-community in the Plain. After entering the new environment, the migrants might have been forced to do all the jobs which were done by specialists and skilled workers in their old society. They were to forge their implements and build their houses. As an alternative, they might have been obliged to acquire tools from the aborigines and take their help in building their houses and economy. This led to a sort of adjustment to new environment. The adjustment appears to have made their life easy and satisfied, but militated against innovations and renovations in their material culture. The migrants' culture, thus, could not enrich itself by acquiring materials from the local environment. It appears to have lost its dynamism and become inert and static. In fact, under the influence of the tribal culture, their own culture appears to have degenerated. Consequently, the migrants could not improve upon their

industrial technique and material equipment. They could not, by making full use of the available resources, develop a plateau version of Aryan culture as it happened in Maharashtra, Bundelkhand, Rajasthan and other areas of subsequent Aryan colonization. It appears that "once an adaptation to environment is made through the medium of a particular technology, the manner of thought embedded in the culture of these societies may actually militate against the inventive process."¹ In spite of abundant mineral resources, excellent building stones like the Gondwana slate and sandstone, Dharwarian slate and phyllite and Archaean gneiss and granite, the Chotanagpur people could not think of and perfect a technique to make stone-walled houses. The Chotanagpur rulers could not build forts and lay down hill-top fortifications as one finds in Central India, Rajasthan, Maharashtra, Andhra and Mysore, even though the region during Mughal periods and after was opened to invasions and raids. The so-called palaces of the Chotanagpur Maharaja is a poor match for the houses of big zamindars in the Ganga Plain. On the other hand, the Chero rulers of Palamau, though designated as tribal and considered inferior to the Nagbansi rulers, could build massive stone-walled forts which have no parallel in any part of Chotanagpur.

With such a static and inert culture the landscape that evolved and the settlement that grew up suffered from the lack of variety, architectural beauty and richness. The villages and houses in Chotanagpur can compare only with those of the poor and lower section of the society in the southern Ganga Plain of Bihar. Poor education and weak religious tradition have also affected the landscape. Religious elements are profusely represented in the cultural landscape of the Plain. Religious places, sacrificial altars, temples and mosques occupy positions of pride, and in every village, they are the best and the richest features of the landscape. In Chotanagpur, religious places and institutions are few. Most of the villages are without a temple. Most of the places of religious celebrations are just natural features—a hill-top, a rocky eminence, a mound or a tree. The few temples that are found, are small and poor in material contents and architectural beauty. All these rendered the cultural landscape of Chotanagpur poor and inabundant.

ARYANIZATION OF THE PLATEAU

Process of Aryanization as discussed in previous chapters, started very late and could not complete a full course. The process received a fillip by the Nagbansi rulers in Ranchi and by the Rathore settlers in

1. Spoehr, Alexander, 'Cultural Difference in the Interpretation of Natural Resources' (in *Man's Role in Changing the Face of the Earth*), Chicago, 1962, p. 95.

Singhbhum District. The Nagbansis whose Aryan descent is questioned in many quarters, were not very much Aryanized themselves. Their culture was confined to the mountain and forest lores of Chotanagpur. Their associates were tribals and their ways of life were homogenetic, homomorphic and homologous with those of the aboriginal tribes. The Aryan way of life and Aryan culture were, for the most part, alien to them. The Hindu culture and Hindu way of life were largely adopted rather than inherited by them. Adoption is a selective process and, therefore, the culture and religion which were propagated under their aegis could never have the purity, perfection and fullness of the Hindu culture and religion of the Ganga Plain. Besides, an adjustment with the tribal people and their way of life led to the incorporation of certain elements of the tribal culture. On account of late beginning of the process of Aryanization and difficult terrain, few people from the higher strata of the Hindu society could migrate to Chotanagpur, particularly to the Ranchi plateau. This is conspicuous by the fact that Brahmans, the priest-class, though distributed more or less evenly, are very small in number in all the districts of Chotanagpur, except in Palamau and the Northern Fringe zone. A small number of the adherents to Hinduism could not provide for a large priestly class. Even the Brahmans who migrated to Chotanagpur, were in most cases inferior members of their original society. They had poor education and poor culture. In many cases, they moved without female members and took tribal women as their wives. The mixture of blood led to a mixture of culture. Brahmans of Chotanagpur, therefore, are looked down upon by their counterparts in the Plain.

The function-castes who constitute a sizable section of the population of Chotanagpur, are largely local-bred and intermixed. When these function-castes migrated to Chotanagpur, similarity of trades brought them perhaps closer to their counterparts in the tribal society. The tribal function-groups, in absence of any separate designation, appear to have adopted the caste names of the Hindu society. This facilitated a closer tie and thorough mixing-up with the migrated function-castes of the Hindus with whom they subsequently appear to have identified themselves. Even today, the physiognomy and general appearance of the bulk of the function-caste population are very much akin to those of the Mundas and Oraons. Teli and Suri are the largest function-castes of Chotanagpur. They are the traditional oilmen and ale-brewers of the Hindu society. Their massive immigration to Chotanagpur appears to have been prompted by the abundance of oilseeds grown in the fields and obtained from the forest and the enormous quantity of *Mahua* flowers, the primary raw material for ale-brewing.

Pattern of Hindu Occupance and Distribution of Hindu Culture

The Hindu immigrants, though small in number but superior in culture, could succeed in forcing their way deep into the tribal areas. They could manage to retrieve the well-watered valleys and fertile lands and occupied them. Even today, they are confined to better lands. Hindu population in tribal area is mostly contained in large villages, trade centres and *bazars* located on natural cross-roads on communicational foci. In selection of sites for their settlements, they appear to have shown preference for lesser slope, comparative evenness, openness

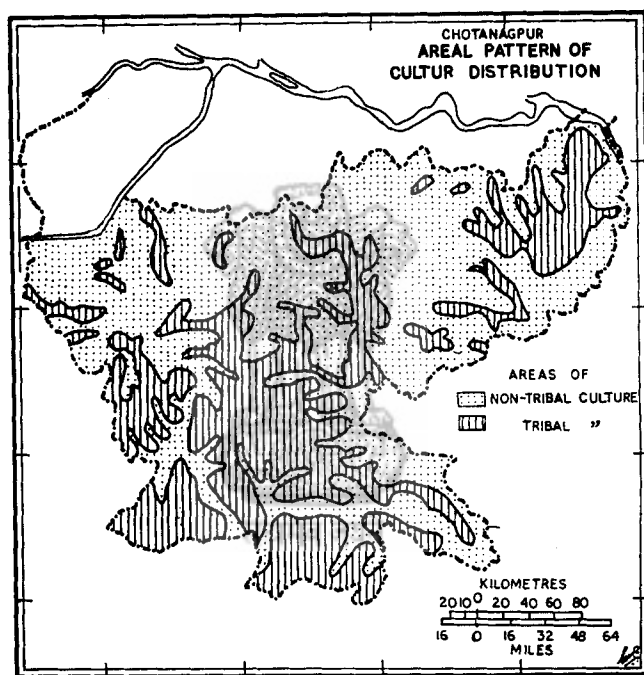


Fig. 46

and accessibility. As a rule, Hindu villages are separate entity and do not consist of tribal population. Tribal villages are located a bit away from Hindu villages. In such areas where Hindu population is not large enough to have a village of its own or, if it consists of semi-tribal low Hindu communities, Hindu population is found contained in one or two hamlets appended to a village. Hindu and tribal dwellings are seldom found adjacent and mixed up.

Two factors appears to have discouraged the extension of Hindu occupance to difficult terrain. Firstly, their small number did not require them to expand their settlements beyond their favourite bounds. Secondly, numerical superiority and polemic attitude of the tribal people

acted as effective deterrent against further encroachment upon the tribal land. This resulted in area-specialization in the distribution of two communities. The selective process of land occupancy by the tribal and non-tribal communities ultimately led to the evolution of a banded pattern of culture distribution, one culture band generally alternating with another (fig.46). The tribal culture bands are usually broader in the south and south-west and taper towards north and north-east, finally vanishing in the midst of the non-tribal culture area. The non-tribal culture bands branch off from the non-tribal cultural base in the Plain and taper towards the tribal areas. In the Santhal Parganas, the pattern of culture distribution differs. The core of tribal culture is located in the hilly environs of the Rajmahal Hills. This core-area assumes a north-south oblong shape and is surrounded by ring of tribal diffusion. Each ring is boarder in the west than in the east and south. In the north, the rings narrow down and end almost abruptly on the bank of the Ganga.

Areal Variation in Aryanization

The degree of Aryanization in Chotanagpur differs from place to place. It is most highly developed in the northern half of the Plateau and is least developed in the southern half, particularly in the southern and south-western part of Ranchi District and in Porahat, Saranda and Kolhan areas of Singhbhum District (figs.28&46). The proportion of the Scheduled Caste population is perhaps the best measure of the extent and intensity of Aryanization (fig. 30), for the Scheduled Castes represent, for the most part, that section of the aboriginal community which was subjugated and Hinduised and was included in the Hindu social hierarchy. This is supported by the fact that a number of castes found exclusively in Chotanagpur and identified as Scheduled Castes, have unmistakably tribal origin. They are so much tribal-looking that in different censuses they have been variously returned as Scheduled Castes and Scheduled Tribes. On the other hand, Bhumij and Bhuinya in the Ganga Plain are treated as Scheduled Castes, but in the Chotanagpur region they have been enlisted as Scheduled Tribes. Had the process of Hinduization progressed further, most of the tribal population must have been included in the Hindu fold and most of them might have been relegated to the position of Scheduled Castes. 'With certain tribes, however, the process of Hinduization has gone so far that they are practically indistinguishable and, as a result of a complete absorption in Hindu society they have lost their aboriginal characteristics'.¹

1. Lacey, W.G., Census of India, 1931, Report, p.285.

CULTURAL TYPES AND GROUPINGS

From cultural point of view, the tribal population may be grouped into two— Christian and non-Christian. Tribal culture today means mostly the culture of non-Christians. They are still continuing their old way of life and are mostly living in old environment. They are clinging to their old occupations. They continue to be forest-dwellers and hill-men. Most of them are engaged in four major types of economic activities. They are (1) hunting and wood-cutting; (2) shifting and hill-cultivation; (3) sedentary, intensive cultivation and (4) simple village craft based on wood, iron, stone, clay, cotton and *tussar*. They are poor and backward. Literacy is lowest among them (fig. 38). Though they are variously described as the followers of animism or tribal religion, they have no organized code of ethics and religion. To them, religion stands for the few rituals and sacrifices that they observe. Besides they have picked up certain religious practices and festivals of the Hindus. The external form of their religious life is so much in common with the other Hindu communities of Chotanagpur that it is just and proper to call them Hindus. The distinction between a non-Christian aborigine and a non-tribal Hindu is not due to religion, but due to tribal and social organization.

Though much social and ethnic exchanges have taken place between aboriginal tribes and Hindu communities, five major tribes could maintain their separate identity. They are Munda, Oraon, Santhal, Ho and Kharia. They could escape absorption into Hindu society mostly because of their overwhelming number and fighting characteristics. The Hindu rulers and landlords were obliged to appease and pacify them. They were made collaborators with the Nagbansi in establishing the 'Chotanagpur Raj'. The Hindu Society was not so large as to engulf the tribal population completely. Besides, the main problem in becoming a Hindu is to find a place in the caste-hierarchy. Tribal society was and, to a great extent, continues to be, a monolithic structure without any marked social and economic stratifications. For absorption in Hindu society the formation of social and economic classes is a precondition so that various sections of the society could be assigned to different positions in the social scale. In the absence of social classes, it was rather impossible to relegate the entire tribal population to the position of the 'Shudras' or Scheduled Castes. The tribal population could, thus, escape complete absorption into Hindu society and could preserve their old tribal organizations and culture. They lived in juxtaposition with the Hindus and their culture became collateral with that of the latter. A separate tribal identity proved to be of immense value to them. They are not a segment of a class, but a complete society having

all the social components and gradations. Today, they stand on a parallel or separate footing with the Hindu society and do not suffer from the stigma which is attached to the Scheduled Castes. They are not untouchables, though in many counts, they are not superior to the Scheduled Castes.

Among the major tribes, the Santhals are most highly Hinduised, though like Munda and Oraon they maintain a separate identity. They are quite familiar with the Hindu way of life. They have adopted certain Hindu gods and worships. This has enriched profoundly the Santhal cultural tradition. They are more conscious and proud of their culture than the Mundas or Oraons and, as such, the Christian Missions have met with less success among the Santhals. A great amount of non-tribal cultural influences upon the Santhals is the product of the geographical position of the Santhal area. The Santhal land looks like an island in the midst of highly developed Hindu culture. On all sides, the Santhals are obliged to communicate with non-tribal people (fig. 29). The position of Ranchi and Singhbhum districts is quite different. This area is contiguous with the tribal belt of Madhya Pradesh and Orissa, where the tribal people were powerful enough to establish a Kingdom of their own. Owing to the contiguity, several tribes continued to migrate from Madhya Pradesh to this part of Chotanagpur. The continued immigration of the Madhya Pradesh tribes might not have been welcomed by the local tribes, but they definitely aided to their strength and by further reducing the proportion of non-tribal population they enriched the tribal complexion of the territory.

Christianity and Culture Change

Spread of Christianity led to definite and massive culture change in tribal Chotanagpur. Higher education and marked improvement in economic conditions are the concomitant features of Christianity in this part of the country. Higher education propagated by the Christian Missions effected changes in tribal way of life. The educated ones picked up white-collar jobs and became much better off than the uneducated masses. Higher income and prestige position reflected upon their material culture. They are better-clothed and better-housed. Christian houses, even in the rural areas, have attained a distinction. The Christians have shown liking for bungalow-type of house without court-yard constructed after the pattern of residential quarters for the ex-British officers. They have developed a taste for vegetable gardens and flower decoration. Their villages, as a rule, are located separate from the non-Christian tribal villages.

Culture change among the Christians are most vividly reflected upon the change in occupational structure. Such old professions which are not considered dignified and profitable enough, are given up. Political, social and economic safeguards guaranteed in the Constitution of India, have gone a long way to boost up their economy and have raised their social and political status. Because of higher education, they are the first and in the largest number to benefit from the constitutional provisions and safeguards. Posts reserved for Scheduled Tribes in the Government and elsewhere, are mostly filled up by the Christians, for few non-Christian members of the tribes are qualified for higher jobs. Even in politics, tribal leadership is totally in the hands of the Christians. In fact, the Christians in Chotanagpur or for the matter in whole Bihar, are the most privileged section of the society. They are more highly educated, better placed and better off than many of the non-tribal communities. As a result of deliberate efforts on the part of the Christian Missions, they have undergone ethnic changes also. The Christian tribals struggled for long to preserve most of their original culture. They were scrupulously clinging to their tribes and clans and held allegiance to their tribal organizations. They continued to observe their rituals and celebrate the traditional festivals. With the expansion of Christianity and its all-round influences, they were gradually isolated from their non-Christian kinsmen. Christianity became mandatory for all that matters in life. Small children and infants are taken to schools and children-houses run by the Missions, where they are thoroughly trained and indoctrinated in the Missions' Christian way of life. Because of isolation from their families and society, these children when they grow up, become completely bereft of the tribal culture. Marriages generally take place among the Christians only and if a Christian marries a non-Christian, the latter has to be converted to Christianity. Inter-tribal marriages are encouraged and, as such, the tribes are breaking up very fast among the Christians. Whatever remnants of the tribal rituals and customs are surviving among the Christians, they are threatened to disappear very soon, for they are being pressurised by the Missions to give up all such tribal traits which might bring them closer to the non-Christians. In fact, judging from ethnic, social, cultural, political and economic standards most of the Christians have ceased to be tribal except in name and for constitutional benefits.

Islam and Culture Change

Muslims of Chotanagpur, particularly the weavers are largely converts from the tribal population. Unlike Christians, they have been thoroughly detribalised. Their proper names, food-habits, clothings,

customs, manners and social organizations are quite different from those of the tribal folks. Proper names, much more than anything else, distinguish a Muslim from a non-Muslim. Muslim names are invariably of Perso-Arabic origin. Till recently, a large number of Chotanagpur Muslims were, however, having names derived from local dialects. Sharpening of the Muslim way of life could not go to the extent to which they went in the Plains. In Chotanagpur, they were not so much obsessed to distinguish themselves and maintain their separate entity as they were to do in the region of advanced Hindu culture. Even then the changes brought about by this new faith reflected significantly upon the cultural landscape. The slanting roofs of Chotanagpur villages were topped by the Perso-Arabic domes of the mosques. Muslim graves were added to the pre-existing tribal *sasandiri*. Individual houses also underwent changes, and renovations took place with the object of introducing some Islamic elements in the house-types and architecture. The common rule of separation applied to the grouping and location of Muslim population also. Muslim villages, even in the densest tribal areas are located separate from non-Muslim villages. In such locality where Muslim population is small, the Muslim houses are grouped in a particular sector or hamlet-unit of a village.

Inter-tribal Relation

Chotanagpur is essentially a multi-tribal region. There is hardly any sizeable area where only one tribe is found (fig. 31). The number of tribes is small in the northern half of the Plateau. In the southern half, association of five tribes is the rule (fig. 31). In certain areas, contiguous with Madhya Pradesh and Orissa, as many as ten tribes are living in close proximity. Largest number of tribes are found in the areas of thickest tribal concentration. As a rule, each tribe lives in a separate village. Multi-tribal villages are also found, but in each such village only one tribe is dominant. A multi-tribal village generally consists of as many hamlets as tribes therein, each tribe living in a separate hamlet. Inter-mixed or juxtaposed dwellings belonging to different tribes are seldom found. Even in such villages where dwellings of different tribes are juxtaposed, there appears to be a selective pattern of association. Kharia and Oraon houses may be found together. Similarly, Gond, Bhogta, Chick Baraik and function-castes of Hindus may be found living in houses built together. Thus tribal multiplicity appears to have led to the multiplication of settlement units. The same rule applies to such areas where multiple social and religious groups are found. In non-tribal areas, Muslim and Hindu settlements exhibit areal separation. Such separation is marked even among the various recognizable social and economic classes of Hindu society.

CULTURAL STRATIGRAPHY

Chotanagpur has been an area of cultural isolation. A few cultures flowed into, a few established themselves and fewer could survive in any recognizable form. Such processes as cross-fertilization of ideas, innovation and renovation do not appear to have been operative over the greater part of the Plateau during the historical past. An analysis of the ethnic composition, linguistic groups, historical and pre-historical migrations and present cultural forms enables us to discern at least seven cultural strata. The inter-relationship among them varies. In relation to one or more cultures some of them are intraposed, other extraposed, while a good many of them are transposed over one another. The important cultural strata relate to (1) the Asur, Proto-Aryan and Proto-Dravidian; (2) Munda; (3) Oraons; (4) Chero and Kharwar; (5) later Hindus; (6) Muslims and (7) Christians. The Asurs appear to be the first people to colonize Chotanagpur. Whether the Asurs were aborigines or early Aryans is a most controversial question, but it is definite that a very advanced Asur culture flourished in the Middle Ganga Plain from the pre-Vedic to the Mahabharata periods. Asur culture forms the subterranean level, the basement over which subsequent cultures developed. The Asurs were the worshippers of sanke-god and Yakshas, the remnants of which still survive in this region. Mahavir or Hanuman worship is most popular in Chotanagpur. Certain authorities believe that Mahavir worship was originally the Yaksha worship which was adapted to Hindu way of life and subsequently assumed its present form.¹ The Nagbansi rulers of Chotanagpur might have had some link with some Nag-worshipper families of ancient Magadh. The small number of Asurs confined to the western part of the Ranchi plateau, might have been the descendants of the ancient Asurs who being defeated at the hand of the Mundas took refuge in the highest and most inaccessible areas. The Munda tradition suggests that the Asurs were the exploiters of metallic ores, particularly iron, copper and gold. Reference has been made in the Kautilya's Arthshastra to the supply of metals and minerals from this region to the Mauryan Empire.²

The Mundas who migrated from the northern Plains, must have engendered a higher level of culture, though it is doubtful that they were culturally superior to the Asurs in the beginning. Mundas' immigration led to the clearance of forests and extension of cultivation on a much larger scale than was done ever before. A real revolution in the ancient and primitive culture of the Ranchi plateau appears to have

1. Bulke, Rev. Camile., 'Yaksha Puja', Ramkatha, Allahabad, 1963, Paragraph 710.

2. Kautilyas' Arthasastra., op. cit., p. 83.

started with the entry of the Oraons. The Oraons, through long wanderings and long association with the Aryans in the Plains, must have improved their cultural acquisitions. They entered the Plateau with a superior culture. Their cultural influences have, therefore, been of sweeping and lasting nature. Most of the present agricultural practices and general economy in the countryside of Ranchi District have distinct Oraon impact. On the other hand, the Oraons adopted village administration and social organization from the Mundas.

The Cheros and Kharwars who succeeded the Oraons in Palamau, were not in the primitive stage. They were largely Aryanized from the very beginning. Consequently, few of them remained in primitive stage of culture. With the acquisition of power and wealth, they rose to the higher ranks of Hindu society. Most of them are accepted today as Rajputs. The Cheros and Kharwars did not, therefore, develop a culture of their own. They simply helped the spread of Hindu culture.

In the northern and eastern parts, the cultural succession appears to be a bit more confused. Even in these areas, Asur culture was perhaps first to flourish. Asur culture was, perhaps, directly succeeded by Aryan culture. Relics of Aryan, particularly Jain settlements dating back 500 to 1000 B.C. have been found in various parts of Hazaribagh, Dhanbad and Singhbhum districts. The primitive cultures might have had a sojourn in this peripheral belt, but in the wake of continued Aryan advance they must not have had any respite to establish themselves and flourish. Consequently, the entire area north of the Ranchi scarp, except the Rajmahal hilly tract, underwent complete Aryanization (fig. 46). The tribals were detribalized and were absorbed in the Hindu society. With Aryanization, cultural landscape changed fast and enormously. Advanced agriculture, superior architecture and technology, trade and commerce were introduced, and the cultural landscape became a plateau version of the cultural landscape of the southern Ganga Plain of Bihar. Remnants of tribal culture that survived, went to increase the variety, diversity and the complexity of the cultural landscape. The most notable contribution of Aryan culture to the landscape of the whole region was the emergence of towns. The primitive culture has no urban component and, as such, no tribal towns or cities are found in Chotanagpur.

From the Ganga bend in the north-east to the Suvarnarekha valley in the south is a narrow detribalised belt (fig. 46). This marginal area of the Plateau, being contiguous with Bengal, forms zone of contact. The area has received in full the Bengali version of Aryan culture. Several features which are typical of Bengal, are strongly represented in the cultural landscape of this area. The Bengali traits are most

faithfully represented in the house-types, clothing and dialects. A large number of non-tribal population are either migrants from Bengal or have matrimonial or other social ties with Bengal. The Suvarnarekha valley and Chaibasa plain that open to Bengal and Orissa received a voluminous and continuous inflow of people and culture from the two regions. In the Suvarnarekha valley, Bengali influences are dominant, but in the Chaibasa plain, Oriya influences are more promptly marked.

South-western Portion of Ranchi District which forms a tripartite contact zone between tribal Chotanagpur (fig 47), Orissa and Madhya Pradesh, has a more intricate cultural pattern with Oriya as dominant element. A sizeable Gond and Kundahit population is found in this area. Gonds' original habitat lies mostly in Madhya Pradesh whereas Kundahit is essentially an Oriya tribe. A greater degree of Oriya influences in this part is also due to matrimonial and other exchanges between the ruling families of the two regions. The cultural influences of Oriya in the south-western part and those of Bengalis in the eastern zone have been great civilizing force and have considerably moulded the culture and economy on Oriya and Bengali patterns. Most of the temples in Singhbhum and in the southern part of Ranchi District are devoted to Lord Jagannath. *Rathayatra* is the most highly celebrated and largely attended festival of the tribal and non-tribal communities alike. Both the Jagannath worship and *Rathayatra* are transplanted from Orissa to this area.

In the west, Chotanagpur forms a common boundary with Madhya Pradesh. Though the 'Pat' scarps and rugged surface along the border do not encourage frequent exchanges, slow and scanty movements of people across the border have taken place throughout the historical times. Half a dozen small tribes, distributed along the border area of Chotanagpur, appear to have entered this region in the processes of spreading out from their base in Madhya Pradesh. These minor tribes do not appear to have influenced the culture of this area to any significant extent. They rather appear to have exchanged their own culture for the culture of the dominant Oraon tribe. This portion of the Plateau has also borne the brunt of Maratha invasions and raids. Impact of Maratha culture is not easily recognizable! The pony which is widely used in this area, might have been the remnant of Maratha impact.

LAND TENURE AND TENANCY SYSTEM

Though the culture of Chotanagpur represents today a good deal of mixture of several living and dead cultures, there are broadly two cultures in Chotanagpur. They are tribal culture and non-tribal culture. The non-tribal culture is, for the most part, Hindu culture. Some of

the most notable aspects of tribal culture are the tribal village organizations and peculiar tenancy system. Most of the cultural characteristics of tribal society are related to these two institutions.

The aboriginal tribes, particularly the Mundas, had in the beginning, no idea of individual ownership of landed property. They cleared the jungle and took possession of the land jointly. All the lands thus obtained belonged to a family or a group of agnate families. Clearances made by each such family came to be known as *Khuntkatti hatu* or the village of the family of original settlers. The Mundas had a Patriarchal tribal organization. The oldest member of the village became a chief in religious as well as secular matters and came to be known as *pahan*. Gradually the religious and secular functions were separated. The most important man in the village became responsible for secular matters and was known as *munda*. The offices were made hereditary, but neither the *pahan* nor the *munda* could enjoy any rights superior to those of the other descendants of the founders of the village. As the Mundas grew in number new villages were founded. The inhabitants of the new villages subsequently established their own burial grounds and *saranas* and formed independent village communities. The new villages continued to have link with the parent village. A group of such villages along with the parent village came to be known as *parha* or *patti*. In the beginning the *parha* was just a wider brotherhood than a village. Subsequently, the Mundas came to have tribal organization of villages. 'Munda' of the parent village or the most influential *munda* became *manki* of the *patti* (Chief of the group of allied villages). He was to preside over the assembly of the *mundas* and *pahans* of the *parha*. A similar organization was adopted by the Oraons also.

In the beginning the Mundari Tenancy system was simple and free from administrative burdens. The whole Munda country was divided into *patti* or *parha*. Each *patti* consisted of 10 to 15 villages. Broadly speaking, three types of land tenures were prevalent among Mundas, Oraons and Hos. They were *Khuntkatti*, *Bhuinhari*—*raiayatwari* and tenancy systems. *Khuntkatti* system originated from the possession of the natural earth by the first settlers. They were the real proprietors of the land and were not required to pay any rent to anybody. New settlers were gradually attracted to the *Khuntkatti* villages and their neighbourhood. They could not have the same rights and privileges as enjoyed by the descendants of the original settlers. Thus was started differentiation in land tenure and tenancy system of the tribals.

A Mundari *Khuntkatti* village generally contains three elements. They are (1) the *Khuntkattidars* (owners of the title of original settlers),

(2) tenants and (3) subsidiary artisan class. The *Khuntkattidars* are the owner of the whole area included in the village boundary. *Raiyats* are just tenure holders. Their tenures were first fixed by *Khuntkattidars* and later by the *zamindars*. *Bhuinhari* system had a wider connotation than the term *Khuntkatti*. The system includes six highly complicated cognate tenures. Some of them are function tenures held by village functionaries. *Raiyatwari* or ordinary tenancy system was introduced by the Hindu immigrants on the pattern of the land tenures of the Ganga Plain.

The Mundari *Khuntkatti* system was once prevalent over greater part of Ranchi and Singhbhum districts. Several causes contributed to its break down. As time went on, village head became conscious of his power and property and tribal chiefs arose. The chiefs began to exercise an overlordship over the village communities and started receiving tributes and personal services from them. The emergence of chiefs marked the beginning of social and economic stratification among the tribal communities. This facilitated the process of Hinduization. The chiefs were first to be Hinduised. They joined hands with Hindu immigrants and collaborated with the Nagbansis in the establishment of Chotanagpur Raj. The Nagbansi rulers and the chiefs, in order to establish their supremacy on firmer footing, encouraged Hindu immigration. The immigrants were granted lands and villages. In the beginning, they were granted power to collect rent and receive tributes from the cultivators. Gradually they extended their overlordship over the *Khuntkattidars* and reduced them to the position of ordinary tenants. They took possession of forests and wastes and deprived a large number of the tribal people of their cultivated land. These lands were resettled on fresh tenures. All these led to agrarian troubles and tribal rebellion. The suppression of the rebellion broke down the tribal tenancy system. The aborigines were obliged to move to new areas and to establish new villages. The process led to the furtherance of human occupancy to less tractable and poorer soils in less accessible and remoter areas.

Prohibitive Laws and the Stagnation of Cultural and Economic Processes

The tribal rebellion against the greedy immigrants proved a long-drawn battle. The British administration felt it necessary to protect the rights and privileges of the aborigines. The *Mundari Tenancy Act* was passed in 1903. The Act provided that "Mundari Tenancies were not transferable by sale, whether in execution of decree or otherwise"¹ Subsequently, Chotanagpur Tenancy came into force which provided

1. D. G. Ranchi, Patna, 1917, p. 144.

greater safeguards against the alienation of lands from the tribes. In post-Independence period, by fresh legislations, tribal lands have been made almost non-transferable to non-tribals.¹ All these legal protections to the tribal communities acted in too different ways. The non-transferability of tribal lands granted a greater degree of permanency to the tribal settlements. Formerly, being dispossessed of their lands they were to move to unoccupied areas to reclaim barren or forest lands for cultivation, thus extending the frontiers of occupance. Some of them were obliged to migrate to towns, industrial or mining centres and tea gardens in Assam. This led to the desertion of several villages. A large number of abandoned village sites are found widely distributed in Ranchi, Palamau and Hazaribagh districts. The protective legislations have some negative effects also. The non-transferability of tribal lands to non-tribal communities has reduced the value of land in open market. There are few purchasers in the tribal communities and, therefore, the prices offered are very low. Those who want to dispose off their lands to invest in some other jobs are thus discouraged to do so. This has affected adversely the process of occupational change. Further, the transferability even among the tribal community is limited to the residents of an *anchal*, the smallest administrative unit. Most adversely affected are the non-tribal immigrants. They are almost debarred from acquiring land even for residential purposes in tribal areas. Quantum of immigration to the rural areas has been very much reduced and the process of expansion of human occupance to non-settled areas has been slowed down. The protective legislations are, in fact, working against the natural laws of the social and economic dynamics. It has made the people immobile, both in terms of occupation and in terms of area. Redistribution of population has been retarded and both intra-regional and extra-regional socio-economic balances are being disturbed. The expansion of non-tribal settlements in rural areas has come to almost a halt. On the other hand, tribal settlements continue to expand mostly because of a higher birth-rate among the tribal communities. The difference between non-tribal and tribal population is widening and the prospects of detribalisation of Chotanagpur are becoming dimmer. The process of culture-change has also been affected.

1. Chotanagpur Tenancy Act, Patna, 1962.

GEOGRAPHICAL REGIONS OF CHOTANAGPUR

METHODS AND APPROACHES

The present work is devoted to the study of rural settlements. Settlements are the most important material evidences of the presence of man on the earth. They are the most vital constituents of what is called cultural impress upon land. Cultural impress results from the processes of occupying a portion of the natural earth. The process vary from place to place, culture to culture and time to time, and so does the cultural impress. The processes of human occupance change, replace, intermix and multiply and, therefore, they are both periodic and spatial. Culture is largely a product of time and space and is capable of dividing itself into regional and periodic types. "Each type of human culture has its own modes of occupance and, as a result, its own characteristic impress".¹ Cultural impress viewed against the continuous processes of cultural changes may be interpreted as the material form of culture. These material cultural forms are interposed and transposed upon the natural forms. Natural forms, thus combine with the cultural forms and are ultimately fused together to make up the cultural landscape. In geography, the term, landscape, has acquired a qualified meaning. It refers to 'a portion of territory which is found to exhibit essentially the same aspect after it has been examined from any necessary angle of view. Similarity of aspect or appearance, used in this sense, is not based on superficial impression of resemblance but requires the sophisticated judgement of specialist in the choice of significant items of similarity'.² Similarity, though sometimes directly observed, is largely a matter of opinion — a view-point. Landscape, therefore, becomes essentially a conceptual entity, a personal discretion. But, as all the cultural forms are material in content, aspects of their similarity can be displayed, measured, proved and described in concrete terms. Settlements of all the material features of the cultural landscape, are most massive and most grossly observable. They constitute the core of human occupance, the

1. James, Preston E., 'The Terminology of Regional Description', A. A. G., vol. XXIV June, 1934, No. 2, p. 81.
2. Ibid, pp. 79-80.

lump of cultural impress and the summit of cultural landscape. Similarity-aspect of the cultural landscape is significantly and convincingly displayed through settlements.

Settlements are conceived as colonies established in fixed positions. They appear static material features on the cultural surface of the earth. But the essential inner contents of settlements are population which is highly dynamic. Thus, settlements with a static form and a dynamic content become multiple functionaries, active institutions of culture, which function and operate upon the natural earth. Population attributes living aspect to settlements. Settlements like all other living organism grow, expand, multiply and propagate themselves. With the growth of its population content settlement grows in size, expands horizontally and multiplies locally in number. With the furtherance of human occupancy in an area it moves further. Thus, movement of settlement is translatory in nature. As the settlement moves it repeats its forms and pattern. Such repetition continues unless one of the two, culture and physical earth, changes completely. The process of repetition attributes that aspect of similarity to the area which is so important in the understanding of landscape.

A particular type of similarity is traceable within a limited area. Beyond this area it gradually fades away and is ultimately replaced by another type of similarity. Thus, landscape changes and so do the types and pattern of settlements. Settlements and all other features of cultural landscape develop in such a manner upon the natural surface that they are ultimately fused into patterns and associations. These patterns and associations have space-relationship and are areal in their distribution and they "have functions that give individualism to a region".¹ The recognition of this fact serves as the 'rationale' of geographical approach to regions. Besides, the essential aspect of geographical study is to find out and show exactly where a phenomenon takes place. This aspect of geographical study naturally concerns with locality. If this study is "translated into maps and diagrams it will have to show two kinds of facts : (1) the actual places and zones where the phenomenon appears at its best and greatest and (2) the boundary of the area over which it extends".² It is the recognition of this fact that makes imperative for any geographical study to divide territories into regions.

Various Concepts of Region

To divide an area into regions is a difficult task. It poses several

1. Finch, V.C., 'Written Structure for Presenting the Geography of Regions', A.A.A.G., vol. XXIV, No. 2, June, 1934, p. 115.
2. Brunhes, J., *Human Geography*, London, 1952, p. 23.

problems. In the first place, opinions are divided as to whether it should be called geographical regions or natural regions. The two terms, though having obviously different connotations, have been used interchangeably. The use of the terms appears to have largely been a matter of personal discretion and choice. In the present work, geographical has been preferred to natural for the subject-matter of study is a cultural form. In such a study to call regions 'natural' sounds incongruous and out of tune. Besides, geography being a social science must employ such terms which have social, cultural and human rather than natural connotations.

Even though the controversy is settled in favour of geographical region, the problem of dividing the territory into regions remains to be solved. Of the problems, the selection of criteria for regional demarcation is most difficult and most baffling. The problem becomes more difficult owing to the varying definitions of the term region itself. A region is defined as a physical unit of land. It is also regarded as a 'cultural-unit-area', a 'human-use-area'.¹ It is believed to be "an area within which the combination of environmental and demographic factors has created a homogeneity of economic and social structures."² But, geographical environment is a complex association of such elements as climate, surface configuration, relative location, native vegetation and other natural resources. To this is added an equally complex assemblage of such elements which constitute the cultural milieu. It is, therefore, a hard task to use any one of them or all of them to delimit geographical regions successfully and significantly. Further, 'no regional unit should be thought as existing in isolation but in relation to a wider area'.³ This makes the problem still more difficult for "the factors of intrinsic conditions and the factors of space-relationship sometimes pull in different directions and create complex conditions".⁴

Physical features have been very often employed as the basis for demarcating geographical regions. Such regions are actually physical units and might better be called natural regions. "But physical unit tends to become an economic unit and the more developed the means of communication, the more pronounced its regional specialization".⁵ This naturally highlights the importance of physical features in delimiting geographical regions. In the opinion of Herberston, 'climate is the

1. Brunhes, J., *op. cit.*, pp. 198-99.

2. Hali, Robert Brunnet, 'The Geographic Regions: A Resume', A.A.A.G. vol. 25, 1935. p. 130.

3. Roxby, P.M., 'The Theory of Natural Regions', G.T., vol. 13, pp. 378-379 (Also quoted in *Hundred Years of Geography*, p. 130).

4. *Ibid.*

5. *Ibid.* (also in *Hundred Years of Geography*, p. 136)

largest decisive element in the total environment and the chief determinant of the character of natural vegetation. Natural vegetation is the reliable economic index of a region'. Climate, however, cannot be used as the sole criterion in dividing a small area like Chotanagpur into regions, for climatic variations are neither so great nor so important as to influence the way of life significantly in different parts of the Plateau. Besides, the factors of physical environment as the basis of regional divisions unduly emphasise the physical aspect of the region which is opposed to the general trend. Since the emergence of the Possibilists' School 'the trend has been away from the physio-geographical conception of human region'. 'A geographical region may be thought as having some of the qualities of human beings. It is a thing both physical and cultural with cultural and physical elements so interwoven as to give individualism to the organism'.¹ In order to have an organised understanding of the human occupancy of region the material works of man should not be seen divorced from natural features occupied or otherwise involved. On the other hand, the work of man cannot be separated from the people 'who make them, employ them and are served by them'. Besides, extra-regional and intra-regional connexions and relationships cannot be ignored without seriously impairing the quality of work. It has, therefore, been suggested that 'the irreducible minimum for regional identification consists of four classes of criteria — surface features, vegetation, climate and Brunhes' six fundamental human facts'.² But even these four classes of criteria are not easy to be employed, for they are seldom conterminous in area. They are often extra-posing and cross-cutting each other's boundaries, and the problem of regional identification remains, thus, largely unsolved.

The difficulties are, in fact, not so much due to the problem of identification as due to the concept of region. 'A 'region', as geographers use the term in our present context does not actually exist, but is a mental construct. Accordingly.....selectivity of criteria for area differentiation and the method used in measuring the relative significance of environmental data in their covariation with other natural and cultural features, are highly individualistic, subjective and arbitrary matters. In its broadest connotation, therefore, we may correctly use the term 'region' to apply to any homogeneous area of space categories... as well as others, assuming of course that the criteria are significant and meaningful and the boundaries are systematically drawn."³

1. Finch, V.C., op. cit., p. 114.

2. Hall, Robert Brunnet, op. cit., pp. 130-131.

3. Meyer, Alfred H., *Geography of Society*, New York, 1963, p. 19.

Delimiting the geographical regions

As the subject of study in the present work is settlement, a cultural feature, the criteria for the identification of the regions are naturally to be selected from the cultural side of the region. The "density of population is the most direct expression of the actual economic utilization of the natural region."¹ The density of population per unit area is the convenient 'common multiple' of physical and human factors'.² The density zones might, therefore, be delineated as geographical regions. Though the density of population is the most significant and convenient basis

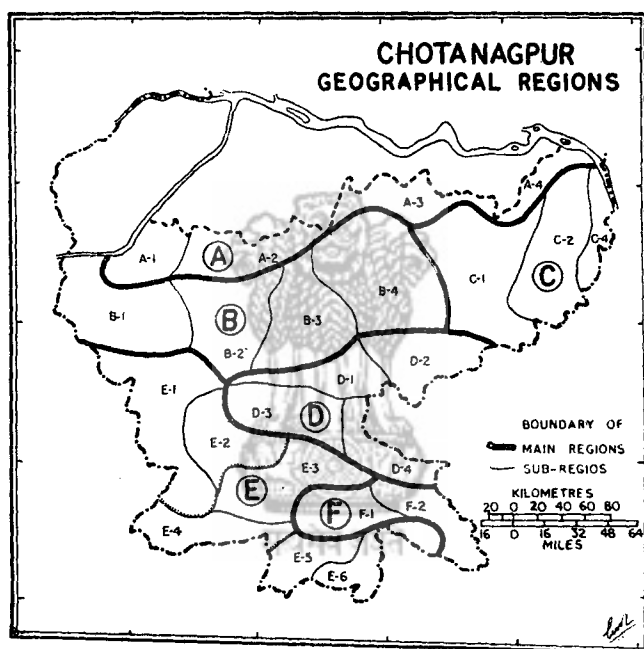


Fig. 47

for regional identification, it suffers from certain drawbacks, and, so does density zone. The density of population is just a numerical ratio, a mathematical expression. Density speaks little about culture, stage of civilization, mental equipment and intra- and extra-regional culture and economic connexions. It is true that density of population, the sheer number, is the single most important factor in the settlement geography, which are related not so much to number as to the cultural ingredients of population. Quantity and density of settlement, its gross material form, its mass and volume, are directly related to number and the

1. Meyer, J.L., 'Regions and Races', *Geography*, vol. XXI, 1936, p. 20.

2. Richards, F.J., 'Cultural Regions of India', *Geog.* vol. XV, No. 83, 1929, p. 20.

density of population. Its structure, plan, morphology, shape, appearance and finish are more intimately related to the cultural accomplishments of the population. Naturally for the identification and delineation of regions as perimeter for the study of settlements the search of a multiple-common-cultural-index will be desirable. This multiple cultural index is conceived as consisting of four groups of facts which are reducible to statistical analysis and numerical values. These facts are (i) the man-earth ratio, (ii) the linguistic-group ratio, (iii) geographical contiguity and extra-regional connexions and (iv) the economic organization and production. All these facts have been analysed in previous chapters. On the basis of the analysis of these facts, regions have been demarcated separately in four different maps. By transposing these maps over one another, the final geographical or better to term human regions are delineated. The hierarchy of regions that finally emerges is as follows (fig. 47) :—

<i>Region</i>	<i>Sub-region</i>
1. Tribal Highland:	I. Oraon Country { (a) Western <i>Pats</i> (b) <i>Konk Pat</i> .
	II. Munda Country { (a) Cultural Contact Zone. (b) Trans-scarp Land (Secluded Territory)
	III. Ho Highlands { (a) Forested Hilly Country (b) Deforested Highlands
2. Non-tribal Highland:	I. North Koel Valley (Cheroland) II. Chatra-Chhatarpur Upland III. Central Hazaribagh IV. Kodarma-Giridih Belt
3. Damodar-Suvarnarekha Triangle:	I. Upper Damodar Basin II. Lower Damodar Basin III. Ranchi Plateau IV. Panch Pargana (zone of contact)
4. Singhbhum Open Country:	I. Chaibasa Plain II. Suvarnarekha Valley (zone of contact)
5. Santhal Land:	I. Trans-Plateau Communication Zone. II. Rajmahal Hills, III. Alluvial Upland (zone of contact).
6. Northern Fringe Zone:	I. Sone Valley. II. Gaya Section. III. Monghyr-Bhagalpur Section. IV. Godda-Sahibganj Section.



सत्यमेव जयते

PART THREE



सत्यमेव जयते

SETTLEMENT GEOGRAPHY



सत्यमेव जयते

RURAL SETTLEMENTS ; MEANING AND SCOPE

SETTLEMENT

Settlement is a generic term. It is a term of multiple connotation and varying use. The term is a derivation from 'settle'. In the Oxford Dictionary the term to 'settle' means to 'establish or become established in more or less permanent abode or way of life'. It also means to 'sit down' or 'to stay for some time' and 'cease from wandering or motion', 'bringing fixity' and 'certainty'. In its derivative noun-form the term settlement means 'the act of settling down'. In geography, however, the term settlement is used to imply all what are spelled out above. The term settlement, as the geographer uses it, appears to mean an establishment and an abode with an established way of life that has ceased to wander and stay for sometime with fixity and certainty in respect of time and place. Settlement is thus an establishment. It is an establishment that relates to and results from an established way of life. It is an abode, a shelter or a dwelling where man retires from his day's work to sojourn and sleep. This place of retirement is fixed to a point of space and has, therefore, a definite location and identity.

The term settlement appears to have acquired double connotation in geography. It refers to "people or colonies establishing themselves in a fixed position.¹". The two terms, settlement and colony are very often used interchangeably as synonyms. It is also used to imply 'a newly settled and colonised tract by a group of migrants'. It may also denote as the settlements of a particular nationality. In the latter sense the term is usually qualified with certain adjective and is used to denote specific settlements of a particular nationality, e.g., 'White Settlements in the Tropics', 'Negro Settlements in America' or 'Indian Settlements in Malaya'. In the second place, the term refers to territorial grouping or areal association and congregation of human dwellings and other related features and structures. In this sense it is ultimately carried to mean villages and towns. The two connotations are complementary.

1. James, Preston E., 'The Terminology of Regional Description', A. A. A. G., vol. XXIV, No. 2, June, 1934, p. 80.

The former is broader, but by use and association, settlement in the colony-sense is more a human or demographic expression than material or physical one. Though colony implies human establishments also, its first image projected upon the listener's mind, quite often, refers to people and their territory more directly than their establishments. This implication is largely a product of historical process that led a large part of the world to be called European Colonies, though they remained far from being colonised by European settlers. On the contrary, the second connotation of settlement refers to material establishments of people rather than the people themselves. In brief, it may be said that the first connotation refers to dynamic and live aspect while the second one refers to material and static aspect of settlements.

In the foregoing paragraph two terms, establishment and settlement have been used to explain each other. The two terms are not synonymous. All human establishments are not settlements, nor settlements are entirely human establishments. To irrigate field man constructs a canal. He erects a pillar to pump up water. He raises a platform or a watch-tower to supervise his field. He digs a hole or constructs a labyrinth to trap wild animals. All such features erected or constructed are definitely human establishments, but they may be away from human dwellings and need not be considered as settlements. Similarly, highways, telecommunication lines, electric transmission lines, agricultural fields, dams and reservoirs, mines, fishing posts etc. that lie far away from villages, do not constitute settlements, for they give no permanent geographical framework to the presence of man. 'They serve merely as the connecting link or work-place for many such fixed frameworks from which those who travel on a road or work in a field or mine are temporarily drawn either singly or in groups'. On the other hand, a settlement or a village is more than simple grouping of human dwellings or congregation of human establishments. A village consists of life, men and animals. There is an easily felt relationship amongst the residents as well as amongst the dwellings and other associated features. Attached to village is a tradition, a history and a human sense. There are places and points in a village, with or without structures, with which are associated feelings and sentiments, emotions and reasons, whether personal, social or religious. All these are as much parts of a village as individual dwellings.

Terminologies of Settlement Geography

Settlements refer to a group of features that enter the composition of cultural landscape. This cultural surface has resulted from man's living. It represents a humanized portion and aspect of the earth

surface. Cultural landscape is superimposed on the physical landscape. Physical landscape provides the basic surface of which the cultural landscape is carved out.

Landscape is sometimes defined "as a portion of the land or territory which the eye can comprehend in a single view."¹ "It is an aspect of country", "the appearance of that portion of land which the eye can view at once."² These definitions give us to understand that landscape is an image of a portion of land which is transmitted to the observer's mind in a single glance. Landscape is, therefore, both material and observable. Non-material aspects of a country cannot be included in landscape for they might be understandable, but they are not observable. In geography, the term has acquired a qualified meaning. It is not simply an appearance or an image of a territory obtained in a glance, nor is it just the visual appreciation of the gross material features on the earth surface, rather a more subtle appreciation and understanding of aspects and characteristics of a territorial unit. "As the geographer uses the term he refers, rather, to a portion of territory which is found to exhibit essentially the same aspect after it has been examined from any necessary number of views."³ Landscape is not a camera-picture of everything material and observable huddled together in a piece of land. It is a picture portrayed by selective processes of visual appreciation and mental discretion and conveys a sense of unity.

Both the terms, settlement and landscape have limited connotations. A more comprehensive and general term is needed to imply all the methods and processes of man's living and the forms that result from them. The term *occupance* has been used in this larger context. *Occupance* is an obsolete word which means act or fact of occupying and, also, the time during which one occupies. This term was revived and redefined by Platt, Whittlesey and others as to mean "the process of occupying or living in an area and the transformations of the initial landscape which result"⁴ from such a process. This term in modern geography has assumed a wider connotation. It is used to imply all the phenomena on the earth surface which have been described by Brunhes as the 'essential facts of human geography'.

Cultural impress is another term which appears to be used as a synonym for that part of the meaning of *occupance* which refers to the

1. James, Preston E., *op. cit.*, p. 79.

2. *Chamber's Dictionary*, London, 1955.

3. James, Preston E., *op. cit.*, p. 80.

4. *Ibid.*

result of the process of occupying an area, the material evidence in the landscape of the presence of man."¹ The term, thus, refers to "the marks that human beings inscribe upon a region that they occupy."²

In the foregoing paragraphs it has been endeavoured to define settlement and to spell out its geographical connotations. Attempts have also been made to locate the position of the term in the hierarchy of the kindred terminologies. The analyses suggest that the term settlement refers to a group of cultural features. Cultural features are defined as material observable creations of man upon the earth. No features, whatsoever, are the real creation of man. Man is not a real creator and if at all, he is to be called creator, he is creator in a very limited sense. He is, in fact, a designer, fashioner, moulder and an agent of change in all possible ways. In essence, the so-called cultural feature is as much natural as any other physical feature, except that the former has received the touch of human hands. A cultural feature may be defined as natural feature or natural-material-plus-human-labour. Similarly, cultural landscape may be understood as natural-landscape-plus-organized-human-labour. The dwelling of a Birhor in the hilly and forested parts of Ranchi and Singhbhum districts and that of a Pahariya in the Santhal Parganas may be cited to illustrate this view-point. The walls of these dwellings are made of bamboos, twigs or moistened pasty soil dug out from the surrounding area; roofs are made of leaves, bamboos and *sabai* grasses obtained from the forested vicinity, and the space involved is a portion of the natural earth. All the articles used in these houses are as much natural and raw as their counterparts still present in their natural habitat. There is little cultural about them, but the structure made of them is a hundred percent cultural feature.

Origin of Human Settlements

A fuller understanding and appreciation of the various aspects and characteristics of settlements require a probe into their possible origin. Human settlements perhaps originated in the State of Nature. In the State of Nature man was a wanderer, preying upon weaker animals or collecting edibles from the natural and wild environment. He had no fixed position and no fixed mode of life. There was, therefore, no question of settlements, for settlements and nomadism are paradoxical. Subsistence and security have been the prime necessity of life. Man has been always obsessed to have a fairly regular and plentiful supply of

1. James, Preston E., *op. cit.*, p. 80.

2. Finch, V.C. and Trewartha, G.T., *Elements of Geography*, New York, 1936, p. 606.

food and drink and a place to hide himself against imminent dangers. Food and drink might have been obtained, in the beginning, freely from Nature, but like all other natural phenomena, they are not distributed uniform on the earth surface. They might not have been easily available when needed most urgently. From this relative non-availability in point of time and place, might have emerged the idea of preservation of the surplus for future consumptions, and from preservation to storage was a short step. Thus essentials of daily life moved from the state of natural availability to human possession and from natural occurrence to artificial storing. The need of preservation and storing had the seed that germinated to produce the idea of artificial structure, store-house.

With the increase in human population and also in animal population, man competing with animals within a very wide range for food, the supply of food might have been temporarily exhausted in a particular place or it might have become scarce and difficult to be obtained. Such a situation might have caused a change in food habit and innovation in the method of obtaining food. In order to reduce the area of competition with animals, particularly with ferocious and stronger ones man was obliged to concentrate upon carbohydrate and vegetative products. Change to vegetative food led to artificial plantation and cultivation of food crops. Since "rural dwelling is primarily a phenomenon of agricultural economy",¹ rural settlements are largely the product of this sedentary way of life. With the development of agriculture the entire realm of man's life came to be attached to a fixed and limited piece of land. He, thus, became settled and produced settlements.

Of all the nature's gift used by man to satisfy the prime necessity of life, water must have been not only the most powerful attraction acting upon the location of settlements, but also the first to induce the idea of having a sedentary or fixed way of life. * Until man invented pot or water-carrier, it must have been the most difficult, almost impossible to be carried to the point of consumption. Needy was, therefore, drawn to water and not water to the needy, says an old Hindi proverb. The non-transportability of water must have forced man to hover round water points where he ultimately decided to settle down.

Man must sleep everyday for a few hours. Sleep is the state of utmost helplessness when he is liable to become an easy prey to weak and strong alike. To an early man living in the State of Nature, sleep must have been the most dreadful state of affairs. One of his strongest

1. Demageon, A., quoted by Brunhes, J., in *Human Geography*, London., 1952. p. 60.

preoccupations must have been the search for a sleep-shelter. "This sleep-shelter, no matter how crude, is the critical focus in the life of any individual since he is forced to return to it for periodic protection".¹ Such shelter to an early man was not available whenever and wherever needed. He was naturally led to think of artificial shelter, modelled, perhaps, after natural shelters like rock-caves, bushes, thickets etc.

Evolution of Settlements

Once man devised an artificial shelter for himself, his nomadism changed into sedentary way of life. He became settled and tied with a small piece of land where his dwelling stood. With the practice of agriculture the tie multiplied and became stronger. His dwelling became the centre of the area that contained most of his activities. From an individual dwelling to a settlement of community was just a simple process of evolution. With the increase in population enlargement of dwelling became necessary. In the beginning, this might have been achieved by attaching required number of rooms to the pre-existing dwelling. It was perhaps this process of creating extra-accommodation in the parent dwelling that led to the evolution of the bee-hive type of settlements of the African tribes. Dwellings built in the process of expansion of the parent home and looking very much like a bee-hive are commonly found in the tribal villages of Chotanagpur. After a certain limit, further addition to the parent house becomes difficult and cumbersome and necessitates separate establishments by the new members of the enlarged family. Thus a full-size village grew up which subsequently gave rise to a number of villages. Such villages grouped into a territorial unit, as explained earlier, are collectively called *patti* or *parha* among the Mundas and *pir* among the Hos. Areal grouping of dwellings into villages, thus, appears to have its origin in the enlargement of family. A large number of villages in Chotanagpur, particularly the *Khuntkatti* villages of the Mundas, Oraons and Hos, still continue to be single family or clan settlements. 'Dhansari' in the Manjhgau *Anchal* of Singhbhum is a typical Ho village. The village consists of two units. The larger and main unit has hundred percent Ho population. In the subsidiary hamlets are grouped non-tribal function castes. The title of all the members of Ho community in this village is 'Pingua' which is a clan-name.

Purpose and Function of Groupings

Any grouping of individual dwellings has some purpose behind it. It is intended to perform functions other than those performed by

1. Finch, F. C. & Trewartha, G. T. op. cit., p. 615.

individual dwellings. Human settlements represent a device and a mechanism by 'which labours of succeeding generations could be accumulated in certain advantageous spots'¹. Man developed the faculty to foresee his requirements, not only of immediate future but also of comparatively distant future. It was this foresight that made him put his labour in an organized way. Further, he developed a knack to make use of the resources in the close vicinity as well as at a greater distance. For all these his settlements became the focal point.

Settlements, as the civilization advanced, expanded, multiplied and became multi-focal. The number, proximity and permanence of settlements produced an artificial state of affairs leading to the emergence of civilized countryside. Civilization introduced complication in the arrangement of rural population and the composition of settlements. A village when originally founded, was just an enlargement of the domestic household of a family. It was a complete society, a little cosmos and a world of its own. It has its origin in pre-commercial economy when a man individually or in family was obliged to produce all of his requirements and was to do all the work essential for life. It naturally came to consist of all the social classes and functional groups. Most of the old and traditional Hindu villages still preserve the ancient frame of a complete society. Five function-castes, priest (Brahman), barber, carpenter-blacksmith, potter and washerman, are the essential components of every village community. In absence of any one of them a village community is incomplete and has to depend upon neighbouring villages. Tribal culture could not achieve the stage of functional specialization and functional divisions of population and, as such, a typical tribal village has no distinct function groups. Functional population even in the tribal countryside consists of, as stated earlier, non-tribal immigrants who are grouped, depending upon the size of their population, either in a separate village or in a hamlet subsidiary to a tribal village. Thus, fragments of the social and occupational stratification of a typical Hindu village found here and in Chotanagpur, clearly indicate the relatively backward state of the cultural evolution of the region.

In the pre-commercial economy, self-sufficiency was sought within a very narrow areal limit. The introduction of barter and later, the development of cash-trade changed the meaning and scope of self-sufficiency. The area of self-sufficiency went on expanding beyond the village boundary to a group of villages, to a region and finally, with the develop-

1. Blanche, Vidal de la, *Principles of Human Geography*. London, 1956, p. 273.

ment of modern communication system, it became conterminous with the world society. A farm-house in the U. S. A. is no more required to be grouped, for isolation and separation are no more the handicaps in obtaining the required things from far and near.

Size of Settlements

Dwellings tend to group together and form a village. There appears to be an optimum size for such a grouping beyond which a village cannot grow without entailing a change in the character of settlements and the economy. Size of population and physical limitations of man appear to have been the two primary factors that limited the size of a settlement in a given period. A village was required to have such a size of population within which all the primary wants of the community could be satisfied through mutual co-operation and exchanges. In the tribal society of Chotanagpur, particularly in the remoter and less accessible forested hilly tracts, the wants of the people, even today, are relatively few and simple. They are easily satisfied by mutual co-operation within a small village community. The average size of a village community in Chotanagpur is, therefore, smaller than in the Plain.

The area of a village is the expression of the physical limitations of man and of the resources that he uses. The urge behind settling down is to make a fuller use of the resources in the vicinity. The difficulty with man is that at a particular moment he can move in one direction only. This confines his exploits to a line or a linear belt. To exploit the resources all around himself he has to take a turn and to rotate round a pivotal point which is the position of his stand-by, his settlements. The radius of his rotation is limited by the nature of terrain, the speed of his movement, his efficiency to work, the size, nature and distribution of resources and the competition with and fear of encroachment from other communities. The longer the radius, the longer is the time taken in rotation. If it is too long, the time taken might be so much that the products to be collected in different sectors would be wasted or taken away by some one else. Normally, the diameter of the rotation equals the distance which might take such time as to spare eight to ten hours for work every day. Time taken in traverse and time given to work vary directly with the nature of terrain, means of communication, technical skill and equipments of the workers. As the movement became easier and faster new economic activities, e. g., trade and commerce developed. The area of trade transcended the village area. The tribal society of Chotanagpur could not produce a trading community. The point of barter cannot, therefore, be very far from the

settled communities. Prevalence of barter system led to the development of local periodic markets. These periodic markets form one of the most conspicuous features of the cultural landscape of Chotanagpur. They are better organised, are a richer representative of the local, cultural and economic life and problems than the village markets of the Plains. They are not only the centres of commercial exchange, but also places where matrimonial engagements, cock-fight and other features of *mela* can be seen. Such markets are, more or less, evenly distributed all over the Plateau and the inter-community barter area is naturally small. This has prevented the evolution of towns in the tribal Chotanagpur. The market site is usually equidistant and most convenient and easily accessible from the villages to be served. Such points are not necessarily to be found within a village, as such, a large number of market sites are without any permanent settlements. From early in the morning on the market-day, these lonely sites begin to throb with life and activities and by sunset are completely deserted and for the rest of the week or half-week remain so, bearing the marks of desolation. On some of these sites, particularly located on greater distance from settlements, permanent sheds and structures, necessitated by the unpredictable monsoon showers, have been constructed. Sometimes, especially during the monsoon period the visitors are obliged to spend a night in these shelters. The most favourable sites for such markets in Chotanagpur are provided by cols, natural cross-roads, nick-points, mid-points of meanders, apices of alluvial fans, outskirts of an extensive forest and the like. In areas of comparative evenness markets are usually located in the central villages of physical units.

Quantity, nature and distribution of resources also affect the size of a village. In areas of inabundant and scattered resources, village-area is generally larger than in areas where the abundant resources are closely spaced. In the hilly, forested and rugged areas, particularly in the western and south-western part of Ranchi District, the village-area varies between 3 and 5 square miles as against less than one square mile in the Plains and fertile river valleys. Because of low productivity, one is obliged to plough a much larger area for his simple sustenance than one does in a fertile tract. The value of land is so low that the tribal cultivator did not bother to have any measurement of land. In most of the higher plateaus the amount of seed required is the real measure of the size of agricultural holdings.

In the forest environment, the exploitable resources are widely scattered. Gathering is a selective process and one might be obliged to traverse a long distance to have enough for his sustenance. Besides,

cultivable tract occurs in widely scattered patches. General diffusion and scarcity of required forest-products have obliged the settlements to be farflung, so that enough area for exploitation may be available in-between settlements.

Productivity of land is a measure of the size of the village-population also. In the fertile Ganga Plain a particular unit of land can support a much larger population than a similar unit in the Plateau. Naturally, in the fertile tract within a smaller area a larger population can live profitably. A similar size of population requires much larger area in the plateau, but beyond a certain limit the exploitation of an area from a centrally located settlement ceases to be profitable and practicable. Size of population has, therefore, to be reduced to make living worth while within the working limit of an area. This explains for a large number of small-sized village-communities in Chotanagpur.

Simple density of population also reflects upon the area and population of villages. Higher density of population leads to higher density of villages per unit area. In all such areas of the Plateau where the density of population is high, the villages are ordinarily, more closely spaced and more evenly distributed.

Nature of Grouping

Though grouping is an essential feature of settlements, it does not occur universally and uniformly. Degree of grouping varies so widely that on the one end of the scale are the nucleated villages like those of the Upper and Middle Ganga Plains and on the other end are the isolated dwellings scattered in a manner characteristic of the physical conditions in the Himalayas. Among other factors, dissection of surface and diffusion of resources lead to the diffusion of settlements. Such a distribution of dwellings, commonly termed as scattered or dispersed settlements, is not completely devoid of the elements of grouping. There is hardly a house that belongs to a single individual. Every dwelling is commonly shared by a group of persons, called family. Family is the basic unit of society and represents grouping on the smallest scale. Further groupings are just the multiplication of the basic units of society. Two sets of factors, natural conditions of the habitat and stage of culture, are responsible for thwarting the growth of larger communities than a family. Dispersed settlements are essentially associated with primitive culture and backward economy. Man can live in isolation only when his wants are few and simple. With the advancement of culture and civilization, wants multiply and the fulfilment of those wants requires co-operation from a larger number of people. With increase in wants, human association becomes multiple and complex and

human congregations grow in size and number which ultimately lead to the development of compact settlements, ranging from small hamlet to large metropolis. In view of the American farm-houses, the above generalization that the areas of dispersed settlements are the areas of primitive culture, requires modification. Dispersed settlements today are characteristic of either the lowest or the highest form of culture, though even in America "dispersed settlement is characteristic of agricultural areas".¹

VILLAGE : Meaning, Composition and Character

A village may be defined as the smallest wholistic unit of settlements. Village is a community composed of several proto-social units of varying denominations. It is a composite entity and is complete within itself. It is settled and organized within a definite territory by tangible social, political and economic bonds. The Hindi equivalent for village is *ganwa* which is derived from the Sanskrit *grama*. The term *grama* has a two-fold connotation. In its wider sense it refers to an aggregate of cultivated and un-cultivated holdings with the houses of cultivators and others, grouped together at a central site. *Grama* in this sense is an administrative unit. For generations in India *grama* has been functioning as the basic unit of revenue administration. In the British administrative set-up *thana* became the smallest administrative unit. *Thana* was composed of a number of *mauzas* or 'revenue villages'. A 'revenue village' was conceived as a group of settlement units allied with a purpose. The purpose was generally agricultural, related to common irrigational facilities. Very often, 'revenue villages' formed the estate of a single *zamindar*-family.

In the narrow sense, the term *grama* refers to the congregation of dwellings, the settlement only. *Basti* in Hindi is synonym for this part of its meaning. Henceforth, village will be used in its narrow sense and will mean *basti*, the settlement or homestead area only. The term village used in conjunction with such term as area or territory will refer to its wider connotation. Thus the *grama* may, in one sense, merely refer to the parcel of the ground with definite boundaries. It may mean only the inhabited site. It may also mean both, the land as well as settlements. All these connotations, in spite of the apparent confusion, are very precise and are clearly understood by the local population.

Hamlet

The dictionary meaning of the term 'hamlet' is small village. In the present text 'hamlet' is however, not used in the sense of a small or

1. Finch, F. C. & Trewartha, G. T., op. cit., p. 621.

miniature village. The word 'hamlet' does not carry with it any idea of a related parcel of land. Hamlet is, thus, less than a village. It is part of a village, consisting of a social, ethnic or economic unit like many other units which together constitute a village. A hamlet is not an independent unit of settlements. It is subsidiary to another unit which is the main unit of settlements or it may be one of several similar units of the same status in the ground forming together a village.

Homestead

Basic constituents of a village are homesteads. A homestead is more than a family dwelling. It is defined as 'dwelling-house with out-houses and enclosures immediately connected with it'. Besides the dwellings, it consists of such features and structures which are essential for the rural way of life. They are required to give physical frame to varied functions that a villager in India is to perform. Such structures are cow-shed, cattle-stall, barn, thrashing ground, straw-stack, fuel-pile, compost, general dumping ground, well or pond, mango or bamboo groves and *bari*-land (a sort of enclosed farmyard). Besides a tribal-homestead consists of a hennerly and a piggery. All these are generally adjacent or attached to the family-dwelling with advantages.

Community Places, Religious Institutions and Altars

Every village consists of quite a few places, built or unbuilt which belong to the village-community as a whole. Most of them are institution intended to perform special functions and render specific services to the village-community. Most numerous and universal among them are the religious places. In the Plains and in the more intensively Hinduised parts of the Plateau, temples occupy places of pride in the rural scene. They are the most prominent and conspicuous features rising much above the rural sky-line with glittering brass *kalash* or *trishul*. Every village does not, however, possess a temple. Temple is a symbol of rich historical past, legendary or mythological importance of a place, better economic conditions, larger population and landed aristocracy. In ancient days, an Indo-Aryan village was founded on certain principles laid down in the *Silpa-Shastra*.¹ A central place, at the intersection of east-west and north-south streets, was given to 'Brahma,' the Creator and Protector of the Universe. Even today, in most of the traditional villages, *Brahma-Asthan* beneath the shade of a *pipal* tree is found at a central place. Patron deities of the village-community who presided over the different quarters of the Universe, had their appointed places. Each temple or shrine had thus an appropriate site fixed according to the

1. Howell, E.B., *The History of Aryan Rule in India*, London, 1911, pp. 22-25.

aspect of the Divine Power which was to be worshipped'.¹ Even today, all the villages with sizable Hindu population have shrines dedicated to 'Shiva,' 'Devi,' and 'Hanuman' and a few village-godlings. These places, depending upon the economic conditions of the people, might be just recognizable spots with raised earthen mounds, with or without statues, or might have masonry platforms and elaborate super-structures. These shrines with usual features repeat themselves in specific sectors of every village.

Historical Sites

Most of the villages, particularly in the northern half of the plateau, are the first founded villages and old enough. They have had some glorious flashes in their long history and are proud to have some historical sites, ruins of palaces and forts of some petty rulers, local chieftains or landlords. These ruins form a very much live part of the village for they are preserved and looked to with reverence and awe. Sometimes, they are believed to be haunted by evil spirits and are treated as 'forbidden piece of land'.

Open Space

Besides the religious and semi-religious places, the villages contain some open space, either in the centre or on the periphery. These places serve as general assembly ground, play-ground or the rest-ground for the cattle, particularly during the summer's mid-day. Such places are usually planted with trees and might contain some shrines or worship-spots.

Public wells, cattle ponds and bathing *ghats* on the river banks are well-known and important elements in the village morphology. Funeral places in the Hindu villages are generally located far away from the settlement site and, therefore, they cannot be included in it. Muslim and Christian graveyards lie, however, within the settlement area.

Morphological Elements in a Tribal Village

Tribal villages differ from Hindu villages in territorial organization and morphological details. There are very few structures and places in a tribal village that belong to the whole community.² Temples are missing and shrines dedicated to traditional village-gods, do not exist. There are four universal features of tribal villages. They are *sasan*, *sarana*, *akhara* and community ground. *Sasan* is the burial ground of the Mundas and Hos. To honour the dead, a *diri* (stone-slab) is placed on the

1. Acharya, P. K., *Mansar*, vol. VII, London, 1946, p. 126.

2. Under the 'Khuntkatti' system the whole village territory belonged to the community.

grave and hence, the graveyard is called *sasan-diri*. *Sarana* is the place of sacrifice and rituals. Each village consists of a general assembly ground. Very often, the assembly ground is located away from the settlement site, near a spring or river, preferably on higher ground or a rocky eminence. *Akhara* or dancing ground is an essential component of a tribal village. Community dancing appears to have been institutionalized among the Oraons. Formerly, a *Dhumkuria* or dormitory was attached to the Oraon dancing ground. It was obligatory on the part of all the unmarried boys and girls to attend *Dhumkuria* till they selected their partners and announced their engagements. This institution is largely dead and no Oraon village, except, perhaps, a few in the remoter areas practises *Dhumkuria*. *Mahua* tree, mango and bamboo groves are generally found in all the tribal villages. Hedges and fencing plants are common sights. Villages situated in the *Pat* region and Palamau forests have intricate lattice-work made of bamboo around the cultivated plots within the village site. The lattice-work is intended to ward off wild animals which ravage the crops. Close to a Munda and Ho village are planted some *sal* trees forming the sacred grove.

The chief constituents of a Santhal village are very much the same as found in the Munda and the Ho villages. Every Santhal village consists of an *akhara*, *Manjhi Than* (the residence of the spirits of departed *Manjhis* or Chiefs) and *Jaher Than* (the Sacred Grove which consists of a patch of primaeval *sal* forest left intact through generations). In this grove resides the greatest of all the Santhal gods and most important sacrifices are performed over here.

Most of the tribal villages have a public ale-house where they collect to drink, *handia* the crude liquor made of rice. In non-tribal villages of the broad river valleys and the Fringe Zone where soil permits the growth of palm and dates, toddy-house is a regular feature. Toddy-house represents the most improvised sort of structure that gives a temporary look. In large villages where some business or trading communities reside a few retail shops are found located at convenient points.

Post-Independence legislations and land-reforms have destroyed some of the old institutions of the villages. On the other hand, new institutions have been added to important villages. Before the abolition of *Zamindari*, most of the villages consisted of a *Zamindari*-house where officials of the *Zamindars* were to reside and carried out revenue administration of the village. After Independence, under the Bihar Panchayati Raj Act, three or four adjacent villages were grouped to form a *Grama Panchaya*. The office of the *Grama Panchayat* is located in the most important village of the *Panchayat*. The size and quality of the *Panchayat*

house depends upon the efficiency of the organization and the size of revenue. Old *Thanas* have been re-organized into *Anchals* or Development Blocks. The Anchal headquarters, located in the most important village of the Anchal looks like an urban patch in the rural morphology. They represent an alien element, both from human and material points of view.

RURAL SETTLEMENTS

Definition, Meaning and Limitations

Classification of settlements into rural and urban is primary and traditional. The twofold division was complete, distinct and easily comprehensible until the economy became complicated and diversified. New economy gave birth to new settlements and all such newly developed settlements are not easy to be classified, either as rural or urban. A village is essentially a rural settlement. It was the product of agricultural economy. Most of the people living in the rural areas were and continue to be cultivators. Other people, belonging to service and function classes were largely dependent upon agriculture, for they had fixed share in the agricultural produces of the persons whom they served. It was the recognition of this fact that led Aurousseau to say that the "section of the population that lives in the countryside and is engaged in primary occupation is rural".¹ Before the Industrial Revolution, primary occupations were few, e.g. cultivation, hunting, fishing and gathering of wild products. With the development of technology-based industrial economy, new occupations sprang up. One of them is mining which is as basic and primary as fishing or hunting. Mining activities have produced settlements on large scale which are not characteristically urban and one would be reluctant to class them as rural. Modern communication and extensive industrialization have largely changed the rural situation. Rural areas or villages are no more isolated than small towns. They are very much within the radiant glow of modern civilization. Enormous growth of pre-existing towns and emergence of new urban centres effected immense changes in the rural scene. "Rural cultures have been profoundly affected by the impact of urban ways of life. So deeply associated are towns and villages in their relations that in effect no clear-cut distinction can be drawn between the urban and the rural ways of life".² The difficulty is so genuine that several authorities appear to be evasive as to define 'rural', though they have laboured much to define 'urban' or 'town'. Census authorities, baffled with the problems, have always been changing

1. Aurousseau, M., *The Distribution of Population: a Constructive Problem*, G. R., vol. XI, 1921, 0.567.
2. Dickinson, Robert, E., *City and Regions*, London, 1960, p. 52.

their criteria for distinguishing urban from rural. In the past, the classification 'was left entirely at the discretion of individual Census Superintendents'. Later, a population criterion was adopted to which was added the occupational structure of the population. In the Census of 1961, standards laid down are that a settlement to qualify as a town 'must have (1) a population of not less than 5000, (2) a density not less than 1000 persons per square mile and (3) at least three-fourths of the adult male population engaged in non-agricultural livelihood'.¹ Exceptions have, however, been made in a few cases on account of their historical importance, tourist interest or administrative significance'. Besides these admitted exceptions, a good deal of confusions appear to prevail with the Census authorities regarding the settlements in the mining areas. Three *anchals* of Dhanbad District, viz., Jharia, Dhanbad and Nirsra, have extensive mining settlements which have nothing to do with agriculture. The population contained is much larger than the urban-size and the density is above 1000 persons per square mile, but they have been classed as rural.

From various attempts at classification by Census authorities, Governmental agencies, sociologists and geographers, it appears that 'rural' is defined as 'nonurban'. One may, therefore, say that irrespective of the size, occupation and density of population, all such settlements which are not typically urban are rural. Such is the treatment given to rural settlements by various authorities. But the problems of distinguishing rural from urban remains largely unsolved. It can be approached from urban side. "The urban settlement, in the broadest sense, arises through the combination at a fixed place of a variety of special functions which are needed in the service of a civilized society.....and in consequence a distinct type and grouping of building structures"² arise. It is clear from the discussion that historical and actual distinction between rural and urban, village and town is not always a sharp one. Most of the pre-industrial towns are the outgrowth of villages. A nucleated settlement is, "in varying degree, a centre of services and organization for a surrounding area".³ Every village which is nucleated, thus, bears the germ of a town and may be called a proto-town awaiting fuller growth. These aspects of a village further complicate the problem of classification. An easily felt distinction appears, however, to lie in the morphology and nature and function of houses in rural and urban areas. When man invented house, it was originally designed to perform one

1. Census of India, 1961, Bihar, vol. IV, Part II-A, p. 10.

2. Dickinson, Robert E., op. cit., pp. 77-78.

3. Ibid, p. 52.

essential function--providing protective shelter to the occupants. As the culture advanced and man became civilized, his wants multiplied and his dwelling was required to perform many more functions. Original structure for a sleep-shelter failed to cope with the multiplying function of a house. This led to the evolution of additional structures, first attached to the night-shelter, but subsequently, occupying separate sites. With further multiplication and specialization of functions, specialised function-houses began to emerge adjacent or a bit away from the shelter area. Later, when the function houses became numerous, bulky and extensive, they required separate groupings. Thus originated *bazars* and *bazar*-towns. In rural areas residential houses greatly out-number the functional houses, but in towns, particularly in big cities, the latter have assumed a dominant position. The contrasting proportions of the two types of houses institute a fundamental difference in rural and urban settlements.

Chief Characteristics of Rural Settlements

Difficult as it is to define, certain criteria may, however, be laid down to distinguish 'rural' from 'non-rural' types of settlements. Rural settlements consist of such dwellings which belong to the countryside. They are usually located in the midst of agricultural lands. The dwellings are grouped into settlement-units called villages. Spatial components of groupings vary widely in different areas, leading to variations in the degree of cohesion, aggregation, concentration and integration of individual home-steads and their functions. In favourable situations they nucleate to form compact villages, but nucleation is always on a smaller scale than in towns. Nucleated rural settlements have achieved a certain degree of proliferation and diversification in economy and function, but these achievements are still kept to the minimum and are no match for their urban counterparts. Though building materials, with general improvement in economic well-being and with the introduction of fast transportation system, are becoming increasingly extra-local, they still continue to be largely of local origin. Friction of space being minimum, the rural settlements have grown horizontally rather than vertically. One-storeyed building is the rule that keeps the sky-line low enough. Macadamised roads are non-existent except in those villages which lie on important trunk routes. Independent functional houses are few. Family dwellings with additional structures perform all the functions connected with agriculture and rural way of life. The proportion of unbuilt areas is generally larger in the rural than in urban morphology. Unbuilt areas are largely unaltered and, in a sense, are the relics of natural earth. Rural settlements continue to be in natural settings. Rivers and streams

across a village territory flow as untamed as in the uninhabited forest fastnesses. Hills and rocky eminences that have largely escaped humanization, raise their heads frequently above the rural surface. A large number of trees, bushes and shrubs grow in association with dwellings and agricultural fields. These groves, remnants of original vegetation, impart a feel of jungle environment even in the thoroughly deforested parts like the Ranchi plateau.

Non descript Settlements

Such settlements which are typically neither rural nor urban have various origins. Largest and most extensive among them are in the mining areas in the districts of Dhanbad, Singhbhum and Hazaribagh and less extensive in Palamau, Ranchi and the Santhal Parganas (fig. 22). Similar settlements have sprung up near the sites of large development projects. A number of such projects of varying sizes and durability are located in various parts of Chotanagpur. A good many of them are river valley development and dam-projects. Important among them are the D.V.C. (Damodar Valley Corporation), Getulsud, Tenughat, Sankh and South Koel Valley Development and Dam-Projects. A few are large industrial installation projects. An essential characteristic of mining and development projects is that they locate huge bulk of human labour suddenly at places hitherto unattended. Location of such labour is for a short period only. These characteristics reflect upon the countryside and complicate the rural economy.

Mine constitutes a special category of space. It represents an extension of the area of human exploitation beneath the sub-areal surface. But, it is a surface upon which man cannot live. Mining settlements first grew near the exploitation points, the pits or shafts. As the activities increased larger labour force was called in and the settlements tended to move away from the operation points. Separation of settlements from operational areas was prompted by the idea of keeping the prospective mining areas free from settlements for future extension of pits and shafts without involving the costly processes of demolition of existing settlements and construction of new ones. Increased network of roads and railways in the mining areas of Dhanbad and Singhbhum facilitated the process of dispersal of settlements. Demand for better living conditions and healthy surroundings forced the hands of mine owners to build the housing colonies for the miners away from the mines. These characteristics of mining activities and their sprawling settlements affected the countryside on much larger scale than the few industrial centres that have recently emerged. In the beginning, the mining settlements withdraw population from the rural areas. This withdrawal

takes place through a process of screening and selection. The selective process of the population dynamics has brought about a fundamental difference in the composition of rural and mining communities. Subsequently, with the growth of extensive mining settlements and their scatter-up the countryside was invaded from the mining side. Population, particularly the superannuated labour and non-mining business and skilled personnel, spilled over from the mining areas to the rural areas. This resulted in phenomenal increase in the density of rural population. Expansion of communication system and faster means of transportation increased social and economic intercourses among the rural folks. Mining attracted industries and "varying combinations of mining and industrial way of life took place with the rural way of life".¹ Consequently, certain features of non-rural settlements were added to the village morphology. Coal-depots, petrol pumps, vehicle repair-shops, tea-stalls, electric installations and the like, have dotted the rural landscape. As a result of the absorption of areas into mining, certain amount of space was alienated from the countryside and a large number of villages were evacuated. The uprooted population partly established themselves in the mining areas and partly went to expand the rural settlements in the neighbourhood. Emergence of mining towns like Jharia, Kodarma, Bermo and Noamundi disturbed the historical balance of regional economy. This resulted in "the displacement of historical and economic poles of activities."² Thus, the rural economy received a major shake-up at the hand of mining economy which immensely reflected upon the rural settlements.

The effects of the development projects are less extensive and are likely to be more short-lived than those of mining. During the period of projected development labour colonies have sprung up near the project sites. These colonies are of temporary nature and are liable to subsequent evacuation and destruction. Along with the colonies, a few permanent officer's residences have been constructed. To cater to the needs of this temporarily located population retail shops, hotels, service centres, stores and small workshops have also come up. All these are essentially of temporary character which is convincingly manifest in their temporary improvised structures. Most of these houses are made of wooden planks, card-boards, bamboo-mattings and other thatching and movable structural materials. A few of them are, depending upon the nature of functions and value of the articles to be housed, made of mud or mud-mortar-brick walls and corrugated iron or asbestos

1. Brunhes, J., *op. cit.*, p. 171.

2. *Ibid*, p. 169.

sheets on the top. All the projects are not of the same nature and duration. There are projects which are going to last longer and exist in one way or the other. Such are the projects of Bokaro Steel Limited and Heavy Engineering Corporation. These projects, even after their completion, will continue to attract and employ large population. They will subsequently give rise to industrial towns, and the place of temporary project-settlements will be taken up by those of permanent nature. These settlements will be completely different from those which existed before or are existing at present.

All these settlements are essentially of non-rural characters and it would be incorrect to include them in the rural category. They are, in fact, urban settlements, representing one of the numerous specialized urban functions. They are monofunctional urban colonies located at a greater distance from urban centres and for that matter, are comparable with the dispersed rural settlements in the hilly areas.



RURAL SETTLEMENTS

DISTRIBUTION, SITING AND DENSITY

In previous chapters various aspects of natural earth and territorial organization of rural economy and production have been discussed. Processes and sequences of occupance, historical traditions, social organizations and cultural complexes have also been dealt with in detail. General and regional analyses of the various aspects of demography, particularly the distribution and density of rural population were made. The fact that "place orientation and geographic correlations are the primary pre-requisites to adequate understanding of natural and cultural land-marks",¹ makes it imperative to show the actual distribution of a phenomenon in any geographic study. To show the actual distribution of rural habitat, "both as a fact in itself and its actual correlation to other geographical facts",² is a prized end in itself. Settlements have specific location and occupy fixed and definite positions on the earth-surface. They bear a definite relationship to space at large and the space involved in between various units of settlements. Thus, settlements are distributed in the same sense as any other phenomenon on the earth surface.

Problems and Methods

An appreciation of the distributional aspect of settlements is difficult and short of exact procedures. The distribution of population admits of statistical methods and is understandable in terms of density. Distribution of settlements is not quite amenable to mathematical treatment. The distribution of settlements when treated statistically and reduced to arithmetic density becomes deceptive and fails to convey any sense. This is because of several reasons. There are no standard units of settlements. Settlements vary in size, areal extent and population content. There is no exact relationship between the

1. Meyer, A. H., 'Circulation and Settlement Patterns of the Calumet Region of North-Western Indiana and North-Eastern Illinois', A.A.A.G. vol. XLIV, Sept. 1954, No. 3, p. 248.
2. Fawcett, C.B., 'The Distribution of Rural Settlements', (Record) G. J., vol. XCIII, No. 2, Feb., 1939, p. 152.

population and the areal size of villages. Besides, the dwellings have varying degree of cohesion and their arrangement differs from place to place. The variation in the degree of cohesion and compactness of settlements introduces an element of differentiation in the distributional pattern of settlements. In the adjoining Ganga Plain, the settlements consist of large compact villages. The areal extent of such compact villages is very small. On the other hand, the settlements in the hilly and forested parts of the Plateau are largely dispersed. A village inhabited by 1000 people in the Sone valley appears like a big dot on

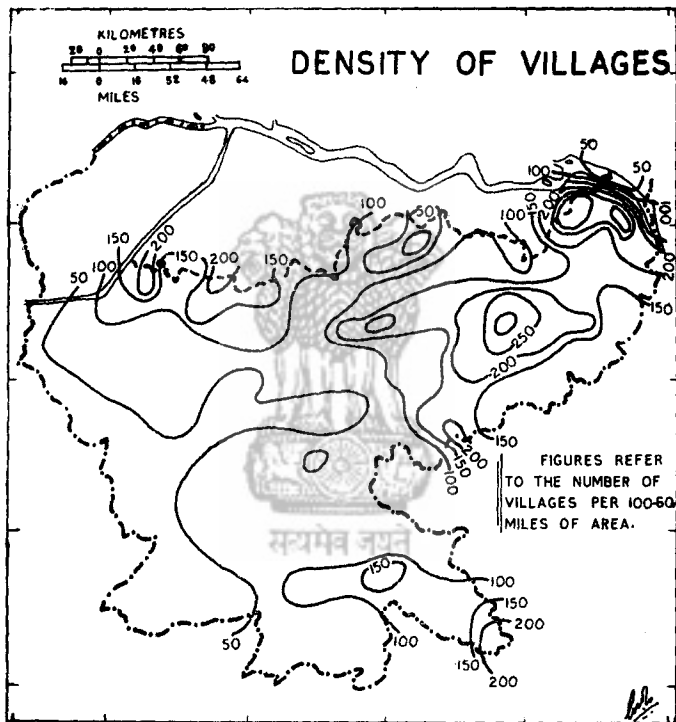


Fig 48

(Based on 1961 census)

the map. On the other hand, a village of the same size of population on the Koel-Kanhar interfluvium or in the Deoghar Erosional Depression occupies an area eleven times larger. Thus, even though the number of villages in the areas of dispersal is smaller and the population content poorer, they convey a picture of higher density than the areas of compact settlements (fig.56). In the areas of compact settlements, the interspersing of villages and cultivated lands at regular intervals gives an orderly picture of distribution and for the reason that the cultivated interspace is several times larger than the homestead area, the picture of

distribution and density imparts a sense of sparseness. On the contrary, in the areas of dispersal the cultivated patches are irregularly distributed. Further, they are not entirely devoid of settlements. Consequently, the visual picture obtained from the map is that of a higher density (fig. 56)

Difficulty arises also due to various approaches to define village. Revenue village is quite different from the village commonly understood by the people. A revenue village that refers to a definite parcel of land may consist of anything from a single compact village to a group of

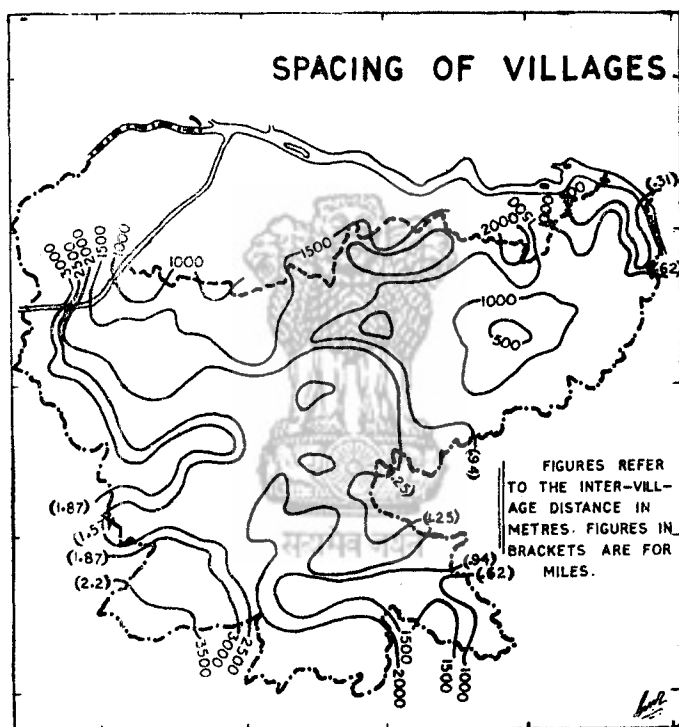


Fig. 49

(Based on 1961 census)

villages, hamlets and huts. The ratio between the number of revenue villages and the area fails, therefore, to give any idea of the density of settlements per unit area.

