

Practices are Not Without Concepts: Reflections of the Use of Indigenous Knowledge in Artisanal and Agricultural Projects in India

Jan Brouwer

Centre for Advanced Research on Indigenous Knowledge System, P.O. Box 1, Saraswathipuram, Mysore 570 009, India
Fax: 0091-821-542459; email: cariks@bgl.vsnl.net.in

KEY WORDS Indigenous knowledge; concepts; practices.

ABSTRACT It is encouraging to note that a good number of research based development reports using indigenous knowledge data have appeared during the past five years. However, these studies, which belong to a wide variety of academic disciplines, rarely define the concept of indigenous knowledge. They also do not make it clear that what is indigenous and what is tradition. In this paper I propose definitions for the concepts of Indigenous Knowledge (IK), Indigenous Knowledge System (IKS) and Indigenous Technological Knowledge (ITK), while distinguishing "indigenous" from "tradition" and "invented tradition". Having defined the concepts, I argue that sustainability even if the indigenous knowledge component is used, can only be maintained when both the practices and the concepts behind them are considered in research and project design. To illustrate the relevance of the difference between Indigenous Knowledge System (IKS) and Indigenous Technological Knowledge (ITK) two Indian cases are given. The case study on aspects of Indigenous Knowledge System (IKS) among artisans shows the concepts behind (trans-)actions. The case study on bamboo shows the importance of the participants' views and indigenous Technological Knowledge (ITK).

INTRODUCTION

The idea for this paper emerges from an extraordinary range of innovative research on Indigenous Knowledge that has taken place across the globe and the social sciences during the past decade. The aim of this paper is to provide an apt definition of culture, tradition, and Indigenous Knowledge so as to facilitate communication between scholars working within different fields and areas. The common focus of the interdisciplinary research is on the ways in which Indigenous Knowledge is implicated in the dynamics of culture.¹

The study of Indigenous Knowledge may be most broadly defined as the participants' knowledge of their temporal and social space.

The perspective adopted is local, but concerned with the past and present or the dynamics of knowledge in the making.

In most Indigenous Knowledge studies the concept of Indigenous Knowledge is used in the sense of Indigenous Technological Knowledge (ITK). More often than not the concepts Indigenous Knowledge and ITK are interchanged. These uses of the two concepts do not do justice to the participants whose knowledge it is.

In this paper I propose definitions of the concepts that are at once clear to various disciplines, the development workers and the participants.

No discipline called "Indigenous Knowledge Studies" exists. This may be regarded as an advantage. A separate discipline would kill the holistic nature of the approach to Indigenous Knowledge and lead to an isolation for which many social sciences are still known even today.

An understanding of Indigenous Knowledge, I believe, would lead to a full understanding of social actions and relations, or their absence. The dialectic of world-view and actual situation of participants can be more fully explored through taking into account different epistemologies, views and perceptions implying different methodologies and empirical studies drawing on evidence from the Indigenous Knowledge.

In this paper I shall discuss the two fundamental aspects of Indigenous Knowledge that is Indigenous Knowledge as a cognitive facilitator of development and Indigenous Knowledge as technological praxis. The examples will be taken from a non-farm study (artisans) and agriculture in India. The distinction between conceptualizations and praxis is lacking in most, if not all Indigenous Knowledge studies. It is

my hope that this paper will fill the gap. A variety of disciplines, for example Indology and Folklore, do not relate their work to the concept of Indigenous Knowledge. This paper is also intended to make all scholars working in India aware of the concept. While doing so it has to be borne in mind that all "stake-holders" have to leave the human agencies free to order their world.

In addition, I hope this paper will bring about stronger interdisciplinary approach to Indian studies.

The concept of Indigenous Knowledge has energized the debate among social scientists over epistemological and political questions. The historical position of the concept may also be placed in the debate on postmodernism. Is the use of the concept a logical outcome of late capitalism or even neo-colonialism or a liberalizing force of the social sciences, humanities and development studies?

