

Medicine and Books

Defining death

The Concept of Death. Summary. Report of the Swedish Committee on Defining Death. (Pp 84; figs; paperback, price not stated.) The Swedish Ministry of Health and Social Affairs, Stockholm. 1984.

Death, Brain Death and Ethics. D Lamb. (Pp 128; £15.95.) Croom Helm. 1985.

In July 1982 the Swedish government appointed a judge in the court of appeal to inquire "whether the present concept of death be retained, or a brain related concept" be introduced in Sweden. A widely based committee has just produced its report, together with an excellent summary in English, and documents are being circulated to a number of authorities and organisations for comment. This autumn the Swedish government proposes to introduce legislation based on the committee's recommendation and the comments that it receives.

The report does many timely things. It stresses the need to have a philosophically acceptable concept of death before one starts discussing criteria of death. It emphasises that although permanent circulatory arrest is by far the commonest *mechanism* of death it does not, per se, constitute a philosophical *concept*. It perceptively notes that death cannot be described in solely scientific terms, and that the choice of appropriate criteria is not a doctrinal issue in any religion. It charitably—but rather inaccurately—discovers that "a distinction has always been made between the death of the entire organism and the death of the organism as a whole." And, finally, it accepts the challenge of defining human death. "A person is dead," it suggests, "when all functions of the brain have been totally and irreversibly lost."

The weaknesses of the report hinge on its naive belief that it is technically feasible (or conceptually crucial) to ascertain a loss of such a comprehensive nature. The seeds of these misconceptions were sown some time ago by the collective authors of the American Uniform Determination of Death Act (already law in several states), in which death is equated with the "irreversible cessation of all functions of the entire brain, including the brain stem." A currently uninformed public will sooner or later discover how misleading this simple formulation really is. In the usual clinical context of brain death there is no certain way of ascertaining (other than by angiographic inference) that major areas of the brain such as the cerebellum, the basal ganglia, or the thalami have irreversibly ceased to function. A clinical diagnosis of "whole brain death" is in this sense a fiction.

The authors of the report would not have landed themselves in this hornets' nest had they been prepared to evaluate seriously the philosophical and physiological aspects of the concept of brain stem death. This would have entailed seeing a little further than the chasm separating "death of the organism as a whole" and "death of the whole organism," and grasping that similar differences pertain between "the brain as a whole" and "the whole brain." It would have meant perceiving that a dead brain stem very adequately fulfilled their own (entirely acceptable) objective of ascertaining that there had been "total and irreversible loss of all capacity for integrating and coordinating the functions of the body—physical and mental—into a functional unit." The destruction of the upper and lower parts of the brain stem produce, respectively, irreversible loss of the capacity for consciousness and irreversible apnoea. Are these not the secular equivalents of the "departure of the soul from the body" and of "permanent loss of the breath of life," notions that formed the basis of many earlier concepts of death? If this cultural

continuity were emphasised the newer concepts would promptly gain much wider acceptance.

The report is marred by occasional medical errors. Readers will not be disturbed by minor ones, such as reference to "jugular arteries" (p 46), or to the blink reflexes as "responses to light" (p 49). But it is factually incorrect to state that *all* electrical activity in the cortex will inevitably have ceased in *all* deeply comatose and unresponsive patients with structural brain lesions by the time they exhibit irreversible apnoea and absent brain stem reflexes. There is evidence that it may take another day or two for the scalp electroencephalogram to become isoelectric.¹ Those seeking to establish the death of the last intracranial neurone should worry about such errors—those concerned with the status and fate of the "brain as a whole" need not.

At a practical level the Swedish report concedes (p 49) that in appropriate circumstances (when the cause of the coma is known and when intoxication and hypothermia have been excluded) "total brain infarction" can be ascertained without resort to angiography. Angiography should be reserved, it recommends, (a) for those in whom the cause of the apnoeic coma is unknown (in the United Kingdom such patients would not even be on a shortlist for a diagnosis of death on neurological grounds), and (b) whenever organ transplantation is envisaged. This latter prescription is untenable in logic but doubtless reflects the need to proceed gently in relation to public doubts and susceptibilities. Whether it will have this effect—or the very opposite one of alarming the public by suggesting that doctors have to be more certain about death in some settings than in others—is a moot point. Another of the report's recommendations is equally surprising: it suggests that the Swedish Transplant Act should allow potential donors to issue prohibitions (binding on both next of kin and medical personnel) against the removal of their organs "prior to the discontinuation of circulatory support." Apart from ensuring some non-viable transplants this recommendation also tends to subvert the main purpose of the report—namely, to convince people that the brain dead are truly dead.