Villages have also been enumerated and enlisted in various Census tables and reports. In earlier censuses, the number of villages related to 'mauzas other than those which are wholly absorbed in towns and uninhabited *mauzas*'. In the Census of 1961, 'both inhabited and uninhabited *mauzas*' have been enlisted in separate columns. "For determining

the number of *mauzas* each separate entity in the *Thana* list with specific *Thana* number has been treated as a separate *mauza*".¹ In certain districts, several entries with fractional number have been made in the *Thana* list. This multiplies the number of Census villages. Thus, even the Census villages mean different things in different areas (figs. p 48-51). A revenue or Census village in Simdega or Torpa area of Ranchi District, may cover 30 to 40 square miles and may consist of as many hamlets. On the other hand, a revenue village in the adjoining parts of the Ganga Plain may be limited to one or two square miles of area with one large and

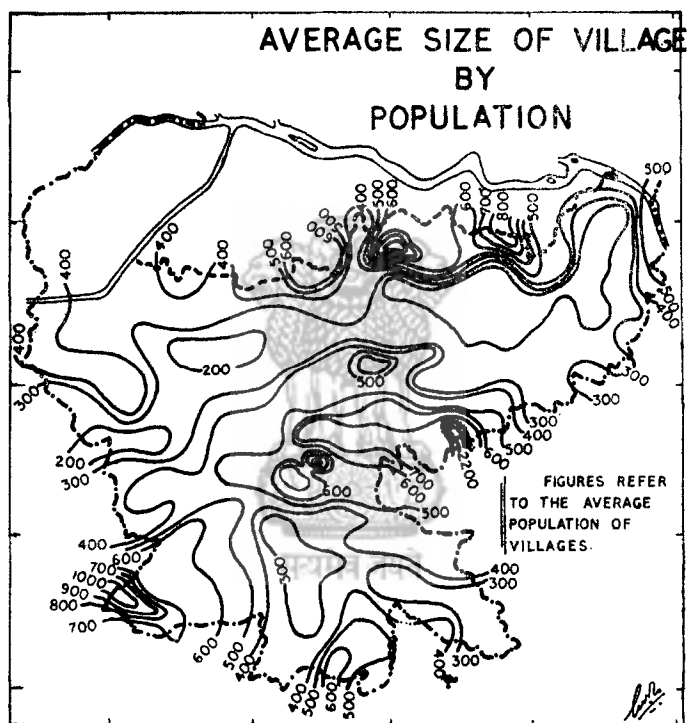


Fig. 50

(Based on 1961 census)

compact unit of settlements. In the district of Santhal Parganas a revenue or Census village is quite different. Here, it is small in area as well as in population and is largely composed of one unit of settlements. Consequently, the number of the Census villages in Santhal Parganas largely agrees to the actual number of villages in the area. Owing to the variations in area, size and population of Census as well as revenue villages, their number is misleading and any statistical treatment thereof is bound to produce misleading results.

1. Census of India, 1961, Vol. IV, Part II-A, p. 12.

The problem of a geographer becomes further complicated owing to the fact that geographic villages are quite different from revenue or Census villages. By geographic village we generally mean such unit of settlements which is distinguishable in the landscape from adjoining units by separating space and also by a specific name. These two features of geographic separateness and specific name are generally noted on the topo-sheets. It is immaterial whether such a unit is a part or whole of a revenue or Census village. In fact, it is such a village which is the actual geographical unit of settlements. But even, if all such

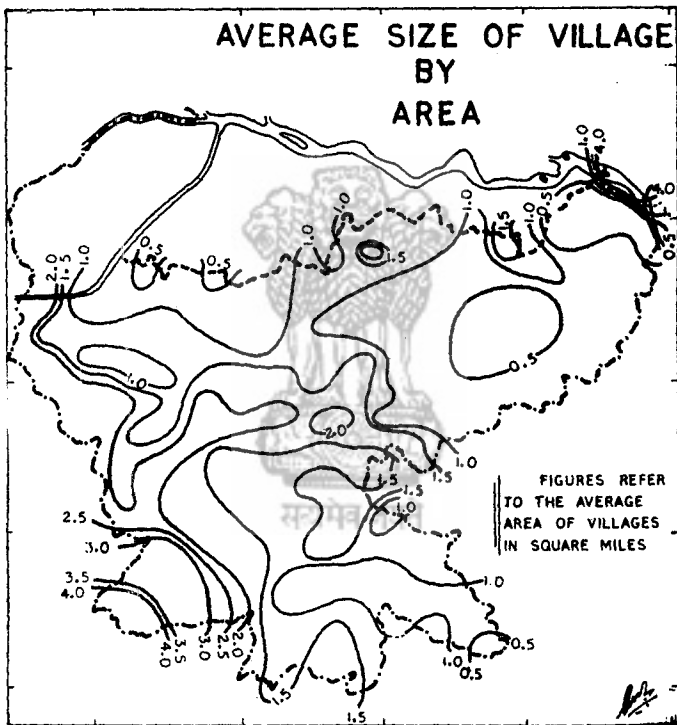


Fig. 51

(Based on 1961 census)

named settlements on the topographical sheets are counted and statistically treated to work out a ratio between land and the number of named settlements, it does not take us very far in understanding the actuality of distribution and density of settlements. In the first place, the villages vary in size, both areal and demographic. In the second place, naming system differs from region to region. In certain regions each tiny speck of settlements is named. On the other hand, there are such areas, particularly in the hilly, dissected and forested parts of the Plateau,

where several scattered huts or groups of huts bear a collective name. Still different are the systems of naming in the *Pat* region, southern scarps of Ranchi Plateau and parts of the Rajmahal Hills where some of the settlements bear no name. They are identified by territorial name or such names which essentially refer to the physical features, such as a river, a hill, a *pat* or a basin. Quite different from such naming is the system obtaining in the Chaibasa plain and parts of Santhal Parganas where the settlements tend to become linear. Very often, the settlement units become multilineal, each arm varying in length from a few furlongs to more than a mile. They often orient in opposite directions. Sometime, they meet at a central point forming, as it were, a settlement node. But very often, they appear as separate entity, maintaining an appreciable distance on the map. Even such multilineal villages bear a single name. On the other hand, villages in the North Koel basin, Lower Suvarnakha valley, Deoghar Erosionl Depression and the talus slope on the foot of the Northern Edge of the Plateau, have a plural system of naming. Settlements, occupying a contiguous area and appearing as a single cluster on the map bear more than one name, for each sector or *tola*, though contiguous and inter-connected, is named separately. Owing to the plurality of names, the number of villages per unit area becomes exceedingly large. Hence, even the number of named settlements per unit area falls short of exactitude in expressing the density of settlements. On the other hand, non-quantitative approaches do not take us far from a few qualitative expressions, e. g., closely-spaced or widely-spaced. Such expressions as sparse, dense and thick fail to convey any sense in regard to settlements.

Owing to the above-noted difficulties, several methods, statistical and non-statistical have been adopted to have an adequate appreciation of the distribution and density of settlements. Each method has been tested and applied separately. The shortcomings of each method have been statistically treated. Figure No. 51 shows the average size of *mauzas* in different parts of the Plateau. Figure 50 refers to the average size of Census villages by population. Figure 49 shows the mean inter-village distance and figure 48 gives the arithmetic density of Census villages. The figure 52 consists of four scatter diagrams. Through these diagrams attempts have been made to examine the degree of correlations between eight variables of the rural landscapes and settlements. These variables are (1) density of population and size of villages¹ (by population), (2) density of population and density of villages per unit area, (3) cultivated area and density of villages and (4) rice-land and

1. The term village in this and the following para means Census village (1961).

density of villages. There appears to be little or no correlationship between the first, third and fourth pairs of variables. There, however, appears to be quite a fair amount of correlationship between the density of population and the density of villages, particularly in the lower density grades, i. e., up to 300 persons per square mile and 90 villages per hundred square miles of area. The intersection of the lines of these two values appears to be the critical point beyond which each variable increases in complete disregard of the other. Besides, in figure 53 relief map and village density map have been compared. There does not appear any appreciable degree of correlationship between the two.

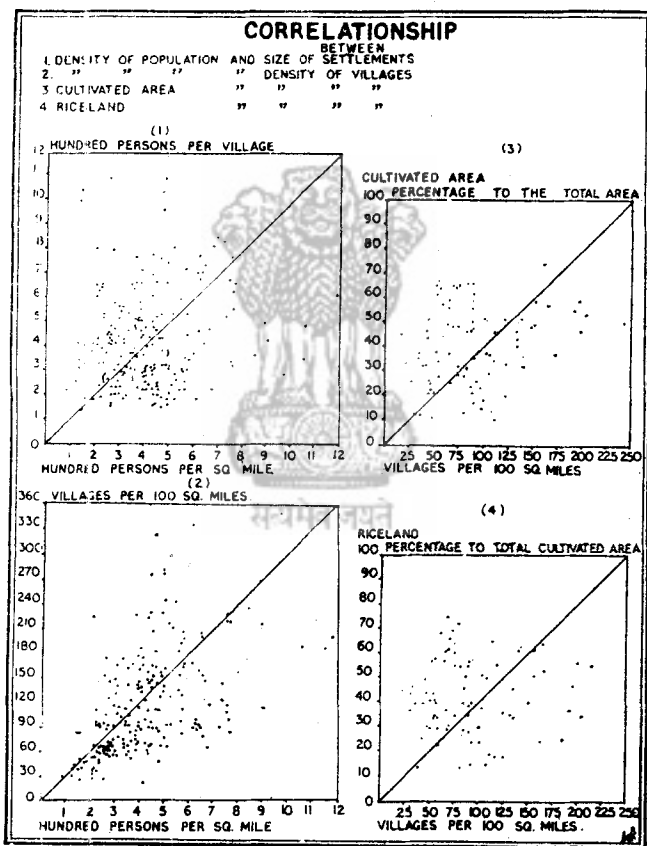


Fig. 52

These examinations lead to the following conclusions :

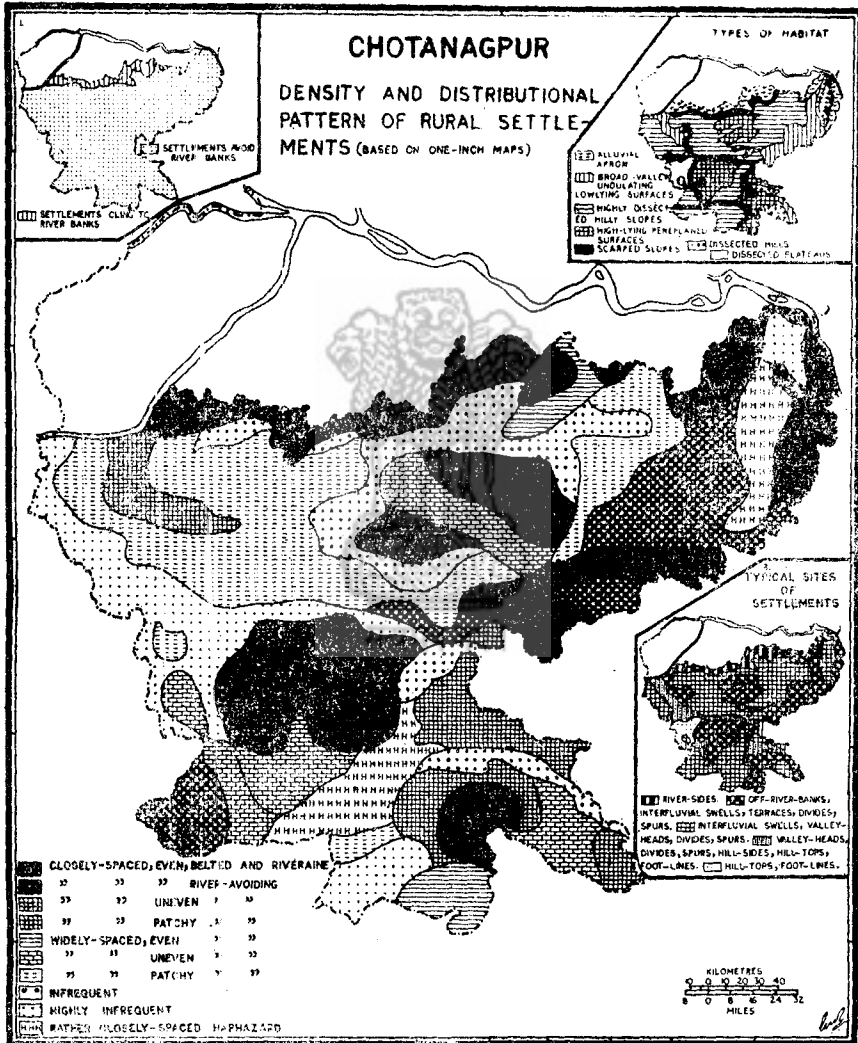
1. Increase of population does not necessarily imply increase in the number of villages.
2. Higher density of population does not give rise to larger villages. The converse is also true.
3. Extent of cultivation is no measure of the multiplication of settlements.
4. Rice is

is the staple crop and in most of the Plateau the rural economy is a single-crop-rice- economy, but the extent of rice cultivation is also not a measure of the number of villages in the given area. 5. The comparison of physiographic and village density maps suggests that the amplitude of relief has no direct relationship with the number of villages (fig. 53). The number of villages per unit area is more or less the same in three different physiographic divisions, e.g., the adjoining Ganga plains in the north, the erosional surface between the Kodarma Plateau and the Rajmahal Hills and the dissected hilly tract of the Sankh basin. Again, the number of villages per unit area is more or less the same in such areas of varying relief as the North Koel valley, Ranchi plateau and Panch Pargana plain.

Non-Quantitative Approaches

From the above discussion it appears that the distribution of settlements in terms of arithmetic density is rather incomprehensible. Distribution in terms of areal pattern, location, siting, inter-space and inter-settlement relationships can fairly be understood and can be discussed and described in non-mathematical terms. Significant aspects of the distribution of settlements are to be understood with reference to four geographic functions (fig. 53). They are (1) geographic position, (2) regional differentiation, (3) areal pattern and (4) inter-settlement-space relationship. With the geographic position is involved the question of siting. The nature and frequency at which such habitable sites occur bring regional differentiation. Similarity of sites and their frequency over a relatively wide area produce areal pattern of distribution. The nature and frequency of the occurrence of habitable sites ultimately result in the frequency at which settlements are likely to occur in a particular area. If the frequency is fixed and the settlements occur at regular intervals involving equal space inbetween, the picture of distribution is an orderly one. Such a distribution is characterized by evenness. When reverse conditions are obtaining the distribution becomes uneven. Two major factors appear to reflect upon the evenness of distribution. They are the nature of terrain (the physical earth which provides the number and frequency of habitable sites) and the productivity of land and the territorial organization of production (figs. 2 to 27). In an area where geographical conditions are homogeneous, all places are equally suitable for human habitations. In such areas settlements occur at regular intervals and the distribution becomes even. In areas of diverse conditions, opposite is the rule and the distribution becomes uneven. "In general, the number of factors that influence individual location decreases proportionately with increase in specialization. As the scope of economy is

broadened to include larger areas and number of people, opportunities for specialization become greater, and the number of factors influencing individual choice of location is diminished..... It seems that in modern exchange economy, the most attractive location for human settlements are likely to be those which promise to provide the individual with maximum real income".¹



involved—the terrain, (2) water supply and (3) the resources available in the vicinity for economic exploitation. The paramount aspects of terrain are relief and soil. A region where amplitude of relief and slope prohibit easy movement, is disdained. From the view-point of mobility, ideal conditions are obtaining in the adjoining plains of the Ganga, the broad river valleys and the peneplaned surfaces of Ranchi and Hazaribagh plateaus. Similar conditions prevail on the Kolhan Highlands and in a few other smaller areas. In these areas, the physical characteristics of terrain, particularly relief, are homogeneous which favour an even distribution (fig. 53 inset 2). The sources of water supply and exploitable economic resources have more or less even distribution which makes these areas largely homogeneous. The distribution, however, differs in regional details, much more in the plateaus and river valleys than in the adjoining Ganga Plain. These minor variations reflect upon the distribution of settlements. Consequently, the distribution of settlements in these areas, though generally even, is locally uneven.

Even distribution of settlements is also found in such areas which stand in complete contrast with the Plains and plain-like surfaces. These are the upper reaches of the Sankh and South Koel valleys and the dissected hilly tracts lying south of Ranchi plateau. These areas have the highest degree of dissection. Each major slope is divided and subdivided into a number of perplexing orders of slopes. The texture of drainage is one of the finest and the density of streams is one of the highest. Consequently, the whole surface is divided into myriads of equal-sized valleys and ridges which attribute homogeneity to the area. Owing to maximum dissection the local relief is highly mitigated. As the whole area is lined by closely-spaced streams (occurring at an interval of less than a mile) of varying sizes, the aspect of water supply is everywhere the same. Two consequences have followed from the high degree of dissection, (1) homogeneity of terrains and (ii) smallness of physical land-units. Smallness of physical land-unit is prohibitory to the expansion of village beyond a limited size. This has resulted in multiplication of settlement units which are frequently small-sized hamlets. The necessity of multiplying the settlements in number has worked towards an even distribution by reducing the inter-settlements distance. Thus even in a diverse geographical condition obtains an aspect of homogeneity which has led to the even distribution of settlements. One would, therefore, like to conclude that in Chotanagpur even distribution of settlements is obtainable in extreme physical conditions (fig. 53).

From view-point of water supply, Chotanagpur appears to be a homogeneous region. The problem of water supply is everywhere alike,

barring, of course, a few areas of small dimensions. Most of the Plateau receives a rainfall higher than 50", but the benefit of higher rainfall is largely taken away by over-drainage. The soil is thin and coarse. This inhibits a high degree of percolation and facilitates greater amount of seepage. The thin soil mantle is underlain by hard bed-rocks. These conditions render well-digging difficult, costly and unprofitable. The universal and common sources of water supply are streams in the rainy season and natural springs and artificial tanks in drier parts of the year. These sources are available in plenty in most of the areas. Hence, the problem of water supply, though acute, does not make the settlers very choosy about water points for the siting of settlements.

There are a few areas where the aspect of water supply is different from the rest of the Plateau. They are the adjoining parts of the Ganga Plain, the valleys of the North Koel, the Chandan, the Ajay, the Mor and the Suvarnarekha which are thickly mantled with alluvium. Rocks are buried deep and the sub-layers usually contain aquifers which assure a steady flow of water in the wells. Wells are, therefore, the universal and common source of water supply in these areas. This aspect of water supply has worked towards an even distribution of settlements.

Rural economy is agricultural and, therefore, tractable land and fertile soil are the most valuable economic resources. The distribution of these agricultural resources is ubiquitous and uniform in the Plains and plain-like surfaces of the Plateau. The entire patch of the Ganga Plain is excellently tractable. Fertility and other agricultural facilities are almost alike everywhere. Similar are the conditions in the broad river valleys. All these areas are, therefore, parcelled out in equal *Mauzas*. In Ranchi and Hazaribagh plateaus, Kolhan Highlands and Chaibasa plain, the micro-features of landscape are the narrow elongated swells and lowlands which occur at a very steady frequency. Consequently, two equal units of area have more or less equal amount of *don* and *tanr* lands. Such a distribution of tractable land does not necessitate the selection of one area and the rejection of the other for locating the settlements.

The homogeneous geographical conditions in these areas have favoured an even distribution of settlements.

In many parts of the Plateau, physical diversity is the rule. Hills and ranges of various size and altitude are haphazardly distributed. The surface is divided into almost equal-sized and irregularly-shaped valleys and ridges. Valleys are short, narrow and tortuous, occasionally widening into broad basins. Slopes are usually steep. Most of these areas

are covered with thick forests which further elude the possibility of a more extensive and intensive human occupancy. Such are precisely the conditions prevailing on the Northern Edge of the Plateau, the scarped faces of Ranchi, Hazaribagh and Palamau, most of the *Pat* region, the interfluvial ridges of the Barkar and Bokaro, the Rajmahal Hills, the

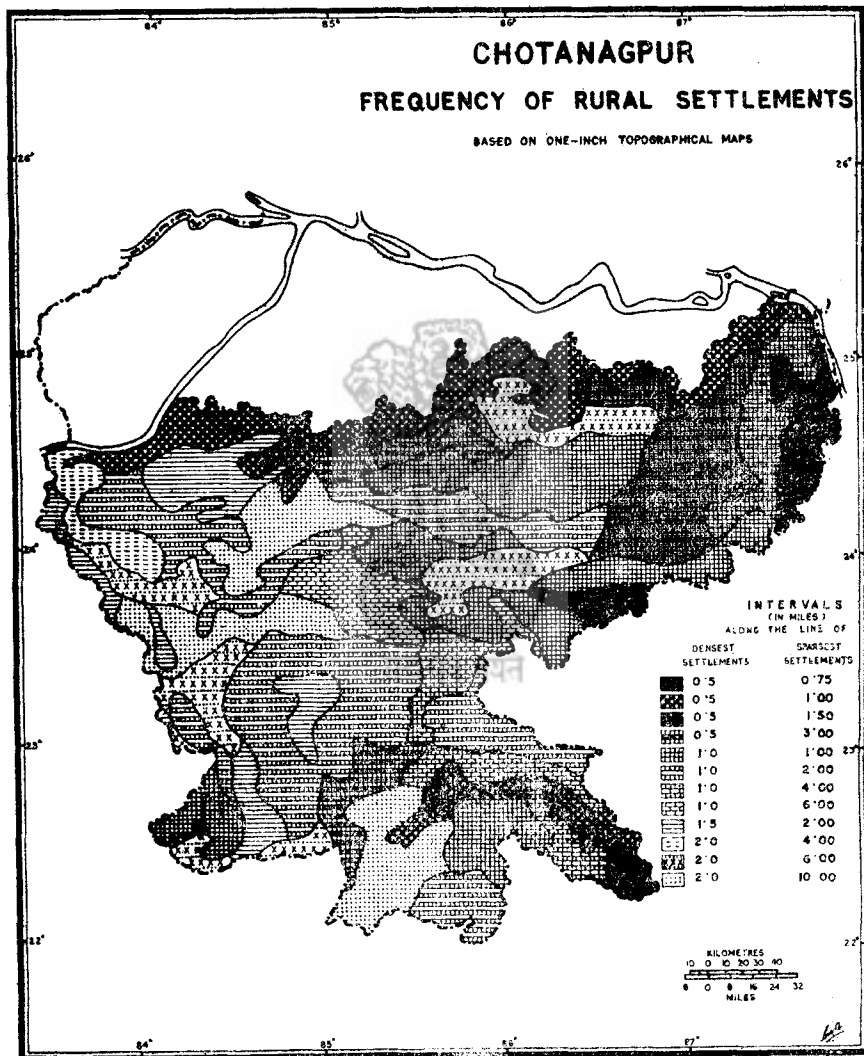


Fig. 54

Upper Damodar Basin, the North Koel-Kanhar interfluve, the Porahat hilly tract, the Saranda Forest, the Dalma Ranges and the Dhalbhum hills. In all these areas habitability is very poor. Tractable lands are too meagre and too infrequent, occurring in small patches, mostly confined

to valley-heads, meanders, divides and occasionally widened valleys. Such lands usually follow the divide lines of minor streams and avoid river banks and steep-sided lofty hills. The general picture of distribution is patchy, irregular and haphazard (fig. 54). The distribution of settlements that conforms to the distribution of tractable lands and habitable sites, is highly uneven and infrequent in all these areas.

Uneven distribution of settlements is also seen in areas which are quite different from the areas of physical diversity. They are the Jharia and Bokaro coalfields, the industrial ambits of Ranchi and Jamshedpur, and a number of broad, deep-cut valleys penetrating into the Plateau from the Ganga Plain in the north. Extensive mining in the Damodar valley has given rise to numerous mining settlements which, though widely distributed, appear lumped at places. Besides, the mining settlements do not follow the distributional pattern of rural economic resources and have, therefore, resulted into uneven patchy distribution, frequently incorporating town-sized settlements amidst otherwise rural landscape. With the growth of Ranchi and Jamshedpur as industrial centres, the rural economy and settlements in their proximity have been influenced variously and differently. A good many urban activities, particularly industrial, commercial and transportation, have exploded out of the city settlement areas. These activities have largely been located along the highways. The tempo of urban activity decreases as we move away from the city. The impact is naturally highest along the highways. In the central part of the areas bounded by two such roads the impact is lowest. The pre-existing rural settlements in these areas have not been equally benefited by the urban expansion and economic growth. Consequently, some of the villages have grown to the urban-size while some of them are still straggling in the rural moorings. As a result, the pre-existing distribution has been rendered uneven and patchy.

The deep-cut, broad, levelled valleys appear as human sanctuaries amidst inhospitable steep-sided, thickly forested hills and ridges. These valleys are covered with alluvium and are liable to inundation. Habitable sites are, therefore, few and irregularly distributed. These sites have become the foci of settlements where unusually large-sized villages have developed. Inbetween these villages lie large parts of valleys, asymmetrical and unshapely. The distribution of settlements has, thus, become highly uneven and patchy.

RURAL SETTLEMENTS

REGIONAL ASPECT OF VARIATION AND DISTRIBUTION

With the background of the distribution pattern of settlements in Chotanagpur, discussed in the previous chapter it would be purposeful to examine in detail the regional variations and other aspects of the distribution of settlements in this Plateau. As "spatial extent is always taken for granted as implicit in geographic craft"¹, it is imperative to delineate areas as the basis for detailed regional discussions. Of all the factors that influence the distribution, siting and areal arrangement of settlements, aspects of relief appear to have been most important in this part of the country where the surface abounds in multitude of physical features and the relief is high. It is, therefore, quite reasonable to accept the physiographic divisions as the basis of discussion in this chapter (fig. 6).

THE NORTH KOEL-KANHAR INTERFLUVE

This is an elongated, asymmetrical physical unit of Chotanagpur. The Kanhar and the North Koel rivers flowing from the south-east to the north-west meet the Sone. There are three imminent slopes, the two flanks of the divide sloping towards the two streams while the divide as a whole, sloping towards the Sone. There is a central dividing ridge that runs from southeast to north-west. The ridge is cut into several parts by the deep, broad valleys of such rivers as the Panda, Banki, Uria and Dhanro which are tributaries to the North Koel. In between the valleys of these rivers are the the dividing ridges which project from the central ridge. The alternating patterns of ridges and valleys have directly influenced the distribution of settlements.

All the tributaries of the Kanhar are short and unimportant. Their valleys are narrow and deep-cut and have little to offer to extensive human occupance. The pattern and intensity of human occupance, therefore, vary widely on the two sides of this interfluve and so do the

1. Whittlessey, D., 'Settlement; Sequent Occupance', A.A.A.G., vol. XIX, 1929, p. 162.

distribution and density of settlements. On the Koel sides, the settlements are larger, more frequent and more closely spaced. The broad tributary valleys appear as long belts of closely spaced settlements, separated by ridges and hilly divides having relatively few settlements. On the Kanhar side, settlements are too few to form belts of any marked concentration.

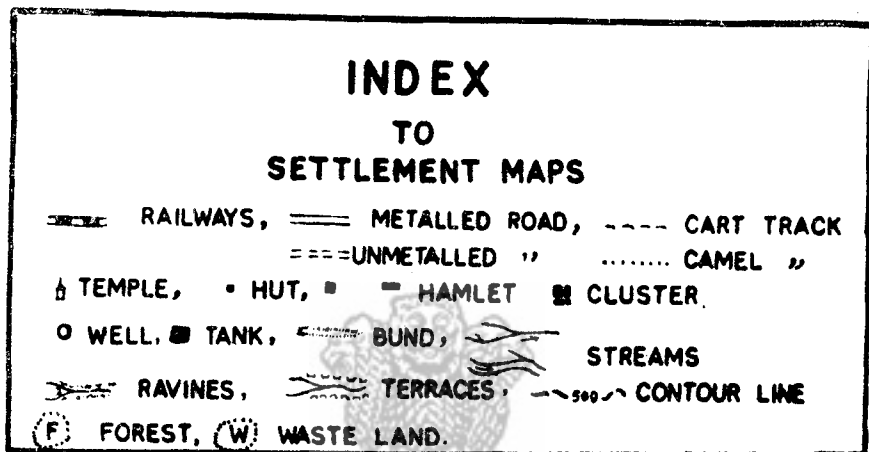


Fig. 55

N.B. All settlement maps in this chapter are on a scale one inch to a mile.

As we move further south following the upstream course, the complexion of the country changes into a more diversified hilly type. This is particularly noticeable south of the Dhanro river. The entire area lies above 1000 ft. There are high hills and spurs projecting from the *Pat* region in the south, and very often, they assume the height of the *Pat* which averages 3000 ft. The area is highly dissected and mountainous. The landscape is a combination of deep-cut valleys and steep-sided hills and ridges. The texture of drainage is very fine (fig. 5.) Extensive areas are subject to active gully erosion. The largest ravined tract is situated in the north-east corner and covers a good part of Bhandaria *Anchal* (fig. 56).

The whole interfluvial tract is largely forested. Forests are more extensive and dense in the south. Most of them are Reserved Forests, having little to spare for human occupation.

From the point of view of settlement, there are three categories of area. (1) There are comparatively broad, moderately to gently sloping

river-valleys, mostly confined to the Koel-side of the region. These ultimately merge into broad open North Koel valley. (2) Inbetween the

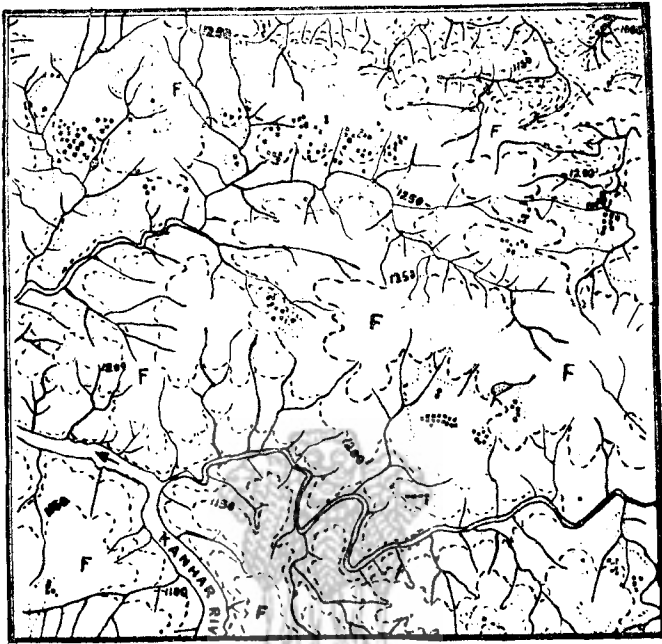


Fig. 56

Kanhar Valley : Settlements are missing from the main valley.

Spurs, divides and valley-heads are favourite sites.

river valleys are the rugged dissected hilly blocks rising above 1000 ft. The amplitude of relief in such areas varies between 500 ft. and 700 ft. (3) Between the lower valley and higher hilly slopes are occasionally found table-lands of varying sizes. These table-lands lying between 750 and 850 ft. are largely level and undissected. Habitability and human use of these three categories of area differ widely and so does the distribution-and-density of settlements. A marked concentration of settlements is seen in the valleys and table-lands. The villages in these areas are closely spaced and much larger in size, but the distribution, even in the valleys and on the table-lands, is not even. Several factors preclude the evenness of distribution. Though largely gently-sloping, local variation in slopes and elevation are by on means negligible. Extent of ravines and intensity of gully action vary widely from place to place. Variations are noticeable in the distribution of water-forms and cultivable lands. Fertility of soil also varies within a very wide range. All these factors have produced a very uneven distribution of habitable sites, leading ultimately to

uneven distribution of settlements. The quality of habitable sites also differs from place to place. Consequently, the villages vary in size from a small hamlet of two to three huts to large clusters comparable with those found in the North Koel valley. Owing to varying size of villages, sprawling clusters and occasional concentrations, the unevenness of distribution acquires a patchy character (figs. 53 & 55).

On higher slopes and hilly areas, two types of distribution are noticeable. In such areas where the streams follow neatly laid, simple courses the areal pattern of the distribution of settlements corresponds closely to the drainage pattern. Isolated huts dot the courses of streams and tributaries (fig. 57), occasionally forming small clusters at relatively favourable sites. On the map, the lined huts and clusters appear as bunches of flowers hanging from the twigs and branches of a tree.

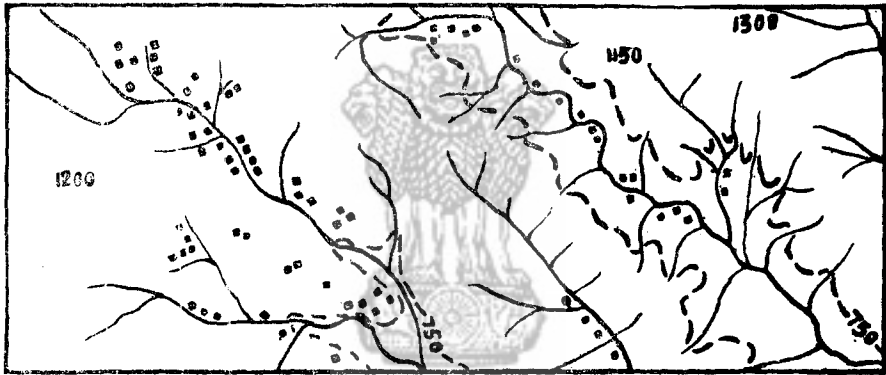


Fig. 57

Koel Basin, strong influence of drainage on the siting of settlements in higher reaches.

On still higher slopes, the distribution of settlements is random and haphazard (figs. 53, 54). The texture of drainage is very fine and the surface is intricately dissected and covered with thick forests. Large tracts, ten to twenty square miles in area, can be seen without a single hut (fig. 56). Wherever settlements are found, they are sporadic, infrequent and small, and hardly qualify to be called a village. These settlements confined to small forest clearings, are located either on the riverside or in the central zone of an interfluvium through which pass the hilly foot-tracks. Owing to intricate drainage pattern, the distribution and the size of settlement-unit vary within a very wide range. The smallest unit usually perched on a projected hilly spur or on a small valley-head, might be found to consist of just a single hut. Elsewhere, the settlement units generally consist of 3 to 15 huts. Settlements consisting of

less than 3 huts are few. Similarly, villages consisting of more than 15 huts are also rare and are found in specially favoured localities, e.g., the wide-open valley, broad, gently-sloping spur or circular broad divide of radial streams. Such localities are usually the convergence-points of hilly routes and the villages located thereat function as central places in the locality by providing the sites for weekly or biweekly markets (fig. 59).

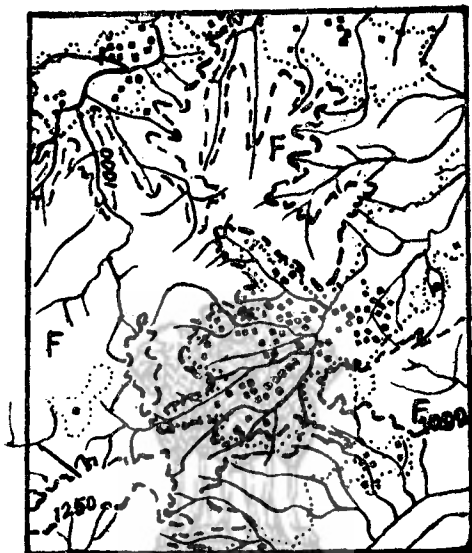


Fig. 58

Loose sprawling clusters in cirque-like valley heads

Three types of areas appear to be largely negative to settlements. They are :—(1) the high hills with steep-rocky slopes, (2) forested tracts and (3) ravined lands. Hills are generally forested and the forested tracts are usually hilly and, therefore, the two may be treated together. There are three important aspects of a forested hilly tract that keep settlements off. They are inaccessibility due to difficult terrain and thick vegetation, rocky surface and scanty soil formation which are discouraging to agriculture. Infact thick natural vegetation spares little land for agriculture. Besides, the protective forest-laws prohibit expansion of settlements in the Reserved Forests.

Ravined tracts are largely avoided by settlements. The few settlements found in the areas of gully erosion consist of individual huts which stand in ravined isolation. Loose clusters of huts are, however, seen located on the margins of ravined belts and on the broader undissected interfluves. In the extensive ravined tracts of

Bhandaria, a few but comparatively large clusters are found here and there (fig. 63) The clusters are located in the valley-heads, on undissected spurs and residual un-ravined interfluvies. These settlements are generally, the convergence-points of cart-tracks and mule-paths that traverse the hilly-forested area. Some of these settlements, precariously perched on the residual rises between ravines, perhaps antedate the formation of ravines (fig. 63). Their existence is very much threatened and they might be obliged to move to safer location sooner or later.



Fig. 59

North-Koel-Kanhar hilly interfluvial tracts : valley-head settlements, settlements on circular divides.

In this area as well as in the whole of Chotanagpur, habitable sites consist of a few types. Common habitable sites are physical in character. Cultural sites are few and are not completely shorn of physical attributes. The most common sites consist of such features as valley-heads, divides, interfluvies, spurs, valley-spurs and hill-side. Less important sites include river-side, hill-top, foot-line, pass, col and nick-points. Among the cultural sites, only road-sides and cross-roads enjoy regional importance (figs. 59—62).

As regards location and siting, the settlements exhibit two tendencies : (1) tendency to prefer and (2) tendency to avoid. Settlements are conspicuous by their absence along the banks of the major and main streams. Along the 40 mile course of the Kanhar river (fig. 56), settlements are completely missing except at two points. On the other

hand, settlements frequently dot the courses of minor tributary streams (fig. 57). Several factors render the banks as well as the valleys of larger streams unattractive to settlements. The river channels in relation to the valley-floor are deep and sunken. Relative height of the river banks varies from 2 to 30 feet in a journey from the source to the confluence-point. The banks of the major streams are generally gullied. During torrential rains the streams are often in spate and the banks are frequently inundated. The mountain-torrents are very swift-flowing and floods are unpredictable. Because of the suddenness of flood the people do not like to keep close to the banks lest their cattle and children should be washed down unaware.

It is not only the banks but the valleys of major tributaries in the hilly areas are also avoided (fig. 56). In major valleys the texture of drainage is coarse which means a sparse distribution of water-bodies. Source of water-supply is limited to the streams which, in the case of major valleys, is only one. The larger a stream, the deeper is the channel. This means greater handicaps to movements. Intensity of gully erosion usually corresponds to the size of the stream. The slope towards the major channels is steeper and does not favour an effective use of land. Steeper slope facilitates a quicker run-off and hinders the formation of deep soil layers. The major valleys, owing to steeper slopes and deeper channels, are not easy to be terraced for paddy cultivation. Chotanagpur is primarily a sal-forest zone. Sal prefers well-watered valleys and moist areas. The thickest growth of sal forest is invariably found in the broad river valleys. In addition to the fact that thicker forests mean greater difficulty in clearing, they are everywhere under the protective forest laws.

The preference for minor valleys is due to several reasons. Various orders of tributaries and sub-tributaries result in the division and subdivision of the major slopes in the same order. Consequently, local relief is subdued and local slope is much gentler than the main slope. These gentler slopes are less subjected to erosion and offer better conditions for soil formation. Gully erosion and ravines seldom extend to these areas. These aspects of the minor valleys enhance their habitability. In the regions of minor streams the water channels are closely spaced. This ensures a more efficient and easy water-supply. These valleys being short and shallow are easy to be terraced for cultivation.

On closer scrutiny it appears that even in the minor valleys the settlements are seldom located on the river banks. They are frequently sited on the interfluvies. These interfluvies are invariably

triangular in shape (fig. 62). They slope in three directions— the two shorter slopes are towards the two adjacent streams, while the longer one is towards the confluence. Taking such an interfluvium into consideration, the villages, as a rule, are seen located in the central portion of the divide. Such a location has several advantages. The distance from the settlements to the two side-streams usually varies from two furlongs to half-a-mile and, as such, are easily accessible. At the same time, side-streams are not so close as to cause damage during torrential rains when they are in spate for an hour or so. The entire slopes are terraced for cultivation. The lower slopes close to the streams are converted into paddy lands while the upper slopes are given to less important crops, e. g., *gora*, *bhadai* etc. which do not require inundation. The lower slopes are avoided for the siting of settlements for some other considerations too. The rain-water rolls down the slopes to the streams very much after the pattern of sheet-wash. Settlements lying in the way would obstruct the flow and lead to poor drainage. They might also be damaged and washed away, for the walls, made of mud, are weak and rudimentary. Being located on the interfluvial crest, the sites enjoy the best possible drainage that keeps the villages neat and clean. The crest location ensures them against water-logging in the lanes, and dirty stinking village drains, so common to the villages of the Ganga Plain, are missing from the Plateau villages. Crest region, often left uncultivated, constitutes the marginal land and, therefore, siting of settlements over here does not mean any loss of land to agriculture. Lower sections of the crest region are often given to pastures or *bhadai* crops. The upper sections, very often, possess the remnants of the original forests and serve as the source of domestic fuel and timber. The crest-lines are better graded and gently sloping. They are least dissected and, therefore, they serve invariably as the natural lines of communication.

The importance of the crest-line as the line of communication is further enhanced by the deep channels and ravined banks of the rivers. Even the roads keep to the crest lines. From this view-point it may be said that the crest-villages are located on the natural lines of communication. In forested areas, foot tracks and mule-paths follow the crest-lines. The crest-lines are easy to be traced and followed. A little departure from the crest-line is easily felt by sudden fall in the ground level. This largely explains why even in the thickly forested areas the foot-tracks are as fixed, localised and permanent as the roads in the countryside.

In lower areas, particularly below 700 ft., location and siting differ. In such areas, the rivers have better graded courses. The valleys are

broader and slopes are gentler. In such valleys the settlements are very often located on the riverside. This is particularly noticeable in the Panda valley (fig. 66). The river has a meandering course. The villages, as a rule, are sited on the concave side of the meander. There are several advantages associated with this side of the meander. The concave meander forming a girdle on three sides, offers a much longer water-frontage. The valley plain is broader. The soil is river-borne, fertile alluvium. For the fact that the concave side seldom receives a tributary, the land is undivided, uniform and largely free from erosion and dissection. Increased width of the valley-floor deprives the hill torrents of their rapidity and the settlements as well as agricultural fields enjoy a greater degree of security against flood and wash. Longer distance from the hill-toe to the river bank further reduces the slope and, as such, artificial irrigation becomes feasible by throwing longitudinal bunds a little below the foot-line. Above the bunds, water is stored to irrigate the paddy fields below. The bunds function as a protective measure for settlements against torrents. On the other hand, the convex side of the meander suffers from several disadvantages. River banks on the convex side often coincide with the foot-line of the hills, sparing inbetween no land for settlement and cultivation. On this side meet numerous streams which divide the valley-floor in an intricate manner. The interfluvial tracts of these tributaries, often subjected to gully erosion, are too sloping and too small to provide site for settlements and fields for cultivation. The torrents, coming down from the hilly slopes, meet the main stream almost without any break and, as such, they are too wild to be tamed and are forceful enough to wash down the settlements and plantations. For these reasons the settlements avoid the convex bank of a meander. This offers a contrasting situation with that of the Ganga Plain where the villages are preferably located on the convex bank of a meander.¹

The siting of settlements in the meander belts of the area has attained a high degree of precision. The area enclosed by meander is a semi-circular parcel of land. The villages are generally located in the middle of this area. This mid-point site has a commanding position. From here the fields above and the pastures below can easily be supervised. The exact point of location coincides, however, with the imperceptible break in the gradient between the slip-off slope and the valley slope. Below the village lies the sandy or alluvial tract partially or wholly inundated during rains. Above the villages upto the foot-line

1. In the Plains the convex bank is firm and leveed while the concave bank is ill-defined and shifting owing to the slip-off slopes and sand piles.

spreads the gently sloping firm ground given to intensive cultivation.

Typical river-side settlements are seen in the area of high hills. Three considerations appear to have prompted the location of settlements on the river-side in the hill areas. In the mellay of hills, slopes and ridges, the streams offers the only line of movement and penetration. Even the small narrow streams have carved out valleys which consist of small patches of tractable land. Scarcity of water supply is the main problem in the whole of Palamau and villages, therefore, cannot afford to keep very far from the source of water supply. In the hilly areas streams are the only source of water supply, some of which are fed by perennial springs (fig. 57).

Valley-head settlements, though essentially riverain in character, are a type themselves. In all the hilly areas of Chotanagpur, valley-heads and divides offer the largest number of habitable sites. The distribution and density of settlements in the hilly areas are, in fact, directly related to the frequency at which such sites occur. There are certain physical advantages associated with the source region and divides which render them most suitable for the sitting of settlements. Owing to the Tertiary uplift the drainage of Chotanagpur is rejuvenated. Consequently, the channels are relatively deep and the texture of drainage fine. The number of head-streams in the hilly areas varies from 2 to 20 within a square mile of area. Larger number of streams is a great merit in otherwise dry area. The interfluvies of the head-streams are small and narrow varying from one to two furlongs in width. The source region thus becomes a combination of interfluvial swells and elongated valleys alternating with one another. As the numerous head-streams combine within a distance of a mile, the valley-head usually assumes a semicircular cirque-like shape (fig. 58 & 60). The valley-head thus represents a geographical

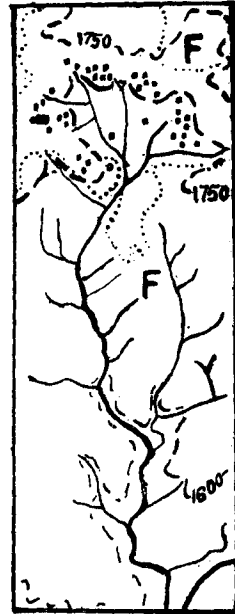


Fig. 60

Valley-head settlements on hilly slopes bordering gently sloping valley flanks.

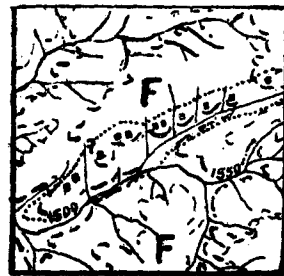


Fig. 61

Valley - spur settlements in high-lying basins.

and physical unit of area. Relief in the valley-head is usually subdued. This makes terracing easy. The natural division of surface into interfluvial uplands and valley lowlands facilitates piecemeal clearance of forests (figs. 58, 59, 60).

In all the hilly and elevated areas spurs constitute the third category of the favoured habitable sites. Spurs vary, both in their physical characteristics and size, within a very wide range. They may, however, be classified into two : (i) hill-side spurs and (ii) river-valley spurs. In higher and dissected areas, flatish, gently-sloping tongue-like lands project from the hill sides. These spurs often slope down to end rather abruptly on the foot-line of the hills. The lower end of the spurs communicates with the major valley that lies below and the upper end extends to and merge with the forested hill mass. It is the lower section of the spurs which offers the ideal sites for settlement. From here, the settlers usually practise double economy. They exploit the forest above and cultivate the fields below (fig. 64).

Numerous spur-like features are seen projecting from the higher elevations and abutting on the river banks. Such features, for convenience, have been termed valley-spurs. The lower section of these valley-spurs offers ideal sites for settlements. Such spurs are relatively flat, firm, free from inundation, easily drained and close to the source of water-supply. The two transverse slopes of the spurs meet similar slopes from opposite directions and form *dons*, the paddy lands of Chotanagpur. (fig. 61)

Numerous settlements are found located in the foot-hill zones. The alignment of the settlements with the foot-lines of such hills which cardon off broad river valleys, is quite conspicuous. Foot-hill zones and off-spur regions have several attractions for the location of settlements. Here, the hilly torrents due to sudden break in gradient have deposited enough debris which, in favourable situations, has led to the formation of excellent tractable lands. Foot-line has given rise to numerous perennial springs

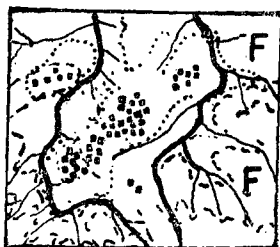


Fig. 62

Inter-stream settlements, sited on oval divides, sloping gently on three sides.

which are a more reliable source of water-supply than the streams. Water from higher reaches of streams can easily be diverted into *ahars* (irrigation tanks). Foot-line is the line of double economy, the line of contact between the hilly forest above and the agricultural lands below. Foot-line coincides with the natural line of communication. Communication lines, unless intended to cross a hilly area, to the hilly tract.

Most of the commonly favoured sites discussed under various names are multiple physical entity. They combine in themselves more than one physical attribute. A valley-head, for example, is composed of several interfluvial swells and head-stream valleys (figs. 58-62). The settlements in the valley-heads are located on these inter-stream elevated strips of land. Similarly, most of the spurs usually occupy inter-stream areas and, for that matter, they are interfluvial tracts. There are such sites which appear as circular divide of radial streams (figs. 58-59). These radial streams are very often tributaries to two adjacent streams and the circular divide is actually a section of the larger elongated divide. Such oval or circular divides are, however, quite numerous and are usually the habitat of some of the largest clusters of the region.

The Kanhar river sets the boundary between Bundelkhand and Palamau. During the middle ages, Palamau was the theatre of feudal wars and active military campaigns. Quite a large number of settlements, particularly in the broad river valleys, appear to be defence-oriented. Strong-point settlements are quite conspicuous in the Sukharia valley. (fig. 69) A large number of important villages are located on the bases of hills. Most of the hilly sites are protected by streams and secondary rises from other sides too. The hill-foot villages are usually lined on two sides by river channels. The rivers, in addition to offering additional protection, are the main source of water-supply to the villages.

All hill-base villages are not necessarily defence-oriented. The hill-sides have many other attractions too. The hill-bases offer elevated tracts in a flat valley plain. Elevation ensures freedom from inundation. In such areas where ravines are extensively developed the hill-bases are the most protected sites for settlements. When the area was being settled, the hills must have been clad in forest. Some of them still possess plenty of vegetation. Even the scanty vegetations of the hills in the deforested valleys are highly valued by the villagers. These hills are, therefore, the source of supply of domestic fuel and wood. They also offer pasturage for cattle particularly for goats. A hill in the background has an aesthetic appeal. It adds grandeur, prominence and uniqueness to the village that is located on its side.

The southern section of this large interfluvial tract differs from the northern section. The entire area lies above 1000 ft. and most of it above 1500 ft. Further south it gives way to the scarped slopes of the *Pat* region. The texture of drainage is one of the finest in the whole of Chotanagpur. The dissection appears to have attained its maximum. Smaller amount of rainfall appears to have slowed down the processes of valley widening and summit flattening and the landscape gives the

impression of youth. The area is inhospitable and offers little incentive to effective human occupancy. The habitability of the area is further reduced by wide-spread intense gully action. In addition, the area comprises one of the densest forest reserves of Chotanagpur. Forests spare only a small portion of land negotiable for settlements. Settlements are few and far between and their distribution is highly infrequent. The size of settlements is small. Individual huts, sprinkled here and there, are seen located on such favourable spots as spurs, valley-heads, minor interfluves and divide-summits (figs. 56, 57, 63).

Three factors appear to limit the size of settlements. They are the availability of even, tractable land for cultivation; the source of water-supply and the protective forest laws. Most of the settlements are located in or off the small clearings in the midst of thick forest. When settlements are sited on river-bluffs or valley-spurs, clearings are to be seen in small patches scattered at a distance from the village. In such situations, the demands of settlements and cultivable plots for siting are different. The settlements in the absence of any other source of water-supply, get located on the river-sides even though the river-sides are rocky and precipitous. In the vicinity of such settlements gently sloping tractable lands seldom occur and the villagers have to seek cultivable lands elsewhere (fig. 57).

Most of the villages in this area have wet-point location. This along with other parts of Palamau, is the driest tract of Chotanagpur. Problem of water-supply is very acute. Precipitation is low. Surface is hard, rocky and thoroughly unsuitable for well-sinking. Streams are small, ephemeral and undependable. Even then, the streams are the first to be looked for. Naturally the settlements take care to be close to the streams and are preferably located on interfluves, valley-spurs and in valley-heads. Frequently, smaller streams are dammed to impound water in the reservoir thus created. Tank is, therefore, an associate feature of a large number of settlements. Perennial springs occurring in large number are widely distributed. Their favourite sites are the foot-line of a hill and the base of a spur. A large number of villages are, therefore, situated at the spur-end from where the springs are not usually more than a furlong away. Some of these springs are the source of streams. Quite a large number of villages appear, therefore, to be located at the head of a stream.

Though gully erosion is active over wide areas, there are five ravined tracts of considerable extent. Ravined tracts are largely negative to settlements. Settlements in the ravined belts are few and infrequently distributed. Ravined belt offers a situation contrasting with that of its

proximity. The settlements in and off the ravined area differ, therefore, very widely in their location, distribution and size. The greatest handicap that the ravines offer to human occupancy is not the loss of land, but hazardous movements. In the ravined tracts remnants of original surface and valley floors provide sites for settlements. They are flat enough for ploughing and are thickly covered with fertile soils. Outside the ravines are the upper reaches of the valley which are steep, rocky and



Fig. 63

Pat region : few settlements sited on residual heights in the midst of ravines.

forested and have little to offer for cultivation. Thus, a peculiar situation has been created. On the one hand, the existence of settlements is being constantly threatened by the extending ravines and, on the other, the areas beyond the ravines have no attraction. Consequently, most of the villages uprooted from their old moorings have got located on the periphery of the ravined belt. From here they can make use of the

residual agricultural lands in the ravined belt and can keep off the ravines as well. Thus, where as in the ravined belts only a few small-sized settlements are seen precariously perched on the residual inter-ravine rises or on some hard, resistant blocks, the periphery is frequently dotted with fairly large clusters. The peripheral location is further favoured by the new alignment of lines of communication. Owing to the development of ravines the cart-tracks and mule-paths have been obliged to swing round the ravined belt (fig. 63).

Cart-tracks and paths appear to have exercised a greater influence upon the siting and alignment of settlements in this part of the region. The hilly paths have two different types of alignment. In relatively less hilly areas in the north with larger streams and wider valleys, the routes follow the divide lines and avoid the river banks except where they have to cross a river. Elsewhere particularly in the areas lying above 2000 ft. which form the scarped face of the *Pat* region, the rule of alignment is different. Here, the interfluvial tracts are steep-sided, and the sharp-crested ridges are difficult to climb on. Besides, they are thickly covered with forest. The streams are confined to deep-cut narrow valleys which are mostly straight. These narrow valleys are precisely the only lines of access to the area. The routes faithfully cling to the river-sides and follow the water-line except where they have to traverse broad multilateral divides. In the two types of area, the routes have, therefore, acted differently in relation to settlements. In less hilly area they have enhanced the importance and attraction of the spurs and divides. In more hilly areas, they have aided to the habitability of the river-sides. Consequently, in the northern parts most of the settlements are interfluvial in location, whereas in the southern parts they are mostly riparian (figs. 56, 62, 64 and 57, 58, 60).

THE PAT REGION

Among the habitable areas of Chotanagpur, the *Pat* region is a type by itself. The *pats*, as discussed earlier, are small, flat-topped plateaus separated by deep-cut, gorge-like narrow valleys. The summit level of the *pats* lies between 3500ft. and 3700ft. and the valley level drops to 2000ft.. This gives an amplitude of relief that varies between 1000ft. and 1700ft.. The factors of physical geography appear to have directly influenced the siting, distribution and density of settlements in this area.

The *Pat* region consists of three distinct surfaces (fig 64). They are (i) the summit planes, generally flat with no apparent slopes ; (ii) the valley-bottoms constituting a narrow strip of land sloping rather gently and (iii) the valley-walls or the *pat* sides which are steep, rocky and

precipitous. The valley-walls represent the connecting slope or transition surface between the high-lying summits and the low-lying valley-floors. This transition surface is drained by a very thick net of closely-spaced parallel streams. At places, this surface is rocky and bare, but, by and large, all the *pat*-sides are covered with thick forest. These

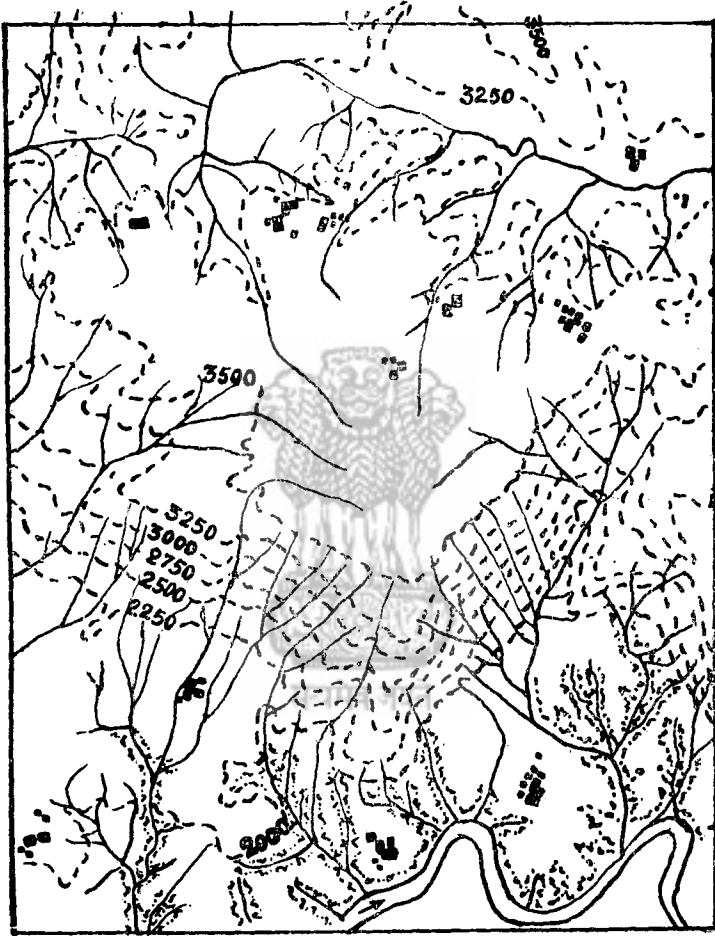


Fig. 64

Siting of settlements in the Pat region. Only the extremes, summits or valleys, are habitable.

conditions have rendered the *pat*-sides wholly unsuitable for settlements. Habitability is the function of two extreme levels and settlements are to be seen either on the *pat* summits or in the river valleys (fig. 64). The *pats* vary very widely in their size and shape. Some of them are big enough having large summit planes, measuring more than 30 square miles in area. Others are too small to have summit planes of any

importance. There is still a third category of *pats* that lie between major streams. These *pats* have been reduced to ridge-shape and are devoid of flat tops. The valleys also vary widely. Some of them are extremely narrow and offer practically no scope for habitation. The others are broad enough with gentle gradient and are floored with thick fertile alluvium. Three of them deserve special mention. They are (i) the Upper Sankha basin (Barve) Plain, (ii) the Burha or Chhechari basin and (iii) the North Koel valley. The Sankh and Chhechhari basins are real plains enmeshed by the *pat* heights.

The habitable surface in the *pat* region represents only a small fraction of the total area. This makes the distribution of settlements infrequent and irregularly patchy (figs. 53 & 54). The intervening distance vary from 10 to 30 miles. The actual traversable distance between two patches of settled territory are much longer than what they appear on the map. On the other hand, the inter-settlement distance within the small patches of actual habitat is not more than 2 to 3 miles. These aspects of the location of settlements make the distribution highly uneven, patchy and haphazard.

The Barve plain idealizes the situations obtaining in all the broader valleys of this region. This basin has assumed unusual dimensions measuring about 2000 square miles in area (fig. 6). The slopes are gentle and the undulations are least felt. The size of the area reflects upon the qualities of the habitat. Certain characteristics of the valleys get enlarged while a few others get lost because of the enlargement of the area and associated features. The habitable, gently sloping area in the *pat* valleys is confined to a narrow ribbon-like land on either side of stream. Here, the ribbon gets enlarged into a sheet, the extensive plain of Barve. The enlargement has led to the multiplication of water-forms and habitable sites (fig. 65). Vastness of size has facilitated a net-work of drainage lines. Slope and thickness of soil permit the construction of ponds, tanks and wells. The streams coming down from the steep *pat*-slopes give rise to waterfalls which have created natural ponds. The foot-line of the encircling *pats* is dotted with perennial springs. The various orders of tributaries to the Sankh river divide the floor into numerous small-sized interfluves which offer the ideal conditions for the siting of settlements. Numerous streams coming down the steep *pat*-slopes, have formed a well-marked talus-slope. This intermediate slope between the *pat*-sides and the Barve plain offers ideal conditions for settlements. Soils in the talus zone are highly fertile. Numerous channels cut across the zone and by over-flowing during rains keep the area well-watered. On the other hand, elevation ensures protection against

inundation. The talus zone is dotted with clusters of comparatively large-size. The location of these clusters aligns with the foot-line of the *pits* that encircle the Barve plain. The plain's characteristics and uniform distribution of water-forms and habitable sites have led to an even distribution of settlements in this basin. The settlements occur at a frequency of one to two miles (fig. 65).

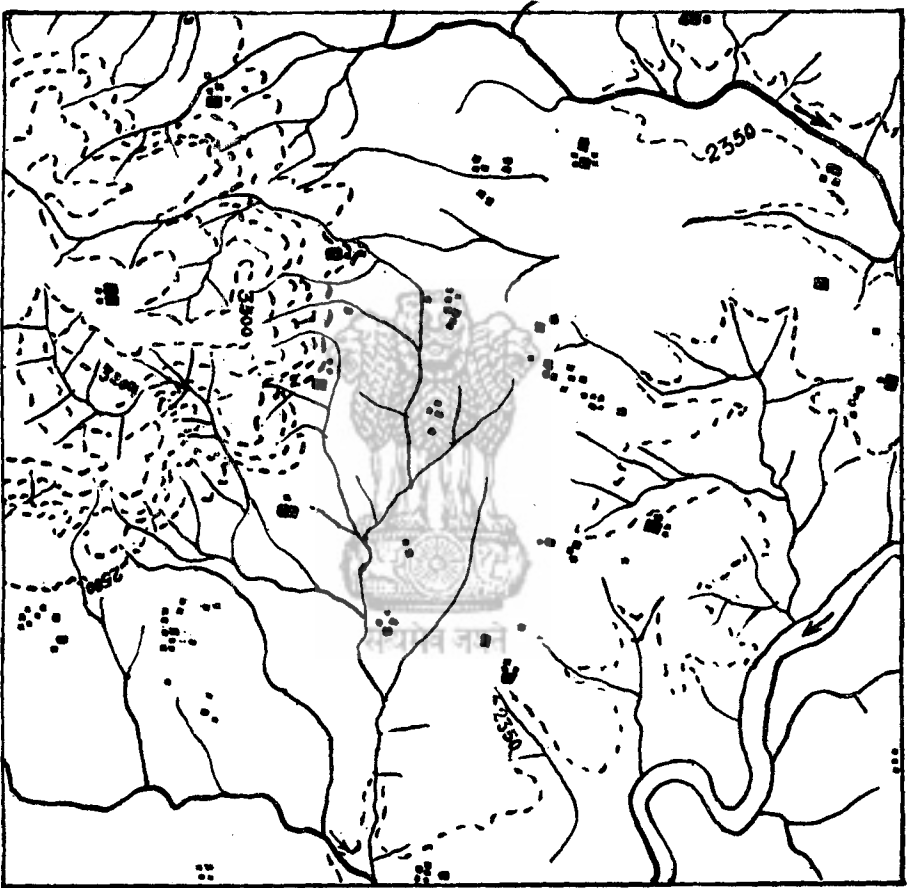


Fig. 65

Barve Plain. Settlements are sited on river terraces, interfluvial rises or foot-lines of the surrounding hills.

The situations obtaining in the Chhechhari basin and the North Koel valley are more or less the same as in the Barve plain. The Chhechhari is a semi-circular basin comprising about 30 square miles of area. Numerous tributaries to the Burha (a tributary to the North Koel) meet at the centre, like the spokes of a wheel. Though the surface is gently sloping and largely free from undulations, the distribution

of settlements is far from even. Owing to the convergence of streams, the central tract suffers from inundation. Dry habitable sites are very few and are confined to the central portion of the interfluvial rises. Even these sites are not entirely protected against monsoon floods. In the central tracts the quest is, therefore, for dry points. On the other hand, settlements are quite numerous and frequent in the talus zone which appears as a ring of concentration around the comparatively vacant central tract.

The North Koel valley is unshapely and is not so perfectly plained as the Barve plain or the Chhechhari basin. Hilly spurs frequently project into the valley and mar the uniformity of the surface. The gradient is steeper and the undulations are quite marked. The settlements, though quite numerous, are unevenly distributed. The settlements in this valley are sited either along the foot-line or on the central portion of the interfluvial tracts.

Elsewhere in the *pat* region, the siting and distribution of settlements differ. The governing factors are the scarcity of habitable sites and scarcity of water-forms. Most of the *pats* are exceedingly flat. The flat summits are mostly devoid of streams. The rain water is discharged in the manner of sheet flow. The streams originate from the margin of the *pats* and roll down the slopes. The sub-surface is rocky and hard. Bold relief augments the rate of underground seepage. These conditions do not favour the construction of wells. The *pats*, thus, suffer from acute problem of water-supply. Problems of water-supply limits the number and size of settlements. On the *pats* the settlements have two types of location. They are sited either on the margins of the summit or near some ponds (fig. 64). A marginal location is favoured because from here the people can get their water-supply from the streams that originate from a few feet below and can easily cultivate and look after the fields on the top.

Scarcity in the *Pat* region is accentuated by another factor. The *pats* are topped by a layer of volcanic rocks which have weathered to form the *pat* soils. Under the hot-humid climate, the soils are subjected to leaching process. The degree of leaching varies from place to place and so does the agricultural utility of the soils. Thoroughly leached soils have been converted into laterites which are unfit for cultivation. The habitability of the *pats* is directly related to the degree and extent of the lateritization. Lateritization usually attains its maximum in the central elevated portions of the *pats*. For this reason too, the central portions are less preferable than the peripheral areas. Parts of the

leached out chemical contents get deposited in the peripheral zone and enrich the soils. The laterite-topped *pats* are conspicuous by the absence of settlements. All *pats* are, therefore, not habitable.

Forest is another factor that has adversely affected the distribution and density of settlements in the *Pat* region. In addition to the *pat*-sides, some of the *pats* are reduced to ridge-shape and are thickly covered with forests. This is particularly true of the northern parts of the region which contain some of the best and densest Reserved Forests of the State. Reserved Forests constitute the most thinly populated areas. The Reserved Forests are mostly uninhabited. It is not uncommon to find large tracts of 100 square miles without even a tiny hut. Whatever settlements exist, they are widely scattered and highly infrequent. A village in the Reserved Forest is perhaps smallest in the region. It usually consists of two to four huts and very often a single hut standing in perfect isolation, is named village. Settlements in the Reserved Forests are of two categories (i) the traditional villages and (ii) the Departmental villages. The traditional villages are like any other village that existed before the forests were declared reserved. Departmental villages have been settled by the Forest Department to supply labour for the up-keep of the forest. The location of such villages has been dictated by the convenience and advantages of the Forest Department. They are usually smaller in size and are less permanent than the traditional villages. The Department, sometimes, requires labour at a point far away from the villages and the villagers have to move to the new place where they settle down afresh. The forest villages, therefore, change their location frequently.

The settlements in the forest area appear to exhibit two types of distribution and siting. The traditional villages are located in the broad river valleys. The banks of the broader streams are usually ravined. The forest in the ravine belt is thinnest, mutilated and fragmented. Though ravines are themselves serious impediments to movement and occupancy, sparseness of plants attributes certain amount of openness and accessibility to the ravined area. Sparse vegetation makes clearing easy. Extension of ravines is a serious threat to the existing forests. Forest Department, therefore, encourages settlements in the ravined valleys. Damming of ravines and terracing of slopes have proved to be the most effective measures of forest conservation. Quite contrary to the general rules, most of the settlements in the Reserved Forest are, therefore, concentrated in the ravined belts of the broad river valleys.

The Departmental villages are mostly located by the side of the forest roads and mule-paths. These paths usually follow the crestlines

of the spurs and divides. Unlike traditional villages, these villages are mostly sited on divides and spurs.

Another feature which is typical of the hilly forested areas of Chotanagpur, is the existence of a large number of ghost villages. Several factors are responsible for the desertion of forest villages. Till recently the forest dwellers were practising shifting cultivation. Shifting had two common forms, cyclic and progressional. In the first case, after a fixed period, usually five to seven years, the villagers were to come back to the site earlier deserted. In the second case, they went on moving forward making new clearings, and normally did not return to the point once deserted. Thus, they left a trail of deserted sites in their forward march. People are obliged to desert a site in wake of natural calamity. These forests contain such animals as elephants, bison, deer etc. who live and move in herds. Sometimes, a herd of such gregarious animals take fancy for the village-vicinity. If the herd comes to abound in the area, the village is obliged to move, for the herds destroy not only the standing crops but prove, sometimes, fatal to life and dwellings also. The forest people are too superstitious to react to a sudden phenomenon. If a village is attacked by an epidemic, the only measure that the villagers can take to protect themselves against the calamity, is to move to new site. Very often a village is served with notice by the Forest Department to evacuate. All these factors have led to frequent desertion of villages and, therefore, most of the villages in the Reserved Forest are something short of permanency.

Temporary huts are also found in the forest areas. Such huts are usually located on the hilly slopes, midway between the valley and the summit. These huts are the seasonal shelters of the forest people who enter the thick forest to collect the forest products, e.g., fruits, honey, flowers, resin, barks, grasses, fibres etc. Summer, i.e., from March to mid-June, is the period of collection. With the burst of monsoon movement in the forest becomes difficult. Quick undergrowth covers the paths and the moist conditions favour the spread and propagation of mosquitos. The threat of malaria and philaria becomes serious. Besides, rainy season is an unproductive period. With the first showers honey, resin and flowers start disappearing. The forest collectors are naturally obliged to desert their summer huts and retire to their permanent dwellings located in the valleys or on the spurs, where they devote themselves to paddy plantations during the rains.

Varying habitable conditions in different parts of the *pats* have effected sharp contrasts in siting, distribution and density of settlements

(figs. 53 & 54). In three broad basins discussed earlier, the settlements seek dry-point location. They are closely-spaced. The distribution is even in the Barve plain though unevenness is the characteristic of the two other basins of Chhechhari and the north Koel. Elsewhere, either on the *pats*, forested divides or in the valleys, the settlements are few and highly infrequent. In the broad basins, the settlements occur at a frequency of 2 miles, but in other areas, particularly in the Reserved Forests, it is not uncommon to see settlements occurring at a frequency of 10 to 20 miles. A difference in spacing of settlements is noticeable between eastern and western *pats*. Eastern *pats* receive a higher rainfall that results in a higher degree of dissection and larger number of streams. Habitable sites are consequently larger in number. In this part, the settlements exhibit a higher degree of dispersal. The size of villages also is smaller. Besides, the eastern *pats* are contiguous with the intensively settled Ranchi Plateau. The western *pats* are drier, streams are fewer and habitable sites are less frequently available. Settlements in this area are largely compact and the size of the villages is larger. All these factors have led to a marked reduction in the density of settlements.

The North Koel Valley

The North Koel valley is a physical unit and a favourable habitat. (fig 6). It combines in itself the characteristics of the plains as well as of the plateaus. It has a plain's complexion and a plateau's environment. The valley proper is mantled with thick alluvium and does not differ very much from the adjoining parts of the Ganga Plain with which it finally merges. But a steeper gradient and smaller dimension differentiate it from the Plain. The flatness of the surface is marred by occasional rises, residual heights, deep-cut valleys and ravines. Rocky spurs projecting from the hilly surroundings, sometimes, coming very close to the Koel banks, further reduce the uniformity of the surface. Forested patches of varying size are scattered here and there. The valley is, thus, by no means featureless and flat like the Ganga Plain.

In an up-slope journey from the Koel bank, three types of land are met in succession. On either side of the bank is a strip of land, varying in width from 3 to 10 miles. This is the riverain tract of the Koel. It is covered with a thick mantle of alluvium. Streams are fewer and larger which, cutting across this strip, meet the Koel. This area is subjected to gully erosion and at places, an extensive net-work of ravines has developed. The riverain tract is succeeded by another strip of land which constitutes the middle section of the valley flank. The separating line between the riverain tract and this middle strip is well-marked and generally coincides with the contour line of 750 ft. The alluvial mantle is thinner. Continuity

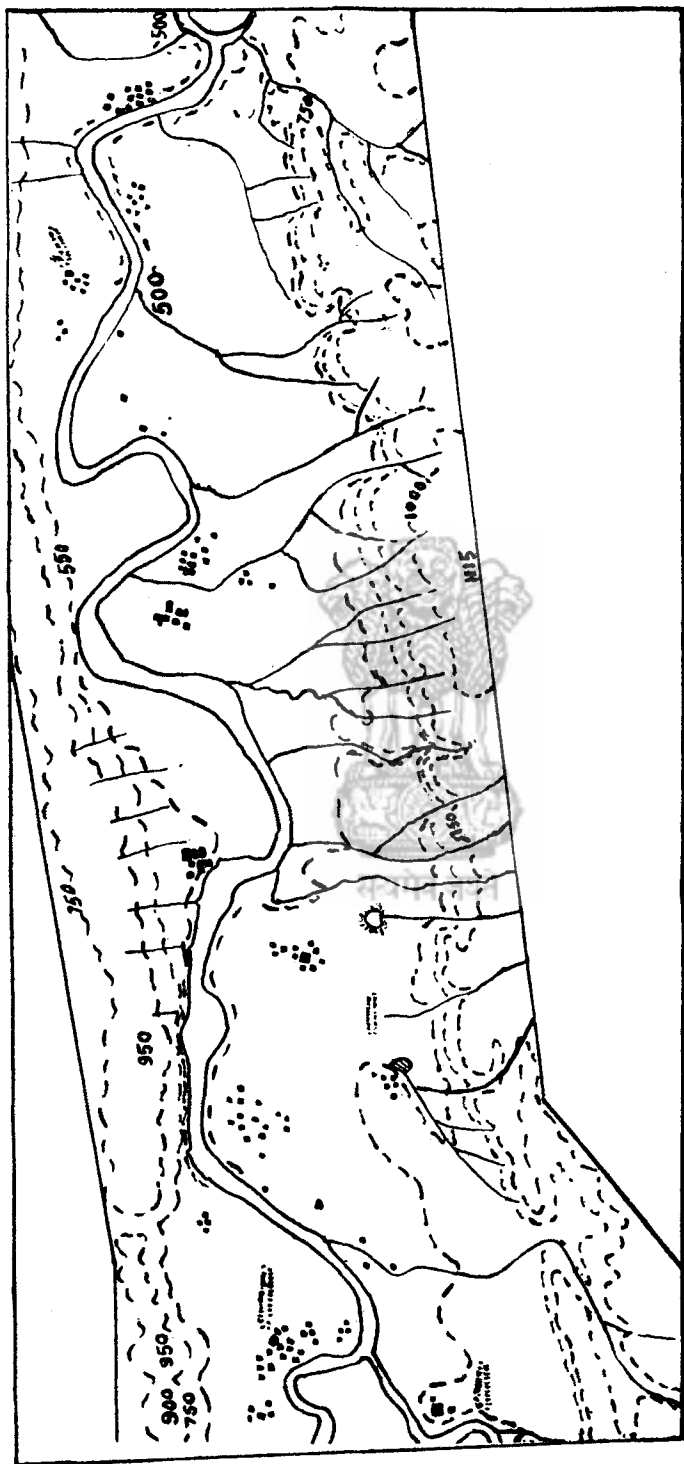


Fig. 66

Panda valley : a hilly tributary to the North Koel. In this valley settlements are sited on the tongue-like sloping projections to the concave side of the meanders. On such slopes, bunds are built to store water for irrigation.

of the surface is occasionally broken by residual hills, projecting spurs and forest-patches. These patches are the remnants and outliers of the extensive forests that have receded to the higher hilly areas. This strip is drained by a larger number of streams but is remarkably immune from gully erosion. Beyond this strip of land lies a surface which is transitional between the valley and the surrounding hills and uplands. These marginal areas are broken, unshapely and patchy. Their outward limit is set by the contour of 1000 ft. (fig. 67).

Physical conditions reflect upon the habitability of the three longitudinal strips of the valley. In the three strips the habitable sites differ in number and nature. Naturally the distribution and density of settlements also differ.

In the Koel valley, three considerations are of paramount importance in the location of settlements. Palamau constitutes the driest and hottest part of Chotanagpur. In such an area assurance of steady water-supply is the first thing to be considered. Rivers are the only natural water-forms in this valley. The rivers are rain-fed and seasonal. In summer, most of them are just dry channels with almost no water except in the pot-holes and depressions. The sub-soil conditions are not favourable everywhere for well-sinking. Very often, hard rocks are struck in the wells. Wells, even in the valley proper, are just filtration-holes and do not yield enough water to cater to the needs of a large population. Well-digging is tedious and costly operation. Wells in most of Chotanagpur are, therefore, status symbol. A homestead with well represents economic prosperity and aristocracy. Difficulty in having well has forced the people to resort to some other means of water-supply. The only alternative left to them is to impound water in artificial reservoir. This is achieved in two ways—by throwing an earthen dam across a rivulet or by constructing a 'U'-shaped bund (fig-66). The mouth of the 'U' faces the up-slope and usually receives a stream. The enclosed area is thus converted into a reservoir called *ahar*. The *ahar* serves double purpose. It is a source of water-supply to the human and bovine population. It supplies water through gravity channels to the fields also that lie below. The *ahar* requires to be located at a place higher than the paddy fields. Such sites are available on the interfluvial tracts and spurs, for the paddy fields occupy valley positions. It is again the requirements of *ahar* that have led the settlements to prefer the banks of smaller streams to those of major streams. The broad channels of larger streams are difficult and costly to be dammed. Such dams are liable to be washed away during the rains. These considerations have influenced the settlements to be located on the banks of minor streams.

In siting the settlements on the banks of larger rivers like the North Koel, other difficulties crop up. All the rivers of Chotanagpur have sandy beds in their lower reaches. A narrow strip of land on either sides of the Koel is, therefore, sandy and infirm (fig. 67). The sand piles frequently shift their positions. Sand is coarse and unfit for cultivation and is occupied by thorny bushes, *kans* and *sabe* grasses. Occasionally, small patches containing a high proportion of silt loam, are found along the banks. In these patches winter crops and summer vegetables are raised. Such cultivated patches are too small to support a larger village community and, therefore, small scattered settlements are found along the Koel banks.

Small interfluvies and spurs are the most common sites of settlements. In the marginal areas bordering the foot-lines of hills, settlements are frequently located at the head of a valley and minor divides. A few smaller settlements are sited on the river banks also. A remarkable feature of the location of settlements is the marked concentration in the middle section of a tributary valley or of an elongated interfluvie (fig. 67). The numerous tributaries flowing transverse to the main stream divide the Koel valley into a number of oblong interstream parcels of land. This oblong unit is divisible into three sections. The upper section approaching the foot-hill comprises the marginal area. The lower section extending upto the banks of the Koel forms the Koel's riverain tract. The settlements are few and widely spaced in the upper and the lower sections while most of them are



Fig 67

North Koel valley. Settlements are confined to the middle reaches of the tributary valleys.

concentrated in the middle section of a tributary valley or of an elongated interfluvie (fig. 67). The numerous tributaries flowing transverse to the main stream divide the Koel valley into a number of oblong interstream parcels of land. This oblong unit is divisible into three sections. The upper section approaching the foot-hill comprises the marginal area. The lower section extending upto the banks of the Koel forms the Koel's riverain tract. The settlements are few and widely spaced in the upper and the lower sections while most of them are

concentrated in the middle section. Several factors are responsible for such a distribution of settlements. The cross profile of the valley-flank of the North Koel (or to say the long profile of the tributary valley) is convex rather than concave. Convexity is maximum in the middle section. Convexity reduces the gradient to the minimum in this area. The middle reaches of the tributaries represent, therefore, the most even surface in the entire valley. This section is least affected by erosion. It is precisely this section which is almost immune from ravines. Numerous streams that drain the upper reaches deprive the land of its physical unity. Projecting spurs and hilly outliers add to the ruggedness of the surface. Elevation facilitates a higher degree of dissection leading to the formation of ravines. Bushes and shrubs cover a sizable portion of land. All these factors have entailed a huge reduction in the habitable area. In the lower section the river channels are usually very deep, with relative depths varying between 10 and 40 feet. The confluence of the tributaries with the main stream is discordant, for the tributary channels are yet to be graded to the level of the main stream. The discordance has made the lower reaches of the tributary valleys highly amenable to erosion. The river banks in this area suffer from intense gully erosion. Ravines, starting from the river banks, have extended up to the kinck-points that align to separate convex belt from the riverain belt. The ravines are, therefore, largely confined to the lower and upper reaches of the tributary valleys. All these factors have reduced the habitability of the lower and upper reaches of the tributary valleys which constitute the riverain belt and the foot-hill zone of the North Koel valley.

THE LOW ERODED SURFACES OF THE PLATEAU

The North Koel-Amanat-Auranga Basin

This basin includes a very large area below the Ranchi and Hazaribagh plateaus. The limits are set roughly by the contour lines of 1000 and 1500 feet. The area is drained by three major streams, the North Koel, the Auranga and the Amanat. The North Koel is the master stream to which the other two are the tributaries. In this part of the basin, however, Auranga and Amanat are of greater human importance than the Koel.

There are three principal types of habitat in this region. They are (i) the principal river valleys, (ii) the inter-stream non-hilly areas and (iii) the high-lying spurs, summits and divides. In all the three habitats physical environments differ. Principal valleys are broad, open and largely graded. A narrow strip of land on either side, is covered

with alluvium. Environment in this part of the valley is very much the same as prevailing in the lower valley of the North Koel. This is particularly true of the lower reaches. Upper reaches of the principal valleys are thickly clad in forest and are practically devoid of settlements. In the inter-stream region, there are large areas where relief is highly subdued and practically free from hilly interruptions. But even such areas are not entirely inhabited. A high percentage of the area is claimed by forests. The forest, as it were, provides the cloak in which inhabited areas are fitted. These inter-stream regions enjoy a semi-forest environ-

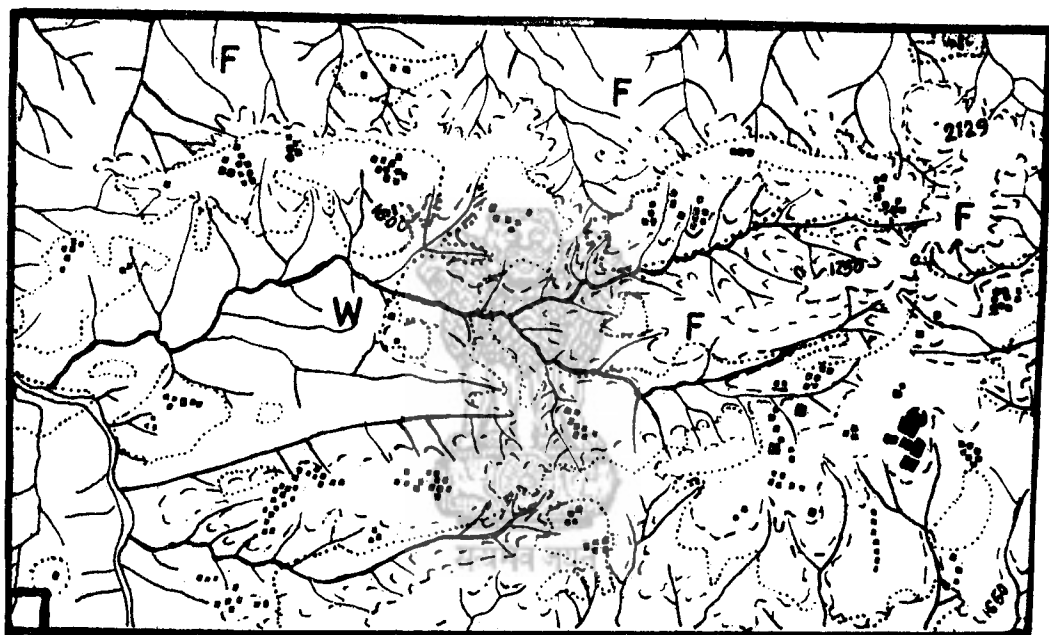


Fig. 68

Amanat Basin : divide settlements.

ment. In the third type of habitat, the habitability is very poor. Only a small proportion of the numerous hills, hilly divides and summits have been settled. They are thickly clad in forest and the inhabited areas appear as big-sized dots placed on a continuous green sheet. These enjoy typical forest environment.

