

THE DISEASES OF OCCUPATIONS

SIXTH EDITION

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To the memory of
HUBERT M. TURNBULL, F.R.S.
with affection, gratitude and
deep respect

PREFACE

IN this book it has been my purpose to review on a broad basis and with emphasis on its clinical aspects the problem of disease in relation to occupation. Every type of occupation is considered, whether it belongs to an industry or not. The work embodies the experience of twenty years' teaching and is designed to be of use to the student, the general practitioner and the consultant. The industrial medical officer and the works' chemist will need to consult books which are larger and more detailed than this.

The point of view is that of the general physician; unhappily I have never held a post as factory doctor. In using the clinical approach I have had always in mind the need to establish the subject on an academic footing, and I have merely put together something of what is known about occupational diseases, in order to lay down a basis upon which the practising doctor may build.

I have kept in mind the importance of describing the chemical composition of the materials handled in various occupations. Where I have described at length the use in industry of such harmless substances as chalk and limestone, the object has been to stress the fact that dirty and dusty conditions of working are not necessarily dangerous to health. In dealing with industrial poisons and dusts, I have given special emphasis to the mechanism by which poisoning occurs and the means of prevention used. Wherever possible, detailed descriptions of industrial processes and working conditions are given.

A large number of illustrations of factories and workshops is included with the object of giving at least an approximate idea of trade processes. The limitations of this method are, of course, realized. I have not been concerned solely with what happens in Great Britain: my review takes into account occupational disease in any part of the world. It follows that I have recorded certain descriptions of working conditions and diseases which I have not had the opportunity to study personally.

Some of the subject-matter refers to diseases which are rare or even obsolete. Thus I felt that it was worth while to describe phosphorus poisoning in detail, because history proves that very serious disease may sometimes exist in an industry without medical men knowing anything about it, and that every known hygienic measure may prove to be unavailing for the prevention of certain kinds of industrial poisoning.

Sometimes conditions unrelated to occupation have been described because of the light they throw upon what happens in industry. Injuries by lightning stroke and the disasters of Hiroshima and Nagasaki are examples of this. It has been necessary often to approach the subject

historically, in order to show what has been achieved or what yet requires to be done.

The opening chapters depict in a disjointed way something of the historical, social and economic background of the occupations men follow. These chapters are amateur and merit the comment of Sir Robert Hutchison that to write about the history of medicine is itself a physical sign of cerebral arteriosclerosis in the writer.

In the preparation of this work I have had the valuable assistance of Dr. P. Lesley Bidstrup and Dr. Ian Lodge Patch. In addition I have had the help and advice of many other friends and colleagues, only a few of whom are mentioned in the text. I am particularly indebted to Dr. J. N. Agate, Dr. J. M. Barnes, Professor S. P. Bedson, Dr. J. A. Bonnell, Dr. E. Boyland, the late Dr. J. C. Bridge, Miss H. M. Buckell, the late Professor W. Bulloch, Mr. R. Drew, Dr. D. E. Freeland, Dr. J. R. Gilmour, Dr. H. C. Hamilton, Dr. D. G. Harvey, Dr. S. A. Henry, Mr. C. Hunter, Miss E. K. Hunter, the late Dr. H. Hunter, Mr. J. A. Hunter, Professor L. Hunter, Dr. M. E. F. Hunter, Dr. M. H. Jupe, Professor Sir Ernest Kennaway, Mr. E. King, Dr. C. A. Klein, Professor R. E. Lane, Mr. D. Lawford, Dr. W. H. Linnell, Dr. R. Lovell, Dr. E. R. A. Merewether, Dr. E. L. Middleton, the late Dr. G. Riddoch, Professor S. Russ, Professor Dorothy Russell, Dr. R. S. F. Schilling, Dr. W. A. M. Smart, Professor H. M. Turnbull, Dr. E. Williams and Dr. W. W. Woods.

