

*Alternative forms of knowledge: In search of Vernacular Engineering in India*

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*Abstract*

I have had informal contact on a number of occasions with boat-builders on the Bay of Bengal, during which I have become fascinated by their working methods as people with very limited formal education constructing large ocean-going fishing boats with minimal equipment, and usually without referring to blueprints. Such work that has been carried on for several centuries may be termed “vernacular engineering”. My plan is to study systematically, using ethnographic techniques such as observation and extended interviews (I share a common language, Bengali, with the builders), what is the nature of the knowledge they bring to bear on this task, how they learn and teach each other, how they communicate and collaborate with each other and with the fishermen for whom they build the boats. I will also take advantage of my time in India to have discussions with local scholars and consult relevant literature in the libraries there, building on extensive existing contacts and collaborations. As a researcher coming from the perspective of ethnomathematics, I will pay particular attention to mathematics embedded in their work – for example, in relation to tool design and use, and Levi-Strauss’s notion of bricolage. Research of this kind contributes to our understanding of alternative forms of knowledge construction and use, a major focus of my research. Such understanding represents a vital part of forming a full theory of human cognition.

*Introduction & Rationale*

The proposed research on vernacular engineering of traditional boat-building in India aims to study the nature of knowledge and how this knowledge is taught to apprentice boat builders. It is an interdisciplinary study that focuses at the intersection of anthropology (traditional boat-builders), cognitive studies (learning, teaching, problem solving), and mathematics to capture the knowledge production process in the culture of vernacular engineering. The findings of this study will contribute to our understanding of human cognition and to STS (Science, Technology, and Society studies). While working on analysis of data after completing the fieldwork, I will spend time consolidating my relationships with a number of Indian institutions, namely the Cognitive Studies department, Jadavpur University, Kolkata (<http://www.jadavpur.edu/>), the Center for Studies in Social Sciences, Kolkata (<http://www.cssscal.org/>), Department of Education, University of Delhi (<http://www.du.ac.in/index.html>), and the Homi Bhabha Centre for Science Education (<http://www.hbcse.tifr.res.in/>). This opportunity of future collaboration between Indian universities and PSU holds a promise reckoning the changing landscape of the globalized world.

This project, as its inception, had a serendipitous start a few years ago. While visiting a very small fishing village *Balurchar* (a pseudonym) in West Bengal, about 130 KM from Kolkata, I noticed a group of five or six men building large – 50 ft long – seafaring boats on a dark beach of the Bay of Bengal. None of these men looked like what we would describe as “trained