Human occupancy differs in the three types of habitat and so do the distribution and the density of settlements. Intensity and extent of human occupancy differ directly with the amount of slope of the principal valleys. The occupancy is extensive, and settlements are closely distributed in the lower parts which are contiguous with the Daltonganj area. The number decreases as we move up along the rivers. In the

lower reaches, one comes across a relatively high degree of concentration of settlements within a short distance from the major streams. Settlements occur at a frequency of half-a-mile (fig. 54). As we move away from the river towards the divide-line, the frequency decreases. The occupance becomes fragmented and distribution of settlements acquires



Fig 69

Amanat Basin : strong point settlements.

a patchy character (fig. 53). The frequency again increases in the crest-zone of the divide and the settlements get closer in their spatial relation. In the downward journey towards another stream, the same pattern repeats (figs. 68-69). Thus, in the lower parts of the basin there are

usually three belts of relatively high concentration of settlements, the two along the two adjoining rivers and one in the axial zone of the inter-stream area. The picture of the distribution of settlements in this part of the basin acquires a belted character (figs. 68-69). The same is not true of the upper section of the basin. In the upper section, the tribu-



Fig. 70

Amanat Basin. Settlements avoid major valleys but prefer minor valleys and inter-stream areas

aries multiply in number which divide the interstream area of the major streams into a number of smaller interfluvies. Some of these interfluvies are hilly and thickly forested. The availability of land for cultivation and siting of settlements is, therefore, limited and the areal occupancy becomes fragmented. Patches of inhabited areas are separated by

hills and forests. These patches of settled territories vary in size. This renders the picture of distribution highly patchy in character. Within the larger patches and oblong belts, the settlements are distributed unevenly. Unevenness of distribution is further enhanced by the varying size of clusters and varying degree of dispersal (fig. 70).



Fig. 71

Northern Pat Scarp. Settlements prefer to be located on summits and spurs and shun slopes and valleys alike.

In still higher reaches, adjoining the scarped slopes of the higher plateaus, the settlements are few and far between. They appear to exist in isolation in the midst of hilly and forested surroundings (fig. 71).

On the whole, the occupancy in this basin has been extended to a far greater extent than in other hilly parts of Palamau. The relief is

largely subdued and the forest has been cleared from all such areas which are comparatively level and tractable. In addition to the three major streams, there are several large-sized tributaries. The valleys of these tributaries serve as settlement basins of varying dimensions. This has been one of the first few settled tracts of Chotanagpur. The occupation in this area has progressed from the lower valleys of the North Koel which is in direct contact with the Ganga Plain. The Koel, the Auranga and the Amanat have been serving as the principal channels of penetration into the higher plateaus. Several modern roads and a railway line pass through this basin. From the pre-historic times to the present day the basin was occupied and settled successively by several migrant communities.

The area is served by the Daltonganj-Barkakhana railway line which connects it with the thickly populated Ganga Plain in the north and the industrial areas of Damodar valley in the east. The occupation pattern of the North Koel valley of Daltonganj has been extended in full to this area. Outside the Damodar valley the Auranga basin contains the most important coal measures. Hutar and Barwadih coal-fields are of great regional importance. The construction of the railway line was promoted by these coalfields.

As compared to other hilly, forested areas of Palamau, this basin has a higher density of settlements. Areal pattern of distribution is typically patchy. Within the inhabited patches the distribution is quite variable. In larger patches, the distribution is largely even. Elsewhere, they are highly uneven. In still higher areas, particularly in the source region of the various tributaries, the distribution becomes haphazard and infrequent. Frequency at which settlements occur varies from one patch to another. In large clearings, they occur at a frequency of half a mile to two miles. The density is particularly high along the Ranchi-Daltonganj Road. A higher density in this area may be mistaken to be the result of the road. The influence of the road on the siting and distribution of settlements is of little importance in this area. Road-side villages which postdate the road are quite few and hence, at many places, the road swings to enable itself to pass through important villages. In such regions of purely subsistence type of rural economy, the rule appears to be that it is the road that goes to the villages and not the villages that go to the road. A higher density of settlements is attributable to the evenness of the surface on the either side of the road, for the road follows the crest-line of the divide.

The basin is relatively dry and availability of water, therefore, appears to be the most important single factor in the location of

settlements. The habitable sites in this area consist of four common types. They are valley-heads, minor interfluves, larger divides and projecting spurs. In all these locations settlements appear to have taken care to be close to some perennial source of water-supply. At places where such sources are not available, tanks and reservoirs are the essential components of the rural landscape. Though the settlements seek to be located near some water-point, they keep off the river banks as they do in other parts of Palamau. Major tributaries to the Koel, the Auranga and the Amanat are almost parallel which divide the valleys into a number of elongated sub-interfluves. The side-slopes of these interfluves are drained by parallel, almost equidistant, closely-spaced run-off channels. These run-off channels divide the valley of the major tributaries into small, narrow, gently-sloping, laterally arranged convex rises. Settlements are sited precisely on these rises. Thus, taking a smaller area into consideration, the settlements in their spatial relation, arrangement and distribution assume a river-valley pattern (fig. 60 & 68).

There are numerous contact-point settlements. Such settlements are located on the contact lines between the alluvial and non-alluvial patches in the valley, between the hilly slopes and gently sloping or undulating valley floors, between spur-end and talus slopes, and between deforested tracts and forested areas. The contact-point settlements are, by far, the most numerous along the forest margins. As the forested areas are extensive and inter-connected, settlements located even in large forest clearings are not totally deprived of their pre-existing environments. Forests are seldom at a greater distance than 2 to 4 miles from a village. Besides even the cultivated and home-stead areas are liberally and frequently planted with the common forest trees. Bad lands in every village are occupied by bushes, thorny shrubs and wild grasses. Vegetative growth in and around the villages attributes a forest-look to the settlements. At the higher elevations clearings are small. Settlements are usually located within such clearings, but a large number of them are too small to support any settlement individually. They consist of cultivated patches which are tributary to same other clearings that contain settlements. The 'tributary clearings' are located usually within a radius of 2 to 3 miles from a village.

In the Auranga valley strong-point settlements are quite numerous. The Auranga valley has been the stronghold of the Chero rulers. Most of the settlements in this valley have military origin. They are defence-oriented and are sited on the hill-sides, rocky-spurs or prominent rises enclosed by ravines. In this valley are located the famous forts of Palamau (fig. 69). The two forts over-looking the Auranga river, are built

on prominent hills which are 1174 and 1071 feet high. Located on the hill-tops and clad in forest, the forts were reputed to be impregnable and invincible.

The size of settlements in the basin varies within a very wide range. Three factors appear to have influenced the size of villages in this area. They are the size of available lands for cultivation, the size and nature of settlement-sites and the essential character of the village economy. In the lower reaches, the clusters are comparatively large. These villages are purely agricultural. Alluvial patches with a high proportion of silt-loam and the facilities for tank irrigation place the agriculture on a better footing. Broad divides also contain large villages located in extensive cleared tracts. There is a third category of sites which have given rise to large villages. This category includes the hill-sides, the base of a hilly spur and the foot-line of hills and ridges arranged in continued elongation. These sites enjoy a better commanding position in relation to the areas that stretch below. Valley-heads, hill-sides, spurs and minor interfluvial rises are associated with smaller settlements. Clearings in these situations are small and limited by steeper slopes and thicker forests that surround them. In higher elevations and on small interfluves the villages are fragmented and the settlements are largely dispersed. Grouping of villages varies from unitary compact villages to individually located, isolated huts. All these factors have led to a marked variation not only in density and frequency of settlements but also in the nature of grouping and spatial arrangement of dwellings.

Chhatarpur Plain

Chhatarpur Plain is the downward extension of the 1000ft - surface that constitutes the lower plateaus of Chatra and Kodarma (fig. 6). The surface has been eroded to a level lower than 1000ft. The general level varies between 750ft and 900ft. Most of the area lies between 800ft and 900ft. The area approximates to the idealized peneplain surface. The surface is typically undulating. The main features of undulations are the elongated depressions of river valleys and interfluvial rises. A cross-profile of the region exhibits two types of areas, the convex interfluves and the concave valleys. Owing to concavity the gradient near the river banks is steeper than on the interfluves. Relief is subdued but by no means inconsiderable. There are large number of residual hills and ridges, frequently rising above 1000ft. These hills impart a degree of ruggedness to the area.

This is one of the most sparsely populated tracts of Chotanagpur. (fig. 43) There are fewer settlements. They are smaller in size and are

widely distributed. Though the area is largely peneplaned there are serious handicaps to an effective occupation of land. This is an erosion surface of recent origin. The rivers are not yet graded and are actively engaged in erosion. Consequently the texture of drainage is finer than the nature of the surface warrants. Large-scale denudation has laid bare extensive areas that have no soil cover and form rocky or stony wastes. The valleys of the tributaries and main streams are discordant and the quantum of erosion along the river banks is higher. Consequently, a narrow strip of land on either side of the river channel is unfit for cultivation. Elsewhere, the soil is thin that limits the agricultural possibility and productivity. The wooded areas, rather extensive, commonly consist of thorny bushes, thickets and shrubs with a few other plants of xerophytic and deciduous groups. The woods are of little commercial value. A large number of hills being rocky exposures with no vegetation, further impoverish the economic resources of the region. The area suffers from acute water problems. It receives a lower amount of rainfall than the Auranga basin and Chatra plateau. As most of the streams originate within the area, they are ill-fed, short and narrow. They dry up quickly after the rains and offer little scope for irrigation. All these factors have highly reduced the economic capability of the region for supporting a larger population.

The distribution and siting of settlements are highly selective, not so much in respect of physical features and relief as in respect of the agricultural capability of land. Such capable areas constitute only a small proportion of the total area. Agricultural lands available in small patches are widely scattered and separated from one another by bad lands, hills and woods. Villages are located in these cultivated patches. In addition to the lower fertility of the soil, the nature of crops also appears to be a limiting factor. This is mainly a rabi-area (figs. 17&19). Rabi crops have a lower yield than paddy.

The distribution of settlements is uneven. South of Chhatarpur it acquires a patchy character. North of Chhatarpur, owing to the presence of numerous fertile valleys, the density of settlements is higher. Consequently, the density increases east of Chhatarpur also. In the east, lies the broad, level, well-watered valley of the Batane river where the agricultural conditions are very much the same as prevailing in the lower North Koel valley. Gentle slope has facilitated the *ahar* system of irrigation. The density of settlements in this valley is as high as in the adjoining Ganga Plain. Settlements occur at a frequency of half a mile. The villages are quite large and compare well with the villages of the Koel valley. Further east of the valley ruggedness increases and the

number of settlements decreases. The settlements in the Batane valley, though closely spaced, are unevenly distributed. Unevenness is mainly due to the varying size and preferential siting of settlements.

There are fewer habitable sites in this area. They are further limited by the smallness of their size. The main quest in siting the settlements is for water and agricultural land. The two are available in the river valleys. Settlements are, thus, attracted towards the river. But the nature of the channel and the riparian tract wards them off. The valleys are multiple in character which has given rise to features like river-terraces. Such terraces are generally not more than a furlong or two away from the channels. The settlements are sited precisely on the margins of these terraces. The marginal location has double advantage. It enjoys proximity to water and to the agricultural land that lies above. In the upper reaches of the valley, the settlements, are sited on the interfluvial rises. Some of these villages located in the source region, appear as valley-head settlements. In the wooded areas the settlements are confined to small clearings, located on the interfluves and river bends. As the hills are steep-sided and sharp-crested, spur and hill-top settlements are completely missing. Occasionally, in the midst of stony wastes small cultivable patches are found. These patches, if located far away from some neighbouring settlements, contain a few isolated dwellings. In the Batane valley where conditions approximate to those obtaining in the alluvial plains, the location of settlements differs. The beds of the streams are sandy and the banks are broken and infirm. The central zones of the interfluvial tracts are occupied by *ahars*. Only the middle slopes of the interfluvial tracts are, therefore, available for the siting of settlements. Villages over here have the benefits of being located between two water-bodies-the river below and the *ahars* above.

PENEPLAINED SURFACE : PLATEAU AND TABLELANDS

Ranchi Plateau (figs. 72-76)

The Ranchi plateau constitutes the largest physical unit of Chotanagpur. The plateau, believed to be an old peneplain, has a gentle undulating surface that slopes away in all directions from the central east-west swell (fig. 4). The features of undulations, as stated earlier, consist of elongated depressions and rises, locally known as *dons* and *tanrs* which constitute the common order of relief. On the *tanrs* which are actually the interfluvial rises, are mounted hills of resistant rocks called *tongari*. The *dons* represent water channels which have been terraced for paddy cultivation. The amplitude of relief varies from place to place. Relief is high in the areas drained by larger streams.

On the other hand, physical features are intricate and numerous in the small basins. These variations, though minor, are of great human importance and reflect upon the intensity and extent of human occupancy.

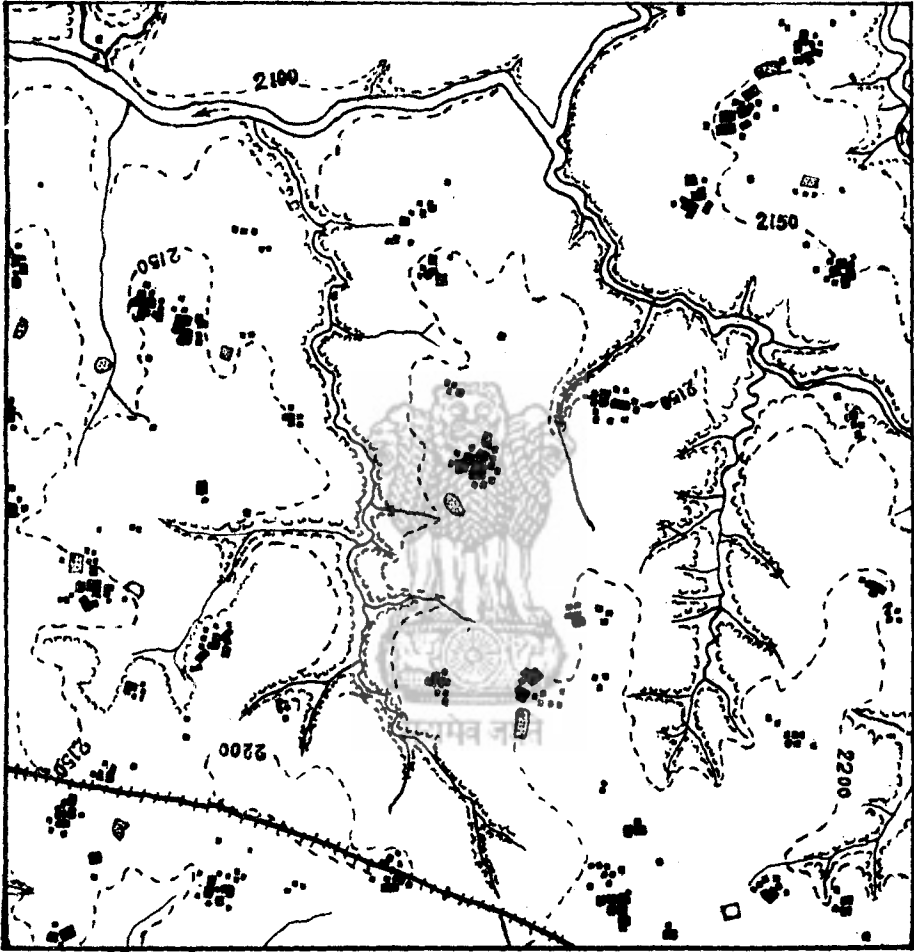


Fig. 72

Upper South Koel Basin. Settlements avoid river banks but tenaciously cling to the margins of the interfluvial uplands which coincide with the outer limits of the flood plains. There are points of break in the gradient which align to form knick-point line.

The central swell divides the plateau into the northern and the southern zones. The details of the habitat differ in the two zones. The northern zone lying north of the central swell consists of the upper reaches of the South Koel and the Suvarnarekha valleys. The two rivers originating from Nagari in the west of Ranchi and coursing in opposite directions through the entire expanse of the plateau take a

southerly turn. The South Koel turns southward near Lohardaga, while the Suvarnarekha, after cascading over the scarped slopes, turns southward near Muri (fig. 5). The elevation of the source region is 2300 ft and the point where the Koel turns southward is 2150 ft. The elevation at Getalsud on the eastern margin of the Ranchi plateau from where the

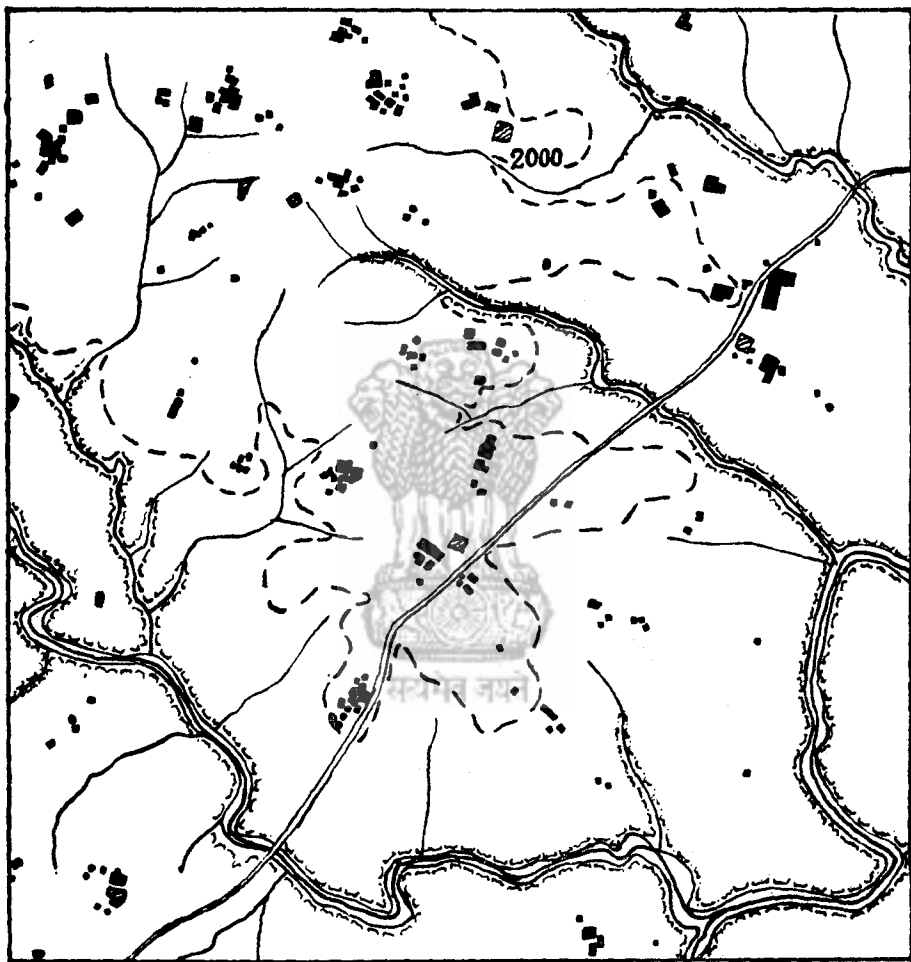


Fig. 73

Ranchi Plateau. Large clusters sited on circular divides and interfluvial rises.

Suvarnarekha drops to the Panch Pargana plain, is 2000 ft. The linear distance between the source and Lohardaga is about 40 miles and that between the source and Getalsud is 30 miles. Over such a great distance the general level records a fall of 150 ft. towards the west and 300 ft. towards the east. This works out to a very gentle gradient and the general level appears more or less flat. From Lohardaga southward the

fall is rather sharp and becomes still sharp south of the Gumla-line ($23^{\circ}2'N$). From Nagari originates another major river, the Karo, which flows towards south. The level along the Karo course within a linear distance of 18 miles falls from 2350 ft to 1750 ft. giving a much steeper gradient. Thus, the northern zone is characterized by a very gentle gradient and a flatish surface. *Tongaris* are few and much smaller in dimensions. Local relief is highly subdued and seldom measures more than 50 ft. Density of streams is one of the lowest in Chotanagpur. The interfluvial tracts are longer and broader. Numerous head-streams and run-off channels combining in typical dendritic fashion, meet the major tributaries at more or less equal intervals. The departure between the source and the confluence levels does not generally measure more than 50 ft. The southern zone is characterized by a steeper gradient and greater measure of relief. The rivers after receiving numerous tributaries and coursing through long distance assume formidable dimensions. They have cut deep valleys while the summits of the interfluves are yet intact, maintaining their original heights above 2000 ft. The smaller interfluves, by lateral erosion, have been reduced to ridges and hills. Deep-cut valleys and high summits produce a pronounced relief. South of the latitude of Gumla the amplitude of relief measures 250 ft. and increases by fourfold in the South Koel valley near the Orissa border. As a result of deeper valleys and higher interfluves even the transverse profiles of the valleys suffer from very steep gradient.

In the central swell the picture is different. Though the measure of relief is not high, numerous streams that radiate from here in all directions have produced a thoroughly dissected topography. In this area the valleys are short and narrow and the interfluves are usually hilly and rocky. Only a small proportion of land has a workable slope and soil. The habitability of this region is, therefore, highly reduced.

The peneplain characteristics are best preserved in the northern zone of the plateau. Though the surface features are largely the same everywhere, the distribution, density and size of settlements differ noticeably in the eastern and western sections of this zone. In the western section that comprises the South Koel valley, the settlements are a little more widely spaced. They occur at a mean frequency of 2 miles (fig. 54). The settlements are evenly distributed (fig. 53). The evenness of distribution is maintained even though frequency changes, for the change in frequency relates to an area rather than a line. The settlements are largely compact, with a very low dispersal quotient' (figs. 72-73).

1. This term is explained in the following chapter.

The clusters are big enough and enclose sizeable area within the home-steads. On the map, the clusters compare quite well with those of the Ganga Plain except that the plateau clusters betray a certain amount of looseness in their morphology. In the Suvarnarekha valley, the picture of distribution becomes a bit confused. The settlements are



Fig. 74

Kurdeg area : Settlements sited off the ravines on interfluvies, spurs and valley-heads.

more closely spaced. The villages occur at a frequency of one-and-a-half mile. Agglomerations are loose and the dispersal quotient (fig. 94) is fairly high. Several factors appear to have led to variations in the two basins. The South Koel basin is characterized by a comparatively gentle gradient and low relief. The valleys are wider and the interfluvies

are flatter. Texture of drainage is relatively coarse and, as such, the physical units of land are larger in size (fig. 74). A *mauza* in Ranchi district besides being an administrative and socio-economic unit, is a physical unit too. Its boundaries are generally natural. They usually coincide with streams on two sides and a local water-shed or foot-line of hills on the third. The fourth side is limited by the confluence-point. Such units of land are comparatively large in the South Koel basin. The size of the physical units has influenced the size of settlements which has adversely affected their spacing. A higher degree of agglomeration has entailed a reduction in the homestead area and a proportional increase in the inter-settlement space. On the other hand, a lower amount of precipitation, particularly in the Lohardaga area limits the extension of paddy cultivation and has, perhaps, acted as a check on the growth of population and the multiplication of villages. This basin is the first settled part of the plateau of Ranchi. Most of the villages are pioneers' settlements and are of great historical and cultural importance. The inhabitants are reluctant to settle down at new places for they do not like to part with the traditional glory of the old villages. The rural economy continues to be agricultural. Industries are yet to develop. Urbanization is minimum. Motorable roads are few and there is only one railway line connecting Ranchi with Lohardaga. All these factors have kept the development of new settlements to the minimum and their distribution preserves the old agricultural pattern.

South of Lohardaga, though the distributional pattern is the same, the density is higher. The Gumla area comprises the middle section of the South Koel basin and is characterized by broad flatish interfluves and wide-open valleys. A relatively high proportion of *don*-land and heavy rainfall have made this area the 'rice-bowl' of Ranchi. The settlements are evenly distributed and are comparable in size with those of the Lohardaga area (fig. 74). They are a bit more closely spaced and occur at a frequency of one mile and less. A higher density of settlements appears related to the higher proportion of paddy area.

The eastern part receives a higher rainfall than the western part of the plateau. The texture of drainage is relatively fine. This has resulted in a higher degree of dissection and fragmentation of the surface. The physical units are, therefore, larger in number and smaller in size. Multiplication of physical units has resulted in the multiplication of habitable sites. A higher rainfall gives a greater security to agriculture and ensures a higher yield of paddy. This has helped the population grow and settlements multiply. Size of the settlements is directly related to the size of the physical units and is inversely related to the number and density

of settlements with a given density of population. Consequently, the settlements are more closely spaced and the picture is of higher density. Dispersal quotient is higher. The settlements are loosely grouped and appear sprawling over wide areas. This entails a reduction in the inter-settlement space (fig 49). With the growth of Ranchi as an industrial centre, large settlements of urban and semi-urban nature trail the various highways radiating from Ranchi. A number of industrial installations and other centres of economic activities have sprung up in various parts of the basin. These activities have gone a long way to change the rural economy. Many villages have changed from subsistence agriculture to commercial farming of vegetables. A number of villages have been engulfed within the urban expansion of Ranchi and a larger number of them have overgrown their size and bear semi-urban look. Several new settlements have sprung up and have reduced the inter-settlement gaps. The cumulative effects have been a drastic modification in the rural landscape and far-reaching changes in areal distribution. The distribution has become uneven and has acquired patchy character. Inbetween the groups of smaller villages are the large patches of urban and semi-urban settlements.

The areas lying south of Ranchi and drained by the Kanchi river differs from the main valley of the Suvarnarekha. The difference between the two is not physical but cultural. The Kanchi valley lies out of the pale of industrialization that is progressing in the Ranchi area. Good roads are few and railway lines are none. The economy is purely agricultural. The settlements are evenly distributed and the spacing is a bit closer. The size of villages is smaller than in other parts of the northern zone. Towards the plateau-fringe the dispersal quotient becomes higher which gives the impression of a higher density of settlements.

The most preferable and universal sites of settlements are, as in other parts of Chotanagpur, the interfluvial rises. Interfluvial settlements are best developed over the Ranchi plateau and it might therefore be treated as the type area for such a siting (fig. 53). Even a casual glance over the map makes the two most important aspects of location unmistakably clear. The settlements show strong preference for siting over the interfluves and equally strong aversion to the river banks. The interfluves are of varying order and they have a hierarchial pattern of distribution and arrangement. The siting of settlements appears to be highly discriminating between various orders of the interfluves. The rivers in this part of the Plateau run parallel for the most of their courses and then bend to meet. The interfluves are, thus, oblong pieces of land that taper towards

the confluence. A highly illustrative example is offered by the interfluvium of the South Koel and Bambhani rivers (fig. 73). The interfluvium is about 16 miles long and except for the five miles towards the confluence the width is everywhere between 7 and 8 miles. The crest-line acts as water-shed from where rain water rolls down the slopes in opposite directions to debouch into the two rivers. The discharge of rain water has helped the development of minor channels transverse to the major streams. These transverse channels cover a distance of 3 to 4 miles from the interfluvial crest to the streams. Their courses are parallel and are spaced at an interval of one to a-mile-and-half. The transverse streams divide the major interfluvium into a number of rectangular parcels of land which may be termed transverse interfluvial rises. The transverse interfluvial rises are drained by short run-off channels. The settlements are sited on these transverse rises and occupy the axial zone. The number of villages on such rises varies from 2 to 4, depending upon the proportion of *don*-land to the *tanr*-land and the size of villages themselves. Thus there appears to be two to three rows of villages located between the interfluvial crest and the river. The distance between the river and the lowest row of villages is seldom less than a mile. From the crest-line to the river, size of the villages increases and it appears that there is an inverse relation between the size of the settlements and slope and elevation. On the other hand, largest villages are located on the crest-lines which usually coincide with roads and other lines of communication. The settlement sites on the transverse rises appear to have some further specification. A closer scrutiny reveals that a village is usually sited at the head or divide of the run-off channels. Some of them appear to be located in the area enclosed by the two prongs of a Y-shaped channel. The advantages of such an interfluvial siting have been discussed earlier and need not be repeated.

The settlements in this area have three other types of siting. The plateau fringes in the north and east are closely dotted with villages. The villages are located on the line that marks the outward limit of the plateau and separates the peneplain surface from the scarped slopes. This line functions as a water-shed and the villages located over here benefit from valley-head situation. The fringe is a line of transition as well as a line of contact. The fringe-location gives the villages the command of two different types of areas and their resources. Villages on the fringe have been functioning as points of exchange. The fringe-villages are, therefore, multiple-economy settlements. Besides, most of them enjoyed strategic importance in the past.

The foot-hill zone of the *Pat*-scarp in the west constitutes a different type of habitat. The extensive alluvial fans built by the numerous

streams coming down from the *Pat* heights have combined to form a piedmont plain (fig 4). The piedmont plain extending from the foot-line of the scarp for three to five miles constitutes a transition surface between the plateau and the scarp. The streams cut in deep channels and the plain has been divided into numerous alluvial blocks, varying in size from two to four square miles. The soil is loose, friable and porous and permits a higher rate of seepage. The surface is relatively dry and suffers from scarcity of water, for the channels are too deep to be reached easily. The thickness of the alluvium as well as the depth of the channels decreases as one moves away from the foot-line. At the alluvial-end the channels are shallow and water is accessible, but this outer zone suffers from gully erosion. The settlements are, therefore, invariably sited in the middle zone. Here the channels are neither too deep nor too shallow. Besides the mid-point-sites are protected against the furies of the mountain torrents.

A large number of villages have taken advantage of the presence of hills and *tongaris*. Low-lying rocky eminences are invariably topped with settlements. Elsewhere the villages are sited either on the lower end of the projecting hilly-slopes or on the base of the hills. Very often, pass or col-like features between *tongaris* contain villages. Deep dents in the hill sides have also been preferred for the siting of settlements.

The habitable sites in the Suvarnarekha basin are the same as in the South Koel basin. They are larger in number and smaller in size. *Tongaris* in this basin do not appear to have much attractions for the siting of settlements. They are smaller and mostly devoid of vegetation. A comparatively steep gradient and heavier precipitation have helped gullies extend right upto the foot of the hills. On the other hand, this is one of the best served areas by roads and railways. A faster economic growth of the region in wake of rapid industrialization has made the road-sides most attractive sites for settlements.

Southern Zone

Diversity and variety characterize the surface of the southern zone. Details of physiographic features differ from place to place and make generalization difficult for a larger area. The entire area lying south of the central swell and between the South Koel in the west and the Kanchi-Karo divide in the east, has been termed for convenience as the Karo basin. The contour of 1750 ft. may be taken to be the southern limit beyond which the country assumes mountainous complexion (fig. 4). This basin is quite unlike the peneplained surface of the northern zone. The gradient is much steeper than the normal for the peneplain. Except

for the smaller sections of the wider valleys, hills and ridges dominate the scene everywhere. The surface features are ill fashioned, irregularly-shaped and arranged in a complex order. The measure of relief is in no way inconsiderable. Even then the physical conditions in the habitable areas are not very much different from those obtaining in the northern zone. Summits of the broader interfluves maintain the plateau characteristics and valleys of the larger rivers are wide and open. A heavy rainfall above 60" makes agriculture possible without irrigation even on the higher slopes. The hilly and dissected areas still preserve their forest cover which acts as a booster to the village economy. The area is settled by the Mundas and the Oraons who are not averse to hilly-forested environment. All these factors have facilitated a more extensive occupation of land than in other hilly parts of the Plateau. This has led to a higher density of settlements. The villages in the non-hilly areas occur at a frequency of a mile. The frequency becomes still higher in broader valleys. In between the inhabited areas occur patches of hilly forested land which contain practically no settlements. Such an occurrence of settlements has rendered the distribution uneven. Unevenness is further enhanced by a higher dispersal quotient. The size of settlements is smaller than in other parts of Ranchi plateau. The settlements are mostly interfluvial in location. The major interfluves are divided into a number of inter-channel rises which look like spurs projecting from the interfluvial ridges. The settlements are sited at the end of these interfluvial spurs. Divides and crest-zones frequently mounted with hills and ridges, are seldom inhabited.

The Sankh-South-Koel Basin

A vast area lying roughly south of the 23°N and comprising the whole of Simdega and three southern *anchals* of Gumla subdivision presents a picture of an extremely rugged and dissected country (figs. 4 & 6). Though the whole area assumes a mountainous complexion, local relief and surface features vary within a very wide range from serreta-like sharp crested ridges to flat summits and from steep-walled canyon-and gorge-like valleys to broad, open, gently sloping flood-plains. From the viewpoint of habitability the basin is divisible into three parts, the Sankh basin, the Palkot basin and the central hilly mass.

The Sankh Basin

In this basin are included the Kurdeg highlands and the main valley of the Sankh. The summit level in the Kurdeg area varies between 1500 and 2000 feet. This area has one of the most minutely dissected surfaces in Chotanagpur. The dissection is so high that even in one mile traverse

one may be obliged to cross as many as 20 to 50 tiny streams. These are all mountain rills, short, narrow and spasmodic in flow. Most of them are just furrows on the surface and fail to convey any sense of river or valley. The interfluvial ridges vary in width from 100ft. to a furlong. Most of these ridges are bare rocks. The streams are rock-walled and their beds are frequently rocky, pebbly or sandy. The surface is so acutely denuded that hardly any soil-cover has been left on the heights to sustain even a scanty growth of bushes and thickets. On descending from the hills the river valleys suddenly widen into small basins of oval shape. Such basins, quite large in number, are frequently encompassed by hills and rises. The minor basins are covered with a veneer of good soil and contain tractable patches of land. These minor basins appear as foci of human settlements and occupance. The scanty formation of soil and absence thereof from a larger surface does not favour extensive cultivation and prohibits the growth of forest also. Consequently, both settlements and vegetation suffer from stunted growth.

The valley proper (of the Sankh) is characterized by two types of land: (1) low-lying, gently-sloping valley-floor of the Sankh and its major tributaries and (2) the residual hill masses. The valleys are largely deforested and the hills being rocky are, to a great extent, unable to sustain vegetation growth. The physical conditions, on the whole, are more favourable to habitation than on the Kurdeg highlands. The density of settlements is low. It is still lower in the Kurdeg highlands. The habitable sites in the hilly areas are confined to flat summits, projecting spurs and radial divides. In the valleys the settlements are sited on the interfluvial rises and gently-sloping spurs, projecting to the river banks. Settlements are largely concentrated in the valleys and basins. The valleys suffer from extensive gully erosion that has reduced the habitability of the area to the minimum. The Kurdeg highlands constitute one of the poorest and most thinly populated tracts of Bihar (fig. 43). Agriculture is just an apology for the name. Forest is non-existent. Minerals are missing. Industries are yet to make an appearance.

The settlements are small in size and are widely spaced. They suffer from sparse population and poor economy. Hence, they could not grow beyond the size of small hamlets. The size of the hamlets varies from 2 to 5 dwellings. In the hilly area settlements are scattered and the units consist of single dwelling. These settlements do not constitute anything like a village (fig. 74). They are just individual huts located on recognizable spots. It is the spot that bears a name and the settlements are recognized by the named spot.

The number of named settlements per unit area is quite high in the whole basin and is much higher in the valleys. The spacing of villages is strikingly uniform in the valleys as well as on the highlands. The settlements appear to have achieved a double-uniformity: they are uniform in space-relationship and uniform in size. All the settlements are more or less equal-sized hamlets. There is hardly anything about the size to ascribe a position of pre-eminence even to such villages which have regional and political importance. Uniformity of size and spacing has resulted in an even distribution of settlements (fig. 53). The degree of evenness varies, however, from place to place. Evenness is largely lost on the hills and ridges. It is missing from the lower reaches of the Sankh that constitute the low-lying Bolba basin.

Evenness of distribution and uniformity of size in a dissected country appear paradoxical. Though the general relief assumes mountainous dimensions, a higher degree of dissection and a finer texture of drainage have gone a long way in mitigating the local relief. Local relief is so much subdued that most of the areas which look hilly in their contour plan actually consist of undulating surfaces. The larger and broader interfluves still preserve their original flatness of peneplain and floodplain. Smaller ones are the fragments of the present valley and are quite habitable. A higher density of streams means closer and even distribution of water forms. Soil conditions are also uniform over the larger part of the valley. Even in the hills are such valleys, passes and cols which are filled with good soil. A higher degree of dissection has resulted in the multiplication of valleys and interfluves which in turn have multiplied the number of habitable sites. Habitable sites are closely distributed and are almost ubiquitous.

This is one of the rainiest tracts of Chotanagpur (fig. 9). A higher amount of precipitation enables plants to grow even on the steeper slopes of scanty soil formation. The people practise an extremely backward subsistence economy. Their wants, few and simple to be satisfied with minimum of resources, do not make them fastidious about the siting of settlements. A few acres of tractable land available in a basin or obtained by the terracing of slopes are good enough to support a hamlet. Such small patches of tractable land are available in plenty.

Absence of forest has also helped achieve uniformity and even distribution of settlements. Forests compete for land with agriculture and settlements. This competition leads to a selective process of occupation. Forest has to be cleared for settlements. Forest-clearing is not only tedious, but costly too, because it destroys valuable forests. This

leads to a competitive land-use and only such spots are selected for clearance which are to yield maximum of benefits in minimum of space. Such spots cannot be many and evenly distributed. Consequently, distribution of settlements in forested areas becomes uneven and patchy. All the clearings cannot be equally extensive and fertile. Variations in size and fertility of the clearings bring about variations in the size of settlements. In the forested parts of Palamau and the *Pat* region one can, therefore, find villages as large as the largest and as small as the smallest in Chotanagpur. Absence of forest improves the openness of the country. It enhances inter-visibility and facilitates movements. Fewer obstacles, greater visibility and easier accessibility help in free and uninhibited selection of sites and dissemination of human occupation. The people could make use of all such sites as they needed from time to time and were available in the area.

Lower fertility and small size of cultivable lands limit the size of settlements at a particular point. Even distribution and uniformity of size with a lower density of population also restrict the size of settlements. Instead of creating congestion and making life difficult in the old village, the increased population could easily and with advantages select one of the several available sites in the proximity and build houses which could grow to the hamlet size. Thus, hamlets multiplied in number with the passage of time and filled in the gaps between far-flung pioneer's settlements. This is clearly exhibited by spatial arrangement of the hamlets in relation to the parent villages. Parent villages are recognized by their names which end with such suffix as means 'village', e.g., *dega*, *dera*, *bera*, *hatu* etc. Around such a village are found settlements which vary in number from 10 to 30. These settlements bear names that end with *tola* or *toli*. *Tola* means a definite unit or sector of a village. *Toli* is such a sector on a smaller scale. Parent villages are very widely distributed. The distance between such villages varies from 5 to 15 miles. The hamlets or *tolis* that are distributed in the inter-village space are seldom smaller than the parent village. Hamlet appears to be the optimum size of settlements, the wants of which can be satisfied by convenient exploitation of resources available within a working distance from the homestead.

The Central Hilly Tract

From Ranchi in the west to Bano via Thithaitangar and Kalebira lies an extensive area which bears a mountainous complexion (fig. 4). The area consists of closely placed hills of varying dimensions. The hills are the remnants of the Ranchi plateau and occupy interfluvial spaces. The summit levels are between 1500ft. and 2000ft., but the valley levels drop

from 1750ft. in the north to 600ft. near the Orissa border. A higher degree of dissection has led to innumerable subdivisions of the major slopes. The slopes are multiple and change their gradient frequently. The amplitude of relief increases with the fall of ground levels. It is lowest in the north and highest in the south-east for the valley level falls,

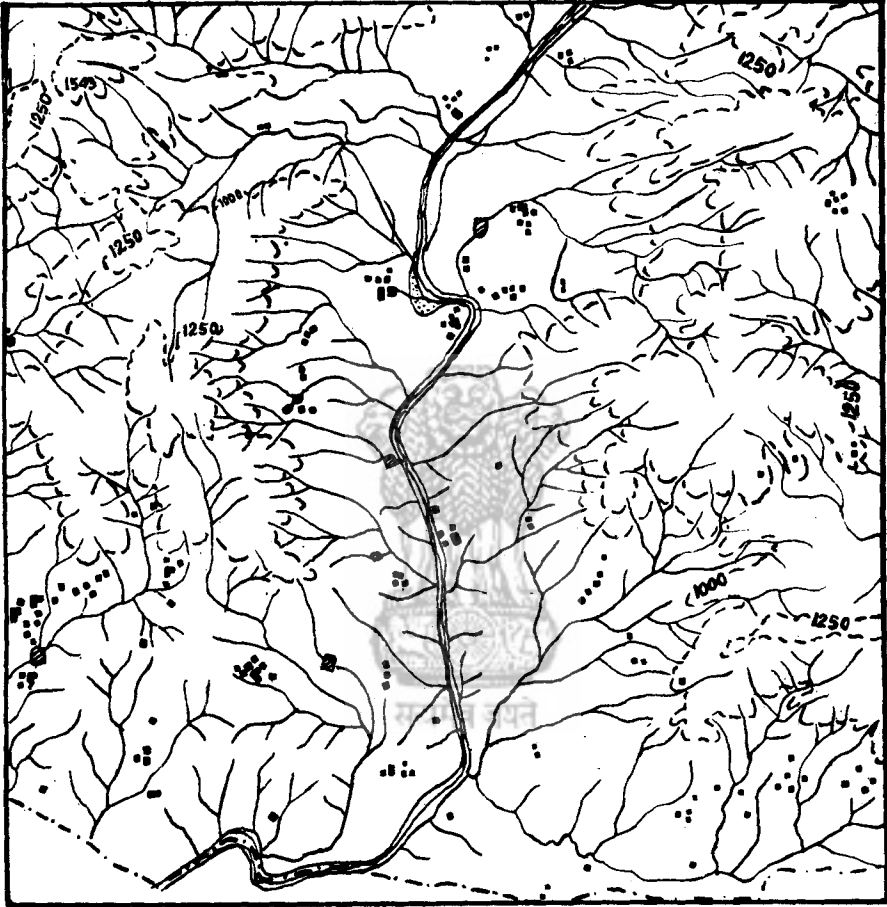


Fig. 75

The Lower Sankha Basin; Simdega area : hamlet-cum-hut type of settlements.

but the summits largely maintain their height. Habitable sites are few, fragmented and haphazardly distributed (fig. 75).

Settlements are commonly sited on interfluvial rises, on the margin of talus slopes, flat summits, gently-sloping projecting spurs, nickpoints and bluffs. Such a siting has resulted in an uneven distribution of settlements, but unevenness is largely mitigated by a fairly high density of settlements (fig. 53 & 54). The number of settlements per unit area is

too high for a hilly country. Two factors are responsible for a higher density of settlements. They are a higher dispersal quotient and numerous small, well-watered valleys interspersed with hills and ridges. Taking the hilly area as a whole the picture of distribution appears to be patchy, but there are extensive areas where the distribution acquires a fair degree of evenness.

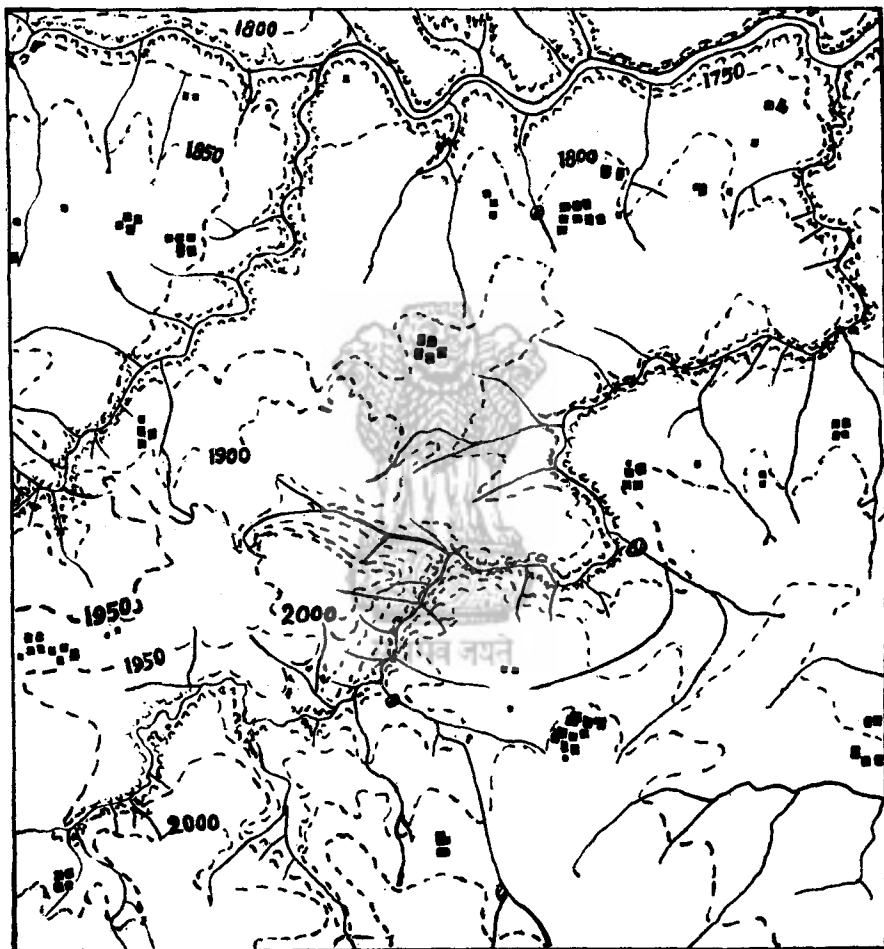


Fig. 76.

Middle South Koel Basin : Palkot area. Settlements avoid deep-cut valleys, ravined banks and dissected flood plains.

Palkot Basin

The area appears to be an extension of the Gumla area of the South Koel basin. Physical environments are the same as in the Gumla area, though the general level is lower than that of the latter. Because of the location of Palkot, the seat of the Nagbansi rulers, the area has enjoyed political and strategic importance. Most of the settlements belong

to a martial community called 'Rewtias' who served the Chotanagpur armies. The 'Rewtia' villages are defence-oriented and represent strong-point settlements. Bases and sides of hills appear to be the most coveted sites. The hill-side settlements usually consist of large and important villages. Villages located on the hill-tops are smaller. The villages of other communities are commonly sited on the interfluvial rises. The distribution of settlements is fairly even (fig. 76). The density per unit area is higher than in the Gumla basin which is balanced by the smaller size of settlements. Though the settlements are largely agglomerated they suffer from a degree of looseness that has led to the fragmentation of villages into hamlets.

Hazaribagh Plateau

Hazaribagh plateau is not much different from that of Ranchi plateau. Its areal extent is, however, exceedingly small (fig. 6). Smallness of size reflects upon the physical conditions of habitat. Most of the plateau has been eroded to a lower level. Only a small triangular piece of land lies above 2000ft. and constitutes the divide between the Mohana and the two tributaries of the Damodar. Consequently, even the surface above 2000ft. is largely deprived of its peneplain characteristics. The area below 2000ft. suffers from a varying degree of dissection. River banks are extensively ravined. The ravined belts are largely forested. Owing to the riverain position, the forests assume drainage pattern. The linear patches of forests separate the interfluvial cultivated inhabited tracts from one another. The settlements are interfluvial in their location. The distribution is largely even. The number of settlements per unit area is almost half the number that is to be found in a similar unit of the Ranchi plateau. The settlements occur at a frequency of 1.5 to 2 miles (fig. 54). The larger inter-village distance, however, is largely compensated by the larger size of settlements.

THE 1000'—SURFACE : THE LOWER PLATEAU

Chatra Plateau

Among the plateaus of Chotanagpur, the Chatra plateau has the most highly dissected and rugged surface. The valleys in the hilly areas are narrow, deep-cut and rock-walled. The valleys of the larger streams occasionally widen and create broad oval or rhomboidal basins of local nature. The hilly interfluves which are thickly forested, are mostly negative to settlements. But even in valleys and basins all the areas are not equally habitable. Ravines are widely developed and large areas are rendered unfit for settlements. In the forested interfluvial tracts settlements are confined to small clearings, usually located on spurs,

divides and valley-heads. This is a relatively dry area and, therefore, settlements, though avoiding river-banks, keep within a walkable distance from the water-points. The distribution of settlements is highly uneven and looks patchy in its areal pattern. Inter-village distance as well as the size of settlements vary within a very wide range. In three areas of comparatively small dimensions settlements are extensively developed and are closely spaced. These areas are the Amanat valley, the Mohana basin and the central part of the plateau in which Chatra is situated.

The Kodarma Plateau

The Kodarma plateau next to the Ranchi plateau, is the most extensive physical unit of Chotanagpur. The plateau surface is gently sloping. Undulations are small and dissection is limited. Relief is everywhere subdued. Dharwarian outcrops in the northern section introduce an element of variation in the landscape. Exposures of mica-schists and phyllites have been eroded to a lower level. The quartzite and pegmatite rocks stand high usually constituting interfluvial ridges. The texture of drainage is coarse. This has permitted the formation of wider valleys and larger interfluves. The unity of surface is well-sustained. The plateau is largely deforested and human occupation has been extended to the farthest limit. Communication is highly developed. The Grand Chord Rly. line and two National Highways traverse the entire length and breadth of the plateau. Besides, all the important places are connected by a thick network of excellent roads. Extensive mica-mining and splitting industry has considerably boosted up the rural economy. Rural economy has attained a high degree of ramification. Barter of Ranchi district has been replaced by an organized commercial exchange. In addition to the periodic *hats* permanent market-villages are widely distributed. These villages function as commercial centres of the rural area. People have developed an ingenious method to tame the small streams and utilize their water for agricultural and domestic purposes. Tanks and settlements are concomitant features. In fact, the number of tanks is several times larger than the number of villages. These methods of preserving water have largely alleviated the problem of water-supply emanating from a lower rainfall. The village community consists of non-tribal population. The people, mostly migrants, maintain strong social and economic links with the Ganga Plain. Consequently, the rural way of life in this area is largely a plateau version of the Plains' way of life. All these factors have led to an extensive development of settlements.

The density of settlements is high (fig. 77). The villages are closely spaced. The settlements occur at a frequency of one mile and

even less (fig. 45). The density varies from west to east and from north to south (fig. 53). The density is highest in the central tract in which Kodarma is situated. The distribution is largely even. Evenness is occasionally marred by the small patches of woods, ravines and



Fig. 77

Mica Belt : closely - spaced, interlinked, mining and other types of settlements:

waste lands. These patches have fewer settlements. On the margins of such patches, there are usually high concentration of settlements. Size of settlements varies widely and so does the degree of agglomeration. There are large, compact villages which can favourably compare with those of the adjoining Ganga Plain. On the other hand, there are tiny settlements consisting of a few huts loosely grouped or widely scattered. Settlements, as elsewhere, avoid the river banks and prefer

the interfluvial rises and valley spurs. In wooded and elevated areas, they are frequently sited on divides and spurs. Typical valley-head settlements are missing. A striking feature of siting is the obvious preference for lines of communication. Cart-tracks much more than roads, appear to have exercised a powerful influence on the arrangement and location of settlements. The cart-tracks, usually occupying the interfluvial axis, appear as flow-line of settlements running inbetween and parallel to the drainage lines (fig. 89).

East of Dhanbad-Jaridih line (86°E) the configurations of land are markedly changed. The plateau over here narrows down in width. In the north the bounding ranges are spread over a large area and the tributaries of the Barakar and the Ajay rivers make deep dents in the plateau surface from the south. The surface has been eroded to a lower level. Gradient is steeper. Relief gets invigorated and the density of streams becomes higher than in the western part. The river channels are deep and the interfluves are narrow and relatively high. Surface, therefore, bears a fragmented and rugged look. Gully erosion has taken a huge toll of the surface and considerably broad belts along the river banks are thoroughly ravined. Parts of the ravined-tracts are wooded. Habitable area is confined to the central portion of the interfluves. The cultivated lands with settlements appear as elongated patches and follow the drainage pattern in their areal distribution. East of Giridih ($86^{\circ}24'\text{E}$) dissection increases and ruggedness becomes still more prominent. The plateau surface, eroded to a lower level, finally gives way to the Deoghar Erosional Depression and the Ajay basin.

Broken character of the surface and variation in soil formation and the extent of agricultural land reflect upon the density and arrangement of settlements. The settlements are unevenly distributed and appear patchy in their areal arrangement. Dispersal quotient is fairly high. Compact villages have given way to open-clusters and singly located huts. The size of settlements varies widely. This further enhances the unevenness of distribution. A higher degree of dispersal and smaller size of settlements have resulted in a very high density of settlements. The settlements occur at a frequency of less than a mile. In their location, the settlements are largely interfluvial, but quite a large number of them are sited on divides, spurs and bluffs. In relation to wooded areas, they are peripheral.

The Hilly Southern Part of the Kodarma Plateau

The Hazaribagh plateau gives way to the Kodarma plateau through an erosional surface. The surface is characterized by steep slopes, hills

and ridges of varying dimensions. The relief is emboldened. This transition surface is narrow in the west and becomes gradually wider in the east where it finally forms the inter-stream uplands between the Jamunia, Barakar and Bokaro rivers. In the eastern part, the amplitude of relief becomes highly magnified by the high residual hills and ridges mounted on the divides and spurs. One of them is the Parasnath Hill rising to about 4000 feet. The transition slopes are thickly forested. A large part of this forested tract has been included in the National Park. Habitability is highly reduced and confined to small patches of relatively levelled land. Such lands occur rather infrequently on divides and spurs and in the source region of the streams. Settlements are confined to such habitable patches and are located in small forest clearings. The settlements are unevenly distributed. The distribution becomes patchy on larger and broader divides.

Deoghar Erosion Depression

The area is an extension of the Kodarma plateau which has been eroded to a lower level by the Ajay and the Pathro rivers flowing towards south-east and the Chandan that meets the Ganga in the north (figs. 4,5). Deoghar in the north and Madhupur in the south are situated on the two ends of the north-south central axis of the region. The level along this axis falls down to 750ft. The area looks like a horseback. From the Deoghar-Madhupur axis, the level rises towards west and east and falls towards north and south. The surface is granitic overlain by residual and riverborne soils.

The region consists of two types of habitat, the relatively steep slope extending from the Kodarma plateau in the west and the central low land consisting of the valleys of the Ajay and the Pathro rivers. The region suffers from the lack of unity in the surface. This is particularly true of the western part. Over here, the slope is steeper, streams are smaller and their valleys are narrow and deep. Interfluves frequently contain hills and ridges which often rise above 1000 ft. Erosion is still very active and the river channels are invariably broadened by ravined strips of lands which are partially wooded. Space available for cultivation and settlements is limited. Such space is confined to the undissected interfluves of the axial zone. Settlements are located in the axial zone. Thus, inhabited interfluves alternate with forested valleys and the distribution of settlements becomes uneven. The size of the settlements is small. Dispersal quotient is high. Individual dwellings are scattered or are lined along the interfluvial axes that are the lines of communication. The number of villages per unit area varies within a very wide range, depending upon the ratio between cultivated and forested areas.

In the central part the configuration is largely altered, though the general relief has a sharper tone. The Ajay and the Pathro rivers with their numerous tributaries have excavated wide valleys. These valleys have attained a high degree of planation. The interfluvies are larger, slopes are longer and valleys are wider and covered with a veneer of fertile soil. Even on the interfluvies, the formation of soil is quite exten-

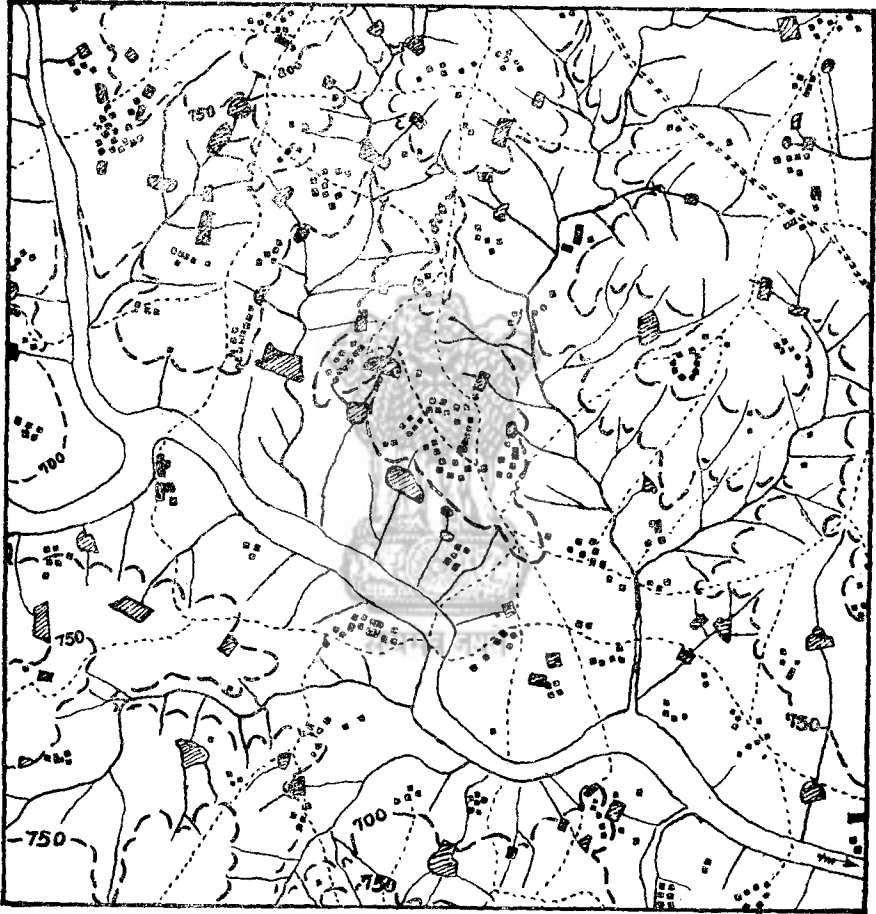


Fig. 78

Deoghar Erosional Depression : dissection mitigates linear tendency.

sive, capable of sustaining intensive cultivation. The area is largely deforested. Forests survive only in such areas which are unfit for cultivation. All these facilities have effected a wider, extensive occupancy of land. Settlements are numerous and the inter-village distance is exceedingly small (fig. 78)

The small inter-space is largely the result of a higher dispersal quotient and a smaller size of villages. Distribution of settlements is largely uneven. Three factors have largely contributed to the unevenness of distribution. They are the patchy remnants of forest, a higher dispersal quotient and the linear arrangement of settlements along the inter-fluvial axis.



Fig. 79

The Ajay Basin . Multiple dissection of terrain reduces strassendorfs to single-line settlements.

The Ajay Basin

The basin appears to be an enlargement of the middle section of the Deoghar Erosional Depression. Though the surface features and extent of occupance differ in details, physical conditions of the habitit are

largely the same in the two areas. The basin is of recent origin. It has been excavated by the Ajay and its tributaries into the gneissic surface of the Kodarma plateau. The gradient from the source to the mouth is rather steep. Though relief is subdued, the details of the surface are yet to be eliminated. The integration of streams is yet to take place. Consequently, the surface suffers from a perplexing number of valleys and interfluves. Valleys are short and the interfluves are narrow and elongated. The problem of soil erosion is acute. Gullies and ravines are extensively developed. Almost all the rivers, except the tiny head-streams, are bordered by ravine-belts. The area unaffected by erosion, is confined to the narrow belt along the interfluvial axes. In spite of the numerous physical difficulties the basin constitutes one of the most thickly populated tracts of Chotanagpur. Human occupation has been extended to the farthest limit. Forest has been largely cleared off.

Agriculture is as extensive as in the Ganga Plain. The basin is one of the principal paddy regions of Bihar. Heavier rainfall is a security against crop failure. Soils are largely river-borne and contain a high proportion of silt-loam. The area is easily accessible from north and south and has been serving as a transport-zone across this part of Chotanagpur. All these factors have led to an extensive development and multiplication of settlements. The density of settlements per unit area is very high. The settlements occur at a frequency of half a mile. The distribution is largely even. The degree of evenness varies from place to place. The settlements are interfluvial in location. The areal arrangement of settlements is linear. Linear character in this basin is better developed than in the Deoghar area. As the habitability is confined to the axial zone of the interfluves, the habitable sites are also linear in shape and in spatial arrangement. Besides, the communication lines, cart-tracks and foot-paths follow the crest-lines of the interfluves. The dwellings have, therefore, a marked tendency to be arranged lineally on the one or both sides of the track. Consequently, the rural morphology as well as the areal distribution of settlements has a linear aspect (fig. 79).

The Rajmahal Upland

The upland tract has two types of areas, (1) the hilly backbone consisting of the Rajmahal chain of hills and (2) the undulating surface in the west. In the south, the Ajay and the Mor rivers have cut deep broad valleys, while in the north, the upland is flanked by the Ganga alluvium. The habitable conditions in the hilly part and its eroded western flank are sharply contrasted. The physical conditions in the western flank approximate very much to those obtaining in other parts of

the peneplaned surfaces of Chotanagpur. Two factors make it look different from other peneplaned surfaces. They are (i) a heavier precipitation and (ii) the Rajmahal traps. The pattern and the degree of dissection of the traps have created all the differences in the landscape of this upland.

Godda is situated on the line where the eroded hilly surface gives way to the alluvial plain of the Ganga. In a journey from Godda to Dumka, the variations and changes in the ground levels and the landscape are quite easily perceptible. The middle portion of this upland is higher which slopes down towards north and south.

South of Godda, with the increase in elevation, the density of streams rises and the dissection becomes higher. The surface gets typically divided into valleys' lowland and interfluvial highland. These units of land are long and narrow and have an orderly spatial arrangement. As the elevation rises elongations are shortened and their shapes are distorted. Their areal plan becomes confused. Further south, beyond the Poreya-Sareya line, the landscape resumes the orderly characteristics of the north.

In the northern as well as in the southern section of the upland the rural morphology acquires a typical linear pattern (fig 80). Rows of settlements appear to be separated by linear vacant space which normally consists of river channels. Several factors appear to have effected linear arrangement of settlements. Settlements are interfluvial in their siting. The interfluves are narrow and long. The channels are deep and their banks are broken. The riverain belts are usually wooded or marshy. Though the rivers are rainfed, a heavier precipitation ensures a steady flow and most of them are perennial water-bodies. During rains they frequently overflow their banks, inundating the adjoining lowlands. The valleys, therefore, remain moist for the most part of the year. Relative humidity is fairly high all the year round and the summer's days are sultry and uncomfortable. In the moist valley sultriness is relatively high. Marshes and water-pools in the valleys are the veritable breeding centres of mosquitoes. Malaria and Kalazar are in epidemic form. Conditions in the valleys are, thus, unfavourable for a healthy habitat. The interfluves are better-drained, airy and free from marshes and inundation and are, therefore, preferred to valleys for the siting of settlements. Further, interfluvial siting has the additional advantage of being on the line of communication, for the roads and cart-tracks follow the interfluvial crest-lines.

Settlements in this part are closely-spaced. The density of villages per unit area is very high. A higher density makes the distribution

largely even, but the areal pattern of distribution conforms to the drainage pattern of the area.

As we move further south towards the divide between northern and southern streams the level rises by several hundred feet, Dissection becomes higher and ruggedness is multiplied. Large number of residual hills masked by the weathered Rajmahal trap complicate the configuration and enhance the hilly character. But, even then, the settlements

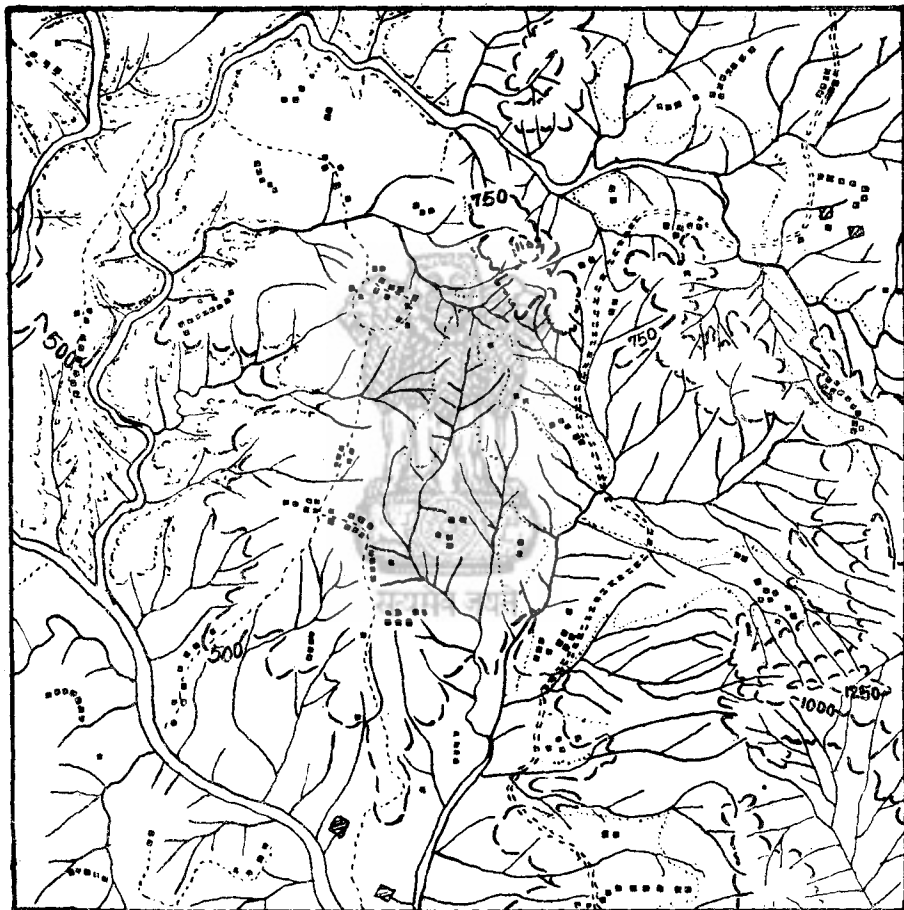


Fig. 80

Rajmahal Hills : linear settlements mounted on spurs, summits and divides.

are quite numerous and the density is higher than in the northern part. The number of named settlements per unit area is, in fact, highest in the whole of the Chotanagpur. A high density of settlements appears related to a relatively high density of population, diminutive from of villages and fragmentation of settlements occasioned by the smallness of the

habitable sites. The habitable sites, in addition to interfluves, include hill-sides and bases. Owing to a higher degree of dissection the interfluves are short and asymmetrical while the hill-sides and bases are ill-shaped and irregularly distributed. Consequently, the distribution of settlements becomes uneven and the rural morphology loses its linear character.

Further south towards Dumka, the level falls considerably. Surface is undulating and gently sloping. Interfluves are long and narrow and are regularly spaced. The distribution of settlements becomes largely even and the rural morphology resumes its linear character.

The Rajmahal Hills

The Rajmahal Hills, extending over 80 miles from north to south and with summit above 1000ft. and valleys below 250ft., present a formidable measure of relief. The hills are divided into two elongated chains by a five-mile wide axial valley. These chains are crossed by five passes two of which are major breaches. The Burhait valley which divides the hilly chain into two parts, is sufficiently wide and open and is excavated to the level of the adjoining parts of the Ganga Plain. The valley is intensively cultivated and thoroughly occupied. The pattern of occupation in this valley is the same as in the Ganga Plain. Settlements have attained extensive development. The villages sited on the interfluves are remarkably linear, some of them extending over a mile (fig. 81). The density of settlements is high, but owing to the occasional crowding of settlements in a relatively small area the distribution becomes uneven.

The hills lying north of the Burhait valley constitute a single massive block and are largely devoid of settlements. Human occupation is confined to the alluvial indentations from the adjoining plains along the streams. A few tribal settlements are seen located on the spurs and divides.

The section of the Rajmahal Hills, lying south of the Burhait valley, presents a different picture. A higher degree of dissection has produced numerous deep-cut, broad-open valleys which are separated by ridges and small plateaus. The hill-tops are generally flat and the spurs are gently sloping. Amidst crowding of such features "the Santhals and Paharias have their villages which are often picturesquely situated on the brow of a steep hill, with cultivated fields and grass lands stretching beyond"¹ The interior of the hills stands in sharp contrast from the exterior which forms steep escarpment overlooking the Ganga Plain in the east. The interior valleys, low-lying and sufficiently broad, have gentle slopes and

1. D. G., Santhal Parganas, op. cit., p. 5.

afford ample scope for cultivation. In fact, "wherever a plough can work, the Santhal settlements are found, whether on the summits or on the slopes".¹ The villages of the Paharias are, however, "situated on the hill-tops, the approach to which often consists of boulders piled one upon another."² The slopes yield a large quantity of bamboo, fire-wood

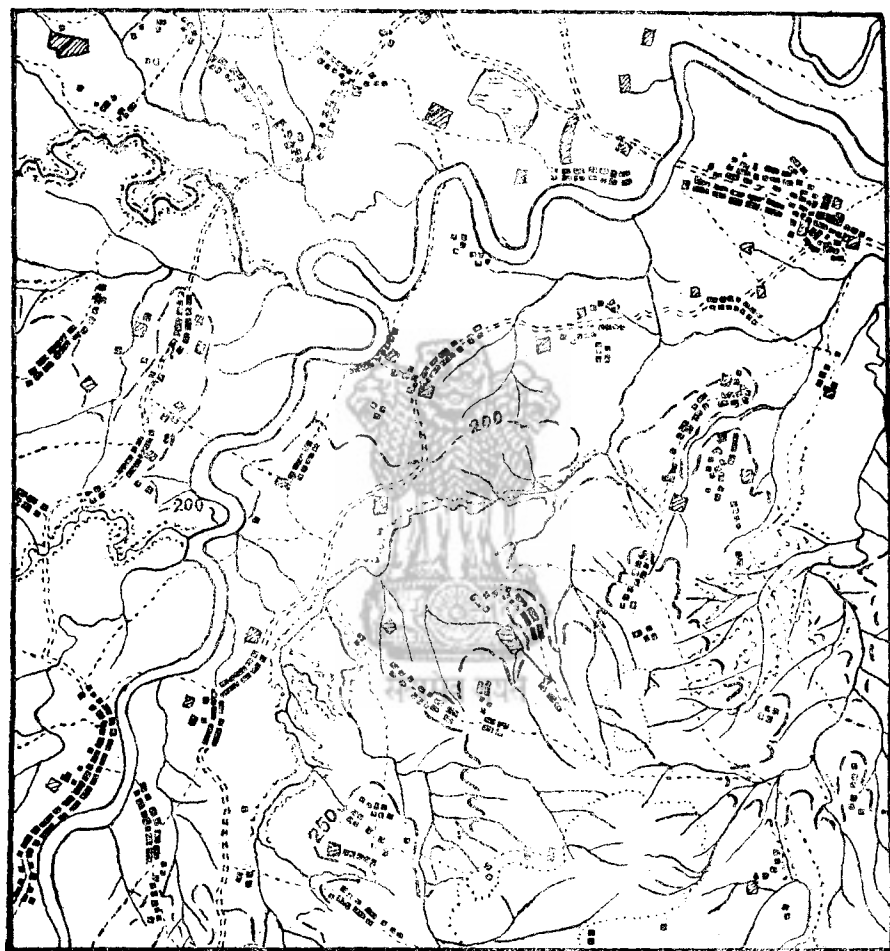


Fig. 81

Barhait Valley of Rajmahal Hills : development of strassendorfs most conspicuous.

and *sabai* grass which act as boosters of rural economy. Consequently, the settlements are quite frequent, though the terrain is hilly. The density of settlements is fairly high. The distribution is uneven and becomes patchy towards south where the size of valleys as well as of hills increases.

1. D.G., Sauthal Pargana, op. cit., p. 5.

2. Ibid.

The Aliuvial Upland

Between the eastern face of the Rajmahal Hills and the western flank of the Ganga Plain extends a thickly mantled, highlylying, alluvial surface, made of numerous alluvial fans coalesced together. The surface is higher than the adjoining Ganga Plain and is divided into numerous long, narrow strips of land by the streams that roll down the hills. The

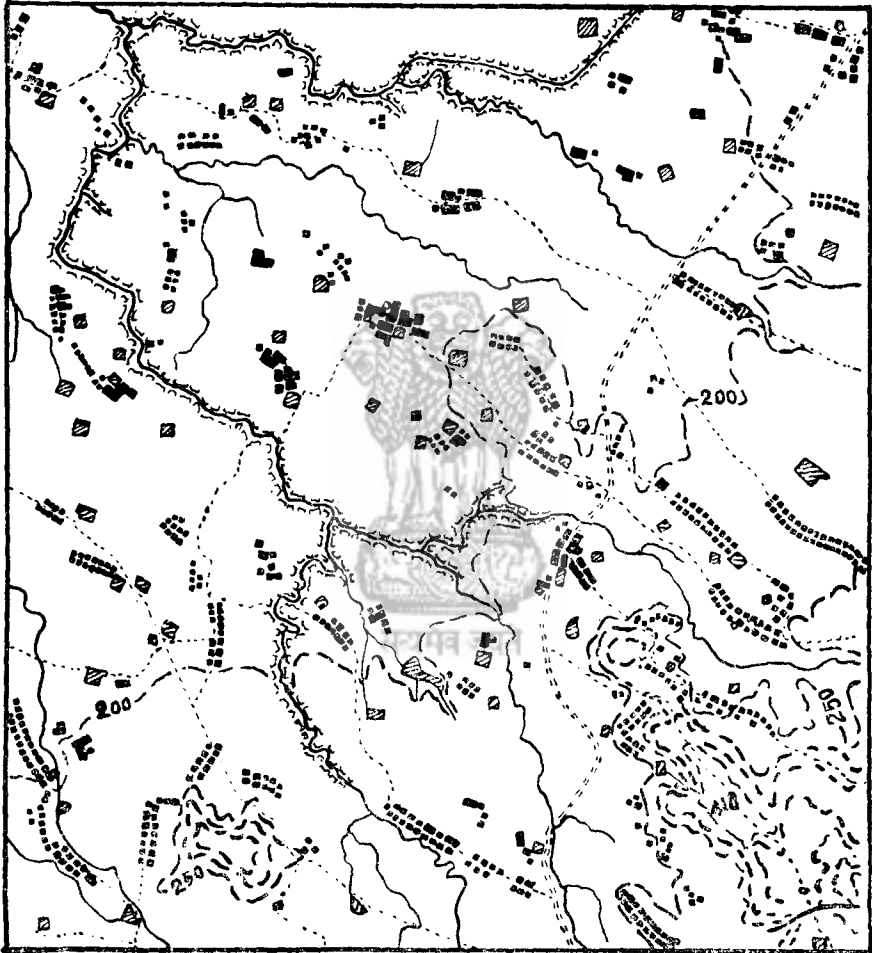


Fig. 82

Alluvial Upland : A higher density of population makes strassendorfs overgrow to disjointed clusters at places

upland shares in common the environmental characteristics with the hill-bounded valley of the Burhait and the low-lying plains of the Ganga. The general tendency of settlements is linear but a higher density of population has resulted in closely-spaced, dense settlements. Consequently, the settlements have grown in more than one direction and strassen-dorfs have changed into multi-linear or multipronged disjointed clusters.

The Chaibasa Plain

The Chaibasa plain, as stated earlier, conforms to the idealized peneplain of the geomorphologists. The surface is composed of low, elongated swells alternated with broad elongated erosional depressions. Relief is tame, slopes are exceedingly gentle and the gradient varies from 1/100 to 1/300. Though the residual heights are numerous, they are of very small dimensions and too low to attribute any prominence to the

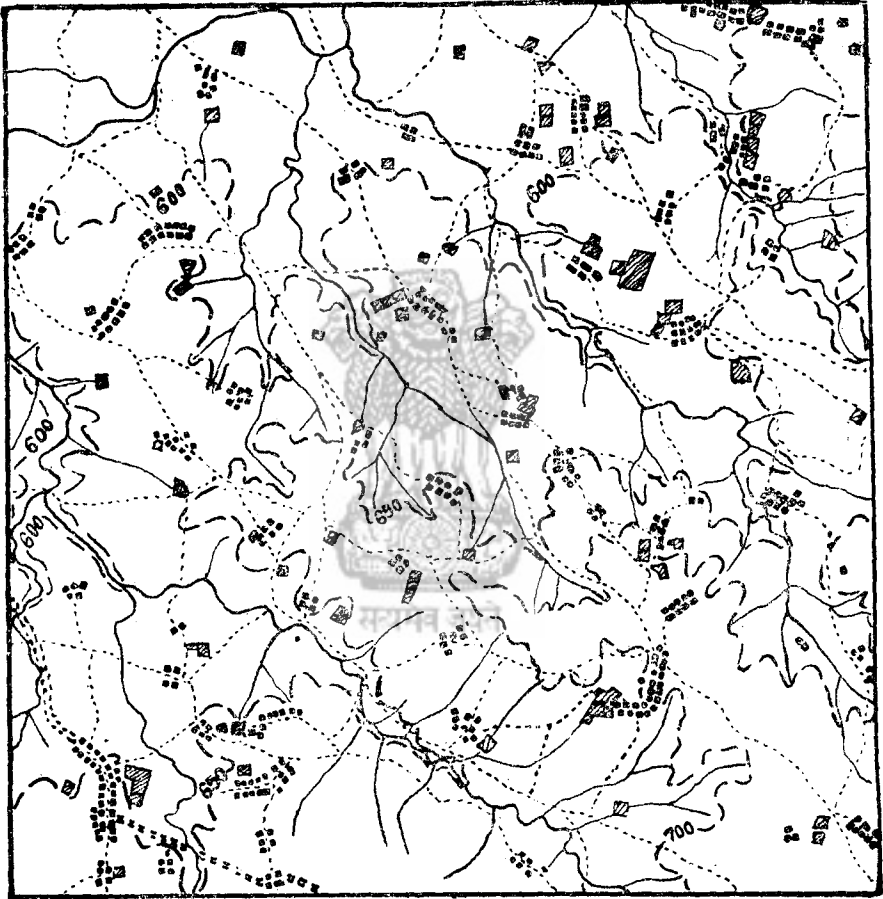


Fig. 83

Chaibasa Plain : strikingly even distribution of settlements.

surface. These heights, remnants of the basic intrusives, are aligned in rows from south-east to north-west. At places, the heights are long and continuous and act as impediments to the natural drainage. This has led to the creation of extensive swamps and marshy lands parts of which are wooded. The area is drained by the Kharkai and Sanjay rivers which are major tributaries to the Suvarnarekha. Except these two, there are

few streams of any importance. The extensive interfluvial tracts are drained by seasonal, ill-defined channels which frequently shift their positions. The river channels are broad, the beds are sandy and the banks are broken and infirm.

Water supply does not pose any problem. Annual precipitation about 60" over a flat surface and a number of cyclones travelling frequently from the Bay of Bengal keep the sub-soil moist even in dry seasons. Consequently the construction of wells and tanks is easy and cheap. Forest has been completely cleared off and agriculture has been extended to the farthest limit. Paddy is the main crop which commands 80% of the cultivated land. Movement in this plain is easy and quick. The area is served by railways and excellent motorable roads (figs.2-27). All these factors have led the population and settlements to grow in number. The settlements are numerous and the distribution is strikingly even. Equally-spaced villages are linked by cart-tracks and village roads. The cart-tracks produce a close network which assumes rectangular pattern. At the intersection-points of these tracks the settlements are so located that they look like knots in a rectangular network (fig. 83.)

In the siting of settlements, the evenness of surface and absence of streams from extensive areas are indiscriminating factors. The only consideration in the siting of settlements appears to be the space involved in between the neighbouring settlements which has been shared in common for cultivation. Heavy precipitation, sluggish streams and sub-soil moisture have necessitated the villages to be located on elevated spots. Such spots are frequently available inbetween the run-off channels. In the Kharkai valley the bases and sides of hills and rocky eminences offer the most favoured sites. The size of settlements is small. There are few villages larger than the hamlet-size. Smaller size of villages and higher density of population have produced a much larger number of villages per unit area. The villages occur at a frequency of half a mile. The uniform size, equal-spacing and inter-linking cart-tracks produce such a picture of areal distribution which looks very much artificial on the map (fig. 83).

The Suvarnarekha Valley

As a result of the Tertiary uplift the present valley appears to have been excavated afresh in the earlier flood-plains. The valley is relatively narrow and deep. A series of knick-points fix its lateral limits where the older surfaces form high-lying terraces. These terraces are highly dissected by the extension of gullies from the Suvarnarekha. Even in the valley proper, there are numerous residual heights. The

relative height between the banks and the river-beds varies from 15ft. to 50ft. and above. Besides, numerous outliers of the Damla Ranges and Dhalbhum hills add to the amplitude of relief and increase the ruggedness of the surface. All these have produced a landscape which is sharply contrasted from that of the Chaibasa plain.

Habitability is fragmented and discriminating. Habitable sites which largely consist of interfluvial rises and residual heights vary in size, number and quality from place to place. To these discriminating and variable factors of physical geography have been added the factors of cultural geography. The valleys of the Suvarnarekha and the Damodar are the most highly industrialized parts of the Plateau (figs. 21-24). Large industrial complexes have sprung up in and around Jamshedpur. Villages have been transformed into towns. Next to the lower Damodar valley, the area consists of the largest network of roads and railways. The effects of the industrial growth and communication network are the relative localization of economic forces in the areas of preferences. They have sharpened the areal contrast and have increased the local differences of rural economy and habitat. All these have gone to magnify the unevenness of distribution and inequality in the size of settlements. The heavy concentration of settlements in the neighbourhood of the industrial centres and transportation routes taper to thinness in far off agricultural areas and are reduced to infrequency in ravined land and rocky areas.

Projections of Dhalbhum hills and Dalma ranges approach the river banks from opposite directions. The valley over here becomes extremely narrow and is not more than 3 to 6 miles in width. South of Ghatshila, the valley again widens. Level further falls from 750 ft. near Ghatshila to below 250 ft. in Baharagora. The surface persists to be rugged and dissected until the river enters Baharagora. The Baharagora area has nothing in common with the rest of the Plateau. The level in Baharagora falls below 250 ft. The surface is covered by Tertiary alluvial deposits. The Suvarnarekha suddenly becomes very wide and sluggish. This part of the valley appears as an upward extension of the Bengal Plains and is one of the most densely settled parts of Chotanagpur.

Most of the villages in this area are dry-point settlements. They are sited on the interfluvial rises. A good many of them are sited on the hilly bases. River banks and swamps are scrupulously avoided. The size of settlements is much larger than in the Chaibasa plain. Their morphology is neat and symmetrical. They are all linear villages consisting of two parallel rows of houses separated by a segment of the cart track

that serves as the village lane (fig. 84). Another important feature is the large number of tanks associated with the villages.

Several factors are responsible for the elongation of villages. The interfluvial sites are linear. The cart-tracks follow the crest-lines of the interfluves. Even foot-paths prefer to follow the crest-lines. Such a preference is largely prompted by the unusual depth of the incised river

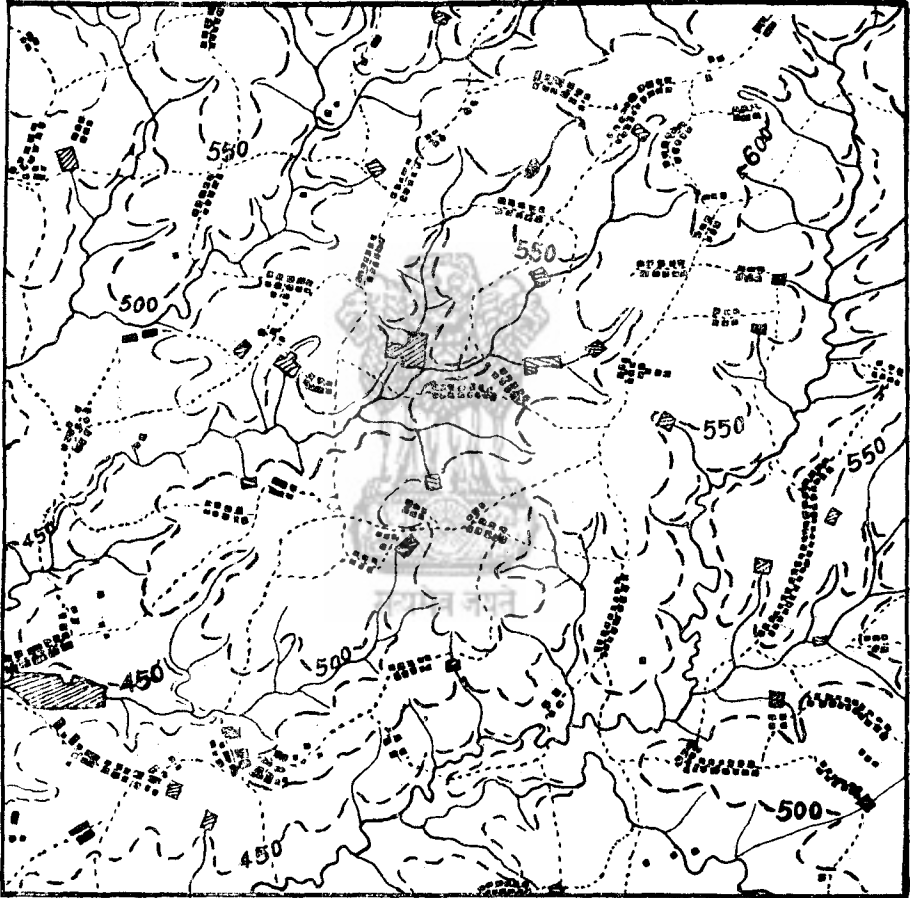


Fig. 84

Suvarnarekha Valley : marked development of strassendorf

channels away from the crest. The relative height between the river bed and the interfluvial crest varies from 50 ft. to 150ft. Interfluvial circuitous approaches to the neighbouring villages are, therefore, preferred to short-cut across the rivers. The linking route between two neighbouring villages very often acquires a 'U'-shape.

