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Peterson delineates a patronage pyramid worthy of the *ancien régime* with the poorest practitioners scraping a living at the base and the Oxbridge consultants creaming off the glittering prizes at the apex. She pursues her subject with enviable thoroughness, through diaries, novels, minutes, pamphlets, and books, supporting her contentions with unobtrusive statistics and illustrating them by illuminating anecdote. She keeps a tight rein on her judgements, not letting slip glib pronouncements she cannot substantiate or allowing guesses to masquerade as facts.

Yet there are, I think, problems. Not the least of these is that Dr. Peterson does not seriously tackle what she calls "the subject of this book" (p. 4). This she says is the escape of physicians from lay patronage to independence and autonomy consequent on a changing social evaluation of their work because of "increasing secularization, including a greater concern with physical health, human life, and productivity" (p. 4). Now this change in social evaluation is presumed, and not proven, to have occurred in the late nineteenth century. Dr. Peterson proves conclusively the *lack* of autonomy physicians had in mid-century, but does not really chart in the same depth a change in this pattern, nor does she show it depended on a changing social evaluation of the physician's work and still less that this depended on the other more general factors she posits. What is needed is a companion study of the medical profession in late Victorian and Edwardian London. I hope it is M. Jeanne Peterson who undertakes it.

JONATHAN MILLER, *The body in question*, 1978, London, Jonathan Cape, 8vo, pp. 352, illus., £7.95.

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If the reader of Dr. Miller's new book has any acquaintance with the flavour of the early enlightenment in Britain he may find his enjoyment coupled with an uneasy sense of *déjà vu*. For he brings to our age, when science is the centre of so much unfriendly analysis, the same enthusiasm that surrounded the Prometheus in the optimistic years after the Newtonian revolution. The same themes reappear with strange familiarity: the triumphs of science, English science, and its power to resolve the architecture of nature; progress following the rise of technology; the experimental method as the key to all mysteries; the hauteur of the ancients and the rationalism of the French.

"Scientific medicine" begins Miller, "recognises nature for what she is, and reconstitutes her grand designs" (p. 10). The basis of this achievement he asserts must be sought in the growth of technology and the realization of its value as an epistemology notably by that great English spokesman of science, Francis Bacon. Bacon "was one of the first to insist that the snobbish disregard for manual labour and technical skill had paralysed the pursuit of useful knowledge." (p. 149). The result of such disregard had been that the ancients; "seriously disabled their imaginations." (p. 148). Not only the ancients; "Unlike his Puritan colleagues on the opposite side of the Channel, Descartes shunned experiment with Jesuitical disdain." (p. 295). The true heroes of science for Miller are all English: Harvey, Lower, Newton, Sherrington, and Head.

Miller's achievement in this book is to show, with singular lucidity, the importance of metaphor as a device for understanding nature, and that the metaphor derived from

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the machine has proved vastly superior to all others as the basis for a predictive science. In this he is quite right, but he tries to go further and convert a well-known philosophical insight into a historical method. Miller's model of scientific change is the contingent availability of metaphor. For, though he wants to show that the superiority of the moderns over the ancients derives from the latter's *horror machinae*, his predominant claim is that it is the availability of the technological metaphor that is significant. "One of the reasons why anatomy and physiology of the heart took so long to develop was the lack of satisfactory metaphors for thinking about what was seen" (p.182).

Galen failed to understand, indeed at one point Miller suggests he could not even make sense of, the cardiovascular system because he had to depend for his technological metaphors on cooking, brewing, and smelting. The minds of the ancients, it would seem, were crippled not through aristocratic snobbery but because the necessary metaphors were not available. But this is not the case, for the lever, pulley, wheel, spindle, spring, press, wedge, catapult, lock, and dam were all known in antiquity. Indeed there were attempts in the Classical world to understand the general principles of these devices, in spite of Miller's assertion that there was no such attempt (p. 148). The much-despised Aristotle himself, or a member of his school, wrote a treatise on mechanics, and Archimedes knew much more about the general principles of simple machines than did the mathematicians of the Renaissance. There was not, on the other hand, any ancient theoretical treatise on cooking, brewing, or smelting. The interesting question for the historian then, must lie elsewhere. Why at any one time are one set of metaphors seen as more appropriate than another for constructing a cosmology? The ancients just did not deem mechanical metaphors *appropriate* for discussing physiology, they drew instead on (equally menial) agricultural and domestic scenes. An available metaphor is a necessary but hardly a sufficient cause for historical change.

