

the silken threads of emotions and moods representing the universal elements of dance. It is a cultural confluence of the rivers Ganga, Yamuna, Danube, Volga and Thames and it could only be made possible through the dance form of Kathak and the efforts of artiste Shovana Narayan. The author has also highlighted the personality and attitudes of the dancer by illustrating the progressive attitude towards life from the themes of her dances. Shovana is compassionate and introspective but through her dance, reaches the people and communicates to them her emotions and concerns regarding the role of women in society and adapt the dance form as an instrument to bring about a social change. In this way, the book proposes the hypothesis that the aesthetic enjoyment is not a transcendental experience, but becomes a powerful means to arouse social sensibility for reforms in society for the eradication of social evils such as gender discrimination, oppression of deprived classes, physically and mentally challenged children.

The book with flower like beautiful pages depicting the dancer in different moods and emotions really reflects the dedication of the author and publishers in carrying out the work to its fruition. Except for some printing errors, which appear like a thorn with a beautiful flower or bee attracted to the fragrance, the book makes a very interesting reading throughout, and gives a wonderful experience.

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*Iron and Social Change in Early India*, edited by Bhairabi Prasad Sahu, Oxford University Press, 2005

The advent of iron technology in the Indian subcontinent and its impact on urbanization, with emphasis on the second urbanization (i.e. of the Gangetic plains), is the subject of this edited book. There is reason to associate the first

urbanization of Harappan civilization with copper technology. This book is a part of Oxford University Press series on Debates in Indian History and Society. The book is a collection of previously-published articles by eminent scholars who have provided valuable inputs to this problem. The articles have been organized in three divisions, aptly named as 'The Formulation and Early Contestations', 'Towards Widening Horizons' and 'Perspectives from the Regions'. The articles provide snaps in the evolving important shifts in the discussion of the theme, over time, using Kosambi's proposal of 1952 as the origin.

Iron originated in the Indian subcontinent around the middle of second millennium BC. It is further established that the origin of iron technology was a product of indigenous development. However, the impact of iron technology on society in the Indian subcontinent, especially the social and economic spheres, is still a hotly debated topic, primarily because of intricate nuances associated with this problem of connecting iron technology and social change. The focus of attention has been the important direct and indirect connection of iron technology and plough share technology. The impact of this connection has also been seriously debated. Further, the impact of flourishing plough share technology on society has been critically viewed in this collection of articles. The questions to which answers are sought are how a society of surplus emerged once the dense jungles of the fertile Gangetic plains were cleared and what was the role of iron technology in making this happen. It is very important to understand this because this is a very relevant and fundamental social and historical subject. The surplus in food production combined with the establishment of active trading networks appear to be the cause of several other important developments in early India like emergence of cities, germination of new religious thinking, increase in use of

metallic coins, and formation of new state-societies. The articles in the book, thoughtfully selected and organized by the Editor, present different views on the impact of advent of iron technology on second urbanization.

In the elaborate introduction of the Editor, the approach to addressing the problem of the impact of iron technology on important social changes, especially in the initial years of advent of iron technology in the Indian subcontinent, has been well laid out. The Editor has summarized all the articles that follow the introduction by providing a very critical analysis of the material presented in each of these articles. The Editor has also placed the articles in an appropriate, almost chronological, sequence.

The serious tone of the discussion is rightly set with the first time proposal of Kosambi, in 1952, of a connection between iron technology and the clearance of the forests of Gangetic plains. This article originated the debate on impact of iron technology on society. The article of RS Sharma outlining how iron transformed the economy and society around 700 BC is a well-cited work, in which he has related the advent of iron technology and its impact in creation of active trading society on the rise of 'protestant' movements like Buddhism. In another article in the same volume, RS Sharma argues that iron acted as a catalyst that transformed material life in the Gangetic plains. He co-relates the rise in craft production in other raw materials with the remarkable growth in the use of iron tools from around 500 BC. The impact of iron on surplus produce and the growth of cities, around the same time, have been argued by DP Agrawal from the perspective of its increasing abundance and cheapness compared to bronze. Although Radomir Pleiner's concept of iron technology diffusing into India from external sources is almost invalid in light of recent scholarship, his analysis of archaeological data envisages a two stage development

in the application of early iron in India, the first stage where iron was not used for productive purposes (800-500 BC) while the second stage when it entered the life of the masses (500-300 BC).