David Lamb's book *Death, Brain Death and Ethics* is aimed at a very different audience—namely, at the increasing number of professional philosophers now venturing into this topic, in various stages of neurophysiological unpreparedness. Of its genre it is unique in that its author, who teaches philosophy of science at Manchester University, has taken the trouble to do some really serious neurological homework. His philosophical formulations are much the sharper for it; they may even be understood (and enjoyed) by those outside the specialty.

The author has not only followed recent controversies in the United States and in the United Kingdom, but has helped resolve some of the conceptual difficulties. His sure grasp of the essential clinical facts (that the "persistent vegetative state" differs from "brain death"; that "allowing to die" and "the determination of death" are separate issues; that the brain stem is "the critical system of the critical system") allows him to cross swords with colleagues deeper entrenched in the subtleties of ontological speculation. This he does in an elegant and witty style, seen perhaps at its best when he contrasts the evolution of modern technology with the evolution of cultural attitudes to death. It was not modern technology, Dr Lamb points out, that made it "acceptable" to their contemporaries to display an embalmed Lenin in Red Square, or the old bones of pickled Jeremy Bentham in University College.

The book has cogent things to say about the attempts to identify

the vegetative state with death (for which a vocal but ineffectual lobby already exists in the USA). It also deals clearly with those who advocate the deliberate maintenance of ventilated heart beating cadavers ("neomorts") as self replenishing blood banks or as objects for immunological or pharmacological research. These spectres on the medical horizon may be with us perhaps sooner than we think.

The price of the book is exorbitant. It is one thing to cast philosophical pearls before seekers of thanatological certainties. It is another to expect them to purchase the nacreous gems on current academic salaries. Interested readers should, however, ensure that their local libraries purchase a copy.

C PALLIS

1 Gaches J, Caliscan A, Findji A, *et al.* Contribution à l'étude du coma dépassé et de la mort cérébrale (étude de 71 cas). *Sem Hôp Paris* 1970;46:1487-97.

Old hearts

Geriatric Heart Disease. Ed E Coodley. (Pp 480; figs; £49.50.) PSG Publishing Company. Distributed by John Wright and Sons. 1985.

Eighty seven authors under the editorship of Dr Eugene Coodley have contributed 45 articles to this book, which aims at describing heart disease in the elderly and comparing and contrasting it with various aspects of cardiac disease in the young.

It is divided into several sections, dealing firstly with physiology and epidemiology, then diagnostic techniques and clinical cardiology, and finally therapy. Inevitably the large number of authors leads to differences in literary style, but these are not too intrusive. The differing layout, however, with some articles containing conclusion and summary sections and others not, is irritating. The quality of illustrations and reproductions is good and the text readable.

As might be expected, similarities rather than differences in cardiovascular physiology and pathology between the geriatric age group and younger subjects are emphasised. Unfortunately, there is some repetition between articles and occasionally authors appear to lose their way by repeating basic cardiology without special reference to the aged. A nihilistic therapeutic approach to the elderly on age grounds alone is discouraged, but it is equally important to avoid an overaggressive approach to investigation and treatment, and the section on surgery for coronary artery disease, in particular, implies a more aggressive approach than is usually adopted in Britain.

The treatment of heart failure is dealt with briefly, with the focus on the traditional digitalis and diuretic approach. Little mention is made of using vasodilators and angiotensin converting enzyme inhibitors to reduce ventricular afterload. It would have been useful to have had facts and figures concerning this type of treatment in this age group.

The section on changes in cardiovascular physiology with advancing age is useful and encourages a logical and positive approach to related cardiac problems. It is emphasised that there is no specific "presbycardia" which will produce an inevitable deterioration of cardiac performance with advancing age. Conditions that are particularly common in old age—for example, cardiac amyloidosis and calcification of the mitral valve ring—are covered adequately. With most of the book devoted to clinical manifestations and treatment there is not enough on the dangers of polypharmacy and reduced drug tolerance in the elderly. One particularly surprising suggestion was that aspirin should be given one grain three times daily (p 443).

Despite these criticisms this book fills a gap in the published work on cardiovascular disease in the elderly and by encouraging a constructive approach, based on sound clinical method and physiological principles, it should prove useful to all those who treat patients in this age group.

DONALD J WOODGATE

Diabetes, lipids, and genes

Molecular Genetics of Common Metabolic Disease. D J Galton. (Pp 152; figs; £9.95 paperback.) Edward Arnold Publishers. 1985.