Curiously, however, it is Miller himself who inadvertently suggests the significance of metaphors in scientific thought, apart from their technical or operative value, and thus their possible role in a historical explanation. By judicious photography and text he draws the comparison between the production of red cells and the assembly line of a motor-car factory. Such a metaphor, it need hardly be added, not only shows how a natural event is like a social one, but it *naturalizes a social process*. The example is trivial, the metaphor obvious, but as a way of thinking about the role of metaphor in scientific thought, and why particular metaphors are chosen, the case in point illustrates the sort of connexions that occur between a society and the scientific knowledge it generates.

This engine of historical change, the availability of metaphor, just does not withstand the use that even Miller himself puts it to and he reveals it at times for what it really is, naked idealism. "When theories are vigorously discussed, examined and contradicted for any length of time, they tend to *evolve of their own accord*." (p. 191 – my italics).

It is no coincidence then, that Miller is both an idealist and an enthusiastic defender of science. By deifying scientific ideas he renders them sacred and immune from contamination by the social context. He does this, I am sure, because he perceives

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modern scientific ideas as the truly great intellectual achievements they are, and perhaps rightly fears their debasement in the new dark churches of irrationalism, and their belittlement by those without the generosity or intellect to comprehend them. He is however, I believe, in the end, wrong. We should be able to see scientific ideas as produced and sustained by bodies of men and serving social ends of all sorts, and *at the same time* value them as inspiring intellectual accomplishments. Otherwise we place them beyond history.

W. D. FOSTER, *The Church Missionary Society and modern medicine in Uganda. The life of Sir Albert Cook, K. C. M. G. , 1870-1951*, Newhaven, Sussex, [for the author], 1978, 8vo, pp. 234, £7.50 + 50p postage. (Obtainable from the author, Department of Pathology, Macclesfield Hospital, Cheshire SK10 3BL.)

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Beneath his inauspicious title, *The Church Missionary Society and modern medicine in Uganda*, W. D. Foster has concealed a remarkable piece of biographical writing. Albert Cook, the child of a middle-class Anglican Victorian family was born in 1870. As a Cambridge undergraduate he was inspired with an evangelical fervour that was to remain with him until his death in 1950. Nearly the whole of his life, between 1896 and his death, was spent as a practising missionary and doctor in Uganda. Though hardly a Boswell, Cook had that same mania for recording in minute detail all the incidents of his life, and, equally important, his reflections upon them. These diaries, plus those of his mother and his almost complete correspondence with her, have provided Foster with the material for an intimately detailed account of a unique aspect of British Colonial life.

To begin with the book is an exquisite picture of medical education in late Victorian England, coupled with a voyeuristic intrusion into the daily life of the middle-class drawing room. Cook's mother recorded that they were "anxious to prove Christians can be happy without cards and dancing – we had music, microscopes, chess, fossils, and *family prayers*". [italics in original] (p. 20). From here the biography slips, appropriately, into a style suited to an Edwardian adventure story. Uganda in the early years of this century was unknown, untamed, impassable, and, above all, highly dangerous. Evangelic inspiration was able to sustain feats of endurance from the first missionaries that almost defy belief. Death from malaria, trypanosomiasis, and typhoid was all too common, as it was from hostile tribesmen. Marches of hundreds of miles across bush and swamp to the sick in mind and body were an everyday occurrence. Somehow or other, though, England was never very far away. "[The] party were entertained to a dinner of zebra soup, fried sardines, antelope rissoles, stewed bustard, roast guinea fowl, chocolate blancmange and jam tarts and, despite the lack of liquid refreshment other than coffee, ended up singing 'God Save the Queen' and 'Auld Lang Syne'." (p. 48). To any in whom the phrase "British Colonialism" is likely to induce a flush of embarrassment the "carryings on" of Albert Cook are certain to precipitate apoplexy – separate hospitals for Europeans and blacks, beatings for the native boys, and a "social purity campaign" rate amongst the most insignificant of his enthusiasms. But Cook was rather more than an ideologue of British expansionism.