In the same first section on 'The Formulation and Early Contestations', articles expressing a more cautious approach have also been presented. A Ghosh cautions that iron technology alone need not be the sole reason for surplus and that the society must be ready for it socially and culturally. He also proposes other schemes by which the dense forests of the Gangetic plain could have been cleared—using copper-bronze tools and by burning of forests. Dilip K. Chakrabarti agrees with the slow-moving iron technology hypothesis of A Ghosh by noting that there was no dramatic break seen in the cropping pattern and cultural aspects of the Chalcolithic and iron-using cultures and he argues against any relationship between iron and the second urbanization noticed around 500 BC. Niharranjan Roy analyzed available archaeological data and revealed that large scale felling of trees and tilling of lands was unsupported by the discovered tools even in the early NBPW period. He concluded that iron may have impacted society in a very big manner from the Maurayan period onwards.

The articles organized under the section 'Towards Widening Horizons' seriously question the connection between iron technology and second urbanization. In opposition to the view that iron technology was important in urbanization, Makkhan Lal concludes, based on subsistence requirement and land-use pattern and iron tool typology from the PGW and NBPW periods, that the extensive tilling of agricultural land was not due to iron technology but to culmination of social, political and economic factors. Some of the fallacies in his argument have been pointed out by the Editor in the introduction. Dilip K. Chakrabarti and N. Lahiri (in the article published originally in 1994),

having noted the widespread availability of iron ore deposits in the Indian subcontinent, conclude that the advent of iron did not lead to a revolutionary growth in the protohistoric period. Shereen Ratnagar also critiques the theory relating iron with surplus and state formation by noting that agricultural technology and productivity have been presented in a oversimplified in earlier arguments. She calls for a more sophisticated interpretation of available archaeological material.

The third section of the book addresses the impact of advent of iron technology in regions other than the upper and middle Gangetic plains. MDN Sahi assessed the impact of iron technology in the Doab and concludes, based on iron objects discovered at several sites, that iron technology was used in the PGW period to clear forest lands on a large scale. While the discovery of iron ores in Bihar in the succeeding NBPW stage certainly provided a great boost to settlement patterns, the role of carburization of iron (i.e. the impact of discovery of steel) has not been critically viewed. This aspect will be touched upon in the concluding paragraphs of the review. Vibha Tripathi's article concludes that iron technology positively affected social and economic developments starting from the fifth century BC. Her conclusions are based on careful analysis of metallurgical and archaeological data from the Black and Red Ware, PGW, NBPW and Sunga-Kushana periods. The impact of iron technology in Kathiawar has been addressed by Supriya Varma. She does allude to the importance of iron technology by noticing that farming was more productive in the early historic period without the introduction of any new crop. Rajan Gurukul has utilized archaeological and literary evidences from Tamil Nadu to show that agrarian production grew significantly in the post-Sangam period. This may not be entirely true because, based on a large spurt in the number of settlements in Tamil Nadu in the Iron Age, a significant

shift in progress of material culture occurred sometime from 500 BC onwards.

The debate on the impact of iron technology has been aptly summed up by the Editor, in the introductory article, by noting that discernible changes in social formations from 500 BC onwards was 'rooted in an intricate mix of social and economic processes'. Sahu calls for a closer look at the recently-unearthed new evidences to understand this evolutionary process. There are several benefits from positive interaction between historians and archaeologists in order to relate the historians' concern for social and economic implications of iron technology with archaeologists' field explorations to unearth cultivation technology, crop patterns, irrigation methods, settlement history and material use. This book is a valuable contribution and will be immensely useful, to laypersons and scholars alike, in understanding the impact of iron technology on urbanization in early India.

There is another important connection that needs a very careful look, in order to further our understanding of this subject. Archaeological finds of material objects have been generally utilized to interpret and understand social formations. However, there have been no detailed technical (i.e. metallurgical) studies of iron objects to support and validate the arguments, which are mostly based on interpretation of archaeological data alone. Interpretation (and re-interpretation) of archaeological data in the absence of detailed technical analysis of the discovered iron objects will always be subject to criticism. A large amount of iron objects has been unearthed in numerous archaeological excavations conducted in the subcontinent. Apart from reporting the typology of the discovered object, metallurgical investigations of the objects are not conducted. It is not our purpose to examine what are the reasons for lack of

technical studies. The large corpus of iron objects need a careful study by first mapping out the important pieces (based on their time period and location, by specifically choosing agricultural objects dateable to the transition between the PGW and NBPW periods, and originating from the middle Gangetic plains) and conducting detailed metallurgical studies on these carefully selected samples. These studies will provide critical information which will serve as crucial inputs to understanding the problem of impact of iron technology on society in early India.

Significant technological developments in iron technology in the Indian subcontinent must be first understood before assessing its impact on society. Careful technical studies are required.