INDIGENOUS KNOWLEDGE AND UNDERSTANDING

The concept of Indigenous Knowledge in the social sciences got somehow lost in the debate, which centred around the epistemological dilemma between the native voice and the anthropological vision.²

The term native simply refers "to people who at some point are studied by social anthropologists as inhabitants of a particular social space" (Hastrup, 1993: 174). All of us are natives in some world of a defined temporal and social space. In this context, Vendler (1984) and Hastrup (1993) recognize the difference between knowing and understanding or between "an intimate and implicit native knowledge, and external and explicit expert understanding" (Hastrup, 1993: 175).

The participants' knowledge of their temporal and social space is what the anthropologist understands as the *Indigenous Knowledge*. The latter's detached analytical understanding may recognize here Indigenous Knowledge Systems. The study of Indigenous Knowledge Systems is an attempt to bridge knowing and understanding. For, a genuine anthropological understanding remains different from mere knowing.

In this context, the anthropological method of holism is a particular kind of epistemology. Holism then is to acknowledge "the human agency or the capacity of people to order their world" (Inden, 1990: 1).

There is a fundamental difference between the "human agency" and the anthropologist. The human agency has an intimate and sometimes implicit knowledge, but he does not have the knowledge of how culture is constituted. Tyler gives an apt analogy by stating that "knowing a language does not mean knowing rules and structures, but knowing how to make oneself understood" (Tyler, 1978: 120).

Although this dichotomy remains, the study in which the Indigenous Knowledge Systems are premised and exploited as resources will provide a new kind of knowledge in the social sciences. In post-modern studies, holism no longer claims the totality from the outside, but "it is experienced from inside with the aim of learning how people construct, change and deconstruct their own social spaces" (Hastrup, 1993: 181).

The holistic study of Indigenous Knowledge Systems, then, creates an unprecedented prophetic condition in the sense of incipient change.

INDIGENOUS KNOWLEDGE, INDIGENOUS KNOWLEDGE SYSTEM, AND INDIGENOUS TECHNOLOGICAL KNOWLEDGE

Indigenous Knowledge not only refers to the knowledge of indigenous people, but also to that of any other defined community. Quite often Indigenous Knowledge is local, but it needs not to be traditional as knowledge is always in the making.

The term Indigenous Knowledge Systems delineates a cognitive structure in which theories and perceptions of Nature and Culture are conceptualized. It thus includes definitions, classifications and concepts of the physical, natural, social, economical, and ideational environments. Indigenous practices can be either an expression or a result of Indigenous Knowledge, or an osmosis of Indigenous Knowledge with the global Scientific Knowledge. But more often than not, indigenous knowledge concepts

are presented by social scientists in the disguise of scientific idiom brought into local thinking in the course of time. On the other hand, Indigenous Knowledge may be quite practical and relating to operationalized local thinking in such fields as technology, agriculture, health, etc.

The dynamics of Indigenous Knowledge Systems thus takes place on two different levels, namely, the cognitive level and the empirical level.

INDIGENOUS KNOWLEDGE AND TRADITION

In this context we have to be aware of the distinction between tradition and invented tradition. True tradition comprises proven ancient, original and distinctive customs, conventions and routine. Invented tradition means "a set of practices, which seek to inculcate certain values and norms of behaviour by repetition, which automatically implies continuity with the past" (Hobsbawm, 1983: 1).

INDIGENOUS KNOWLEDGE AND SCIENTIFIC KNOWLEDGE

While many writers on Indigenous Knowledge agree that it also encompasses "non technical insights, wisdom, ideas, perceptions and innovative capabilities" (Thrupp, 1989: 139 quoted in Agrawal, 1995: 4) it appears that the concept of Indigenous Knowledge referred to does not relate to knowledge for knowledge sake. Pure scientific endeavours seem not to be part of what is called Indigenous Knowledge. Here the question seems to be "when does knowledge become science?" For example, alchemy can be called knowledge and indeed it is indigenous in most cultures of the world, but chemistry is science.

