

marriage certificate or birth certificates for their children, but from the rational explanation this equivocal status would provide for certain peculiarities of behaviour and attitude.

A valuable work, which sheds much light on Victorian “counter-culture”, the early birth control movement, feminism, and sexual reform.

Lesley A. Hall, Wellcome Institute

DANIEL J. KEVLES and LEROY HOOD (eds), *The code of codes: scientific and social issues in the human genome project*, Cambridge, Mass., and London, Harvard University Press, 1992, pp. x, 398, £23.95 (0-674-13645-4).

The Human Genome Project (HGP) is Big Science. Simply put, its aim is to map all the genes found in human beings, a goal the molecular biologist Walter Gilbert has called the “grail of human genetics”.

The code of codes is a collection of fourteen essays on the HGP. The book is divided into three sections. Daniel Kevles and Horace Freeland Judson cover ‘History politics, and genetics’; five scientists (including Gilbert and James Watson) offer perspectives on ‘Genetics, technology, and medicine’; and six commentators from a variety of disciplines consider ‘Ethics, law, and society’: the book concludes with the editors’ ‘Reflections’.

The editors’ intention is to “stimulate thought about the diversity of issues” that the HGP provokes. They succeed admirably in this task. The strength of this collection lies in the way in which social, legal, scientific, and ethical issues share the same space (although no space is given to a critical appraisal of the HGP on any of these grounds). Rarely can a contemporary scientific enterprise have been so clearly—and accessibly—shown to be deeply embedded in society.

The scientists’ essays are models of optimism. Their message is simple: all the problems of the project (scientific or otherwise) will be solved, and the benefits will be legion. The HGP is presented as an almost religious quest; Gilbert’s essay is entitled ‘A vision of the grail’. Somewhat suprisingly, perhaps, it is Kevles who is most explicit in his use of such imagery, concluding that the first complete human genome sequence would be “a multinational and multiracial melange, a kind of Adam II, his encoded essence revealed for the twenty-first century and beyond”.

Most of the non-scientists, however, eschew the temptation to dwell on “big” aspects of the HGP, instead offering sensitive accounts of specific, local restrictions on the use of genetic information. Particularly engaging analyses are found in Nancy Wrexler’s essay on the social and clinical implications of genetic research on Huntington’s disease, and Dorothy Nelkin’s exploration of the interpretative pitfalls of genetic testing (complemented by Eric Lander’s piece on DNA fingerprinting).

Equally fascinating is Evelyn Fox Keller’s siting of the HGP within a contemporary “eugenics of normalcy”, countering Kevles’ suggestion that, since the mid-1960s, human genetics has been “emancipated from its eugenic antecedents”. Keller also reinforces the point, made by several contributors, that at present the only “therapy” made possible by genetic research is preventive, i.e. abortion.

British readers may be frustrated by the American bias of the book, particularly when dealing with the impact of the HGP on health insurance. But this bias has deeper resonances. From Kevles’ intriguing account of the local (i.e. American) political climate in which the HGP was launched, to Hood’s bare statement that the HGP will “secure the leadership of the United States in biotechnology and present U.S. industry with a wealth of opportunities”, there runs a strand of scientific cultural imperialism.

This tension pervades the book: the HGP is global, yet its history and structure is intimately tied up with the interests of the United States, especially its biotechnology companies. As in politics, so in biology: today’s wars are fought on the floor of the world’s stock exchanges. The political rhetoric is already in place: Watson’s ‘Personal view of the project’ echoes Franklin D. Roosevelt, stating that the HGP has nothing to fear but fear itself.

For those made uneasy by all this, the editors’ concluding remarks may provide some solace.

Book Reviews

Emphasizing the unusual fact that a significant proportion of HGP funding has been allocated to reflexive ethical analysis of the project, they stress society's obligation to display "knowledgeable judgement and sympathetic tolerance".

Perhaps this is the "take-home message" of this thought-provoking book: when the rhetoric stops, the thinking must begin.

Mark Weatherall, Wellcome Unit for the History of Medicine, Cambridge

CLIFFORD M. FOUST, *Rhubarb: the wondrous drug*, Princeton University Press, 1992, pp. xxii, 371, illus., £27.50 (0-691-08747-4)

Children in Russia during the 1960s were fully aware of the existence of rhubarb which, together with castor oil, was one of the staple home medicines. Attitudes varied according to the method of administration. The lucky ones consumed it as compotes and kissels, others as a murky liquid prepared from the dried root. English readers will doubtless recall rhubarb and custard served at school. *Rhubarb: the wondrous drug* evokes, therefore, some uncomfortable memories.

Professor Foust's book pursues several goals. It is a biography of this curious plant, tracking it through European history like a secret agent, powerful in effects but mysterious in identity. Professor Foust traces the steps of European naturalists and physicians, as they searched for rhubarb's origins, and the even more determined efforts of the merchants and governments that traded in the drug. The scale of the task becomes apparent as one follows centuries of fruitless attempts to identify the most potent variety of rhubarb. The painstaking process of empirical research, handicapped by a lack of data, is vividly and fascinatingly presented. This book is therefore a valuable contribution to the understanding of the development and accumulation of botanical and medical knowledge.

The book's greatest attraction is that it suggests almost as many questions as it answers. It would appear that linguistic research into the etymology of the word could provide some clues to the date of rhubarb's appearance in various parts of Europe. Professor Foust suggests that Russian interest in the rhubarb trade developed in the 1630s, but he is careful not to be too categorical as he is presumably aware that the plant was known there much earlier, even entering Richard James's Anglo-Russian dictionary of 1618. Grigori Kotoshihin, a clerk of the Foreign Office and therefore involved with the rhubarb trade, firmly stated in 1666 that the exported plant grew in Siberia and was gathered there by order of the Tsar. What happened to this rhubarb? Further investigation of the seventeenth-century trade and the eighteenth-century Russians who searched for the true rhubarb might shed light on this problem.

Much of the book is taken up with sketches of European physicians and botanists and their attitudes towards the plant. Although medical historians might find these passages rather slight, often leaning too far in the direction of modern-mindedness, as when Foust states that Culpeper anticipated homeopathy, they will be invaluable for nonspecialists. The medical and social contexts of purgative consumption, especially from the point of view of the patient, need further consideration from future historians.

Rhubarb: the wondrous drug is a useful study of an interesting subject and will attract readers from several disciplines, particularly historians of botany and those interested in the problems of early modern trade.

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LISE WILKINSON, *Animals and disease: an introduction to the history of comparative medicine*, Cambridge University Press, 1992, pp. x, 272, illus., £40.00, \$69.95 (0-521-37573-8).

This book gives an account of the development of man's understanding, mainly by experiment, of the diseases of domestic animals in relation to human medicine and agriculture. It is not a history of veterinary medicine *per se*; it covers only the main epizootic diseases and touches only lightly on the profession, institutions and personalities. Apart from the direct interest in specific diseases such as