

An Anthropologist looks at Engineering

Date : May 31, 2010

Ian Ewart (Oxford University)



Production studies have until recently been pushed to one side in anthropology, but with growing interest in what seems to be coalescing around ‘Design Anthropology’ there may soon be a new sense of vitality in issues to do with making things. My research falls within the broad scope of that emergent field, and aims to tackle some basic questions about how engineering as an activity works, and to examine some of the assumptions about what engineering actually is.

The acronym-rich Science and Technology Studies (STS) have, since the 1980s, developed a number of theoretical approaches that offer a sociologist’s eye view. Most notably, but also perhaps most controversially, Actor-Network Theory (e.g. Latour 2004), but also, among others, the Social Construction of Technology (SCOT) approach (e.g. Bijker, Hughes and Pinch, 1987). Whilst ANT provides a refreshingly relational way of thinking, it has been roundly criticised, not least for its apparent emphasis on non-humans and lack of attention to practice. Similarly SCOT demonstrates the historical and culturally specific appropriation of technologies, but at its simplest is little more than a ‘Just So’ story. Material Culture Studies on the other hand, have a plethora of ideas on how to treat objects: from Gell’s agency to Kopytoff’s biographical approach, Miller’s materiality to Ingold’s biology, and all kinds of ideas on exchange, globalization, disposal, domesticity.... Though not a lot, it has to be said, to do with production. With the dry business of STS laying siege to production and technology studies, what we surely need is to introduce some of that anthropological creativity. As Design Anthropology begins to loom larger on the horizon, hopefully

liberation beckons.

For my part in this enterprise, I have gathered data from the Kelabit highlands of Malaysian Borneo, by engaging with a rural community in some of their communal projects. This has included building and refurbishment of houses, installing and repairing water supply pipes, and the construction of a new bridge. Engineering can of course be applied to a paper clip as well as a skyscraper, but to my mind 'real' engineering is the communal projects and large objects. As well as this, material culture studies have tended to focus on smaller objects, perhaps a hangover from the days of museum collections, which have now been so richly studied, but are inherently portable. Without going in to the whys and wherefores, unashamedly I admit I want to look at BIG things.

Building a bridge in the Kelabit Highlands

Being a rural community, the Kelabit have restricted access to industrial materials and ideas, and have developed their own sense of what constitutes engineering. For instance, work is carried out through a system of voluntary communal labour exchange *kerja sama*, which has traditional origins, but has become associated with the Christian church. Then, the lack of specialists in for example bridge-building, requires the villagers to apply their considerable ingenuity to problems that are new to them. 'Not-knowing' forces innovation; we can trace a history of Kelabit bridge design, an evolution of sorts, and it is quite clear that they are keen to push the boundaries with each design. The new bridge was a self-conceived 'suspension' bridge, a development of the more common 'catenary' or hanging bridges, but made using quite rare materials - wire rope and the extremely durable belian hardwood. This contrasts markedly with the traditional bamboo and rattan constructions which they throw up with remarkably little fuss, and incredibly quickly (I 'helped' build a 10m bridge from scratch in 3 hours!).

Many of the newer materials are only available via roads cut by logging companies in the last 5 years or so, challenging Kelabit rights to the forest, whilst at the same time enabling greater access to the wider world. This illustrates how they are changing relations with their surroundings, spreading their sights beyond the immediate environment to include coastal towns some 10 hours drive away. Along with the gradual influx of new tools (first saws, then chainsaws, more recently generators and electric tools), this has relaxed the pressure on retrieving and recycling materials and allowed greater personal expression and experimentation. Longhouse floorboards, once carefully retined as a sign of prestige, are now being replaced with chainsawn and electrically planed boards as the best flooring. Materials and ideas are now finding new ways of migrating to the Kelabit highlands, to be squeezed and forced into shape.

We can also ask questions about conception and design, much of which seemed to have been dealt with on the ground and in practice, rather than through pre-conceived detailed plans.

Engineering in this case seems to be done 'in-the-hand' and not 'in-the-mind'. Design, if we can call it that, is drawn from history and tradition, shining a light on the problems of today, manipulated by the forward thinking Kelabit to take account of new materials and tools, and recently acquired skills. And finally, what of the object itself, the finished bridge? Here I readily acknowledge the influence of MC studies and relational thinking in suggesting that what is produced is a bundle of relations, ever changing in its comprehension. A fleeting agglomeration of components and tools, ideas and sociality, initially cosseted and fussed over in construction, then left to its own devices,

as much a part of the forest as of the village.

Engineering is not the cold application of science and technology, nor is it simply or primarily a social construction. For the Kelabit, engineering is a practical activity, one which requires a good hand and a keen eye. It is a forum for emotional expression: frustration, embarrassment and ultimately pride. It is the means by which a community can experiment with new materials and exercise their desire for discovery, and it is ultimately a process of creation. As I hope this project shows, research that concentrates on production is an exciting and vibrant prospect, and one full of potential.