In this context Atran who combines a deep understanding of anthropology, logical systematics, history of science and philosophy, wrote that "To go beyond the 'bare' facts of common sense and into the world of science, then, one must first of all recognize that symbolic reconstructions of the world do not constitute explanations of the facts. Because symbolism cannot systematically pattern old facts, *a fortiori* it cannot consistently project patterns to new

facts". It is this insight, suggests G.E.R. Lloyd, that distinguishes the Greek *physiologoi* from the *magoi*, and the Hippocratic doctors from the purifiers (*kathartai*):

"Mythological 'aetiologies' are explanations only in a quite restricted sense. To attribute earthquakes to Poseidon is, from the point of view of an understanding of the nature of earthquakes, not to reduce the unknown to the known, but to exchange one unknown for another. While Poseidon's motives can be imagined in human terms.... *how* an earthquake occurs is not thereby explained nor indeed at issue. If there is no question of assigning a historical origin to an interest in causal explanations of some kind, the deliberate investigation of how particular kinds of natural phenomena occur only begins with the philosophers: it was they who first attempted to explain what thunder, lightning, eclipses and the like are in terms of more familiar phenomena and process" (1979: 52-53).

But in order to explain new or unfamiliar phenomena, the familiar phenomena of common sense would have to be codified and theoretically construed. Without such standardized referents there could be no judgement of progress achieved" (Atran, 1993: 3-4).

Substantial similarities between philosophies and several forms of knowledge, particularly as expressed in material culture has been dealt with by Levi-Strauss in his *Structural Anthropology* Vol. I (1972: 245). His argument goes beyond spatial and temporal explanations and more in the direction of structural similarities on the level of conceptualizations.

EPISTEMOLOGICAL PROBLEMS

The argument that Scientific Knowledge can or is/was also Indigenous Knowledge, because it is anchored in a specific socio-political-cultural context (see, for example, Agrawal, 1995), takes us back to the epistemological question of the Nature/Culture opposition and its far-reaching consequences.

Above I have argued in favour of recognition of the human agent, diversity of culture and the reinvention of holism to advance social science

knowledge. However, in our field of studies, scholars rarely make their axioms explicit.

Modern science is axiomatic in its conception of Nature as distinct from Culture, hence Culture can study Nature. Among anthropologists, Bernard Cohn was perhaps the first to recognise this. In 1978 he wrote: "All culture is constructed. It is the product of human thought. Since culture is always being constituted and constructed, so it is also always being transformed...It is only through culture that we construct nature, not the other way round" (Cohn, 1992: 43 [1987] originally written in 1978). The separation between Nature and Culture occurred in the 17th and 18th century. At that time, Scientific Knowledge began to win the battle against contemporary mythical and mystical thought. Science, it was believed, could only exist after an axial break through the perception that knowledge is to be perceived through the senses. "Thanks to this separation scientific thought was able to constitute itself" (Levi-Strauss, 1989: 6). Now, at the turn of the 20th century, science, or more precisely social science, is more and more attempting to integrate local knowledge in the field of scientific explanation. Western perspective regards Nature as "a linear phenomenon in which what happens in a given place and time is determined exclusively by what has occurred at nearby places immediately beforehand" (Barrow, 1991: 13). In other words, western social science is also axiomatic in its belief in cause-effect thinking within a single logical domain of reference.

These axioms made it possible to distribute Nature and Culture into different fields of study to the extent of losing sight of the whole. The holistic approach then is to consider the structural relationships of various such fields from the vantagepoint of a topic.

It has to borne in mind that this is significantly different from much of the non-western sciences, in which the holistic view assumes Nature to be intrinsically non-linear, so that "non-local influences predominate and interact with one another to form a complicated whole" (Barrow, 1991: 13).

No scientific research is free from axioms, and making them explicit in the social sciences, will be helpful in the recognition of the difficul-

ties of recording and analyzing Indigenous Knowledge in its holistic form.

