Book reviews

The Causes of Cancer. By Richard Doll and Richard Peto. (Price £4.95.) Oxford University Press, 1981.

This deceptively slim volume provides an authoritative summary of current knowledge concerning the extrinsic causes of cancer, a methodological text in both descriptive and analytic cancer epidemiology, and a plea for evaluations of putatively preventive measures, conducted with the same scientific rigour as the best trials of cancer treatment.

Geographic variations and trends in cancer incidence rates, and the general tendency of rates among migrants to approach those of the host country, show that cancer is largely an avoidable, though not necessarily a modern, disease. From comparisons of the highest and lowest reliably known rates in different communities for cancers of each major site, Doll and Peto infer that in principle 75-80% of all fatal cancers could be avoided. Possible causes of cancer are then considered under twelve headings: tobacco, alcohol, diet, food additives, reproductive and sexual behaviour, occupation, pollution, industrial products, medicines and medical procedures, geophysical factors, infection, and unknown causes. The authors review the available epidemiological and animal evidence to estimate the proportion of deaths from cancer for each site attributable under each heading. Greater weight is given to the epidemiological evidence where this is available. The results are combined into a single table of the estimated proportions of all deaths from cancer attributed to each factor, together with a range of uncertainty associated with each estimate. For example, the proportions attributed to tobacco (30%) and diet (35%) are similar, but the ranges of uncertainty are very different (25-40% and 10-70%). Occupation is ascribed 4% (range 2-8%), pollution and industrial products even less. Knowledge that a cancer is in principle avoidable does not in itself tell us how to avoid it, and the quantitative estimates do not distinguish

between the effects of actions that could be taken based on present knowledge — for instance, reducing tobacco consumption — and of those that must depend on future research such as modifications of diet. The main text concludes with a summary and suggestions for future research, including the establishment of a "bank" of biological samples and open-ended questionnaires from "at least a few hundred thousand apparently healthy people" which could be used for quick case control studies of new hypotheses as they arise. There is a useful index.

The six appendices are also well worth careful study. The first two describe the age standardisation procedures and the methods used to correct for census undercounts in the estimates of population size (denominator) data. Appendix C addresses the conundrum that whereas recorded incidence rates for many types of cancer appear to be rising quite rapidly, and case fatality rates in general remain depressingly constant, the recorded mortality rates for non-respiratory cancers are, if anything, declining. The authors regard the trends in incidence rates as largely artefactual, resulting from changes in diagnostic criteria. They rely mostly on the mortality rates, especially for those under age 65. Appendix D presents detailed data on trends in United States age standardised cancer death rates for some 30 different sites. Appendix E gives a careful discussion of trends in death rates for lung cancer in relation to cigarette consumption, with due allowance made for the recent reductions in tar yields. Trends in the United States, Britain, and Finland are compared. Especial emphasis is placed on the importance of cigarette smoking in early adult life as a determinant of the risk in later life. Finally, appendix F is a formidable demonstration of the powers of logical thought and simple arithmetic to demolish the wilder claims that have been made concerning the proportion of deaths from cancer attributable to occupation.

It is an exciting book to read, partly

because the authors are not afraid to speculate when they do not know. Some of their interpretations will be controversial. For example, higher rates of lung cancer in urban areas, which others have attributed to environmental pollution, are here ascribed to hypothesised differences in smoking habits between city and country dwellers a generation ago. Inevitably, particular topics are not always discussed in as much detail as some readers might like. For example, there is no mention of the differences between the health effects of crocidolite and chrysotile asbestos. Such queries serve only to emphasise the importance of this survey as an essential point of reference for future cancer epidemiology.

D OAKES

Cancer and Work. Making Sense of Worker's Experience. By John Fox, David Gee, David Jones, and David Leon. (Price 75p. Pp 70.) London; City University Statistical Laboratory and General and Municipal Workers' Union, 1982.

