sarcomas, their use by other routes of administration need not be precluded.

On the whole, this document marks an important advance in our approach to carcinogenicity testing. Recognition of the importance of metabolic studies in the test animal and possibly also in man mark a major step forward in placing carcinogenicity testing on a firm scientific basis. Equally important is the emphasis laid on prospective epidemiological studies when a new drug is placed on the market. In a third major advance, subcutaneous sarcoma induction has been placed in its proper perspective. Against these achievements there are some major omissions. For example, the Group failed to examine the significance of benign tumours as an indication of carcinogenic potential. Such an examination could not have failed to take into account the controversy regarding the meaning of pulmonary tumour induction in mice. Nor did the Group consider the problems of co-carcinogenesis as manifested in the skin and vesical epithelium of the mouse. These are problems that demand an urgent answer and should not be shelved for future generations.

P. GRASSO

Occupational Disease in California Attributed to Pesticides and Other Agricultural Chemicals – 1967. (Pp. 35; 12 tables; copies obtainable free on request from the State of California Department of Public Health, 2151 Berkeley Way, Berkeley, California 94704, U.S.A.) State of California Department of Public Health. 1969.

A previous statistical record of this kind (for 1965) was reviewed at length in the April 1968 issue of the *Journal* (vol. 25, p. 157). The present record deals with 1,400 reports compulsorily notified under the State Labor Code by the attending doctor. A perfunctory attitude by the medical profession to recording and notification is apparently universal, and the value of this survey has been much reduced by failure to specify the chemical involved in 29% of cases. The survey reveals no new or unexpected patterns of hazard. Organo-phosphate pesticides remain the most important single group in producing serious occupational poisoning, accounting for 22% of all reports but 83% of systemic poisonings (240).

The incidence of poisoning episodes among staff engaged in aircraft spraying operations – labourers and flagmen, as well as pilots – increased in both 1966 and 1967, and the contribution of pesticide exposure to pilot error in aircraft spraying accidents is being made the subject of special study by the Bureau of Aviation Safety and the U.S.D.A. Community Studies on Pesticides programme. Only two 'occupational' fatalities occurred in 1967 – one through a farm labourer accidentally drinking parathion, not strictly an occupational casualty in the more usual sense of exposure occurring during preparation or application of a pesticide; the other casualty was an aircraft pilot who was contaminated by TEPP (tetraethylpyrophosphate) when his aircraft crashed after failing to take off because it was overloaded. Some of the information in the 12 reference tables will

be of little interest outside California, and the general presentation is not much improvement on the 1965 survey.

A. A. B. SWAN

Principles for First Aid for the Injured, 2nd ed. By H. Proctor and P. S. London. (Pp. 264; illustrated; 40s.) London: Butterworths. 1968.

The first edition of this book published in 1962 proved to be of great value to those concerned with the initial management of injuries, and also to those with a responsibility for first aid training. The second edition has been revised to take account of recent advances in knowledge. The section dealing with asphyxia due to drowning has been re-written. A discussion of the management of exposure, and of the principles in the use of inflatable splints, are introduced into this edition.

The almost indiscriminate use of the word 'shock' in first aid practice causes great confusion in the minds of first aid workers. The authors' clear thinking and clarity of expression are nowhere better seen than in the revised chapter on shock and injury. The shock syndrome is precisely defined and classified in terms of the circulatory changes. This presentation should make for easier understanding and improved first aid teaching of this complex subject.

The revised second edition will continue the tradition of the first as an important book of reference for all doctors and nurses working in industry.

J. D. CAMERON

Toxic Properties of Inorganic Fluorine Compounds. By R. Y. Eagers. (Pp. 152; 55s.) Barking: Elsevier. 1969.

This monograph summarizes the various aspects of poisoning with inorganic fluorine compounds. It is divided into three sections, the effects on humans, the effects on animals, and 'other effects'. The latter include the insecticidal and bactericidal effects of some of the compounds, and a chapter titled 'physiological effects' which describes research on enzyme inhibition by soluble fluorides and the changes which occur in carbohydrate metabolism and in the calcium balance.

The first section gives an account of methods of absorption, followed by descriptions of outbreaks of acute fluoride poisoning due to accidental absorption, gassing or to burning with liquid compounds. Case histories with pathological reports are quoted and treatment schedules are given. The importance of the administration of calcium gluconate by intravenous infusion, or by local injection in the case of burns, is stressed.

The sections on endemic fluorosis of both man and animals are of particular interest. In an Indian village where the fluoride content of the water varied from 1.2 to 162 ppm, 204 of the 208 inhabitants of the village over the age of 6 years had evidence of chronic fluorosis. The teeth showed mottled enamel and brown staining, there were pathological changes at the roots of the teeth, and cases of pokerback, with narrowing of the canal of the spinal cord causing neurological changes, were seen.