PROBLEMS OF PRESERVATION

The strategy for preservation of Indigenous Knowledge need not to be at odds with the distinction between Scientific Knowledge and Indigenous Knowledge as long as it is not a monolithic strategy of isolating Indigenous Knowledge in regional, national and international archives maintained by others than those from where the knowledge originated.

The problem of preservation has three dimensions:

- (i) the philosophical dimension: it relates to the freedom of academics and the free access to all types of knowledge for academic purposes;
- (ii) the political dimension: it is political in so far as intellectual copyright is concerned; and
- (iii) the historical dimension: only *in situ* preservation guarantees the Indigenous Knowledge own dynamics.

The question whether any piece of knowledge can forever be marked or fixed as 'indigenous' or 'scientific' is both a philosophical and political problem.

In the philosophical discourse, Atran observes that "folk and scientific classifications have tended to share a basic presumption. The idea is that living kinds naturally fall into 'groups within groups' by virtue of a systematic embedding of their existence-determining physical properties" (Atran, 1993: 7). But in contrast to this shared basis, he also notes that the "first sustained scientific research program differed from modern science in its preoccupation with *explaining the familiar and known, rather than with exploring the unknown for its own sake*" (Atran, 1993: 8, emphasis added).

In the political discourse, the question of validation has to be placed in the context of different epistemologies. For example, Indigenous Indian Sociology as an expression of a culture specific epistemology contains a detailed and logic set of concepts and categories with which European society can be described. It may also be used to validate European Knowledge in order to enhance Indian understanding of that

knowledge, or should we say our scientific understanding of that knowledge? But wait. The Western concept of development itself is impressed with politics. In fact, some well-known state sponsored programmes for policy oriented studies have to strike the balance between academic freedom and government direction on almost a monthly basis.³

CONCEPTS BEHIND PRACTICES: TWO ILLUSTRATIONS

Indigenous Technological Knowledge should be viewed as complementary to scientifically based systems and integral to, for example, soil mapping. We should document these methods so as to build a broader basis from which we can choose, so that we can assess all the knowledge available from every source and then pick what is best suited to the case at hand. Most often the best choice will be a combination of traditional and new methods - a combination that is specific to a particular site, culture and project. Moreover, as Pretty *et al.* (1995) have pointed out, the best combination of methods will change as conditions change and/or other techniques become available. Indigenous Technological Knowledge, just like scientific information, of course can be applied only if and when it is available. But it is promising to read accounts of real cases where traditional and modern knowledge have been successfully combined (for example, Belal, 1989; Manshoff and Farber, 1995). Indigenous systems have an advantage in that they are widely known by the people of the region and can easily improve communication between farmers, extension agents and scientists. Relatively few scientists, technicians, and extension agents need to learn the farmer's classification system.

With reference to the study of Indigenous Knowledge in the non-farm and farm sectors the problem of axiomatic categorizing may be illustrated here.

In their own language (Kannada), there is no word for "artisan" or "craftsman". The term that is used today to cover this category is *kasubu*, which means "profession". The word that is used today for craftsman is *kasubu-dara*. Similarly, Ludden observed that "we see the farmer's

expressions in a context of our creation, which shapes their meaning: we category them as farmers, use their categorical status to collect and authenticate our semantic data and then reproduce a discourse in social science about agriculture" (Ludden, 1992: 2). Writing about the indigenous knowledge on agriculture in the Madras Presidency, he informs us that "by 1900, *kadu* was being fenced in as private pasture and dry crop land. Wet land *pangus* had already become private property" (Ludden, 1992:44).