I wish to express my appreciation of the generous treatment, both of myself and my staff, by the Medical Research Council. The equipment and maintenance of the Department for Research in Industrial Medicine at the London Hospital which I have the honour to direct has made possible a number of investigations described here in detail.

I am indebted to friends and colleagues in many parts of the world who have arranged for me to visit mines, shipyards and factories, as well as departments for research. It is a pleasure to acknowledge the kindness of executives in a great number of industrial firms who have supplied me with information and photographs, and given me free access to their works.

For many of the clinical photographs reproduced here, my thanks are due to the late Mr. H. J. Suggars, himself a victim of an occupational disease. Other excellent reproductions and all the charts are the work of Mr. H. S. Edwards. My grateful thanks are due to Mrs. Margaret Adams upon whom the arduous task of making accurate copies in type has mainly fallen. For help in reading the proofs I have to thank many friends and especially my clinical ward clerks.

Above all I am deeply grateful for the constant help, kindly interest, forbearance and devotion of my wife during the many years which were given to the task of writing this book.

DONALD HUNTER.

The London Hospital, E.1.
January, 1955.

PREFACE TO THE SECOND EDITION

I AM glad to have the opportunity of correcting and amplifying certain statements of fact. Some few additions have been made to the opening chapters on the history of the subject, eleven new illustrations have been added and the index has been enlarged and improved. The descriptions of poisoning by vanadium, manganese and cadmium have been brought up to date, the latter with the help of Dr. John Bonnell. New sections on thallium poisoning, on iron and steel foundries and on the hazards of work in sewers have been added. I am indebted to Dr. John Rogan for new information on the National Coal Board Medical Service and on the Coal Industry Social Welfare Organization. I wish to thank Dr. John Watkins-Pitchford for information bringing up to date the Industrial Injuries Scheme of the Ministry of Pensions and National Insurance. I am greatly indebted to the printers and publishers for the excellent work put into the production of the book.

DONALD HUNTER.

The London Hospital, E.1.

January, 1957.

PREFACE TO THE THIRD EDITION

AMENDMENTS and additions have been made to bring up to date the First Schedule, Part I of the Industrial Injuries (Prescribed Diseases) Regulations. Descriptions of the uses and toxic effects of acrylonitrile, hexachlorobenzene, hexachlorocyclohexane, metol, phenol, quinone and hydroquinone have been added. The so-called traumatic neurosis, Minamata disease and rheumatoid pneumoconiosis (Caplan's syndrome) have been described. Existing sections on poisoning by benzene and cadmium compounds, cysticercus epilepsy, injuries from animals, reptiles, insects and fish, louping ill, psittacosis and weavers' cough have been brought up to date. I am glad again to have had the opportunity of correcting and amplifying certain statements of fact. Nine new illustrations have been added and the index has been enlarged and improved. In the work of revision I have had the valuable assistance of four members of my staff, Dr. A. I. G. McLaughlin, Dr. G. Kazantzis, Mr. E. King and Mr. R. Drew. In addition, I have had the help and advice of many other friends and colleagues including help in reading the proofs from my clinical ward clerks. To all these people I am deeply grateful.

DONALD HUNTER.

The London Hospital, E.1.
November, 1961.

NOTE TO SECOND IMPRESSION

A new impression has given me the opportunity to make some corrections and additions to the text.

DONALD HUNTER.

The Middlesex Hospital, W.1.
December, 1963.