Great care has been taken to make a comprehensive study of the world literature and 730 references are quoted. There are some redundancies, threshold limit values are given on p. 7 and repeated on p. 79. A treatment schedule which includes under the heading 'renal' the comment 'the attitude should be one of optimism', and under 'digestive' 'stomach dressings and supervised restarting of alimentation' is presumably quoted to show the paucity of available treatments.

The section on disturbances of the metabolism would be more logically placed at the beginning of the monograph and the industrial physician might wish that more mention had been made of the industrial situations where there is the possibility of dangerous exposure.

As well as a list of references, which quotes only main authors, the book is well indexed. It is a most valuable review of the subject and should have a place in all libraries of industrial toxicology.

M. L. NEWHOUSE

Medical Service and Medical Research Annual Report 1968/69. (Pp. 40; illustrated). London: National Coal Board. 1970.

This account of the medical work of the National Coal Board Medical Service includes an illustrated description of the new Institute of Occupational Medicine in Edinburgh, which was formally opened in April 1969. Although primarily concerned with health problems in coal mining, the Institute will give facilities to other industries who wish to finance research projects there. The setting up of this Institute, which is to be closely associated with Edinburgh University in teaching and research, is an important step and it is to be hoped that full advantage will be taken of the facilities which it can provide. It will be interesting to see how changes in the importance and use of coal as a fuel and the demands for research from outside the coal industry affect the development and orientation of the Institute over the next decade.

The main part of the report describes the work of the medical service in the oversight of the general health of juveniles and adults in physically tough and dangerous jobs in coal mining and various research projects being carried out by the service or on its behalf.

The service employs 42 doctors and 232 nurses and the range and scale of its activities are impressive. Pneumoconiosis is still a big problem in coal mining, and, as is pointed out in the report, although the overall picture is one of declining disease, there is a reverse trend in some areas. There has been a marked drop in the prevalence of pneumoconiosis in men under 35 years of age.

Measures to control the amount of dust at the coal face have been applied vigorously for many years, but it appears that there is still some way to go to achieve approved standards in all working places. The trend to more intensive mechanization and greater dust production is partially responsible for this, and dust suppression is to be tightened up by the introduction of new standards during the next year. A study of the coal fraction of the respirable dust and the radiological response measured by the progression rate per million shifts on the coal face has shown that they are closely related. This work

has shown how the relative effects of different possible standards for airborne dust can be estimated in terms of expected pneumoconiosis prevalence.

There is also research into a variety of other diseases and potential hazards, for example bronchitis and emphysema, the disposal of dust particles in the lung, occupational deafness, mineral oil and skin cancer, Raynaud's disease, the use of cement and vermiculite sealants, back stress in mining, and the design of protective clothing against cold.

The Coal Board Medical Service's interest in maintaining high standards of occupational health nursing is demonstrated by their lending a senior colliery officer to a university on a part-time basis as the tutor to an occupational health nursing course.

R. I. MCCALLUM

Clinical Toxicology of Commercial Products, 3rd ed. By Marion N. Gleason, Robert E. Gosselin, Harold C. Hodge and Roger P. Smith. (Pp. 1428, in sections; 230s.) Edinburgh and London: E. & S. Livingstone. 1969.

The object of this book is to assist the physician to deal quickly and effectively with acute chemical poisonings arising through the misuse of commercial chemical products. The second edition dealt with those likely to be used in the home or on the farm, but this edition is extended and includes a number of industrial products not previously dealt with. It is again a mine of information. It is carefully and clearly set out in seven distinct sections, each section quickly distinguishable by the colour of the edge of the pages. The first section (red) describes the general principles of the first aid and emergency treatment of poisoning by substances that have been inhaled or ingested; in it the authors deal with such basic matters as the induction of vomiting, antidotes, decontamination, eye lavage, and the identification of the agent, and they describe a number of techniques such as gastric lavage. Most of this part will be familiar ground to the doctor, but the layman confronted with an emergency will find help in the more simple parts of the instructions. The second section (blue) is an alphabetical list of chemical substances likely to be encountered as poisons in the home, in agriculture, or in general medical practice. There are cross references to other sections, especially the third, in which are detailed experimental and clinical data on a large number of compounds grouped into classes with descriptions of their toxic symptoms and signs and the recommended therapy. Section four deals with general supportive treatment instead of the particular therapy given in the previous section, and in it are given detailed consideration of the modern techniques of many therapeutic measures such as assisted respiration, treatment for shock, haemodialysis, correction of electrolyte balance, and parenteral feeding.

The largest section (772 pages) is comprised of a list of some 17,000 trade names of products which could be toxic on ingestion, with a description of their ingredients supplied by the manufacturers. A useful asterisk system indicates the likely toxic items in those which are mixtures. Section six is complementary to this in that it