The useful properties of iron are greatly affected by addition of small amounts of carbon. Technically, iron containing small amount of carbon are known as steels. Almost all archaeological reports state the finds as iron objects. How many of these objects are steel is a very important input to the urbanization question. The advent of deliberate carburization of iron is a very important technological development in the history of iron technology, especially in the Indian context, because the Indians later became very proficient in producing special steels (called wootz steel) of high carbon content, possessing a combination of useful properties like good toughness and the ability to maintain a sharp cutting edge. This subject of advent of carburization has not been understood due to lack of detailed

technical analysis of discovered iron objects. The connection between the discovery of carburization of iron and urbanization is immediate and obvious. With the discovery of carburization of iron (i.e. manufacture of steels), it would have been readily used for manufacture of tougher and sharper iron implements and tools. It is therefore evident that technical inputs are required to provide new insights to the problem of the impact of iron, rightly steel, technology on social formation and the second urbanization in early India.

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**Indian Knowledge Systems**, edited by Kapil Kapoor and Avadhesh Kumar Singh  
2 Vols., 2005, 710p; Index; 25 cm.

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India has continuous and cumulative intellectual traditions in many domains of knowledge. This tradition has its beginning in the *Rgveda*, the first attested Indo-European document, and continues to be alive in the life, practices and learning of the Indian people.

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On cover of the book is Vagdevi, the Goddess of Learning, from Dhara, India, 10–11<sup>th</sup> century CE with the Sun-Chariot Wheel from Konaraka, India, symbolizing the Cyclic Time.

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**SCULPTURES FROM HARYANA: ICONOGRAPHY AND STYLE** by Devendra Handa  
pp. xxvi + 286, 2006, Half-tone Illustrations 380

*Latest from IAS*

This book is the outcome of sustained interest, occasional surveys and researches in the archaeological and cultural heritage of Haryana by the author during the last four decades.

The very strategic location of Haryana on the route connecting India with the western world made it a rendezvous of the east and west and also a state to bear the brunt of all alien incursions from the early historic to medieval times. The medieval iconoclastic hordes demolished all religious edifices and tried to destroy all icons and images that came their way. What survived was very little. When the present state of Haryana was carved out of Punjab as a result of reorganization in November 1966, it was almost terra incognita as far as sculptures are concerned. A short stint as the Deputy Director of the State Department of Archaeology and Museums in the eighties of the last century provided the author an opportunity not only to undertake exploratory tours and discover the things himself but also to have a first hand knowledge of what was discovered by others and existed in different holdings, institutional and personal. The present work lists about two hundred sites which have yielded sculptural remains. On the basis of unfinished sculptures about half a dozen centres producing sculptures have also been identified.

As in most other parts of northern India, sculptural activity started in Haryana during the Śuṅga-Kuṣāṇa period. Its vicinity to Mathurā may have been one of the incentives. Gaṇeśa holding a sword from Gurawara and yogāsana-Gaṇeśa from Pinjore are interesting examples of iconography. Ekānaṃśā from Sanghel and images of Viṣṇu-Kubera from Pinjore, Ardhanārī-Viṣṇu from Jaintipur; Harihara-Pitāmaha from Purkhas; etc. are beautiful examples of art and iconography. Most of these and Jaina images have been brought to light for the first time.

The book discusses the iconography and style of all important Hindu, Buddhist and Jaina images discovered from the state so far and with nearly 400 text figures and plates, it presents a visual feast.

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**CONSCIOUSNESS, SOCIETY AND VALUES** edited by A.V. Afonso  
pp. xii + 304, 2006

Reflections on consciousness, society and values may take the individual through myriad of theoretical considerations, ranging from purely speculative to the concrete and substantially observable. Such reflections are justified from purely phenomenological perspective and/or from empiricistic and *quasi* scientific standpoint. Whether consciousness as a property of matter, as a property of protoplasm, as learning, as metaphysical presupposition, as emergent evolution, as property of behaviour or even as a metaphor, it keeps finding place in philosophical and non-philosophical discussions.

The present volume, the result of a seminar on "Consciousness, Society and Values" is a representation (of almost a fractal kind) that is available in the larger debate on the theme. The discussions on consciousness do not immediately bring the normative dimension, it does surface at the societal level, namely as society having norms. But a full and detailed discussion of the normative aspect of consciousness is possible in juxtaposing consciousness and values. This volume attempts to bring to the forefront the normative and interdisciplinary domains of consciousness.

The volume presents papers that deal with consciousness as manifested in the conscious experience, brain-independent or otherwise and methodologically, the contributions represent both the analytic and phenomenological approach on the one hand, and an attempt to go beyond the "exclusive" approaches on the other. Scholarly contributions that deal with consciousness as embodied in one's introspection and reflected in social and moral values, constitute the next set of papers. Studies that reflect on consciousness as expressed in collective consciousness as well as resonated in the communities and specific groups, find a substantial space in the volume. Studies of moral values reflected both in the philosophical and scientific consciousness of mankind, both from the Indian as well as western perspective, constitute the last set of papers of the present volume.

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