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Subscriptions are payable to the British Medical Association. Address: British Medical Association House, Tavistock Square, London, W.C.1.

I gratefully acknowledge my indebtedness to Dr. C. L. Sutherland, C.B.E., and my colleagues of the Pneumoconiosis Medical Panels, to Dr. A. Meiklejohn of the University of Glasgow, and to others for helpful advice; also to Dr. A. Massey, C.B.E., Chief Medical Officer, Ministry of National Insurance, for permission to publish this paper.

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## APPENDIX

**A : Central Coalfield (Lanarkshire Basin, Douglas Valley, and N.E. Stirlingshire)**

A1. Northern Lanarkshire : Cadder, Chryston, Kilsyth, Twechar, Falkirk, Denny, Larbert, Stirling, and Bo'ness districts.

A2. Central Lanarkshire : Airdrie, Coatbridge, Bellshill, Cambuslang, Uddingston, Hamilton, Motherwell, Wishaw, and Larkhall districts, and the Douglas district.

A3. Shotts and Wilsontown.

A4. West Lothian and West Midlothian : Bathgate, Armadale, and Whitburn districts.

**B : Fife and Clackmannan Coalfield**

B1. Clackmannan and West Fife : Clackmannan, Comrie, and Valleyfield districts.

B2. Central Fife : Dunfermline, Cowdenbeath, and Lochgelly districts.

B3. East Fife : Kirkcaldy, Wemyss, and Leven districts.

**C : Lothians Coalfield (Mid and East Lothian)**

C1. Midlothian : Musselburgh, Dalkeith, and Roslin-Loanhead districts.

C2. East Lothian : Prestonpans, Tranent, and Ormiston districts.

**D : Ayrshire Coalfield including Sanquhar-Kirkconnel Basin in Dumfriesshire**

D1. Central Ayrshire : the larger, and economically the more important, comprising Mauchline, Cumnock, New Cumnock, Annbank, and Dalmellington districts.

D2. Other Ayrshire coal workings comprising North Ayrshire (Dreghorn and Kilmarnock districts), South Ayrshire (Daily district) and Dumfriesshire (Sanquhar and Kirkconnel districts). These lie in different directions on the periphery of the Central Ayrshire area and are included in one area as individually they do not employ a sufficient number of workers to provide units of reasonable size for analysis.

These four main divisions and their sub-divisions have been so defined as they are natural geographical units of reasonable size and conform closely to the arrangement in the Scottish Coalfields Report.

in this volume. The conference, the first of its kind in this country, saw the gathering together of a group of distinguished contributors, each one an expert in his own special subject. The more spectacular events in the development of atomic physics for scientific, industrial, and medical purposes are well known but the diverse and rapidly widening applications of all this new knowledge, already affecting the lives of large numbers of people, are probably not generally realized. Those who are responsible for health and safety must see to it that progress in this field, implying as it must, a continuing increase in the number of people regularly exposed to radiation, is not accompanied by increased risks to the health of those concerned.

The first set of papers deals with the many and various ways in which living cells may respond to exposure to ionizing radiations. These effects depend on the physiological condition of the cell, on the duration of exposure, and on the type or quality of the radiation.

The long-term hazard of atomic energy is discussed in detail by a group of eminent geneticists and the reader is left in no doubt that small amounts of radiation exposure, apparently innocuous to the individual, may result, nevertheless, in the impairment of future generations.

The principles of protection are considered. There is an interesting description of the methods of estimating so-called tolerance levels. A number of specialists in protection relate their experiences in hospitals and research laboratories. At the Harwell Atomic Energy Research Establishment it has been possible to provide adequate control over all types of radiation hazard but the cost of complete protection is great and it is necessary to find a balance between economy and safety.

Although the majority of the papers in this volume are concerned, in the main, with the effects of irradiation of the body from the outside, the rather different problems which occur when radioactive substances are introduced into the body are discussed briefly. The possibilities of protection against massive doses of ionizing radiation are examined; at present no effective method is available.

It is appropriate that the final contributors to the discussions are concerned explicitly with the moral issues which appear to be especially relevant to this subject.

Here, then, is an authoritative and balanced statement of the position in this vital field. Although the matter contained in many of the contributions is of a quality which demands a certain amount of scientific knowledge for its complete understanding, any reader will be able to form a useful picture of the biological problems which arise in connexion with atomic energy.

A. McLEAN

**The Medical Research Council: Opportunities for Appointment to the Scientific Staff.** (Pp. 19.) Obtained on request from the Establishment Officer, Medical Research Council, 38, Old Queen Street, London, S.W.1.

This booklet gives a brief account of the constitution and field of work of the Medical Research Council, which now has 45 research establishments. Most of them are based on hospitals and universities, although its largest and probably best known establishment is the National Institute for Medical Research at Mill Hill, London. The Council is not constitutionally a government department since it administers grants-in-aid provided annually by Parliament, and selects and appoints its own staff. Its policy is to offer the members of its scientific staff, who may be medically qualified or otherwise, careers and salaries which are as good as those offered to the holders of appointments of similar status in the universities. The Council leaves it to the director of a unit or research group to recommend suitable persons for appointment to the staff. Thus prospective candidates should apply to the director of the establishment at which they would like to work.

The booklet gives terms of service and conditions of work of its staff and also information about scholarships, fellowships, and grants, which may be awarded by the Council.

One of its most useful contents is a list of research establishments with addresses and names of directors. There are at least 11 research units or groups doing occupational health research.

RICHARD SCHILLING

#### BOOKS RECEIVED

*(Review in a later issue is not precluded by notice here of books recently received.)*

**How to Use a Medical Library: A Guide for Practitioners, Research Workers and Students.** 2nd ed. By Leslie T. Morton. (Pp. vii + 40 + index. 5s.) London: William Heinemann. 1952.

**Praktische Arbeitsphysiologie.** By Gunther Lehmann. (Pp. 352; with 145 text figures. DM. 29.70.) Stuttgart: Georg Thieme Verlag. 1953.

**The National Corporation for the Care of Old People. Fifth Annual Report for the Year Ended 30th April, 1952.** (Pp. 35.) London: National Corporation for the Care of Old People. 1953.

**Fundamentals of Clinical Orthopedics.** By Peter A. Casagrande and Harold M. Frost, Jr. (Pp. 582; with 390 text figures. \$18.50). New York: Grune & Stratton, Inc. 1953.

**The National Health Service.** Edited by Max Sorsby, with a Foreword by Sir Allen Daley. (Pp. 267. 12s. 6d.) Edinburgh: E. & S. Livingstone. 1953.