Aspects of the Indigenous Knowledge System among Artisans in India with Relevance for Development

Recently I have completed a study of the Indigenous Knowledge Systems of artisans in South India. The study revealed that the target groups of the Smiths, or rather all those who belong to the Visvakarma caste of artisans have responded to the modern macro-economic possibilities through an interpretation of their caste ideal in terms of two indigenous models. The exclusive sub-castes make dependency on society incidental and non-comprehensive. Their modernisation is a form of brahmanization or the capacity to incorporate in themselves the division of society into domains, so that the entire chain of cause/effect relationships is dissolved in one point: themselves. This brahmanical involution is particularly clear in their response to education. The inclusive sub-castes are less brahmanised also in terms interactions and attributes (most are non-vegetarians). In their thinking, society consists of separated domains that are intertwined in such a way that a cause in one has an effect in another *ad infinitum*.

The difference between the Devangas' and Visvakarma Kulachars' stance *vis-à-vis* society, I have explained on the basis of two distinct Indigenous Knowledge sources, namely, the Visvakarma Secret Crafts Lexicon⁴ and the narrative of both the Visvakarma smiths and carpenters and the Devanga weavers.

The detailed analysis of the lexicon's terms referring to people reveals that the Visvakarmas view the Self (as a group) in *spatial terms* and Society in *temporal terms*. (Brouwer, 1997 and forthcoming) Close inspection further reveals that the complementary opposition between the

Self (as a caste) and Society is one between *Space* (spatial terms) and *Time* (temporal terms) as well as one between Knowledge and Ignorance. Significantly, underlying the terms for Society is the concept *Death* and those for Self - *Life*.

Where the Visvakarmas have monopolized the concept of Space/Life for the Self, and Time/Death for Society, the weavers have encoded Space and Time through the manufacturing process of weaving. Space is articulated in the relationship between the weaver, the loom and the cloth he weaves. The division of labour between the male and female members of the weaver's family is both spatially and temporarily expressed. Time is encoded in the process of weaving, as well as in the destination of the cloth woven.

In other words, the complementary opposition of Space and Time - the brahmanical aspect of completeness - is totally encoded in the crafts. Having thus isolated the brahmanical aspect, the weaver can freely apply the inclusive "kingly" model for his supplies and marketing. This requires an involvement in a defined locale. Although he mostly depends on entrepreneurs, merchants, or master weavers for his supplies and marketing, he may also engage himself in these operations, or eventually become master weaver himself. The weaver can thus achieve in the world. The most successful among them is the weaver with ability expressed in skill, command over man, knowledge and trading capacity. This is the "kingly" model at work.

Among the Visvakarma caste of the smiths and carpenters, I had identified exclusive sub-castes of minimalized transactions and inclusive sub-castes of maximalized transactions. All three craft occupations occur in both categories of sub-castes. The Visvakarmas' investment pattern and concept of money form a logical whole. The exclusive sub-castes invest in the Self (Life) and that too to opt out of the craft thus avoiding direct monetary investment in Society (Death). Investment in the Self bypasses connections with Death, retain the caste's purity which at once means development through opting out of the craft. By contrast, the inclusive sub-castes, dominated by blacksmiths, invest either in education, which is craft directed, or in property. Neither investment gives them high returns as among them we have seen a sig-

nificant proportion of poor craftsmen. Their concept of money is not appropriate for such investments. Notably, in "caste" oriented southern region land is far less used as a commodity than in the northern Karnataka, precisely because monetary returns from society (Death) do not go well with these sub-castes. Development projects for the southern region could include incentives for artisans who sell their land if they invest the income into their crafts. Thus the poor blacksmiths, who nevertheless own land, could be helped in an acceptable way.

In the case of the Visvakarmas general possibilities as well as schemes directed to their crafts have not met with much response. The analysis of their views, however, indicates two directions along which intervention might be guided in a way acceptable to them. First, a third, impartial, element has to be placed between the artisan and the change agent. Such a point of reference should be found in another domain than in which the intervention is envisaged. For example, in the religious domain an institution such as their *mathas* in the northern region or centres of sculpture in the southern region, or in the psycho-physical domain as a project component physical health, and confidence building. Secondly, the intervention may be given an incidental character. Mobile units facilitating credit needs (blacksmiths) or tools needs (carpenters and goldsmiths), who visit the needy craftsmen at more or less regular intervals could be the answer.