It is suggested, but not proved, that a polygenic or multifactorial inheritance is the aetiological basis of common diseases such as diabetes mellitus and the hyperlipidaemias. The liability to develop such disorders may be conferred by two or more genes occurring widely, perhaps as part of the genetic polymorphisms that underlie population diversity. Possession of such genes may be a disadvantage only when there is some alteration to normal environmental conditions, such as diet. The application of new techniques of cloning deoxyribonucleic acid to the study of these common disorders may provide insight into the inherited component. Genomic probes may enable individuals at risk to be detected early on, so that environmental factors may then be modified.

Against this background David Galton describes the progress in applying DNA technology to diabetes mellitus and the hyperlipidaemias. The aims, purposes, and uses of recombinant DNA techniques are described simply with the aid of helpful illustrations and without the clutter of practical technical details. The types of genetic variants that occur are considered briefly, and some of the problems in the design and interpretation of clinical studies using DNA probes are highlighted. The insulin gene has been isolated, cloned, and sequenced, and DNA technology is being extended to the insulin receptor. Mutations leading to structural abnormality of the proinsulin gene product are uncommon. There is, however, a highly polymorphic region of DNA close to the insulin gene whose role is unknown, but which may be used as a genetic marker. One of three alleles occur here containing DNA sequences of different length. An association has been found for homozygosity for the long insertion and type II diabetes, and for the short insertion and type I diabetes. The pathophysiological importance of these observations is unknown. Clones of cDNA coding for five apolipoproteins have been identified and characterised, but the use of gene probes in studies of lipoprotein disorders is still in its infancy. Their use should give insight into the genetic determinants of the various hyperlipidaemias.

This book is concise and easy to read. Carefully selected reading lists follow each chapter and there is a useful glossary. Medical students learning the principles of molecular biology should find it helpful, as should those clinicians and pathologists with an interest in diabetes and the hyperlipidaemias, and a determination to acquire some basic understanding of the DNA technology.

VALERIE WALKER

Appropriate technology in the Third World

Appropriate Technology. Various authors. Articles from the *British Medical Journal*. (Pp 82; figs; £2.50, overseas £5 (\$8) paperback, including postage, airmail overseas. BMA Members £2, overseas £4.50 (\$7), including postage.) British Medical Association. 1985.

The provision of health care in the Third World is beset by problems and paradoxes. Some of the rich countries train few doctors (or none at all) and rely largely on imports from poor countries that produce more than they can use. Technology, applied so enthusiastically in the prosperous world to prevention, diagnosis, and treatment, as well as to nutrition, hygiene, and environmental improvement, makes little impact on the health needs of the rural villages and urban slums of the poorest countries. Well meant efforts to transfer technology all too often deliver sophisticated equipment that (through lack of facilities for maintenance) cannot be used and drugs that, if they ever reach the place where they are needed, prove to be irrelevant or out of date.

This fascinating book, written with the authority and insight that come from personal experience, describes the difficulties facing doctors who work in rural hospitals in developing countries. They have to deal with most of the diseases and disabilities familiar in the rest of the world and with the additional problems that result from starvation, over population, infection, political unrest, and corruption. Yet they have to be self sufficient in ways that medical schools and textbooks seldom teach.

The articles now collected together cover an appropriately wide range of topics. Some, dealing with consultant practice (for example in anaesthetics, gastroenterology, cardiology, respiratory medicine, immunisation, and laboratory medicine), show how much can be done with relatively simple equipment and techniques. Other contributors consider what may be achieved by doctors and others without specialised knowledge or training. A review of diagnostic imaging in small hospitals advises that a wide range of radiological investigations may reasonably be delegated to paramedical staff; another clinician reports, obviously from experience, that "a lad who left school at the age of 8 may be trained and encouraged to become a first rate radiographer and sound enough radiologist to interpret what he sees and report immediately." The potential of indigenous manpower is emphasised also in articles on obstetric care, child health, mental illness, and health education; in these activities, where effort is inevitably dispersed for reasons of geography, the participation of community leaders and village health workers (and sometimes patients themselves) is particularly necessary. Other chapters deal with general problems of equipment selection and maintenance, epidemiology and record keeping, orthopaedic aids, and essential medicines.

This slim volume summarises the thoughts of dedicated people who are struggling against formidable obstacles to develop a rational approach to the provision of technology for health care in the Third World. Their message, the more convincing because it is delivered in such a cool and objective style, reminds us that it is easy for affluent countries to supply inappropriate technology. Appropriate technology must be effective (and cost effective) and compatible with the culture in which it is to operate. High technology hospitals and health centres cannot (as they do in many Western countries) provide the patient's first contact with the system. Primary care must be given by health workers, recruited and trained locally. Dependence on imports must be reduced by the development of local resources for the manufacture of drugs and for the manufacture and maintenance of equipment. Whether these objectives can be achieved will depend on many non-clinical influences—economic, political, and cultural. A campaign for appropriate technology in health care is urgently needed; this book will serve as its manifesto.