Rivers have also added to the specific siting and elongation of villages. In spite of deep channels and steep banks the rivers function as multipurpose water-bodies and the settlements cannot afford to be far off from the rivers. The river-sides offer good pasturage. The settlements, though avoiding the banks, try to keep at a distance from where they can benefit most and equally from the rivers. The elongation along the crest lines provides all the villages with equal opportunity.

The tanks appear to have a double-purpose origin. The exaggerated relative heights facilitate quick run off from the interfluves. Owing to the deep valleys, the water-table on the interfluvial rises is usually very low. This creates water-problem of local nature. A walk to the river-bed is hazardous and time-taking. This necessitates the construction of tanks to impound water, particularly for animal consumption and other domestic needs. The area has received the cultural impact of Bengal in full where tank is a prestige symbol and is an essential component of a well-to-do homestead (fig. 47). Pisciculture is widely practised and the tanks are an additional source of valuable food supply. The tanks usually occupy the adjoining space in the backyard and get arranged along the village on either side. Many villages have, thus, five-line morphology, two lines of houses separated by a third line, i.e., the lane and bounded on the outer sides by the lined-tanks (fig. 84). In the Bahragora area, though the complexion of the country changes, the general aspects of the distribution and density of settlements are the same. The distribution continues to be uneven. Unevenness over here is the function of the relative scarcity of dry-points or elevated sites. This has resulted in unusual concentrations of settlements at fewer points in relatively small space. The villages, thus, lose their linear character. They are large and unshapely-sprawling clusters. Patchy character in this part is further accentuated by the occurrence of the lateritic patches which are unfit for cultivation. The valley consists of a series of successive terraces. The edge of the terraces is broken by water-channels. The inter-channel space appears as tongue-like projection on the lower terraces. The settlements are precisely sited over the semi-circular highland projecting inbetween the channels. The settlements, thus, get aligned along the edge of the terraces and assume a banded or belted pattern of distribution.

Dhalbhum Region

The Dhalbhum hills stand in contrast with the thickly populated valley of the Suvarnarekha and the Chaibasa plain. The hills are fragmented into numerous blocks of varying shape and size separated by the valleys of variable width. The hilly slopes are steep and rocky. The valleys are

low-lying and covered with thick fertile soil. Habitable space is confined to the valleys. The hills largely covered with forest are uninhabited. The settlements in the valley are sited on the end of the projecting spurs. Foot-line of the hills also offers favourable sites. Wherever the valley widens and receives feeder streams, the settlements are sited on the inter-stream rises. The number and frequency of settlements

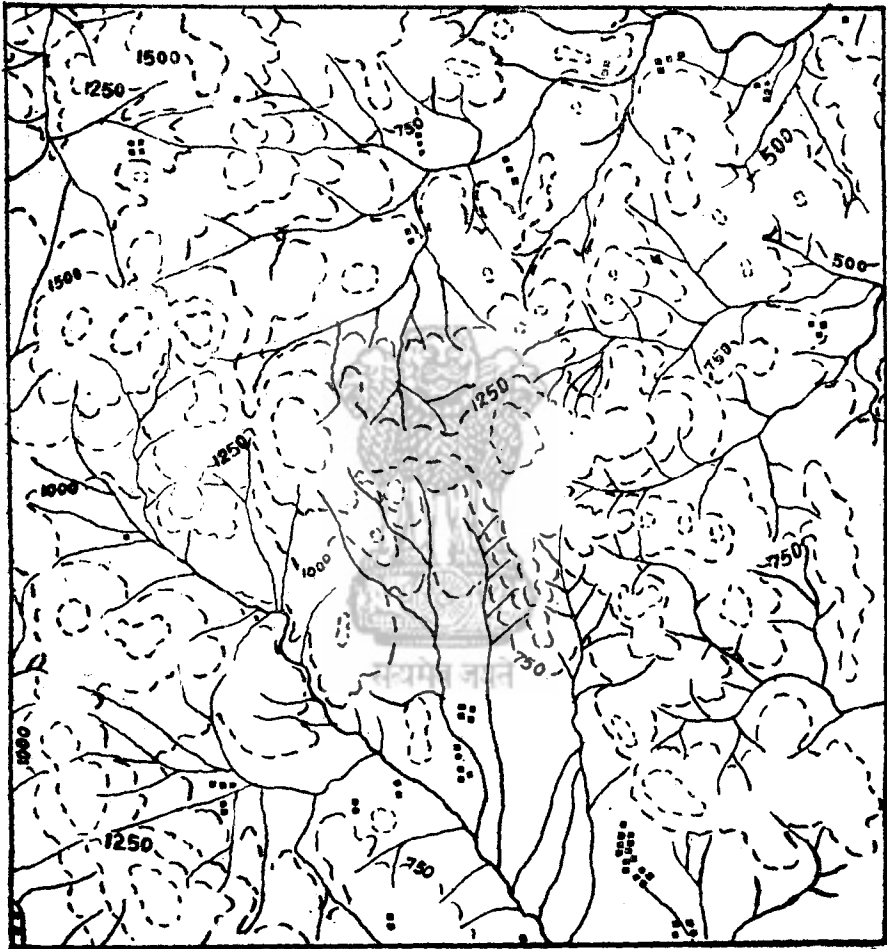


Fig. 85

Dhalbhum Hills : valley and spur settlements

are related to the degree of dissection of the hills. With lesser degree of dissection, the hills are bigger and massive and consequently, the uninhabited areas are larger. The distribution of settlements is uneven and haphazard. The settlements vary widely in their morphological extent and population content. On the hilly summits and spurs in the northern part, it is not unusual to find villages consisting of a single hut.

On the other hand, in the well-watered broad valleys, the settlements are large enough comparable with those in the Suvarnarekha valley. The settlements persist to preserve their linear morphology unless the situations and nature of sites become entirely unfavourable (fig. 85).

The Kolhan Highland

The surface features of this table land is very much like those of the Ranchi plateau. Slopes are gentle and the undulations are small.

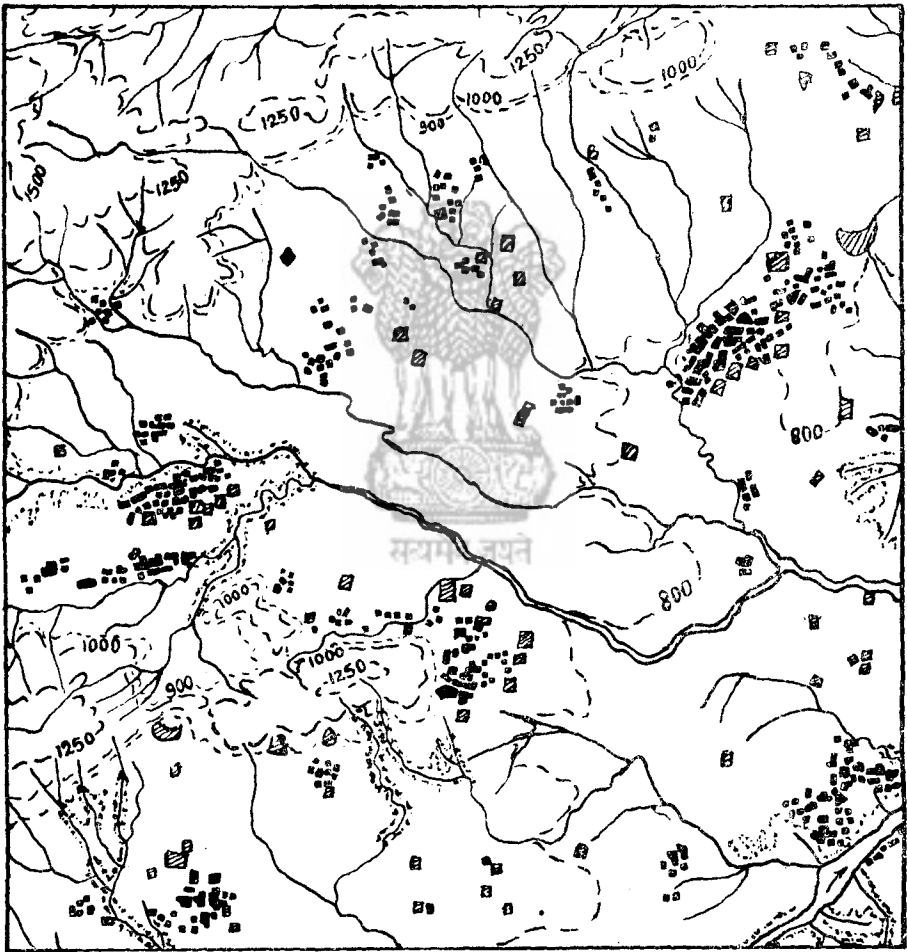


Fig. 86

Panch Pargana Plain : large, dry-point settlements off the flood plains of large rivers

The features of undulations consist of typical interfluvial swells and fluvial depressions. Deforestation of this table-land is far from complete. Forest still covers a good proportion of land. Forests are largely

confined to the river banks and hills. The settlements are typically inter-fluvial in location. The density is relatively high. The settlements appear a bit more widely spaced than in the Chaibasa plain. Two factors are responsible for the wider inter-settlement spaces. They are the interspersing of forest patches with inhabited territories and the bigger size of villages.

The streams originating from the table-land descend to the Chaibasa plain through a steeper slope. This slope is highly dissected and thickly forested. Settlements on the slopes are confined to small patches from where the forest has been cleared.

The Panch Pargana Plain

The Panch Pargana Plain is divisible into two parts. The Upper part consists of the valleys of the Raru, Kanchi and Karkari which are the tributaries to the Suvarnarekha. The lower part lying north of the Dalma Ranges comprises parts of the Suvarnarekha valley and the Purulia plain. The name Panch Pargana, in fact, refers to the southern section only. The nature of terrain and physical conditions of habitat differ in the two areas.

The Upper reaches of the three tributary valleys appear as deep indentations into the scarped face of the Ranchi plateau. The valleys lie below 1000 ft. These valleys are well-watered and are covered with a thick mantle of alluvium. The slopes are gentle and the undulations are feeble. The Kanchi valleys is one of the most thickly populated tracts lying south of the Damodar (fig. 43). The distribution of settlements is largely even, but the degree of evenness as well as the size of villages varies from one valley to another. The villages are usually smaller in the Raru and Karkari valleys and are larger in the Kanchi valley. Some of the largest villages of Chotanagpur are to be found in the Kanchi valley. Apart from the varying size of the clusters, residual hills, ravined tracts and marshy areas bring about variations in the spacing and distributional pattern of settlements (fig. 86).

The settlements in their location appear to be water-shunning and prefer to be located on relatively high grounds. During the monsoon the rivers are often in spate and cause flooding in most of the valleys. Problems of inundation limit the choice of sites to dry-points. Such sites are few and largely restricted to the interfluves. The hilly slopes with blunted spurs are too steep to attract settlements. The rivers making a clean sweep from the hills to the Suvarnarekha, could not build a foot-hill zone of alluvial deposits. The settlements, thus commonly

sited on the interfluves, avoid the river-banks, but keep very close to them. The distance between the river-bank and the settlements is much smaller than in Ranchi and Hazaribagh regions. In fact, quite a number of villages are located on the river-sides. Repulsion and attraction of rivers strike a balance at the point that lies just above the high flood level. These are the points of the maximum locational advantages.

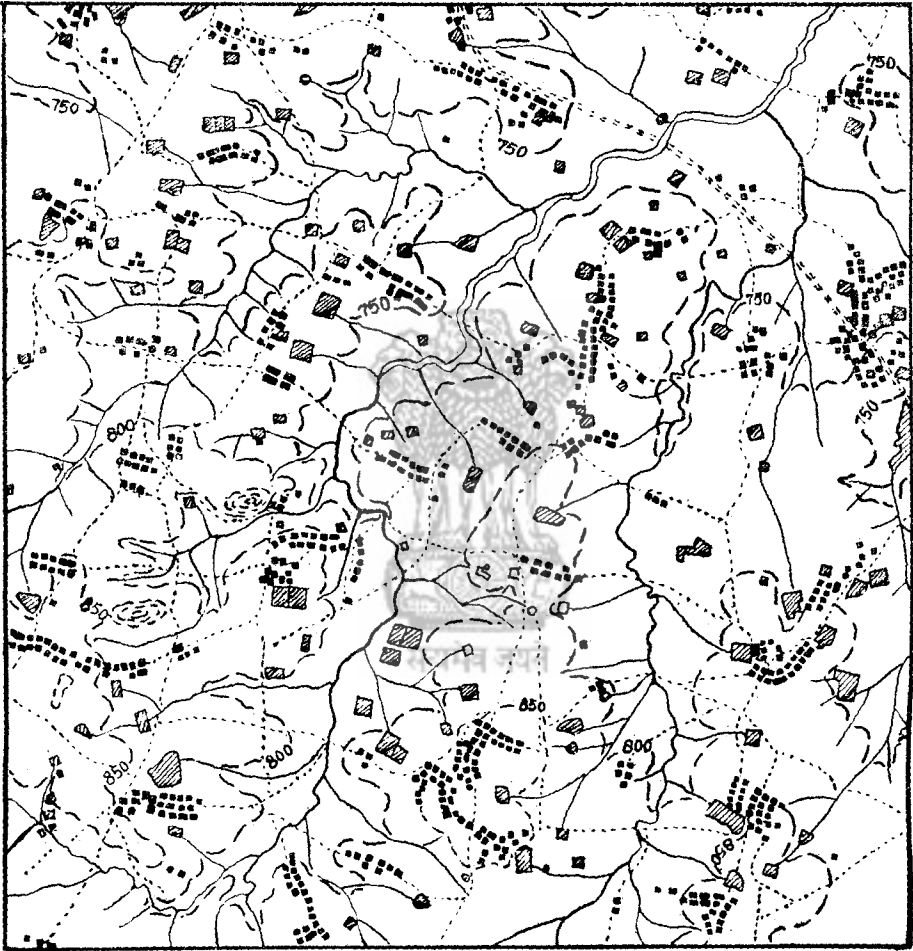


Fig. 87

Panch Pargana Plain : tendency of elongation well developed.

Rivers in this area have aided attraction. They are not ephemeral like the hill torrents or the plateau-streams. Most of them are the perennial source of water-supply. Gullies have limited incidence. Neither are the channels so deep nor the interfluves so high. The surface is almost flat and permits all-way easy movement. Consequently, the roads and

cart-tracks do not necessarily try to avoid the river-side. Very often the routes follow the streams and swing right and left of them to touch important settlements on the river-sides. In the hilly areas of Palamau and Ranchi, the settlements scrupulously avoid the convex-side of meanders and are frequently located on the concave-side. Here the reverse is true for the characteristics of the rivers are like those of the plains.



Fig. 88

Closely-spaced, interlinked mining and other types of settlements in Jharia Coalfield.

The Lower Damodar Valley

The basin consists of three types of terrain (fig. 2, 4 & 6). They are the Gondwana Trough or the valley proper and the plateau surface that borders the Trough on two sides. On either side of the Trough, the country comprises the gneissic surface which has been eroded to a lower

level and forms a continuous slope from the divide to the Damodar water.

In the north of the Jharia coalfield extends beyond the Trough line a sloping country which forms part of the Barakar-Jamunia interfluvial tract. This interfluvium is hilly and dissected. Slopes are steeper and the streams are closer. Forests are extensive. Ravines and rocky exposures

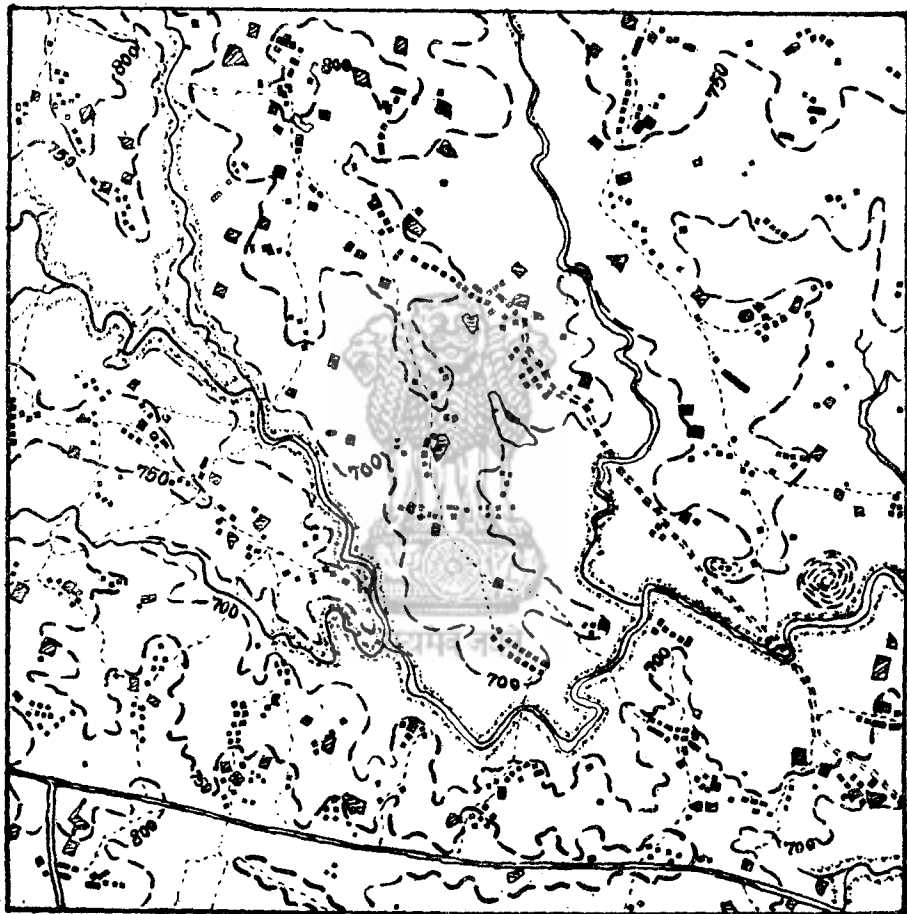


Fig. 89

Trans-Gondwana- Trough Country; North of the Damodar : interfluvial settlements, elongation and alignment with paths.

have created extensive patches of badlands. Consequently, only a small proportion of land has been brought under cultivation. Habitability is limited and the habitable area is fragmented. Density of population and settlement are sharply contrasted from that of the Gondwana Trough. Settlements are smaller in size. They are largely dispersed. Dwellings

are usually located apart. The dwellings are commonly sited on the spur-ends, divides and interfluvium (fig 88). As a result of the scatter-up the inter-settlement space is reduced and, therefore, even with a lower density of population, the settlements occur at a very high frequency.

Though the surface is made of gneissic rocks in the south of the Gondwana Trough, the terrain differs. Relief is subdued, but the local

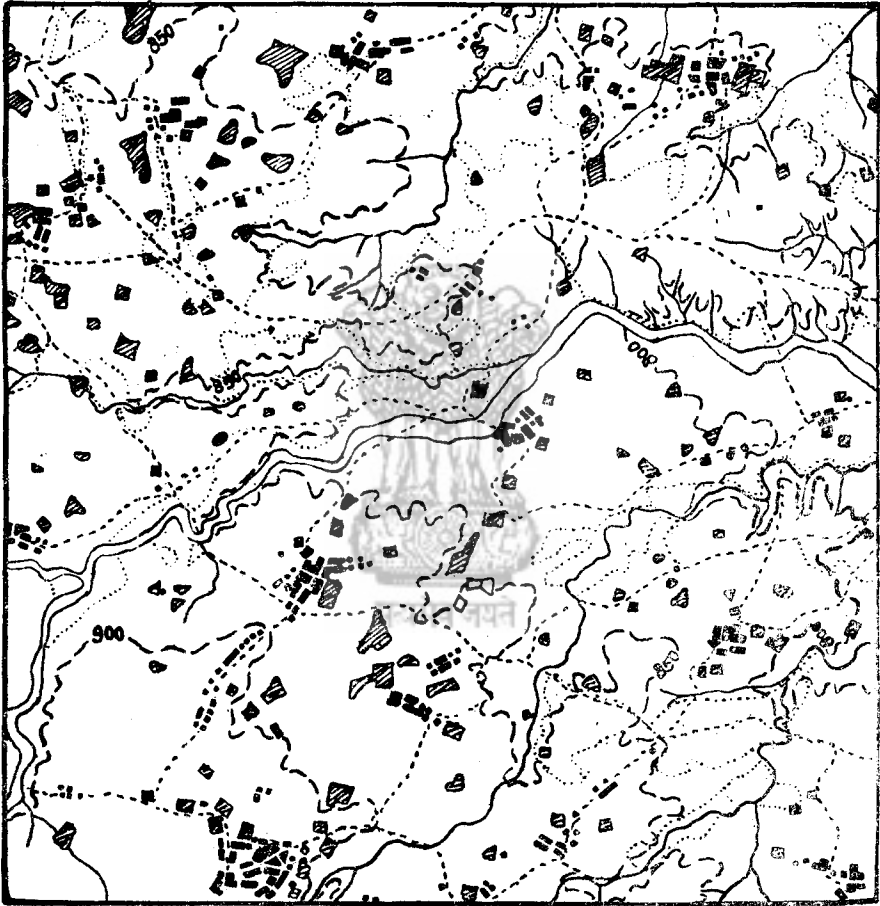


Fig. 90

Trans-Gondwana-Trough Country, South of Damodar : elongation of settlements subdued, tanks numerous.

undulations are prominent. The valleys are deeper and the interfluvies are higher than those on the Ranchi plateau. The interfluvies, long and narrow, are divided into several longitudinal parts by the numerous breaks in gradient. The channels are broad, but the beds are sandy and the banks are broken. The settlements, therefore, avoid the river banks

and are mostly interfluvial in location. The villages are generally sited above the knick-points, i.e., on the lower end of the interfluvial fragment. The area is completely deforested. The density of population is high and the settlements are closely spaced. The villages occur at a frequency of one mile. The distribution is even and the size of the settlements is uniform. The settlements exhibit a tendency to be elongated, but the elongation is much less developed than in the Suvarnarekha valley (fig. 89).

Tanks appear to be an essential component of the rural landscape (fig. 89). Tanks and settlements go together. They are so numerous and so frequently distributed that they look more prominent on the map than the settlements. Most of the villages have more than one tank. The number of tanks vary, depending upon the size of settlements and the size of tank itself, from 2 to 20 per village.

In between the gneissic surfaces in the north and south, lies the Gondwana Trough. The surface has been sculptured out of the Gondwana rocks. The hardness and resistance of the Gondwana rocks vary within a very wide range. The alternation of shales, sandstones and carbonaceous beds have produced a highly variegated surface. The shales eroded to a much lower level form deep valleys, while the sandstones occupying the interfluvial area stand high, very often forming hills and ridges of considerable dimensions. The amplitude of local relief is much greater than suggested by the general levels. A lower level, rich fertile soil on the shales outcrop and higher precipitation led to an intensive occupation much before the coal-mining was started. It has always been one of the most thickly populated tracts of Chotanagpur (fig. 43). As the habitable surface suffers from discontinuity, the process of occupation has been selective and discriminating between sandstone and shale surfaces. Habitable sites are inabundant. They are irregularly shaped and haphazardly distributed. Consequently, the distribution of settlements has become uneven. The mining of coal introduced a new element of discrimination and variation in the cultural landscape. The sprawling mining settlements, derricks and pit-head installations and structures have largely done away with the rural character of settlements. A large number of villages vanished from their original sites. Others have been engulfed or transformed into non-rural settlements. The inter-settlement gaps have been largely filled in by labour colonies, industrial settlements, roads and railway lines. Except for the small intervening spaces, often occupied by sandstone hills and barren lands, the entire valley from Bokaro in the west to Nirsa in the east appears as a continuous settlement-area (fig. 90). The out-grown pre-existing villages interspersed

with new settlements of various descriptions have produced a landscape which has little in common with the rest of the rural landscape of Chotanagpur. In fact, the whole valley has been 'un-ruralized'. Unequal growth and occasional concentration of settlements make the picture of areal distribution patchy.

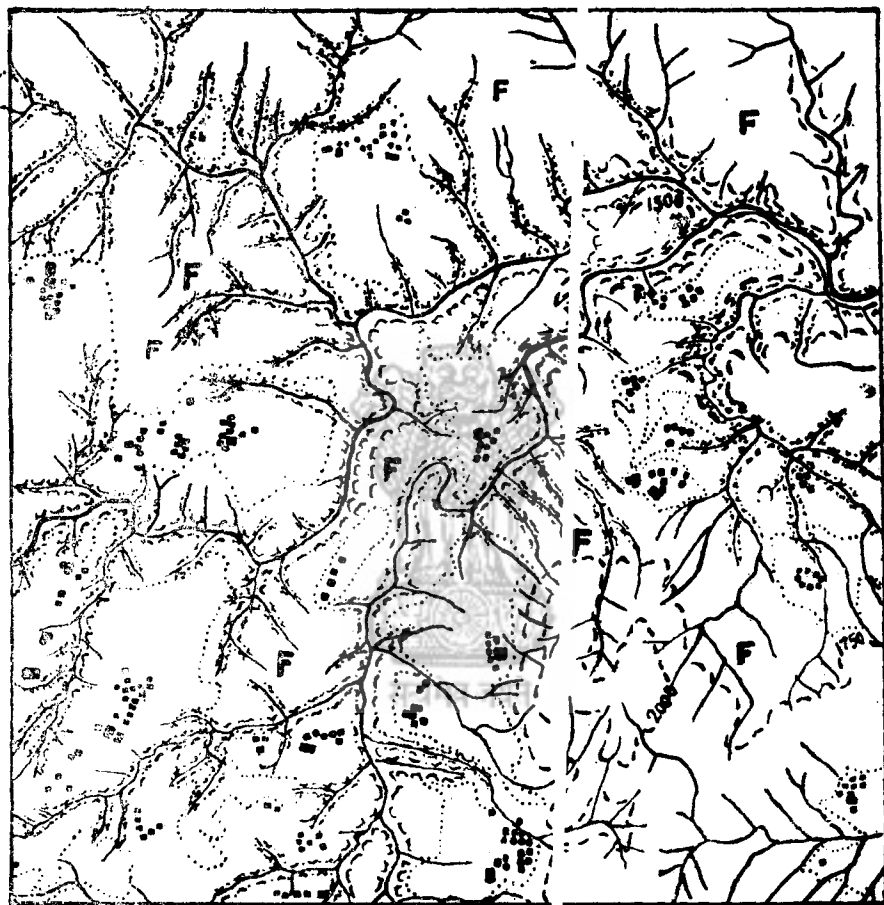


Fig. 91

Upper Damodar Basin : few settlements located on interfluvial, residual, unravined rises.

The Upper Damodar Basin

The basin consists of two types of areas (1) steep dissected and forested slopes and hills and (2) the broad levelled valleys of the Damodar and its major tributaries. The hills and ridges occupying inter-stream areas often rise 2000ft. above sea level. Made of resistant Gondwana sandstones, they are steep-sided, rocky and, for the most part, uninhabitable. These hills appear as vacant spaces, totally devoid of settlements. The hills

on the northern and southern side of the Damodar valley are the residual blocks that have been left behind by the recession of the scarps. These hills are rounded and flat-topped and offer limited scope for habitation. Sharply contrasted with these hilly areas are the valleys of the Damodar and the major tributaries. These valleys are broad, levelled and covered with alluvium. The valleys contain some of the excellent cultivated

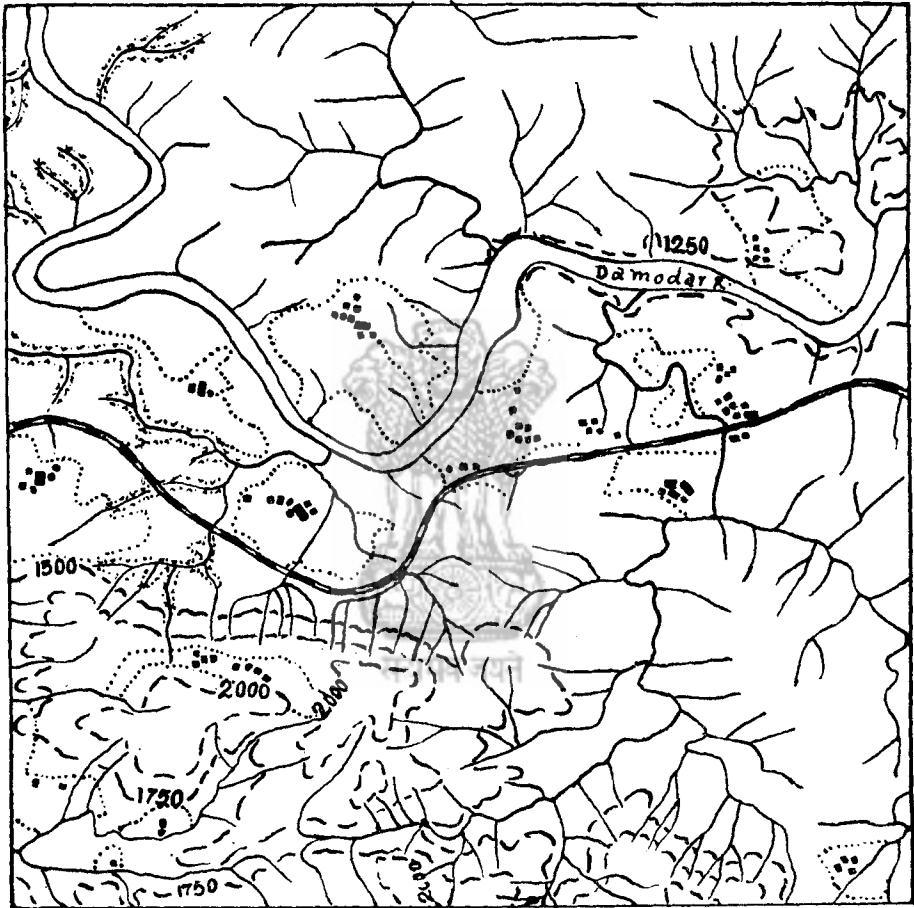


Fig. 92

Upper Damodar Valley : Settlements sited on terraces, spurs and interfluvies.

patches of the region. The settlements are largely concentrated in the valleys. The valleys, in fact, appear as the sanctuaries of human activities and settlements in the midst of hilly, forested, inhospitable environs. Even in the valley, all the areas are not equally habitable. The weathering of sandstones has produced sandy patches of varying dimensions which have little value for agriculture. Such patches are, therefore,

avoided. The settlements in the valleys seek higher grounds for location. They are commonly sited on the interfluvial rises and spurs projecting from the higher slopes.

Settlements in the valley, though closely spaced, are unevenly distributed (fig. 93). Heavy concentrations of settlements at fewer places make the areal distribution patchy in appearance. In the hills,

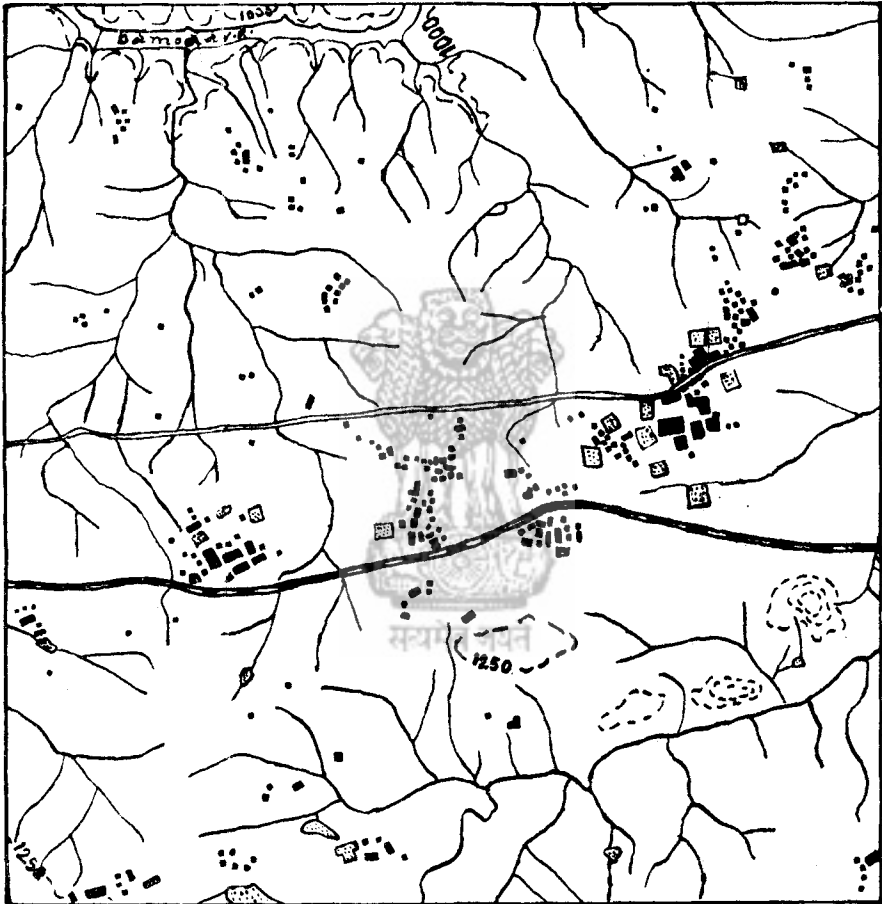


Fig. 93

Middle Damodar Valley : concentration of settlements, roads and railways on the divide zone.

settlements are few and are highly infrequent. They are confined to small forest- clearings, located at valley-head, spurs and divides.

HILLS AND SCARPS : The 'Morvan'

The physical characteristics render the 'morvan' a class by itself. It appears like a sloping board that bridges the 2000ft. surface of Ranchi

and the 1000ft. surface of the Panch Parganas (figs. 4&6). The rivers coming down from the Ranchi plateau run almost a straight linear course. Their channels are narrow, deep-cut and walled by rocky steepness. Habitable sites are few and small in size. Divides, valley-heads and minor interfluvies are the favourite sites of settlements. Straight courses of smaller streams are also dotted with isolated individual dwellings.



Fig. 94

The 'Morvan': valley and foot-line settlements scattered along slopes

Settlements have marked concentrations where the valley widens into small local basins. The areal pattern of distribution largely conforms to the drainage pattern (fig. 94). A relatively high density of settlements in the 'morvan' area appears attributable to higher precipitation and comparatively gentle slope. Higher precipitation has led to rather extensive

soil formation. The crops enjoy a security against failure and have better yields. The forests are denser and yield commercial timber. As the 'morvan' is a transition slope between the Ranchi plateau and the Purulia plain, it has functioned as a foot-board between the two regions.

The Eastern and Southern Tracts of Ranchi

From Torpa ($22^{\circ} 55' N$ and $85^{\circ} 10' E$) towards south and east extends a country which consists of confused assemblage of hills and ridges. Rivers are swift-flowing and in their downward journey they give rise to numerous falls and rapids. The valleys are deep-cut, steep-walled and narrow. In the southern and south-eastern part, the amplitude of relief measures 1000ft. and above. A high degree of dissection has resulted in the sub-division of slopes. Slopes are short and frequently changing. Dissection increases from north to south and from west to east and so does the amplitude of relief. On the higher levels, particularly towards north, the inter-stream areas are broad and large. They are the remnants of the Ranchi plateau and, therefore, preserve the original fitness of the summits. Such flat summits have favoured an extensive occupation (fig. 95). Settlements are larger in number and are closely distributed. The size of settlements on such flat summits is relatively large. In lower reaches, the interfluvial tracts are reduced in area and have been converted into hills and ridges. Valleys are narrow and the banks are ravined and, therefore, have little to attract settlements. Settlements in this hilly tract are averse to valleys and hills alike except where the hills are flat-topped and valleys are wide enough.

As we move east of Torpa, the steepness of slope increases. The descent from the plateau to the Sanjay valley and Chaibasa plain is precipitous and the surface is a steep slope. This slope is thoroughly dissected by a fine texture of drainage. Habitable areas are small. The habitability is further reduced by extensive forests. All these hilly tracts are very thinly populated. But the frequency of settlements is quite high for a hilly area and the settlements are rather closely distributed. Several factors appear to have led to a higher frequency and closer spacing of settlements. A higher degree of dissection aided by a fine texture of drainage, has produced a surface of multiple features. The number of divides, interfluvies and spurs are far in excess of the human use. Most of them are sufficiently flat to facilitate settlement and cultivation. The rainfall is relatively heavy and variability is low. This provides security against crop failure. The hot-humid climate quickens the processes of soil formation and, therefore, the surface, except very steep rocky slopes, is covered with a veneer of soil which is

sufficient to foster the growth of vegetation. Forest soils enriched with vegetative humus are exceptionally fertile. High fertility largely compensates the smallness of the holdings. Water for human consumption is available in plenty. The rulers of Saraikela and Kharsawan Estates encouraged the loyal Mundas to settle in this hilly tract to ward off the tribal raiders. All these factors led to a more extensive occupancy of



Fig. 95

Southern scarp of Ranchi : scattered valley-head settlements.

the area and the settlements, in spite of the hilly and forested nature of the terrain, are rather evenly distributed.

Porahat and Saranda Regions

Porahat and Saranda are the most thickly forested tracts of Chotanagpur. They constitute the largest single area of Reserved Forests. Porahat has a higher degree of dissection and its hilly aspects are more

pronounced. Saranda Forests are denser and larger areas are inaccessible. The two regions are separated by the low-cut valley of the South Koel. The valley is relatively wide and is covered with alluvium. It functions as a communication channel across the hilly forested tracts. The Howrah-Nagpur Railway line and the National Highway No. 6 pass through this valley. The habitable conditions in the valley are quite



Fig. 96

Porahat : ring of small settlements on forest margins.

different from those of the Porahat and Saranda area. The valley is densely populated. Villages are large-sized and closely-spaced and are interspersed with vacant patches, hills, woods and marshes. The settlements seek dry-point location. Most commonly favoured sites are the interfluvial rises. A good many settlements are located on the lower

end of spurs projecting from the hilly slopes. Some of them have taken advantage of the hill bases. Quite a few of them are located on the margins of wooded areas.

Porahat is drained by the South Koel river. Some of its tributaries are large enough. Dissection is of very high order. The hills are small and rounded and their middle slopes are relatively gentle permitting the

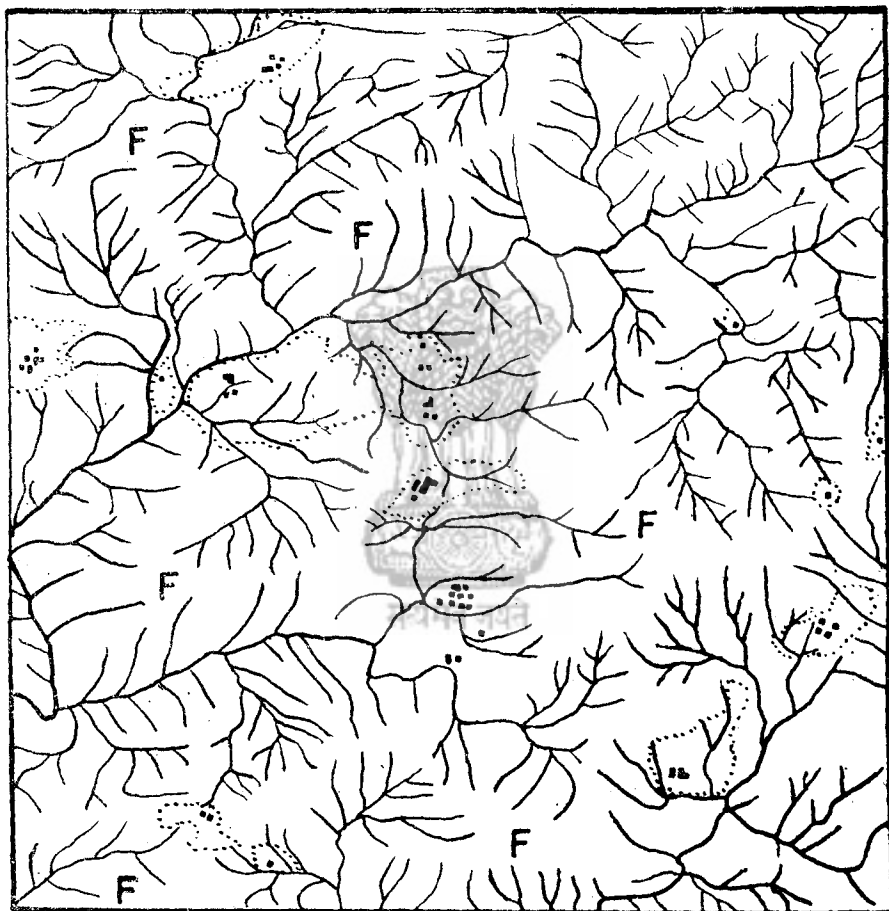


Fig. 97

Saranda : dispersed settlements in small forest-clearings.

plough to move. A narrow strip of land on either side of the South Koel and its major tributaries is deforested and is given to cultivation. In these narrow strips the Munda settlements are beautifully arrayed. The Reserved Forests are mostly devoid of settlements, but their margins are dotted with villages which are relatively large and closely spaced (fig. 96).

Saranda forests are better preserved. Settlements in this area are rare phenomena (fig. 97). In hundreds of square miles of area it is difficult to find a single hut. In about 500 square miles of this forested tract there are not more than 50 clearings. In each one of these clearings are located a few dwellings, collectively called a village. On the periphery of the Reserved Forests there are a number of relatively broad open valleys which are linked up with the Chaibasa plain and the South Koel valley. These valleys are largely settled and have a rather close spacing of settlements.

In the eastern part of the Saranda, forests have been heavily encroached upon. The territory has been opened up by the Gua Rly. Line and most of the areas have been rendered negotiable for settlements. Ironore mining works as a double process of forests destruction. Forest is destroyed by the opening of pits and quarries, and forest has been cut to build labour colonies and work-sheds. Mining has attracted additional population which has resulted in the expansion of settlements at the cost of forest. Consequently the settlements in this part are extensive and relatively dense.

The Dalma Ranges

Among the hilly areas of Chotanagpur, the Dalma ranges stand on a different footing. The ranges are made of basic igneous extrusives which have weathered to form good fertile soils in favourable situation. The hills are highly dissected. Numerous streams have excavated deep valleys. Some of them are transverse to the structural grains. Others are longitudinal (fig. 98). The longitudinal valleys are, as a rule, broad, open and gently-sloping. Very often, several longitudinal streams combine within a relatively short distance and the combined valleys widen to form basin-like features. These basins of varying size appear as pockets of settlements. Rounded summits and divides also offer scope for habitation. The Dalma ranges slope down to the Panch Pargana plain in the north and to the Chaibasa plain and the Suvarnarekha valley in the south. The foot-lines are thoroughly broken by the deep indentations made by the descending streams. These valley-indentations appear as extensions of the adjoining plains into the hills. They are thoroughly occupied and densely populated. The Dalma ranges contain, therefore, a larger population than any other hilly areas of Chotanagpur except the Rajmahal Hills. Settlements are much larger in size than in other hilly areas. They do not appear different from the settlements in the Chaibasa and the Panch Pargana plains. The tendency of elongation is apparent and the houses are arrayed in double parallel lines. The

settlements, though dense for a hilly area, are unevenly distributed and largely conform to the drainage pattern in their areal arrangement (Fig. 98).

The Suvarnarekha divides the hilly tract into two sections. The eastern section that consists of the lofty Dalma peak is massive. Slopes are steep and the surface is largely rocky. Streams are short and the

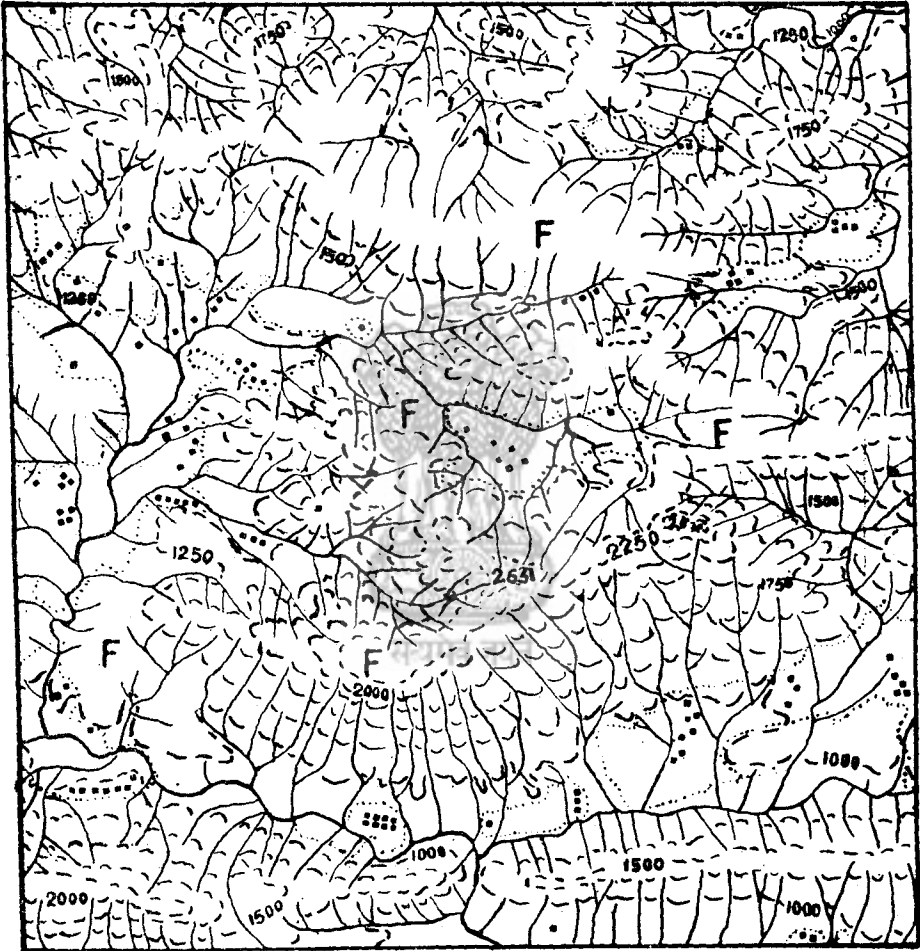


Fig. 98

Dalma Ranges : spur, foot-line and interfluvial settlements.

channels are cut into the rocks. In lower situations the rocks have weathered into laterites which are not tractable. The eastern section is, therefore, largely uninhabitable and is sharply contrasted from the western section. Settlements in this section are few and highly infrequent.

The Northern Scarp of Ranchi Plateau

The northern face of the plateau forms a steep escarpment. The distance between the plateau-edge and the foot-line of the scarp varies from 10 miles in the west near Chandwa pass to 4 miles near Ramgarh. Though precipitous, the slope has been thoroughly dissected by the myriads of streams that meet the Damodar. Some of them are large enough

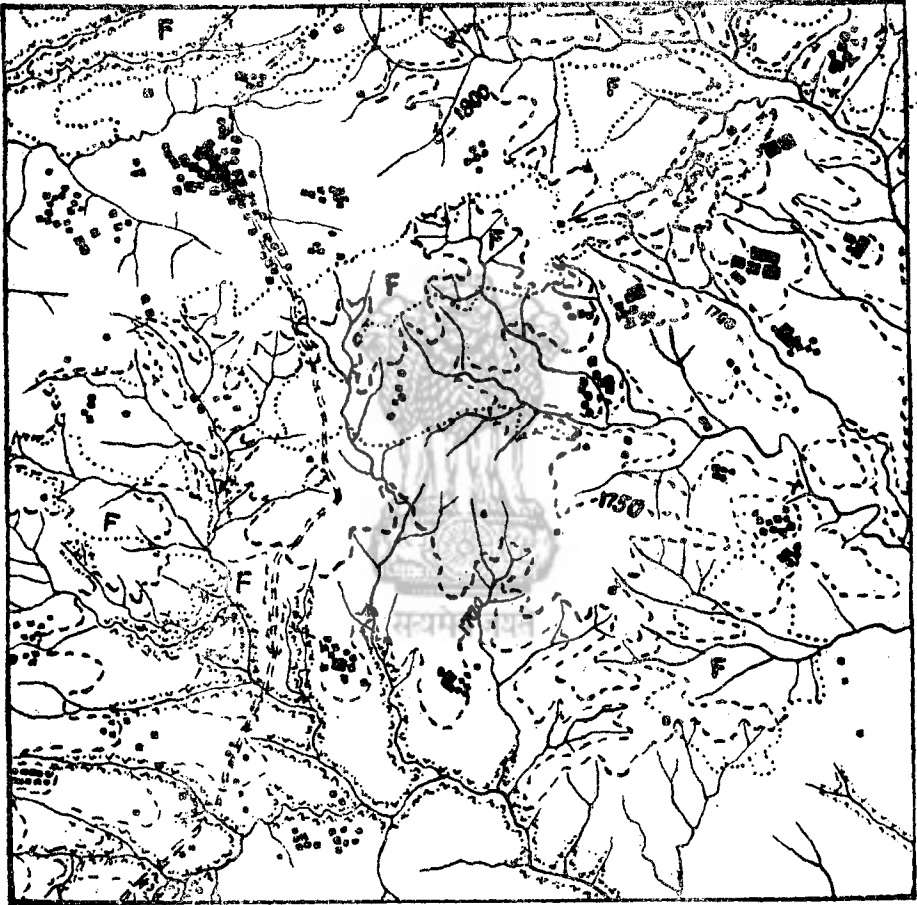


Fig. 99

Inter-plateau Ridge : scanty, river-avoiding settlements in dissected areas.

and have excavated deep-broad valleys. The Damodar itself in its upper reaches, runs along the slope. The escarpment has thus been dissected into numerous hills and ridges arranged in succession from lower to the higher levels. The upper Damodar basin is hilly and dissected and, therefore, there is little difference in the terrain of the scarped slope and the hilly basin, particularly west of Patraru ($85^{\circ} 15'E$) (Figs.91 & 99) East

of Patratu, the Damodar valley is wide and gently sloping and is sharply contrasted with the scarped face of the plateau. The scarped slope is thickly forested but is not entirely devoid of settlements. The numerous valleys have functioned as the natural avenues through which human occupancy and settlements have moved across the slope. The valleys are frequently dotted with settlements. The streams originate from the top of the escarpment (i. e. the plateau edge). At the head of the streams are generally situated larger clusters. Large clusters are also situated near the foot-line of the escarpment. The streams thus appear as dotted lines connecting two larger settlements located at the top and bottom of the escarpments. A thin sprinkling of settlements is found elsewhere also. Such settlements, contained within small forest clearings, are usually located on hill-tops, divides and spurs (Fig. 93). On the whole, the scarped slopes are very sparsely populated. Settlements are very few, highly infrequent and widely scattered. Dwellings stand too apart in hilly isolation and forest surrounding.

The Northern Edge of the Plateau

The northern scarped face of the Chotanagpur Plateau that overlooks the Ganga Plain consists of a chain of hills that are above 1000ft and are arranged in the S. W. — N. E. direction. The scarp has receded unequally. West of Chatra, the scarp has receded to the farthest south. The scarp over here takes a southerly turn and borders the Chatra and Hazaribagh plateaus from west and finally merges with the northern scarped face of the Ranchi plateau. Similarly, east of the Kiul river the scarp has receded to the vanishing point leaving behind a dissected surface of the Deoghar Erosional Depression. Between the Kiul in the east and the Mohana river in the west, the characteristics of the escarpment are best preserved. The Edge of the Plateau is highly inhospitable. The Dharwarian ranges made of massive quartzites are, for the most part, rocky. The slopes are steep, precipitous and mostly devoid of vegetation. The crests are sharp and angular. West of Barhi, the Edge consists of hills and slopes made of gneissic rocks. These hills are round and their side-slopes are less precipitous. Habitability of the Edge is further reduced by a drier climate which hinders the growth of vegetation and poses the problem of water-supply. On the scarped face, the siting of settlements is largely a function of slopes. In the western parts the settlements are confined to small forest clearings located on relatively flat hill-tops, divides, spurs and valley-heads. Such sites are not available in plenty. Secondly, the habitability of such sites is further conditioned by the availability of water. Consequently, the drier western slopes of Hazaribagh and Chatra plateau are, for the most part, uninhabited.

The Northern Edge consists of two types of surface, the high hills characterized by steep slopes and the broad river valleys. Numerous streams that originate on the Plateau have cut deep broad valleys. Important among them are the valleys of the Morhar, Mohana, Nilanjan Sakari and Kiul. All these are large rivers. Their valleys are largely graded. The slopes are gentle and continuous. The valleys are covered with thick mantle of alluvium. The pattern of human occupation in these valleys is just an extension of the pattern obtaining in the plains. The settlements are closely spaced and the clusters are enormously large. In fact, the average size of the cluster is larger than that in the adjoining parts of the Ganga Plain. The valleys suffer from certain amount of inundation and the villages seek dry-point location. In the valley, such sites are few. This results in crowding at few favoured sites. The settlements keep off the river banks but quite a large number of them are sited on the convex side of the meanders. The toe of the valley-walls also provide with elevated spots and projecting spurs which make excellent habitable sites.

Outside these valleys, the settlements are rare phenomena. There are large massive hills without a single hut. The slopes are so steep that they make movement extremely difficult. Soil is missing and forest is poor. Consequently, the Dharwarian ranges are largely devoid of settlements. A few smaller settlements might be seen located infrequently in the foot-hill zone or in the longitudinal valleys between two ranges.

Even in the valleys the distribution of settlements is highly uneven and looks patchy. Portions of the valleys suffer from gully erosion. The river beds are sandy. Sandy patches are of wide occurrence. In such areas cultivation gives way to shrubs, grasses and thorny bushes. Such lands are avoided and appear as vacant spots in the areal pattern of the distribution of settlements.

The Northern Fringe Zone

The area included in the Fringe Zone consists of the elevated apron of the South Ganga Plain that lies in contact with the foot of the Northern Edge of the Plateau. This zone extends for 250 miles from the Sone in the west to the Ganga bend near Rajmahal in the east. The terrain is not uniform. Slopes, surface features and thickness of soil vary from place to place. The breadth of the zone is also variable. The outliers of the Dharwarian ranges in the western parts and the residual hills in the eastern parts add to the variety of the physical landscape.

The portion between the Sone and the Nilanjan rivers that includes parts of Palamau and Gaya districts, is by all standards a perfect alluvial

plain. Physical characteristics are, except for minor variations, uniform throughout this section. The streams coming down the Plateau run parallel and divide the zone into north-south interfluvial belts. These belts vary in width from 2 to 6 miles. The division of the surface into narrow interfluvial belts has largely influenced the siting and distribution of settlements. The physical conditions throughout this section are alike. The surface is flat without any undulations except the river channels. Forest is nonexistent. Agricultural facilities have more or less an even distribution. Every spot is equally good or bad for the siting of settlements. This leads to an even distribution of settlements. Though evenly distributed, the location of villages betrays some specific preferences for siting.

Two major factors appear to have been discriminating in the siting of settlements. They are the availability of water and the agricultural pattern and practices. The Fringe Zone along with the N. Koel valley receives the lowest precipitation in Chotanagpur (fig. 9). The problem of water supply becomes acute in summer. In the absence of lakes and springs, rivers and wells are the only source of water supply. Though water table is high and digging of well is easier, it becomes a costly operation, for the wells require brick-lining. Naturally, few people were to afford wells. So, in spite of wells, rivers have their attractions. It is easier to obtain water supply from a river. A river, being a surface-source of water supply, offers better facilities, particularly for animals. The settlements have, therefore, gravitated towards the rivers. Villages appear as clinging to the river side in this area. The river-banks are closely dotted with settlements. On the map the river course is easily recognized by the alignment of villages which appear as double bands of settlements separated by the blue water-line. The interfluvial tracts have very few villages. They are for the most part vacant and constitute the inter-settlement space. One is likely to pass without entering a village even in a five-mile traverse along the axial line of the interfluve.

The relative absence of settlements from the axial zone is also due to another factor. The intensive agriculture forces the people to tap all available resources and make up the deficiency of rainfall through artificial means. Rainfall is not only insufficient but also short-lived. *Ahar* and *Pyne* system of irrigation is widely practised. *Ahar*, the reservoir, should be so located as to permit gravity flow of water to the fields. It must, therefore, be located on a higher level and the axial zone of the interfluves offers the most suitable sites for *ahars*. Thus *ahars* occupy the central portion while the settlements go down to the river banks. This has led to the development of riparian settlements and inter-fluvial *ahars* and fields.

Interfluves vary in width and wherever the width is greater than 3 miles, settlements other than riparian have developed. The interfluves are parcelled out in *mauzas* the size of which averages 2 sq. miles. On such wider tracts, the non-riparian villages are generally located beneath the *ahars*. As the *ahars* remain inundated during the monsoon, the settlements cannot be sited within the *ahars*. Below the *ahars* spread paddy fields which are irrigated by them. A location immediately below the *ahars* is thus advantageous. From here the villagers can easily supervise and guard the *ahar*-bunds against leakage, sabotage and theft of water and can also attend to the requirements of the paddy fields. The *ahar*-side is higher than other places and is protected by the high bunds. A higher location facilitates the refuse of the village to be washed down to the paddy field and aid to the fertility.

The distribution of settlements in most of the Fringe Zone acquires a belted pattern. The villages are large and compact and are rather widely spaced.

The picture of distribution and spatial arrangement of settlements on the Sone bank are slightly different. The uniformity of the land and evenness of the surface suffer from the wide occurrence of sandy patches and sand-hills. The sandy patches are unfit for cultivation. They offer only a poor pasturage and sustain a stunted growth of the bushes and shrubs. In between the sandy patches are small areas which contain a higher proportion of silt-loam. These areas are valued by the people and settlements have been attracted to their margins. Sometimes, one or two dwellings may be seen located within the cultivated patches. Besides, the Sone river, very often, overflows its banks and the settlements seek, therefore, to be located on dry-points which are not many. These aspects of the habitat have introduced a certain amount of unevenness in the distributional pattern of settlements.

As we move towards east from the Sone bank and cross the Sherghati-Madanpur line, variations in the surface become more noticeable. In this section a few outliers of the Dharwarians form high hills. The hills embolden the local relief and increase the number of streams. The interfluvial tracts thus lose their ribbon-like characteristics. Naturally the settlements are not so obviously arranged in linear belts as one notices in the western section. Symmetrical, belted pattern of distribution is further altered by the wide occurrence of sandy patches. In this part of the Fringe Zone a narrow sandy strip of land borders the rivers on either side. The sandy strip varies in width from a few hundred feet to a mile. They are wider on the concave side of the meander

and almost non-existent on the convex side. This makes the concave bank (i.e., the convex side of meander) most favourable site for settlements. Settlements on the concave side of the meanders get located a bit away from the slip-off slopes. Besides, sandy patches of variable extent are frequently found on the interfluvial tracts. The rivers on coming down the Plateau, are largely deprived of their velocity and are split into numerous branches. The branches change their positions and the rivers oscillate within their fluvial ambit. The area, thus, bears the marks of several dead streams. The dried-up channels are easily recognised by the linear sandy patches in alignment. Wherever the sand is not very loose to be windblown and piled up, shrubs and bushes have appeared. In favourable situations they are planted with mango, jack-fruit and other fruit-bearing trees. The sandy patches in this deforested, intensively cultivated area appear as green-belts. All these sandy patches whether planted with trees or lying barren are negative to settlements. Villages keep off the sandy patches but are frequently located on their margin towards the cultivated fields.

The Fringe Zone is better served by roads and railways, but they appear to have little influence upon the siting of settlements. The roads follow the axial zones of the interfluves which are not favoured for the siting of settlements. The roads connect the places of importance and the seats of local administration. By these roads passed police and administrative officials, particularly revenue and tax-collectors whose attitudes towards the people were exacting and harassing. In order to ward off the evil eyes of these administrative personnel it was desirable to keep off the road-sides. Trunk routes, like the G. T. Road, were meant for military movement. The passing troops were menacing to the villagers. In the cultural landscape, the roads and railways are features of comparatively recent origin.¹ Most of the villages are very old and are fixed in their position for thousands of years. They are too reluctant to move to new sites unless they are compelled to do so. Far more important than these factors are the factors of rural economy. Villages till recently were self-sufficient social and economic units. They had few exchanges with the outside world. The agricultural surplus was sold to the visiting traders from the neighbouring markets. Their requirements were few and were met with in local markets. Owing to exclusive dependence on agriculture, the rural folks were least prone to take up touring. Visits to fair and religious places were the privileges of the few and were mostly undertaken on foot, for money was costlier than time and travel by bus or train was considered to be a luxury. The

1. Ahmad, E., Ph. D. Thesis; *Op. cit.*

important roads are in existence since the early days of the British Rule, but the organized road-transport is the post-independence phenomenon. Few buses and vehicles were to ply on these roads. Hence, though the roads were there they had little to offer for transportation and travel.

After the Independence, the situations changed. There are organized road-transport services. Villagers to-day are educated, well-informed and much concerned with the outside world. Inflation has given them money to spend. Their age-old self-sufficiencies are largely undone. To-day, they have to depend on markets and towns for many more things. They have to purchase even food from markets. Their agricultural implements are not entirely made by the village carpenters and blacksmiths. The sophisticated parts have to be obtained from towns. Old mud-walled houses are being replaced in increasing number by brick-and-mortar structures, the materials for which are to be obtained from towns. Administration has become all-embracing, complex and manifold. Most of the villagers who were to live in isolation and pass their life without visiting even once a court or a Government office, are obliged to make frequent trips to Government offices even for such ordinary things as food-grain, cloth, implement, oil, cement, steel etc.

Rural economy also is undergoing changes. The villages served by electricity have ceased to be purely agricultural. Cottage-industries, rice, flour and oil mills have sprung up in various bazar-villages which have to be supplied with materials from towns. Even the farmers are reluctant to sell their produce to the local traders for they pay less. All these changes in the village-life and economy have increased the mobility of the people and the number and frequency of journeys that they take to towns. Well-to-do agriculturists and moneyed people own trucks, tractors and other vehicles which have to be put on roads. Thus the roads which for centuries remained nothing more than broad foot-paths or cart-tracks for the villagers, mean much to them to-day. They have become vital links between the rural folks and their urban counterparts, between the countryside and the new centres of economic, political and social activities. All these changes have gone a long way to make roads a live organ of the rural life. Consequently, the attraction of the road multiplied manifold. The desire to be on road-side among the villagers has become strong and is becoming stronger. The road, as it were, is a magnet rod to which settlements are being attracted. Twenty years ago there were few settlements on the road-side. Those few were important rural centres that antedated the road. To-day, the gaps between such centres are dotted with new settlements of various descriptions and functions. With the growth of rural economy and its diversification

under the planned economic growth and balanced regional development the importance of road will go on increasing and settlements will continue to be plucked out from their off-the-way isolated moorings to the contact-lines between the new centres of economic activities and the concentrations of power, privileges and facilities.

The same, however, is not true of the railways. It is mostly because the way a railway serves the country. Unlike the automobiles the train stops at fixed points, the stations. A railway track, short of stations means little to the countryside. It is just a recognizable feature, a steel-lined bund imposed upon the rural landscape. The points of attraction on a railway track are specific and limited. These points are the stations that punctuate the track at certain intervals. Again, all the stations are not equally important and their attraction are, therefore, variable. Settlements along with railway lines, mostly adjunct to the stations, are punctuative rather than continuous in distribution. Railways has been a negative factor too. A railway deprives the countryside of much larger area than a road does. A road in its alignment, has a compromising attitude towards settlements. A road can take a swing to by-pass an important settlement if a passage through the latter is not allowed. In fact, the road often swings towards settlements to be better utilized. On the other hand, when villages fall on the alignment of a railway, they are evacuated and demolished altogether. The railway has, perhaps destroyed a larger number of settlements than has given birth too.

The section between the Nilanjani and the Kiul rivers differs from the western part. In the broad valleys of the Nilanjani, Mohana and Sakari good proportion of land has been rendered unfit for cultivation by gully erosion. Hilly projections frequently mar the continuity and evenness of the surface. The settlements, though large and closely spaced, are not so evenly distributed. The banded symmetry of distribution is largely distorted. The rules of siting do not change and *ahars* and *pynes* continue to be important guide-lines in the rural landscape.

The section between the Kiul and the Chandan rivers is the broadest. The *ahars* and *pynes* system of Gaya District has been extended to this area. The rivers are few and the interfluvial tracts are wider, particularly in the west. The entire expanse of 15 miles from Sikandra to Jamui is comprised by a single interfluvium. Even minor streams are absent. The continuous interfluvial tract has been parcelled out into almost equal-sized *mauzas*. The settlements are, therefore, evenly distributed. The clusters are larger and the inter-settlement space is wider. Though

the settlements do not necessarily avoid river-banks, they are not very fond of them. The rivers are seasonal and the banks are sandy and infirm. Water-table is high and wells can easily be constructed. The Dharwarian slates are available in plenty from the projecting hills which are utilized for the wells. This area receives a higher precipitation than the western sections. Rivers are, therefore, not so potent force in the siting and distribution of settlements as they are in the western sections. Equal-sized *mauzis* are mainly responsible for the even distribution and equal spacing of settlements. Siting of settlements is obviously related to the position of *ahars*. The roads and cart-tracks also appear to have a stronger influence upon the siting of settlements. This is perhaps because the roads occupy the higher position. They often form parts of the *ahar*-bund. The area is liable to inundation to a greater extent. The sub-soil moisture is higher and the ground suffers from dampness. Naturally, the settlements prefer to be located on higher grounds which coincide with road and cart-track sites. These sites are narrow and linear. The settlements, therefore, have developed the tendency to be elongated along the lines of communication. The tendency of elongation becomes stronger towards east, particularly in the Chandan valley where all the villages are made of two parallel rows of houses, sited on either side of a cart-track.

The area between the Ganga and the Rajmahal hills is extremely narrow. The alluvial strip actually forms the Gunga flats which are low-lying, sandy, shifting and frequently inundated. The settlements on these flats are few and widely scattered. They are located on artificially raised pedestals. Such pedestals are easy to be raised along the road-sides. The settlements, therefore, line along the roads.

SETTLEMENT TYPES

In the previous chapter the distribution and location of settlements have been examined. The study of settlements as geographical entities has another aspect too. This aspect concerns itself with the inter-dwelling space-relationship, the arrangement and grouping of dwellings in a given piece of land and the degree of cohesion and compactness of the homesteads. Viewed from this angle the human habitations are essentially of two types. When the individual dwellings are grouped in a relatively small portion of the occupied territory and exhibit a high degree of cohesion they produce agglomerations of varying shape and size. Such settlements have been termed agglomerated, compact or nucleated. On the other hand, when the individual dwellings are widely diffused over the occupied territory and are separated by the fragments of natural earth or cultivated patches, the settlements are termed degglomerated, dispersed or scattered. The degree of compactness and cohesion is so high in the adjoining Ganga Plain that the village on the map appears as detached bit of urban morphology. In certain hilly parts of Chotanagpur, the scatter-up is so high that the dwellings stand in perfect isolation separated by forested tracts or hilly slopes.

PLURALITY OF TYPES : Agglomeration and Dispersal Quotients

The types of settlements in Chotanagpur range from perfect compact villages to thoroughly dispersed habitations. Between these two extremes are a number of intermediary types which represent numerous combinations of the tendencies of agglomeration and dispersal in varying proportion. Attempts have been made to ascribe a numerical value to the tendency by working out agglomeration and dispersal quotients. This has been done by selecting ten specific examples of extreme cases from typical areas. In the first place, ten highly compact villages from the adjoining parts of Gaya District have been selected. On the basis of village maps of the settlements concerned, the actual built-up area in each case was reduced to the percentage of the total area within the homestead boundary. The percentages of the ten villages have been averaged. This average is accepted as the standard index of agglomeration for Chotanagpur as a whole. To determine the agglomeration quotient

similar percentage-value for any other cluster is divided by the standard index and is then multiplied by 100. If it is 100, the cluster has the highest degree of agglomeration and compactness. If it is more than 100, the agglomeration is of exceptionally high order. The quotient under 100 indicates a decrease in agglomeration tendency and a proportionate increase in deglomeration tendency. Fifty is the critical value. The moment the quotient declines from 50, the tendency of dispersal becomes prominent and the settlements are to be classed as dispersed. The dispersal quotient is obtained in two ways. It can easily be determined by subtracting the agglomeration quotient from 100. The remainder is dispersal quotient for a cluster.

The above formula holds good till the settlements exhibit an appreciable amount of grouping and cohesion, but the formula fails to convey any correct picture of the type of settlements when the latter are highly scattered over a wide territory. This is because of several reasons. Firstly, there is no definite pattern of dispersal. In extreme cases, a single hut standing in wilderness may constitute a settlement-unit. Elsewhere, a number of huts collectively forming a settlement-unit may be sprinkled over the whole or part of a *mauza*. In all these cases there are only two categories of space — (i) the space occupied by the individual dwellings and (2) the inter-dwelling space cultivated or otherwise. The lanes are non-existent and, therefore, it is not proper to term all the intervening spaces as un-built area. There are other cases too in which the dwellings are distributed separately, but are in alignment with some linear features. In such cases the area within the boundary of settlements is only a fraction of the *mauza*. There are cases in which dispersal relates to groups of dwellings rather than the individual one. Thus in view of the marked variation in the nature and degree of dispersal, it is not quite correct to assume dispersal quotient as the residual of the agglomeration quotient. Dispersal quotient has, therefore, been determined from another end. The specific cases of the highest form of dispersal have been taken and a ratio has been established between the intervening space and the total area within the settlement boundary. The ratio for ten specific cases have been averaged. This average has been accepted as the standard index of dispersal. To determine the dispersal quotient the ratio of any other unit of settlement is divided by the standard index and is multiplied by 100. If the quotient is 100 the settlement may be said to have attained the highest form of dispersal. The quotient under 100 means a decrease in dispersal tendency and proportionate increase in agglomeration tendency. 50 is the critical value which is found in the same types of settlements in which agglomeration quotient is also 50. This critical value is obtainable in

such areas where the settlements are fragmented into hamlets. Such fragmented settlements have been classed as hamletted type.

With varying combinations of agglomeration and dispersal quotients a Settlement Tendency Scale has been constructed. On the one end of the scale is placed the compact clustered type of settlements. The agglomeration quotient for this type is 100 (Fig. 102). On the other end of the scale is 'sprinkled' type with 100 as dispersal quotient. The hamletted type occupies the middle position, the central point on the scale where the tendencies of agglomeration and dispersal are evenly balanced and each one of the two quotients number 50. The hamletted type

RURAL MORPHOLOGY : TYPES OF ELONGATION



100 Fig.

Top-L to R :— Khiriawan, valley - head, riverside; Manar, interfluvial; Karar, divide; Panki - riverain; Potka - water and knick line; Jarde and Duldulwa - divide line

Bottom - L to R :— Chhatarpur - collateral spur settlements; Chiru - along river terrace and Suryadih-col settlements Pundra-triangular divide crest; Konka-elongated spur and Sidhawara - interfluvial spur; Satwarwa - strassendorf, roadside settlements.

divides the scale into two parts— (1) the agglomeration side and (2) the dispersal side. The hamletted type of settlements are essentially agglomerated, but the dwellings instead of being grouped at one place, are grouped into several hamlets of varying size which are widely distributed over the *mauza*. Though the primary tendency is towards agglomeration, the forces of dispersal are strong enough to break the cluster into pieces; but neither the forces of agglomeration are so weak nor the forces

of dispersal so strong as to reduce the fragments to their smallest size, i.e., the individual homestead.

Between the compact-clusters and hamletted settlements three other types are recognizable. These types in declining order of agglomeration are (1) cluster-cum-hamlet (2) cluster-cum-hut and (3) cluster-cum-hamlet-cum-hut types. The village Sarjamdih of Gumla Sub-division represents first of the three categories (Fig.101). The village consists of a large compact cluster and six small hamlets located a bit away from the main cluster. Though the hamlets also are compact blocks, the separation from the main village represents a certain amount of dispersal. The forces of dispersal are, however, too weak and too blunt to attack the core of the settlements and to operate on the dwelling-level. They are effective in dispersing groups rather than individuals. The settlements of the second category, best developed in the Lohardaga area, consist of large compact clusters. These clusters are attended by a few separately located individual dwellings. This category represents a lesser degree of agglomeration and a higher degree of dispersal than the previous one. The forces of agglomeration are weakened and, therefore, they fail to hold the detached dwellings together to form hamlets. On the other hand, the forces of dispersal become sharper to effect dispersal of the primary units of settlements. The third category represents a further decline in the tendency of agglomeration and a proportionate rise in the tendency of dispersal. In several parts of Chotanagpur the settlements consist of a compact cluster attended by a few hamlets and a number of separately located individual dwellings. Here the forces of dispersal are strong as well as sharp enough to detach grouped and individual dwellings alike.

On the dispersal side of the scale, between the hamletted type and 'sprinkled' type, three other types are located. They are (1) hamlet-cum-hut, (2) open cluster and (3) lined-huts types; each one of them representing a higher degree of dispersal than its predecessor. In various parts of Chotanagpur where the settlements are fragmented into hamlets, the hamlets are seen in association with a few separately located individual dwellings. The location of the individual dwellings, in relation to the hamlets, has two aspects. Some of them are located a bit close to a particular hamlet and appear as subsidiary to the latter. The others are so located that they are close to none of the hamlets and stand as separate isolated entities. On dissected slopes the individual dwellings appear as collected in a relatively small portion of the *mauza* and look like a cluster. Within such a cluster the degree of cohesion is very poor. Two homesteads seldom adjoin. In fact, all the houses are separately located

in a haphazard manner. A characteristic feature of these clusters is the absence of lanes. The houses are separated by the fragments of natural earth through which thread the foot-paths and cart-tracks in a zig-zag manner. The inter-dwelling distance is variable from cluster to cluster and from one to another sector of the cluster. The houses are rather closely spaced at the centre, but towards the periphery they get more and more distantly located. A large number of such clusters taper in a particular direction and from the tapering end emanates usually a trail of dispersed dwellings. This trail of houses coincides with the orientation line of some major dispersal forces. The third category includes such habitations which represent dispersal at a still higher level. On higher

RURAL MORPHOLOGY : TYPES OF DISPERSAL



Fig. 101

CH— cluster - cum - hamlet; **CH h**— cluster - cum - hamlet - cum - hut; **Ch**— cluster - cum - hut; **h**—hamletted; **LH**— lined hamlet; **L H h**—lined hamlet - cum - huts; **O**— open cluster; **S**— sprinkled huts.

slopes individual dwellings get located along some linear features or prominent contour lines and form a line of houses. They stand quite apart from one another. A foot-track usually runs in front of the dwellings and parallel to their alignment. On the map, the lined huts with the foot-track appear as dotted lines.

The lined-huts or dot-and-line type is succeeded by the 'sprinkled' type of settlements. In several parts of the Plateau individual dwellings are distributed over wide areas. In areas of higher elevation each one

of the scattered huts appears as nestled in the forested surroundings. Here, the forces of dispersal are at their best and the scatter-up is at its maximum. The inter-space relationship between the dispersed huts is variable. Sometimes, large forest clearings are dotted rather evenly by the individual huts. In such cases the separating space inbetween the

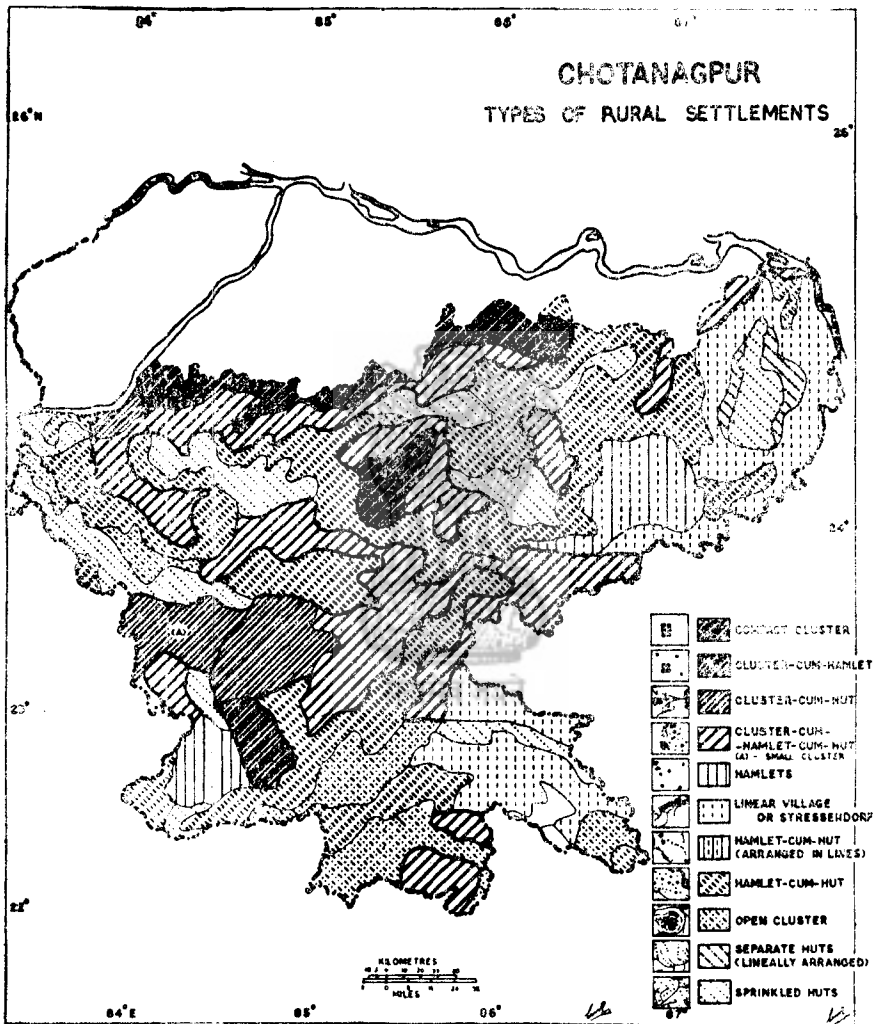


Fig. 102

huts consists of agricultural fields, groves of bamboo and other planted trees. In other situations, a single hut is seen perched on a rocky projection or located in the midst of a small clearing. The separating space between such isolated dwellings consists of hilly, forested stretch of land.

In addition to the types discussed above there are such units of settlements which are difficult to be defined and classed. Such are the settlements which occur in parts of the districts of Santhal Parganas and Singhbhum. The settlements in these areas are linear (figs. 81-86). The villages consist of two parallel rows of huts through which pass a cart-track. All these are single-lane-villages and represent ideal cases of 'strassendorf'. The width of the linear villages varies between 100 and 150 feet, but the length is never less than a furlong and, very often, exceeds a mile. The linear villages pose a peculiar problem of classification. As the dwellings are lined-up along the cart-track, they may be taken to represent an aspect of agglomeration. The forces of agglomeration are active in two directions, i. e., along the longer axis of the village. In view of the fact that an agglomeration or group refers to an area rather than a line, the linear villages may be taken to betray a certain amount of dispersal. Every row is only one-hut deep. The front and particularly the rear of the huts do not adjoin with any other homestead. It may, therefore, be inferred that in two remaining directions, i. e., across the rows, the conditions are prohibitive for agglomeration. It may be argued that the dwellings in this case, instead of being distributed over a wide area, are strewn along a line and the linear villages represent a case of dispersal. In fact, the two aspects—the aspect of agglomeration and the aspect of dispersal of the linear settlements appear to be equally developed and vividly manifest. The linear settlements, for this reason, may be said to be analogous with the hamletted type. The agglomeration and dispersal quotients of the linear settlements also lead to the same conclusion.

Plurality is the chief characteristic of the types of settlements in Chotanagpur. In addition to the two main types and ten sub-types of settlements discussed above, there are endless variations in the nature of grouping and dispersion of settlements. Elements of variation become so numerous and so confusing that they render the problem of the selection of types difficult. Besides, the types differ frequently within a comparatively small area. It is quite common to notice compact villages on the one side and variously dispersed settlements on the other side of the same section of a valley. Sometimes, within a small area of 10 to 20 sq. miles one is likely to recognize three or four types of settlements. Frequent variations in the nature and degree of agglomeration and dispersal and the mixing up of three or four types of settlements make the problem of delimiting type-areas extremely difficult. The facts of frequent variation and interspersing one type with another lead to the obvious inference that the factors are more of local than of universal nature. The factors operate within small areas and a change in the nature of terrain results in the change of factors. Consequently, it is

difficult to delineate a sizable area exclusively for any one type. The zones of various types of settlements shown on the map are, therefore, in no way exclusive and it is possible to find random sprinklings of other types in a zone demarcated for a particular type of settlements.

CAUSES AND EFFECTS IN SETTLEMENT GEOGRAPHY

The evolution of the various types of settlements noticeable in a particular region is attributable to a host of factors of the cultural and physical environments of the region. The precise role of these factors is, however, difficult to be ascertained. It is particularly so in a region like Chotanagpur where the details of terrain vary quickly and sharply. A large number of ethnic groups and their sharply contrasted material culture further complicate the problem of emphasizing and specifying the eloquence of such geographical facts "for they are the synthesis, the crystallization of the civilization of the region, the complex of natural and man-made phenomena of land"¹. Among the factors that "determine the character of human settlements the most important are (i) climate, (ii) geologico-topographical conditions, and (iii) the degree of material culture....."².

The role of climate in the evolution of the settlement types is usually high-lighted. "Climate plays decisive part by effecting the supply of water, by determining the nature of vegetable world and the kind of cultivated plants and in consequence of these the character of agriculture..... and topography³. Yet, it appears that in a region like that of Chotanagpur it is topography that prescribes the role of climate in the evolution of cultural landscape. Chotanagpur, as has been stated earlier, falls within the climatic region which is characterized by heavy rainfall and high humidity. Climatically the Plateau is divided into two parts (fig. 11). A small portion in the north forms part of continental India while most of it lies within tropical India. Even in these two major divisions, the local climatic conditions vary widely and as many as seven micro-climatic regions have been recognised (Fig. 11). Precipitation varies from over 80" in the *Pat* region to less than 45" in the N. Koel valley. The annual and diurnal ranges of temperature are equally contrasted. But great variations in elevation and amplitude of relief greatly condition the role of climate in the evolution of settlement types.

1. Ahlmann, Hans Wilson, 'Geographical Study of Settlements : Examples from Italy, Germany, Denmark and Norway,' G.R., Vol. XVIII, 1928, p. 93.
2. Ahlmann, Hans Wilson, *ibid.* p. 94.
3. Ahlmann, Hans Wilson, *ibid.*

Within each micro-climatic region there are 'areas of such varying topographic character that settlements present marked differences of forms, grouping, location and development.'

In Chotanagpur, therefore, relief rather than climate appears to be the most important physical factor determining the distribution, character and grouping of settlements. All other factors of physical geography are of secondary importance and, to a great extent, dependent upon relief. Soil is a function of slopes and so are the distribution and nature of agricultural fields and crops. Nature of streams and their density are intimately related to the amplitude of relief. The role of relief is so much comprehensive and direct that even small local variations in slopes and topographic features get immediately reflected upon the forms and character of settlements.

Though the role of physical factors in the evolution of settlements is easily perceptible, it is largely conditioned by the facts of cultural and economic geography. The extent and manner in which these factors influence the character and type of settlements, are largely determined by the economic development and cultural advancement of a region. The more developed an economy, the more imperceptible becomes the role of physical factors. In such parts of the Plateau as the valleys of the Damodar and the Suvarnarekha extensive development of mining and industries has largely altered the facts of physical geography and the evolution and distribution of settlement types show little dependence on physical factors. In fact, in these areas of advanced economy, factors of physical geography, particularly climate, soil and natural vegetation appear to act as liberal guide-lines. They set flexible limits to the extension and character of rural settlements within which final forms and character of habitation are, as it appears, 'forged by the type of rural economy and the stage of its development that has been arrived at through complex historical processes of the humanization of the earth surface.' Even in relatively backward areas where the physical earth is largely unaltered the relationship between facts of physical geography and character of settlements is hardly direct. 'A "large and well distributed rainfall is often associated with dispersed habitat but the connexion is probably, through the type of rural economy rather than direct".¹ Therefore, a study of the forms and characters of rural settlements in a region of complexity and diversity like that of Chotanagpur has to be profitably based on "the conception of the whole process of settlements as a great

1. Fawcett, C.B., *Records (The Distribution of Rural Settlement by M. Aurois-seau)*, G. J., Vol. XCIII, No. 2, 1939, p. 153.

unified complex, a living thing, constantly changing, advancing and retrogressing".¹

There are seven areas of marked agglomeration. They are (1) the Northern Fringe Zone and the N. Koal valley, (2) the Hazaribagh plateau, (3) Kharagdiha-Bagodar section of Koderma plateau, (4) the Auranga-Amanat and Dimodar valleys, (5) Parts of Panch Pargana, Ranchi plateau and *Pat* region; (6) the Kolhan Highland and (7) the Kharkai valley (fig. 102). In these areas the settlements are essentially agglomerated. The degree of agglomeration and cohesion varies within a very wide range. The settlements present all the grades of agglomeration ranging from compact-nucleated type to compact-cum-hamlet-cum-hut type. In all other areas, except a portion of the Sankh basin, the settlements are essentially dispersed. The degree of dispersion again varies from complete sprinkling of isolated, individual huts to hamlet-cum-hut type. In a part of the Sankh basin agglomeration and dispersal are evenly balanced and the prevailing type is hamletted.

FACTORS OF AGGLOMERATION AND DISPERSAL

In a region of great physical inequalities like that of Chotanagpur dispersal appears to be the natural outcome, but even in Chotanagpur there are areas with gentle slopes and relatively even surfaces which have fostered a high degree of agglomeration. The factors that have favoured agglomeration in Chotanagpur are numerous and complicated. Some of them are general and of universal application. The others are of local nature and operate within narrow limits. There are a third set of factors which play double roles, effecting agglomeration in one situation and to a certain extent, and deglomeration in another situation and beyond a certain limit. These factors relate to physical and cultural environments and accordingly, admit of classification.