An association between cancer and occupation has been recognised since Ramazini in 1700 noticed the high incidence of breast cancer in nuns. It is, however, impossible to say exactly how much cancer is due to work. The opening sentence of this pamphlet says, "Experts acknowledge that between 1400 and 7000 cancer deaths a year in England and Wales are caused by harmful substances found at work and therefore preventable." This shows the wide variation there is in the estimates of the proportion of cancer due to employment. The General and Municipal Workers' Union began a "Cancer Prevention Campaign" in 1978. This has resulted in the booklet, written for a wide audience, which tries to explain the ways in which human evidence is collected and assessed.

In the preface and early chapter the fact that clusters of a disease have led to the discovery of causes is emphasised. Later chapters indicate how epidemiologists pro-

ceed with their investigations including the statistical evaluation. There are sections on the need for animal or laboratory evidence and for monitoring. Finally, there are 10 appendices listing the known causes of human cancer, the importance of cancer and indicating how epidemiological investigation may be carried out, and mortality rates and 95% confidence limits for SMRs.

The booklet is aimed at people interested in the problems of industrial cancer who have little or no experience of the methods available. It should help members of health and safety committees. Much of the material would be useful to many people including works doctors and nurses, general practitioners, teachers of chemistry, and students of occupational medicine and hygiene.

There is insufficient emphasis on the causes of cancer other than toxic chemicals such as smoking, drinking, eating, hobbies, and exercising. In the first chapter it is indicated that the liver cancer of vinyl chloride workers was discovered because three men who worked with the compound had the disease. In the chapter on laboratory evidence it is correctly stated that experiments on animals were responsible for the discovery of this rare occupational cancer. At the same price as a pint of beer, however, this pamphlet is a bargain for the many readers who may be interested in the problem.

E BOYLAND

Notices

International Conference on Organic Solvent Toxicity, Stockholm, Sweden, 15-17 October 1984.

An International Conference on Organic Solvent Toxicity will be held in Stockholm, Sweden, 15-17 October 1984. The main topics will include toxicokinetics, biotransformation, occupational hygiene, neurophysiological and behavioral effects, mutagenicity, carcinogenicity, and other target organs. The conference is organised by the Research Department of the Swedish National Board of Occupational Safety and Health. In addition work shops will be organised in Stockholm, 18-19 October, on selected topics of organic solvent toxicity including methodological aspects.

Further details may be obtained from: Dr Per Lundberg, PhD, Research Department, National Board of Occupational Safety and Health, S-171 84 Solna, Sweden.

Third Conference on Epidemiology in Occupational Health, 28-30 September 1983.

Under the auspices of the Permanent Commission and International Association on Occupational Health, the Chapter of Community and Occupational Medicine of the Academy of Medicine in Singapore will be organising the Third Conference on Epidemiology in Occupational Health to be held from 28 to 30 September 1983.

Further details about the Conference may be obtained from Dr Lai Chan See, c/o Academy of Medicine, 4-A College Road, Singapore 0316, Republic of Singapore.

René Barthe prize

The René Barthe prize is awarded for recent and original work on industrial medicine and hygiene. Contributions from authors of any nationality are welcome. The prize of Fr fr 10 000 is awarded every three years at the Congrès Internationaux de Médecine du Travail, which are organised under the auspices of the Commission Internationale Permanente de Médecine du Travail. The next prize will be awarded in 1984 at the 21st Congress.

Further details may be obtained from the Comité du Souvenir du Docteur René Barthe, 30 avenue de Wagram, 75382 Paris Cédex 08, France, to whom entries must be sent before 15 December 1983.

Industrial Injuries Advisory Council and occupational lung cancer.

The Industrial Injuries Advisory Council are reviewing the terms under which lung cancer is prescribed as an industrial disease and will be particularly concerned with the problem of distinguishing occupational from non-occupational causation. The committee appointed by the council would like to receive evidence from interested individuals or organisations about any occupations that appear to be linked with the causation of lung cancer. A short explanatory note on the inquiry may be obtained from the Secretary, Industrial Injuries Advisory Council, Friars House, 157-168 Blackfriars Road, London SE1 8EU. Evidence should be sent to the same address as soon as possible and not later than 31 July 1983.