English summaries

Vermessene Gesten. Manchester's art of brewing in James Joules's physics of heat

H.O. SIBUM

This paper is concerned with the role of the human body in knowledge production. Previous historical studies have stressed either the scientific construction or representation of the human body. The aim here is to understand the creative power of the disciplined body of the scientist. The author focuses on an early nineteenth-century landmark of scientific change: James Joule's experimental research on the nature of heat. A reconstruction of some of the cultural resources at his disposal demonstrates that what has conventionally been regarded as Joule's "personal" or "tacit knowledge" is better conceptualised as embodied knowledge, rooted partially in a hitherto unknown knowledge tradition of early Victorian brewing culture.

On hormones, technologies and bodies. An archeology of sex hormones 1923-1940

N. OUDSHOORN

Nowadays, we can hardly imagine a world without hormones. Women all over the world take hormonal pills to control their fertility and estrogen and progesterone have become the most widely used drugs in the history of medicine. But why has the female rather than the male body become increasingly subjected to hormonal treatment? This paper challenges the idea that there exists such a thing as a natural body and shows how concepts such as the hormonal body assume the appearance of natural phenomena by virtue of the activities of scientists, rather than being rooted in nature. The paper describes how, in the case of sex endocrinology, the activities of laboratory scientists, clinicians and pharmaceutical entrepreneurs in the 1920s and 1930s were highly structured by the fact that there existed a medical specialty for the reproductive functions of the female body (gynaecology), and not for the male body. Knowledge claims linking men with reproduction could not be stabilized simply because there did not exist an institutional context for the study of the process of reproduction in men. The paper concludes that it was this asymmetry in organizational structures that made the female body into the central focus of the hormonal enterprise.

The history of technology and the sociology of knowledge

D. MACKENZIE

This paper analyses three processes by which people come to know the technical properties of artifacts: authority; induction; and deduction. It argues that all three

processes have social aspects. Authority is obviously social, in that whom we trust is affected by our place in social relations. Induction relies upon learnt similarity relationships which are often social conventions. The acceptable forms of deductive argument are socially variable.

The general ideas are applied to a variety of case-studies from the recent history of military technology.

From innovation to use: ten eclectic theses of the historiography of technique

D. EDGERTON

In this paper I put forward ten theses which, if accepted, would give one a very different perspective on the history of technique from that found in popular (and a great many academic) works. The over-arching argument of the paper is that most (Anglo-Saxon) historiography of technology is concerned with innovation rather than technology. A consistent failure to differentiate the two, leads to very unfortunate results. The theses are eclectic in two senses. First, they are largely concerned with modern technology. Second, they are drawn from a number of different, and all too often disjointed, traditions of thinking about the role of technology in history. In presenting theses I have tried to make explicit some tacit rules of thumb and craft knowledge; to differentiate concepts which are unhelpfully conflated; and, to define important but often confused and confusing concepts clearly.

History as evolving systems

T.P. HUGHES

This essay presents an approach to the history of technology which focuses both on technical systems and on sociotechnical systems. The former consist of artifactual components; the latter involve both artifactual and organizational components. A concept of reverse salients is used to explain the way in which systems synchronically and diachronically evolve. The essay also explores the nature of creativity, especially the creation of technical and sociotechnical systems by individual and collective system builders.

The birth of a large scale technological system, le chemin de fer en France from the 1830s to 1870s

F. CARON

The birth and the development of railway in France, between the 1830s and 1870s, throws light upon the process of formation of large technological systems and upon some general important issues of history of technology. The initial choices were determined by technical legacies, but also by chance decisions made in a situation of uncertainty about the best solutions and/or by transfers of technologies from Great Britain. The technological path was determined by the lessons to be learnt from numerous and serious mishaps which occurred in the working of the system, and by organizational models adopted. The development in France of six independent networks strenghtened the process of differentiation of railway technology.

"The solubility in the Wagner's reagent". History of a scientific fact and a norm in fertilizer's trade. Germany 1886-1914

N. JAS

This article is an illustration of some sociologists', philosophers' and historians' claim that "Science" and "Society" are not clearly delimited worlds; that they rather are linked together by numerous, complex and necessary relationships. It tries to show how impossible it is to retrace the history of scientific knoweldge explaining the fertilizing value of a very common fertilizer in the end of nineteenth-century Germany, the so-called Thomas meal — which are supposed to belong to the world of "Science" — without also writing the history of norms of selling and analysing used in this fertilizer's trade — which one would describe as a "social" phenomenom —. Thus, the history of the so-called "solubility in the Wagner's reagent", which this article is in the last resort dealing with, could not be understood without a very detailed and careful analysis of the complex, often conflict-provoking relationships, which German agricultural chemists, German Thomas meal industrialists and some German agricultural organisations are keeping up during the elaboration of the scientific interpretation of the Thomas meal's fertilizing value and of the way to estimate it. Indeed this interpretation and this way to estimate are of great importance in the establishment of norms of selling and analysing in a commercial framework.