Physical Factors

The 'compact nucleated settlements in their original form are traceable to agricultural pursuits'.²

Physical influence upon the grouping and spatial arrangement of rural dwellings may be "interpreted as the need of man of relatively level, cultivable land for shelter and for adequate water supply on the one hand and freedom from flood on the other".³ Uniformity of relief

1. Ahlmann, Hans Wilson, op. cit., p. 95.

2. Page, W.M., 'Forms of Medieval Settlements in England', G.T. vol. XII, No. 59, 1921, p. 20.

3. Swainson, B.M., 'Rural Settlements in North-West Devon', England, E. G. vol. II, No. 1, 1935, p. 77.

and soil fertility favour agglomeration. In uniform terrain any spot is good enough for the siting of settlements and any piece of land is fertile enough to support a congregation of human beings. Evenness of surface and uniformity of land-productivity find expressions in many ways and indirectly help settlements aggregate rather at uniform intervals. Evenness of surface is associated with low density of streams and relative paucity of water-forms which are themselves potent factors in effecting agglomeration. The lesser the slopes, the greater are the facilities available for agriculture. In such areas the fields are larger and are available in extensive contiguous blocks of land. Evenness of surface ensures easy movement which largely obviates the difficulties in attending to the needs of fields from a central site. Diurnal journeys are neither time-taking nor strenuous so as to compel the dwellings to be scattered about. The uniformity of agricultural conditions and soil-fertility offer equal opportunity to all the cultivators. Evenness of surface and uniformity of terrain offer a wide range of choice for the siting of settlements. A cluster on an even surface can grow and expand to a size as large as its economy permits and does not necessarily require to be fragmented to become manageable-viable economic unit of habitations. Uninterrupted contiguity of surface enforces a sense of unity and contiguity in the mind of the settlers who have, perhaps by way of imitating the Nature, evolved a uniform, contiguous cultural landscape and compact rural morphology. This multiple role of relief gets eloquently expressed everywhere in Chotanagpur. Wherever the surface is even and relief is mitigated settlements tend to cluster, provided no other factors offset the role of relief.

Chotanagpur, though being a rainier tract than the Ganga Plain, suffers from the relative absence of surface-water and the paucity of water supply. The rainfed rivers remain dry for the most part of the year. Natural lakes and ponds are missing. The sub-soil conditions are largely unfavourable for the sinking of wells. Construction of wells is a costly operation which an ordinary settler cannot afford. Besides, it requires many hands to construct a well and calls for collective effort and cooperation. Wells in the villages of Chotanagpur have been a symbol of affluence and social status and, therefore, till recently, even in more favourable areas like the river-valleys and the alluvial plains few households were privileged to have wells. Villages with public wells and more so with lined tanks enjoy distinction in the locality. Such wells are usually found in front of the ex-Zamindar's houses or in the premises of temples. Besides, deep-water table and variable sub-soil conditions always make the operation extra-costly and risky too. Very often, solid rocks are met with in a few feet below the surface and little did the

primitive people possess to blast the rocks and drill a hole through them. In the alluvial tracts where the water-table is relatively high and digging is easier, the total cost remains high, for the wells require bricklining in absence of which the sub-soil crumple in and the wells collapse. The cost of wells is so high that it is almost prohibitive for most of the people. The problem of drinking water-supply is acute everywhere, except in the south-east corner of Singhbhum and the alluvial upland of the Santhal Parganas. In predominantly tribal areas, the sources of water supply are limited to streams and springs, locally called *darhi*. The streams are mostly seasonal but the *darhis* are perennial. Their occurrence is sporadic. They are mostly confined to the levels lower than the surroundings. The proximity of a *darhi* is, therefore, not habitable. Few sources of water-supply restrict the choice of sitting and the settlements being attracted to the water-points, get herded together and help evolve compact clusters.

Economic Factors

As has been stated earlier, the Mundas who first cleared the forests and established pioneer settlements had no conception of individual ownership. All the land was held in collective ownership of the community. This fostered group living and agglomeration of settlements. *Khuntkatti* villages are all compact and nucleated.

Gradually the village organization of the Mundas and Oraons gave rise to village headman and *parha* (clan-territory) chief and subsequently gave way to feudal system and multiple *zamindari* tenures under the Nagbansi Rulers. The feudal system and the emergence of superior class led to the agglomeration of settlements. A large number of people who were recruited and maintained to serve the lords, were preferred to settle around the Chief's house.

Chotanagpur, except for the parts of Palamau, is a principal rice growing region. "The compact village forms (*haufendorf*).....is well adapted to the mode of life of a paddy area. Rice culture demands co-operation along several lines, irrigation, flood-protection and labour".¹

In Chotanagpur changing slopes and steeper gradients pose a serious problem to rice culture. Rice cultivation requires inundation during the growing season. To prevent quick run-off slopes have to be terraced and fields have to be lined up by high bunds to enable water to be impounded behind the bunds. Such bunds are commonly shared by the adjoining

1. Hall, Robert Brunett, 'Some Rural Settlements Forms in Japan', G.R., vol. XXI, Jan., 1931, No. 1, p. 99.

fields and are the features of co-operation and collective effort. The maintenance of these bunds also requires co-operation among the different owners of the adjoining fields. Maintenance of the terraced fields is hardly an individual concern. If a field on the down slope is neglected by its owner and the bunds are allowed to be washed down, the gradual extension of ravines and gullies might threaten the safety of all the fields lying above. Consequently, after the paddy is harvested, the villagers devote themselves to the repair of bunds and the prevention of the extension of gullies and ravines. All these operations are carried on in a co-operative and collective manner. If a serious breach occurs anywhere in the bunds, it becomes everyone's concern to plug it and block the eroding channels. Most of the villages in Chotanagpur have one or more tanks. These tanks, bounded by earthen bunds, are generally located on higher slopes. They are community watering places and the drinking points for the cattle. They are not simply owned collectively but require collective maintenance. In the North Koel valley and the Fringe Zone the *ahar* and *pyne* system of irrigation is practised. This is a collective effort and requires co-operation from all.

The break of *Khuntkatti* system led to the emergence of multiple complicated system of land tenures. The ownership of the land vested in the *zamindars*, *thakurs* and other intermediary authorities between the tenants and the *Raja*. Some of these intermediaries were to distribute lands to the tenants on annual lease basis. Being dispossessed of their lands, the settlers became dependants upon the *zamindar* for land and living both. Their freedom and mobility were curtailed and they were not in a position to erect houses at the places of their own choosing. Thus, they remained largely fixed in their previous positions. This fixity with the growth of population augmented the process of agglomeration. Some of the *zamindars* started their own farming by employing their tenants who were reduced to the position of landless labourers. Gradually the *zamindars* arrogated hereditary rights to themselves to take work from the tenants. The tenants were preferred and in many cases were forced to settle at a place convenient to the *zamindars*. Usually they settled adjacent to the *zamindar's* house in a compact hamlet. In recent times, the various measures of land reforms and new legislations made the *Adivasi* lands non-transferable. This has resulted in a state of immobility and, in consequence, has helped the clusters expand.

In the tribal part of Chotanagpur rice is prepared by handpounding in the domestic household by the women folk. Rice milling is unknown. In several parts, people are not familiar with even the faster and easier *dhenki* method of the Ganga Plain which is a sort of leg-pounding based

on lever principles. Preparation of rice in Chotanagpur villages is, therefore, a very slow and time-killing process. For the small and poor cultivators rice-pounding is an item on the daily routine of family work. Big cultivators and *zamindars* distribute paddy to the villagers who stipulate to return rice for paddy at a fixed ratio. This system provides the poor villagers with enough work in otherwise idle seasons. Rice preparation is thus limited to the individual capacity to work and a large-scale production of rice requires enough hand to work simultaneously. If the rice workers are distributed far and wide, the distribution of paddy and collection of rice would prove difficult and costly. Besides, no one would like to risk his paddy by giving it out to persons who are scattered about at distant places and are not subject to village authority and social control. All these considerations have worked towards the agglomeration of settlements.

The rural economy of tribal Chotanagpur is extremely primitive based on the primitive concept of communal self-sufficiency and barter system. Commerce is alien to them. Barter of essential commodities and even of human labour, takes place on a large scale in every tribal village. Originally, the villages were clan-settlements and every clan aimed at self-sufficiency within its territorial limits. With the growth of population, the settlements multiplied in number and additional villages were founded around the parent villages. These villages linked by social and ethnic bonds were grouped into *parha*, *patti* or *piri* and were governed by a clan territorial organization. With the expansion of settlements and the emergence of a larger brotherhood organized within *parha* territory, the barter economy of the village produced periodic *hats* (markets). These periodic markets functioning as central places, strengthened the economic bonds and inter-dependence of the people which quickened the pace of agglomeration. Even today, cash-transaction as compared to barter of commodities is negligible in the periodic *hats* of tribal Chotanagpur.

Though the tribal society has largely a monolithic structure, social ranking and stratification are not altogether missing. Some of the major tribes, i. e., the Mundas, Oraons and Santhals have imitated the class divisions of the Hindu Society. With the social ranking and stratification is associated the division of labour and specialization in economic pursuits. A typical Oraon village in the western parts of the Ranchi plateau usually consists of nine to eleven social and functional classes.¹

1. Bhuihars, Gorais, Ahirs, Lohras, Kumhars, Ghasis, Jolhas, Chik Baraiks and Mabhls (basket-makers), Roy, S.C., Oraons of Chotanagpur, Ranchi, 1915, p. 110.

This has fostered inter-dependence and has contributed to the agglomeration of settlements.

Certain parts of Chotanagpur have of late witnessed unprecedented economic growth, and the cultural landscape is fast changing under the impact of mining, industrialization, urbanization and the net-work of communication and power transmission lines. These phenomena have effected large-scale immigration to the developing areas. The immigrant people have been pocketed in relatively small space and have increased the size and density of population. Number in itself is a factor that influences the distribution and arrangement of population and for that matter, the grouping of settlements. A higher density is bound to produce some sort of agglomeration unless some very strong dispersal factors similar to frequent inundation in the Ganga Delta and the Kosi basin, force the separation of dwellings by depriving the settlers of large habitable sites above flood levels. The immigrants and extra-growth of population, not finding room in the mining, industrial and urban centres, have been compelled to find shelter in the rural habitat. By the regular addition of houses to the pre-existing settlements, the gaps between the individual households or the separated settlements have been reduced and filled up to produce a compact rural morphology. Concentration of population has taken place at numerous points of larger economic profits, situated within the ambit of industrial, mining and urban centres. Most of them, particularly in the mining areas, are not much below the urban size, but are classed with rural settlements. Similar phenomena are noticeable at numerous cross-points of roads and railways. The high tension transmission-lines have brought electricity within the reach of several villages. Rural electrification has widened the scope of economy and new profitable jobs have become available in the villages. The supporting capacity of the rural economy has improved. This has resulted in higher growth of population and expansion of settlements.

The trading and business communities such as Suris, Jayaswal, Marwaris, Agrawals etc. are all migrated from the Ganga Plain and Rajasthan which are the regions of compact settlements. Their professions require central location and massive and closer contact with the population. These communities have shown marked preference for central places and are settled in the midst of larger settlements. Business like agriculture requires co-operation and inter-dependence on various levels. The shops and residences of these people usually adjoin or are located adjacent to one another. Settlements of the business communities are, therefore, agglomerated and compact.

Historical and Political Factors

Throughout the ancient and medieval periods Chotanagpur as a whole was never brought under the control of any central authority. Tribal and semi-tribal chiefs continued to exercise their local authority in various ways. They were constantly fighting among themselves and were engaged in raiding one another's territories. Life and property were so unsafe that historical trade-routes largely avoided the Plateau. The people were forced to be always on alert and, in fact, lived in a state of perpetual preparedness for war and defence. Chotanagpur had been serving as a veritable refuge to the rebels and banished people from the kingdoms that rose and fell in the Ganga Plain. Very often, rebel chiefs and military personnel made their strongholds in the Plateau and also, raided and plundered the neighbouring territories. Insecurity has been more pronounced in the parts of the Plateau that adjoin the Ganga Plain in the north. The authority of the empires seated at Patna and Delhi, kept on waxing and waning in this Plateau. The imperial armies of the Mauryans and Guptas in the ancient past and Pathans and the Mughals in the medieval periods made several incursions through the Plateau, engaged the restive chiefs, defeated them and replaced them. The campaigns of Sher Shah, Mansingh and Aurangzeb's Commander against the Cheros have been of special importance and produced lasting effects on the way of life and settlements.

Some of the major tribes, e. g., the Mundas, Santhals, Oraons, Hos, Cheros and Kharwars lived a long life of wandering in the Plains. They were attacked and driven out from one habitat to another until they entered Chotanagpur. In the Plains, these tribes, faced with the superior strength of the ever-expanding Aryan settlers, were placed in a state of perpetual insecurity. They led a semi-permanent settled life and were always ready to face invasions and take up journey afresh. They lived a military camp-life and developed martial traits in their character. The Hos of Singhbhum earned a particular distinction for their fighting ability and were called *Laraka* (fighting) Hos. So adept were these tribes in living a military life that the synonym for village in Mundari language signifies a fort.¹ Instability of habitation results in social rigidity and strong communal bondage. The tribal people have, therefore, developed clan solidarity and strong habits of communal habitation and group living.

Even in Chotanagpur, the history of settlements has been the story of usurpation of the rights and property of one settled community by another immigrating community. The Munda habitat in Palamau and

1. Mukherjee, R.K., *Man and His Habitation*. London, 1940, p. 67.

western Ranchi was usurped by the Oraons who were subsequently dispossessed of their lands in Palamau by the Cheros and Kharwars. The Pahariyas in the Santhal Parganas were displaced by the Santhals, and Bhumijis in Singhbhum, by the Hos. In Hazaribagh and adjoining areas, the tribal people were displaced by the non-tribal settlers. Similar stories are to be told about many smaller communities living in various parts of the Plateau.

The Mundas, Oraons, Santhals, Cheros and Kharwars lived for long in the Ganga Plain where the conditions favoured agglomeration. They perhaps lived in compact villages and entered the Plateau with the habits and traditions of the life in the Plains. "However great may be the differences the settlement may show between the different series ... it nevertheless seems certain that, on the whole, man takes possession of the country for settlement in a similar manner within regions where the dominating conditions in physical geography are similar".¹ In the Plateau these communities preferred relatively level surface and perhaps reproduced the type of habitation they left behind.

Chotanagpur is contiguous with the Central Indian hilly tract of Bundelkhand which has been thoroughly infested by dacoits, plunderers and reckless adventurers. Very often in the past, the marauding hordes and plunderers from Central India endangered the security of the people, particularly in the North Koel and Sankha basins. Even after the establishment of the Company Rule, Chotanagpur was invaded by the Marathas several times. As a measure to check the Maratha incursions the British were obliged to create the N. W. Frontier Agency and established permanent military contingents at Lohardaga, Daltonganj, Ranchi and Ramgarh.

When the tribal people entered Chotanagpur they cleared forests and built houses in the clearings. They lived in forest environment exposed to the menace of wild and ferocious animals. Gregarious animals like elephants, buffaloes and deer moved in herds foraging upon and destroying the agricultural crops. The villagers in such an insecure environment were required to defend not only their own life and the life of their livestock but also their crops in the fields. Such a defence was best achieved by collective efforts in group-living.

The Mundas and subsequently, the Oraons and other tribes came to evolve a village organization with administrative authority vested in a hereditary hierarchy of village officials. The administration was carried

1. Ahlmann, Hans Wilson, *op. cit.*, p. 95.

on through *panchayats* consisting of all the adult members of the village community. The indigenous system of administration proved a strong force to keep the people bound to the *panchayat*. The *panchayat* system went a long way to effect agglomeration and forge a compact rural morphology.

Ethnic and Social Factors

Allegiance to clan and sept is unquestioned among the tribal people. An individual detached from the clan had no social existence. Life is patterned on group or communal basis. Among the tribal people there is hardly an individual's occasion of festivity. Marriage, birth and death, all are the occasions for the whole community. Their dance and music are group-based and collective. The tribal religion is a collection of rituals which are the communal manifestations of inherited belief and are performed jointly in the accompaniment of collective music, dance and drinking. These have fostered a well-knit society and have necessitated group-living. So strong have been the allegiances to the clan that even the incessant efforts of Christian missionaries have made little success in breaking the clan solidarity of the tribal people.

Most of the clans are endogamic. Endogamy restricts emigration from a clan settlement and helps them expand and agglomerate. Polygamy was lauded by the tribal people. It is still widely practised in the tribal society. Polygamy which accelerates the expansion of family and community, contributes towards agglomeration.

Social and religious institutions among the Mundas and Oraons have strong communal basis. Till recently, *Dhumkuria* was an essential social institution in every Munda and Oraon village. *Dhumkuria* was a dormitory, centrally located and usually built in front of or adjacent to the *Munda* (Headman) house. It was obligatory on the part of the villagers to send their unmarried boys and girls to have community life in the dormitory. This was done to facilitate the selection of partners for marriage. *Dhumkuria* has been a strong force that goaded the people to live in a compact village. Every village has an *akhara* which is the dancing ground for the village community. Dancing is a routine performance of everyday life in villages. *Sarana* and *Sasan* are the other essential institutions which are shared by all the tribal people.

The tribal people love and worship their dead. Such worship places as the *Jaharthun* or *Manjhithan* in the Santhal villages are dedicated to the souls of the departed *Manjhi* (Headman). These souls are considered to be benevolent and safeguarding the interests of the village community.

The villagers believe that by moving away from the parent-village they would be deprived of the benevolence of the departed souls and misfortunes might befall upon them. They dare not move to new sites without obtaining a prior sanction from the *Pahan* or village-priest. "In the selection of a site for new settlements (they) ... employ a form of divination".¹

All these factors have been operative in varying combination and have contributed towards the agglomeration of settlements in Chotanagpur.

FACTORS OF DISPERSAL

In the larger part of the Plateau the settlements are essentially dispersed. Dispersion has resulted not always because of the conditions opposed to or absence of the conditions that have favoured grouping. New factors of local nature become important. Besides, some of the factors that contributed towards agglomeration, work in opposite direction. This is because of their restricted role and changed context.

Physical Factors

Of all the factors responsible for dispersion of settlements relief and isolation appear to assume paramount importance in Chotanagpur. The areas of dispersed settlements are precisely the areas of higher relief and poor accessibility. Relief manifests itself through various ways and through various media upon settlements. In the hilly areas which have a thin sprinkling of population, physical contact is more immediate and massive than the social contact. Physical environments dominate the scene. People learn the Nature's way of life. The Nature's way appears to be aloof, separate, silent and individualistic in the hilly areas. People in the hilly areas have developed a taste for peace in solitude and individuality in aloofness. Diffusion is the rule in the hilly tracts. All the resources are diffused and widely scattered. Further, owing to the fragmentation and multiple division of the surface, the resources occur in miniature form, so that only a small percentage of them is economically exploitable. This is particularly true of cultivable land. Cultivable land occurs in small scattered patches. Cultivability of land varies inversely with slope and directly with the thickness and fertility of soil. Steep scarp slopes are rocky and bare. Most of the sloping surfaces have permitted only a thin and scanty formation of soil. Such surfaces are unfit for cultivation. Favourable soil conditions and slopes are confined to only a small proportion of the total area. Even in such areas

1. Roy, S.C., *The Hill Bhuiyan of Orissa*, Ranchi, 1935, p. 251.

cultivability is further reduced by the forest and natural vegetation which have similar requirements as the agricultural crops have. Slopes affect habitability too. Habitable sites are few and far between. Habitable sites in hilly areas are small. Smallness of site limits the size of the settlements and force the excess to occupy other sites. Hills and streams act as natural dividers of habitations. Numerous streams that occur at a very high frequency, separate dwellings from one another, for dwellings on higher slopes are usually sited on the interfluvial strips which vary in width from a few furlongs to a few yards. Diffusion of resources leads to general poverty of the habitat. The economic resources in the vicinity are not enough to support a larger congregation of people at any one point.

Forests have also contributed towards dispersal. Exploitable resources are rather uniformly distributed within the forested areas. Secondly, they are sparsely distributed. It is difficult to gather enough of forest-products to support a large population at any one point. (Lumbering is a destructive use of forest and is not a part of the primitive economy of the forest dwellers). Land for cultivation or for settlements has to be acquired by clearing forests. Such acquisitions, because of physical limitation of the landscape and technical limitations of the people, cannot be extensive and necessarily occur in small patches. Sedentary way of life is not typical of forests and habitations are, therefore, shifting. Even the villages founded by the Forest Department are not permanent.

Except the Kanhar-Koel interfluvium and parts of the Northern Edge of the Plateau precipitation is relatively high in all the hilly areas. Dry periods are short and interrupted by cyclonic rains. Thick vegetation-covers keep the rate of evaporation low. A fine texture of drainage makes water channels almost ubiquitous. They are further supplemented by natural springs which occur in large number. Plenty of water-point sites offer a freedom in the siting of habitation. This leads towards dispersal.

The hilly areas are largely inaccessible. Accessibility is limited to lower slopes, projected spurs, valleys and broad divides. Even in these areas communication is extremely difficult. They are mostly approached on foot. Transporting agencies are men and animals. In areas of lower relief foot-tracks give way to cart-tracks which follow the zig-zag course along the divide lines. The hilly areas have, therefore, been generally by-passed by main streams of human occupancy and economic development. They suffer from physical isolation, historical negligence

and off-the-track situation. They have been largely ignored and rejected by ordinary settlers, for they have little to attract them. Physical isolation and historical negligence have granted a good deal of security in all the ages. Life in these areas was seldom disturbed by outsiders and invaders until the dawn of modern techno-industrial era which led civilized people to the forested hills in quest of minerals, timber, lac etc. Most of these hilly parts did not receive any impact of the political authority that prevailed in the North Koel valley and the peneplaned surfaces of Ranchi and Hazaribagh. There are living such tribes in Hazaribagh, Palamau, Ranchi and Singhbhum, who are still refusing to acknowledge the authority of civil and revenue administrations and do not pay any taxes. The *Tana Bhagats* who revolted against the British Tax Collectors, are yet to accept the revenue laws. These people lived in a state of natural freedom and did not bother to fix themselves to any particular spot.

Economic Factors

The hilly forested areas are inhabited by several nomadic tribes, like the Birhors, Parhaiyas, Birjias and Korbas. They practise a primitive subsistence economy. Their wants are few and rudimentary to be easily satisfied by forest-products. They are self-sufficient people. Self-sufficiency among these tribes is practised at family and even at individual level. Such a self-sufficiency keeps them largely free from the economic interdependence and mutual co-operation of a larger community. They are, therefore, not obliged to live collectively in large agglomerated settlements.

The Birhors "found living in the jungles on the sides of hills..... have hardly any cultivation and never touch a plough"¹. The Birhors are divided into *Uthulu* and *Jhagis* branches. "The Uthulu Birhors are quite nomadic and live in groups of three to ten families camping in the jungles, remaining only for a week or two on the same spot except during the rains, and moving from jungle to jungle on a regular round, completed in about two years. They return to the same place and start once more on a similar move along the same route. The 'Jhagis Birhors'.....tired of toilsome wanderings, have settled on some hill-tops or the outskirts of a jungle.....Slight ill-treatment by the landlords or neighbourers makes them migrate.....or fall back to their old 'Uthulu' life.....The settlements of the Jhagis as well as the temporary encampments of the 'Uthulus' are known as *tandas*. A *tanda* consists of about half a dozen or more huts"². Birjias, Parhaiyas and Korbas are also

1. D.G. Palamau (Patna, 1961) p. 97.

2. Ibid.

nomadic in habits and "only a small percentage has taken to settled cultivation. The bulk of them live in a group of two or three families on the spur of the high hills. They still do little cultivation. Usually, they move out from their homstead in about a year"¹. They practise a sort of shifting cultivation called *Jhuming*. The fields are maintained for a period of three to seven years and then are abandoned along with the periodic huts that were erected during the periods of stay. As "the village is a systematic manifestation of agricultural success and stability"² instability of cultivation induces instability in the habitat which leads to dispersal of settlements. In all the areas where resources are limited diffused and insufficient, and where large areas, forested or otherwise are yet to be occupied, the settlements suffer from a degree of instability. Dispersed settlements are, thus, like the xerophytic, rock-loving plants which stand interspersed with barren spaces and struggle to live a stunted growth in the drier parts of the Plateau.

The dwellings of these nomadic tribes as well as of the settled communities in the hilly forested areas are the most rudimentary structures. They practically cost nothing except a few hours of toil. They are, for the most part, natural shelters. Their households are perhaps the poorest and smallest to be found in any part of Bihar. Establishments attendant to the settlements are none to be named. They do not tend cattle nor even they keep fowls. There is practically nothing in their households and the habitation which they might feel attached to. In taking up journey they have nothing to lose. Freedom from attachment to the households and habitat and freedom from the sense of loss keep them wandering, creating and destroying habitation at every change of their mood. Their habitations have nothing to attract bandits and invading hordes. An invader is bound to be frustrated and, therefore, they live in absolute security, peace and non-interference in their hilly habitat.

Dispersal is not entirely confined to the hilly areas. Except a few small areas of typically compact settlements, in all other parts of Chotanagpur, settlements exhibit dispersal on varying scale. Because of higher elevation, aspects of relief are not entirely lost in any part of Chotanagpur. Dissection of the surface, amount of slopes and density of streams vary within a wide range. Though the peneplaned surfaces and broad river valleys are largely deforested, remnants of original forest-cover are widely scattered. Till recently, even the non-hilly parts were not properly served by roads. Railways have been confined to the mining and

1. D. G., Palamau, op. cit.

2. Mukherjee, R. K., op. cit., p. 74.

industrial areas only. Most of Chotanagpur remained cut-off from the main currents of historical and political developments and enjoyed a good deal of security in all the past ages. Heavy precipitation largely offsets the quick run-off. Tanks are essential elements in the morphology of all types of settlements. Thus, some of the general factors of dispersal are operative in all parts of Chotanagpur. Besides, there are a number of other factors of local and universal nature and of varying intensity and roles which have effected dispersal in various forms.

Social and Ethnic Factors

The clan and sept feeling among the tribes are very strong. These feelings, very often, amount to tribal intolerance. This has led to the splitting up of settlements into clan or sept hamlets. Clan hamlets are everywhere the rule in the tribal Chotanagpur. In non-tribal part social stratification and caste hierarchy are eloquently expressed in the rural morphology. The settlements of Scheduled Castes are usually grouped in separate hamlets. The rural population consists of several function castes. The requirements of the functions of some of these castes are such that they like to settle outside the main village. Notable among them are *Gwalas*, *Kumhars*, *Ghasis* and *Mahlis*. *Gwalas* are pastoral people and usually maintain large herds of cattle. Much larger space, besides pastures, is required for their stalling. They have to take out the herds for grazing and watering. An inside-village location will not only make the tending difficult and time-killing but will be disliked by other people, for the cattle in their daily journey through the village lanes might damage the thatched roofs of the villagers. The movement of such a large number of cattle depraves the village lane and the stinky stalls viciate the surrounding atmosphere. They prefer, therefore, to settle outside the main village in a hamlet of their own. The *Kumhars* (potters) also require spacious site for sun-baking their earthen articles and to store the fuels. The smoking klins might prove a great nuisance to other settlers. Besides, the klins pose a danger to the thatched roofs, if located very close to them. *Ghasis* are butchers of the tribal Chotanagpur and are not allowed to select a site in the main village. *Mahlis* are basket-makers and the requirement of their occupation like those of the *Kumhars*, are for spacious grounds to store bamboo and other raw materials. Consequently, all such function castes are seen living outside the main village, singly or collectively depending upon their number.

With the introduction of *raiyatwari* system, landlords and privileged classes emerged. Most of these landlords and privileged people were alien to the land and were, in fact, super-imposition on the original

Munda and Oraon settlers. Very often, the tribal settlers revolted against their authority and posed continued danger to their life and property. It was unsafe for them to live amidst the restive tribal tenants in the old villages. The homesteads of the *Thakurs*, *Sahdeos*, *Pandey*s and other feudal chiefs are conspicuous by their size and situation. Their homestead, several times larger than the Munda homestead, and usually surrounded by a high protective mud-wall or thorny hedge, stand apart from the main village. Some of these landlords, after dispossessing the tenants of their lands started their own farming with the help of faithful landless tenants and labourers. Subsequently, they (landlords) got built their tenants' houses around the landlords' homesteads as a measure of defence against the rebellious tenants and, also, to enable the women folk to render domestic services to the landlord. Thus the landlords' houses produced hamlets subsidiary to the parent villages.

"Caste and agricultural habits go together in India"¹. A large number of the Mundas, Oraons and Santhals who are 'the thorough-breds of the soil' live in scattered clumps and houses on the brinks of marshes, swamps and ravined lands and on the residual heights in the midst of ravines and gullies. They are still fighting with forest and water to which they were driven by the successive invasions of fresh settlers. *Koiris*, migrated from the Plains, practise intensive agriculture and are engaged in vegetable gardening. They usually prefer to settle down at such places where they can easily enclose a cultivable plot in the back of their dwellings. They construct wells in the plots and manure them heavily. The *Koiris* have, therefore, produced loose hamlets in which houses are interspersed with enclosed cultivated plots.

In the areas adjacent to or surrounded by forests, elephants, buffaloes, deer and wild bears are great manace to standing crops. The agricultural fields are, therefore, enclosed by a strong lattice-work of bamboo and sal-twigs to ward off the wild animals. The dwellings are situated within the enclosures.

Historical and Political Factors

The types of settlements that evolve are related to the process of occupance and the manner in which the territory was originally settled. The process of occupance, because of variable relief and agricultural conditions, has been selective and discriminating. The settlements progressed in patchy manner leaving in between unoccupied bits of natural earth which were gradually whittled down by the growth of population

1. Mukherjee, R.K., op. cit., p. 69.

and expansion of settlements. Each newly occupied bit of land was inferior to and less productive than the land previously occupied and therefore, produced smaller settlements varying in size from hamlet to isolated individual homesteads. In addition to the main forested hilly tracts, there are enough lands awaiting effective humanization. These are being occupied bit by bit and settlements are spreading to them in original scattered manner.

With the break down of *Khuntkatti* system of the Mundas, the collective communal ownership of land was supplanted by individual ownership. This bestowed a sort of economic freedom upon the individuals to break away from the community. With the dissolution of *Khuntkatti* system, *Khuntkattidars* being dispossessed of their land, migrated to other areas and founded new villages. In this process most of the *Khuntkatti* villages died or became hollowed out and truncated.

Multiplicity of tenancy and land tenures has also contributed towards the dispersal of settlements. *Khuntkattidars*, claiming to be the descendants of the original settlers, lived separately from the subsequent settlers in different villages or hamlets. *Bhumihary* tenancy consisted of four cognate tenures. The holders of these tenures are found usually settled in separate hamlets of variable size.

With the immigration of the people of the Ganga Plain an element of dichotomy was introduced in the rural morphology. The tribal people took the emmigrants to be alien and usurper and maintained a polemic attitude towards them. They were, therefore, obliged to establish their settlements separately. Their separate existence multiplied the number of settlements and produced hamlets of varying sizes, very often, appearing as subsidiary to larger villages of the tribal people.

Land reforms and labour laws have also worked towards dispersal. Abolition of *Zamindari* freed the tenants and landless worker from the strong clutches of the *Zamindars* who, in many cases, migrated from the old villages and founded new settlements. Abolition of *Zamindari* made the *raiya*s real master of the land which induced them to practise better farming by settling in or near their agricultural fields. This process is likely to be speeded up by the consolidation of fragmented holdings. With the abolition of *Zamindari* all the *Zamindari*-lands, fallow, uncultivated, forested and hilly, vested in the Government. The Government, as a measure to increase food production, have settled and are still settling such lands with the landless people who prefer to locate their houses in their newly acquired fields.

With the advent of Independence the heavily mineralized tracts of Chotanagpur are witnessing phenomenal developments along many lines. The machine age consists of a peculiar contradiction in its influence upon settlements. The industrialization of the region has led, on the one hand, to the emergence of large sprawling urban estates, cities and conurbation incorporating hundreds of villages in the process. On the other hand, it has induced a scatter-up of settlements in the areas where agriculture has been or being mechanized. Technological advancement with rapid industrialization of the region has resulted in the multiplication of communication lines, servicing centres and contact points which are pulling out settlements from their old moorings to new points of greater economic opportunities and higher profits. Industrialization and technological advancements have caused proliferation and diversification of old and new pursuits. Machine gave people the freedom from the age-old collective, communal, co-operative economic system. With the help of machine one can dispense with number and plurality and can still maintain the economic viability of homestead.

The growth of mining industry and urban centres has affected the countryside in other ways also. New and enlarged opportunities have led to a large scale migration from the rural areas to the mining-industrial centres. For most of them there is no point of return and a permanent vacuum is, thus, created in the rural demography. In many cases ownerships of land and houses change hand. The new owners, mostly non-tribal migrants, give up the acquired houses and build houses of their own liking usually on the periphery of the villages.

Chotanagpur features as the region of heavy immigration in the Census returns during the last five decades. These migrants coming from various parts of India, are uprooted, classless, societyless people having scant regards for old social values and community life. They behave like individuals in a crowd of strangers and prefer to live in separately built houses. Faster vehicles plying on the net-work of roads, have increased the quantum of rural-urban intercourses. Urbanism is invading the countryside through these lanes of communication. The reflected glory of the urban way of life is changing the social and economic values in the rural area which in turn are effecting the layout of settlements. The younger generations in the villages increasingly display a taste for openness, commodious house, floral decorations and vegetable gardening. At the same time, they dislike the congestions of the old villages and avail themselves of the earliest opportunity to build their houses in open, usually located outside the main settlements. Rural electrification has provided with still another lever in the mechanism of dispersal.

Electricity has taken away much of the isolation and gloom of the scattered houses in the countryside, particularly along the road. Electricity has produced non-agricultural jobs for the villagers. The new jobs do not make them obliged to live in the village community.

Mining operation and large development projects like the Damodar Valley Corporation, Bokaro Steel Plant and Heavy Engineering Corporation have led to the demolition of hundreds of villages. The displaced people have been settled in new localities, generally along roads and, their new settlements are mostly dispersed.

Political awakening and constitutional liberty and equality have likewise made the individuals assertive about their fundamental rights. They no longer recognize the traditional authority of the village *panchayat* and tribal organizations. The grips of the tribal chiefs have been loosened and social bondages are largely broken. Bonded labourers and hereditary service classes are freed from their historic obligation. Spread of education has broadened the outlook and has changed their attitudes towards life and society. Leadership and initiative have shifted from older people to young educated ruralites. Christianity has done havoc to the tribal organization and allegiance to clan and sept. The increasing inter-tribe marriages encouraged by Christian Mission have gone a long way to break down the tribe and clan-solidarity. The Christian couples, broken away from their tribe and clan, prefer to reside away from their parents. All these changes have contributed to the dispersal of settlements in different ways and in different measures.

The various factors responsible for the evolution of the prevailing types of settlements in Chotanagpur have been examined in general. It is now proposed to discuss and examine the various areas of marked agglomeration and dispersal separately.

The Northern Fringe Zone and North Koel Valley

The Fringe Zone consists of the alluvial surface that extends in the north from the foot of the Plateau and is contiguous with the plains of Gaya, Monghyr and Bhagalpur. Physical, economic and social conditions in the alluvial tract are more or less the same as obtaining in the Southern Ganga Plain of Bihar. The settlements are largely agglomerated and compact. The nature of agglomeration and degree of compactness varies, however, from west to east and from north to south.

The Fringe Zone from the Sone bank in the west to the Ganga bend near Rajmahal in the east appears to be divisible into three sections (figs. 47 & 102). The western section, lying between the Sone and the

Punpun rivers, forms the eastern flank of the Sone valley. The middle section between the Punpun and the Kiul rivers, is the broadest and most representative of the Fringe Zone. The eastern section extending from the Chandan river to the Ganga is narrow and separated from the rest of the Fringe Zone by a broad belt of the Deoghar erosion surface. From north to south also, the Fringe is divisible into two east-west linear belts. The northern belt represents the portion of the Ganga Plain included within the limits of Chotanagpur. In between this plain-portion and the Northern Edge of the Plateau is a slopey alluvial apron that constitutes the transition surface.

The settlements in the northern belt of the Fringe are characteristic of the Southern Ganga Plain. They are typically agglomerated and compact. The villages consist of single compact unit usually situated in the centre of the *mauza*. The villages in the Sone valley as compared to those of Patna District are small in size. In the middle section, the villages are relatively large. These are all agricultural villages consisting of various functional castes, directly or indirectly dependent upon agriculture. Amidst the agricultural villages, at an interval of 5 to 7 miles, are situated distinctly large villages. They are important and distinguished settlements of the area. They usually consist of an assortment of retail shops dealing in various commodities of the daily requirements of the rural folk. Most of them enjoy a pre-eminent position because of being the seat of local administration and consisting of the houses of ex-landlords. Some of them are known for famous temples and other religious institutions. They are venues of weekly and bi-weekly *hats* (markets) and animal fairs. All such villages function as central places and are the foci of micro-regions of the countryside.

Among the factors which have influenced the evolution of the compact settlements are obviously the evenness of the surface and uniformity of the agricultural conditions besides the relative absence of surface water. The wide-spread practice of the *ahar-and-pyne* system of irrigation, proximity to the imperial capitals like Patna and Rajgrih, location of the important trade and military routes and the Fringe functioning as a zone of contact between the Plateau and the Plains, are some of the other notable factors of agglomeration. The area is inhabited by the people of Aryan descent who were accustomed to live in communal settlements, *gram* and *janpad*.

The transition slope between the Plains and the Plateau represents an upward extension of the occupance pattern and rural economy of the Plains. Though the settlements largely maintain their compact character,

they exhibit an unmistakable tendency towards dispersal. Villages, in addition to the main compact unit, consist of hamlets and huts. These subsidiary units are located a bit away from the main settlements. The dispersal over here appears to be the function of slope. Owing to a higher gradient the level changes quickly. Any two points located half a mile apart along the slope, may have much greater differences in their respective levels than the height of the *ahar*-bunds. This limits the size of the *ahars* which, in turn, restricts the extent of grouping. Usually a *mauza* in this part maintains more than one *ahar*. As there is intimate relationship between the *ahar* and the siting of settlements, the number of settlement units increases. The increase naturally entails a reduction in the size of agglomeration. Besides, the density of streams is higher which, apart from augmenting the surface-water supply, divides the slopes into numerous fragments of variable shape and size. The hilly forested environment of the Plateau Edge appears to have an appreciable impact on this sub-Plateau habitat. Hilly outliers, projecting spurs, ravined land and sand-loaded valleys with shrubs and thickets largely deprive this area of the physical sameness that the Plain-portion of the Fringe enjoys. All these factors, though not so strong as to effect a complete dispersal, are expressed in the rural morphology by breaking up settlements into hamlets and huts to be separately located from the main villages.

The North Koel Valley

The North Koel Valley is a tributary to the Sone Valley which forms a part of the Southern Ganga Plain of Bihar. The Koel valley of Palamau represents, for the most part, the cultural impress and occupance pattern of Gaya District. It has recieved in full the cultural impact of the Plains and has thoroughly imitated the territorial organization of production that has been perfected in the district of Gaya. The *ahar* and *pyne* system of irrigation has been extended to all such parts of the valley where it is feasible to construct *ahars* and *pynes*. The settlers are nontribal and are the descendants of the migrants from the Southern Ganga Plain. With strong matrimonial relations, economic exchanges and political connexions, they are nothing more than a section of the rural community of the Plains. Consequently, the settlements in this valley strive to maintain the forms and patterns obtaining in Gaya District so long as the local conditions do not become thoroughly prohibitive.

In the Koel valley the forces of agglomeration and dispersal have combined on varying scale to produce at least four recognizable types of

settlements (fig. 102). There are large compact villages which compare favourably with those of the Sone valley (figs. 57, 66 & 67). These villages are attended by a few individual homesteads scattered about the main village. The cluster-cum-hut type of settlements are remarkably developed in the lower reaches of the Koel valley which border the Sone. In an upstream journey from the Sone along the North Koel the size of agglomeration and degree of compactness record a downward trend. Similar trends are perceptible as we move away from the Koel banks. In the low-lying portions of the Koel valley which might be called flood plains, the characteristic settlements are cluster-cum-hamlet-cum-hut type (figs. 66 & 67). A third group of villages represent hamlet-cum-hut type of settlements (figs. 66 & 72). There are patches of marked dispersal incorporated within the areas of marked agglomeration. Typically dispersed type of settlements are few and infrequent. Such dispersed settlements are features attendant to some larger settlements. In spite of these variations, the settlements in the Koel valley are largely agglomerated. The tendency of agglomeration is strongly expressed in the rural morphology. In appearance, the villages resemble those found in the Southern Ganga Plain and the Ranchi plateau. "The houses..... are huddled together without any order or arrangement and except in those villages which boast of a *bazar*, no two houses adjoin¹". The clusters in the Koel valley are larger than those of Ranchi plateau. The degree of compactness and cohesion in the morphology is smaller than in the Fringe Zone.

The Koel valley is not a perfect plain. The gradient is relatively steep and the density of streams is high. The interfluvies unlike those of the Fringe Zone (which are parallel strips of even surface) are triangular pieces of multiple slopes with apex pointing towards the main stream and the base usually communicating with the bases of hills. They are further divided into small, asymmetrical or triangular rises. All these represent an aspect of fragmentation and division of land and the surface suffers from the absence of continuity and sameness that characterize the Ganga Plain. Residual hills, projecting spurs, patches of ravines and sand-hills further reduce the unity of the surface and complicate the distributional pattern of settlements. Occupance in this part has progressed in halted and disjointed manner. Various groups of settlers belonging to different ethnic stocks, have followed different courses and have occupied and settled the territories in the manner that suited their purposes and temperament. Two adjacent valleys separated by hills or forested elevated tracts have fewer and feebler contacts. Relief has, thus,

1. D. G. Palamau (1926), P. 65.

not only obstructed the progress of occupation but has also prevented the inter-linking of economy and general circulation of techniques and culture of the peoples inhabiting different areas. Settlements in different physical units, particularly in separated valleys, have become spotted and isolated and have progressed and shaped in the manner that the people decided according to the local conditions and their own living habits. Sections of the nomadic tribes who have descended from the hills to the plain and have taken to settled agricultural life, are yet to shed off their old habits completely. The Parhaiyas residing in the valleys "generally choose more jungly village and reside in separate tola and hamlet"....¹ These factors have introduced an element of variation in the cultural landscape and the types of settlements that evolved. They have retarded the paces of agglomeration and have, very often, worked in an opposite direction leading to the dispersal of settlements.

The forces of agglomeration are, however, numerous and strong enough to effect a general agglomeration of settlements. The surface, though not flat and featureless like the Ganga Plain, is largely even and uniform. The soil conditions and agricultural facilities are largely homogeneous. A lower precipitation and absence of perennial streams characterize Palamau as "the driest and probably the poorest district"² of Bihar. Drought is of frequent occurrence and problem of water supply is exceedingly acute. High cost of construction and unfavourable sub-soil conditions render wells beyond the reach of common people and the number of permanent public wells is too small to allow the settlements to spread out. In Chotanagpur, Palamau has faced the largest number of invasions and has been the scene of incessant military campaigns throughout the historical periods. The territory has been occupied and given up by several communities in wake of fresh aggressions. Unlike other hilly parts of Chotanagpur, Palamau could not escape the effects of the historical and political developments in the Ganga Plain. The Cheros and Kharwars who retrieved the territory from the Oraons and the Raksels, were martial communities. They built strong forts and developed elaborate fortifications and defensive measures in various parts of the district. The strongest of the forts surrounded by strong-point settlements, are located on the bank of the Auranga, a tributary to the North Koel. The Chero chiefs adopted rebellious attitude towards the Delhi Sultanate and thus, invited frequent invasions by the Pathan and Mughal armies. Intensive cultivation and elaborate network of irrigation

1. D.G., Palamau (1926), p. 63.

2. Reports of the Indian Irrigation Commission, quoted in D. G. Palamau (1926), p. 107.

systems under the most powerful feudal chiefs, proved strong enough to fasten the settlers together. Under the impact of the feudalism, the villages passed from pastoral to agricultural stage and quickly developed a highly stratified society and pronounced division of labour. The feudal authority produced a system of bonded labour. This fettered class of labourer was rendered completely immobile and was to live at the dictates of the lords. "In this district till only three decades back every affluent family had one, two or more families of hereditary servants attached to the households"¹. All such dependant people were obliged to live in houses built around the homesteads of their masters. This went a long way in evolving compact clusters (figs. 59-62).

Amanat Auranga Valleys

The physical conditions and the agricultural pattern in the two valleys do not differ much from those of the North Koel valley. The types of settlements are the same as are characteristic of the North Koel valley. The tendency of agglomeration is quite strong. The dwellings are grouped into clusters of varying sizes. The grouping varies within a very wide range from compact, nucleated villages to isolated individual homesteads. This brings about a variation in the degree of compactness and cohesion. The agglomerated villages, irrespective of their size and compactness are attended by one or more hamlets and a number of scattered dwellings (fig. 59-63, 66-69). The distance between main village and the subsidiary hamlets varies from a few yards to a furlong or more. Wherever a village consists of more than one hamlet the scattered dwellings occupy inter-hamlet spaces and very often, hamlets and huts are interspersed. Sometimes, a compact cluster consists of two separate units and the intervening spaces between the two are filled in by scattered dwellings. Quite often, the scattered dwellings get arranged on one or two opposite sides of a hamlet or a cluster along a cart-track, road or the axis of the interfluvium. The scattered dwellings trailing away from the main cluster attribute an aspect of elongation to the settlements.

Varying relief and scattered patches of forests are mainly responsible for the occasional dispersal of settlements. The ethnic diversity leading to segregation of one group from another, has also contributed towards limited dispersal. On the other hand, relative evenness of the surface, extensive arable lands, large-scale deforestation, long history of settlements, the alignment of the major routes of historical migration and the extension of the feudal system of the North Koel valley have worked towards the agglomeration of settlements. Outside the Damodar

1. D.G. Palamau (1961), p. 103.

valley, the coalfields of the Auranga basin are most important. The coalfields served by railways and roads, have attracted immigrant population which has led to the expansion and further agglomeration of existing settlements. The number and size of settlements and the collateral arrangement of habitable sites, particularly in higher areas aid the agglomeration of settlements. Wherever the settlements are extensive and the number of villages is large, some of them become agglomerated and compact. This is particularly true of the large clearings in the hilly forested areas. Sometimes, settlements sited at the end of small collaterally situated spurs get interlinked and coalesce to form agglomeration (fig. 61).

The Inter-Plateau Ridge

The connecting link between Ranchi and Hazaribagh plateaus is a broad high-lying area. It functions as a divide between the head-streams of the Auranga-Amanat system and those of the Damodar system. It has been eroded to a level lower than that of the Ranchi and Hazaribagh plateaus. The surface is characterized by great inequalities but the general relief is highly subdued. The forests are largely cleared and the reclaimed lands have been given to cultivation. Agricultural pattern of the Auranga-and-Amanat basin has been extended to this area. This table land has been functioning as a foot-board not only between the Ranchi and Hazaribagh plateaus but also between the North Koel and Damodar basins. It has played an immensely important role in the history of settlements and peopling of Chotanagpur and still enjoys an unique position in the communication system of this region. Perhaps, this interlinking area has a much more eventful history than any other region of its size in Chotanagpur. It is these facts of historical geography which have led to agglomeration in seemingly adverse physical conditions of the habitat. Agglomeration is quite pronounced though the numerous patches of dispersal deprive the settlements of the uniformity and homogeneity of types. The typical settlements represent the type that consists of a large compact unit attended by hamlets and huts located separately (fig. 99). In the areas of marked dispersal the settlements consists of hamlets and huts widely scattered and separately located. Dispersal is confined to hills and forested areas, but even in the hilly and forested isolation some of the villages are typically compact.

The Upper Damodar Valley

The grouping and arrangement of settlements in the Damodar valley are so variable and diverse that it is difficult to include them all in any one category. Further, the nature and size of grouping differ

frequently from place to place. This creates difficulty in the areal delimitation of the settlement types. Unlike the North Koel valley, the Damodar valley suffers from great inequalities of surface and a bolder relief. Gently sloping and level lands are largely confined to narrow strips bordering the channels of the Damodar and its major tributaries. But occasionally the outcrops of Gondwana shales eroded to a level lower than the surroundings, have given rise to excellent level paddy lands. These basin-like features are the foci of settlements (fig. 88-60). They appear as the minor receptacles of population and economic activities and have forged an occupance pattern of high intensity. The settlements in these basins are highly agglomerated and compact. They are agglomerated in the narrow flood-plains of the major streams also. The settlements in the hilly forested patches present a wide range of dispersal from hamlet-cum-hut type to random-sprinkled type (fig. 91).

The settlements for the most part in the Damodar valley consist of fourth order of agglomeration (fig. 102). They consist of a large compact unit in association with one or more hamlets and a number of separately located dwellings. The average size of clusters in this valley is larger than in the North Koel valley. The size of clusters as well as the degree of compactness increases as one moves down the valley (fig. 88, 91 & 102). The valley beyond Ramgarh, after receiving the Bokaro and Konar rivers, suddenly widens to incorporate much larger area within its ambit. In the Ramgarh-Gola section of the valley, the surface is undulating, relief is subdued and ruggedness is reduced to small patches of infrequent occurrence. Settlements in this section have attained a high degree of agglomeration (figs. 92,93). The clusters are large and compact but the attendant features like hamlets and scattered huts persist to continue. The tempo of agglomeration is heightened by the sprawling urban growth in the wake of extensive mining of coal and heavy industrial installations. About half a dozen mining and industrial towns have been superimposed upon the pre-existing rural landscape. Outside the pale of urbanization agglomeration declines and the clusters become loose (figs. 88,89). In spite of a higher density of population in the mining areas the agglomeration appears to be feeble and, quite often, the settlements get diffused. This is largely attributable to the nature of terrain in the mining areas and the characteristics of the distribution of mines and associated activities. Mines are scattered features. The occurrence of exploitable minerals have no rule of preference for any particular aspect of relief. The mining settlements acquire, therefore, patchy character of distribution and are haphazardly distributed.

The Lower Damodar Basin

The Lower Damodar Basin consists of two types of terrain contained in the Gondwana Trough and the extra-Trough gneissic surface. The physical conditions and economic exploitations in the two areas differ. The difference finds strong expressions in the density, distribution and types of settlements.

The settlements in the Damodar valley appear to have been originally dispersed, but the exploitation of coal over a century, construction of a thick net-work of roads and railways, the emergence of a large number of mining and industrial towns, heavy continued immigrations and the phenomenal growth of rural population have all led to effect a basic and real change in the cultural landscape of the countryside. The settlements produced by coal-mining and industrial undertakings are so numerous and so extensive that the entire coalfield area appears as a single patch of interlinked settlements. The criss-cross of roads and railways appears as streets of a city and their interstices filled in by settlements, look like city sectors (fig. 90). In fact, the whole coalfield area from Bokaro to Chirkunda forms a large conurbation in which are included rural, semi-rural and semi-urban pockets. Outside the mining areas the landscape abruptly changes and becomes unmistakably rural.

The Grand-Trunk Road roughly follows the boundary line of the Gondwana Trough in the north. A few miles north of this road the complexion of the country changes. It becomes hilly and forested. The settlements become appreciably dispersed. This part of the basin will, therefore, be discussed with the inter-stream ridges and Giridih section of the Kodarma plateau.

The tendency of agglomeration in the areas lying south of the Grand Trunk Road is appreciably high, but the tendency of dispersal is not altogether missing. Agglomerations are considerably developed. The villages consist of compact clusters along with hamlets and separately located dwellings. The three units, cluster, hamlets and huts, are grouped in a relatively small portion of the *mauza*, but they maintain an appreciable distance from one another. The clusters are larger than in the Upper Damodar basin and the North Koel valley (figs. 90,91).

The differential erosion of the Gondwana rocks has produced a variegated landscape. Inequalities of the surface and amplitude of local relief are higher than over Ranchi plateau. Scattered patches of forests and shrubs, extensive waste lands and rocky exposures have worked

towards general dispersal of settlements. Among the factors of agglomeration relative paucity of habitable space appears to be of paramount importance. Habitable sites are fewer and smaller in size. Practice of tank water-supply is another powerful factor. In most of the basin tanks are the only assured means of water-supply to the paddy fields and for the domestic animals. Pisciculture, a cultural impact of Bengal, is widely practised and tanks constitute culturable area for fishes. Tanks like the settlements are located on the interfluves for the valleys are given to paddy. Besides, in the valley situations the bunds are likely to be washed down and the tanks to be silted up. The tanks and settlements are, however, not exactly homologous. The relatively flat central portion of the interfluve is occupied by settlements while the side-slopes are given to tanks. The tanks are bounded by earthen bunds on three sides and the fourth side facing the up-slope remains open to permit the inflow of rain-water. The location of tanks and settlements are thus collateral. Construction of tanks is a costly affair and requires co-operation and collective efforts. Almost all the larger tanks meant primarily for irrigation, were constructed by the *ex-zamindars*. Smaller tanks are individual enterprises. To economize the cost several tanks are constructed adjacent to one another to enable them to share the bunds in common. By inducing the houses to come in close proximity to the tanks, the tanks function as an agglomerating force (fig. 89).

To accommodate the fast growing and immigrating population additional dwellings are required. They cannot always be erected away from the older settlements. New houses have usually sprung up in the gaps within the pre-existing villages. This process has rendered many sprawling settlements agglomerated and compact. Agricultural conditions also do not permit the extra-agricultural population to get away. Additional population has either to share the existing land with others or to reclaim barren lands for cultivation. The reclamation of land in the vicinity of old settlements is easier for the areas are opened up and forests are largely cleared. So, all that the new members have to do is to extend the clearings and terrace the cleared slopes. Either way, whether by sharing the existing land with others or by reclaiming fresh land the new members cannot move very far from the old settlements.

Terraced fields are also the products of collective and cumulative labour. Terraced fields are aligned along the contour lines and share bunds with one another.

Difficult terrain and impediments to movement obstruct the mobility of settlements also. This is particularly true of the areas

which have attained a higher stage of economic development. Settlements to escape isolation endeavour to be located on such spots as may fall on the alignment of roads or cart-tracks. This restricts the choice of the settlers to fewer sites.

This is a zone of contact (fig. 47). A good deal of mixing in the population has taken place. The demography consists of numerous divisions along social, cultural, linguistic, religious and ethnic lines. People belonging to a particular group prefer to live together. This gives them the pleasure and benefits of a homogeneous society. Preference for group living is prompted by a sense of fear also. Living in homogeneous groups spells a sense of security against the ill-treatment, raids or harrassment at the hands of other people. Group-living is a source of moral strength too. It reduces the scope of inferiority complex from which one may suffer in a heterogeneous group.

All these are not absolute agglomerating factors. They act in opposite direction also. Tanks, for example, occupy an area which might have been given to settlements. Hence, in order to have tanks, the settlements have to be at least tank-apart. Paddy fields, because of their valley situation, alternate with *tanks* on which the settlements are sited. Thus, the paddy fields and settlements separate each other and help the dissemination of settlements. Terracing requires constant watch and maintenance and compells the cultivator to be as close to the field as possible. Land for reclamation is not always available in the vicinity of old settlements. This forces the extra-population to move away from the old settlements. For the simple reason that each definable group wants to live separately, the settlements tend to disperse at least on hamlet-level.

In the gneissic country the tone of dispersal is relatively high. This is particularly true of the areas lying north of the Trough where the settlements consist of hamlet and hut units (fig. 88). In the Trough, agglomerating tendency is very strong. The rural morphology is largely composed of large compact clusters, but even these clusters consist of some loose elements. Some of these loose elements are exotic in origin related to mining and industry. On the gneissic surface, the hamlets and huts exhibit a tendency towards elongation. The villages consist of two parallel rows of hamlets and huts through which pass a cart-track (fig. 88). The linear character of villages, is however, not so developed as in the Suvarnarekha valley, the Ajay basin and the Santhal Parganas. Though the basic character of settlements is largely altered in the Trough, the tendency towards elongation is yet discernible. A large

number of villages, not very much affected by mining and industries, preserve their linear character.

The Ranchi Plateau

The Ranchi plateau along with the *Pat* region is the single largest area of agglomerated settlements in Chotanagpur (fig. 102). The nature of agglomeration and the degree of compactness vary widely from north to south and from east to west. From the view-point of agglomeration, the plateau is divisible into two parts. The dividing line roughly coincides with the 85°E longitude. In the area east of this line containing the city of Ranchi the settlements are largely agglomerated but the tendency of dispersal is easily noticeable. It is an area in which the type of settlements is rather difficult to be defined. At the first glance, the area appears to have open-clusters of separately located huts, but a closer scrutiny reveals that the cluster consist of compact sectors, hamlets and huts. The various components of settlements are jumbled-up together in a relatively small area, the arrangements of which shows no definite pattern. Cases of dispersal and agglomeration are variously combined. On the one hand, there are large compact clusters, larger than the clusters in any other parts of Ranchi. On the other hand, there are hamlets and huts separately located and scattered about. On the whole, the area presents fourth order of agglomeration (fig. 102) that has led to the evolution of cluster-cum-hut type of settlements. The area is contiguous with the Damodar valley where the same type of settlements prevails.

In view of the fact that the eastern part is more densely populated and has a better developed economy and communication system, a sharper tone of dispersal than in the western part appears to be puzzling. The general level is the same as in the western part and the surface features and characteristics of relief are almost the same. But they differ in detail. Local relief in the eastern part is more pronounced than in the western part. The gradient is sharper, precipitation is higher and the texture of drainage is finer. Consequently, the surface is finely dissected. This has resulted in the multiplication of such features as *dons* and *tanrs*. Multiplication of *tanrs* leads to the multiplication of habitable sites which are necessarily smaller in size. The reduced size of *tanrs* restricts the size of settlements at a given point. Relative absence of hills and forest has facilitated movement and has enhanced the inter-visibility of the area. In such a situation the general mobility is high. This is true of settlements also. If a hut gets located at a particular point of a *tanr*, another hut can easily move a bit away from it allowing inbetween enough *tanr*-space for various purposes. All the points along

a *tanr*-axis offer equal opportunity to exploit the resources in the vicinity and equal protection against gully action and inundation. The paddy lands contained in the *dons* which are parallel to the *tanrs*, are almost equidistant from the *tanr*-axis. Hence, if a house is located either in the upper, lower or middle part of the axial tract the occupant is not likely to be over-taxed in reaching the *dons*. This aspect of the axial location of settlements encourages dispersal.

The settlements in this part of the Ranchi plateau are comparatively of recent origin. The Mundas after being dispossessed of their land at the hand of the Oraon settlers in the western part, migrated in bulk to the eastern and south-eastern part of the plateau. By the time they migrated to this area, their clans and families were enormously multiplied. In the new habitat they could not introduce the collective ownership and *Khuntkatti* system on the same scale. Movement from one to another habitat weakened some of the ethnic bonds and communal and economic inter-dependence which led to a scatter-up of habitation. Though the original organizations of villages and the clan settlements were largely reproduced the increased number of clans, septs, families social and economics groups led to a proliferation of the settlement units. The village 'Ghaghara' situated south of Khunti is inhabited by eleven different groups of people and consists of two main hamlets, in addition to several scattered dwellings. The hamlets are further divided into *Munda*, *Manjhi* and *Pahan tolas*.

Among the general factors of agglomeration are the relative evenness of the surface, uniformity of agricultural conditions, clan solidarity of the Mundas and their communal way of life, paddy cultivation relative paucity of surface water and ephemeral streams. All these have worked towards the agglomeration of settlements. During summer the problem of water-supply becomes acute. The streams dry up and people fall back to tanks and wells. Tanks and wells are not many and their capacity to supply water is limited. The scarcity of water supply runs counter to the forces of dispersal. On the other hand, limited supply of water from tanks and wells limits the size of agglomerations and lead to the fragmentation of settlements into hamlets. Similarly, the growth of heavy industries in and around Ranchi and the construction of new roads and railways have also worked in two opposite ways. They have bettered the rural economy and have enhanced the capacity of land to support larger population. This has resulted in the expansion of the pre-existing settlements and the enlargements of hamlets and dispersed huts into compact clusters (figs. 72, 73, 76). On the other hand the road-side attraction for the siting of settlements has introduced an element of dispersal.

Western Part of the Ranchi Plateau

In the western part of the plateau that lies west of 85°E and north of the Central Swell the settlements have attained a higher degree of agglomeration. The dwellings are grouped into compact clusters which are attended by separately located individual homesteads. Even then, the compactness of the clusters has an overtone which is easily understandable. The degree of agglomeration and the size of clusters vary noticeably from north to south. The variation is less noticeable from east to west. Between Ratu and Lohardaga, the clusters are comparatively large and compactness appears to be of the highest order (fig. 73). As we move south of the Ranchi-Lohardaga line the agglomeration decreases both in size and compactness. The clusters grow smaller in size and, quite often, get fragmented into hamlets and huts (figs. 72, 76).

Between Ranchi and Lohardaga, the tendency of agglomeration is remarkably high. This is the head-stream region of the South Koel and the dissection of surface is the lowest. Gradient is gentler and evenness of the surface is better preserved than in the eastern part. The inter-fluvial tracts are wider and more gently sloping and, therefore, they favour larger agglomeration. A lower amount of precipitation and a few distantly situated streams accentuate the problem of water-supply in this region.

Historical factors also appear to have played an important role. This is one of the earliest settled tracts of Chotanagpur. The area has been identified as the *Konk Pat* of the Munda legends. *Konk Pat* has been eulogised as the cradle of all the Mundas. The two first-founded villages of the Munda pioneer settlers, Sutiambe and Korambe, are situated along the Ranchi-Lohardaga line. The first settlements of the Oraons also flourished in this area. The founder of the Nagbansi dynasty built his fort at Sutiambe from where he launched numerous campaigns to conquer the sprawling territories of Chotanagpur. The region being close to Palamau, its security was always threatened by the Chero and Kharwar rulers. This area lay first in the way of all migrants coming from the north through the Chandwa pass. The Munda settlers have been largely supplanted by the Oraons.¹ The Oraons during their long stay in the Plains acquired a habit of living in large clusters and, so, they "live in large villages consisting of hundred and even two hundred houses"² (figs. 72, 73). The village organization of the Mundas and their

1. "The Oraons took possession of the lowlands while the Mundas retired to the small plateaux or highlands in the mountains". D.G., Palamau (1926), p. 63.

1. D.G., Palamau (1926), op. cit., p. 65.

system of grouping villages into *Parha* were largely retained by the Oraons.

Clusters in this part of the Plateau are highly compact. The compactness has, however, not achieved the same degree of perfection as to be seen in the Southern Ganga Plain of Bihar. As compared to the clusters of the Ganga Plain, the clusters of Ranchi District have smaller population but cover larger area. The various sectors and even the individual home-steads are a bit more apart than their counterparts in the Plains' villages. The separating spaces between the constituents of the cluster are wider than lanes. They are, in fact, not lanes but open unbuilt strips of land interspersed with the grouped homesteads. These intervening spaces, in addition to functioning as village lanes, serve as common land for bamboo, mango and *mahua* groves, village pastures, thrashing grounds, play grounds, animal stalls and for many other purposes.

The apartness of the village constituents is attributable to the subdued forces of dispersal. Plateau surface is not at all featureless. Undulations are marked and locally prominent. Relief is subdued but enough to impress upon the way of life and the process of settlement. Fragmentation of space and diffusion of resources, though on a much smaller scale than in the hilly areas, exist. With a higher density of streams the natural water-forms are more closely distributed than in the Plains. Value of land is not so high in the Plateau. In the Plains all lands have high agricultural value. Pressure of population is the maximum. This compels people to save land for agriculture rather than to waste it for housing. In Chotanagpur the situations are sharply contrasted. Only a small portion of land is cultivated. Vast areas are lying fallow, uncultivated or barren. Again, the *tanrs* have least agricultural value. So, if a few extra acres are given to settlements, it is not going to matter much. Plenty of available space encourages the homesteads to keep as apart as not to lose the sense of agglomeration. Consequently, though the villages of the Plateau are largely agglomerated, compactness of the Plains' villages is missing from them. Size of villages is also a factor that effects compactness. The size of *mauza* is larger but the size of village is smaller. Most of the villages consist of two to three compact units. When the distance becomes unworkable from a central site the units break away and get separately located. Most of the clusters are, therefore, reduced to hamlet size consisting of 2 to 25 homesteads (fig. 72). Because of smaller number of the constituents of clusters, the intervening space does not assume the strature and characteristic of a village lane. Naturally, the morphology of Ranchi villages fails to im-

press its compactness upon the observer, particularly upon one who comes from the Ganga Plain.

Palkot Basin

In a traverse from Gumla towards Palkot and further south-east along the main valley of the South Koel, the nature and pattern of grouping of settlements gradually change. South of Gumla (23°5'N), dispersal becomes a more noticeable feature. The clusters are composed of a number of hamlets. Hamlets are grouped in a relatively small portion of the *mauza*. They are rectangular or square-shaped and are seldom attended by huts. If huts exist they are located quite away from the hamlets or clusters and constitute independent units of settlements. Such settlements are mostly confined to hilly or forested fastnesses or the ravined lands (fig. 76).

Though the settlements largely consist of hamlets they do not qualify for hamletted type. In the first place, the numerous constituent hamlets are grouped in a relatively small area instead of being dispersed all over the *mauza*. In the second place, one of the hamlets forms the nucleus of the cluster and appears to be the parent settlements. This parent hamlet is usually larger than the others. The intervening spaces between various hamlets are not too wide to attribute separate identity to the hamlets. Most of the hamlets are without any name. Such hamlets share the name with the parent hamlet. These aspects of grouping suggest that the degree of agglomeration is fairly high, though the separateness of hamlet spells a sense of dispersal.

South of Gumla the complexion of the country changes. Hills and *tongaris* become numerous. The texture of drainage becomes finer and dissection increases. Groves and woods become frequent and occupy larger proportion of land. All these factors help the settlements to be dispersed.

Though the complexion of the country changes south of Gumla (23°5') and hills and *tongaris* make frequent appearance the surface continues to be undulating and the interfluves gently sloping. Groves and woods become of wide occurrence and the dissection of the surface becomes more noticeable, but they fail to impede the grouping of dwellings upto a certain extent. Cultural factors appear to be quite strong in effecting agglomeration. This area has been the stronghold of the Nagbanshi Rulers. Palkot and Doisa Nagar, the two famous fortresses are located in this area. Several martial communities, e.g., Nagbanshis, Bhogta and Rewtias are widely settled. Their settlements are conspicuous

by their location on the hill-bases and hill-tops (fig. 76). A greater degree of compactness is noticeable in these strong-point settlements. In the wake of invasions, infiltrations and protracted process of usurpation of the land by non-tribal immigrants under the aegis of the Nagbansis, the Mundas took to defensive policy. Their clan solidarity increased and the need of group-living grew stronger. This is a zone of tripartite contact between Chotanagpur on the one hand and Orissa and the Madhya Pradesh on the other (fig. 47). The region is inhabited by all such tribes which are typical of the three regions (fig. 31). Notable among them are the Gonds of Madhya Pradesh, the Khonds of Orissa and the Oraons, Mundas and Kharias of Chotanagpur. Besides, a number of minor tribes are distributed widely in this area. The region suffered from tribal feuds and incessant strifes. All these factors have been acting and counteracting in a very complex manner. The agglomerating factors are effective to a certain extent beyond which the forces of deglomeration become more assertive. Consequently, the dwellings tend to be grouped into clusters, but the moment they overgrow their size permissible under the local condition, disintegration takes place and subsidiary hamlets come up (fig. 75).

The Panch Pargana Plain

This one-thousand feet surface is contiguous with the peneplaned surfaces of Dhanbad and Purulia. The settlements in this area are largely agglomerated. The agglomerations consist of compact clusters, a few subsidiary hamlets and individually located dwellings. The size of the clusters and the degree of compactness increase from north to south. In the Kanchi valley the clusters become unusually large. There are villages like Bundu, Tamar and Sonahatu which are larger than many settlements classified as towns in Chotanagpur (fig. 86). But even these large-sized clusters are surrounded by scattered dwellings and a few hamlets.

The factors leading to agglomeration in this area are even surface, gentle slopes and extensive formation of fertile soils. The area is liable to widespread inundation during the monsoon period when the rivers coming down from the plateau cause sudden floods. The settlements in this area are mostly sited on dry-points which are few and infrequent. This is one of the most thickly populated tracts of Chotanagpur. Agriculture is better organized and is on a firmer footing. Paddy is the master crop that has led to the evolution of collective irrigation system. It is a zone of contact and population is of diverse nature. Cultural influences of Bengal are very strong. A number of Bengali settlements have come up. Opposed to these factors of agglomeration are the

relative abundance of surface water-supply through numerous perennial streams, ponds and tanks. Water-table is fairly high and digging of well is easier and cheaper. Social segregation among the Biharis, Bengalis and tribal population has also contributed towards the relative dispersal of settlements in this plain.

Hazaribagh Plateau

On this plateau in Chotanagpur the settlements have achieved the highest degree of agglomeration and compactness. Most of the villages are single-cluster units. They are comparable with those of the Southern Ganga Plain. The size of the clusters is larger than the normal for Chotanagpur. There are villages like Ichak and Padma which have attained unusual size and look like patches of urban settlements.

A zone of compact-clustered type of settlements extends from Hazaribagh to Kodarma (fig. 102). This zone is succeeded in the north and east by a narrow belt of cluster-cum-hamlet-cum-hut type of settlements. Even in the adjoining parts of relatively feeble agglomeration, the clusters are larger than those on the Ranchi plateau.

In addition to the relative uniformity of relief, large-scale deforestation and scarcity of water-supply, cultural factors are strongly in favour of a higher degree of agglomeration. Agriculture in this part is better organized and more intensive. Tank irrigation is widely practised. Tanks and settlements are concomitant features (fig. 77). This is one of those few areas of Chotanagpur which were detribalised at an early stage. The settlers were the migrants from the Ganga Plain. They reproduced their original culture and society. Two National Highways and the Grand Ghord railway line pass through this area. Even in the past, the area was served by the Imperial Highways of Magadh. Through the deep-cut valleys of the Mohana and Nilanjan the area has been easily accessible from the Plains.

This area could seldom escape the impact of the central authorities located either at Patna or Delhi. Life was frequently ruffled by military campaigns. During the periods of weaker central authority, the area was infested with highway robbers and plunderers who were menacing not only to the travellers and tradesmen but also to the local inhabitants. During the present century, the development of mica mining and splitting industries attracted heavy immigration which went to swell the rural population and led to the expansion of clusters further.

Giridih Section (Khagardiha, Giridih-Bengbad area)

Though the surface is rugged and forests are extensive, the settlements are largely agglomerated (fig. 77). The axial tracts of the

interfluves are broad and even. Agriculture is intensive and has been extended to the farthest limit. The area suffers from the scarcity of water supply. Streams are few and far between. The axis of the 'trough' of low pressure that extends from the Bay of Bengal passes through this area. The axis is associated with a smaller amount of precipitation. This has led to the practice of tank water-supply. The tanks serve several purposes. The larger ones are primarily meant for irrigation, but the smaller ones are intended to supply water to human and bovine population. There appears to be close relationship between the number and size of tanks and the number and size of clusters.

This is one of the most densely populated tracts of Hazaribagh District. The area, in addition to having extensive agriculture, has the advantage of coal-mining in the south and mica-mining in the north. Giridih, the largest centre of mica-splitting and mica trade, is situated in this area. Mica-splitting is a sort of cottage industry and is carried on a very large scale in the villages. The rural economy has become versatile and more accommodative. This has led to a higher growth of population and consequent expansion of settlements. The area is served by one of the oldest railway lines. The population is largely non-tribal with strong and direct links with the Ganga Plain. All these factors appear to have effected a higher degree of agglomeration than the physical conditions warrant. The settlements consist of large compact clusters in association with hamlets and dispersed huts.

Kolhan Highland

The Kolhan Highland stands out as the only area of marked agglomeration in the whole of Singhbhum District (fig. 102). Physical conditions on this tableland are largely the same as on the Ranchi plateau. Being situated on the border, the Kolhan forms a zone of contact between Bihar and Orissa. It is inhabited by the Hos who earned the epithet *Laraka* (Fighting) for their excellent fighting qualities. The *Laraka* Hos were highly intolerant and did not permit any other communities to settle down on this high land. They often raided the neighbouring territories and plundered the villages. They were a constant menace to the settlers in the Kharkai valley. Because of their plundering habits they settled in the Kolhan and made it a sort of fortress for themselves. "Shut in by barrier of hills massed together in a series of bold irregular peaks, the country is almost inaccessible"¹ The Hos being a branch of the Mundas inherited the village organization and collective ownership of land from the latter. All these factors led towards a high

1. Bradley-Birt, F.B., Chotanagpur, London, 1903, p. 85.

degree of agglomeration. There are large compact clusters which compare favourably with those of the Ranchi plateau. Most of the villages consist of a compact cluster surrounded by a few separately located hamlets and huts. These are clan settlements and the main cluster is usually inhabited by the members of a single clan. The hamlets and dispersed dwellings belong to extra-clan inhabitants and functional castes.

Adjacent to the Kolhan is the Kharkai valley. The settlements in this valley are conspicuously agglomerated. In addition to the favourable physical conditions, the security in this valley was always threatened by the Ho raiders.

THE AREAS OF MARKED DISPERSAL

The Upper Reaches of the North Koel-Kanhar Basin

A narrow belt consisting of the central portion of the North Koel-Kanhar interfluvium consists of typically dispersed settlements (fig. 102). This belt of dispersal on reaching Bhandaria takes an easterly swing and comprises the scarped slopes and hilly projections from the *Pat* region that overlook the open valley of the North Koel.

For the most part, the settlements are dispersed. The degree of dispersal varies from place to place. In the axial tracts of the interfluvies, particularly on the ridges and spurs the settlements are highly dispersed. In such areas the units of settlements are individual huts which are located singly and separately. The settlements are random-sprinkled type. Even then, in the hilly areas a certain amount of grouping is discernible. Though the settlements consist of separately located huts the huts are collected within a relatively small area and appear as a group of rather closely-spaced dots (fig. 56). Such groupings have been termed open-clusters. Open-clusters are better developed in the valleys and on the broader interfluvies.

The settlements appear to have attained highest order of dispersal in the area lying north of the *Pats* (fig. 71). The individual huts are unevenly and haphazardly distributed in the forest clearings of varying sizes. The village Ranka is the only exception. It is a clustered village located in the cup-shaped valley where as many as twelve hilly routes converge. The inter-hut distance varies widely depending upon the nature of terrain and the characteristics of the settlement sites. On semicircular spurs or broad divides the huts are less widely scattered. Elsewhere, particularly in the valley-heads or on elongated narrow interfluvies the huts are more widely spaced (fig. 59). In linear settlements aligned along some elongating features, viz., a stream or a hilly route,

the huts are more distantly located. In such situations the inter-hut distance varies from a few yards to two to three furlongs.

The relief is by far the greatest dispersing factor. With the aspect of relief are associated the extent and density of forest, texture of drainage, availability of cultivable lands, thickness and fertility of soil, extent and quality of habitable sites, general poverty and diffusion of economic resources, accessibility and transportability and the question of security and peace. Isolation and inaccessibility appear to be more effective than the simple aspect of relief. Even in the highly rugged and hilly areas which lie close to densely settled tracts and through which pass some important routes, the settlements display a lesser degree of dispersal. In such areas settlements are grouped into open clusters giving rise frequently to hamlet-cum-clusters. A number of nomadic and semi-nomadic tribes live in the hilly-forested areas. Bulk of them live in a group of two to three families. Their habitations are of temporary nature. They practise shifting cultivation in addition to hunting and gathering of forest products.

The Western Slope of Chatra Plateau and the Adjoining Areas

Between the North Koel valley in the west and the Morhar and the Phalgu valleys in the east spreads a country which is highly dissected and rugged. This hilly country extends towards north-east and includes the Dharwarian ranges lying between the Chhatarpur plain and the Fringe Zone. The Dharwarian ranges constitute the western section of the Northern Edge of the Plateau. The Edge is broken into three parts by the deep-cut, broad, open valleys of the Morhar, the Mohana-Nilanjani and the Sakari rivers. These valleys are responsible for making the zone of dispersed settlements discontinuous along the Edge. The Edge of the Plateau is characterised by steep slopes. The sharpness of relief features and steepness of slopes are further accentuated by the quartzite ranges of the Dharwarian formations. The quartzite slopes are steep and largely devoid of vegetation. Elsewhere, the conditions are highly unfavourable for any extensive occupation of land. Occupation is fragmented and scattered. Cultivation is confined to forest clearings. These clearings are small in size and can hardly support more than one family. Bulk of the population of this area is engaged in forest-cutting and gathering of wild products. These pursuits do not demand a group living. The Edge (fig. 9) lies in the area of low precipitation. Scarcity of water-supply, though running counter to dispersal, makes the settlements highly dispersed. The huts are located individually, separately and distantly (fig. 70). They seldom form even an open-cluster. There settlements appear as nestled in the hilly-forested surroundings. But

wherever the valley widens and the agricultural conditions improve, the huts come closer to form open-clusters and compact hamlets. The zone is inhabited mostly by such people who are averse to isolation. They, per force by their living habits, get together and form hamlets at all such places where the physical conditions are not completely inhibitive.

The South and South-eastern Slopes of the Ranchi Plateau, Dalma Ranges, Porahat Hilly Tract, Saranda and Kolhan Slopes

By far the single largest area of dispersed settlements is constituted by the southern and south-eastern slopes of the Ranchi plateau, the Dalma ranges, the hilly forests of Porahat and Saranda and the dissected slopes of the Kolhan highland (fig. 102). All these areas, but for the valleys of the South Koel and the Sanjay rivers, are inter-connected and contiguous.

In all these areas the texture of drainage is one of the finest in Chotanagpur. The slopes are dissected in a very intricate manner and the surface is divided into small-sized interfluvial rises. Numerous streams and mountain torrents, though mostly ephemeral, make the water-bodies almost of ubiquitous occurrence. Precipitation above 60" ensures easy and abundant supply of water. Thick forests have yielded only a little ground to human occupancy. Occupancy is patchy and fragmented, confined to small clearings located on relatively gentler slopes or in open valleys. Paddy cultivation requires inundation which has necessitated the slopes to be terraced. The terracing of the steeper slopes is not only difficult to achieve but also requires constant vigilance and protection against the torrential rains during the monsoon. A slight negligence might result in complete destruction of the precious fields and crops. This compels the cultivators to keep close to the fields. For long, this area offered shelter to the less fortunate people who were driven out from the Ranchi plateau and the Chaibasa plain. The area has been inaccessible in the past and, even to-day, not more than one highway violates the sanctity of its seclusion. Freedom-loving tribes finding it difficult to adjust with the aggressive and domineering attitudes of the people who live in the Chaibasa plain or the Ranchi plateau, took refuge in this hilly area and lived a free undisturbed life. The area is inhabited by several such communities who pursue a nomadic life.

All these factors have favoured a very high degree of dispersal. The settlements in the hilly-forested environs consist of separately and distantly located huts. The degree of dispersal is not equal everywhere. Quite often, dispersal is toned down by the presence of such factors which favour agglomeration. In such areas the settlements consist of

open-clusters. Sometimes a few centrally located huts coalesce to form hamlets. The hamlets usually contain the dwellings of the village-chiefs, *Munda* and Pahan. The area is inhabited largely by the Mundas. The Munda settlements, comparatively of recent origin, are the result of the large-scale migration from the western part of the Ranchi plateau. The clan-solidarity and communal way of life of the Mundas forced the individual settlers to keep closer. All these considerations restricted the scatter up of the huts to open-clusters.

The settlements in the Dalma ranges and on the adjoining hilly slopes are largely dispersed. The degree of dispersal is not very high. The inter-settlement distance is too short for a hilly area and the group or settlements might, therefore, be mistaken for open-clusters (fig. 95). A comparatively high density of population has produced a larger number of settlements, but the smallness of the size of the inhabitable sites restricts the number of dwellings to be constructed at a particular place. This leads to dispersal.

Saranda

Saranda constitutes the single largest tract of the denset forests (fig. 97) in Bihar. It is an extremely rugged and hilly country. River valleys are narrow and deep and look like trenches that separate closely-spaced hills. Most of the area is inaccessible and uninhabitable. A few settlements are found scattered along the river valleys that lie outside the boundaries of the Reserved Forests. Here, in the forest of Saranda "were settled those who had preferred the greater freedom of the jungle and hills. Small clearings and group of ill-built huts mark their dwellings¹". "The settlements are typically dispersed. The dwellings are scattered far and wide in most haphazard manner. The villages are generally unpicturesque owing to their building on high barren spots where the trees attain no size; they are very irregular, each house being separated and hedged in by itself with its own little plots for planting maize, *til* or tobacco"². In addition to the primitive subsistence type of agriculture, silk-rearing and gathering of forest products are important occupations. Silk-rearing is practised in natural surroundings. This necessitates the population to move from place to place. Every thing in the environment spells scattering and leads towards complete dispersal of settlements.

Dhalbhum Hills

The hilly slopes of the Kolhan Highland extending across the border

1. Bradley, Birt, F.B., op. cit., p. 87.

2. D.G., Singhbhum (1910), p. 93.

of Bihar and the Dhalbhum hills form a contiguous territory of dispersed settlements (fig. 102). The physical conditions are the same as found in the Saranda and Porahat hilly tracts. The Hill Bhuinyas constitute a sizable section of the population. Their "settlements cover each a large tract of forest land within which the village site is shifted from time to time".¹

The Dhalbhum hills lie in the area of linear settlements. The individual dwellings show a tendency of alignment though they are located too apart. Linear arrangement of huts is particularly noticeable in the river valleys (fig. 85). In recent times, the settlement geography of this area has largely been altered by the extensive copper-mining and the railway lines connecting Jamshedpur with the iron-ore mines in Orissa. The boom in economic prosperity has led the pre-existing settlements to expand. In the process of expansion several dispersed units have changed into linear clusters.

The Inter-stream Hilly Tract

The area enclosed by the Jamunia and Barakar rivers in Hazaribagh is hilly and dissected. Formation of soil is scanty. Forests are extensive and dense. The physical conditions in this area are more or less the same as on the hilly slopes of the Chatra plateau which have favoured a high degree of dispersal. The huts are located separately within the confines of forest clearings. Occasionally, at relatively level spots, the dwellings are collected to form open-clusters. In the lower reaches of the Barakar valley, the distribution of dwellings develops a linear tendency (fig. 88).

The Rajmahal Hills

This hilly habitat is characterized by diversity and contrasts. High hills, steep slopes, broad valleys and alluvial indentations all are closely packed up in a relatively small area. Variations in the physical landscape bring about variations in the occupance pattern and spatial arrangement of dwellings. For the most part, the settlements are dispersed, but wherever the situations permit the huts are grouped into clusters and hamlets. In addition to the variable terrain, heavy precipitation and high relative humidity are the factors that have contributed towards the dispersal of settlements. This is one of the rainiest parts of Chotanagpur and is specially privileged to have abundance of surface water-supply (figs. 9-10). Relative humidity above 50% all the year round does not allow the surface to dry up. Two factors appear to be responsible for forcing agglomeration in otherwise unfavourable situations. Among the

1. Roy, S.C., *The Hill Bhuinyas of Orissa*, Ranchi, 1935, p.56.

hilly areas of Chotanagpur, the Rajmahal Hills have the highest density of population. Secondly, the area is inhabited by such people who have strong habits of group living. Notable among them are the Santhals and the Paharias. Santhal settlements are situated on lower levels. They usually occupy the river valleys and hill bases. "Santhal communal system is village. A Santhal will never settle alone in an uncultivated area".¹ Owing to the habit of group-living the Santhal settlements are usually large. They often form linear clusters of huts arranged on the two sides of a long straggling street (fig. 80). The Paharias occupy the high slopes and hill-tops where they "live in village community, each of which claims as its property certain hills, the boundaries of which are not well defined".² They support themselves by practising shifting cultivation. Their dwellings are often perched on pinnacle, spur or knol and are most difficult to reach. They are all scattered and separately located, though they collectively form Paharia village.

Dispersal is maximum in the northern section where a single hilly mass occupies the entire area of Borio *Anchal*. As we move towards south, the degree of dispersal decreases. It becomes lowest in the Pakur-Dumka section of the hills. In this area, the hills are divided into small fragments by numerous valleys which favour intensive occupance. In these valleys the degree of agglomeration is markedly high.

Other Small Areas

There are two small areas where the settlements are markedly dispersed (fig. 102). The south-eastern hilly projections of the *Pat* region lying between the Barwe plain and the Palkot basin have favoured complete dispersal. The settlements are typically dispersed in another area which comprises the southern part of Kurdeg *Anchal*.

The Area of Middling Types

Over a larger part of Chotanagpur, the settlements are neither wholly agglomerated nor wholly dispersed. They represent a combination of agglomeration and dispersal in varying proportions (fig. 102). The hamletted settlements appear to represent, as has been discussed earlier, the critical type in which the forces of agglomeration and dispersal are evenly balanced. If the forces of agglomeration become stronger, the hamlets grow into clusters. Similarly, if the forces of dispersal become stronger, the hamlets disintegrate into open-clusters or a group of isolated and distantly located dwellings. There are two types of settlements,

1. D.G., Santhal Parganas (1938), p. 130.

2. Ibid, p. 90.

the tendency of which is difficult to ascertain. They are the hamlet-cum-hut type and linear cluster, 'strassendorf' type. As the hamlets are taken to represent equal proportion of agglomeration and dispersal, the presence of scattered huts in addition to hamlets might be taken to point towards a higher degree of dispersal than in the hamletted type. The linear settlements are not so easy to be classified. In the preceding pages they have been equated with hamletted type of settlements. They are excellent examples of 'strassendorfs' (figs. 80,81,83,87). They have an element of dispersal, for they are the products of the scatter-up of dwelling along a road.