For the "Makers of the World" the best development scheme appears to me the one that helps them to opt out of the craft. For one thing this would match with their concept of money and for another it is supported by the positive results of the *Quantum Leap Model*. This model implies the introduction of change through a great technological distance between the existing and new technologies. Strengthening the existing occupations lead to reinforcement of tradition often with unwanted social implications. For South India, Scarlett Epstein was the first to note this (Epstein, 1973).

Aspects of Indigenous Technological Knowledge on Agriculture in India

The Integrated Rural Bamboo Project (IRB) in Kerala, South India, looked at the applicability of

its multi-disciplinary and inter-institutional approach in the broader issues surrounding the promotion of conservation and enhanced utilisation of rural bamboo.

The project reflected the importance or potential of bamboo in social forestry. The overwhelming response of farmers from districts of Kerala (Thirissur and Pallakad) demonstrated the usefulness of co-operation between the natural scientists, the social scientists and the local people. The project forged new and powerful professional liaison between the natural and social scientists. The natural scientists worked in the areas of clump management, culm preservation, pests and diseases. The social scientists conducted a socio-economic survey and mapped out the farmer's views on bamboo and collected data on their decisions regarding planting clumps and harvesting culms.

The project revealed the following indigenous technological knowledge on bamboo: (1) *annual rhizomatous plants can be grown as under-crops of bamboo*. This view contrasts with the practice of modern farmers who are reluctant to grow and manage bamboo in homesteads as in their view nothing can be grown under bamboo. After testing the indigenous practice *in situ*, the IRB and farmers were convinced that it is an acceptable one; (2) According to the ITK of farmers in Pallakad District bamboo branches (thorns) will be matured for fencing when they are 5-6 months old, whereas for fencing in coastal areas the ITK of these farmers gave 9-10 months. The research revealed that the indigenous practices of fencing were controlled by social practices and different calendars for the two regions. After testing it was found that the best period for obtaining matured and strong thorns is 8-9 months; and (3) *Detopping of culms will not affect the quality of the remaining portion of the culm*. Having tested this statement, this indigenous technological knowledge which is of immense practical importance was found correct. The farmers are now interested to adapt to this practice wherever possible and necessary.

INDIGENOUS KNOWLEDGE AND DEVELOPMENT

Given the non-sustainability of many of the

development projects, which often means intervention of modern technological practices, the Indigenous Knowledge approach to development can show a way out of the impasse. Raj's argument against the expectation that technology alone can provide increased productivity and particular institutional changes are needed, is thus correct (Raj, 1990: 20-21 & 44-45).

The study of Indigenous Knowledge Systems brings the localistic data from farmers, artisans and others back to the semantics of the participants' own discourse away from folklore.

Here, I argue that ignoring the indigenous knowledge system, in design and implementation of development projects, is an impediment for sustainability of development. This does not mean that there is no change. Rural transformation does take place, but it is neither a series of events nor a directory of requirements. First, two types of change are to be recognized: (i) the ongoing process of transformation in society as defined by its own domains; and (ii) a transformation as a result of osmosis between the indigenous and modern perceptions of society.

Most transformation studies depend on hidden assumptions or *a priori* definition rooted in the Western perceptions of society, State and change. Such overt or covert starting points carry, more often than not, the pretension of universal truths. Comparison, then, takes place at one step too early. An understanding of the indigenous general and specific, as well as the unique and universal of the Modern State, is required before cross-cultural comparison leads to valid conclusions.

To arrive at a general scientific knowledge "out of place" and "out of time", the point of departure is the reality of the particular. In other words, the social scientist relativizes the participants' knowledge on his way to scientific objectification.

