

Ideas about how to approach the topic: after visit to see Gerry, 16.7.99 and further thoughts.

Just back from a very enjoyable and productive visit to Gerry and Hilda. Apart from **Rodelinda**, we spent a good deal of time discussing the Maitland book and also where to proceed now. Gerry felt that 'Glass would make a good couple of chapters. I think it may be more than this, but we shall see.' But what was perhaps most helpful was our more general discussion of how to proceed.

It would appear that over the last six or seven years since I started on **Savage Wars**, we have done two things. One is to develop a general theoretical framework for approaching historical problems/puzzles. This is largely implicit in **Savage**, **Riddle** and **Mystery**, but a lot of thought and discussion (partic. on bits left out on methods in Riddle, Sherlock Holmes & many many discussions) are there. This framework for approaching (theoretical methodology) was then applied to three major traps - Malthusian, Social and Political, and some sort of solution to these problems was found. What is as significant as the findings is the method.

What Gerry suggests is that we make this methodological refinement the central part of our next book. That is to say, rather than saying 'Here is another book on the history of science and/or technology' and getting landed in a lifetime of nitty gritty work, we say 'We are going to apply and further develop a way of thinking about history which has already proved useful in approaching three huge historical conundrums, the escape from the Malthusian, Political Predation, Social Predation traps, and now apply it to the other area where there is a huge puzzle, the development of reliable knowledge and effective action.

The advantage of concentrating on the methodology is considerable. Firstly, like looking at stars, if one looks at the methodology, head on, people will perhaps be able to see the substantive solutions to the immense problem more clearly. Secondly, it cuts down the size of the work. One is not trying to write the history of the world, but just to pick those bits that illuminate the methodological argument. Thirdly, a methodology can be used by others, while substantive findings are much more time and discipline bounded. Fourthly, it plays to our strengths. While historians of science and technology are bound to know more about the details, a practitioner in science/technology like Gerry, plus an anthropologist like myself, will perhaps approach the problems in a new way.

So what is the methodological framework which we have developed over the years and which may give us the tools for this (last?) job? Well, I shall have to go back over our writings to find this, but among the things I remember are the following:

The approach

- The comparative approach, not dealing with one case (Europe), or even contrasting two (West/Rest), but dealing with true comparisons right across the world, with at least three cases, to see both what is common and what special.
- A long-term, historical, approach, going right outside one area in time and space, considering Gerry's curves etc. The need to see the problem in a wider frame.
- The structural/ relational approach; the answers will not lie in particular things but in the relationship/ balance of things and their weightings and inter-connections.

- The holistic approach; an interconnected machine to be taken apart, an inter-acting whole or system

Methods

- The analytic method; working backwards along chains of reasoning, rather than forwards.
- The causal chain approach, as elaborated at the end of **Savage**
- The modified Darwinian approach; accident and chance and selective retention
- Types of causation; latent/manifest, unintended consequences, necessary and sufficient etc.
- The method of exclusion - Holmes
- The method of absences and silences - things that did not happen as important as those that did
- Combination of induction and deduction; finding of principles etc.
- Combining microscope and telescope - details in context
- Mixture of geography and mores (Toc)
- Point of departure - tracing present back to 'point of departure'
- Writing history both backwards and forwards (Maitland)
- Finding essence of system or starting point (Maitland, Toc) - prime mover

Frameworks

- The idea of a triangle: reliable knowledge, innovation, multiplication and the cycling round this
- The meccano set theory; cumulative growth of reliable knowledge
- Ideal types: idea of normal tendencies and deviations from tendencies; setting up models and then seeing how far civilizations deviated from them (as Malthus, Smith et al)
- Conjectural methods, theoretical history
- The concept of traps and escapes from traps

And so on...

Though we may not use it, it would be quite interesting to show how these methodologies helped to define and solve the previous three problems (Malthusian etc.) Looked at from the point of methodology, how did they help?

In the previous three puzzle, we were greatly helped by the speculations of those who had developed these methodologies, from Montesquieu to Maitland. They defined both the questions and where to look for answers. Is there any equivalent here - ie. any great thinkers on science/technology whose theoretical methodology one can use? I suspect that one will be

hard-pressed to find one. Even great contributors like Mumford, Needham, Bernal et al. are rather feeble discussants of their methodology. So what we may be doing is taking the theoretical methodology from these great thinkers and applying them in an area where a rather impoverished methodology has been used, impoverished because the background of most of those in these two fields tends to be in science/technology (like Needham), and hence there is little interest or training in methodology. That may be one of our strengths, joining the methods of the social science (which is the appropriate methodology), to the substantive knowledge about technology and science.