The Sankh Basin

Settlements in the part of the basin that lies south of Raidih and west of Palkot and extends upto 20°25'N and 84°15'E are typically hamletted (fig. 102). The number of hamlets per *mauza* varies from 10 to 50 (fig. 101). Size of hamlet also varies widely. The smallest of them consists of three dwellings and the largest 15 to 25. Some of the interesting features of these hamlets are that they are clan or family settlements. They are extremely compact. The individual dwellings are interconnected by common wall. Smaller hamlets have no lanes. Generally a foot-path encircles the hamlet to which open all the houses. The morphology is like a bee-hive, but the hamlets are not circular. They are invariably rectangular or square in shape. Because of a very high degree of compactness and cohesion they are seldom attended by scattered huts. If huts exist they are located a bit away from the hamlets and constitute independent settlement units. They, in fact, represent nuclei of agglomeration and are, for all practical purposes, miniature or cryptohamlets. Scattered dwellings are confined to hilly, forested and ravined tracts.

In this area, the forces of dispersal and agglomeration appear to be equally strong and evenly balanced. This is one of the most finely and extensively dissected parts of Ranchi District. The surface represents an over-crowding of physical features. Numerous hills and valleys make the surface extremely variegated, but the local relief is highly subdued. Streams are almost ubiquitous and annual precipitation exceeds 60". All these factors favour dispersal. On the other hand, there are such other factors which favour agglomeration. An important agglomerating factor appears to be the geographical position of this area. This is a zone of tripartite contact between Chotanagpur on the one hand and the Madhya Pradesh and Orissa on the other (fig. 47). A good deal of cultural and ethnic exchanges have taken place among the three regions. This basin is inhabited by all such tribes as are typical of the three

adjoining States. Besides, a number of minor tribes and non-tribal communities are widely scattered in this region. These tribes have a collective way of life but seldom two or more tribes live in the same cluster. The non-tribal communities do not mix-up with the tribals and have established separate villages. The area has been an active zone of tribal strife. The multiplicity of tribes, their antagonistic attitude towards one another and continued immigration deprived this area of peace and security in the past. During the hey-day of the Gond Kingdom in the Madhya Pradesh, the basin was frequently raided by the Gonds. The area had to face Maratha invasions also. Though the *Khuntkatti* system and collective ownership of the Mundas disappeared much earlier from the northern part of the Ranchi plateau, they survived much longer in this basin. The basin, no doubt, receives a heavier precipitation, but quick run-off renders the surface extremely dry in summer. The river channels dry up and the problem of water-supply becomes as acute as in any other parts of the Ranchi plateau. Water-supply is obtained from springs and *darhis* which are not of universal occurrence. Besides, paddy cultivation and contour embankments are universally practised. All these factors lead towards agglomeration and weaken the forces of dispersal. The deglomeration forces fail to attack the core or the basic units of settlements. The huts remain unaffected and persist to get closer. On the other hand, the forces of dispersal limit the size of agglomerations. The moment an agglomeration overgrows its maintainable size, i.e., the hamlet, it breaks into parts and gives birth to new hamlets which get located a bit away from the parent hamlet. This is quite obvious in the naming of the settlements. Usually a hamlet bearing name with such suffix that means a village is surrounded by a number of separately located small-sized agglomerations bearing names with suffixes that mean a hamlet or a sector of village. Thus the forces of dispersal are effective only in separating hamlets and not huts. The process may be termed group or aggregate dispersal which is different from individual or unity dispersal.

Areas of Linear Settlements

Linear settlements are characteristic of the eastern part of the Plateau (fig. 102). Linear tendency of settlements is confined to the area that lies east of the line drawn from Deoghar in the north-east to Chakradharpur in the south-west. Linear villages are typical of the surface that lies below 1000 ft. in this area. In this part of the Plateau there are two major regions of linear settlements. The larger one, covering most of the Santhal Parganas and parts of the adjoining districts extends from the Ganga in the north-east to the Barakar in the south-west. Smaller

of the two covers eastern half of Singhbhum and comprises parts of Panch Pargana, the Chaibasa plain and the Suvarnarekha valley.

The Chaibasa Plain and the Suvarnarekha Valley

The linear character of settlements attains its maximum development in this area. Linear tendency is not equally strong in all parts of the valley and the plain. In Jamshedpur area the over-growth of settlements has affected the linear character of villages adversely. Expansion has made two or more linear clusters combine. The shape of such combined clusters conforms to star-shaped or multi-pronged village pattern. In the western part of the Chaibasa plain, because of a lower density of population and smaller size of villages, the linear aspect is subdued. In the lower reaches of the Suvarnarekha valley the linear clusters are largely replaced by loose clusters consisting of hamlets and huts.

The linear villages consist of two parallel rows of laterally adjoined huts through which passes a cart-track. The two rows are perfectly parallel. The parallelism is so well-maintained that the villages look like artificial features on the map (fig.84). The width of the villages equals the total length of two huts put together with the cart-track inbetween which is usually 6 to 10 feet wide. The length of the village varies from a furlong to a mile or even more. These villages are typical 'strassendorfs'.

Another remarkable feature of the rural settlements in this area is the existence of a very large number of tanks (figs. 81-87). The tanks are small in size. They are rectangular or square shaped. They are just dug-in ditches bounded on all sides by earthen bunds. They are seldom fed by streams or run-off channels. The number of tanks varies from 2 to 20 per village. Sometimes four to five tanks are built in a line with common outer bunds. As the tanks are situated in the back of houses, the inter-connected lined-up tanks form additional linear features in rural morphology. The tanks, in this part, are mostly non-irrigational. They are meant for cattle, pisciculture and bathing. They are owned by individuals and form a part of the individual homestead. The tanks represent the cultural impact of Bengal and are held as prestige and status symbols by the villagers.

The linear character of settlements appears related to the characteristics of the surface feature. Though the Suvarnarekha valley, Chaibasa plain and Panch Pargana are gently sloping and comparatively level the local relief is by no means inconsiderable. It is an area of deep-cut channels and sunken valleys. The interfluvial rises are narrow and

elongated. Their sides are steep. The interfluvial rises look like ridges with well-marked crest lines. The relative heights between the river-bed and banks are usually too great to facilitate an easy crossing. This forces the cart-tracks to follow the crest-lines. The crossing are limited to the confluence-points where the channel widens and the steepness of the banks is reduced to long gentle slopes. The crest-lines and the crossing-points are fixed. Consequently, the cart-tracks are more or less fixed in their position. Cart-tracks are essential components of the rural morphology in this area as well as in the Santhal Parganas. All villages, big or small are connected by cart-tracks. Bullock-cart called *sagar* is in widest use and the number of *sagars* per village in these areas is perhaps the highest in the whole of Bihar. *Sagar* is a rudimentary but a very sturdy form of bullock-cart found in the Ganga Plain. It is not difficult for an ordinary villager to afford a *sagar*. Beaten frequently by the *sagar* the tracks lie lower than the surrounding level and are kept busy even during the monsoon. So important is the role of *sagar* in the rural life that the villagers simply cannot afford to keep away from the *sagar* track. In the Santhal Parganas, the *sagar* can negotiate hills and valleys alike and even the Paharia villages located on the hill-sides are approached by *sagar* tracks. The *sagar* track is therefore, the most powerful elongating factor of settlements. This is also because of the fact that the requirements of the siting of settlements and the *sagar* tracks are the same. Both of them occupy the crest-region of the interfluves. A little away from the crest-line the level falls by several feet and if a house is located away from the crest-line it not only misses the direct contact with the *sagar* track, but fails also to benefit from the close neighbourhood, for the slopes prohibit the houses to adjoin. This aspect of location does not permit the expansion of the cluster along the shorter axis of the interfluves.

The Alluvial Upland and the Rajmahal Hills

Linear villages are best developed in a narrow belt that encircles the Rajmahal Hills from east, south and west (fig. 102). The belt comprises the Alluvial Upland, broad river valleys and lowlying eroded surfaces. Outside this narrow belt the linear tendency declines. West of Godda the linear villages give way to dispersed settlements. Although the settlements are largely dispersed on higher hills and steeper slopes, the linear tendency is not altogether missing. Along the State Boundary from Dumka to Jamtara spreads a narrow strip of land that comprises the lower reaches of the Mayurakshi, the Ajay and the Barakar valleys. This is a level country lying mostly below 500 ft. The linear tendency of settlements is quite well marked in this area. The villages are, however, not

symmetrical. The two rows of huts are not always parallel. They are not even equal in length. Sometimes, on one side of the road the huts collect to form a hamlet, while on the other side, they are strewn along the road (figs. 78 & 87).

The factors of elongation are more or less the same as in the Suvarnarekha valley and the Chaibasa plain. The surface is relatively rugged and dissected. The streams are short, the channels are deep and the interfluvies are high, long and narrow. A higher precipitation ensures steady flow in the rivers for the most part of the year. Consequently, the tracks prefer to be circuitous to avoid river-crossing unless it becomes inevitable. *Sagar* is in wide use. The district of Santhal Parganas is perhaps the original home of *sagar*. *Sagar* forms an essential part of the Santhal material culture. Even in Singhbhum, *sagar* appears to have been introduced by the Santhals. There appears to be some relationship between the distribution of linear villages and that of the Santhal and Bhumijs tribes. The linear settlements are entirely confined to the areas which are inhabited by the Santhals and Bhumijs. With the decrease in the population of the Santhals and the Bhumijs, the linear tendency declines.

The Ajay Basin

In the middle and upper reaches of the Ajay Basin the settlements are largely dispersed (fig. 79). The settlements consist of hamlets surrounded by scattered huts. A higher degree of dissection, preponderance of residual hills and larger number of streams go a long way in reducing the uniformity of the surface. The surface presents a crowding of variously shaped features. To these are added extensive patches of forest and bad-lands. All these factors have led to the diffusion of natural resources which reflects upon the arrangement and grouping of settlements. A higher density of population, intensive paddy cultivation, easy communicability and direct links with the Plains work towards agglomeration. Consequently, the settlements combine the elements of dispersal and agglomeration with a higher proportion of the former. Linear tendency is weak but quite noticeable. Often, the huts align with some linear features. Cart-track is not the sole factor of elongation, though it continues to be the most important factor. The huts are frequently seen aligned with river channels, foot-lines of hills or longer axes of spurs. In all such cases of elongation the huts tend to align in a particular direction. Unlike the linear villages of Singhbhum, the elongated settlements in this basin consist of only one row of huts. The length of the row is short and seldom exceeds a furlong or two. The huts in alignment are a bit more distantly located and seldom adjoin. Generally the rows of huts

run parallel to a cart-track or water-line, but, sometimes, the rows are perpendicular or oblique to the linear features. Such relationship is noticeable where two elongating forces meet at an angle. Quite a large number of settlements even in this part of the basin are double-lined. Some of them consist of hamlets and huts in alignment.

AREAS OF HAMLET-CUM-HUT TYPE OF SETTLEMENTS : the Third Order of Dispersal

If hamletted type represents a state of equilibrium, equal balancing of the forces of agglomeration and forces of dispersal, the hamlet-cum-hut type is a step farther towards dispersal. The hamlet-cum-hut type represents a phase of transition. It is a vanishing type that may, depending upon the relative rise and fall of the two forces, integrate into compact clusters or may disintegrate into sprinkling of huts. The areas of such settlements are of two categories. They are either transitional between the areas of agglomeration and the areas of dispersal or represent marginal areas of agglomeration or dispersal.

There are six belts (fig. 102) of considerable length and breadth in which the settlements are of hamlet-cum-hut type. All these belts are in parts transitional and in parts marginal in location. A narrow belt girdles the North Koel valley of clustered settlements. Another belt, rather too broad, covers the northern scarps of Ranchi plateau and the upper basin of the Damoder. The third belt comprises the southern and western slopes of the Hazaribagh plateau and the western and northern slopes of Chatra and Kodarma plateaus. The largest area of this type of settlements includes the eastern section of the Kodarma plateau and Bhagalpur section of the Fringe Zone. Fifth and the longest belt comprises the upper slopes of the eastern and southern scarps of the Ranchi plateau. The sixth belt includes the South Koel-Sanjay valley that passes through the areas of marked dispersal. Besides, there are two small patches included in the areas of linear settlements. One of them comprises the southern section of the Rajmahal Hills and the other is the lower reach of the Suvarnarekha valley.

In all these areas the circumstances are not alike. The nature of grouping and quantum of dispersal also differ widely. In the areas that girdle the North Koel valley nucleation is well marked. The hamlets are relatively large, compact and frequent (fig. 64). They are usually surrounded by a group of separately located huts trailing away from the hamlets. As we move away from the open valley, the elevation rises, slopes steepen, interfluvies change into ridges, and valleys become narrow and deep. Forest areas become increasingly extensive. All these

conditions accelerate the pace of dispersal. The area has been easily accessible from the open valley and could not remain isolated. It received the impacts of political and historical events occurring in the Koel valley. Though the surface is largely hilly and forested there are divides, spurs and valleys which are sufficiently level and favour congregation. It is precisely in such relatively level spots that the huts form open-clusters, part of which coalesce to form hamlets (fig. 68).

The Northern Scarp of Ranchi Plateau

Unlike the girdle of the North Koel valley this area does not represent a transition from one extreme type to another. It appears like a wedge thrown into the area of marked agglomeration. It is encircled on north, east and south by the areas of clustered type of settlements. In the north, it communicates with the scarped slopes of the *Pat* region where the settlements are highly dispersed. Approaching from north (fig. 102), therefore, the area registers an improvement in living conditions and strengthening of the forces of agglomeration. On the other hand, if approached from the remaining three sides, the area spells a deterioration in the conditions of agglomeration. It is an area of difficult terrain. The surface is hilly and dissected. Slopes are steep and prohibitive, for the most part, for an extensive occupation of land. Forest commands a very high percentage of land. All these factors strongly favour a complete dispersal of settlements. But for the fact that through this area passed important historical routes of migration and trade the area has been thoroughly explored. The area functioned as a buffer zone between Chero's Kingdom of Palamau and the Chotanagpur Raj of Ranchi, and between tribal south and the non-tribal north. The history of this region has been much more eventful than that of the other hilly areas. Consequently, in spite of the unfavourable physical conditions, the settlements developed nucleations in the midst of dispersed huts (figs. 91 & 99).

The Hazaribagh Girdle

The northern part of the girdle includes the Northern Edge of the Plateau, the western part comprises the dissected slopes of Chatra and Hazaribagh plateaus, and the southern section covers the hilly forested slopes between the Hazaribagh plateau and the Damodar valley (fig. 102).

In the northern section, the physical conditions are highly unfavourable for any sort of nucleation. Nucleation in this area is an exotic form and an inert phenomenon produced and sustained by the living habits of the people and by the proximity to the Ganga Plain.

The western sector marks a gradual deterioration in the plateau habitat that fostered agglomeration. Though the slopes are not exactly

scarped, the ruggedness of the surface and the steepness of the slopes are enough to disintegrate clusters into hamlets and huts.

The southern section includes the deeply eroded surface of the Hazaribagh plateau. The slopes are steep, rocky and forested. The whole area spells a sense of desolation. But there are well-watered valleys with patches of fertile soils which have favoured intensive occupance. In such conditions the huts have collected to form open-clusters and hamlets. Elsewhere, the huts are sprinkled in haphazard manner.

The Kodarma Plateau and the Bhagalpur Section of the Fringe Zone

East of Kodarma-Domchanch line, though the general level continues to be the same, dissection of the surface and local relief become more prominent. This section of the Plateau forms the head-stream of the major tributaries of the Barakar and Sakari. The density of streams is, therefore, higher and interflaves are smaller. Besides, the density of population is low. This makes the settlements suffer from stunted growth. Consequently, the clusters fail to grow beyond the size of hamlets. On the other hand, the strong deglomerating forces wean away some of the constituents and get them located apart.

This tendency of limited nucleation in the midst of dispersed settlements is traceable over a very wide area. In the south, however, it abruptly stops along the Barakar river beyond which the settlements attain a very high degree of dispersal. In the north, the tendency continues across the Northern Edge to the Moghyr-Bhagalpur section of the Fringe Zone (fig. 102). East of the Kiul river, the characteristics of the alluvial plain disappears. The surface changes into dissected upland that slopes away from the high Kodarma plateau to the Ganga Plain. The settlements in the Fringe Zone continue to be agglomerated upto the Kiul river. East of the Kiul, the clusters begin to disintegrate into hamlets and huts (fig. 78). Further east, as the border of Bhagalpur is approached, the dissection of surface increases and slope steepens further. The tendency of dispersal becomes stronger and hamlets and huts often disintegrate into open-clusters and random aprinklings. The picture changes as the Chandan valley is approached. The heights are reduced to the minimum and the plateau surface changes into alluvial plain. The tendency of agglomeration grows stronger. Hamlets become more frequent and, often, grow to the size of compact clusters.

In that part of Kodarma plateau which lies east of Giridih, the settlements present a very complex picture. Complexity is so high that even within a small area all cases of grouping and dispersal may be discernible.

The hilly, dissected surface, extensive forest-cover, higher density of streams, thin soil-cover, all lead towards a higher degree of dispersal. This section of the plateau is, however, surrounded, particularly on north, west and south by such areas where the settlements are largely agglomerated. The population is mostly non-tribal migrated from the adjoining plains. Thus the intrinsic condition and factors of space-relationship pull in different directions. The settlements have, consequently, adopted a middle course. They tend to group into hamlets in the midst of scattered dwellings. The ratio between the hamlets and dispersed huts is not a fixed one. The number and frequency of hamlets vary in accordance with the local conditions. It is not uncommon, therefore, to demarcate small areas where the settlements may be completely dispersed. Similarly, cases are noticable in which the hamlets and huts have coalesced to form big clusters.

The tendency of limited agglomeration within a state of wide dispersal continues further east towards the Barnar and Chandan valleys. This section of the Plateau consists of the Ajay-Kiul-Chandan divide. The divide has been eroded to a much lower level and in part, forms the Deoghar 'erosional depression'. Dissection is higher. Extensive areas are ravined which are highly inhospitable for settlements. Though the general level is low, local relief is bold enough. Consequently, the tendency of dispersal is much higher than that of agglomeration. In the Deoghar 'erosional depression', the surface conditions are not so unfavourable for a higher order of agglomeration, but the presence of such factors as a higher amount of rainfall, intensive patches of forest, numerous residual hills, heterogeneous population, tank-culture and other influences of Bengal do not favour a higher degree of agglomeration. Consequently, the settlements in each *mauza* have one or more nucleation points where hamlets have sprung up while in the rest of the space huts are seen located separately (fig. 78).

In the eastern part of the Deoghar depression and on the Ajay-Chandan divide, the settlements betray a tendency towards elongation. The distantly located huts and hamlets often align to form linear settlements. But, on the whole, the elongating tendency is weak and linear character is subdued and dissipated (fig. 80).

The Ranchi Scarps

The upper slopes of the eastern and southern scarps of the Ranchi plateau form the longest belt of the transition type of settlements (fig. 43). The belt, hardly 10 to 15 miles wide, encloses the areas of compact settlements on the Ranchi plateau. The belt is divisible

into three parts. They are the eastern section from the Damodar valley to the Kanchi valley, the south-eastern section from the Kanchi to the Deo Nadi (a tributary to the South Koel), and the southern section that stretches from the Deo Nadi to the Madhya Pradesh border along the Orissa border.

The eastern section appears as an arm of relative dispersal penetrating into the area of compact settlements. In this section are included the 'morvan' slopes and the scarped face of the plateau. Over the 'morvan' is located the Suvarnarekha valley. The surface, for the most part, is rocky and forested, but the slopes are relatively gentle. The settlements are largely dispersed but frequently group into hamlets and open-clusters (fig. 94). There are numerous basin-like features and sufficiently wide valleys that favour agglomeration on a small scale. The 'morvan' slope functions as a foot-board between the Purulia plain and the Ranchi plateau. The alignment of all the important roads and railways that connect Ranchi with places located on the 1000-foot surface runs across the 'morvan' country.

In the south-eastern section of the belt the settlements consist of hamlets and huts, but their grouping is a bit different (fig. 95). The settlements are confined to the forest-clearings. The huts are grouped in a relatively small portion of the clearings. Most of the clearings contain settlements. The number of clearings per *Mauza* varies from one to more than 20. The villages located in these clearings generally consist of at least one compact unit (i. e., the hamlet) and a few huts located in the close proximity of the hamlet. The hamlet, in most cases, represents parent settlements. The dwellings of the *Munda* (village Chief) and the *Pahan* are always located within the hamlets.

In this section of the belt that comprises the margins of the Ranchi plateau and the scarped slopes, physical conditions are opposed, to agglomeration even on a small scale. Steep slopes, rocky surface, thick extensive forests, fine texture of drainage and heavy rainfall, are all unfavourable to agglomeration. Besides, this has been one of the most secluded, inaccessible, undisturbed parts of the Ranchi plateau. The agglomeration, therefore, appears attributable mainly to the living habit of the settlers and the process of occupancy. The area is inhabited mostly by the Mundas. Settlements in this part of the plateau are comparatively of recent origin. The Mundas on being evacuated rather forcibly from their original home in the western part of the Ranchi plateau, migrated in bulk to this area. Generally the migrant bands consisted of the entire village community. When

they choiced a site for their new home. the entire community settled down. The process of settling down was largely in the manner of transplanting old uprooted villages from the forsaken territory to the new area. The new settlements become, for the most part, a replica of the old ones and preserved most of their characteristics and organizations. Thus, efforts were made to group houses into clusters, but the physical conditions prevailing in this area prevented congregation beyond a certain limit. This forced the old village community to break into sections along the lines of social cleavage, e. g , family, sept or professions. Each one of the separated sections built houses on different spots but within a close proximity. Subsequent settlers who did not enjoy the privilege of the original settlers built their houses individually in the extra-space available. Subsequent settlements became, therefore, highly dispersed.

The southern section that includes parts of the South Koel and Shankh basin presents a most diverse surface. Generally speaking, this is a hilly forested country, but in between the hills are numerous well-watered fertile vallbys of varying slopes and dimensions. Besides, there are numerous flat-topped lands which still preserve their original level of the Ranchi plateau. The social factors of agglomeration, e. g., the tribal organization and clan solidarity hold good here also. Consequently, the settlements have tended to group into hamlets wherever the sites permitted. The intervening spaces between hamlets are mostly of hilly and forested nature and have favoured complete dispersal (fig. 74). On the whole, the area represents a deterioration of the plateau habitat which led to the dispersal of settlements on a higher scale than in the middle part of the Sankh basin.

The South Koel-Sanjay Valley

The valley is broad and open. The surface is covered with thick alluvium. Numerous streams descending from the hills of Porahat and Saranda branch off and pose the problem of inundation. The villages in this valley are, therefore, mostly dry-point settlements. Such sites are limited in number as well as in extent. The limited number leads towards agglomeration whereas the limited size leads towards dispersal. Besides, the valley is not entirely free from the influence of the forest environment. Consequently, the tone of dispersal is higher and the settlements consist of hamlets and scattered huts. (fig. 102)

RURAL MORPHOLOGY

MEANING

The term 'rural morphology' has a very wide connotation. It may be interpreted as the study of the forms of rural settlements. 'Form' is again a comprehensive term. It relates to anything and everything from general appearance to the details of inner structure. Rural morphology has two broad aspects and the morphological study can be approached in two principal ways. Such morphological aspects as refer to grouping, cohesion and compactness of settlements are termed morphological types. The morphological types have been paraphrased into settlement types. Settlement types have been discussed in the previous chapters where attempts have been made to analyse and interpret the nature and size of grouping, the degree of cohesion and the amount of compactness vis-a-vis the processes and causes of evolution of the various groupings.

The degree of cohesion and compactness attributes recognizable identity to the group of settlements. Such group or collective units of settlements are termed villages. As the villages vary in their nature and size of grouping and the degree of compactness, they vary in their physical appearance too. All such villages acquire some definite, observable forms which can be measured, recognized and expressed in definite terms. The apparent form of a village may be interpreted to mean the general outline, the external shape of the agglomeration, the physical frame or the geometrical perimeter in which the settlements are grouped or the shape of the spatial fragment involved. On the other hand, it refers to the skeletal design or pattern of settlements and their grouping. It concerns itself with the ground plan or the layout of villages, the inner structure or the internal arrangements of the various constituents of a village in relation to one another and in relation to the space involved. It may be paraphrased as to mean simply the external shape of the cluster and the internal arrangement of dwellings and lanes. The latter is the expression of the relationship between built-up and unbuilt-up areas. These aspects of the rural morphology have been termed 'village pattern' by certain authors¹. In such studies, two aspects of the pattern have been

1. Ahmad, E., Ph. D. Thesis, London, 1949, pp.133-150; Also, Idem, 'Indian Village Patterns', G.O., vol. III, 1962, pp.5-15.

emphasized, the external and the internal. 'External' pattern means the outline or the external shape of the cluster. 'Internal' pattern is understood as the layout of the villages. As village is a restrictive term which refers to only the named group of settlements in the present text, the term village pattern also becomes restrictive in its connotation and application. It naturally leads to suggest that "only the compact settlements on account of the aggregation of dwellings and resultant lanes, are susceptible to a study of pattern"². Though it is generally true to say that only compact settlements are amenable to such study which deals with external shape and layout, the possibility of bringing other types of settlements under the morphological study cannot be ruled out. There, are in Chotanagpur, for example, such settlements as open-clusters and linear villages which are essentially not agglomerated, nucleated, compact clusters, but they do acquire a form and appearance in their physical setting; and they bear a definite relationship with the space involved. Even these types of settlements are, therefore, amenable to a detailed morphological study.

Constituents of Rural Morphology

The rural morphology is composed of a number of natural and man made features. The natural features are such as have been assimilated or incorporated within the bounds of settlements and still preserve some of their inherent natural characteristics. In such thickly populated parts of the country e. g., the Ganga Plain, hardly anything natural has been left out in the rural morphology. Every bit of land is cultivated and forms part of the cultural surface. The various plants and trees within the village boundaries have nothing natural except their growth, for they are all planted and arranged in a way that speaks of man's dictates. Even the unbuilt areas occupied by lanes, vegetable gardens or meeting ground have hardly anything natural about them except that they constitute terrestrial fragments. The top-soils of these unbuilt areas are thoroughly altered by constant manuring and the original features of the surface are shed off by artificial leveling and regular use. The same is not true of Chotanagpur where large parts of the land have little agricultural values and have, thus, escaped the impact of human hands. The settlements are of relatively recent origin. Wilderness of nature is yet to be harnessed in full. Most of the plants and groves within and outside the villages of Chotanagpur have, unlike those in the Plains, natural and wild growth. The sacred groves of the Mundas, the Hos and the Santhals are the remnants of the primordial sal forest. Except the area occupied by dwellings, most of the village lands still preserve their natural form and

2. Ibid. p. 133.

original characteristics. The original undulations and slopes of the surface are intact even in the village lands. Quite often, the open-unbuilt spaces consist of rocky eminences which are least humanized. Streams and water-channels are untamed and, owing to the location of settlements away from the streams, the rivers still flow their natural way. Sometimes, in hilly areas when the houses are built on rocky slopes, even the court-yards display natural rocky surface. Thus, the natural elements in the rural morphology of Chotanagpur are quite abundant.

Cultural constituents of the rural morphology in Chotanagpur, because of the preponderance of natural elements, suffer from a relative inabundance. They are poor in variety and in volume. Dwellings represent the largest volume of these constituents. Unlike the rural houses in the Plain the houses in Chotanagpur villages seldom adjoin. The houses are usually contained within a plot only a part of which is built up. The plot is enclosed either by low mud-walls, by a fencing of bushy plants or by some sort of a demarcation line. Thus, between the lane and the house, there is usually a stretch of unbuilt space forming part of the homestead. The village lanes, wherever they exist are too wide to be foot-beaten. Usually, narrow footpaths, recognized by the absence of grass, thread the separating space between the rows of houses. Places of worship and rituals in these villages are, in most cases, simple natural features situated within the village boundary or close to it. Public wells and temples are scarce in Chotanagpur villages. Absence of these cultural features impoverishes the material contents of the rural morphology. The blending of natural and cultural constituents of the rural morphology of Chotanagpur is such that both the constituents often appear evenly balanced in terms of space and volume.

Generally speaking, the morphology of Chotanagpur villages consists of four principal constituents. They are the rural dwellings, the unbuilt-enclosed homestead, the space separating the rows of houses which is analogous to village lanes and the open out-skirts and the village groves. Besides, there are to be seen *akhara* (dancing ground) *sarna* (sacrificial altar) and *sasan* (burial ground) in the tribal villages. In many parts, tank forms an essential element of rural morphology and influence the layout of villages.

Factors Influencing the Rural Morphology

Villages, particularly in Chotanagpur, continue to live up to Nature. Theirs is the Nature's way, and they "are a sort of natural growth in their physical and cultural setting"¹. They do not generally possess a

1. Ahmed, E., Ph. D. Thesis, op. cit., p. 133.

well-defined shape and a well-laid internal plan as one notices in planned modern towns. Consequently, "in a large number of villages the lanes are so crooked and dwellings piled in so irregular a fashion that no pattern is discernible"¹. Such villages have a haphazard or, rather, unfettered, free growth and look like a confused assemblage of dwellings and other establishments. Nevertheless, in most of the villages "there is a considerable arrangement, both in the internal and external outlines"² the evolution of which can be traced to some definite causes. Such villages have distinct morphological patterns which can be explained and accounted for.

Physical Factors

It has been explained in previous chapters that a number of factors have influenced the evolution of the various morphological types of settlements. Some of them are such as operate on regional dimensions and influence the evolution of types from a great spatial and time distance. Others are of local nature and work in specific ways from a close distance. Generally speaking, it is the second group of factors which influence the layout of villages, their internal structure and patterning and their extensions and outlines. Among the various factors, site plays perhaps, the most important role. There appears to be an unmistakable relationship between the site and the pattern of a village. Two aspects of site, the size and general configuration, find most eloquent expressions in the layout of villages. Next in importance appears to be the surface water-form. Among the water-forms streams alone acquire universal importance in Chotanagpur. Tanks come next. In many parts, tanks are essential features of rural landscape and are, in certain cases, contained within the settlement area, but mostly they lie on the periphery of villages and influence the shape of the clusters from outside. Hills and *tongaris* are the other features which have played rather a universal role in patterning the settlements. Settlements in Chotanagpur are largely interfluvial in location and the interfluves are frequently mounted with hills and *tongaris*. As proximity to hills offers attractive sites for settlements, the shape and pattern of many villages are conspicuously influenced by hills. The influence of slopes is also quite obvious in shaping and patterning the clusters. In certain parts of the Plateau, the interfluves are usually narrow and elongated. The side-slopes of such interfluves are too steep and too short to encourage extension of villages along the shorter axes. Consequently, villages have been forced to become

1. Ahmed, L., op. cit., P. 133.

2. Ibid.

linear or oblong (figs. 78-80). In areas of higher elevations and steeper slopes where the interfluvies are usually triangular with their bases aligning with the hill-foot and apexes at the confluence points, the clusters too acquire a triangular shape (figs. 84-87). Settlements sited on tongue like hilly projections often assume a semi-circular shape. The layout in such cases correspond to the contour plan of the spur. Similarly, settlements sited on the base of an oval ridge or circular hill, acquire a full or half ring shape. In hollowed-in, cup-shaped basins or on oval or circular divides of radial streams the clusters, particularly the open-clusters, often become oval or circular in shape. In the forests where settlements are confined to small clearings, the clusters, if any, are usually oval or circular in shape that largely conforms to the outline of the clearing. On the other hand, most of the villages in hilly, dissected or forested tracts are completely amorphous without any definite shape and discernible pattern.

The influence of soil on the village pattern of Chotanagpur is indirect and inadequate. So is the influence of shape and pattern of agricultural fields. Owing to the fact that villages are mostly located on *tanrs* which are either unfit for cultivation or constitute the poorest class of cultivable land, the agricultural fields fail to impress upon the outlines and layout of villages. The considerations of soil or agricultural value of land seldom come in the way of the extension of the settlement area. Even then, in certain parts where vegetable gardening is practised rather on large scale the vegetable farms infringe upon the shape and pattern of villages. They are heavily manured and well-maintained fields and are valued very highly for vegetable farming. If such fields are located on one side of the village or in any one sector thereof, they inhibit building in that direction. This results in the distortion of the shape and the loss of symmetry.

Cultural Factors

Among the cultural features the cart-tracks and village roads appear to have exercised the greatest influence on the layout and shape of clusters. Cart-tracks have given rise to double-lined villages (*strassendorf*) over a wide area (fig. 102). Crossing and convergence of various routes have influenced the pattern of villages in various ways and have, very often, given rise to oblong, rectangular, square and multilinear or star-pattern villages.

The state of insecurity that forced the settlers to take to defensive measures resulting in the evolution of walled circular villages in more

disturbed parts of the Ganga Valley,¹ does not appear to have influenced the layout of villages in Chotanagpur to the same extent. The factors of security have, however, worked towards bringing about a higher degree of agglomeration in contact-zones and more accessible parts of the Plateau. The origin of the crooked lanes and bee-hive pattern of the Oraon and Munda villages in the western part of Ranchi District might be traced to the need of security and collective defence in the past days of tribal strife.

Ethnic solidarity and social rigidity leading to mutual intolerance and segregation have led to the sectoral growth of villages and have frequently caused fragmentation of clusters into hamlets. In both the tribal and non-tribal villages, it is not uncommon to find well-defined sectors inhabited by particular social groups. Social make-up and cultural level of the people have also influenced the patterning of the villages. The non-tribal villages have generally a more orderly arrangement of dwellings, straight symmetrical lanes and shapely appearance. The layout of non-tribal villages exhibits a subdued planning and a pre-conceived pattern of growth. The sectors in such villages are better defined and more distinctly laid down. Certain elements of the village plan of the ancient Aryans are still surviving, particularly in the northern part of the Plateau. In traditional villages, the five-fold divisions are still noticeable, though the inhabitants are very much mixed up. Similarly, the village gods and deities still occupy their traditionally fixed places in the village home-steads. In all the Hindu villages, the crossing of the two main lanes is invariably planted with a *peepal* tree beneath which lies the shrine of Brahma, the Creator. In the Silp Sutras and other ancient scriptures rules are to be found for the siting of public wells, bathing tanks, temples and other shrines. Wherever these features are found in the rural morphology, they do not fail to convey a sense of orderliness and the role of general guide-lines that they have played in the layout of the villages. Public wells and temples are so located as to offer an easy access to every villager. Temples and wells, for this reason, are usually situated at the intersections, of lanes or on the periphery of the village. Quite often, they function as focal points where upon the village lanes and paths converge. Nothing of the sort is to be seen in the tribal villages. Among the social and religious institutions only the *akhara* and *dhumkuria* (now defunct) appear to have some influence over the ground-plan of the villages. The *akhara* usually occupies the central place to which all the crooked lanes lead. The *sasan* and sacred grove generally lie outside the village and do not influence the morphology directly.

1. Ahmad, E., Thesis, op. cit., p. 136.

Morphological Patterns

The outline of the village morphology varies within a very wide range, but the internal structure exhibits only a few variations. Some of these forms are common and are of universal occurrence. The village forms admit of two broad classifications which correspond to the two major morphological types, agglomerated and dispersed. There is a plethora of forms associated with compact clusters. The dispersed villages acquire only a few external shapes. Most of the compact clusters conform to one or the other geometrical figures. The common among them are rectangle, square, circle and triangle. Rhombus, parallelogram, trapezium and polygons are also represented. In addition to the geometrical figures, the clusters acquire a many forms which resemble Roman alphabets. Alphabetical forms are particularly noticeable in the areas of linear settlements. Sometimes, the clusters have shapes that bear similarity with well-known figures and forms of the articles of daily-domestic use.

Rectangular Villages (fig. 103)

Rectangular is the most common form of villages in all the areas where the settlements are agglomerated and compact. Rectangular villages fall within two main categories. Villages which are rectangular both in external outline and in the inner arrangement of lanes and houses, fall within the first category. The second category includes such villages as are rectangular only in their outline, but do not conform to any rectangular plan in their inner morphology. Besides, there are a large number of villages which do not have a perfect rectangular pattern, but largely conform to it.

Rectangular form, in the first place, appears related to the nature of terrain and the physical characteristics of sites. Wherever the surface is relatively level and the agricultural conditions are uniform, the land is parcelled out into rectangular or square *mauzas*. Compact villages, occupying a part of the *mauza* and generally located at the centre of it, form, as it were, an inner rectangle. A very obvious relationship is discernible between the shape of villages and the shape of the cultivated fields which surround the villages. This is particularly true of the adjoining parts of the Ganga Plain in the north. The measure of land in this part of the country is *bigha*, which is a square unit. The square measurement of land has led to the evolution of similar pattern of fields. Almost all the fields are rectangular in shape, and their boundry lines roughly run north-south and east-west. Villages, paths and cart-tracks sited on the field-bunds conform to the field pattern. A rectangular

plot is easier to design and measure. 'Such a plot means least strain on bullocks in plough-turning. In rural set-up where everything is made subservient to cultivation, the tendency is not to disturb the ploughable shape of the most fertile fields adjacent to dwellings. This accounts to a great extent, for the common rectangular form of the villages.'

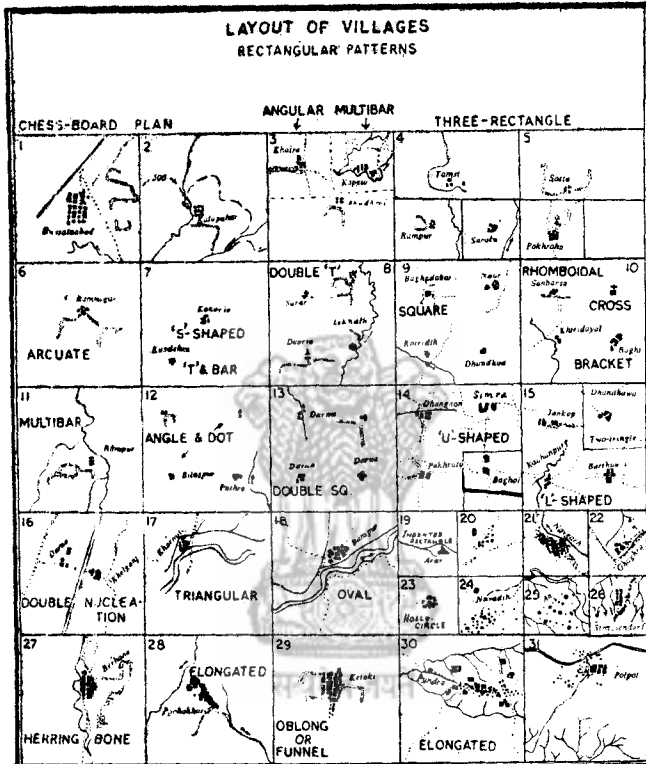


Fig. 103

Rectangle and square are some of the most symmetrical figures perfected by human genius. With the Aryans who developed a sound knowledge of geometry at the dawn of civilization, rectangle and square appear to be the most favoured figures. A good many things of the Aryan culture are rectangular or square in shape. Brahma or the Creator is *Chaturanan* or four-mouthed. This leads to the ideas of four-cornered universe. The Vedic *Mandap* (canopy), shrines, *Havankund* (fire-pit for rituals) and *Kshetras* (territories) are all square in shape. The Aryan houses are four-cornered, four-walled and rectangular structures. Rectangular villages, thus, appear to have been a heritage of the past. In the *Slip Sutras* and other ancient treatises on sculpture numerous village

plans have been detailed. Most of these plans are rectangular or square in shape.¹ In the Mansar references have been made to eight common plans of villages all of which are rectangular. Numerous plans of the Aryan villages and towns discussed by Kautilya contain four principal gates dedicated to four principal gods.² The Aryan settlers were conscious of orienting not only their houses, lanes and villages to the four cardinal points of the compass but also took care to pattern even the inner details accordingly. As each direction was supposed to be presided over by a deity it was but natural for them to lay down clearly and distinctly the four sides of the houses and the villages. In the Kautilya Arthashastra rectangular plans have been given even for defence villages, military camps, fortresses and capital towns.³ Thus even where settlements were required to be defence-oriented it was not obligatory to have a circular plan.

A rectangular plan is easier to design, achieve and maintain. Expansion of a rectangular village, either on one or on all sides is not likely to distort the original shape. 'In such a frame maximum clustering within minimum of space is facilitated'.⁴ In a compact village, the dwellings are built adjacent to one another. The grouping of dwellings which are rectangular ultimately leads to the evolution of rectangular villages. There is something instinctive about a rectangular plan. Human body when lying prostrate occupies a rectangular piece of land. This, perhaps, led to conceive the idea of designing rectangular beds, sleeping rooms and houses. Every movement in our daily life is expressed and understood with reference to the cardinal points of the compass. It is, therefore, one of the basic urges of man to refer the position of his house, lane and door to the cardinal points of the compass. In almost all the communities, there are certain commonly accepted rules to place one's body while sleeping. Among the Hindus, it is believed to be inauspicious and irreligious to lay one's head in the north. Hence, if the walls are aligned with the four cardinal points, it will be easier to decide which way and where to lay one's head. Superstition also helped the villages develop rectangular shape. North-south elongation of a house and courtyard is preferred. An east-west elongation is believed to be highly inauspicious and is avoided. This naturally facilitates the

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1. Havell, E.B., *The History of the Aryan Rule In India*, London, 1915, p. 26.
 2. The eastern gate was dedicated to Brahma, southern to Indra, (the Sun at noon) western to Yama (Lord of Death or to the setting Sun) and northern to Kartikey (the War Lord) Kautilya's Arthashastra, *op. cit.*, pp. 45-48 and Havell, E.B., *op. cit.*, p. 27.
 3. Kautilya's Arthashastra, *op. cit.*, pp. 45-54.
 4. Ahmed, E., *Thesis, op. cit.* p. 135.

north-south elongation which converted many square villages into rectangular ones.

There are, as stated earlier, two aspects of a rectangular village plan, the external and the internal. The external plan refers to the rectangular outline of the villages. Internal plan refers to the arrangement of buildings and lanes. Generally, the inner arrangement of lanes and houses in a rectangular village corresponds to the external form. In a large number of rectangular villages, the lanes are, however, crooked and houses are haphazardly placed. In such villages the outer form may be rectangular but the inner pattern is irregular.

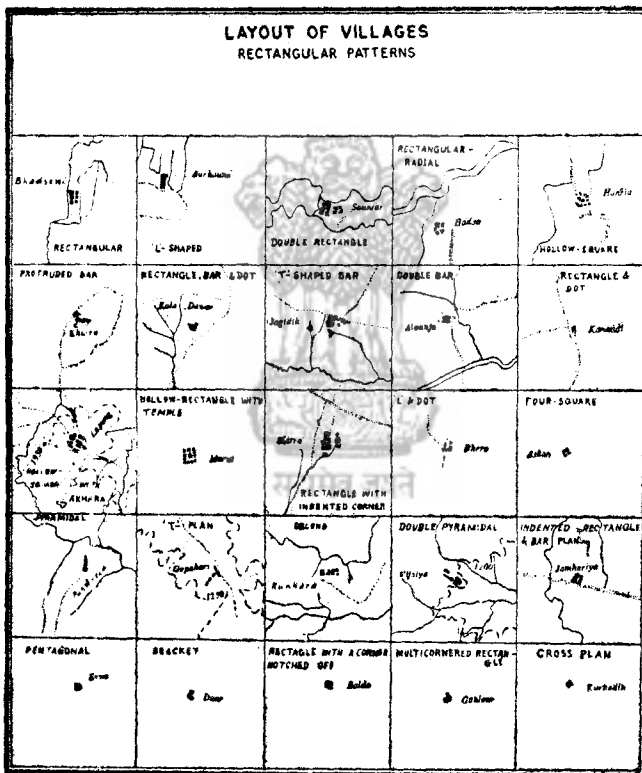


Fig. 103

Checkerboard Plan (fig. 104)

In some of the large rectangular villages the layout assumes checker board or rough grid-iron plan. The village morphology is composed of a number of rectangular blocks, separated by parallel lanes running north-south and east-west and cutting one another at right angles. Several factors have helped the evolution of a grid plan.

In large villages, to facilitate the movement of population and agricultural commodities, a large number of lanes are required. The principal lanes are usually the continuation of the village cart-tracks. Further expansion of the village results in the development of blocks, *tolas* or sectors. These sectors are kept lane-apart from the old settlements. As the walls of the rectangular houses are made corresponding to the alignment of the pre-existing walls on the other side of the lanes, the lanes become straight, symmetrical and parallel. The demography of a large village generally consists of a number of social, economic and religious groups. The tendency among the members of a particular group or caste is to live together in a separate demarcated sector. Such sectors get laterally arranged and separated from one another by longitudinal and cross lanes. A grid plan with numerous cross-lanes facilitates accessibility to various points of importance in the village morphology, e. g., wells, tanks, temples, and shops etc. In many cases, it appears that the importance and attraction of such public places have been responsible for the multiplication of lanes and cross-lanes and have, ultimately, led to the evolution of grid-plans.

Pseudo-grid Plan (figs. 101 & 104)

In many parts of Chotanagpur, villages appear to have acquired pseudo-morphology. The apparent grid-plan of villages in such areas is actually the product of a lesser degree of compactness. In favourable situations and on suitable sites the dwellings, even in the areas of relatively high dispersal, come closer to form open, loose clusters. In these clusters all the houses are separately located but they usually convey a sense of alignment and areal arrangement. Consequently, many open clusters appear on the map as having grid-plan. In the areas of linear settlements, particularly in the Chaibasa plain and the Suvarnarekha valley, the parallel lines of houses come, sometimes, very close and the intervening space between various rows is reduced to lane-size. Such multi-linear villages with individual dwellings separated by linear strips of land appear on the map as checkerboard villages.

Square Villages (fig. 104)

Square villages are less frequent than rectangular villages. They appear to be the result of some limiting factors that restrict the elongation of villages.¹ Quite often, square villages are bounded by such restrictive features as water-lines, tanks, or groves. Most of the square villages are located at the intersection of village-roads or cart-tracks.

1. Ahmad, E., Ph. D. Thesis, op. cit., p. 137.

The morphology of such villages is usually divided into four parts, each one of them appearing as a separate square.

With the growth of population and the expansion of the villages square is generally converted into rectangle or polygon.

Forms related to rectangle and square (figs. 103 & 104)

A large number of villages have such plans as do not conform either to a rectangle or to a square. The plan is composed of the variants of rectangles and squares. The most common among these variants are the 'L'-shaped villages.¹ Such a plan is composed of two rectangular blocks meeting at right angle. The area enclosed by the two blocks generally consists of *bari* land which is very highly valued for vegetable gardening and other agricultural purposes. Often, a tank, well or temple is seen located in this enclosed piece of land. Sometimes, two rectangular blocks meet a third one at right angles. If they meet on the same side, they often impart an 'F' or bracket shape to the village plan, but if they meet from opposite sides, the resulted forms correspond to natural or inverted 'S' (fig. 104). A common variation of rectangle is to be noticed in the step-like indentations in the village outline. In such villages two sides of the rectangle are straight and continuous while the third and fourth are indented to form step-like features in the ground plan. The indentations are occupied generally by agricultural lands and occasionally by wells, tanks and temples. A large number of villages consist of a single rectangular block which looks like a bar on the map. Sometimes, at one end of this bar a single house might be seen located a bit away from the main village. Such villages acquire a shape which resembles the letter 'i' of the Roman alphabet. Single or multiple-bar morphology is quite frequently noticed in such areas of agglomeration which have an appreciable amount of ruggedness in the surface, a relatively thin population and small-sized villages. Various combinations of two or more rectangular bar-like blocks have imparted a variety of shapes to the village morphology. Some of these villages conform, in their outline, to such letters as 'T', 'E', 'F', 'C', 'H' and 'S'. 'T'-shaped villages are usually the product of site factor. They are seen at such places where two linear features attracting the settlements meet at right angle but do not intersect each other. Such features are river-bank and road, elongated spur and a foot-line path or a triangular interfluvial with relatively broad-base and short length. The villages located on the triangular interfluvial rises, usually acquire 'L' or 'T' shape. The vertical limb of 'L' coincides with the longer axis while the horizontal with the

1. Ahmad, E., Ph. D. Thesis, op. cit., p. 141.

shorter one of the triangular interfluvium. If the base is broad enough to facilitate the location of houses along its entire length the 'L' is converted into 'T'. Several villages in the areas of predominantly rectangular plan look like a rhombus or spearhead in their outline (fig. 104). Rhomboidal and spearhead shapes appear to have resulted from the elongation of square and rectangle along one of the diagonals.

Hollow-Centre Village Plan (Hynkdorf)

A large number of villages, particularly in the Northern Fringe Zone and Palamau have a morphology which is hollow from within. The hollow represents partially or wholly unbuilt space in the heart of the village. This open space assumes various shapes, but frequently it is either circular or square. The hollow space appears to have various origin. In certain villages, a temple, a mosque, a tank or a public well might be seen in the central open area. In others, the open space functions as a meeting ground or fair or market place. In tribal villages the open spaces are generally the sites of *akhara*. In Hindu villages a *peepal* tree is usually planted in the open space beneath which is situated the shrine of Brahma. Here, in olden days, the village council was to meet to deliver justice and all concerned were to take oath by Brahma. Sometimes, mound or a rocky exposure may be seen occupying the central unbuilt space. In the areas of old settlements, the mounds are usually the remains of the houses of some ancient chiefs or landlords. Sometimes, the unbuilt space is occupied by ponds of irregular shapes. These ponds have probably resulted from the age-long excavation of the earth for building houses¹. In almost all cases the open space serves as the central place for the village community and is the point of convergence in the village morphology. Generally, the two principal lanes crossing each other pass through this open area. If a temple is situated in the central area the lanes take a swing and usually form a girdle around the temple. Similarly, if there is a tank the lanes are sited on the elevated banks of the tank.

Cross-shaped Villages (figs. 103 & 104)

Cross-plan villages are quite frequent and are seen in all such parts of the Plateau where the settlements are relatively agglomerated. Cross-plan is more common in the areas of linear settlements. Cross-shaped villages are generally found at the intersections of village roads or cart-tracks. The vacant spaces in between the cross-bars are generally given to cultivation. Sometimes, they are occupied by wells, tanks, temples

1. Ahmad, E., Ph. D. Thesis, op. cit., p. 138.

and groves. At a few places the cross has given rise to ideal *Swastika* plan. In a *Swastika* plan two rectangular bars intersect each other at right angles and four small bars join perpendicularly the ends of the intersecting bar in a clock-wise fashion.

A large number of villages have four-square plan (fig. 103). Two cart-tracks intersecting each other divide the village morphology into four perfect squares put together. There are such villages also which have three or two-square plan. In a three-square plan the space of the fourth square is often occupied by a well, tank or temple, but, quite often, it is just a vacant space without any construction.

A large number of small square-villages have such a plan that appears to have a corner notched off. In this notched-off corner, sometimes, an isolated house might be seen located and the village plan looks like an angle with a dot inside.

Elongated, Oblong and Linear Villages (figs. 100 & 101)

Elongation is a general characteristic of the grouping of settlements in this region. Elongation is noticeable both with agglomerated and dispersed settlements. In the areas of agglomeration, elongated village is just a variant of rectangular plan. When a rectangular village gets elongated, it becomes oblong. In such villages one of the axes is markedly longer than the other. "This is mostly due to the influence of the site. Natural or cultural features in the site are such as have either restricted the growth of the village in some directions or fostered its extension in others".¹ Oblong villages are generally seen along some important roads where the road serves as the main street of the village. In addition to roads, river-banks, canals, tank-sides, foot-lines of hills and long narrow interfluves also act as elongating factors. Such natural or cultural features have led to the elongation of villages in all parts of Chotanagpur.

Elongation is particularly noticeable in the areas of linear villages. Here, individual houses get aligned with cart-tracks and form two parallel rows of houses. Through the parallel rows passes the cart-track. The double-row villages, characteristic of the districts of Singhbhum and Santhal Parganas, represent the ideal cases of 'strassendorf.' Some of them are more than a mile in length. The ground plan of the linear villages conforms to the elongating features. Quite often, two or three such features, particularly cart-tracks converge at a point or meet each other at right-angles. At such places the linear villages assume a number

1. Ahmad, E., Pl., D. Thesis, op. cit., p.138.

of shapes resembling 'L', 'J', 'V', 'Y', 'U', 'C', 'O' etc. of the Roman alphabets (figs. 101 & 102). Sometimes, more than two rows of houses close up laterally and the village morphology becomes multi-linear. At a few places several lines of huts come closer towards one direction and appear as converging at a distant point. In such situations the village morphology usually assumes the shape of a triangle formed by convergent lines. On the map, such villages look like a maize-cob with individual aligned huts resembling the line of corn on the cob.

Double-Villages (Dopple-dorfer)

The morphology of a large number of villages has double-nucleation. Double villages are invariably the product of site factor. Two considerations lead to the duplication of villages, or for that matter, splitting-off of the village morphology into two. They are the paucity of contiguous building-space at any one point and the presence of physical obstacles that separate the village morphology. Stream, pond, bund, canal, road, railway, village boundaries are the common separating features. Most of the double-villages are located on the two banks of a river. Apart from the paucity of space on one bank, the principle of the maximum utilization of the river-side location has been operative in the siting of settlements on both the banks. The same principle is involved in the sites of twin-villages on two sides of a pond, tank or lake. The role of physical obstacles in the evolution of village morphology is quite important. Obstacles, even of small dimensions, e.g., rivulets, mounds, *tongaris* or elongated depressions prove too strong to be done away with and effect division and fragmentation of the village morphology. This results in double or multiple nucleation. Multiple nucleation is a feature of dispersal and is frequently associated with cluster-cum-hamlet and hamletted types of settlements.

A large number of double-villages represent the phenomena that are subsequent to the construction of roads and railways. When the alignment of a road keeps off an old village by a furlong or two, the non-agricultural population of the village, particularly the tradesmen and confectioners are tempted to move to the roadside where they put a few stalls and shops. The shops are followed by the construction of residential houses of the business class. Subsequently, other people having the fancy for immediate contact with the road or nearness to the market place, move to the roadside. All such constructions ultimately develop into a new agglomeration which, in the beginning, remains subsidiary to the old village but gradually, by acquiring importance and growing in size, becomes even more important and, in many cases, larger than the

parent village. The railways have, more frequently than the roads, created double nucleation. Unlike a road, a railway cannot afford to swing every then and now to pass through important villages, even if they are to be railway stations. Owing to the rigid attitude towards alignment, a large number of rural railway stations are located at a distance between a furlong and two miles from the villages whose name they bear. The construction of residential quarters for the working staff becomes necessary. This is followed by the erection of a few stalls dealing in betels, cigarettes, tea, light refreshments and confectioneries. All these grow into a small agglomeration subsidiary to the parent village.

Polygonal Villages

A large number of clusters have polygonal shape. Their outer form is commonly pentagonal, hexagonal and octagonal—"a form intermediate between the circular and rectangular".¹ Polygonal, next to the rectangular, has perhaps the largest representation and in all probability, it is 'genetically allied to the latter'. Seldom a village has had planned development. The villages have natural growth prompted by their growing population and the nature of the physical terrain. If the available space at a particular place is limited, the subsequent expansion of settlements accommodate itself in whatever space is available. This results in the distortion of shape. Consequently, a square or rectangle is converted into a polygon. Distortion of shape follows from the presence of physical obstacles also. The outer form of the village generally conforms to the shape of the site which may be bounded by such features as rivers, tanks, groves, mounds and hillocks. These features might have been on the periphery lying a bit off from the first founded village, but the subsequent expansion of settlements brought the village boundary close to them. As the village could not grow to a size to incorporate these physical features in the village morphology, the expansions were largely contained in the space available inbetween the bounding features. Such a restricted growth led to the evolution of polygonal morphological outline.

Irregular Morphological Patterns

The haphazard and unplanned growth of settlements is better illustrated by such villages which have ill-defined, indefinite and non-descript irregular morphological features. Their outlines do not conform to any recognizable shape. Their inner patterning is irregular, complex and

1. Ahmad, E., op. cit., p. 143.

clumsy. Lanes are crooked, sinuous and blind and do not bear any distinct relationship with the distribution of houses and other features. Such a village, commonly seen in the areas of old settlements of compact clusters, appears to be "an irregular pile of houses huddled together in such a way that no internal plan or external form is discernible".¹

Less Common Forms of Villages (fig. 104)

Fan Plan : Such villages as are situated on the one side of a focal point frequently assume a fan-shape. The external form is generally semicircular or triangular; the alignment of lanes is convergent at the focal point and the layout is radial. The focal points are usually a river-bend, a tank, a road terminus or a road turning.

Triangular Village : A large number of villages appear to have triangular shape. Triangular shape, though common to compact and loose clusters, is more frequently noticeable in the areas of linear settlements. The external form of the triangular villages resembles that of the fan-shaped villages but the internal plan differs widely. In the areas of compact settlements some of the triangular villages have rectangular inner plan. Triangular shape in such cases is generally attributable to some restrictive factors present in the site which prevented the completion of square or rectangle. Some of the triangle-shaped villages are the overgrowth of the 'T'-shaped villages, particularly when the two sides of 'T' align with equally important linear features. In such triangular villages three bounding lanes along with one more running perpendicular from the apex to the base, are seen. Some of the triangular villages are sited on the triangular interfluvial tracts. The base of such triangular villages lies upstream while the apex points towards the confluence.

Circular Villages : Circular villages are generally missing from the lowlying areas and plains which are the habitat of compact clusters. On the other hand, they are frequently met with in the areas of relative dispersal, particularly in the areas of open-loose clusters. The loose clustering of individual dwellings in the hilly forested areas often acquire circular outline. The circular form of these villages is attributable to the nature of terrain and the shape of the site. The divides and spurs are among the favourite sites of settlements in the hilly and forested tracts. Small tributaries often assume radial pattern and the divides thereof become more or less a circular piece of land. On such sites, the settlements generally form loose clusters and in conformity with the shape of the site, the clusters acquire a circular form.

1. Ahmad, E., Ph. D. Thesis, op cit., p.145.

A few circular villages are noticeable in the areas of compact settlements also, particularly in the Northern Fringe Zone. The lanes of these circular villages are generally crooked and the dwellings are haphazardly piled up. They appear to be very old villages, but evidences of fortification or defensive circular walls are not available. The circular form appears related to the characteristics of sites and the processes of evolution. Because of their long age most of the villages have been built and rebuilt several times. In this process the lanes have become crooked, narrow and tortuous. With the loss of inner planning and symmetry, little urge was felt to maintain the other symmetrical form. As the Fringe Zone constitutes the contact-zone between the Ganga Plain and the Chotanagpur Plateau, the possibility of some defensive impulses behind the planning of circular villages cannot be ruled out.

A large number of clusters have oval shape. Oval-shaped clusters are frequently located on elongated divides through which pass cart-tracks and country roads. The oval villages represent a variant of circular villages which have been a bit elongated along the longer axis of the divides and the cart-tracks.

Ring and 'U'-shaped Villages : An interesting development of village morphology into ring, 'C' or 'U' shapes is frequently marked in all such areas where hills, *tongaris* and arched or circular water-forms are widely distributed. Such villages are found in the areas of both compact and loose clusters. Perfection of the ring depends entirely upon the contour plan of the hillock. If the *tongaris* are small and circular, the dwellings toe the foot-line on all sides and a perfect ring-shaped village develops. If the hillock has an elongated base, the circular ring changes into an oval one; but if the hillock is too long, the settlements form a crescent around one end of the hill and the morphology assumes 'U' or 'C' or 'J' shapes (figs. 100, 101 & 104).

Arcuate or Crescent-Shaped Villages : In the areas of marked dispersal the individual dwellings usually tend to align with some linear features, even if the dwellings are located a bit too apart. Sometimes in the centre of the crescent a few isolated huts may get located and the village plan may assume a crescent-and-star shape. The alignments of settlements in the hilly areas generally conforms to the contour plan. The distributional pattern of settlements, particularly of those which are located on the hilly spurs, usually acquire arcuate shape (figs. 100 & 104).

Funnel-Shaped Villages : A number of villages acquire a shape which is allied to triangle and looks like a funnel. Funnel-shaped villages, generally develop at places where, as it were, traffic gravitating

along more than one line collects at a point and is siphoned out through rather a narrow channel. Below this line of convergence, the settlements become narrow and linear and resemble the tube while the broad triangular part above the point of collection conforms to the cup of the funnel.

At places, due to the presence of some restrictive features the tube of the funnel does not grow, but, on the other hand, the settlements spray out along the converging lines of communication.

Two-wayed Comb or Herring-bone Pattern Villages : The layout of a few villages conforms to what is called herring-bone or comb pattern. In such a pattern a broad street is seen running across the entire length of the village. The main street is usually the part of a country or trunk road. A number of short lanes meet the main street from either sides. The short lanes appear like ribs or comb-teeth attached to the spinal ridge. Inbetween the lanes lie the blocks of built-up areas. Herring-bone pattern is related to 'strassendorf' and its development is attributable to special circumstances obtaining at the village sites. The pull of the road may not be so strong as to string all the dwellings along the road-side in a linear form. In addition to the road, there may be some other linear features on either side of the road. Such features are usually a river, a canal, a tank, or an *ahar*. In response to the attractions of the supplementary linear features lateral expansion of the village takes place. This converts 'strassendorf' into herring-bone pattern.

The pattern has ideal development in the village Barhana (fig. 104). The village site is bounded on two sides by a river and a canal. Between the two water-lines passes a road that serves as the main street on the village. The village is elongated along the main street. The attractions of the water-front have acted in a different way and have made the settlements expand towards the water-line. This necessitated the designing of lanes at cross with the main street. The shorter lanes serve as approaches to the main street for the people who are living on the periphery, and approaches to the water-line for those who live on the main street, for, both the main street which is a road and the water-lines are equally important for all the villagers. It is the competitive attractions of the road and the water-lines that finally led to the evolution of this comb-pattern morphology.

Feather-Shaped Villages : In the areas of marked dispersal individual huts get distributed and arranged in such a manner as they appear like a trail of houses which tapers in one direction (figs. 100 & 101). Such villages with a tapering end and forming a very loose cluster resemble in

their ground plan; a filament or a feather. Smaller settlements become linear and serpentine in shape.

Regional Distribution of Village Patterns

While examining the morphological patterns of villages, type areas of their occurrence have incidently been mentioned, but the areal distribution of various patterns is yet to be discussed. The delimitation of areas or regions of morphological patterns is difficult. This is because of several reasons. A large number of morphological patterns occur in close association and are thoroughly mixed up. Some of the village patterns are uncommon and of rare occurrence, and cannot be traced over any sizable area to be delimited. Contrarily, a few forms are quite common and are almost of universal occurrence. It is precisely these facts of the distribution of village patterns that render the task of delimiting type areas almost impossible. In this context, it is to be emphasized that the morphological patterns are the function of agglomeration. Clarity and variety of patterns vary directly with the degree of cohesion and compactness of settlements. No morphological patterns are discernible in the areas of dispersed type of settlements where the individual huts are sprinkled over a relatively wide area. Dispersed settlements give rise to amorphous villages. On the other hand, wherever nucleation occurs, the village morphology, even in the areas of marked dispersal, takes some definite shapes.

In view of the number, preponderance and frequency of certain morphological patterns the whole region of Chotanagpur may be divided into three morphological zones. They are the zones of (i) rectangular and allied forms; (2) elongated or linear morphology and (3) amorphous villages. Rectangular form may be taken to be characteristic of the areas where settlements have attained an appreciable degree of agglomeration and compactness. Even in the areas of markedly high dispersal nucleation on hamlet or larger scale has led to the evolution of rectangular form. The representative areas of rectangular villages are the Northern Fringe Zone, the North Koel basin, Hazaribagh, Kodarma and Ranchi plateaus, the *Pat* region, the South Koel-Sankh basin, the Kolhan Highland and the Panch Pargana plain. Linear morphology has attained the highest development in Chaibasa plain, the Suvarnarekha valley, the Dhalbhum Hills, the Rajmahal Hills and the Alluvial Upland. Amorphous villages are confined to the hilly forested tracts which form the marginal areas of settlements.

Typical square village are found in fairly large number in the areas of hamletted or hamlet-cum-hut types of settlements. The South

Koel-Sankh basin is the representative area where the settlements consist of square-shaped hamlets.

'L'-'E'-'C'-and 'T'-shaped villages are found in association with rectangular and square villages. They occur in relatively large number in the Northern Fringe Zone, the North Koel valley and the western part of the Kodarma plateau. A more frequent occurrence of the letter-shaped variants of rectangular villages appears related to a higher tendency towards agglomeration in a less favourable terrain. Under the extra-regional cultural influence the settlements are reluctant to be fragmented into hamlets and dispersed homesteads. On the other hand, terrain does not permit clustering on a large scale. Thus, a compromise between cultural and physical forces and also as a measure of space economy, the settlements get arranged into multiple rectangular blocks, the combination of which produces such forms as resemble the shapes of 'E', 'C', 'T' etc.

Rectangular or square morphology with a central hollow represents an abnormal development prompted by some physical or obscure reasons. They are to be found again in the zone of rectangular villages. They occur, however, more frequently in the western part of the Ranchi plateau which constitutes the representative area of the Munda and Oraon settlements. The *akhara* which comprises an open, unbuilt piece of land is generally located in the centre of the village. If the degree of agglomeration and compactness is high the *akhara* appears as a hollow in the village morphology, but if the clustering is loose, the identity of *akhara* is lost in the relatively broad unbuilt intervening spaces.

Fan-shaped or triangular villages are of wider occurrence in the areas of compact clusterings and linear villages alike. Wherever the settlements are sited near some focal points the morphology assumes a triangular or fan-shaped pattern. As has been explained earlier, triangular, funnel or broom-stick shapes are the products of restrictive elements in site. They are more commonly developed in the zone of linear settlements. Here 'V' is a common form which easily changes into a triangle if a third row develops and joins the two ends of the 'V'. Most of the triangular villages in the areas of linear settlements have, therefore, an unbuilt triangular space bounded by the rows of houses on the three sides.

Square or rectangular plans with notched-off corner or step-like indentations along the longer diagonal are commonly found in the Northern Fringe Zone and the North Koel valley. Indentations are characteristic of the villages which consist of a sizeable *koiri* or *kunfara*¹

1. They are the vegetable-growing communities.

population. The land adjoining the houses makes the best vegetable fields. Vegetable field and dwellings of an owner usually lie within one enclosure. The vegetable farming is highly profitable and for most of the vegetable growers the small enclosed fields are the only source of livelihood. For these reasons the landuse pattern in the vicinity of villages is permanent, and the indentations have survived the age-long changes and expansion in the homesteads,

Circular villages are few and are found in all the three morphological zones. All the circular villages are not alike. Their layout, particularly the internal pattern differs. In the Northern Fringe Zone and the North Koel valley a few circular villages appear to be defence-oriented. Circular villages with radial plan, are more due to the site factor for the requirement of defence prohibits radial lanes which give easy access to the centre of the village.¹ In the areas of linear settlements circular form appears to be the product of the radial arrangement of lined huts. The rows of huts, almost of equal length are so arranged as to give the impression of numerous radii converging at a common centre. Such villages are more frequently noticed in the Chaibasa plain and the Suvarnarekha valley than in the Ajay basin or the Rajmahal Hills. This is perhaps because the regional tendency of linear growth under the pressure of rather dense population over a relatively level surface, tries to accommodate the innate forces of agglomeration by giving rise to multi-linear villages.

Open, loose clusterings of individual huts in the areas of marked dispersal frequently attain circular form, though their inner morphology remains amorphous. Oval shape, a variant of the circular form, is homologous with the latter and is frequently seen in the areas of open clusters.

Ring, 'C' or 'U'-shaped villages are also of universal occurrence. In the Northern Fringe zone, ring pattern is missing, but 'C' or 'U' forms are numerously represented. They are invariably the products of sites which in the Fringe zone are mostly the river bends, ox-bow lakes, alluvial fans, *ahars*, bunds etc. In the non-alluvial parts of the Plateau where *tongaris*, rocky eminences and mounds frequently dot the surface, the form has more numerous representation. Perfect ring-villages have inlaid-hillock morphology. These hillocks, usually the conical *tongaris* or granite domes, are girdled by one or two concentric rings of dwellings. 'U' and 'C' forms also develop around an elongated hill and the village morphology contains rock-infillers.

1. Kautilya's Arthasastra, op. cit., p.51 and p.392.

RURAL HOUSES

Individual dwelling is the basic unit of settlements. It is more than a shelter or abode. It is the basic of all the structures and framework in which the economic, social and individual life of a man takes shape. The statement applies more truly to the rural houses than to the urban dwellings, for the former bear and show a more grossly-felt relationship with the physical environment and the cultural heritage of the dwellers. A rural house is, in fact, a form and an expression of all that a man does and all that a man lives upto and lives for. It is, therefore, "both a geographic and economic index",¹ and, one may add, a cultural and social index too. A common man in the countryside builds his house with materials at hand. Such building materials are obtained from the natural environment and "indicate the regional characteristics of geology, soil, water-feature and vegetation".² The shape of the roof reflects in varying degree the climatic conditions. The relationship between the roof and climate, particularly the monsoon rains and summer's heat, is obvious and is clearly understood. "The problem of covering the house is delicate and difficult in all climates"³ and is especially so in this part of the world where the precipitation is heavy and sun scorching. The entire region of Chotanagpur, except the North Koel valley and the Fringe Zone, receives a rainfall that exceeds 50" as against 40" in the adjoining parts of the Ganga Plain. The roof in Chotanagpur is, therefore, characterised by a higher pitch. The rainfall increases from the north-west to south-east also and so does the slope of the roof. In the North Koel valley the slope of the roof seldom exceeds 15°. On the other hand, in the south-western part of Ranchi District and the Rajmahal Hills, the slopes vary between 25° and 45°. Climate expresses itself not only through the slope of the roof but through other aspects as well, e. g., the materials, quality, thickness and strength of roof. The availability and type of roofing materials whether straw, grass, leaves, twigs, bamboo or timber, depend, to some extent, on the amount of

1. Ahmad, E. "The Settlements in the United Provinces of Agra and Awadh", Ph. D. Thesis, London, p. 151.

2. Ibid.

3. Brunhes, J., *Human Geography*, London, 1952, p. 50.

rainfall. Straw is the most widely used thatching material, the plenty or scarcity of which depends upon the extent of paddy cultivation which, in turn, is dependent upon rainfall and relief. The extent and quality of forest directly depend upon the amount of rainfall.

The size, elevation, standard of comfort, decorations, fittings and architectural designs speak of the economic conditions, social institutions, extra-regional connexions and cultural achievements of the people. "More often than not, an infallible index to a person's economic conditions is the kind of house he dwells in"¹. Only the rich and well-to-do can afford to go in for brick-built masonry houses with modern amenities and sanitary fittings. Irrespective of the areal variations in physical environment and the people's way of life, the houses of the rich people are, to a great extent, of the same type. They are designed and built by technical experts with materials obtained from inter-regional markets. The houses of *ex-Zamindars*, landed aristocracy, service-holders and other moneyed people are quite large, strongly built and richly endowed with decorations and designs. They are mostly of exotic origin and have been copied from similar houses of the Ganga Plain. Similarly, the houses owned by the poorest section of the society are, in all the regions, of the same dimensions and build. Affluence can boast of ignoring the influence of environment, but poverty simply cannot. Poverty has to submit to the environmental conditions and, as such, the dwellings of the poorest section of the society are made of such cheap and flimsy materials as are easily obtained from the local surroundings. In the hilly-forested areas the poor-people go in for houses made of grasses, leaves, twigs, branches, bamboos and logs. In the deforested peneplains, river valleys and alluvial tracts houses are generally mud-walled and thatch-roofed.

The houses of the poor people like those of the rich people are, thus, all alike. They hardly differ from one to the other parts of the Plateau. They are lowliest, lightest and simplest structures in all the regions and sub-regions and can hardly be taken to represent the regional specialities of rural dwellings. The poor men's house in all the parts of the Plateau is one-roomed structure, covered with gabled roof made of local materials. The house of the middle class peasants, workers and business men are the best and most faithful index to the physical, economic and social aspects of regional geography. It is these houses which exemplify the area differentiations in settlement geography. The middle class people who are not so poor as to succumb to the dictates of physical

1. Report on Housing and Establishment, Census of India, 1961, Vol. IV Part IV-A, p. 346.

environment and yet not so rich as to rise above the local conditions live in houses made of mud-wall and tile-roof or certain combinations with burnt bricks, thatch corrugated iron and asbestos sheets, etc.

The rural houses of Chotanagpur, thus admit of four economic classes. The lowest economic class represented by such nomadic and semi-nomadic communities as the Birhors, Birjia, Korba and Pahariya has the meanest lowliest and most rudimentary type of houses. The second category of houses belongs to the landless labourers, scheduled castes and service-classes. These houses are generally one-block, one-room structures. The third category belongs to the landed class and well-to-do function castes. They are most numerous and better representatives of the rural house-types of the region. In an average peasant house the number of rooms varies from two to five. In higher parts of the Plateau the rooms are contained into two or three separately built dwellings. The fourth category includes the houses of ex-Zamindars, money-lenders, business class (*Sahus* and *Banias*) and the village chiefs (*Munda*, *Pahan* and *Manki*). The houses of these people are generally larger, roomier, stronger in build and better-finished. The houses of such privileged people are distinguished from the rest and are least representative of the rural dwellings of the region. Quite often, the houses of rich people bear extra-regional influences and are, like, their occupants, alien features inserted into the cultural landscape of the region.

Ethnic factors also bear upon the various aspects of rural dwellings. The average house of the non-tribal communities, in whatever parts of Chotanagpur, is roomier and better built, and usually convey a sense of superiority. The Mundas of Ranchi District who practise a sound husbandary and are economically better off have larger and more commodious houses. The houses of such religious and social groups as the Muslims, Christians, Marwaris, Jains and Bengalis are easily distinguished from the rest of the lot, for they bear some distinctive marks in the designs and frontage which are the specialities of the groups.

Though houses differ in detail from one area to another area, there are certain features and characteristics which are of universal occurrence and are common to all the average houses of the region. Some of these characteristics are regional while the others are ethnic and cultural in origin.

Angan or courtyard which is an integral part of the rural houses of the Ganga Plain is strikingly missing from the average houses of the tribal Chotanagpur. There appears to be several reasons for the absence

of *angan* from the Chotanagpur houses. *Angan* is the product of the climatic conditions as well as the social practices of the Ganga Plain. "In summer and rainy seasons when the ill-ventilated rooms and verandas become too hot and stuffy, the *angan* provides relatively open and airy space for sleeping"¹. The observance of *pardah* to varying degree in almost every house makes the existence of *angan* imperative. For the women *angan* means much more than the house. '*Angan* is an indoor place of assembly, reception and pastime'. Besides, *angan* is a work-place, for here the "women perform a lot of indoor work"². *Angan* is the natural outcome of the *Chaukita* (four-sided) house-plan of the Ganga Plain. In such a plan rooms built on the four sides of a rectangular plot necessarily enclose a rectangular piece of land. Where the *chaukita* is replaced by other plans, the *angan* disappears. In Chotanagpur climatic as well as social conditions are such as they do not make *angan* an essential item of the rural dwelling. Low relative humidity, dry and rarified air reduce sultriness, obviate perspiration and render the processes of heating and cooling of the earth's surface faster. Sun is scorching but the shades are pleasant and, at night, particularly after showers, the sudden and appreciable fall in temperature makes open-air uncomfortable for sleeping. Common house plan in Chotanagpur is linear and the rooms are built on one side of the selected piece of land and, as such, they fail to enclose in *angan*. In such a house plan, the place of *angan* is taken up by an open piece of land partially or wholly enclosed and lying in front or back of the house. In this enclosure the tribal women do all what the Plains-women do in their *angan*. Besides, this enclosure serves as kitchen garden, thrashing ground and contains the uncovered cattle-stall, well, if any, and a bamboo-grove. Sometimes, particularly, with larger establishments, such enclosures are seen on two sides of the house, one of which is usually smaller and enclosed by low-mud wall. The other one is just hedged by thorny plants. The functions are divided between the two : in the walled plot thrashing is done and hay, fodder and manure are stored, while the unwalled enclosure is used as *bari* land and contains bamboo, mango and *mahua* trees. *Purdah* is unknown to the tribal people. The tribal women work and live on equal footing with the men. The sense of privacy, so zealously maintained in the Plains, is unspelt to them. Even the non-tribal settlers have shed off much of their social rigidity and practices. The observance of *pardah* except in the Northern Fringe Zone and the North Koel Valley, is fitful and unceremonious. All these factors have rendered the existence of *angan* redundant.

1. Ahmad, E., Ph. D. Thesis, op. cit., p. 152.

2. Ibid.

The absence or rarity of windows is common to all the rural houses in Chotanagpur as well as in the Ganga Plain. The rooms are ill-ventilated and are partially dark even during day-time. This is particularly true of the non-tribal *chaukita* houses in which the rooms, open to a small enclosed *angan*. In Chotanagpur where the rooms built in a row, open to the spacious *bari*-land, the problem of ventilation is not so acute. The absence of windows is "not of much importance in the houses of the lower classes, for the men live out in the open and for the women there is a certain amount of ventilation through the thatched or tiled roof or through the walls"¹ The flimsy nature of walls which are made of bamboos, unfinished logs and unshapely twigs are 'really sanitary'. There is often a space between the wall and the roof which allows a passage for air. Besides, the tiled roof in Chotanagpur is a light structure. Tiles are mounted direct over the bamboo net. In the Plains there is usually a thick coating of mud between the tiles and the bamboo-net that makes the roof completely air-tight.

Another characteristic which is of universal nature is the plentiful use of timber and wood in Chotanagpur houses. Even in such houses where the walls are made of mud, the roof is supported by numerous vertical poles. In almost all the houses of the districts of Hazaribagh, Ranchi and Palamau, four poles on the four corners of the room and a few more at an interval of six to ten feet along the walls are erected from the ground and are topped by horizontal beams along the eavesline. All the super-structures including roofs, rest on these poles which together give an wooden frame to the house. The poles are usually erected from outside and half of them by thickness remain concealed within the walls. The walls appear, in fact, as the infillings of the gaps left between the poles.

The walls of Chotanagpur houses, whether made of mud or logs, are lower than those of the Plains. They vary in height from 6 to 8 feet and seldom rise above 10 feet. Low walls are occasioned by many factors. Heavier precipitation necessitates a higher pitch and, as such, the roofs from the ridge to the eavesline become too long to materialise except by lowering down the walls. Torrential rains with strong winds strike against the walls. This precludes them from rising above 6 to 8 feet, the elevation that remains protected by the portion of the roof projecting beyond the walls. The eaveslines are consequently low and so are the entrances and doors which look like oblong holes cut in the walls. "The narrow entrance into which the owner is obliged to creep

1. Report on Housing and Establishments, op. cit., Census of India, 1961. p. 498.

on all fours, is characteristic of the rudest huts used by the Dravidian races and it has been suggested that it is a reminiscence of cave-life".¹ In two-roomed houses door is frequently cut into the shorter walls beneath the gables to provide for a higher entrance. The doors in Chotanagpur houses are crudely fashioned and are seldom fitted with panels. To ward off intrusions by men and animals, one or more horizontal bars are placed across the length of the doors from behind. In certain cases the door is blocked by a trellised net of bamboo. Only in the houses of relatively rich people, the doors are fitted with *kibaris* (door panels of rough planks hewn out from thick logs) which are usually heavy and cumbersome to handle. Besides, the *kibaris* are too costly to be had by common people. Thus smaller size of doors is not only an economic measure but also a protective device, for in addition to reducing the size and cost of door-panels, it makes the entrance difficult.

In Chotanagpur average dwelling is a somewhat fragmented establishment. It generally consists of three mud-walled, tiled or thatched units one of which is the sleeping apartment while the remaining two are used as kitchen and cattle-shed. Rooms are relatively narrow but unusually long, the ratio between length and breadth being 3:1. Narrowness of the room is related to relief and climate. The longer walls follow the contour lines the shorter ones span the cross-contour distance within which level changes sharply and thus, it limits the width of the room. Steeper slope of the roof, necessitated by heavy precipitation, increases the width of the roof and makes the roof cumbersome and unwieldy to be supported by beams and rudimentary walls. Heavy precipitation results in enormous discharge of water from the roof: if the room is broad enough it will cease to be water-proof and the walls will fail to take the additional heavy load of rain-water. It is, therefore, not unusual to find rooms as long as 40 feet but the breadth seldom exceeds 10 feet and in many cases, it is reduced to 6 feet only.

Building Materials

Mud is the most predominant wall-material in Chotanagpur. Except four small areas, the Damodar valley, the Rajmahal hills, western Palamau and southern Singhbhum, mud-walled houses account for 95% of the total rural dwellings (fig. 105). In fact, there is an extensive tract, comprising the western and south-western parts of Ranchi District in which more than 99% of the rural dwellings is mud-walled. In addition to this extensive area, there are five small patches in the northern

1. Report on Housing and Establishments, op. cit., Census of India, 1961. p. 498.

half of the Plateau in which mud-walled houses exceed 99% of the total rural houses. In the Damodar Valley, the percentage of mud-

CHOTANAGPUR
Rural Houses
WALL MATERIALS

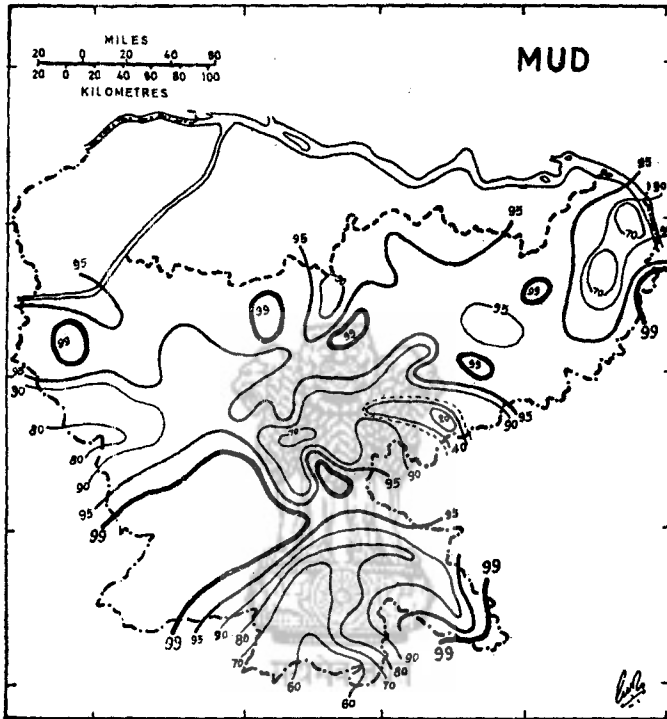


Fig. 105

Statistical source : Census of India, 1961

Isopleth values refer to the percentage of mud-walled houses to the total number of rural houses.

walled houses declines rather abruptly from 90 on the margins to 20 in the Jharia coalfields. In the remaining three areas of lesser predominance of mud-wall the percentage varies from 80 to 60. So universal is the use of mud that all other wall-materials which are used in varying degrees, are reduced to the position of insignificance. Houses with walls made of other materials do not account for even 5% of the total houses (figs. 105-108).

Wall-materials other than mud are grouped into four. (1) burnt brick, (2) unburnt brick, (3) stone and (4) timber and vegetative substance. Of these only burnt-brick alone acquires some regional impor-

tance. On an average, slightly more than 4% of the rural houses are brick-walled. Though brick, next to mud, is most widely used wall material there are three areas in which brick-walled houses are either entirely absent or are negligible in number (fig. 106). In an extensive area along the western border of the State brick-walled houses represent less than 1% of the total rural dwellings. The other two areas in which

CHOTANAGPUR
Rural Houses
WALL MATERIALS

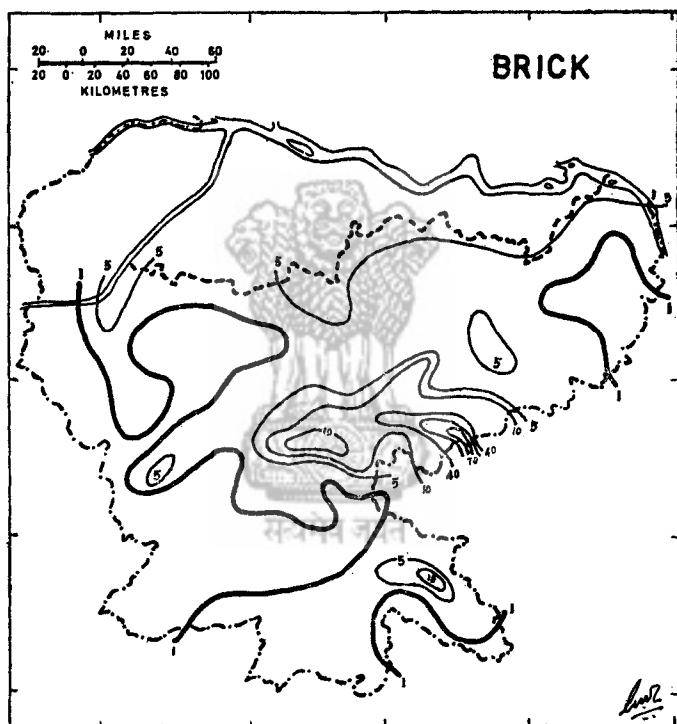


Fig. 106

Statistical source : Census of India, 1961

Isopleth values refer to the percentage of the brick-walled houses to the total number of rural houses.

the percentage of brick-walled dwellings is less than one are the (1) Rajmahal Hills and (2) the Alluvial Upland. In most of these areas of brick-rarity the percentage of mud-walled houses is also low. There are, on the other hand, such areas in which the brick-walled houses are significantly represented and are next only to mud-walled houses in number and preponderance. These areas are the (1) Northern

Fringe Zone, (2) the Damodar valley and the adjoining areas and (3) the Jamshedpur-Ghatsila section of the Suvarnarekha valley. In addition, there are two small patches located in the North Koel valley and around Giridih in which brick has attained a wider use. In the Fringe Zone brick and mud are interchangeable so that the loss of one is the gain for the other. The Damodar valley is the only region in certain parts of which brick relegates mud to the secondary position. In the district of Dhanbad, brick-walled houses account for more than 31%¹ of the total rural dwellings and in certain parts, particularly in the Jharia coalfield the percentage of brick-walled houses is more than 70. The ratio between mud wall and brick wall is reversible between the upper and the lower valley : the ratio is 7:2 in the upper valley and 2:7 in the lower valley. In the Jamshedpur area the percentage of brick-walled houses varies from 5 to more than 10 while that of the mud-walled houses from 80 to 70, thus leaving rather a wide gap to be represented by other materials. In the Damodar valley also the sum total of mud-walled and brick-walled houses leaves a gap of about 10 to 15 percent.