This does not necessarily imply that the indigenous and modern concepts are always at loggerheads. There are differential correspondences and discrepancies depending on the social, cultural, and regional contexts. Individual approaches, such as the functional, structural, dialectical, and interpretative should not be isolated, as function, structure, dialectics, and interpretation are also constituent parts of Indian

culture. This is *not* to say that Indian reality should be studied through a purely indigenous approach as this "would end up in cultural solipsism and myopia" (Ostor, 1984: 197). Rather the approach should be undertaken at the confluence of social science, history, indology and other disciplines. Specific Indian concepts, such as "completeness" and "purity", which Indians employ in the semantic fields of social and economic problems, can never be used in theories at global knowledge levels. They are, however, indispensable for their and our understanding of the Indian field of ethnological study.

Serious studies of Indigenous Knowledge Systems of which the Indigenous Technological Knowledge is an expression, are attempts to fight Eurocentrism about which Herzfeld wrote: "As a European-originated discipline anthropology cannot evade the Eurocentric character of its criterion of comparison. It oscillates between this cultural heritage on the one hand, and an equally potent yearning to escape the constraints of bias altogether on the other" (Herzfeld, 1989: 18).

For such studies, whether aimed at deepening anthropological understanding or founding a solid baseline for development policies, have to combine concepts taken from both the universal and culture specific categories.

The collection and authentication of Indigenous Knowledge in its cognitive and practical dimensions at the confluence of concepts originating in different knowledge systems with active people's participation in collection and preservation, can give them back their history and full potential for coping with changing scenarios.

NOTES

1. This paper grew out of discussions at the *Centre for Advanced Research on Indigenous Knowledge Systems*, Mysore, which were held after the appearance of Agrawal's critique in *Development and Change*, 26 (1995). I would like to thank Prof. R. Indira and Prof. V.K. Natraj for their comments on an earlier draft.
2. As regards India, anthropological critique has suggested that we are "Imagining India" or should work towards an "Indian Sociology". For India, the debate opened with

Inden's attack not only on Indian historiography and anthropology, but on the human sciences in general. His call for the exploration of activities where the agency cannot be ignored should be taken to heart by any social scientist, whether engaged in pure or development oriented research. Where Inden's imagination is at places too powerful (we are waiting for more, and more elaborate "Reconstruction"), McKim Marriott appears to take a short cut by proposing the construction of an Indian ethno-sociology, or more precisely a sociology through Hindu categories. Apart from the difficulty that there are various Hindu ways of thinking, his enterprise seems to lead to the replacement of one bias by another.

3. This is nothing new, for the modern pair of funding agency and scientist reminds us of an older pair, the king and brahman. To legitimize his power, the king needed the brahman's authority. However, once the brahman vindicates the king's power he loses his authority. On the other hand, the brahman needs the king for his livelihood. (Heesterman, 1985) As the older pair has found different ways of coping with the situation - the king's gifts to the brahman mediated by deities and the four *ashrams* - so must the modern pair find its ways.
4. The secret crafts lexicon covers at least the following areas: (i) *categorical terms*: such as place, time, good, bad, pure, impure, right, left, gift; (ii) *craft-related terms*: such as those for raw materials, tools, assets, processes of manufacture and delivery of products; (iii) *terms referring to people*: such as names of castes, sub-castes, tribes, ancestors; and (iv) *terms relating to customs*: such as those for non-vegetarian food, alcoholic drinks.

REFERENCES

- Agrawal, Arun. 1995. "Dismantling the Divide Between Indigenous and Scientific Knowledge," *Development and Change*, 26 : 413-439.
- Atran, Scott. 1993. *Cognitive Foundations of Natural History. Towards an Anthropology of Science*. Cambridge: University Press.
- Barrow, John D. 1991. *Theories of Everything. The Quest for Ultimate Explanation*. London: Vintage.