PREFACE TO THE FOURTH EDITION

EXTENSIVE revision has been made of the sections on man and his work, the effects of radiation, asbestosis, and injuries from animals, reptiles, insects and fish. Additions have been made to bring up to date the First Schedule, Part I of the Industrial Injuries (Prescribed Diseases) Regulations. New sections have been written on the uses and toxic effects of cobalt, toluylene di-*isocyanate*, pentachlorophenol and dimethylnitrosamine together with paragraphs on brazing alloys and Q fever. Additions have been made to existing sections on poisoning by lead, mercury, arsenic, phosphorus, beryllium, cadmium, thallium and vanadium. I am glad again to have had the opportunity of correcting and amplifying certain statements of fact. The index has been enlarged and improved. In the work of revision I have had the valuable assistance of Dr. A. I. G. McLaughlin, Dr. John Bonnell, Dr. G. Kazantzis, Dr. André McLean, Dr. Elizabeth McLean and Mr. E. King. In addition I am deeply grateful for the help and advice of many other friends and colleagues including help in reading the proofs from my clinical ward clerks.

DONALD HUNTER.

Guy's Hospital, S.E.1.
October, 1968.

PREFACE TO THE FIFTH EDITION

ADDITIONS include the Decompression Sickness Central Registry, Newcastle upon Tyne, the Asbestos Regulations, 1969, the Abrasive Wheels Regulations, 1970, the Robens Report, 1972, the Employment Medical Advisory Service, 1973, apathy of the Mother of Parliaments herself in failing adequately to control the handling and transport of deadly poisons, the Inspectorates, dereliction and reclamation of the lower Swansea valley, chimney heights in the case of electric power stations, advantages of being a myope, cadmium casserole enamels, vibration-induced white fingers, paddy-field foot, the dead hand in chain saw operators, adenocarcinoma of the nasal cavity and air sinuses in men making wooden furniture, onchocerciasis in the Volta river basin, migraine in footballers and boxers, Aleutian mink disease, cornpickers' pupil, extrafaucial diphtheria, infectious hepatitis, Lassa fever, sarcoptic mange, paraquat poisoning, enzyme detergents, pacemaker electrodes, iatrogenic electrocution, the fate of ingested asbestos fibre and hazards from fishing at sea. The necessity to cut down the size of the book has been met by the omission of the majority of the clinical case records as well as such subjects as argyria and exposure to the dusts of calcium salts. Again I am glad to have had the opportunity to correct and amplify certain statements of fact. In the work of revision I have had the valuable assistance of Dr. P. Lesley Bidstrup, Dr. Suzette Gauvain, Dr. George Kazantzis, Dr. André McLean, Dr. Elizabeth McLean, Professor R. S. F. Schilling, Mr. Edward King and Mr. Russell Swinfen. Five new illustrations have been added and the index has been enlarged and improved. I am deeply grateful to Mrs. Jennifer Bowe of the editorial department of the English Universities Press and to my secretary Mrs. Patricia Downey: without their devoted work my task would have been impossible.

DONALD HUNTER.

The London Hospital, E.1.
September, 1973.

PREFACE TO THE SIXTH EDITION

THE vast problem of vinyl plastics is being tackled in many industrial countries and every sort of doctor is sooner or later to be involved in dealing with cases of vinyl chloride poisoning. Indeed industrial medicine must now be taught to every medical man as part of general medicine. The question of carcinogenesis rears its head in many cases, and many countries have banned the import of green asbestos, crocidolite. Indeed it is so liable to cause cancer of the lung that it should be left in the ground and not mined at all. Mr Russell Swinfen has given me great help in filling in the details of the new laws such as the Social Security Act, 1975. Four new illustrations and one chart have been chosen and Mr H. S. Edwards has touched these up. Many doctors have contributed to the treatment of toxic episodes occurring in Great Britain and many other countries, for example massive arsine poisoning for which I am grateful to Drs S. Darby, G. Fletcher, M. O'Shea, J. Becker and Peter R. Hunter. In 1972 in Iraq there was a major outbreak of organomercury poisoning from the eating of contaminated bread. I am most grateful to Dr George Kazantzis for giving details. Of single cases, mention must be made of bullman's hand and here I am very grateful to Professor Denis O'Sullivan of University College, Cork.

DONALD HUNTER.

The London Hospital, E.1.
December, 1976.

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