Vegetative substances, such as grass, leaf, bamboo and timber, acquire some importance as wall materials in an oblong tract that spans the whole Plateau from west to east along the Northern Edge (fig. 107). In this belt are included most of the district of Palamau, the Chatra Plateau, the northern margin of Kodarma plateau, parts of Deoghar 'erosional depression' and the Rajmahal Hills. Another belt, an off-shoot of the former, extends through the middle of the Ranchi plateau upto the southern border of Singhbhum. In all these areas walls made of vegetative substances are only next to mud-walls in number and importance. The proportion of the vegetation-walled houses is not uniform everywhere. It varies within the belt from 1 to more than 20 percent of the total rural dwellings. In most of the belts, however, such houses do not account for more than 5% of the total rural dwellings. There are, in fact, only three areas in which vegetation-walled houses exceed 5% of the total : they are (1) the parts of Palamau, (2) the Kodarma forest and (3) the Rajmahal Hills. The vegetation-walled houses account for 20% in the Rajmahal Hills, 5 to 10% in the Palamau forests and slightly above 5% in the Kodarma forest. There are, on the other hand, three such areas in which vegetative substances as wall-materials are either completely discarded or are absolutely insignificant. These areas are (1) the Northern Fringe Zone, (2) the western and south-western parts of Ranchi District and most of the Kodarma plateau and the

1. Statistical information based on Census of India, 1961, vol. IV, Part IV-A.

Lower Damodar basin. Nowhere in these areas the vegetation-walled houses account for even one percent of the total rural houses.

CHOTANAGPUR
Rural Houses
WALL MATERIALS

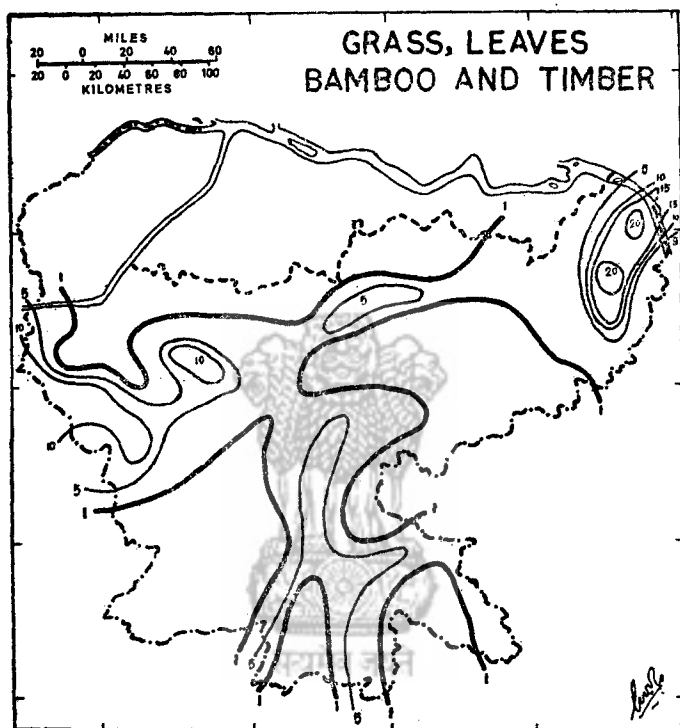


Fig. 107

Statistical source : Census of India, 1961.

Isopleth values refer to the percentage of the vegetation-walled houses to the total number of rural houses.

The use of vegetative substance for the construction of walls appears related primarily to (1) the extent and quality of forest and (2) the amount of rainfall. In Palamau and the adjoining parts of the districts of Ranchi and Hazaribagh, forests are extensive. One of the most gregarious plants of these forests is bamboo. Bamboo is a plant of the most versatile use and is equally suitable for the purpose of wall and roof. The use of bamboo is easy and cheap. It does not require to be sawed or hewn. It is, in fact, a Nature's finished timber. Because of its low cost and universal use, bamboo is called 'poor-men's timber'. In the Rajmahal Hills, in addition to the extensive forests, the heavy amount of rainfall, the nature of soil and the type of settlements appear

to have necessitated a wider use of vegetative substances for the construction of houses. The Rajmahal hilly tract is one of the rainiest parts of Chotanagpur. The hills are inhabited by the Paharias who build houses on higher hilly slopes and summits where the soil is scanty, coarse and largely unfit for the construction of walls. The use of stone is rather unknown to the hill-dwellers. They, therefore, as an alternative to mud resort to bamboos, wooden logs, leaves and grasses.

The western half of the district of Singhbhum that comprises Porahat, Saranda and Kolhan, is one of the most thickly forested tracts of the region but the use of vegetative substances in the construction of walls is negligible. This is perhaps because of the strict forest laws and the sparseness of settlements. As the areas constitute the Reserved Forest, the people have no right to cut trees. The few settlements that are found in the Reserved Forests get the supply of building materials from the Forest Department. The Forest Department generally supplies corrugated iron and asbestos sheets. Besides, the Ho settlers of this region who have developed a taste for neatly laid-down straight walls, prefer unburnt bricks to timber or mud. Unburnt brick which is cheap and easy to be handled, has largely replaced bamboo and timber in the construction of walls (fig. 108).

The areas where the vegetation-walled houses represent less than one percent of the total, are largely deforested, the only exception being the south-western part of Ranchi District where forests are still extensive but the use of vegetative substance for the construction of wall is negligible. This is perhaps due to the prevalence of the red soil which makes excellent wall-material. In the *Pat* region, laterite is preferred to any other materials for the construction of walls.

As has been stated earlier, the use of unburnt brick is confined to the districts of Singhbhum and Dhanbad (fig. 108). The Hos of Singhbhum are better architects and superior craftsmen. Their houses are straight-walled and symmetrical. The walls are smoothly plastered and painted in colourful designs. For such a house bricks are desirable, for they ensure straightness of walls and smoothness of plastered surfaces. Burnt bricks are costly and are not within the reach of everyone. Unburnt bricks make an ideal alternative to burnt bricks. They are cheap too. The black and brown soils derived from the Dharwarian and igneous rocks contain a high proportion of clay and are highly suitable for brick manufacture.

In the district of Dhanbad the use of unburnt brick is more due to economic factor than due to soil or social factors. Because of extensive

mining and industrialization brick-walled houses have become a status symbol. Those who cannot afford burnt bricks go in for unburnt brick. Walls made of unburnt bricks, duly plastered and properly white-washed,

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Rural Houses
WALL MATERIALS

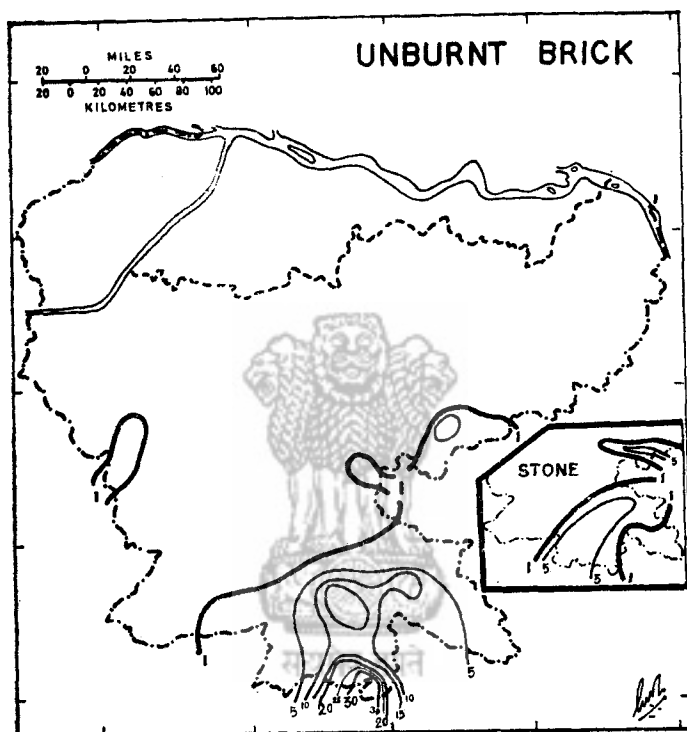


Fig. 108

Statistical source : Census of India, 1961.

Isopleth values refer to the percentage of unburnt brick-walled houses (stone-walled houses in the inset) to the total number of rural houses.

look very much like a *pucca* masonry house. Such a house imparts a sort of distinction to the tenants.

Outside the districts of Singhbhum and Dhanbad, there is only one small area in the district of Palamau where houses with walls made of unburnt bricks account for more than one percent. The area includes the Hutar coalfield. Here unburnt brick, as in the district of Dhanbad, is used as an alternative to burnt brick.

The use of stone as building material is rather unknown to the people of Chotanagpur. They could not perfect a technique for cutting stones and using them in building houses. In two areas, the district of

Singhbhum and the Damodar valley, the stone-walled houses account for 1 to more than 5 percent of the total dwellings (fig. 108 inset). Numerous outcrops of the Dharwarian slate, schist and phyllite in Singhbhum and those of the Gondwana shale and sandstone in the Damodar valley provide for excellent village quarries from which stone slabs are easily obtained. Extensive mining operations in these areas have resulted in the piling of rock-fragments near the pit heads. The villagers who are, in fact, encouraged by the mine-owners to pick up stones from the pit-heads, construct walls with them. Because of the irregular shape and unequal size of stones, the rock-fragments are heavily mortared with mud to effect evenness to the wall-surface. The walls are so thickly plastered with mud that stones are rarely visible except during the monsoon period when parts of the plaster are washed down by rains.

Though mud is the most predominant wall material in all parts of Chotanagpur, the use and importance of other wall materials vary from

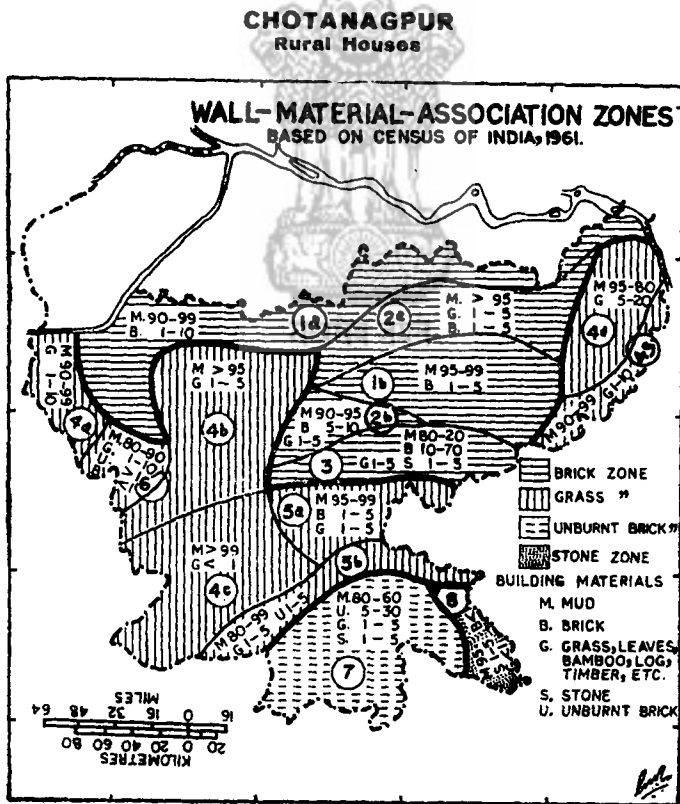


Fig. 109

place to place. This variation provides a basis for a sub-division of the region. Taking the second most important wall-material into consid-

ration, Chotanagpur has been divided into four zones. As the extent to which various wall materials are used, varies widely, the four major zones have been further divided into sub-zones which altogether number 15 (fig. 109). The hierarchy of zones and sub-zones is as detailed below:

Zones	Sub-zones	Characteristics
A. Brick Zone	1. Two-material Zone	(a) M. 90-99, B. 1-10 (b) M. 95-99, B. 1-5.
	2. Three-Material Zone	(a) M. >95, B. 1-5, G. 1-5. (b) M. 90-95, B. 5-10, G. 1-5.
	3. Four-Material Zone	M. 80-20, B. 10-70, S. 1-5, G. 1-5.
B. Grass Zone	4. Two-material Zone	(a) M. 90-99, G. 1-10. (b) M. > 95, G. 1-5. (c) M. > 99, G. < 1. (d) M. 95-80, G. 5-20. (e) M. 90-99, G. 1-10.
	5. Three-material Zone	(a) M. 95-99, G. 1-5, B. 1-5. (b) M. 80-99, G. 1-5, U. 1-5.
	6. Four-material Zone	M. 80-90, G. 1-10, U. >1, B. <1.
C. Unburnt Brick Zone.	7. Four-material Zone	M. 80-60, U. 5-30, G. 1-5, S. 1-5.
D. Stone Zone	8. Four-material Zone	M. <95, S. 1-5, G. <1. B. < 1.

Note : M—Mud, B—Brick, G—Grasses, leaves, bamboos, timber and other vegetative substances U—Unburnt brick. Figures refer to the percentage of houses with walls made of a particular material to the total number of rural houses.

Source of statistical information :- Census of India, 1961, vol. IV, Part IV-A.

Roof Materials

Tile and thatch are the two predominant roofing materials in Chotanagpur. Tile commands a much larger area than thatch. In about three-fourths of the region tile dominates. West of a north-south line drawn from Banka in Bhagalpur to Chaibasa in Singhbhum District more than 50% of the rural houses are covered with tiles (fig. 110). Tile-roofing becomes strikingly preponderant in the districts of Palamau, Hazaribagh and Ranchi. In each one of these districts more than 90%

of the houses are roofed with tiles. In fact, in most of the district of Ranchi, tile-roofed houses account for more than 99% of the total.

CHOTANAGPUR
Rural Houses
ROOF MATERIALS

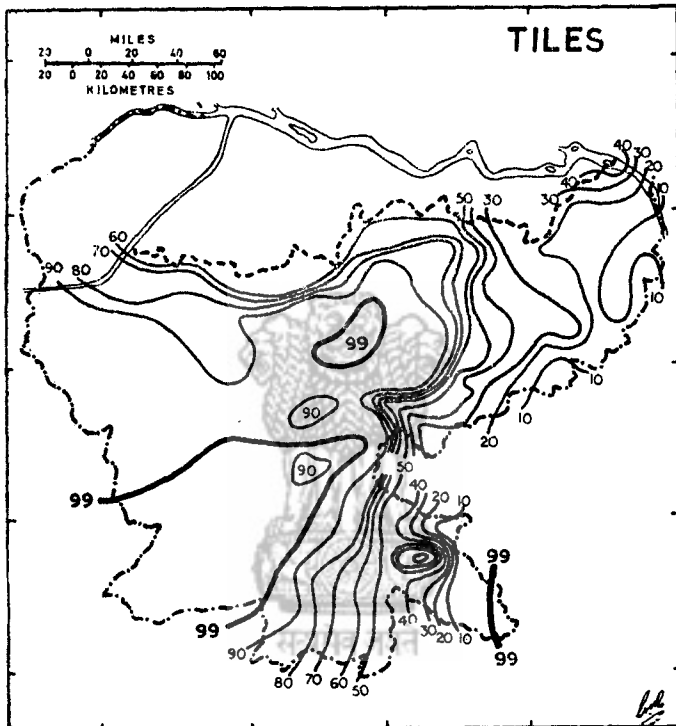


Fig. 110

Statistical source : Census of India, 1961.

Isopleth values refer to the percentage of the tile-roofed houses to the total number of rural houses.

The areas of preponderance of mud-walls and tiled roofs appear to be the same (figs. 109 & 114). In all the areas lying west of the Banka-Chai-basa line more than 95% of the rural houses is walled with mud and more than 90% of them is roofed with tiles. Again the isopleths of 99% in the two maps (figs. 105 & 110) showing the distribution of mud walls and tiled roofs, follow almost an identical course. The preponderance of tiled roof and mud wall appears, therefore, to have some common explanations. The explanations lie partly in the nature of soil and partly in the inabundance of thatching materials. Red soil which is

characteristic of the tile-zone, has a high clay-factor and contains a high proportion of ferric oxide. It is highly sticky when wet and extremely hard when dry. Bricks and tiles made of this soil are, therefore, stronger than those made of alluvium. Even sun-baked bricks and mud-walls made of red soil are strong and resistant enough to withstand the showers without being considerably damaged. Uncovered compound walls made of red soil are common sights in this part of Chotanagpur. Even such walls last for several years. Preponderance of tile in Chotanagpur has an economic aspect too. In the South Ganga Plain a mud-walled and tile-roofed house is an index of affluence. In Chotanagpur, particularly on the higher plateaus, tiled roof is no such index; even the single roomed houses tenanted by the landless labourers are generally roofed with tiles. Tile-roofing in Chotanagpur is, in fact, cheaper than other types of roofing. Clay for tiles is obtained free from the locality. Fuel to burn the tiles is available in plenty from forests. Bamboos and other wood requirements are easily met with by the supplies from village groves and local forests. Tiled roof, being a sort of permanent structure, does not require renewal every year and proves ultimately cheaper.

East of the Banka-Chaibasa line thatch takes lead over tile (fig. 111). The percentage of thatch-roofed houses increases from 50 on this line to more than 99 on the eastern boundary of the State. The predominance of thatch-roofing in the eastern part of the Plateau appears related to three factors. In the first place, in all the areas where thatch roofing is predominant acreage under rice exceeds 50% of the total cropped area. The reverse is, however, not true, for the acreage under rice in the district of Ranchi, the Damodar valley and Hazaribagh, is more than 50% of the total acreage under all crops, but in all these areas thatch is a rarity. On the other hand, in all the areas where rice commands less than 50% of the cropped area thatch as a roofing material is unimportant. Preference to thatched roof in the eastern part of the Plateau is due to factors other than the availability of paddy stalk only. The eastern part receives a higher amount of rainfall which necessitates higher pitch and steeper slopes of the roof. A slope steeper than that of 20° is difficult to achieve with tiles. Besides, a tiled roof with a steeper slope is liable to crumple down. Under gravitational force aided by the heavy discharge of rain-water tiles slip down the slopes and the roof starts leaking. On the other hand, it is not difficult to give a pitch of 45° to a thatch roof. A thatched roof is absolutely water-proof, provided its thatching is renewed every year. The paddy-stalk that makes excellent thatching material is available in plenty. A small

quantity of bamboo, required for framing the thatched roof is obtained from the village groves or market.

CHOTANAGPUR
Rural Houses
ROOF MATERIALS

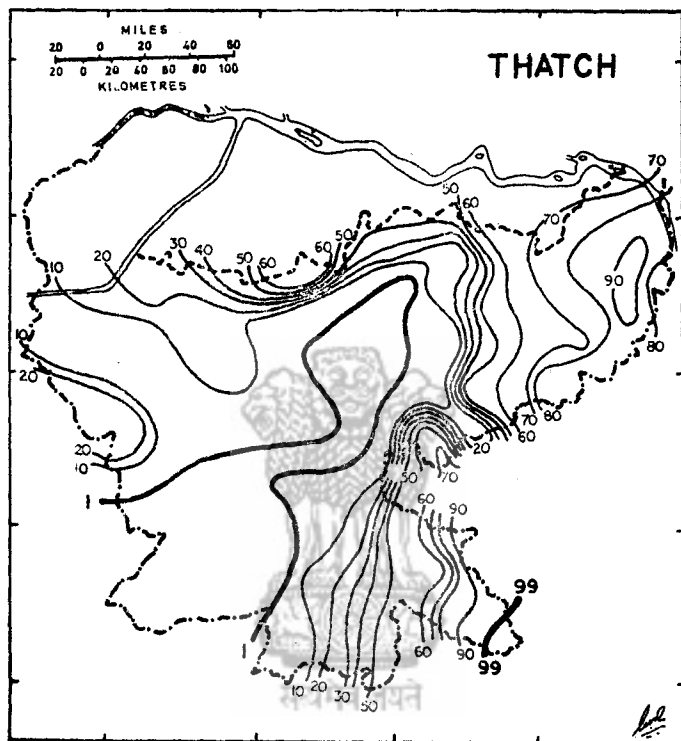


Fig. 111

Statistical source : Census of India, 1961.

Isopleth values refer to the percentage of thatch-roofed houses to the total number of rural houses.

The absence of thatched roof from higher plateaus of Ranchi, Hazaribagh and Kodarma is as striking as the preponderance of tiled roof in the same areas. In all these areas thatch-roofed houses do not account even for one percent of the total rural dwellings. In the adjoining areas, such as the Chatra plateau the Chhatarpur plain, the North Koel basin and the south-eastern parts of Ranchi District, the percentage of thatch-roofed houses varies from one to twenty. In all these areas, except the south-eastern parts of Ranchi District, the acreage under rice also declines from 50 to 30 percent of the total cropped area. Besides, the yield of rice and straw per acre is low. On the plateaus paddy has a poor and stunted growth. Paddy stalk is shorter and the harvesting method, particularly

in Ranchi District, is crude and clumsy. After being harvested, the plants are heaped and bundled together in a haphazard manner and are thrashed by bullocks. The straw obtained by thrashing is so much mixed, broken and twisted that it makes only *pual*—a poor fodder for animals and is totally unfit for roofing. In the Plain the paddy stalk is bundled like a broom-stick in a very orderly manner. Grain from the bundles is removed by striking them against some hard surface. Consequently, the stalk remains intact and can very well be used as thatching material. Such bundled stalks are called *nebari*. The peasants of Chotanagpur do not appear familiar with the technique of making *nebari*. As they make only *pual* (hay) they are short of thatching materials. Thatching materials available in these parts of the Plateau are nothing more than grasses and leaves which cannot be had everywhere in plenty. Grass-and-leaf roofs are not entirely water-proof. Besides, they are weak and ugly-looking and are taken to manifest abject poverty of the tenants. The higher plateaus are much more frequented by cyclones that may blow away thatch. White ants are great manace in Chotanagpur. Thatched roofs, because of being in direct contact with the moist mud-walls and also, because of being wet for a longer period after rains, become easy prey to white ants. Domestic animals in Chotanagpur are seldom tethered. Because of low walls the thatched roof is often pulled down by roaming animals and is eaten up. All these factors have compelled the people to go in for tiled roof which is lasting and, at the same time, cheap too.

The use of brick-and-lime as roofing material is confined to the brick-zone as delineated in the map No. 112. From most of Chotanagpur *pucca* roof is missing and even in the brick-zone, except the Damodar vally and the Jamshedpur industrial belt, houses with *pucca* roof do not account for more than 5% of the total. In the Damodar valley the *pucca*-roofed houses vary from 5 to more than 40 percent of the total rural dwellings. In the Jamshedpur area the percentage is more than 5. A relatively wide use of brick and lime as building materials in the Damodar vally is quite understandable. Coal is of local origin and sells cheapest in the country. The Gondwana shales have yielded excellent soil with a very high clay-factor. A high-quality sand is available from the sandy beds of the rivers. Consequently, the entire processes of manufacturing and burning of bricks are cheap. Due to the location of the steel plants a huge bulk of coal is supplied to Jamshedpur. Coal at Jamshedpur is comparatively cheap. Heavy industrialization has boosted up the rural economy and there are many more people in the villages to afford *pucca* brick-built houses.

The use of corrugated iron, asbestos and other metal sheets is again confined to a narrow belt along the eastern border of the State

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Rural Houses
ROOF MATERIAL

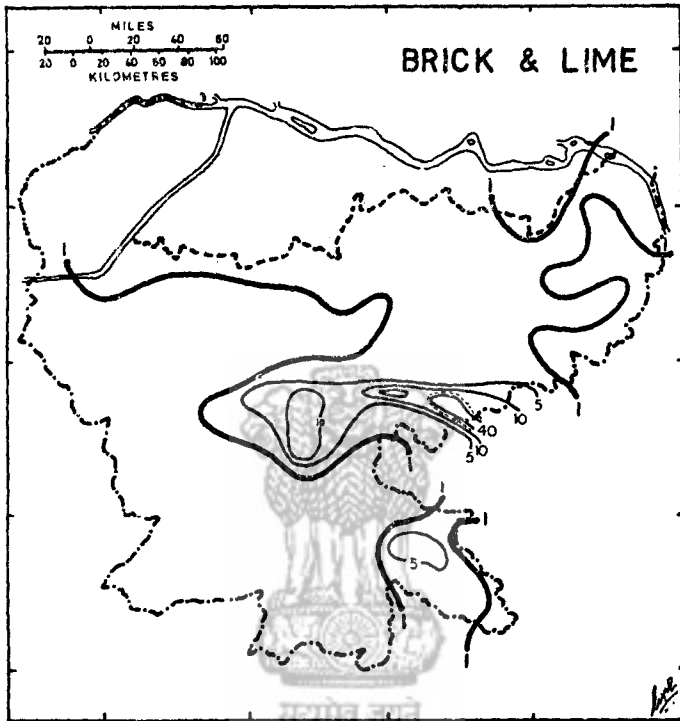


Fig. 112

Statistical source : Census of India, 1961.

Isopleth values refer to the percentage of pucca-roofed houses to the total number of rural houses.

(fig. 113). The belt widens enormously along the Damodar valley and comprises the Hazaribagh-Kodarma area and the Ranchi urban-influence zone. Towards south, the belt widens again to incorporate the Suvarnarekha valley, Dhalbhum-Kolhan Highlands and the Saranda forests. The percentage of houses with such roofs generally varies from 1 to 5, but there are two areas within the belt in which houses roofed with iron and asbestos sheets account for more than 10% of the total rural dwellings. These two areas are (1) the Lower Damodar valley and (2) the Saranda-Kolhan tract. Large-scale mining and industrial activities appear to be responsible for a wider use of iron and asbestos sheets in these areas. In the Saranda-Kolhan area, iron-ore mining appears to be an important factor. The villages in the Reserved

Forests usually get the supply of iron and asbestos sheets from the Forests Department for building purposes. Corrugated iron and asbestos sheets are manufactured at Jamshedpur and Jhinkpani. Thus, being a local product the sheets are available at a comparatively cheap rate.

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Rural Houses
ROOF MATERIALS

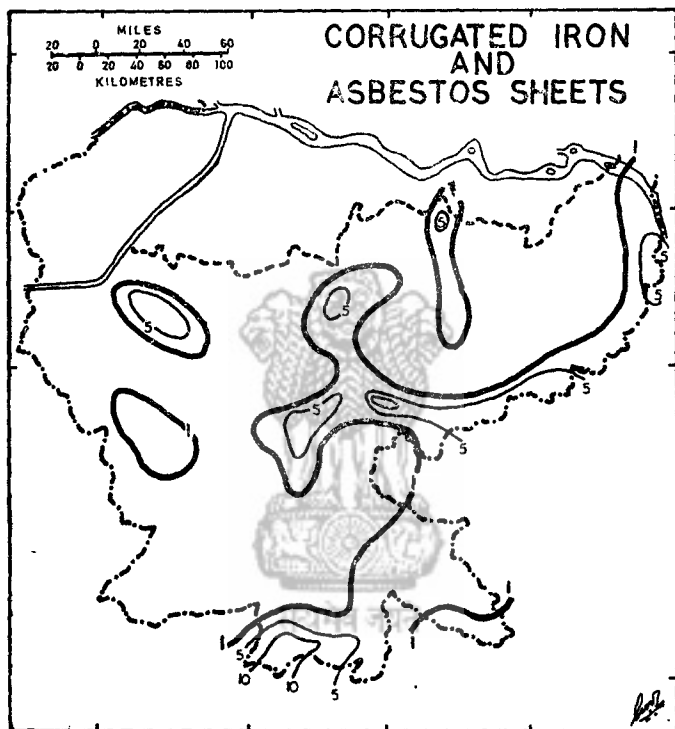


Fig. 113

Statistical source . Census of India. 1961.

Isopleth values refer to the percentage of the iron-asbestos roofed houses to the total number of rural houses.

A relatively wide use of these materials in parts of the Santhal Parganas is difficult to explain. It is primarily a zone of mud-wall and thatched roof. The use of iron and asbestos sheet is, perhaps, prompted by the climatic factors. This is one of the rainiest tracts of Chotanagpur with relative humidity more than 50% all the year round. For a comfortable living one has to go in either for a *pucca* house or for houses made of iron and asbestos sheets.

Outside this belt there are three small patches in which the houses roofed with iron and asbestos sheets account for one to more than five

percent of the total dwellings (fig. 113). These are (1) the Daltonganj-Barwadih area, (2) Hussainabad-Chhatarpur area (both in Palamau) and (3) a linear belt stretching from Giridih to Lakhimpur in Monghyr. In all these areas a wider use of iron and asbestos sheets appears related to a relatively high degree of industrial dissemination, better communication and greater affluence.

There are, as stated earlier, four categories of roofing materials. Two of them — tile and thatch — are the most preponderant in the western and eastern halves of the Plateau respectively. The remaining two, brick and-lime and corrugated iron or asbestos sheets, enter into various combinations with one or both of the preponderant roofing materials. The combinations and proportions of these materials vary areally. The areal variation provides a basis for division and sub-division of the Plateau into zone of roofing materials. The various zones as delineated on the map No. 114 are as given below :

Zones of Roof-materials.

Zones	Sub-Zones	Characteristics.
A. Tile Zone —	1. Two-material zone	(a) T. >90, Th. 1-10 (b) T. >99, Th. <1. (c) T. 90-50, Th. 10-50.
	2. Three-material zone	(a) T.90-50, Th.10-15, B.1-5. (b) T. >90, Th.1-10, B. 1-5.
	3. Four-material zone	(a) T. 90-50, Th. 10-50, B. 1-5, C. 1-5. (b) T. >90, B. 1-5, Th. >1, C. <1. (c) T. >90, Th. 1-5, B.1-5, C. 1-5. (d) T. 50-90, Th. 10-15, B. 1-40, C. 1-10. (e) T. >90, B. 1-10, C. 1-5, Th. <1.
	4. Three-material zone	T.50-90, Th. 10 50, C.1-10.
B. Thatch Zone	5. Two-material zone	Th. 50-90, T. 40-20.
	6. Four-material zone	(a) Th. 70-90, T.20-10 C. 1-5 B. <1. (b) Th. 50-99, T. 50-1, B. 1-5, C. 1-5.

Note :— T.—Tile, Th.—Thatch, B.—Brick and lime, C.—Corrugated iron and asbestos sheets. Figures refer to the percentage of houses with roof made of particular material to the total number of houses. (Statistical source-Census of India, 1961)

Types of rural houses

In the foregoing pages we have discussed some of the features of similarity in the rural houses of Chotanagpur. We have also discussed in detail the variations in the use and importance of building materials.

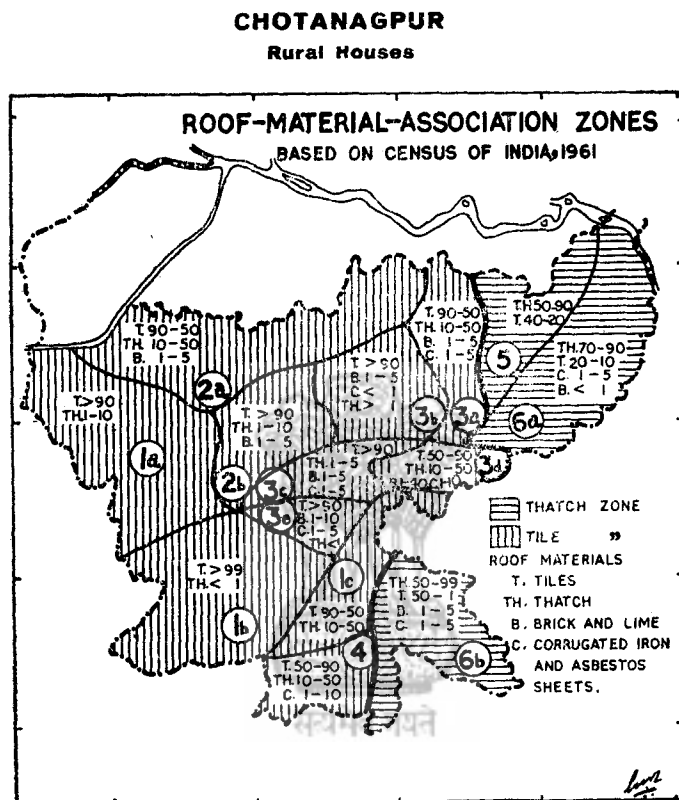


Fig. 114

The aspects of similarity are broad, easily perceptible and of generic nature. The variations in building materials are areal. In addition to the areal variations in the use and importance of building materials, the rural houses differ in various other details. They differ in their ground-plan, structural designs and architectural beauty. They also differ in their size, accommodation, uses and general appearance. These differences relate mainly to the physical environment and ethnic composition of the population. As the characteristics of the physical environment acquire areal pattern of distribution, the differences in the rural houses are traceable over an area. On the other hand, the differences or characteristics which are ethnic in origin do not take any cognizance of regional variations in physical environment. A Santhal house, whether it

is in the Santhal Parganas or in the Suvarnarekha valley, is more or less alike. Similarly, Munda or Oraon houses in dissimilar areas of Ranchi, Palamau, Hazaribagh and Singhbhum, though partaking some of the general characteristics of the area, preserve their typicalities. The ethnic characteristics of the houses attribute variety to the rural dwellings in a particular region and make the recognition of the regional types of dwellings rather difficult. The rural houses of Chotanagpur, therefore, admit of two fold classification : there are regional types as well as ethnic types of rural houses. Taking into consideration the most articulate and recognizable differences, essentially geographical in nature, viz., the difference in building materials, ground plans, structural designs, forms and appearance, ten types of rural houses may be distinguished (fig. 115). These types are as given below :—

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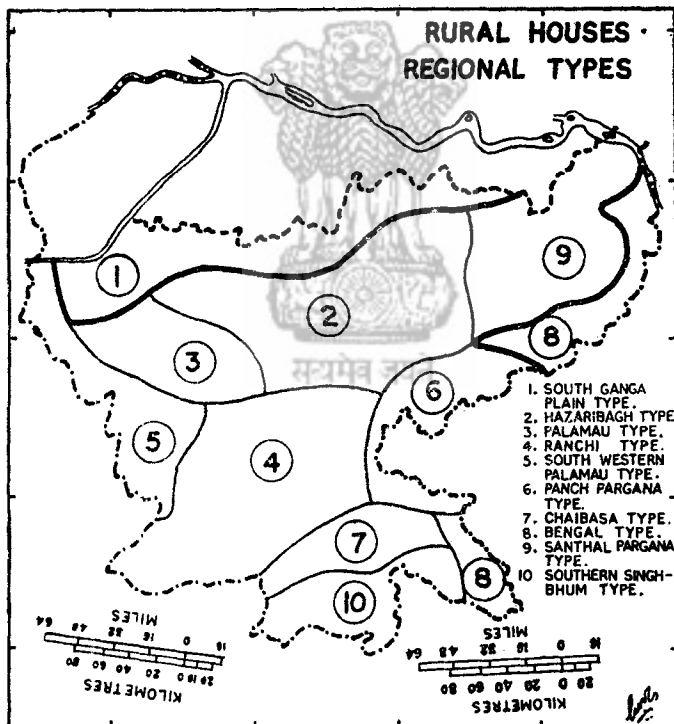


Fig. 115

- (1) South Ganga Plain Type.
- (2) Hazaribagh Plateau „
- (3) Palamau „
- (4) Ranchi „

- (5) South-Western Palamau Type
- (6) Panch Pargana ,,
- (7) Chaibasa ,
- (8) West Bengal ,,
- (9) Santhal Parganas ,,
- (10) Southern Singhbhum ,,

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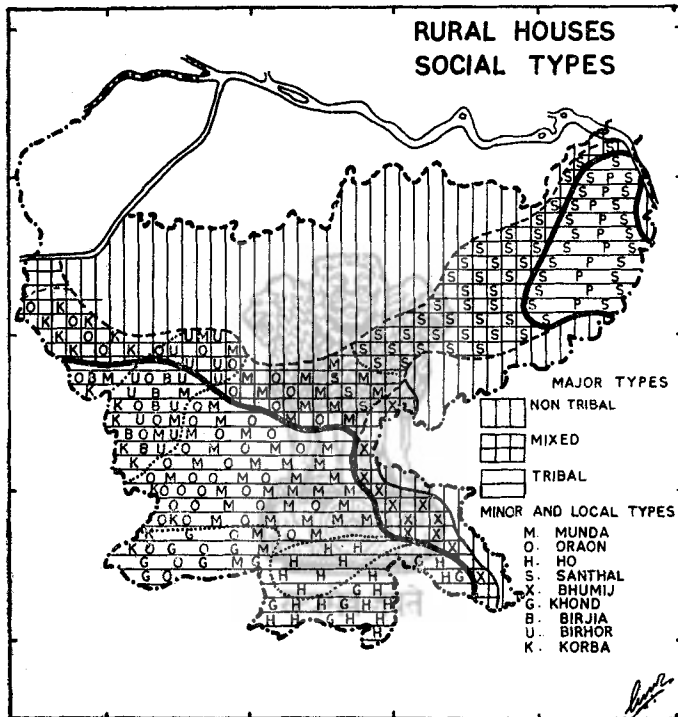


Fig. 116

On the basis of ethnic and social characteristics ten types of houses are recognizable (fig. 116). These types as detailed below :

- (1) Non-Tribal Type.
- (2) Munda ,,
- (3) Oraon ,,
- (4) Ho ,,
- (5) Santhal ,,
- (6) Bhnmiij ,,
- (7) Khond ,,
- (8) Birjia ,,
- (9) Korba ,,
- (10) Birhor ,,

South Ganga Plain Type

In the northern part of the Plateau that includes the Fringe Zone, lower reaches of the North Koel valley, Chhatarpur plain, northern parts of Chatra and Kodarma plateaus and the Deoghar 'erosional depression', the chief characteristics of the rural dwellings are the same as obtain in the South Plain of Bihar, particularly in the districts of Gaya and Patna. The typical rural dwellings in this part of the country is mud-walled and tile-roofed structure. The average house has a rectangular ground-plan, called *chaukita*. In a *chaukita* plan a rectangular courtyard is enclosed by rooms built on all the four sides of a rectangular piece of land. The number of rooms in an average *chaukita* house varies from 5 to 9 depending upon the size of family and the degree of affluence of the occupants. A *chaukita* house is Aryan in origin and tradition. The plan is widely discussed in the ancient scriptures. The Silp Sutras divide *chaukita* plan into two broad categories (1) *Suryamandal* or *Suryabhedi* and (2) *Chandramandal* or *Chandrabhedi*. An east-west oblong plan is called *Suryabhedi* (penetrated by sun). "Such a shape of *angan* naturally enables a longer duration of sun-light in the courtyard and in a hot climate shade and not the sun is more sought after".¹ For this reason, perhaps, *Suryabhedi* plan is decried as inauspicious and is forbidden. On the other hand, the north-south oblong plan is called *Chandrabhedi* for it allows the courtyard to be moon-lit for a longer period. It is interesting to note that in these latitudes, the moon for the most part of the year remains in the southern sky, particularly during the first quarter of the night when moon-light is a great help to movement and working in the poorly lighted rural houses. Care is taken that the front dimension including additional structures should not be longer than the rear one. A house-plan with a relatively short front dimension has been eulogized as *gomukhi* (cow-mouthed) and is said to be highly auspicious. The reverse of it is called *byaghra-mukhi* (tiger-mouthed) and is believed to be highly inauspicious for the life and property of the occupants.

Chaukita is the most universally adopted house-plan, but the houses differ from one another in horizontal dimensions, elevations, structure, designs and degree of comfort. In view of the chief characteristics and recurrent features three main variants of *chaukita* houses may be distinguished. Quite frequently simple *chaukita*-plan changes into multiple plan. In such a plan the rooms are so built as to enclose more than one *angan*. It is not unusual to find houses with four or five *angans* interconnected by passages across the rooms that align to separate one *angan* from the other. Such house-plans are prefixed with quantitative adjective to

1. Ahmad. E., Ph.D. Thesis, op.cit., P. 168.

distinguish them from the simple *chaukita* plan. A multi-*angan* house is indicative of two things—the size of the family and the economic status of the occupants. A multi-*angan* house is generally tenanted by affluent, joint-Hindu families. In such a house, in addition to the main entrance, there are usually a back and a side entrance. The back entrance is meant for domestic servants and the side entrance is meant for private communication between neighbouring families.

Another variation to the *chaukita* plan results from the multiplication of additional structures. Well-to-do farmers generally have three-block houses. One of the three is the main block. This is the real dwelling and is called *zenana*. The second block when separately built is called *baithaka*, but when contiguously built with the *zenana*, it is variously called *dyorhi*, *dehri* or *dura*. The third block usually consisting of two rooms and a thatched verandah is called *gosala* or cow-shed. The *gosala* contains feeding-stalls and the stores of dry smashed fodder called *bhusa* or *kattu* which is the end-product of the thrashing of *rabi* crops. Small farmers who cannot afford separate *baithaka* and *gosala* use their front verandah as *baithaka* and an extra-verandah, usually thatched and attached to one of the side walls functions as cow-shed.

Such people as are occupying the transitional status between the landless labourers and middle-class peasantry generally live in houses which outwardly look like a *chaukita* house, but inwardly differs from the common type. In such a house rooms are built on two sides of the *angan* only. The roomless sides are straight walled and are covered with a miniature roof. Whenever an incomplete *chaukita* house is designed care is taken to build rooms on the eastern and southern sides, for the southern side, if lower than the northern, is supposed to be inauspicious. Sometimes, rooms are built on three instead of two sides. Such a house plan is circumstanced by situational rather than economic or any other considerations.

In addition to the *chaukita* houses other types of houses are also seen. As a rule, the non-*chaukita* houses belong to the poorest sections of the society. The ground-plan of the poor-man's house is generally linear. The poorest among them has one roomed house, made of mud walls and thatched roof. The width of one-roomed house is between 7 to 9 feet but the length varies widely depending upon the size of the family. Such houses are usually huddled together in a separate hamlet or in a separated sector of the village. "They form the rural slums, being a parlour, dormitory, kitchen, pantry and in many a case, cattle-shed

combined into one"¹. These houses, except in the use of building materials, do not differ at all from the poor-man's houses in any other part of the Plateau.

Quite distinct from these houses belonging to the middle and labourer classes are the houses of *ex-Zamindars*, business men and other moneyed people. Though they have the same *chaukita* plan, they differ markedly in size, build, design, decoration and standard of comfort. "They are large substantial buildings with masonry walls and roofs, arched or slab; better ventilated with a high and large common room in front called *dalan*, side rooms and verandah"². Quite a number of them are two storeyed. Such substantial houses are very small in number and may not be seen in many a village.

In the market villages, the shop-keepers' houses are different from the common types. As the shops require a direct contact with the thoroughfare each one of the shop-keepers wanted a road frontage. Such a frontage is limited by mutual competition and does not generally exceed from 10 to 20 feet in individual cases. The ground-plan of a shop keeper's house is unusually oblong. The front-room and verandah function as shop while the rear portion contains the family quarters.

In a *chaukita* plan rooms are built, as stated earlier, on all the four sides of the enclosed *angan*. A verandah is attached to the front of the house which runs to the full or half length of the front wall. Inside the house also verandahs on one or more sides of the *angan* are usually erected.

A house is preferred to face east or north. Opening towards south or west is avoided unless it is compelled by location factor. In addition to the religious values attached to east-and-north-facing houses, the prejudice against south and west appears to have a geographical explanation. Evening is usually the time when the rural folk sit in front of the house and pass their time in gossiping, exchanging the experiences of *hat* (market), distributing wages to the labourers, taking stock of the day's work and planning for tomorrow. Such sitting is a regular feature, particularly during the monsoon period. If the house is west-facing, it becomes painful to sit in front of the house for the sun shines in the western sky even after 6 p. m. It is again to avoid the scorching sun in summer that a southward opening is disliked. As the sun in summer shines in the southern sky for the most part of the day, a south-facing

1. Ahmad, E., Ph.D Thesis, op.cit., P. 172.

2. Ibid, P. 171.

verandah becomes excessively hot and remains deserted for the major part of the day.

In the Hindu houses the main entrance lies on the right-hand side, (when coming in) sparing thus a larger portion of the front wall on the left of the entrance. The main entrance is usually fitted with heavy wooden door-and-panels. Main entrance leads to a room called *daroja* (hall way) which opens to the inner verandah or in absence of it, straight to the *angan*. In every Hindu house, there is a *Tulsi Chaura* (a small pillar-like structure planted with *tulsi* plant) by the side of which stands the *Mahaviri dhwoja* (flag).

The size of the rooms varies between 8' × 12' and 10' × 15', but in any one house the width of all the rooms is the same though the length may vary according to the function and location of rooms in the house-plan. Except the corner rooms all the other rooms open to the inner verandah or to the *angan*, and are seldom inter-connected. The doors of the rooms are usually lower than man's height and are not always fitted with panels. In larger households the corner rooms, frightfully dark and opening to the adjacent rooms, usually contain *kothis*¹ in which grains are stored. The south-western room contains the alter of the family god and is called *sira-ghar*. Generally an enclosed portion of the verandah by the side of the *sira-ghar* functions as family kitchen. *Daroja* (the main entrance-room) is often divided into two parts by a narrow passage cut to the level of the floor of the inner verandah. From this passage the two halves of the rooms appear as raised platforms. On one of these platforms is fixed the grinding stone-wheel or the hand-mill. Quite often, this half of the entrance room is provided with a wooden ceiling, called *machan*. A *machan* is, in fact, an overhead store. On the other platform are generally dumped small, frequently used iron implements, baskets, sticks etc. Sometimes, this half is used for sleeping purposes. All other rooms function variously during day and night and most of them are bed-cum-other-purpose rooms. In a cultivator's house, it is rather difficult to find a room without a *kothi* or some other storing devices. In one of the inner verandahs or in the *angan* stands the *dhenki*—a lever device for paddy-husking.

The most important building materials in this zone are mud and thatch (figs. 109 & 114). More than 90% of houses are mud-walled. Tile is the most predominant roofing material and covers 50 to 90 percent of

1. *Kothi* is a hollow cylindrical or rectangular structure with an earthen lid on the top. It is a sort of silo and is almost rat and fire-proof.

the total rural houses. The proportions of thatched roof vary from 10 to 50 percent. Walls are generally 8 to 12 feet high and their thickness varies from 2' to 3' on the bottom to 1.5' to 2' on the top. The walls are thus made tapering from the foundation to the top. The partition walls in between rooms are super-added with gables. The gable-ends are usually high by 2.6' from the eavesline. The walls are thickly plastered with well-kneaded mud mixed with paddy husks which work as adhesive. Mud or ash-wash is frequently given to the plastered walls. An additional wall, 2 to 3 feet high is constructed to buttress the main wall. This supporting wall is called *pusta*. *Pusta* becomes essential because the walls, under the influences of rain and saline effervesces, are caverned from below. Brick walls are generally mud-mortared. The exterior of brick walls is generally unplastered, but the interior is invariably plastered with lime or cement.

Ground levels of the houses are raised by 1 to 3 feet. In a *chaukita* house the floor generally consists of three levels. The *angan* is usually high by one foot from the fore-ground and the floors of the inner verandah or rooms is further high by one foot. A fresh coating of mud mixed with cow-dung is added everyday to keep the floor smooth and free from insects.

Bamboo and palm are the chief roofing timbers. The palm-trunk is split into two and is used as beams that run from one gable-end to the other. From the beam to the walls are laid down rafters made of bamboo and palm alternating one another at an interval of 1 to 1.5 feet. Palm-rafters, besides being stronger, are immune from moth-attack and do not rot easily in water. This frame is overlain with a closely spaced mat-work of split-bamboo, reeds or *sarkandas*. A lining of palmyra leaves, straw or thrashed stalk of linseed is super-added. A thick coating of mud mixed with cow-dung and paddy husk is given to this elaborate structure. Mud coating which makes the roof air-tight, is a device to protect the interior from the *loo*. Tiles are finally laid down on this mud-coated surface.

Roofs are two-sided and slope away in opposite directions from the crest-line. Each side is divided into two parts : the part from the crest-line to the wall is called *chhappar* and that from the wall to the projecting end is called *olti*. *Olti* is a separate structure made of a network of bamboo and is 3 to 4 feet wide. It is supported from below by a series of brackets called *marua*. *Marua* is hook-shaped and is obtained by splitting the domal stem of palm tree. The tiles used in this part of the country are all alike. They are halves of a hollow cylinder of

unequal base and top. The tiles are so arranged that they attribute a corrugated appearance to the roof-surface. The tiles that are placed on the crest-line to join the two sides of the roof are much larger than the ordinary tiles. The crest-line topped with tiles looks like a curved ridge of uniform width. Eaveslines are straight. The lower end of the roof is fitted with *tontis* through which the rain-water is discharged. *Tonti* is a sort of hollow cylinder, the upper half of which is cut to the tile-shape while the lower half is circular and looks like artistically designed round holes. The *tonti* enhances the beauty of the roof as well as of the house.

The basic structure of a thatched roof is light and rudimentary. As the thatched roof is a poor men's device, the beam is usually made of less expensive palmyra tree or relatively strong bamboo. A trellis net of bamboo, after being thickly thatched, is placed on the top of the walls and the central beam. By placing two such thatched roofs on the two sides of the beam the room is completely covered.

Ventilation is awfully poor. Windows are missing from all categories of houses, except the modern ones of exotic origin. Scanty ventilation is provided by small circular or square aperture called *jangla* or *bhurki*. The *jangla* is placed above man's height and is partly shaded by the roof that projects beyond the walls. As a measure of protection the *jangla* is fitted with two sets of cross-bars.

Small shelves are cut into the walls which are called *dharkha* or *takha*. Bracket-like features projecting from the walls are called *baithaki*. The walls and roofs are fitted with a large number of pegs and hangers which, quite often, create congestion inside the house and mar the beauty of the ceiling and walls.

The rural sky-line is remarkably low and uniform. Variations in the elevations of the sky-line are minor and are mostly confined to the large villages of multi-strata society. In such villages the sky-line assumes steppy appearance. The higher two-storeyed houses belonging to the rich people, are generally contained in one sector. On one or all sides of this sector are crowded the one-storeyed houses of small peasant-class. The sky-line touches the lowest level in the sector inhabited by landless labourers and scheduled castes. The roof-surface from above presents a variegated picture. It looks like a carpet of patchy designs painted in two or three colours, i. e., the red-brown patches of tiles, grey patches of thatch and a few small, white patches of lime and concrete roofs. Tile-colour predominates, but in many a village and hamlet only

the grey-thatch colour is seen. From a distance the sky-line and roof-colour serve as an index to the economic conditions of the villagers.

Hazaribagh Type

Rural dwelling in most of the district of Hazaribagh is a plateau version of the *chaukita* house adopted profitably to the local conditions. The ground-plan of houses in this area is oblong rather than rectangular. Narrow and elongated plan appears related to the aspects of relief. A comparatively steep slope makes the acquisition of a large and level piece of land difficult. Due to relatively steep gradient, level changes quickly and, therefore, the shorter the width of the house the lesser is the departure between the rear and the front levels. The longer walls usually run parallel to the contour line while the shorter ones follow the gradient. The average dwellings are mud-walled and tile-roofed. Mud and timber are predominant building materials. A plentiful use of timber in the construction of both walls and roofs is a distinctive feature of the Hazaribagh houses. The mud walls are supported by vertical wooden poles erected at an interval of 6 to 10 feet. On the top of the poles are placed horizontal beams which support the roof. The mud walls appear as infilling device between the poles and the beams. The average rural dwellings in the district of Hazaribagh are relatively high-walled. Most of the houses are provided with false wooden-ceiling which are a sort of improvised second floor. Horizontal beams, two to three feet below the eaveslines and across the width of the room, are laid down. The beams are overlain by closely-spaced wooden planks to which is superadded a thick layer of mud. This type of ceiling is called *machan*. The space between the *machan* and the roof is generally utilized for keeping various articles of domestic and agricultural uses. Seldom the *machan* is used for sleeping. *Machan* in Hazaribagh is an index of affluence and is an essential feature of the houses of well-to-do people. The houses with *machan* are necessarily higher and look lofty and imposing amidst the low-walled houses of the poor people.

Though the roof is tiled it differs from the tiled roof of the Ganga Plain. In place of bamboo and palm-splinters, beams made of *sal* and other forest trees are used. The beams are closely spaced and are overlain by a matting of bamboo or thin wooden planks on which tiles are placed. Grass or thatch lining and mud-coating are completely missing not only from the district of Hazaribagh but from the other parts of the Plateau as well. The grass lining and mud-coating are given up in Chotanagpur perhaps to obviate the menace of white ants. A more uniformly distributed and relatively high precipitation keeps the tile wet for a longer period. Mud-coating under wet tiles makes the wooden

structure more susceptible to the attack of white ants. White ants are so menacing in Chotanagpur that even hay and straw are piled on a raised wooden structure or on the tree-tops (Plate IV / 26). The roofs in Hazaribagh as well as in other parts of Chotanagpur are in more than one planes. Unlike the roofs of Ganga Plain all the roofs in Chotanagpur have gable-ending and are generally constructed into two planes. One pair of roofs on opposite sides of a *chaukita* house is higher than the other pair. The roof of the verandah is lowest and is placed on a different plane which is generally 2 to 3 feet lower than the eavesline of the rooms. Absence of *olti* from the roofs of Hazaribagh is another characteristics of the area. *Olti* is missing from other parts of Chotanagpur houses too.

The Hazaribagh houses, though having a *chaukita* plan, are comparatively small. The number of rooms varies from four to seven. The houses of Hazaribagh as compared to the houses of the Ganga Plain are roughly built and crudely finished. The walls are plastered with mud, but the plaster is thin and uneven. Verandahs are fewer and smaller in dimensions than those in the Ganga Plain. They are invariably wooden structures supported by wooden poles and beams.

Ranchi Type

The typical rural houses in the tribal parts of Chotanagpur, particularly in Ranchi District, have a linear ground plan. An average house is a two-roomed structure. A verandah is often attached to one or more sides of the house. Well-to-do people have three-block houses. One of the three is the main block and is used for sleeping and general purposes. Of the remaining two one is used for kitchen-cum-store, while the other functions as cow-shed. If the blocks are built separately and a bit apart from each other, they are often enclosed by a low mud-wall. On the other hand, if the blocks are built adjacent to each other, they enclose a piece of land in the middle which largely conforms to the *angan* of the Ganga Plain. Each one of the blocks has a separate entrance. Back-door is completely missing from Chotanagpur houses. Poorer people have one-block house consisting of a simple room and a narrow verandah attached to the longer side. Walls are made of mud which are frequently supported by vertical wooden poles and horizontal beams. A number of strong wooden pegs are inserted into the walls from outside. On these pegs are generally placed various types of timber and beams. Some of these pegs are long enough to project inside the rooms. Such projecting pegs are used as hangers. The walls are relatively low and thin. The Ranchi houses have, in fact, the lowest walls in Chotanagpur. They

look like small lowlier huts and betray a sense of poverty and primitiveness. Tile-roofing is the universal characteristic of rural dwellings in the district of Ranchi. So universal is the use of tile that even the one-roomed hut of the poorest type is invariably tile-roofed.

Palamau Type

The rural houses in the district of Palamau represent a queer mixture of the plan and architecture of the houses of the South Ganga Plain and those of the districts of Hazaribagh and Ranchi. They have the *chaukita* plan of the Ganga Plain, but the plan is frequently incomplete with rooms built only on the two or three sides of the *angan*. The ground plan is an oblong figure like that of the houses of Hazaribagh. Walls are made of mud. They are higher and thicker than those of the houses of Hazaribagh and Ranchi. The roofs as in Hazaribagh are in two distinct planes. The northern and southern sides being higher have gable-endings. The front verandah is much wider than the one seen in Ranchi and Hazaribagh. Quite often, part of the front verandah is enclosed and is converted into outroom. When the houses are built laterally in a row on either side of a road or wide lane, they frequently adjoin and share walls in common (Plate I). The front-view of such adjoined houses give the impression of a single structure.

An average house has tiled roofs. Thatched roof is rare and is mostly confined to the lower reaches of the North Koel valley where paddy commands a larger area. The slope of the roofs is gentle and seldom exceeds 15°. A lower pitch of the roof is obviously in response to the lower amount of precipitation in Palamau. The framework of the roof is made of *sal* and bamboo. Owing to extensive bamboo forests, the use of bamboo in Palamau is much more plentiful than in other parts of Chotanagpur.

There are two specialities of the Palamau houses which make them quite distinctive. The dwellings of the well-to-do farmers, though having a *chaukita* plan, have verandah on all the four sides. The front verandah is used as parlour, whereas the side and back verandahs function as cow-shed, lumber room and stores for agricultural implements, hay, fodder and *bhusa*. Provision of back-door is another universal feature of Palamau houses. Every house belonging to an average middle class family must have two entrances : one in the front that leads to the *angan* from the parlour and one in the rear that opens to the backyard. The back-door is exclusively meant for women and functions as a private entrance.

Panch Pargana Type

The Panch Pargana forms a fringe zone of the Ranchi Plateau and functions as a zone of contact between the tribal plateau of Chotanagpur and the non-tribal plains of Bengal. The rural dwellings in this part have, therefore, a fine blend of the material of the former and the architectural designs of the latter. An average house of Panch Pargana has an oblong plan. It is a two-roomed compact house without a courtyard. One of the two rooms is used as kitchen-cum-store, while the other is all-purpose sleeping room. On all the four sides of the rooms verandahs are built. The verandahs are enclosed by mud walls. The enclosed verandah looks like walled and covered passage encircling the room. The encircling verandah is put to various uses. The front portion functions as parlour-cum-bed-room. The side spaces are used as cattle-shed, goat-pen and store for agricultural implements. The back portion is made into a lumber-room where logs and timber of various types are dumped. On one of the longer sides of the verandah, the main entrance is placed. The entrance to the rooms is through the verandah. The house opens to a foreground, a relatively wide passage or a lane. There is often an enclosed piece of land at the back of the house. The enclosure is made of mud-wall but sometimes, it is hedged by thorny-bushy plants.

An average house of Panch Pargana is mud-walled. The outer walls which are actually the enclosures of the verandahs are perhaps the lowest in Chotanagpur. They are 5 to 7 feet high and 1 to 1.5 feet thick at the foundation. The inner walls, i. e., the walls of the rooms are higher by 3 to 4 feet than the outer walls. The walls are thickly plastered with mud. Ventilation is as usual poor. Two small apertures on each side are provided in the outer walls. Similar apertures are made in the inner walls which are kept above the level of the verandah roof. The high apertures are real ventilators and keep the rooms sufficiently lighted.

Tile-roofing is characteristic of the region. The roofs are designed after the umbrella pattern of Bengal roofs. All the roofs are without gables. Every house is covered by a four-sided roof that slopes away from the central beam. The corners of the roofs are so cut as to fit each other. The roofs on the shorter sides become perfect triangle while those on the longer sides acquire trapezium shape. The roofs of the encircling verandahs are separate from those of the rooms. The verandah-roofs are placed on a lower plane. The frame-work of the roof does not differ from that in other parts of the Plateau, but the beams and

rafters are well-finished and cut to size. The eaveslines are straight and symmetrical. As in Ranchi and Palamau *tontis* are missing from Panch Pargana also. The rain water is discharged from the tiles that project from the eavesline. To protect the projecting tiles from slipping down and to enhance the beauty and symmetry of the eavesline, wooden planks, about 6" wide, are nailed at the lower end of the roof.

Though the Panch Pargana houses are small, compact and devoid of *angan*, they are the most beautiful structures to be seen in Chotanagpur. In finish and architectural beauty they compare well with the tiled houses of the South Ganga Plain.

Santhal Parganas Type

The representative houses of the Santhal Parganas are those which are tenanted by the Santhals. The houses vary widely from west to east and from north to south. In the eastern part of the district the rural houses are like those of West Bengal, and in the north-western part they are designed after the houses of the South Ganga Plain.

The houses of Santhal Parganas are unique in many ways. Their ground plan appears to be a compromise between the plans of the *chaukita* house of the Ganga Plain and the linear structure of Ranchi District. An average house of the Santhal Parganas is a two or three-roomed structure. In front of the rooms a rectangular piece of land is enclosed by a high mud wall. This enclosed fore-ground serves the purpose of *angan*. The houses of well-to-do peasant-class are quite large and commodious. These houses have a multi-linear plan. In such a plan three separate blocks are built on three sides of a rectangular plot. On the fourth side stands a wall 6 to 8 feet high. All the three blocks, though separately built, are joined by short corner-walls. The corner-walls are generally roofless, but bunch of grass or straw is often placed on them as a protective measure against the monsoon showers. The corner space between any two rows of rooms built at right-angles is kept vacant and is used for various purposes, e. g., feeding stall for cattle, goat or chicken-pen, open-air cooking and washing of utensils. Outer or front verandahs are completely missing from the houses of the Santhal Parganas, but very often the caves of the front roof are elongated which form a kind of narrow verandah. Inside the house narrow and partially walled-up verandahs may be seen on one or more sides. In one of these verandahs are placed the rice-husker and hand-mill. The houses in this part, particularly the Santhal houses never open direct to the village street. The entrance is always placed on the side walls behind the front corner and leads to the street through a narrow passage. The

entrance is topless, open and cut into the walls. It is actually a break or discontinuity that separates the front-wall from the side-wall. The main entrance is often without any door-and-panel fittings. To block the unwanted entry of men and animals, two wooden bars are placed horizontally across the entrance. The entrances to the rooms are low, but wide enough. These entrances are fitted with door and panels made of wattle-and-daub. The panels are tied to the door-frame with loops. Sometimes, outer entrances are also provided with similar fittings. Wooden doors are rare and are seen only in the houses of village-head-man or relatively rich people.

The walls are made of mud. They are comparatively high, thick and strong. All the walls are smoothly plastered with clay mixed with ashes. An additional wall, about 2 to 3 feet high is attached to the main wall from outside, the top of which forms a narrow platform running round the house. The platform is used as a ledge for sitting. The additional wall is coated with a black pastey substance prepared by mixing the powder of burnt straw, *karanj* and *neem* seeds with clay. The black coating, in addition to attributing a colourful design to the house, enhances the durability of the walls. Owing to the oil content of *karanj* and *neem* seeds the coating can well stand the monsoon showers.

The roofs are generally thatched, but tiles are not altogether missing. The predominance of thatched roof increases from west to east. The roofs are high-pitched with a slope varying between 25° and 35°. The roof is two-sided that slopes away in opposite directions from the central beam. Whether thatched or tiled the roofs are symmetrical and beautiful and the eaveslines are perfectly straight.

Chaibasa Type

The representative houses of the Chaibasa plain are those which are tenanted by the Hos and other peasantry classes. Among the rural dwellings of Chotanagpur, the Chaibasa houses are the most artistically designed beautiful structures. An average house is a two-roomed entity with or without outer verandah, but, very often, a cultivator family has a house that consists of three blocks. One of them is the main block. It consists of two multipurpose living rooms and a narrow verandah. The verandah functions as a place for reception, sitting and a lot of indoor-work. In one half of this verandah, the *dhenki* is installed. Of the remaining two blocks, one is used for kitchen-cum store and the other as a fowl-pen or pig-sty. The different blocks, built separately but quite close to each other, are enclosed by a mud wall or are hedged by thorny plants.

Most of the Chaibasa houses are mud-walled, but quite a large number of them have walls made of unburnt bricks and stones. Walls made of unburnt bricks and stones are status symbol. The houses of the village headman, *Pahan* and other rich people have generally walls made of unburnt bricks and stones. The stone-walls are particularly numerous in the foot-hill zones and in such places where the Dharwarian schists, slate and phyllite crop out. The walls of Chaibasa houses are straight, symmetrical and evenly plastered. The people of Singhbhum, particularly the Hos have perfected an excellent technique of mud-plaster and colour wash. Colour-coating on walls is universally practised in the Chaibasa plain and the adjoining areas. The walls are painted in horizontal stripes of three colours, black, white and yellow or red. All the stripes are of uniform width. The lower portion of the wall is painted in black, the upper portion in white and the middle in yellow or red, depending upon the availability of colouring materials. Black colour is obtained by burning straw and leaves of forest trees. Red and yellow colours are obtained from hematite and limonite which occur in plenty in this part of Chotanagpur. White colour is obtained from the solutions of kaolin, lime or white clay.

In the Chaibasa plain, the chief roofing materials are thatch and tile. The thatched and tiled roofs are almost in equal proportions, but east of Chaibasa, thatch becomes more preponderant. A tiled-roof house in the Chaibasa plain, unlike that in the district of Ranchi, is an economic index. The houses of well-to-do farmers and non-tribal settlers are generally roofed with tiles. The structure of the roof consists of sal-rafters overlain by split-bamboo. The structure of thatched roof is light and rudimentary. The most important thatching material is straw which is available in plenty. In addition to straw, a forest grass called *saiu* is widely used. Grass-thatching is preferred for it lasts longer and is cheaper too.

West Bengal Type

In a narrow strip of land from Sahibganj in the north to Dhanbad in the south, the rural dwellings are very much like those commonly seen in the adjoining parts of West Bengal. An average house in this area is a two-roomed structure. The walls are made of mud. The height of the walls varies from 6 to 9 feet. All the four walls are built alike. Gables are missing from the walls. The top of the wall is up-arched. Floor is often raised by one to two feet. The whole house, in fact, appears to be mounted on an earthen pedestal, but the pedestal is never so high as seen in the lower parts of the Ganga Delta.

Roof is invariably thatched. Each house has a four-sided roof. Because of the up arched nature of the wall-tops the eaveslines become arcuate. The slope of the roof is also made convex, so that the middle portion of the roof becomes up-arched. The four-sided roof with arcuate eavesline and convex slopes acquires a typical umbrella shape. Thatching material is invariably straw which is properly combed and neatly placed over the bamboo structure. From the apex to the eavesline the slope is five to six times longer than the length of the paddy-stalk. Hence, the bunches of straw are so placed from the eavesline to the apex as to overlap one another. To keep the overlapping ends unruffled and fixed, even during cyclone, they are tied with ropes that appear as parallel lines running round the roof. Heavy precipitation has necessitated a higher pitch. The convex slopes and arcuate eaveslines are, in fact, a device to enhance the pitch and facilitate the discharge of rain-water. Convexity of slope divides the roof into two parts—the upper and the lower. The slope is relatively gentle in the upper portion but becomes automatically steeper in the lower portion. Such a distribution of slopes makes the roof leak-proof, for the volume of rain-water rolling down the roof increases from the apex to the eavesline and, therefore, the lower portion of the roof requires a steeper slope to effect quick discharge. The height of the walls also bears the mark of climate. In order to give a high pitch to the roof, the walls are necessarily kept low. If the walls are high, the roof will become too high to be conveniently constructed and will run greater risk of being blown off by strong winds and cyclones.

Verandah from the Bengal type of houses are generally missing. The walls are so low that any further extension of the roof is not feasible. Besides, verandahs will, unless they are on all the four sides, rob off the roof of its umbrella-like symmetry.

South-Western Palamau Type

In the western part of Palamau District, that comprises the North Koel-Kanhar interfluvium and the northern slope of the *Pats*, the representative houses are those which are tenanted by such hill tribes as the Korbais, Birjias and Parhaiyas. An average dwelling is a very light structure consisting of a single room, 8' × 12'. The walls are made of bamboo. Bamboo-sticks, 5 to 6 feet long, are so erected as to leave no gap inbetween. These bamboo poles are fastened together at two or three places with fibres of leguminous plants. A small entrance, 4' high and 2' wide, is made into the bamboo-walls. The house is covered with thatched roof. The most commonly used thatching material is

grass which overlies the crude frame of bamboo. To make the roof leak-proof leaves are arranged on the thatched surface. The use of bamboo as the sole building material is quite natural for the areas consisting of the most extensive forests of bamboo. In the bamboo forest *sabai* grass grows in plenty. Floor of the house is usually raised by a few inches. The soil around the house is upturned to cover the root of the bamboo poles. The upturned soil functions as a protective bund against the inflow of rain-water.

In the southern part of Palamau and the western part of Ranchi districts, bamboo continues to be the most important building material, but it is used in a different way. The area is inhabited by such people who specialize in bamboo splitting and the manufacture of bamboo-wares. For building their houses they, therefore, prefer split-bamboo to the round one. The walls are made of a strong lattice-work of split-bamboo. The lattice-work is vertically erected from the ground and is supported by vertical poles. The lattice-wall is frequently plastered with a pasty substance made of a mixture of clay, dried grasses and resins.

Further south, in the south-west corner of Simdega Sub-division, the dwellings of the hill people undergo marked changes. Though they continue to be light, rudimentary, one-roomed structure, they are made of altogether different materials. In the construction of houses in this area, bamboo gives way to wooden logs or planks hewn out from tree-trunks. These log-houses are generally roofed with tiles. Thatch-roofing is rare and is confined to relatively inaccessible forests and hills.

Southern Singhbhum Type

The rural dwellings in the southern hilly parts of the district of Singhbhum differ from those of the Chaibasa Plain. The difference mainly relates to the building materials and the size of dwellings.

An average house in the Saranda forests is a two-roomed light structure. The rooms are narrow, but abnormally long. The houses, thus, acquire a typical linear plan. The ground-plan of the houses appears related to slopes and general ruggedness of the surface. The Ho settlers in this forest prefer to locate their houses on hilly slopes and higher grounds. Steeper gradients in such places limit the width of the houses. A wider house requires terracing of the slopes which increases the cost of building. On the other hand, the longer side of the house follows the contour-lines and can easily be extended to the desired length. The walls are variously made of mud, unburnt-brick and stones. They are relatively thin and low. The roofs are both tiled and

thatched. Besides, a good many houses are roofed with corrugated and asbestos sheets.

The houses on the Kolhan highland as compared to those of the Saranda forest are sophisticated structures. The highland is inhabited by the Hos who are in direct contact with the Hos of the Chaibasa Plain. The Kolhan houses, therefore, are very much like those of the Chaibasa plain. They differ, however, in the use and proportion of the building materials and the dimensions of the ground-plans. An average house in the Kolhan area is a two-roomed structure. One or two smaller structures may also be seen standing a bit apart from the main blocks. The additional structures are light, low and thatched. Sometimes, they are without walls and the roof is supported by wooden poles. Most of the houses are mud-walled, but a good many of them are walled with unburnt bricks and stones. The houses are generally roofed with tiles, but quite a large number of them are covered with corrugated asbestos and iron sheets. Small additional structures are invariably thatched with grass and leaves.

The most striking feature of the Kolhan houses is the abnormal length of the rooms. The length of the rooms varies from 20 to 40 feet but the width is constantly kept within 10 feet. Generally, there is only one entrance to the house. The houses are properly hedged. If a house consists of more than one block, the different blocks are enclosed by either a low mud-wall or a fencing of thorny plants.

ETHNIC TYPES OF HOUSES

Some of the most manifest characteristics of the rural dwellings in Chotanagpur are, as stated earlier, ethnic in origin. The population of Chotanagpur consists of tribal and non-tribal communities. The representative houses of the non-tribal people are patterned after (1) the *chaukita* houses of the South Ganga Plain and (2) the two-roomed umbrella like thatched houses of West Bengal. The former type is most numerous and is widely distributed while the latter is confined to the areas bordering West Bengal.

A large number of tribes live in Chotanagpur. Some of them are major tribes and constitute the bulk of the population in their respective areas. The others are minor tribes, less numerous and restricted to small areas in hills and forest. Yet, there are some tribes which are widely distributed and constitute insignificant minorities. Among the major tribes are the Santhals, Mundas, Oraons and Hos. By sheer number, the dwellings of these tribes become representative of their

respective areas and have been discussed under the regional types. Among the minor tribes the Korbais, Parhaiyas, Birjias and Chick-Baraikis are restricted to the hills and forests of western Ranchi and Palamau districts where they constitute the bulk of the population. The dwellings of these tribes have been discussed, in general, under the S.W. Palamau type of houses. Except the Birhors, all other minor tribes live in houses designed after the local types and have little distinction about their dwellings.

The general characteristics of the tribal houses have been discussed previously, but much remains to be said about their ethnic character.

Munda Type

The Munda houses are found in the district of Ranchi and in the adjoining parts of the districts of Palamau, Hazaribagh and Singhbhum. The Munda houses are generally commodious. An average house consists of two blocks, but well-to-do Mundas have three or four-block houses. The blocks are so arranged as to enclose a piece of land in the middle. The enclosed land is called *racha* (quadrangle). On the back of the house another piece of land is enclosed by a mud-wall or hedge. This backyard is called *bakri*. One of the two blocks are called *giti-ora* (sleeping room) and the other *mandi-ora* (eating room). The *giti-ora* usually comprises *merom-ora* (goat-pen). The *mandi-ora* includes sacred tabernacles where the spirits of the departed ancestors are worshipped¹. A portion of the *mandi-ora* is partitioned off to function as kitchen. A small space at one corner of the house is usually staved off as a fowl-pen. The third block generally consists of the cattle-shed and feeding-stalls. In absence of a separate cattle-shed, a portion of the *giti ora* is given to the cattle. The Munda house is a mud-walled and tile-roofed structure. Verandah is a common feature and is constructed on one or more sides of the house. Verandahs are often enclosed partially or wholly with a mud-wall and are utilized as lumber-rooms and, sometimes, as additional sleeping rooms. In the backyard chillies, brinjals, maize etc. are grown. Close to each individual house is a manure-pit in which the refuses are temporarily disposed off.

The Oraon Type

Though the Oraon houses are typical of the western part of Ranchi District, they are widely distributed in the whole of the district of Ranchi and the adjoining areas of the districts of Palamau, Hazaribagh and Singhbhum. The Oraon houses, as compared to the Munda houses, are dwarfish, clumsy, crudely built and unimpressive. An average Oraon

1. Roy, S.C., Mundas and Their Country. Ranchi, 1912, pp. 382-412.

house is mud-walled and tile-roofed and consists of two huts one of which is generally bigger. The bigger hut is ordinarily divided into two unequal compartments by a low mud-wall running for about three-fourths of the width of the room. The large compartment is used for cooking and dining, sleeping, while the smaller one serves as general store, lumber-room and granary. A small verandah attached to the hut serves as a place for reception and domestic-work. A corner of the hut is often partitioned off with bamboo or mud to function as fowl-pen. The smaller hut is ordinarily used as cattle-shed. A small enclosed verandah attached to the cattle-shed is utilized as pig-sty.

The Oraons appear to have little sense of individual planning. They do not plan their houses separately. The ground-plan of an individual house forms an integral part of the community plan laid out for the whole village. In an Oraon village, the huts are huddled together in a very intricate manner resulting in narrow, winding, blind alleys that always baffle the strangers. The houses are so built that they adjoin each other and share walls in common. Quite often, an Oraon village appears as a single block of inter-connected houses with doors facing all directions. The houses located in the central area of the compact block open to the bits of narrow, blind alleys which often end into someone's courtyard. "The interior of the village with its stinking manure-pits, filthy sink-holes and in the rains, stagnant pools of foul water made all the fouler by pigs and cattle wallowing in it, is as dirty and disagreeable as its outer surroundings".¹

The Ho-Type House

The Hos are confined to the district of Singhbhum and the Ho houses are typical of the Chaibasa plain and the Kolhan highland. The Hos are excellent craftsmen and fine architects. Their houses are neatly laid out, exquisitely built, colourfully decorated, elegant and impressive. In building their houses they carefully consider the aspects of defence and, therefore, they prefer elevated spots for locating their houses. At such places relief becomes a bit more pronounced and induces fragmentation of homesteads and separation of blocks. The various blocks of a Ho house are, thus, located a little too apart. Other characteristics of Ho houses have been discussed earlier and need no repetition.

The Santhal House

The Santhals are numerous in the district of Santhal Parganas and are widely distributed in the adjoining areas of the districts of Bhagalpur,

1. Roy, S.C., Oraons of Chotanagpur, Ranchi, 1915, p. 171.

Monghyr, Hazaribagh and Dhanbad. They are found in significant number in the eastern part of Singhbhum also. The Santhal houses are typical of the district of Santhal Parganas and the adjoining areas and have been discussed in detail under the regional types. Certain aspects of these houses are the specialities of the Santhals and deserve to be mentioned.

The Santhals, like the Hos, are good builders. They have a developed sense of cleanliness and sanitation. It is perhaps with this end in view that they build their houses in straight lines on either side of a cart-track. All the Santhal habitations are single-lane villages. The lane being the cart-track, follows the gradient that facilitates drainage. A Santhal village is, therefore, completely free from water-logging. The Santhals keep their surroundings clean and their houses tidy. The domestic refuse is directly disposed off in the field. It helps keep the village extremely clean and fields fertile.

There are two principal types of Santhal houses. The two types differ in architectural designs, general build and location in relation to the physical surroundings. One of them is called nine pole structure while the other is called two-pole structure. The former is old-fashioned and is confined to the hilly forested tracts. Nine poles in the rows of three each are vertically erected and are topped by horizontal beams to support the thatched roof. The space between the adjacent poles are filled in by wattle-and-daub or by mud-walls. This type of house has a two-sided roof sloping away from the gable-ends. The other type consists of commodious sturdy houses of the Santhal farmers. The chief distinguishing features are an enclosed quadrangle in the front of the house and a four-sided roof without gables. The designs of these houses are obviously influenced by the West Bengal type of houses. Those who are more Hinduized and live in open country, prefer the two-pole type house.

Every Santhal house is divided into two or three compartments each one of which is utilized in specific way. A portion of main house is partitioned off by a low mud wall. Here the ancestor and *Orang-Bonga* (family god) are worshipped. A corner of the courtyard is marked as washing-place where water-pot is kept on an earthen platform. It is obligatory for everyone to wash one's feet before entering the family shrine.

The Bhumij Type House

The Bhumij are one of the most backward tribes of Chotanagpur. They are mainly confined to the hilly areas of south-eastern Singhbhum District. Bhumij houses are small and lightly built. An average house is a multi-unit establishment. The number of units varies from two to

five. The various units stand scattered over the uneven surface without any planning or order. Each unit is a single-roomed hut. The huts are rectangular in their ground-plan. Walls are made of logs which are planted vertically on the ground. Inside the house the log-walls are plastered over with mud. The roof is two-sided and is thatched with grass and leaves. Gourd and other creepers, planted beside the walls, are allowed to creep over the roof. A Bhumij hut with creepers hanging all over the walls and covering the roof, looks like a 'green house'.

The Khond Type House

The Khonds, one of the major tribes of Orissa, are found in small number in the south-western part of Ranchi District. The houses of the Khonds are unique in many ways and deserve special mention. The Khonds are excellent carpenters, and "their houses are made entirely of wood without a single nail being used".¹ Thick planks are hewn out from the log of a tree. The planks are slid into the grooves of vertically erected wooden posts. The planks are tied with cross-stays and are finally fixed by wooden pins. The door is made of similar planks and are so fitted as to revolve into the grooved door-posts. The roof is made of thin flat rafters which are supported from below by beams. The wooden structure is finally thatched with straw and grass, but, quite often, it is roofed with tiles. The interior of the house is divided into two compartments by a wooden railing. One of them is a sleeping-cum-cooking room while the other is used as goat-pen or cattle-shed. Well-to-do Khonds have larger establishments consisting of two or three units.

The Birjia Type House

The Birjias are the forest dwellers of the districts of Palamau and Ranchi. They are mainly confined to the middle-western parts of the Plateau which contain extensive bamboo forests. The Birjias live close to Nature and make full use of the natural materials and facilities available at hand. A Birjia house is an oblong one roomed structure. The walls are made of poles cut to equal size and erected vertically from the ground. The bamboo poles are netted together with the fibres of forest plants. The roof is light and is thatched with *sabai* grass and leaves. Quite often, creepers are allowed to hang over the walls and to cover the roof. The interior is divided into two unequal compartments by bamboo railing. The larger compartment is used for cooking, eating and sleeping, while the smaller one serves as goat or fowl-pen.

1. Census of India, 1961, Report on Housing and Establishment. vol. IV, Part IV-A.

The entrance is generally low and narrow. It is shut with a cross network of bamboo which is kept aside when the inmates are at home during the day-time.

The Korba Type House

The Korbas, like the Birjias, are hill-and-forest dwellers of Ranchi and Palamau. Their dwellings are very much like those of the Birjia. The main difference lies in the use of bamboo. The Korbas along with such other communities as the Ghasis and Chick-Baraiks, are the makers of the bamboo-wares. They are well-versed in the art of bamboo-splitting. They prefer, therefore, to use split-bamboo in the construction of their houses. The basic structure is made of a cross network of split and round bamboos. To this structure is super-added a very closely netted mat of bamboo. The walls thus made of a network of split-bamboo and mats are finally plastered from inside with clay mixed with cow-dung and other adhesives. The roof is thatched with straw, grass and leaves. The entrance is relatively high and is closed at night with a bamboo-mat which, during day-time, is rolled up and kept hanging from the door-slab.

The Birhor Type House

The Birhors are the most backward tribe of Chotanagpur and live a nomadic or semi-nomadic life in the hills and forests of the adjoining areas of the districts of Ranchi, Palamau and Hazaribagh. The dwellings of the Birhors do not deserve to be called a house. They are wall-less, domal structures made of twigs, branches, leaves and grasses. The Birhor house has a circular ground-plan, 6 to 8 feet in diameter. The apex of the dome is 5 to 7 feet high. To construct the house, slender and green branches are fixed on the circumference of the selected site. The upper end of the branches are fastened together with fibrous or leguminous creepers. A lining of slender twigs and grass is super-added to the domal frame. Finally from the foundation to the apex of the dome the frame is thatched with leaves. The leaves are so ingeniously placed over-lapping one another, that the whole structure becomes absolutely leak-proof. The entrance is provided through a small oval hole measuring 3 x 2 feet. The hole is cut into the domal wall just above the ground and is closed at night with a mat made of twigs and leaves.

SUMMARY and CONCLUSION

We have seen in the foregoing chapters that the human occupancy of land, distribution and density of population, distribution, siting and types of rural settlements, rural morphology and house-types are, to a great extent, related to the factors of physical and cultural geography of the area. Chotanagpur is a land of great inequalities. Great differences in elevation and relief bring about contrasts in climate, natural vegetation, surface drainage, under-ground water-supply and soil-profiles. These, in turn, influence the land-use pattern, distribution of population and various aspects of settlements. Extensive areas above 2000 feet and greater part between 2000 and 1000 feet present a variety of morphological features which are clearly expressed in the cultural landscape. River valleys, most of them long, deep and terraced, a few of them wide with gentle slopes, alternate with low, elongated ridges. Quick run-off renders the streams ephemeral and ponds empty hollows in summer. The impervious character of gneissic rocks further aggravates the problem of under-ground water-supply.

One of man's greatest struggles in this part of the world has been to protect himself against the torrential rains of the monsoon and the oppressive heat of summer. Rainfall and temperature are, therefore, the most important climatic factors that have been constantly influencing the character of settlements.

Forests which occupy extensive areas, are largely negative to settlements. Most thickly forested areas constitute the most inaccessible tracts and are largely devoid of or have a scanty sprinkling of population. There is something like the law of uniformity about the distribution of forest resources. This aspect of the forest works towards the dispersal of settlements.

Of all the factors of physical environment, soil and water-forms appear to be most eloquently expressed in the general fabric of the rural landscape. Density of settlements, size of villages, richness of architectural designs and rural households, all depend directly upon the agricultural productivity of land. In a region like Chotanagpur where the

methods of agriculture are primitive, irrigation under-developed and the amount of rainfall much variable, agricultural productivity is largely a function of soil. On the other hand, fertility, thickness and texture of soil vary with the amount of slope. The extension and intensity of land-use are broadly determined by slope. As the slope increases the percentage of land under plough decreases.

Except in the alluvial plains of the broad river valleys and the adjoining parts of the Ganga Plain, the pattern of human occupance is the same everywhere. Villages are generally surrounded by *bari*-lands. Next to the *bari*-land lie the second and third class uplands. Below the up-land and farther from the villages extend rice-lands.

The influence of industries on the rural landscape is discriminating and variable. The industry of the region has been divided into two categories. The first category includes mining and lumbering industries. Various cottage industries, workshops and large-factory establishments are included in the second category. Large factory establishments which have given rise to new towns or have resulted in the expansion of old towns, have affected the rural settlements in two principal ways. In the first place, the influences have been negative to the countryside, for hundreds of villages have been lost to industrial towns. In the second place, industries have brought into existence new lines of communication and have led to the enormous increase in traffic. Along these routes of industrial traffic many new and important features have sprung up. These features have enriched the rural landscape. The influence of the large-scale concentrated mining of such minerals as coal, iron and copper, has largely been negative to the countryside. A large number of villages have been obliterated from the mining areas. Besides, mining has deprived the villages of the hundreds of square miles of agricultural lands and pastures. The influence of small-scale and sporadic mining of such minerals as mica, limestone, gravel, stones, quartz and kaolin has been quite different. These small mines are conveniently contained in the rural landscape. The top-works and associated structures at these mining centres have, therefore, gone to enrich the rural landscape.

The existing lines of communication are of recent origin and their impacts on the rural lands can easily be recapitulated. Chotanagpur ushered in the era of modern transport with the beginning of mineral exploitation and within half a century thousands of miles of macadamised roads and an excellent network of railways came into being. The density of roads and railways varies, however, widely in different parts of the Plateau, and about 30% of the total area of the region is still

inaccessible by roads. All such inaccessible areas are more than five miles away from any category of roads. Similarly, about two-thirds of Chotanagpur are yet to be effectively served by railways.