- Belal, A.E. 1989. "Sustainable Development in Wasi Allaqi," *Desertification Control Bulletin*, 23: 39-43.
- Brouwer, Jan. 1995. *The Makers of the World. Caste, Craft, and Mind of South Indian Artisans*. Delhi: Oxford University Press.
- . 1996. "Units of Production in South India: An explanation of Artisans Choices," in Burton Stein (ed.), *Production Units in Micro and Macro structural Perspectives*. Delhi: Oxford University Press.
- . 1997. "The Goddess for Development. Indigenous Economic Concepts among South Indian Artisans," *Social Anthropology*, 5 (1): 1-14.
- . (forthcoming). Indigenous Knowledge of South Indian Smiths and Weavers in Development Perspective. (IDPAD, final research report, 1996)
- Cohn, Bernard S. 1992. *An Anthropologist among the Historians and Other Essays*. New York: Oxford University Press.
- Epstein, T. Scarlett. 1973. *South India - Yesterday, Today and Tomorrow*. London: Macmillan Press Ltd.
- Hastrup, Kristen. 1993. "The Native Voice and the Anthropological Vision," *Social Anthropology*, 1 (2): 173-185.
- Heesterman, Jan C. 1985. *The Inner Conflict of Tradition. Essays in Indian Ritual, Kingship, and Society*. Chicago: University Press.
- Heimann, James and Neelambar Hatti. 1994. "Yelandur Kaditas and a Critique of the Survey Settlement in Mysore State," in *Lund Papers in Economic History*. No. 35. Lund: University Press.
- Herzfeld, Michael. 1989. *Anthropology through the Looking-Glass. Critical Ethnography in the Margins of Europe*. Cambridge: University Press.
- Hobsbawm, Eric, and Terence Ranger. 1983. *The Invention of Tradition*. Cambridge: University Press.
- Inden, Ronald. 1990. *Imagining India*. Oxford: University Press.
- Kolff, Dirk H.A. 1990. *Naukar, Rajput and Sepoy. The Ethno-history of the Military Labour in Hindustan, 1450-1850*. Cambridge: University Press.
- Levi-Strauss, Claude. 1972. *Structural Anthropology*. New York: Doubleday.
- . 1989. *Myth and Meaning*. London: Routledge.
- Lloyd, G. 1979. *Magic, Reason and Experience: Studies in the Origins and Development of Greek Science*. Cambridge: University Press.
- Ludden, David. 1990. "Archaic Formations of Agricultural Knowledge in South India," paper presented at the Workshop *Production Units in Micro- and Macro-structural Perspectives*, SOAS, London, 12-18 July 1992.
- . 1992. "Archaic Formations of Agricultural Knowledge in South India," paper presented at the Workshop *Meanings of Agriculture*, SOAS, 12-18 July 1992.
- Manshoff, C., and S. Farber. 1995. "An Economic Analysis of Ecological Agricultural Technologies among Peasant Farmers in Honduras," *Ecological Economics*, 12 (3): 237-248.
- Ostor, Akos. 1984. *Culture and Power. Legend, Ritual, Bazaar and Rebellion in a Bengali Society*. New Delhi: Sage Publications.
- Pretty, J.N., I. Guijt, P. Shah and F. Hinchcliffe. 1995. "Joint Watershed Management: New Evidence from the New Horizons Project," *Indigenous Knowledge and Development Monitor*, 3 (1): 10-12.
- Raj, K.N. 1990. *Organizational Issues in Indian Agriculture*. Delhi.
- Thrupp. 1989. "Legitimizing Local Knowledge: Scientized Packages or Empowerment for Third World People," (pp.138-153) in D.M. Warren, J. Slikerveer and S. Titolola (eds.), *Indigenous Knowledge Systems: Implications for Agriculture and International Development*. Studies in Technology and Social Change No. 11, Ames: Iowa State University. Technology and Social Change Program.
- Tyler, Stephen. 1978. *The Said and the Unsaid. Mind, Meaning and Culture*. New York: Academic Press.
- Vendler, Zeno. 1984. "Understanding People," in R.A. Schweder and A. Levine (eds.), *Culture Theory. Essays on Mind, Self and Emotion*. Cambridge: University Press.