JOHN LENIHAN

Another stereotyped look at women in medicine

In Her Own Words. Oral Histories of Women Physicians. Ed R M Morantz, C S Pomerleau, C H Fenichel. (Pp 300; figs; £9.95 paperback.) Yale University Press. 1985.

The change in the position and status of women in medicine in the United Kingdom over the past century has been one of steady if slow progress. Advances have been made both in the number of women admitted to medical school and in increased flexibility of training, and a start has been made to enable women to achieve greater equality in reaching their career goals. Nevertheless, difficulties still remain. The present discussion about the career structure raises particular anxieties for women with domestic responsibilities who wish to work part time for at least some of their career. Sadly, this book, which attempts to trace the changing position and perspectives of American women physicians over the past 50 years, adds little to the debate.

The introductory chapter provides an interesting historical

survey of the changing social attitudes that led to the exclusion of "doctoresses" of the seventeenth century and the emergence of professional women physicians in the nineteenth century. The book is divided into three main sections presenting the personal accounts of nine women physicians, graduating in the interwar, prewar, and postwar periods. Experiences common to many women doctors—the paternalistic attitudes of the male medical establishment, outright opposition to women entering certain specialties, and the recurring dilemma of balancing career and domestic demands—are reiterated. Factors specific to America, however—for example, private foundation medical schools, the split between premedical and clinical education, and differing emphasis on private and public medical provision—make comparison with women working in Britain difficult.

Though the technique of self report is innovatory in this context, the use of vernacular is at times irritating. The editors comment, at the end of each section, on the personal and social experiences affecting each group of doctors. I found these interpretations simple and occasionally condescending in that they appeared to impose stereotypes of the early independent pioneer, the middle era compromiser, and the radical feminist.

This book may interest American readers, but its value to a wider audience is limited.

DOROTHY BLACK

In brief . . .

Half a professional life time's experimental work on irradiation of (principally) mouse skin is the basis of *Radiation and Skin* by C S Potten (£21; Taylor and Francis). The first half of this specialised monograph is packed with facts about ultraviolet and ionising radiation, cell ultrastructure, the general actions of radiations on cells, and the cell and tissue structure of epidermis and dermis. The second half deals with the reactions to radiations of the specialised tissues of the skin, largely from the viewpoint of cell kinetics. Tables summarise kinetic variables from the published work on normal cells and tissues of the skin and these reactions (but without a single value for standard error of a mean). A high proportion of the diagrams—for example, those on dose responses—show idealised straight or curved lines but no experimental points. Thus the reader gains no impression of the technical uncertainties of observations. Useful references are listed at the end of each chapter with titles but without any index mark in the text to help the reader who may wish to verify some particular statement. The diagrams and photographs are of high quality.

The book would be a useful reference for those with more than a nodding acquaintance with its subject but would be a hard read for the general reader. The chapter summaries on radiation responses indicate how extensive the author's reservations are about what has been learnt, even about the epidermal keratocytes, where a very great amount of work has been done because of the practical implications for radiotherapy.

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Some new titles

Addiction

Contemporary Issues in Clinical Biochemistry. Vol 1. "Clinical Biochemistry of Alcoholism." Ed S B Rosalki. (Pp 316; figs; £32.) Churchill Livingstone. 1984.

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The Drugs Menace. M Manning. (Pp 200; £8.95.) Columbus Books. 1985.

The Misuse of Alcohol. Crucial Issues in Dependence Treatment and Prevention. Ed N Heather, I Robertson, P Davies, on behalf of New Directions in the Study of Alcohol Group. (Pp 292; figs; £19.95.) Croom Helm. 1985.

The Mother of David S. Y Keuls. Translated by J W Arriens. (Pp 232; £8.95.) Souvenir Press. 1985.

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Allergy

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Modern Techniques of Acupuncture. A Scientific Guide to Bioelectronic Regulatory Techniques and Complex Homocopathy. Vol III. J N Kenyon. (Pp 240; figs; £25.) Thorsons Publishers. 1985.

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Emergency care medicine

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Secretion and Action of Gonadotropins. Physiology and Clinic. Ed B Runnebaum, T Rabe, L Kiesel, W E Merz. (Pp 102; figs; DM 46 paperback.) Springer-Verlag. 1984.

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Clinical Epidemiology: a Basic Science for Clinical Medicine. D L Sackett, R B Haynes, P Tugwell. (Pp 384; figs; \$22.50 paperback.) Little, Brown and Company. 1985.

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