CHAPTER 1

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Summary:
Introduction to this thesis is segmented in four sections. The first section gives brief outline to the present trend of research on settlement patterns; research carried out in the study area and its implications for the settlement pattern studies. The second section reviews the previous work done, which relies on the published and unpublished data relating to archaeological, geological and metallurgical studies by the Central and State government bodies' viz. Archaeological Survey of India, Geological Survey of India and State Archaeology Department of Rajasthan and the work of Indian and foreign scholars from different universities. The third section highlights the aims of the research which focuses on the study of settlement-pattern studies. The fourth section elucidates the technical methodology of the researcher during exploration.

First Section:
The research design is structured in such a way that could allow to develop inferences concerning settlement location, function, distribution and trend in settlement density at a regional scale in Rajasthan - the State of India, with a view to understand the ecological adaptation and cultural changes through prehistoric to early historic period.

In order to understand the part played by the local communities, inhabiting resource rich areas on the cultures of Greater Indus and Ganga-Yamuna Doab region through various periods of human history a study of Rajasthan was undertaken. It is worthy to emphasis that this research is therefore a regional study, and not one directed towards an understanding of only the area directly
surveyed. During the fieldwork constant efforts has been made to gather data within the framework, which would allow inference at regional scale.

From the study of the previous data available it appears that it is the product of an unstructured or haphazard archaeological work where little attention is given to sampling procedures and to the craft indicators and variables needed to understand settlement pattern and function of such settlements. It is therefore not possible to draw conclusions from such data. The resolution of such questions requires fresh explorations. After an extensive examination of archaeological data, geographical factors and location of copper rich resource areas it was decided to undertake detail fieldwork between North latitude 27°15' to 28°15'; East longitude 75°30' to 76°00'; which fall within the limits of Sikar and Jhunjhunun district of Rajasthan.

Second Section:

Advantages to work in Rajasthan emerge at various levels. One of the primary advantages is that there is already substantial body of published and unpublished archaeological data on which the present research is founded. Nearly 223 settlements of various periods have already been located in the present research area, though the details of various variables necessary to carry out any meaningful settlement studies were lacking. Nevertheless, this archaeological data has proved useful as a starting point for the research. Besides, nearly 23 sites of different chronological periods have been excavated in Rajasthan, which provides basis for chronological framework for the periodizaton of the settlements.

The territory of Rajasthan is supposed to be a “melting-pot” of human history. The physical distribution of mountain ranges and arid zones in Rajasthan have influenced hominid colonization and dispersal patterns through time. The earliest inhabitants of South Asia belonged to the hominid species Homo erectus, the ancestors of modern human Homo sapiens. The stone tools using
hominids lived in the Mewar region of Rajasthan over two million years ago where the oldest stone tools have been discovered in the Chambal, Gambhiri and Berach basins. Temporary camps of Middle Palaeolithic, Upper Palaeolithic and Mesolithic hunters-gatherers have been found in Mewar and Marwar regions of Rajasthan.

There is a profuse distribution of Chalcolithic settlements all over Rajasthan consists of Harappan culture sites, Ahar culture sites and Ganeshwar-Jodhpura culture sites. The Aravalli Mountain ranges of Rajasthan has numerous concentrations of copper, zinc, lead and silver ores. Near these ore concentrations many old smelting activity areas have been located.

The present research area also has many Early Historic sites i.e. Painted Grey Ware sites represent early Iron Age culture sites and Rang Mahal Ware related sites represent the early centuries of Christian era. Though these sites fall outside the core area of these cultures it is interesting to know that what kind of variables played part in the settlement location and the specific changes and adjustments which took place after the introduction of iron technology.

Another advantage to work in Rajasthan emerges in the availability of paleo-environmental data. At present considerable data has accumulated concerning this region. Many scholars like Allchin, (Allchin et.al: 1978), Singh (Singh et.al: 1972) and Misra (Misra: 1989) have provided sufficient information.

Besides, with the recent improved studies in metallurgy (Cradock: 1995), ethno-archaeology and experimental-archaeology (Bhan et.al: 1999) and pyrotechnology (Miller: 1994) has indicated the type of major craft indicators and patterns need to be recognized at a metal processing settlement.
Third Section:
None of the previous studies in the research area has given sufficient information on the geomorphic features and their relationships with the archaeological evidence. Thus, the present study offers the first attempt in this direction to:

1. understand and reconstruct the dynamics of settlement patterns from Prehistoric to Early-historic periods in a selected region of Rajasthan in the context of ecological and cultural factors;

2. use the methods of regional analysis to develop models for explaining economic and functional relations between settlements. Economic development is understood by analysing variations in style and technologies used for certain artefacts like ceramics, lithics and metals. Functional differences in terms of raw material resources, smelting sites, processing sites and possible interaction between these are looked into. It also aims to understand geomorphic adaptation of archaeological sites and their possible interaction with mining areas and metal-processing-activity areas.

Fourth Section:
It deals with technical methods; the discussion of which, to my understanding, becomes very important for a critical appreciation of the theme and the chosen area.

The technical method adopted during exploration was site location through scrutinizing satellite imagery and topographic maps juxtaposed with the relevant literature. The site and its area came to be marked by using GPS and by tracing the approach route from the center point i.e. Nim-ka-Thana (Khetri Maudh). The sampling procedure of the relevant artefacts collected randomly within the density area was followed by the documentation of geomorphic features associated with the site. Periodization of sites is based on comparative study of lithic assemblages, ceramics and minor antiquities and the association of these sites with the ancient mining and metal processing activity areas.
General Outline of the Thesis

Chapter 1: Introduction
This chapter gives a brief outline on the present trend of research; research carried out in the study area and its implication for the settlement pattern studies. It further discusses the previous work done on archaeological, geological and metallurgical studies. And finally discuss about the aims and research methodology carried out during exploration and classification of sites.

Chapter 2: Environment
This part of the chapter highlights a brief account of the environmental setting viz. geology, quaternary geology, geomorphology and drainage system. The general parameter of major river (Kantli River), minor rivers/streams, characteristic of Kantli River, generalized chronological sequence of geomorphic units in Kantli block with geology, soil type, and flora & fauna is also analysed by duly incorporating the strategy of adaptations followed during different cultures.

Chapter 3: Explorations
The third chapter gives the account of material culture discovered during exploration. It discusses the location of sites and their nature along with their geomorphic setting. The periodization of sites have been done on comparative study of lithic assemblages, ceramics, minor antiquity and metal processing indicators.

Chapter 4: Results of Analysis
Deals with the classification of the material culture, which indicate extraneous material, material culture of the site, religious affinities and social-religious environment of the site – lithic classification of paleoliths and microliths is presented in a comparative format to highlight the correlation aspect; pottery classification in which the result obtained from typological classification of chalcolithic and early historic pottery is presented after investigating vessel...
forms, fabric and function and highlighted the data to assist in a better understanding of the above said culture; ancient mines have been classified into open mine, pit mine, deep mine and stopes; activity areas were identified and classified the metal processing indicators into slag, tuyeres, crucibles and vitrified lumps; and the minor antiquity highlight the salient features, which was not identified in the slot of prominent findings in the research area.

Chapter 5 Settlement Pattern Study
This chapter discusses the concept of settlement pattern, development of settlement pattern study and settlement pattern study carried out in research area by using geology, geomorphology and ecology as parameters by categorizing the sites based on the spatial extent and potentiality and distributing these into different ecological zones.

Chapter 6 Conclusion
The concluding chapter examines the data generated from the above-mentioned analysis, with the over-all view of the discussion to seek the position of the research area in Rajasthan in particular and in India in general.