Chotanagpur is a typical example of the relationship between the development of communication on the one hand and the transformation of socio-economic conditions and the transplantation of settlements on the other. The continued growth of roads and railways has produced remarkable effects on the rural economy and settlements. There has been a redistribution of population. The density map of population has changed from one census to another. The number and size of settlements have increased. Small clusters have expanded while some of the big ones have grown to town-size. The impacts of railways, much more than those of roads, have been so obvious, particularly in the Damodar valley and Singhbhum District that the rural landscape has changed directly with the density of railways.

The courses of settlements and the peopling of Chotanagpur are difficult to be traced with certainty. At present, the ethnography of Chotanagpur is as varied and complex as in any other part of India. But, by and large, the demography of Chotanagpur may be said to be of two types — tribal and non-tribal. The Auranga-Damodar water-line is a great demographic divide. South of this line, the population is predominantly tribal and north of it, except in the Rajmahal Hills, it is predominantly non-tribal. The peopling of Chotanagpur, though it started thousands of years ago, is far from complete. This is supported by the fact that during the last hundred years the number of immigrants to Chotanagpur has been larger than in any other past centuries. With the increased accessibility and the exploitation of minerals and forests human occupation was extended to the interiors of hills and forests. Mining and industries attracted people from all parts of India and even from abroad. All these resulted in the multiplication of settlements and the extension of occupation to such areas as were hitherto unoccupied. Such unoccupied areas are not yet exhausted and are awaiting further expansion of settlements.

The population is so distributed that the whole region appears to be divided into two equal parts. In one of them the density is less than the average for Chotanagpur, while in the other it is higher than the average. One is naturally thinly populated and the other is thickly populated. The thinly populated part comprises the central highlands, scarps, hills and dissected slopes. All these thinly populated tracts form a triangular area which is surrounded on three sides by the

girdle of higher density. The density of population varies within a very wide range, i. e., from less than 100 to more than 4000 persons per square mile. The entire range of variation has been divided into four density grades. All these grades are represented in extensive definable areas.

One of the most obvious relationships is that between the density of population and the measure of relief. The density of population increases as relief decreases. Relief influences the form and territorial organization of production. As the rural population of Chotanagpur is largely agricultural, the distribution and density of population are directly related to the extent of cultivation. The density grade of 200 is noticeable in areas which have 30% of land under cultivation. In all the areas where the percentage of cultivated land is less than 30 the density of population falls below 200 per square mile. A density between 300 and 400 persons per square mile is largely confined to such areas where the extent of cultivation varies from 40 to 60 percent of the total land. All the areas having a density higher than 400 persons per square mile are to be put under two economic categories — (a) intensive agricultural and (b) agro industrial.

Physical geography and courses of history appear to have rendered Chotanagpur a cultural island. It is a wedge of tribal culture extending from the tribal core located in Central India and penetrating deep into the area of intensive Aryan culture. Immigrations of the people of Aryan descent have been halting and fitful in manner. The processes of Aryan colonization and occupation of land in Chotanagpur have, therefore, differed in different parts of the Plateau. In northern half and the eastern marginal areas it has been a transitory process involving the upward movement of the entire society and its cultural pattern. In the southern half, particularly in Ranchi District and farther south the process of Aryan colonization has been stray, discriminating and linear along the established routes and river valleys. The selective process of land occupation by tribal and non-tribal communities resulted in area specialization in the distribution of the two communities, and ultimately led to the evolution of a banded pattern of culture distribution—one culture band generally alternating with another. Further, such a process of migration led to an assortment of people and cultural elements. Consequently, the cultural landscape that evolved and settlements that grew up suffered from the lack of variety and richness. Besides as the tribal and non-tribal cultures are yet to be fused into one, the cultural landscape suffers from the absence of homogeneity.

The tribal society is poor and backward. The wants of the tribal people, particularly in remoter and less accessible forested hilly tracts, are few and simple and are easily satisfied by mutual co-operation in a relatively small village community. The average size of village community in Chotanagpur is, therefore, smaller than in the Plains. Backward economy and sparse population have adversely affected the evolution of cultural landscape and the multiplication of cultural features. Except the small, dwarfish houses and terraced fields there are few things to be seen in Chotanagpur villages.

The villages of Chotanagpur are unique in many ways. The size of settlements, their areal extent and population content vary widely. Because of the varying degree of cohesion and compactness villages of equal population are not equal in their territorial extent. The size of a *mauza* is so variable that the ratio between the smallest and the biggest is 1:10. The inter-settlement distance also varies within a very wide range. Consequently, the areal pattern of the distribution of settlements in most of Chotanagpur is highly uneven and irregular.

Statistical analysis of the correlations between the density and distribution of settlements on the one hand and the density of population, extent of cultivation, acreage under rice and the amplitude of relief on the other, lead to the following conclusions :—

1. Increase in the density of population does not necessarily imply increase in the number of villages per unit area.
2. Higher density of population does not give rise to larger villages. The converse is also true.
3. Extension of cultivation is no measure of the multiplication of settlements.
4. Rice is the staple crop and most of the plateau has a single-crop rice economy, but the extent of rice cultivation is also not a measure of the number of villages per unit area.
5. A comparison of the village-density and physiographic maps reveals that the amplitude of relief has no direct relationship with the number of villages per unit area. The number of villages per unit area is more or less the same in three different physiographic divisions, e.g., the adjoining Ganga Plain, the erosional surface between the Kodarma plateau and the Rajmahal Hills and the highly dissected hilly tracts of the Sankh basin. Again, the number of villages per unit area is more or less the same in such areas of varying relief as the North Koel valley, Ranchi Plateau and the Panch Pargana Plain.

Distribution of settlements in terms of areal pattern, location, siting, inter-space and inter-settlement relationship is mainly of four types. They are (1) even, (2) uneven, (3) patchy and haphazard and (4) infrequent.

Two factors appear to reflect upon the evenness of the distribution of settlements. They are the nature of terrain and the productivity of land. In all such areas where the geographical conditions are homogeneous all places are equally suitable for human habitation and the distribution of settlements tends to become even. Such are the situations obtaining in the broad river valleys, alluvial plains and the peneplain surfaces. In all such areas, physical terrain being more or less homogeneous, have favoured even distribution of settlements. Contrarily, even distribution is marked in highly dissected areas. In such areas a high degree of dissection has mitigated the local relief and has multiplied the number of physical land-units and habitable sites and have, thus, attributed an aspect of homogeneity to the area.

From the view-point of water-supply, Chotanagpur appears to be a homogeneous area, for the problem of water-supply is more or less everywhere alike. Tractable land in the plains and plain-like plateau surface is uniformly distributed. These factors have favoured an even distribution of settlements in these areas.

In the hilly forested area of marked physical inequalities, habitable sites as well as the economic resources, particularly the cultivable lands, are meagre and infrequent. In all such areas the distribution of settlements conforming to the distribution of natural resources, has become uneven and infrequent.

Uneven distribution of settlements is seen in such areas also which have nothing in common with the hilly forested tracts. Such are the valleys of the Damodar and the Suvarnarekha rivers and the alluvial indentations into the northern edge of the Plateau. In the two valleys, the settlements appear to be lumped at only a few points of economic concentrations. Similarly, in the narrow, elongated flood-plains of the streams that descend the edge of the Plateau, heavy concentrations of settlements at a relatively few dry points have rendered the picture of distribution uneven and patchy.

Habitable sites in Choatanagpur are of a few types. Common habitable sites are essentially physical in character. Cultural sites are few and are not completely shorn of physical attributes. The most common sites consist of such features as valley-heads, divides,

interfluves, spurs and hill-sides. Less important are river-sides, hilltops, foot-lines, passes cols and nick-points. Among the cultural sites only the road-sides and cross-roads enjoy regional importance.

In all the hilly areas and elevated, dissected tracts, valley-heads and divides make the largest number of habitable sites. Spurs are next in number and importance. Spurs are of two types— hill-side spurs and valley-spurs. The latter are more preferable. In the hilly areas the distribution and density of settlements are directly related to the frequency at which such features occur, and indirectly to the texture of drainage.

Most of the commonly favoured sites discussed under various names are multiple physical entities. They combine in themselves more than one physical attributes.

As regards the location and siting, the settlements exhibit two principal tendencies — (1) the tendency to prefer and (2) the tendency to avoid. The settlements prefer to be sited on the interfluvial rises and scrupulously avoid the river banks. But in the alluvial plains and low-lying areas, the settlements are frequently located on the river-sides and on the margins of river terraces. Most of them are dry-point settlements.

All over Chotanagpur, the cart tracks and paths have exercised a good deal of influence upon the siting and alignment of settlements. The cart-tracks and paths have two types of alignment. On the peneplaned erosion surfaces and in the less hilly areas the routes follow the crestlines of the divides. In the areas of higher elevations and steeper slopes the routes avoid the divides and follow river courses. Consequently, in peneplaned areas and other relatively level tracts the settlements are interfluvial in location and frequently align with the crestlines of divides. In the areas of high hills and scarps the settlements are generally located in valleys. They are frequently seen scattered along the streams.

Influence of roads and railways on the siting of the settlements is quite strong in the Damodar and the Suvarnarekha valleys. Elsewhere, settlements are either indifferent to roads or have influenced the alignment of roads in such a way as to make them pass through important settlements.

The areas of higher elevations are of three types :— (1) the forested hilly tracts of the districts of Palamau, Hazaribagh, Ranchi and Singhbhum, (2) the scarped surfaces and (3) the chains of highly dissected and fragmented hills and ridges rising rather abruptly from the surrounding level and containing numerous deep-cut, deforested fertile valleys. In

all these areas, the distribution of settlements is uneven, haphazard and infrequent. In the hilly forested tracts of Palamau and western Ranchi, the distributional patterns are of three types : (i) individual huts dot the courses of streams and acquire a linear pattern of distribution. (ii) individual huts standing in perfect isolation in the middle of a forest clearing are located either on valley-heads or valley-spurs and (iii) individual huts collecting at favourable points form a sort of loose clusters.

A large number of ghost settlements¹ are typical of the forest areas. The nomadic and semi-nomadic tribes in their regular march usually leave behind a trail of deserted sites. Another characteristics of the hilly forested areas are the numerous temporary or periodic huts erected on higher slopes with a view to collect the forest products during the summer season. In less hilly and forested areas, e. g., the basins of the Auranga, Amanat, Sankh and South Koel rivers, the distribution and siting of settlements are highly selective, not so much in respect of physical features and relief as in respect of the agricultural capability of cultivable lands.

The scarped surfaces are largely negative to settlements. Numerous streams that descend the scarps are, however, dotted with settlements. At the two ends of this dotted line of settlements, i. e., on the head of the stream and at the nick-point along the foot of the scarp, comparatively large clusters are seen located. Inbetween the foot and the crest-lines of the scarp a thin sprinkling of settlements is found. Such settlements, generally consisting of individual huts, are located on the rounded hill-tops.

The third category of hilly areas is represented by the Rajmahal Hills and the Dalma ranges. In these hilly areas the distribution of settlements is highly variable. In the deep-cut fertile valleys, the settle-

1. Ghost settlements are devoid of population. They are of three types, but in all cases they represent deserted sites. Some of the settlements were deserted long ago and bear no evidence of human occupance except short and thin growth of vegetation suggesting the existence of forest-clearings in the past. In other cases, the settlement sites are deserted but the fields in the vicinity are regularly cultivated. There are still such sites which have been deserted rather recently and, as such, they contain demolished houses and other remains of human establishments, besides cultivated and uncultivated fields. Most of these deserted sites, particularly those which contained independent units of settlement are recognizable on the topo-sheets and occur in the records of Survey and Settlement operations and Revenue Department of the Government. Also see pages, 255, 257 & 257.

ments are closely-spaced. The distribution is uneven and patchy. On the higher slopes the settlements are few and are located in the inter-stream areas.

The uniform distribution of rather equal-sized *dons* and *tanrs* on Ranchi, Hazaribagh and Kodarma plateaus has resulted in the even distribution of settlements in these areas. The villages are uniformly spaced but owing to a higher degree of agglomeration they are a bit too apart. The same is true of the Kolhan Highlands. In the Chaibasa plain also the settlements are evenly distributed, but they are a bit more closely-spaced than in the Kolhan Highlands or the Ranchi plateau. In the Northern Fringe Zone also the settlements are evenly distributed. The villages are mostly sited on the river-banks while the interfluvial tracts are given to the *ahars*. The distribution of settlements has, thus, acquired a banded pattern — chain of villages alternating with that of the *ahars*.

In the Suvarnarekha valley, the Ajay basin, the Alluvial Upland and part of the Deoghar erosional depression, partly because of the incised nature of the river channels and the elongation of the interfluvial tracts and partly because of the very high importance of carts in the rural life, the settlements align with the cart-tracks. The villages are linear and their length varies within a very wide range. The orientation of the linear villages differs from place to place. The settlements, thus, appear unevenly distributed.

Plurality is the chief characteristics of the types of rural settlements in Chotanagpur. The settlements vary from compact clusters to thoroughly dispersed habitations. Between these two extremes are a number of intermediary types which represent numerous combinations of the tendencies of agglomeration and dispersal.

In view of the degree of cohesion, compactness and orderliness, agglomerations are highly variable. Similarly, there is no definable pattern of dispersal. In extreme cases a single hut standing in wilderness may constitute a complete unit of settlement. Elsewhere, a number of huts collectively forming a unit may be sprinkled over the whole or part of a *mauza*. There are cases where dispersal relates to groups of dwellings.

Agglomeration and dispersal quotients for various types of groupings and scatter-up have been worked out. With varying combinations of agglomeration and dispersal quotients a Settlement Tendency Scale has been designed. On one end of the scale is placed the compact clus-

tered type of settlements. The agglomeration quotient for this type is 100. On the other end of the scale is 'sprinkled' type with 100 as dispersal quotient. In the middle of the scale is placed hamletted type which represents a balance of the tendencies of agglomeration and dispersal, the quotients of each being 50. The hamletted type, thus, divides the scale into two parts — (1) the agglomeration side and (2) the dispersal, side. Between the compact clusters and the hamletted settlements three other types are recognizable. These types, in descending order of agglomeration, are (1) cluster-cum-hamlet, (2) cluster-cum-hut and (3) cluster - cum - hamlet - cum-hut. Similarly, on the dispersal side of the scale, between the hamletted and the sprinkled types, three other types are located. These types, in the ascending order of dispersal, are (1) hamlet cum-hut, (2) open-cluster and (3) lined-huts.

In addition to these types, there are linear settlements. Villages, in parts of the districts of Santhal Parganas and Singhbhum, consist of two parallel rows through which pass cart-tracks. All these are single-lane elongated villages. Such villages pose a peculiar problem of classification. As the dwellings are lined up along the cart-tracks, they may be taken to represent an aspect of agglomeration. On the other hand, it may be argued that the linear villages represent a certain amount of dispersal, for the dwellings are strewn along a line. In fact, the two aspects — the aspects of agglomeration and dispersal — are evenly balanced and linear type of settlements are therefore, analogous with the hamletted type.

In addition to the two main types and eight sub-types of settlements, there are innumerable variations in the nature of grouping and dispersal of settlements. Frequent variations in the nature and degree of agglomeration and dispersal and mixing-up of three or four types of settlements in a relatively small area make the problem of delimiting the type areas extremely difficult.

The evolution of the various types of settlements is attributable to a host of factors of physical and cultural geography. It is, however, difficult to ascertain the precise and exact roles of the various factors. Such facts of physical geography as climate and soil appear to function as liberal guide lines. They set flexible limits to the extension and character of rural settlements within which the final forms and character of habitations are forged by the type of rural economy and the stage of its development that has been arrived at through a complex process of the humanization of the earth surface.

In determining the distribution, character and grouping of settlements, relief rather than climate appears to be the most important physical factor. All other factors of physical geography are of secondary importance and, to a great extent, dependent upon relief. Dispersal of settlements are, therefore, characteristic of the hilly and forested parts of the Plateau. To the contrary, compact clusters are typical of such areas as the peneplaned plateau surfaces, broad river valleys and the alluvial plains.

There are seven areas of marked agglomeration. They are the (1) Northern Fringe Zone, (2) the North Koel valley, (3) Hazaribagh plateau and parts of the Kodarma plateau, (4) the valleys of the Auranga, Amanat and Damodar rivers, (5) the Ranchi plateau including the *pats*, (6) the Panch Pargana plain and (7) the Kolhan Highlands and the Khar-kai valley. In all other areas, except a portion of the Sankh basin, the settlements are essentially dispersed. In parts of the Sankh basin, the settlements are hamletted and represent the neutral or intermediate type.

The factors that have favoured agglomeration are numerous and complicated. Some of them are general and of universal application. Others are of local nature and operate within narrow limits. There is a third set of factors which play double roles, i. e., effecting agglomeration in one situation and to a certain limit, and deglomeration in another situation and beyond that limit. All these factors may be classed as physical, economic, social, historical and political. The factors which are essentially physical in character are such as low relief and evenness of surface, uniform agricultural conditions and fertility of soil, scarcity of water-supply resulting from the paucity of water-forms, rain-fed ephemeral streams, unfavourable sub-soil conditions for sinking wells, quick run-off and scanty percolation through the hard, impervious granitic rock. The economic factors of agglomeration are of two types. Some of them are now defunct but have been quite a force till recently. The other are still operative. The factors which come under the first category are the collective ownership of land and *Khuntkatti* system, feudal system and *Zamindari*, bonded labour and the landless people's dependency upon the feudal chiefs for jobs and sustenance. The factors which are still effective, despite their effectiveness being variable from one to the other parts of the Plateau, are such as the primitive economy and self-sufficiency within the village community, barter system and periodic *hats* functioning as the central places of the micro-economic regions, division of labour and interdependence, particularly in the non-tribal society, rice-culture and irrigation, terracing of rice lands and collective responsibility for the maintenance of terrace-bunds, collective ownership of

irrigational devices, bunds, tanks and village groves. Large-scale mining and heavy industrialization boosted up the rural economy and enhanced the capability of land to support a larger population. The network of communication and transmission lines also improved the rural economy, reduced the isolation and boredom of village-life and made the countryside more attractive and capable of containing, to a great extent, its growing surplus population. Huge and continued immigrations prompted by mining and industries aided to the growth of rural population. This led to the expansion of pre-existing settlements and filling up the gaps in-between and thus, resulting in the evolution of compact rural morphology.

Social and ethnic factors which have contributed towards the agglomeration of settlements are such as clan solidarity and strong allegiance to clan and sept, social and tribal bondages, function-castes and economic stratification of society, social hierarchy, existence of endogamous clans, practice of polygamy, rivalry among clans and tribes and preference for exclusive clan settlements. In the tribal society there is hardly an occasion for individual festivity and celebration. All rituals and festivals are the occasion for the whole village community. Besides, such social and religious institutions as *akhara*, *sarana*, *sasan*, worship of the deads and the defunct *dhumkuria* have made significant contributions towards the agglomeration of settlements.

Historical and political factors which helped the evolution of compact clusters are such as the absence of central and powerful authority in the past, state of perpetual insecurity, particularly in the northern part of the Plateau, need of protection against wild ferocious animals, tribal feuds and warring chiefs, perpetual dangers from the bandits and raiders, numerous military campaigns and invasions and polemic attitudes of the various communities towards one another. The history of this Plateau has been the story of usurpation of the rights and property of the settled community by the immigrating community. Because of long wanderings and insecure sojourn in the Plains the Mundas, Santhals and Hos developed martial traits. Camp-life, perpetual preparedness for defence or migration and instability of habitation enhanced the social rigidity and communal outlook and strengthened the communal way of life and grouping. Besides, there have been some extra-regional influences. The Plateau is contiguous with the dacoit-infested areas of Bundelkhand and with the areas of clustered settlements of the South Ganga Plain of Bihar.

Dispersal has been largely a negative phenomenon (i. e. due to the absence of agglomerating factors) and has been a product of the circumstances which are unfavourable for agglomeration. Dispersal, however,

has not always been because of the conditions opposed to agglomeration or the absence of the conditions that favoured agglomeration, but also because of the emergence of new factors of local nature. Sometimes, the factors which contributed towards agglomeration worked in opposite direction. This has been because of their restricted roles and changed contexts.

Some of the factors which have positively contributed towards the dispersal of settlements are physical inequalities and relief, inaccessibility and isolation, dissection of the surface and fragmentation of habitable sites, fine texture of drainage and ubiquity of water-channels, numerous hills and streams acting as natural dividers of lands, diffusion of resources, low capability of land, extensive forests and uniform distribution of exploitable resources in the forested tracts. The plateau has suffered in the past from physical isolation, off-the-track situation and historical negligence. In several parts of the Plateau, the past has been quite and uneventful and there prevailed a state of security. Primitive subsistence economy, shifting cultivation, fewer wants and self-sufficiency practised on family-level have also made significant contributions towards dispersal. Occupance of land in the beginning has been selective and discriminating. Subsequent occupance became fragmented and patchy and produced small hamlets and individual homesteads. The menace of wild animals led to the development of enclosed farms-and-homesteads. *Zamindari* system and multiplicity of land-tenures led to the creation of separate hamlets for different tenure-holders and the *Zamindars*. Break-down of the Khuntkati system, institution of individual ownership, abolition of *Zamindari*, various other measures of land reforms and labour laws resulting in freedom from the traditional bondage and the cultivators' mastery over land, went to aid the forces of dispersal. Consolidation of holdings and modernization of farms are steps towards the dispersal of settlements, for machine has granted freedom from age-old collective, co-operative, neighbourhood economic system. Urban influences, changed values, liking for openness, rural electrification and new jobs in villages, all are leading towards a scatter-up of the settlements. Rehabilitation of displaced persons from 'project' areas has generally produced dispersed settlements. Sporadic mines, new lines of communications, sprawling industrial undertakings and scattered factories are also working towards the dispersal of settlements.

A number of social and ethnic factors have also been working towards the dispersal of settlements in various ways. Allegiance to clan and sept, mutual intolerance and practice of exclusiveness among various groups, clans and tribes, segregation between tribal and non-tribal

communities, numerous function-castes and their professional requirements for outside-the-village location and openness, all these made the settlements split up into group, clan or caste hamlets. Constitutional liberty and safeguards, political awakening, expanding education, loosening of communal control and social bondages, dissolution of the traditional village *Panchayats*, growing consciousness among the people for individual rights and property are making people assertive in their individual spheres and are leading towards separation of homesteads and scatter-up of settlements. Breakdown of clan-solidarity due to spread of Christianity and the segregation of Christians from the non-Christians have been quite a force of dispersal.

All clustered settlements acquire some definite observable forms which can be measured, recognized and expressed in definite terms. The 'form' refers to the outline of clusters and their inner structure and layout.

Constituents of rural morphology are both natural and cultural. Natural elements in rural morphology of Chotanagpur are quite preponderous. Cultural elements are relatively poor and inabundant. There are four principal constituents of rural morphology in Chotanagpur. They are the dwellings, unbuilt-enclosed homesteads, the space separating the rows or groups of houses and the open out-skirts and village groves.

Of all the factors that influence the outline and layout of villages, site is the most important. Site includes the nature of terrain, underlying rocks, top-soils and sub-soil conditions, elevation and slopes, the shape and appearance of the terrestrial fragments involved in the construction of houses and all such features which are adjacent to or incorporated in the building space. Such features are streams, canals, tanks, hills, *tongaris*, groves and forests. Interfluves which constitute the largest number of habitable sites are elongated or triangular in shape. Sometimes, they are circular or oval. Spurs and hilly projections have usually tongue-like appearance and their outer ends are semi-circular. Ridges, hills and forest-clearings are either circular or oval. Among the cultural features cart-tacks and village roads have exercised greatest influence upon the layout and shape of the clusters.

Because of the location of villages on the interfluves which are largely uncultivated or constitute third-class *tanr* lands, the influences of agricultural soils and the shape and pattern of agricultural fields are indirect and inadequate. Public wells, tanks and temples are few and

are not of universal importance in the layout of villages. Tribal organization, clan-solidarity, communal or group segregation have been responsible for the fragmentation of rural settlements into hamlets and sectors. Varying cultural levels and heritages have introduced an element of variation in the morphology of tribal and non-tribal settlements. Ancient elements of village planning and five-fold division of the Aryan villages are discernible in the traditional Hindu villages. State of insecurity and defensive measures have contributed towards the evolution of crooked lanes and bee-hive pattern of the Oraon villages.

The outlines of village morphology varies within a very wide range, but the internal structures exhibit only a few variations. Some of these forms are common and of universal occurrence. Others are rare and infrequent. The village forms admit of two broad classifications which correspond to the two major morphological types—agglomerated and dispersed. There is a plethora of forms associated with compact clusters. The dispersed villages acquire only a few external shapes. Most of the compact clusters in their shapes conform to one or other geometrical figures. The common among them are rectangle, square, triangle and circle. Rhombus, parallelogram, trapezium and polygons are also represented. Besides, the clusters acquire several such shapes which resemble the Roman alphabets. Alphabetical forms are particularly noticeable in the areas of linear clusters. Sometimes, the clusters have shapes that bear similarity with well-known figures and forms of the articles of daily-domestic uses.

The delimitation of the areas of morphological patterns is difficult. A large number of patterns occur together and are mixed up. Some of them are quite common and of universal occurrence, while others are uncommon and cannot be traced over any sizable area. Clarity and variety of morphological patterns are related to the degree of cohesion and compactness of the clusters. No pattern is observable in the areas of complete dispersal of settlements.

Chotanagpur may be divided into three morphological zones. They are the zones of (1) rectangular and allied forms, (2) elongated and linear villages and (3) amorphous villages. Rectangular forms are characteristic of the areas of marked agglomeration, e.g., the Northern Fringe Zone, North Koel valley and the plateaus of Ranchi, Hazaribagh and Kodarma. Linear morphology is best developed in the districts of Singhbhum and Santhal Parganas. Amorphous villages are confined to hilly and forested tracts of dispersed settlements.

Rural house may be called a complete geographical index. It is a feature that integrates in itself all the facts of physical and cultural geography. In Chotanagpur, the relationship between the amount of rainfall and the slope of the roof is obvious. Except a narrow belt in the north, precipitation everywhere exceeds 50" and hence the roof is characterized by a higher pitch. The rainfall increases from north to south and from north-west to south-east, and so does the slope of the roof. In the North Koel valley the slope of the roof seldom exceeds 15°. On the other hand, in the south-western part of Ranchi District and in the Rajmahal Hills, the slopes vary between 25° and 45°. Climate expresses itself not only through the slopes but also through the materials, quality, strength and thickness of the roof. The size, elevation, standard of comfort, decorations, fittings and architectural designs speak of the economic conditions, social institutions, extra-regional connexions and cultural achievements of the people.

Irrespective of the areal variations in the physical environment and the peoples' way of life, the houses of the rich people are, to a great extent, of the same type. Similarly, the houses of the poor people in all the parts of the Plateau are of the same dimensions and build. There is, however, one fundamental difference between the two. Affluence can boast of ignoring the influence of environment, but poverty simply cannot and, as such, the dwellings of the poor people are made of such cheap and flimsy materials as are easily obtained from the local surroundings. Houses of the rich people are usually designed by professional experts and are built with materials obtained from extra-regional sources. The houses of the middle class peasants, workers and business men are, in fact, the best and most faithful index to the physical, economic and social aspects of the regional geography.

The rural houses of Chotanagpur admit of four economic classes. The lowest economic class, represented by such nomadic and semi-nomadic tribes as the Birhors, Birjia, Parhaiya and Korba has the meanest, lowliest and most rudimentary houses. The second category of houses belongs to the landless labourers, scheduled castes and low service-classes. The third category belongs to the landed class and well-to-do function-castes. The fourth category includes the houses of *ex-zamindars*, money lenders, business classes and village chiefs.

Ethnic and social factors also reflect upon the various aspects of the rural dwellings. The average houses of the non-tribal communities, in whatever parts of the Plateau they may be, are roomier and better-built. Among the tribal communities also the Mundas, Santhals and Hos have better houses.

Though the houses differ in detail from one to the other parts of the Plateau, there are certain features and characteristics which are of universal occurrence and are common to all the average houses of the region. Some of these characteristics are regional while the others are ethnic and cultural in origin. In Chotanagpur, common house-plan is linear. The average dwelling is a fragmented establishment and generally consists of three separately built houses. *Angan* which is an integral part of the house of the South Ganga Plain, is strikingly missing from the houses of the tribal Chotanagpur. Absence or rarity of windows is common to all the rural houses. Chotanagpur-houses are characterized by a plentiful use of timber and wood. Walls are low and the roofs are generally two sided sloping away from the gable-ends. Doors are low, narrow and crudely-fashioned and are seldom fitted with panels.

Mud is the most predominant wall-material. So universal is the use of mud that all other wall-materials have been reduced to the position of insignificance. The wall-materials other than mud have been classed into four groups - (1) burnt bricks, (2) unburnt bricks (3) stone and (4) timber and vegetative substances. Brick, next to mud, is most widely used and acquires significant position in the Damodar valley and the Jamshedpur area. Unburnt brick and stone are confined to Singhbhum and Dhanbad districts. Vegetative substances are of some importance in the central tract comprising the hilly forested areas of the districts of Palamau, Hazaribagh and Ranchi.

Tile and thatch are the two most important roofing materials. A line drawn from Banka in Bhagalpur to Chaibasa in Singhbhum divides the Plateau into two roofing zones. West of this line tile dominates while east of it thatch is most preponderant. Tile commands a much larger area than thatch. Tiled roofs and mud-walls are preponderant more or less in the same area. They are typical of the areas of red soils and relative scarcity of thatching materials. The use of brick-and-lime as the roofing material is confined to a narrow belt that comprises the valleys of the Damodar and the Suvarnarekha. A wider use of these materials in this belt is related to the extensive coal-mining and heavy industrialization. The use of corrugated iron, asbestos and other metal sheets is also confined to the same narrow belt.

In spite of some well-marked common characteristics the rural houses vary widely. The variations in building materials are areal. The variations in ground plan, structural design, architectural beauty, size, accommodation and uses relate to physical environment and ethnic composition of the population. As the charac-

teristics of physical environment acquire areal pattern of distribution, the differences in rural houses are traceable over an area. On the other hand, the differences or characteristics which are ethnic in origin take no cognizance of regional variations in the physical environment. Hence, the rural houses of Chotanagpur are amenable to two-fold classifications—the regional and the ethnic. Each of the two classes consists of ten types. The regional types refer to (1) the South Ganga Plain, (2) Hazaribagh, (3) Ranchi, (4) Palamau, (5) Panch Parganas, (6) Santhal Parganas, (7) Chaibasa, (8) West Bengal, (9) South-western Palamau and (10) Southern Singhbhum. The ethnic types relate to such communities as (1) the non-tribals, (2) Mundas, (3) Oraons, (4) Hos, (5) Santhals, (6) Bhumijis, (7) Khonds, (8) Birjias, (9) Korbas and (10) Birhors.

Hazaribagh and Ranchi houses are typical of Chotanagpur Plateau. The houses in Fringe Zone and the North Koel valley are patterned after those of the districts of Gaya and Patna. The houses along the eastern border of the State resemble the houses of West Bengal. Non-tribal houses are generally copied from the *chaukita* houses of the Ganga Plain. Among the tribes, the Mundas, Oraons, Santhals and Hos are quite numerous and constitute bulk of the population in their respective areas. The others are small communities either pocketed in small localities or distributed widely as insignificant minorities. The houses of the major tribes, by their sheer number and preponderance, become representative of their respective areas. Among the minor tribes only a few of them have evolved distinctive houses.

PROSPECTS

In the foregoing pages main findings of this study have been summarised. Those findings consist of all the salient features of the physical and cultural background which set the courses of peopling and human occupancy of the area, determined the siting, distribution and pattern of rural settlements and are inbred and encrusted upon them from which project the pinnacles of the problems of rural way of life in Chotanagpur. The problems of ruralites, particularly of farmers and agricultural labourers cannot be separated from the geography of settlements.

The study of rural settlements and related features of the cultural landscape, though complete and interesting in itself, is likely to become more interesting and rewarding if viewed in future perspective of times. This is more so because Chotanagpur is, at present, passing through a very critical phase of socio-economic transformation, a process which

started about a hundred years ago, but has gained momentum only during last few years. Fundamental changes that have been and are being introduced in the geographical environment of the region are bound to affect the destiny of one of the most important features of the cultural landscape, i.e. the habitation of man which is the concern of this study. The changes are so fast, so massive and, at times and places, so unpredictable that it is difficult to take a very long-range view of them. From the stand-point of the present, it may not be, however, very difficult to project the pattern of settlements that is likely to evolve during the next thirty years or at the turn of this century. To do so it is necessary to fix our attention on some of the most dynamic and powerful factors of the environment. Most of these factors have been thoroughly examined in the preceding chapters, but in order to project the future pattern of settlements it is necessary to review and recall them briefly and cogently.

The factors of physical environment which have played very important role in determining the courses and pattern of human occupancy and settlements in this region are not likely to undergo fundamental changes. The hills, ridges, monadnocks, scarps, waterfalls, nickpoints, degree of slopes, amplitude of relief, alignment of streams, river regimes aspects of climate etc. are likely to remain unchanged during the foreseeable future. But it does not mean that physical environment will remain totally unchanged, unaltered and static. The factors of physical environment have been changing and are to change further. The changes, though not gross and easily perceptible, are taking place on two lines — changes in the roles that they play and changes on micro dimensional scale and local levels. Chotanagpur, for instance, is one of the four regions of India that suffer from serious gully and sheet erosion. It is estimated that in the district of Hazaribagh alone 17% of the total land is heavily plagued by sheet and gully erosion. Unless this is checked it will mean a gradual and progressive reduction in habitable and cultivable land, mutilation of surfaces, dismemberment of settlement sites and increased obstacles in general movement and economic circulation. This is bound to affect and influence the pattern of settlements in the affected areas in various manner. But the most likely effect appears to enhance the tendency of agglomeration. This is because ravining in addition to resulting in relative inaccessibility, over-drainage and depression of water-table, progressively pushes human occupancy to residual but continuously shrinking ravine-free areas. This naturally means crowding of settlements and population in relatively small, shrinking lands.

Much of Chotanagpur is already denuded of forest and the existing forest cover is shrinking day by day. Reduction in forest means addi-

tion to agricultural and habitable lands which ultimately means extension of the pattern of human occupance and settlements as they exist in the marginal areas. On the other hand, reduction of forest spells scarcity of wood and timber which is likely to influence the type and build of rural houses in Chotanagpur. So far, Chotanagpur rural dwellings have much more plentiful use of wood than their counterparts in the Ganga Plain.

Another important change in the physical environment is likely to occur because of the expected increase in the volume of surface and under-ground water-supply to this over-drained land of ephemeral streams. Numerous medium and minor schemes of irrigation are being executed in various parts of Chotanagpur, and more are likely to be taken up in future. Implementation of these schemes will result in the creation of a large number of reservoirs, tanks, distribution channels and the rise of under-ground water-table. This will mean a lot to agriculture, rural economy and prosperity of the people. Such areas of water plenty will be the seats of new development which will tilt the population balance of rural lands. The population-supporting capacity of such well-watered areas will greatly increase. The new water-forms will act as new attractions in the landscape and will affect the siting, pattern and growth of settlements in such areas, for water in an over-drained area like Chotanagpur, particularly during summer, is no less vital than in desert. Naturally in such areas of plentiful water-supply settlements are likely to multiply and grow in size. Moreover, a number of dams, dykes and barrages which have been constructed and are being constructed under the development projects of the valleys of such rivers as the Damodar, the Suvarnarekha, the Sankh, the Koel, etc. will both augment and regulate the flow of water through these rivers and they are, therefore, to become a more dependable source of water supply. Consequently, the role of rivers in the location and siting of settlements is likely to grow in importance and magnitude and more and more river-seeking settlements are expected to emerge and expand.

Aspects of agricultural water supply have been examined in earlier chapters, but irrigation needs special stress even at this place, because it is going to be one of the major factors affecting the future destiny of Chotanagpur, particularly in regard of economy and settlements. Numerous medium and minor irrigation schemes, as mentioned earlier, are in progress. They have created and are likely to create pockets of multiple cropping in erstwhile one-crop region. In these irrigated pockets one can see the sign of Green Revolution with the lush green of rabi crops during winter, rich fruit orchards and vegetable gardens. Thus irrigation is

bringing about prosperous sown into the pre-existing wilderness. These flourishing pockets are bound to attract settlements to themselves, especially because they require so much care of the farmers and so much application of labour in irrigation and farming techniques. Normally, this factor of irrigation coupled with the efforts of extending tillage to cultivable wastes and of consolidation of plots and holdings is expected to tone up the dispersal tendency of settlements, for individual dwellings and family hamlets with fenced farms are coming up on the margins or in the midst of these newly created green belts.

Sufficiency in food being one of the greatest concerns of the rural folks and administrators and watch-words of the politicians, Chotanagpur with immense possibility of producing surplus food, will receive greater attention of all concerned and maximum efforts are likely to be made to make water available to most of the fields of Chotanagpur villages. In addition to medium and minor irrigation schemes associated with reservoirs and canals smaller tanks are to be constructed in the villages whose water may be distributed by gravity flow down the tanks and by power pumping on to higher levels. Such a change will mean greater concentration of economic efforts, more attention to farming and more profitable use of land of a larger part of the village, but as this will progress and co-exist with unchanged factors of slope and inaccessibility, the settlements will generally tend to be further dispersed.

The development of power, mostly thermal and to some extent hydel, is one of the most dynamic factors of change in the present and future environment of Chotanagpur. Even if power is not merely developed for rural electrification but mostly for industries and mining, it has to influence the areal pattern of location and distribution of rural settlements. Large industrial and mining centres are also the urban centres which are inter-connected with roads and railways. Power transmission lines generally pass along with roads and railways and several sub-stations, transformer installations and transmission grids located in the rural landscape punctuate the inter-urban distances along the lines of communication. Naturally the settlements which are close to roads and transmission lines, can easily be served with power. Thus power development with multiple transmission lines are likely to attract settlements to road-sides and to the neighbourhood of railways. These power-fed settlements are likely to change their orientation from agriculture to industry. Power supply will encourage the growth and expansion of rural and cottage industries, particularly agriculture and forest-based industries. Power in the modern context of civilization means not only light in the house but a lot more to everyone,

e.g., a medium and motive for water pumping, fans, cold-storages, refrigeration, household and small industries, domestic services and upkeep and above all a brilliance in life and brightness of vision. Naturally, conscious, educated and progressive villagers will increasingly prefer such sites for their houses where power is easily available. Power will, therefore, attract habitation probably with the same strength as potable water and fertile cultivable land did in the past with the difference that power can more easily be distributed and supplied to places far away from the points of generation and across frequent changes in surface levels.

In earlier chapters various effects of mining on the distributional pattern and morphology of settlements have been examined in details. Chotanagpur being rather the most heavily mineralized tract of India will see greater mining efforts and activities in future, and it is definite that mines will grow in number, size and depth with the passage of time. Consequently much more land will be encroached upon by excavation from below, caving in or by the piling of mineral ores, slags and other wastes. Further, mining areas, particularly those of coal, iron-ore, copper, limestone and bauxite are increasingly becoming veritable habitat of a number of industrial centres and, urban and urban-like settlements will grow and expand in the mining areas. This will produce double-action by attracting immigrants to the mining areas and by uprooting villages and pushing them along with their population out of the mining areas. The immigrant population will produce new settlements and features, thus, effecting almost a total change in the cultural landscape. The cultural landscape in the areas of extensive mining, e.g., in the Jharia Coalfield, with sprawling tenements of mine workers, numerous pit-head structures, work-shops and criss-cross of roads, railways, ropeways and power transmission lines, has been largely altered and deruralized. This phenomenon is likely to spread over much wider areas in coming years. On the other hand, mining, working as a negative factor for the countryside, will result in the displacement of existing villages, hamlets and individual dwellings to newer sites, often on the periphery of mining areas. The poor villagers uprooted from their pre-existing habitation go to swell the rural population around the mining areas and by erecting new dwellings either in the gaps existing in the rural morphology or on the periphery of pre-existing villages aid to the process of agglomeration.

One of the greatest developments and factors of change in modern and future Chotanagpur is the emergence of large industrial centres and extensive belts of industrialization. They are the media of modern technological and mechanical change and development of new civilization

having great impacts on rural economy and tribal society of Chotanagpur. From these industrial belts and urban centres sizeable rural population has been displaced and more is likely to be displaced in future. In most cases the displaced persons have been given ample compensation, so that some of them have become among the richest persons in Chotanagpur. These displaced but rich persons would love to enjoy the fruits of modern civilization and prefer to build their new houses either in the towns or in the peripheral tracts or non-industrialized vacant areas of industrial belts. Those who do not go to towns build their houses near the amenities of power and transport. These developments are expected to produce new road-side settlements. An unmistakable pointer to the future change in the rural landscape and a good example of the shape that the settlements are likely to take in the wake of industrial growth and expansion and the resultant displacement of villages and population, is the coming up of the ribbon of brick-built modern houses of the displaced persons from the Bokaro Steel Project area, along the road to the west of Bokaro Steel City.

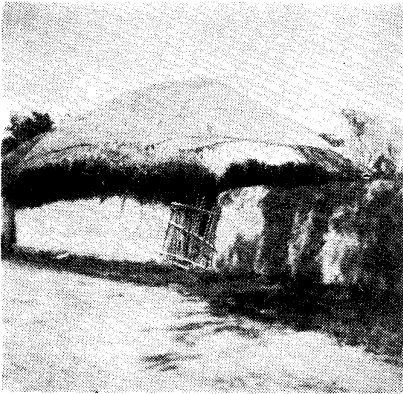
Frequent changes in land tenure and tenancy in Chotanagpur have been of great importance in effecting changes in the pattern of rural settlements in the past. Easy transferability of land in the past led the tribals to be dispossessed of their lands and to move to remoter and more inaccessible areas. Thus with the passage of time larger parts of Chotanagpur, particularly well-watered broad river valleys and relatively even peneplaned surfaces were largely detribalized. Incessant inflow of immigrants attracted by mining and industrial development threatened the existence of tribal settlements in the areas of intense economic activities and development. With the noble objective of socialistic society and equalization of opportunity to all, land-reform measures are being taken up in all parts of the country including Chotanagpur. It was soon realized by the Government that the tribals are gradually being dispossessed of their lands and, so, as a measure of protection to them new Chotanagpur Tenancy Act has been passed which enables the authority to restore the land transferred during last thirty years to the original tribal owners. When this materializes large chunks of land particularly in and around towns alienated from the tribals in the past years, are expected to be available to them. This is expected to result in the expansion of urban settlements of tribal individuals and communities. The new Tenancy Act and the measures of land reforms in Chotanagpur are expected to produce some negative effects also for the tribal lands in Chotanagpur have practically been rendered non-transferable. These measures are likely to halt the processes of social and cultural change and also the economic mobility and versatility among the tribal people. They are also likely to

hinder the growth of towns and industrial settlements, for non-transferability of land is likely to bestow some sort of permanency upon the pockets of ruralized tribal settlements in urban and industrial areas. But even these pockets of tribal settlements will not remain unchanged, because the general prosperity of the tribal people will reflect more grossly upon the build of their houses and layout of their settlements in coming years.

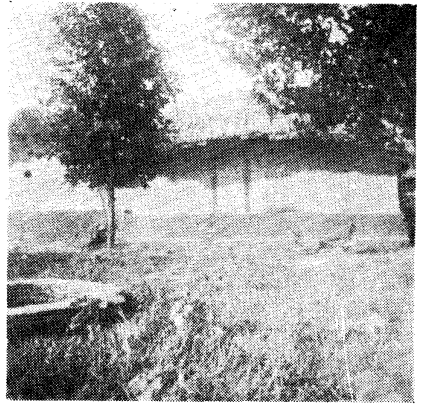




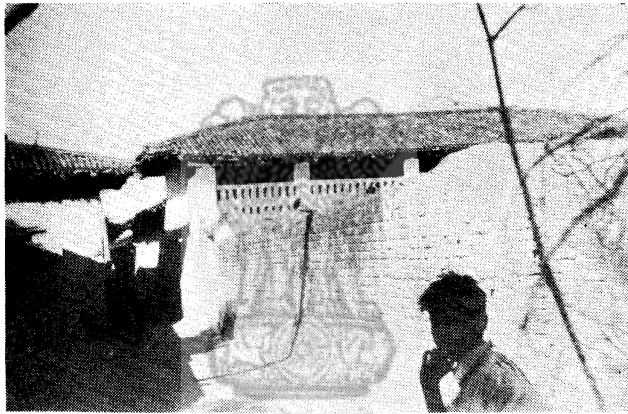
सत्यमेव जयते



West Bengal type : house with
umbrella shaped roof.



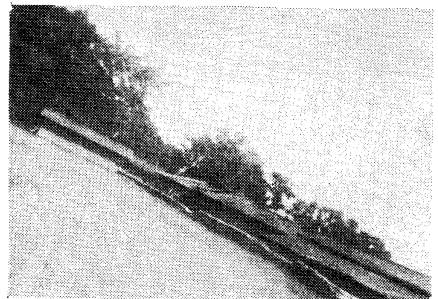
Chaibasa : thatched house; Lower band
of black colour quite clear.



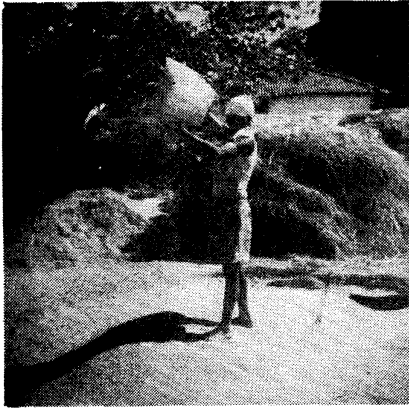
South Ganga Plain type : a brick-walled, tile roofed
Chaukita house.



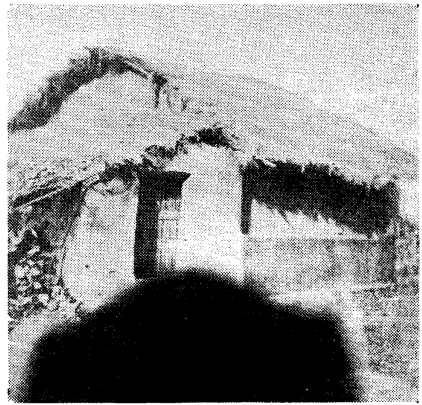
South Ganga Plain Type : a
masonry house.



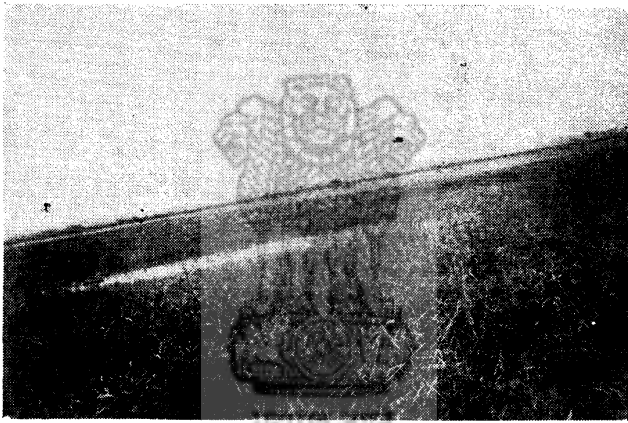
Palamau : the houses adjoin one another.



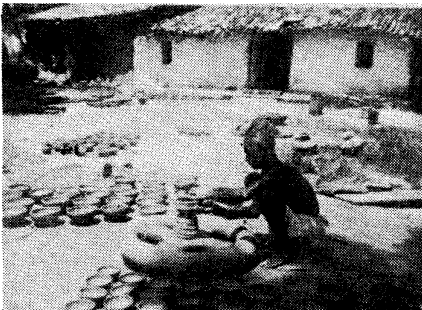
A village thrashing and winnowing ground.



Ajay Basin : Santhal house.



Agricultural landscapes : Terraced fields.



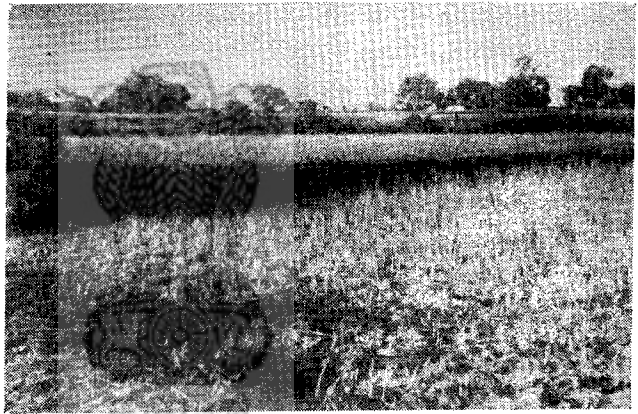
Potter on his wheel.



South-Western Singhbhum type house.



Lane of a Munda Village.



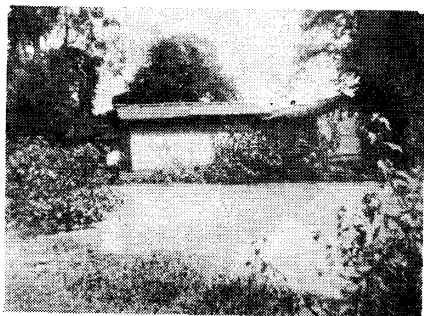
Agricultural landscape : terraced paddy fields.



Village barn.



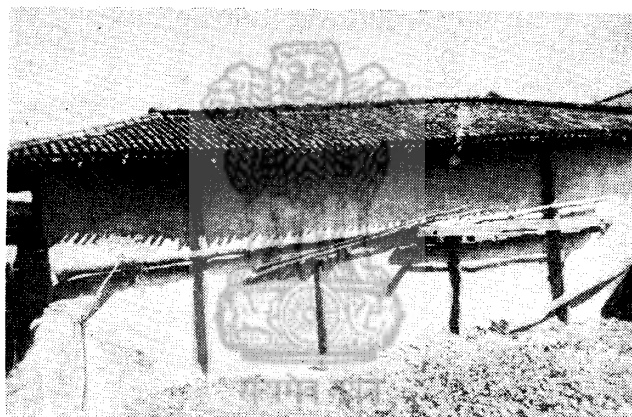
Recess in the field.



Chaibasa : Straight-walled house with colour bands.



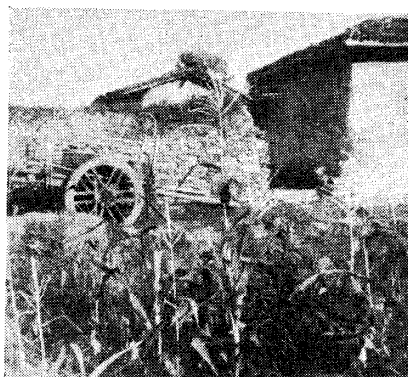
Palamau : middle class house.



Hazaribagh : farmer's house.



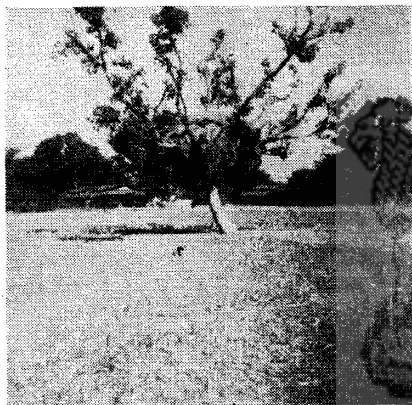
Ranchi : multi-roofed house.



Damodar Valley : Stone walled house.



Agricultural landscape : terraced tanr-slopes.



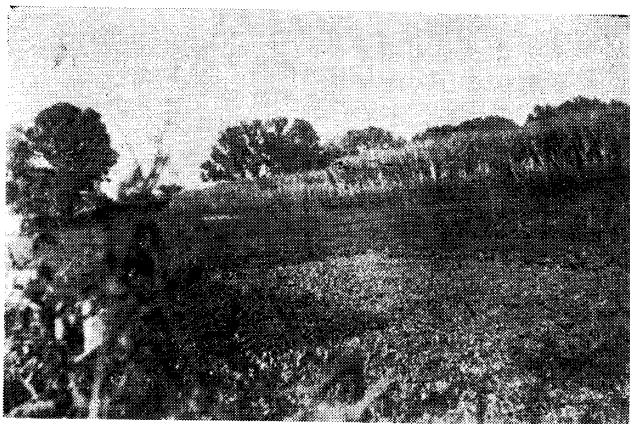
Hay on the tree-top.



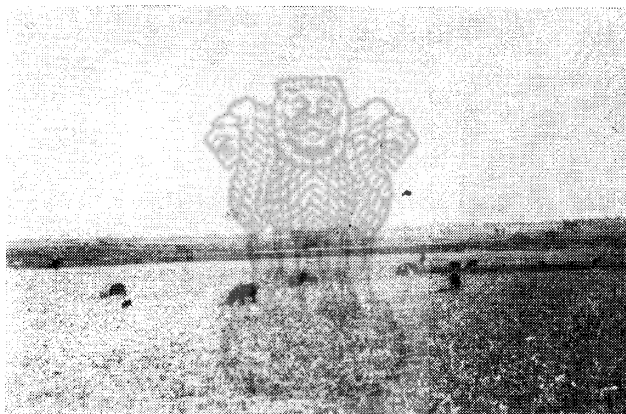
Santhal house : Western Santhal Parganas.



Hanuman : the popular village deity.



Village groves and Sarana.



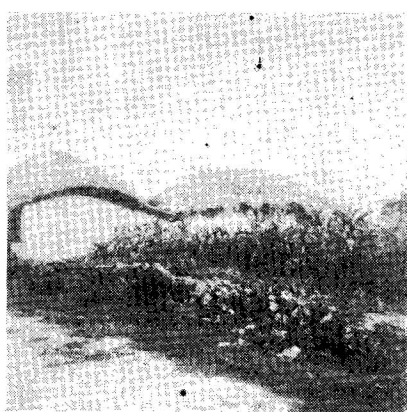
Village surroundings.



South-Western Palamau : house made of split bamboo and lattice work.



Northern Hazaribagh : business man's house.



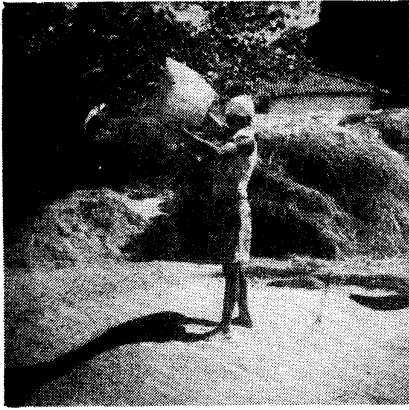
West Bengal type in the Alluvial Upland.



Panch Pargana house with enclosed verandah.



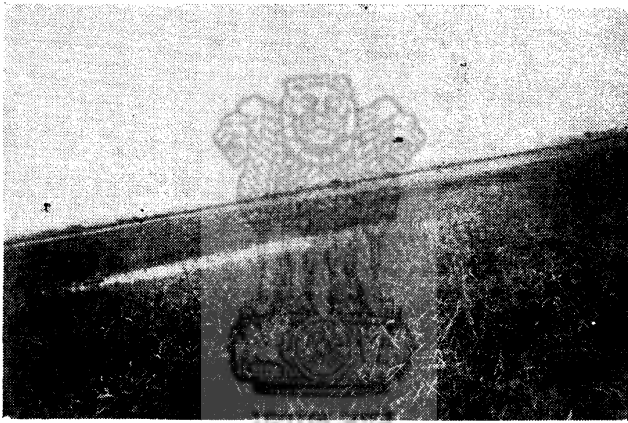
Panch Pargana : poor man's house.



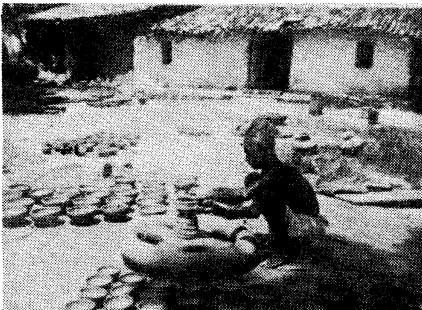
A village thrashing and winnowing ground.



Ajay Basin : Santhal house.



Agricultural landscapes : Terraced fields.



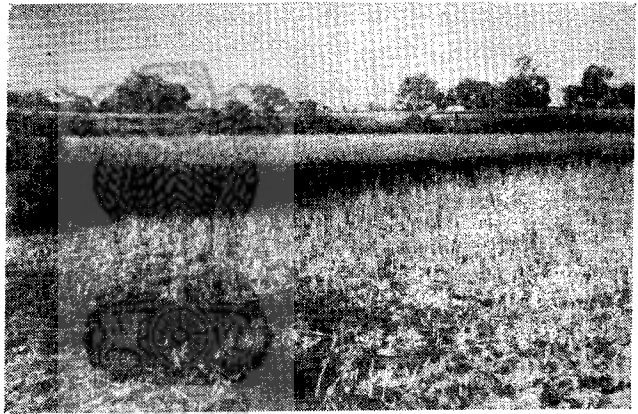
Potter on his wheel.



South-Western Singhbhum type house.



Lane of a Munda Village.



Agricultural landscape : terraced paddy fields.



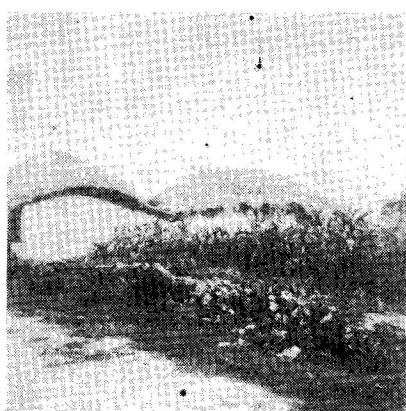
Village barn.



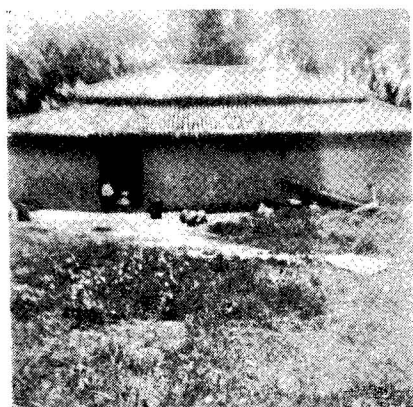
Recess in the field.



Northern Hazaribagh : business man's house.



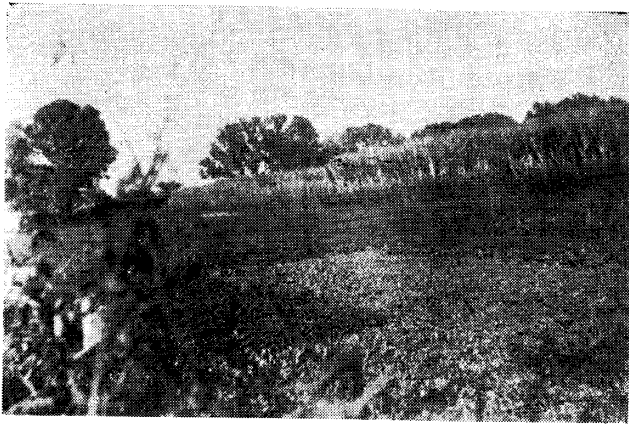
West Bengal type in the Alluvial Upland.



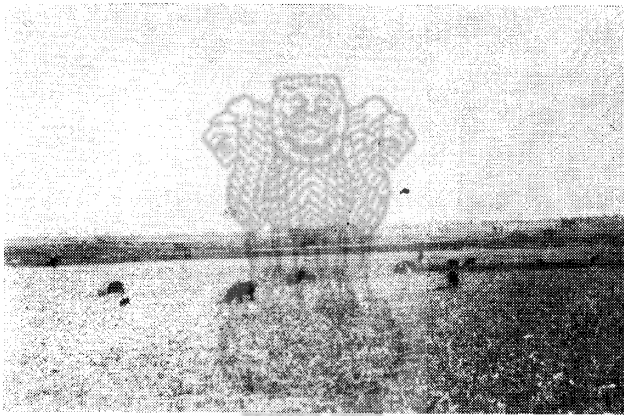
Panch Pargana house with enclosed verandah.



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Village groves and Sarana.



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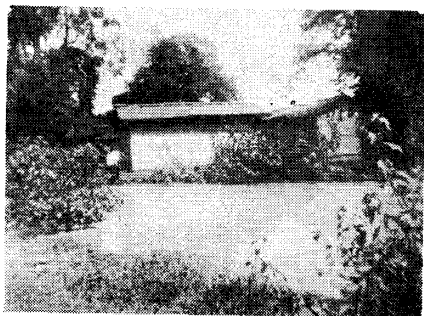
Hay on the tree-top.



Santhal house : Western Santhal Parganas.



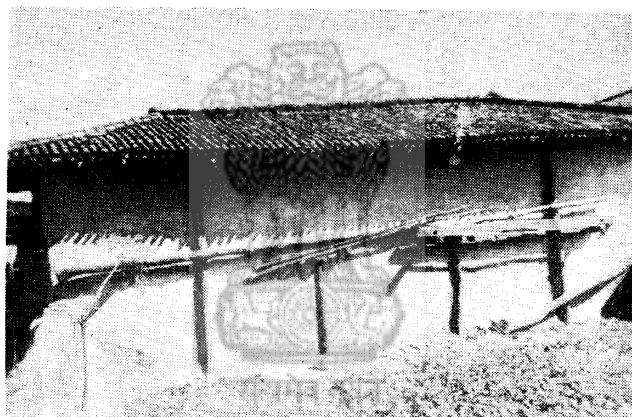
Hanuman : the popular village deity.



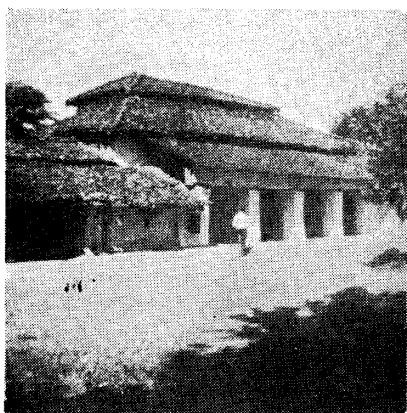
Chaibasa : Straight-walled house with colour bands.



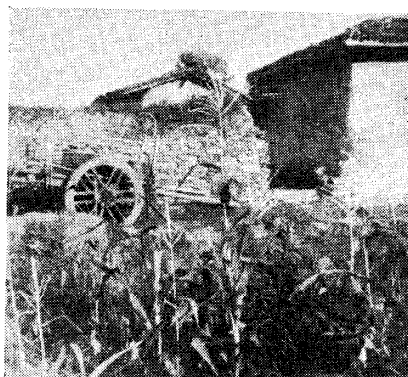
Palamau : middle class house.



Hazaribagh : farmer's house.



Ranchi : multi-roofed house.



Damodar Valley : Stone walled house.

APPENDIX - I

GLOSSARY

Adivasi	— literally means original settlers, but in common use refers to the primitive tribes of India.
Aghani	— end-monsoon harvest.
Ahar	— a sort of irrigation tank in which water is stored by high embankments
Ails	— embankment for storing water in the rice land.
Akhara	— dancing or meeting ground in tribal villages.
Amaltas	— <i>Cassia fistula</i> , a common tree valued for medicinal purposes.
Angan	— courtyard, the enclosed rectangular open space inside the house.
Asan	— <i>Terminalia tomentosa</i> , a large and strong-wood-yielding tree.
Asur	— a controversial term used for pre-Vedic Aryans as well as for non-Aryan tribes and demons.
Baithaka	— literally means sitting place, the parlour in a rural house.
Baithaki	— small earthen bracket projecting from the wall.
Bakri	— backyard of a Munda house.
Bandh	— generally refers to embankment across a water-channel.
Bania	— a business community.
Bari	— homestead.
Bari-land	— homestead land meant for cultivation.
Basti	— settlements, the homestead area of a village.
Bazar	— market place.
Bel	— <i>Aegle Marmegoes</i> , an important fruit-yielding tree.
Bera	— the lowest portion of the <i>don</i> land, lying at the bottom of a depression.
Bhadai	— mid-monsoon harvest.
Bhuinhari	— a land-tenure.
Bhurki	— a small aperture in the wall devised for ventilation.
Bhusa	— smashed stalks of paddy and <i>rabi</i> crops.
Biri	— a cheap, rolled preparation of tobacco meant for smoking.
Brahma	— the Creator of Hindu Mythology.

Byaghrāmukhi	—	tiger-mouthed, broadening towards the front like a tiger-mouth.
Chadar	—	a general term for over-garment used as wrapper.
Chandrābhedi	—	moon-penetrating or north-south elongated house-plan or courtyard.
Chandramandal	—	the same as chadrābhedi.
Chappar	—	one of the two sides of a roof sloping away from the central beam.
Chaturanan	—	the four-mouthed image of the Creator.
Chaukita	—	rectangular plan of house in which rooms built on the four sides of an open rectangular piece of land, enclose a courtyard.
Dalan	—	parlour.
Dhankhet	—	rice-land.
Dharkha	—	a small shelf built in wall.
Darhi	—	natural perennial spring.
Dhaura	—	<i>Anogeissus latifolia</i> . Its wood is valued for agricultural implements.
Dhenki	—	rice-husker.
Dhumkuria	—	an old defunct institution of the Oraons. It contained a dormitory in which unmarried boys and girls of the village were to meet.
Don	—	natural water-course and depression terraced and converted into paddy lands.
Dungari	—	a local name for residual hills in Dhanbad District.
Gambhar	—	<i>Gmelina arboria</i> , a large deciduous tree well-known for its high quality timber.
Ganwa	—	village.
Ghasi	—	butcher of the tribal society.
Ghat	—	variously used for a ford, bathing place on the bank of a river and also for a pass.
Ghee	—	cooked butter.
Giti-ora	—	sleeping room in a munda house
Gomukhi	—	cow-mouthed, tapering towards the front like a cow-mouth.
Gondali	—	<i>Panicum Miliare</i> , a poor variety of millet.
Gora	—	<i>bhadai</i> rice, also refers to the lower portion of the interfluvial upland capped with a thin veneer of soil and given to <i>bhadai</i> crops.
Gosala	—	cow-shed.
Gowala	—	milkman.
Gram	—	village.

Handia	--	crude beer made of rice.
Harre	--	<i>Terminalia Chebula</i> . Its fruit is highly valued for medicinal purposes.
Hat	---	generally refers to periodic market.
Hatu	---	village.
Havankund	---	fire-pit
Hir	---	embankment
Jhagis	---	temporarily settled branch of the Birhor tribe.
Jaharthan	---	sacred grove where the greatest of the Santhal gods is worshipped.
Jamun	---	<i>Engenia jambolona</i> , a fruit yielding tree. Its wood does not rot easily in water.
Jangla	---	small window usually fitted with a lattice-work.
Janpad	---	community settlements of the ancient Aryans.
Jhum	---	a type of shifting cultivation practised by the forest dwellers.
Kalash	---	round, pitcher-like object made of brass.
Karam	---	<i>Adina Cardifolia</i> , a short, hard-wood, deciduous tree.
Karanj	---	<i>Ponamia Glabra</i> . The seed of this tree is an important source of oil.
Kartik	---	one of the twelve months of the Indian Calender corresponding to November.
Katahai	---	<i>Autocarpus intengrifolia</i> . It is a valued tree yielding large delicious fruit.
Kath	---	colouring substance derived from <i>khair</i> tree.
Kattu	---	smashed stalk of <i>rabi</i> crops.
Kend	---	<i>Diospyros tomentosa</i> , a common tree of Chotanagpur.
Khair	---	<i>Acacia catechu</i> , a catechu yielding tree, also known for hard wood.
Khuntkatti	---	a type of land tenure held by the descendants of the original settlers.
Kibaris	---	door-panels.
Kikata	---	an ancient name for Magadh and Chotanagpur.
Kodo	---	<i>Paspalum scrobiculatum</i> , a poor variety of millet.
Koiris	---	a Hindu caste engaged in vegetable farming.
Kothi	---	hollow, cylindrical earthen container of grain.
Kshetras	---	territories.
Kumhar	---	potter.
Kunjara	---	a vegetable grower Muslim caste.
Kusum	---	<i>Schbichera Trijuga</i> . Its flower is used for colouring purposes.

Loo	— dust-raising hot winds in summer.
Mahli	— a low caste of Chotanagpur engaged in the manufacture of bamboo wares.
Mahua	— <i>Basia latifolia</i> . Its fragrant flowers when dried are eaten and used for distilling country liquor, and its seeds are an important source of oil.
Mandap	— canopy for rituals.
Mandi-ora	— eating room in a Munda house.
Manjhi	— the headman of a Santhal village.
Manjhithan	— a Santhal shrine where the soul of the departed <i>Manjhi</i> is worshipped.
Manki	— chief of a <i>parha</i> .
Marua	— bracket-like features to support the <i>olti</i> .
Marua	— Eleusine coracane, a food grain of very low quality.
Mauza	— the smallest administrative unit, a unit of settlements with a parcel of land with definite boundaries.
Munda	— headman of a Munda or Oraon village, also the name of a tribe.
Mundari	— the language of the Mundas.
Mung	— <i>Phaseolus mungo</i> , one of the pulses.
Nagbanshi	— literally means the descendants of snake, but refers to the members of the ruling dynasty of Chotanagpur.
Nebari	— bundled paddy stalk.
Olti	— a structure separate from the roof but in continuation with the latter and projecting beyond the eavesline.
Pahan	— village-priest of the Mundas.
Paisar	— <i>Pterocarpus Marsupium</i> , a heavy, strong wood-yielding tree
Palas	— <i>Butea Superba</i> , a large flowering tree.
Palkot	— one of the capitals of the Nagbanshi rulers of Chotanagpur.
Panchayat	— village council.
Pandey	— the Brahmin Land-lord of Chotanagpur.
Parha	— a group of villages allied by ethnic, social and administrative bonds.
Pat	— small mesa-like plateau rising above 3000 feet.
Patti	— group of allied villages or settlements.
Piar	— <i>Buchania latifolia</i> . Its fruits are edible.

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Pipal	— Ficus Bengalensis, a common deciduous tree found in villages.
Pual	— hay made of paddy-stalk.
Pucca	— permanent, brick-built.
Purdah	— screen, custom of keeping women in seclusion.
Pusta	— a low supporting wall.
Pyne	— short, narrow canal.
Rabi	— spring harvest.
Racha	— quardrangle in a Munda house.
Raiyat	— tenant.
Raiyatwari	— a type of land-tenure equivalent to tenancy system.
Sabai	— a long fibrous grass highly valued for rope-making.
Sagar	— a small bullock-cart.
Sahus	— a moneyed business community.
Saiu	— a long grass used for roof-thatching.
Sal	— Shorea robusta, a large gregarious tree of Chotanagpur forest. It is best known for its wood which is most extensively used.
Sarana	— tribal worship-place and altar.
Sasan	— burial ground of the Mundas.
Semal	— Bombax malabaricum, a large flowering tree yielding light wood.
Shahdeo	— the title worn by the Nagbansis.
Shudras	— the lowest class of the four-fold Aryan Society.
Silp-Sutras	— an ancient treatise on architecture and engineering.
Siraghar	— shrine of family god in Hindu houses.
Sisam	— Dalbergia Sissoo, a long tree well-known for fine timber
Surguja	— Guizotia Abyssinica, a type of oil seed.
Suryabhedi	— sun-penetrating, east-west elongated house-plan or courtyard.
Suryamandal	— the same as <i>Suryabhedi</i> .
Takha	— small shelf cut in the wall.
Tanda	— the Birhor settlements.
Tanr	— interfluvial rises constituting poor single-cropped land, the common sites of settlements, shrubs or waste-lands.
Tetar	— Tamrindus Indica, a small bushy tree.
Tewa	— summer rice.
Thakur	— the <i>Rajput</i> land-lord of Chotanagpur.
Thana	— next to mauza, the smallest unit for police and civil administration.

Til	— Sesamum indicum, sweet fragrant oil seed.
Tola or toli	— a well-defined sector of a village. also refers to separate units of a village.
Tongari	— small residual hill.
Tonti	— hollow cylindrical device placed at the lower end of a tiled roof through which the rain-water is discharged.
Trisul	— trident.
Tussar	— a variety of silk.
Urid	— Phaseolus Raxburgii, a variety of pulses.
Uthulu	— the nomadic branch of the Birhor tribe.
Zamindar	— land lord under the Indian feudal system.
Zenāna	— private section of a house meant for women.



APPENDIX - II

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- Oraon 103; 108
 Oraon Country 183
 Pahan 175; 332; 401
 Paharia 103; 190; 401
 Palas 100
 Palaeolithic 103
 Pandeys 337
 Parshwanath 98; 273
 Parha 175; 325
 Pats 8; 359
 - Region 13
 - Scarps 14
 Pataliputra 100
 Pathans 329
 Patna 98; 99
 Patti 175; 327
 Peepal 198; 381
 Phanimukut Rai 114
 Piedmont 262
 Piri 327
 Plain, Barve 14
 -, Chhatarpur 13; 18
 -, Chaibasa 13; 24; 282
 -, Panch Pargana 13; 21; 289
 Plateau, Central 11; 13
 -, Chatra 18; 269
 -, Chotanagpur 3
 -, Hazaribagh 11; 15
 -, Kodarma 13; 19; 270
 -, Lower 13; 17
 -, Escarpments 11; 18
 Population 118
 - Dynamics 205
 -, Agricultural density of 136
 -, Areal variation of 141
 -, Arithmetic density of 134
 -, Composition of 131
 -, Density of 139
 -, Density grades of 141
 -, Distribution of 118; 139
 -, Economic analysis of 130
 -, Economic density of 137
 -, Growth of 120
 -, Groups of 143
 -, Numerical analysis of 128
 -, Physiological density of 135
 Porahat 13; 22; 300
 Porcya-Sareya Line 277
 Post-Independence Phenomena 311
 Pre-Dravidian 97, 103
 Proto-Aryan 172
 - Dravidian 172
 Pseudo-grid 386
 Public wells 199
 Pulpun 341
 Purdah 402
 Pusta 427
 Pynes 72; 308
 Rabi 60; 424
 Racha 430
 Raiyat 176; 338
 Raiyatwari 176; 336
 Raja 326
 Rajgir 98
 Rajmahal 13
 - Hill 13; 28
 - Trap 8
 - Upland 13; 28
 Raksel 110
 Ranges, Dalma 24
 -, Dhanjuri 7; 13
 Raru 289
 Rathayatra 174
 Rathor 110
 Ravines 224
 Regions, Concept of 179
 -, Geographical 178; 180
 -, Natural 179; 180
 -, Physical 179
 Religious places 198
 - institution 198
 Remainder index 315
 Rewtias 269
 Riparian 254
 Run-off Channel 261
 Rural Houses, Ethnic types of 438
 -, Regional types of 423
 Rural Morphology 376
 -, Constituents of 377
 -, Factors influencing 378
 -, Meaning of 376
 Rural Settlements 201; 207; 220
 -, characteristics 203
 -, definition 201
 -, density 209
 -, distribution 207
 -, limitation 207
 -, meaning 201
 -, Regional aspects of 230
 -, Regional variations of 220
 Sabai 244
 Sadani 111
 Sagar 368
 Sahu 401
 Sakri 360
 Samudragupta 99
 Santhal 103; 172
 Saranda 13; 23; 300
 Sarana 199; 331; 381
 Saraikela 300

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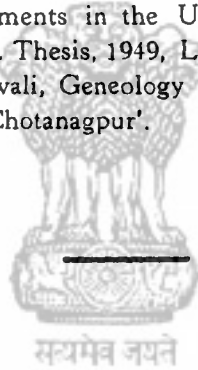
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APPENDIX III

INDEX

- Acculturation 160
Adivasi 103; 108; 113
Agastya Rishi 98
Agglomeration 315
- quotients 314
- tendency 315
-, standard index of 314
-, areas of 323
-, factors of 323
Aghani 62
Ahar, 72; 243; 308
Ails 72
Aitrey Aranyak 98
Ajay 272
Akbar 100
Akhara 199; 331; 381
Alluvial Upland 183
Altars 198
Angan 401; 425
Archaean 3
Arthashastra 384
Aryan 104; 197; 381
Aryanization 112; 164; 167
Asok 99
Asur 98; 103; 104
Auranga-Damodar line 103
Aurangzeb 329
Bahragora 284
Bajthaka 424
Baithaki 428
Bakri 430
Bandh 72
Banla 401
Banka-Chaibasa line 414
Bano 266
Barakar 13; 272
Bari land 62; 198
Basti 197
Barve plain 14; 236
Basin, Ajay 13; 24
- Barakar 17
- Damodar 3; 25
- Palkot 268
- Sankh 14; 21
Bazar 343
Bera 266
Bhadai 60
Bhandaria 359
Bhuinhari 175; 338
Bhumij 103; 107
Bhurki 428
Bhusa 424
Bigha 382
Birhor 190; 401
Birjia 334; 401
Brahma 198
- Asthan 198
Bunds 228
Burhait 279
Byaghrumukhi 423
Central places 224
Central Swell 255
Chandan 341
Chandawa 305
Chandrabansi 109
Chandrabhedi 425
Chandramandal 425
Chappar 427
Chaturanan 383
Chauhan 109
Chaukita 402; 423
Checkerboard 385
Chero 98; 109; 329
Cheroland 183
Chhechhari 236
Chik-Baraik 443
Chotanagpur Raj 114
Climate 31
Climatic regions 38
Cluster 317
-, Compact 317
-, Open 317
- cum-hut 317
- cum-hamlet 317
- - hut 317
-, Sprawling 318
Community places 198
Contact zone 183
Copper Age 103
Crest region 225
- line 227
Culture area 167

- bands 167
- change 169
- Cultural drift 160
- environment 158
- features 181
- grouping 168
- impress 178; 189
- landscape 158; 178; 188
- location 160
- milieu 158
- stratigraphy 172
- surface 188
- Dalma 284; 303
- Damodar-Suvarnarekha Triangle 183
- Darhi 325
- Daroja 426
- Dega 266
- Deoghar Erosional Depression 20; 273
- Dera 266
- Detribalization 176
- Devi 199
- Dhalbhum 13; 25; 284
- Dhanbad-Jaridih line 272
- Dhankhet 61
- Dharwarian 3; 13; 22
- Dhenki 326; 426
- Dhumkuria 200; 331; 381
- Dispersal 314
- quotients 314
- tendency 315
- , Areas of 323; 359
- , Factors of 332
- , Standard Index of 315
- Diri 199
- Diwani 101
- Don 60; 254
- Dopple-dorfer 390
- Dot-and-line type 318
- Dravidian 97; 103
- Dumka 279
- Dwelling 399
- Dyorhi 425
- Economic area 137
- poles 205
- unit 180
- Fringe location 261
- zone 307; 340
- Ganwa 197
- Ghasi 336
- Gathering 195
- Ghats 199
- Ghatshila 284
- Godda 277
- Gomukhi 425
- Gond 365
- kingdom 366
- Gondwana 3; 5
- Trough 8
- Gora 61
- Gosala 424
- Grama 197; 341
- Panchayat 200
- Grouping of settlements 192
- , Purpose of 192
- , Function of 192
- , Nature of 196
- Guptas 329
- Gwalas 336
- Hamlet 197; 264
- Hamlet-cum-hut, Areas of 370
- Hamletted settlements 317
- Hamletted Type, Areas of 323
- Handia 200
- Hanuman 172; 199
- Hathia 73
- Hat 327
- Hatu 266
- Haufendorf 325
- Havankund 383
- Hill-toe 228
- Hill-side spur 230
- Hinduization 112; 176
- Historical poles 205
- Ho 103; 107; 172
- Ho Highland 183
- Hollow-centre 388
- Homstead 198
- Human Occupance 178
- use area 180
- Hynkdorf 388
- Immigrants 155
- Industry 79
- , Cottage 84
- , Manufacturing 79
- , Mining 75
- Iron-ore Series 4
- Inter-channel rises 263
- Inter-plateau Ridge 11; 17; 346
- Inter-stream Highland 27
- Inter-Village distance 269
- Jaharthan 200; 331
- Jain 173
- Jamunia 273
- Jaugala 428
- Janpad 341
- Jarasandha 98
- Jhagis 334
- Jharkhand 100
- Jhuming 335
- Jurassic 3

Kalash 198
Kalinga 99
Kanchi 289
Kans 244
Karkari 289
Karush 98
Karusas 98
Kattu 424
Kautilya 98; 384
 - Arthashastra 99
Kharias 103; 172; 356
Kharkai 283
Kharsawan 300
Kharwars 98; 107; 109
Khond 442
Khunikatti 175; 325; 338
Khuntkattidar 176; 338
Kibaris 404
Kikata 98
Kiul 312
Koiris 337
Kolarian 104
Kolebira 266
Kolhan 288
 - Series 4
 - Highland 13; 23
Konkpat 106; 183
Korambe 106
Korba 334; 401
Koshal 98
Koithi 426
Kumaon 109
Kumargupta 99
Kumhar 336
Kurdeg 263
Landscape 178; 189
 - Agricultural 69
 - Cultural 179
 - Physical 12
Land tenure 174
Laraka 329
Lateritization 238
Linear settlements 366
 - -, Areas of 366
Lined huts 317
Loo 427
Machan 426
Madanpur 309
Magadh 98
Magahi 111
Mahabharat 98
Mahlis 336
Mahua 200; 402
Mals 110

Male 109
Man-land-ratio 133
Mandap 383
Manjhi 200
 - than 331
Manki 401
Mansar 384
Mansingh 100; 329
Manufacturing 79
 - belts 82
Market 195
Marua 427
Mauryan 329
Mauza 119; 197
Meander, Concave 228
 -, Convex 228
Mela 195
Merudand 97
Middling Type, Areas of 364
Migration 149
 -, Recent 149
 -, Ancient 103
Mihirkul 99
Mineral belts 6
Mohana 269
Mor 276
Morang 109
Morphological Patterns 382
Morvan 11; 15; 297
Mughals 100
Multiple Cultural Index 183
Munda 98; 105; 172; 401
Mundari 175
Nagbansi 99; 114; 164; 172
 - Rulers 268
Nagpuria 111
National Park 273
Neolithic 103
Nilanjan 312
Northern Edge 19; 306; 372
 - Fringe Zone 183
 - Scarps 305
Non - rural 203
 - tribal Highland 183
 - urban 202
Occupance 189
 - Human 117; 178
 - Pattern 117
 - Pattern, Distribution of Hindu 166
Olti 427
Open spaces 199
Ora, Giti 430
 -, Mandi 430
 -, Merom 430

- Sarjamdih 317
 Sarkanda 427
 Sasan 199; 381
 - diri 199
 Savars 103
 Scheduled Castes 112; 132
 Scheduled Tribes 132
 Settlements 178
 - Basin 250
 -, Basic Units of 399
 -, Belted pattern of 215; 248
 -, Closely spaced 215
 -, Contact-point 215
 - Definition 187
 - Defence Oriented 231; 250
 - Density 210
 - Distribution 187
 -, Dry-point 237; 284
 - Even 215
 - Evolution 191
 - Foot-line 230
 - Forest 239
 - Frequency 247
 -, Grouping of 192
 - Haphazard 215; 218
 - Hill-base 231
 - Industrial 204
 - Infrequent 215
 - Interfluvial 234
 - Interstream 230
 -, Linear 276; 320
 -, Mining 204
 - Non-descript 204
 -, Non-quantitative density of 214
 - Origin 190
 -, Off-the-way 312
 -, Off-spur 230
 Settlements, Pat 234
 -, Patchy 215
 -, Projects 204
 -, Quantitative density of 211
 -, Riverain 215; 243
 -, River-avoiding 235
 -, River-side 229
 - Sites 218
 - - Col 225
 - - Cross-roads 225
 - - Cultural 225
 - - divides 225
 - - foot-line 225
 - - hill-side 225
 - - hill tops 225
 - - historical 199
 - - interfluves 225
 Settlements / Sites nick-point 225
 - - pass 225
 - - river-side 225
 - - road-side 225
 - - spur 225
 - - Valley-head 225
 - - Valley-spurs 225
 -, Standard units of 207
 -, Tendency of 225
 - - Scale 316
 -, Size of 194
 -, Widely spaced 215
 Shahdeos 337
 Sherghati 309
 Shershah 100; 329
 Shiva 199
 Shudras 105
 Silpa Shashtra 198
 Single-lane Village 320
 Siraghar 426
 Slip-off slope 228
 Sociograph 161
 Sociometric Curve 162
 Soils 42
 Sone 340
 Square Village 386
 Sprinkled type 317
 Sravaks 107
 Standard acre 137
 Stone Age 103
 Strassendorf 284; 320
 Suryabhedi 425
 Suryamandal 425
 Sutiamba 106
 Suvarnarekha 13; 25
 Talus zone 236
 Tamralipti 99
 Tana Bhagat 334
 Tanda 334
 Tanrs 60; 254
 Thana 197
 Tenancy 174
 Thekurs 326
 Thithaitangar 266
 Tola 266; 352; 386
 Toli 266
 Tongari 254
 Tonti 428
 Torpa 297
 Town 201
 Trans-Plateau 183
 Trans-scarpland 183
 Tribal Highland 183
 Tributary Clearings 251
 Trishul 198
 Tulsi 426

(xxxi)

- Chaura 426
Upland, Alluvial 13; 20
-, Interfluvial 13; 17
-, N. Koel-Kanhar 14
-, Rajmahal 13, 18
Urban 201
Uthulu 334
Valley, Minor 225
-, Major 225
- Plain 228
- Slope 228
- - Mid-point of 228
- Spur 230
Varanasi 100
Vegetation 54
- Deciduous 53
- Dry deciduous 53
- Moist deciduous 53
Village 193
- area 194
- Character 197
Village Community 194
- Composition 197



सत्यमेव जयते

-, Double 390
-, Elongated 389
-, Forest 239
-, Ghost 240
-, Inhabited 209
-, Linear 389
-, Paharia 279
- Pattern 389
- - Distribution of 393
- Polygonal 391
- Revenue 197
- Rectangular 382
-, Spacing of 209
-, Size of 210
-, Tribal 199
-, Triangular 392
Yuan chwang 100
Zamindar 176; 200; 338
Zamindar 176; 200; 338
Zamindari 200; 325
- House 200
Zenana 424



सत्यमेव जयते