AIDS without emotion

Peter Newmark

Mobilizing Against AIDS: The Unfinished Story of a Virus. By Eve K. Nichols. *Institute of Medicine/National Academy of Sciences/Harvard University Press*: 1986. Pp.198. Hbk \$15; pbk \$7.95. To be published in Britain on 18 August, hbk £12.75, pbk £6.75.

IT HAS become commonplace to describe as astounding the rate at which research on the AIDS virus has proceeded since the first isolation of the virus at the Pasteur Institute just over three years ago. The pace continues, so that the writer of any book on the subject faces an impossible task in trying to be fully up to date.

Although, in theory, handicapped in this regard by basing her book on a conference held in 1985, Eve Nichols has been able to add new information as recent as this April. Nonetheless, she has missed out on key new discoveries including that of a new gene in the virus and of what seems to be a second AIDS virus in some Africans. This just goes to prove the point about the rate of research, which is matched only by the rate of publication of books on AIDS. But Eve Nichols seems to have performed as good a job as anyone in writing a sensible account for an educated public.

The meeting to which the book owes its origins was the annual conference of the Institute of Medicine in the United States. There were about a dozen speakers, including both Luc Montagnier of the Pasteur — the only non-American — and Robert Gallo of the National Institutes of Health. Each of the eight chapters in the book is based on a few of the talks, and the scientific, medical and public health aspects of AIDS are all dealt with in a straightforward and unemotional way.

Care is taken to tread a middle course between the pessimists and the optimists on issues such as the rate of spread of AIDS in heterosexual populations and the prospects of effective vaccines or therapy. Adequate attention is drawn to such

thorny questions as whether AIDS should be made a notifiable disease, so that contacts could be traced, when guarantees of confidentiality seem to have a way of being less than cast iron and when there is growing discrimination against even healthy carriers of the virus by employers and insurance companies.

The book comes complete with a glossary and a list of organizations (only American) to contact for help and information. Also included, as appendices, are the Public Health Service recommendations on preventing transmission in the workplace, care of infected children and reducing the risk of transmission. There is additional advice on how to prevent transmission, but none on how to put into practice one of the recommendations:

"Everyone should know the infection status of his or her sexual partners; those who are not infected should avoid intercourse with those who are infected".

Were this not a book aimed at the public, and particularly the public of the United States, it would be more fair to criticize the lack of recognition of some of the European contributions to the understanding of AIDS. In the same vein, it is a pity that less than two pages are devoted to the exceedingly serious problems of AIDS in Africa. But then, does the American public at large care about African AIDS? And for that matter, how many African countries would welcome a book such as this which dealt with their own AIDS problem for their own people?

Peter Newmark is Deputy Editor of Nature.

Nimble electrons

David R. Rosseinsky

Hopping Conduction in Solids. By Harald Böttger and Valerij V. Bryksin. *Akademie-Verlag, Berlin/Royal Society of Chemistry*: 1986. Pp.398. DM 140, £44.

"LOVELY 'OPS", murmurs the drill sergeant quaffing a pint of beer in the television advertisement, while watching a platoon of recruits hop past him. So it is with electrons, which in certain solids move, and conduct, by hops from site to site. The other kind of electron motion, within the extended bands allowed by multi-centre wave functions pervading condensed matter, has curiously enough never acquired a complementary term like "swanning" or "floating" or even "shining": it is simply band conduction. Metals have it anyway, but crystalline semiconductors have bands only of high energy separated by a gap from the states populated by the bulk of electrons, which requires an energy input to mobilize the electrons. Most of the vast structure of solid state physics encompasses band systems, and the recent interest in hopping arose largely from the fact that amorphous semiconductors have irregular structures generating sites which are envisaged to lie within the gap. As these are more or less discrete from the bands, and each other, so are the motions of visiting electrons, hence the designation "hops". Nevill Mott's 1977 Nobel prize was in part awarded for his studies of amorphous semiconductors, and those who in the 1970s based their learning on Austin and Mott, and Mott and Davis, will be avid readers of the text at hand.

Professor Böttger in Magdeburg and Dr Bryksin in Leningrad have themselves contributed substantially to the subject and here provide a comprehensive account of the theory of the hopping mech-

anism. After elaboration of Hamiltonians for the hopping system, the small polaron model is described, in which the charge in question, together with the self-entrapping reciprocal effect on its ambience, represent the moving entity. The theoretical framework is then applied to observations on disordered systems. Ionic and atomic hopping are addressed next, and the final chapter is an up-dating of the material to mid-1985, inserted in proof as an addendum to the 1983 manuscript. This is perhaps not an entirely comfortable addition but it represents an excellent way of circumventing publication delays, fulfilling the aim of the series, of which this book is a member, to provide quick dissemination of information. Other authors and publishers could profitably follow suit. Part of the commendable immediacy has apparently been achieved by direct authorship without the intervention of a translator. Nearly a third of the references are those added in proof, which is indicative of the recent growth of interest in the mechanism.

If the book is somewhat austere in aspect it is quite readable withal. Few, however, who are not involved in the minutiae of conduction or electron transfer within solids will approach it lightly, but, besides physicists, solid state chemists will increasingly find the need for recourse to one or other aspect of the exposition. Site-to-site electron transfer occurs in (chemical) mixed-valent solids where the sites are regular and rigorously defined, but such promising, even ideal, routes towards verifications of the theories have not yet entered the province of the monograph. Biological electron transfer between donor and acceptor sites is of the same kind as that considered here, and so the ramifications of this quite complex motion will extend across the sciences — perhaps by discrete hops. □

David R. Rosseinsky is a Reader in the Department of Chemistry, University of Exeter, Exeter EX4 4QD, UK.

• *AIDS: Papers from Science, 1982 – 1985* is a collection of 108 research papers and reports, edited by Ruth Kulstad, that have appeared in *Science*. Arranged chronologically, the papers show the progress in AIDS research and indicate the directions in which it might go. An introduction by Dr Myron Essex, chairman of the Department of Cancer Biology at the Harvard University School of Public Health, provides an overview of AIDS research. Available from the American Association for the Advancement and Science, Marketing Dept. A, 1333 H St NW, Washington DC 20005, priced Hbk \$32.95, pbk \$19.95 plus \$1.50 p+p.