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This is by far the most authoritative report that has appeared on this subject. The first part reviews the nature of the disease, and the radiological, pathological, and clinical features. The classification by radiological changes is precisely defined and compared with other classifications so far employed. Previous work on lung function in this disease is described at great length. As in most extensive reviews it is rather difficult to appreciate the best work of pioneers in the subject.

In a carefully designed series of experiments, so that the effects of age and radiological category could be separated, the authors showed that the best index of breathlessness was the exercise ventilation expressed as a percentage of the maximum voluntary ventilation. This is in agreement with previous work but it is the first time that the effects of age and radiological category have been clearly separated. They found that there is little increase in dyspnoea with increasing degree of simple pneumoconiosis except in the older patients with the severest simple form of the disease. In men with complicated pneumoconiosis dyspnoea was marked. The normal effect of age on shortness of breath increased considerably with increasing severity of the disease.

Shortness of breath was found to be associated with a reduction in the maximum voluntary ventilation and not with an increase in exercise ventilation. The authors emphasize that the degree of shortness of breath and rise of dyspnoeic index, although correlating well with degree of disease and age in groups, showed less satisfactory correlation in individual subjects. A most interesting finding was a slight but definite increase of dyspnoea (as measured by the dyspnoeic index) in normal miners as compared with control non-miners.

The investigations concerning blood oxygenation and gases are trivial and remarkably unsophisticated. Gas distribution and transfer are studied by the helium mixing and carbon monoxide studies, performed simultaneously. Although showing great ingenuity in concept the authors will leave the average reader baffled by complicated mathematical analyses. Their conclusions are that inequality of ventilation is the main cause of impaired gas transfer in pneumoconiosis and that diffusing capacity across the alveolo-capillary membrane is probably not affected. As is so often the case with carbon monoxide studies there is a large element of doubt as to what exactly is being measured and it is a pity that Riley's classical tension techniques have not been applied to this disease under these beautifully controlled conditions.

The circulatory aspect of lung function, which may well be an important factor in prognosis, is also neglected. Although appreciating the difficulties of standard modern techniques, particularly cardiac catheterization, in this environment, it is sad to see "cardiological results" carefully separated from "physiological results".

The interrelation of tests by factor analysis is intriguing although the conclusion that size, ventilatory power, gas distribution, and gas transfer are the basic independent attributes of the lung will not surprise respiratory physiologists.

The discussion and conclusions concerning the relationship of their findings to compensation are realistic and show how increased knowledge reveals new problems as well as solving old ones.

It is to be hoped that the Pneumoconiosis Research Unit will repeat certain aspects of this work using techniques such as the measurement of respiratory work, blood gas tensions, and cardiac catheterization.

Mr. Oldham's wise counsel on the planning and interpretation of experiments is such a dominating feature of this work that he could well have been accorded full status as an author.

Dr. Gilson and Dr. Hugh-Jones are to be congratulated on this important contribution which is a definite milestone in the understanding of this disease.

K. W. DONALD


Dr. Schweitzer, of the medical faculty of Strasbourg, has studied pneumoconiosis at Merlebach, Nancy, Bochum, and Hasselt. She should therefore be well qualified to present the views of the leading French, German, and Belgian authorities. In this monograph she attempts a comprehensive account of silico-tuberculosis. After a brief historical introduction, the pathogenesis and some of the results of animal experiment are outlined. The morbid anatomy, clinical features, prognosis, and treatment are discussed in subsequent chapters and the book concludes with a description of the medico-legal aspects, economic importance, and prevention of the disease.

A book of this kind could be valuable. It is a pity, therefore, that the present work is inadequate, often inaccurate, and lacking in critical balance. The author makes little attempt to differentiate between classical silicosis and pneumoconiosis of coalworkers. The descriptive cases (pages 51-56), for example, include workers exposed to dusts with a high free silica content as well as to coal-mine dust, yet all are classified together.
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The resulting confusion is the more regrettable at a time when there is a growing understanding of the differences between the two conditions, particularly in their liability to open tuberculosis.

To the English reader the omission of British references is striking. Thus, in the chapter on experimental pathology, while the views of Professor Polack (1933) on the pathogenesis of silicosis are described, there is no mention of the work of Professor King and his colleagues. The "two disease" hypothesis that simple pneumoconiosis of coalworkers is due to inhalation of coal dust and progressive massive fibrosis to tuberculosis is never clearly stated. Instead, on page 29, Gough's views on coal-miners' pneumoconiosis are confused with his views on classical silicosis and a misleading impression is created. The I.L.O. international classification (1950) of chest radiographs for pneumoconiosis has perhaps particular relevance to this hypothesis; but in any case, it should surely have been briefly described. The illuminating results of epidemiological research (other than a brief mention of occupational mortality) are almost completely ignored.

The detailed account of the medico-legal aspects of silico-tuberculosis in France and Germany may prove useful to doctors in those countries concerned with compensation. The situation in Great Britain, however, is dismissed too briefly to be of any value.

The book is well produced and the reproductions of the radiographs are generally adequate, though the excavation said to be present in the left upper lobe in Fig. 6 (page 55) is not seen.

Dr. Schweitzer has attempted a difficult task. It is regrettable that her book—obviously the result of considerable labour—adds little to our understanding or knowledge of silico-tuberculosis.

I. T. T. HIGGINS


It is of fundamental importance that the criteria of safety in radiation work should be founded upon a thorough understanding of the nature of the effects of radiation on human beings. From the point of view of present and future problems, it is fortunate that a considerable amount of useful information has been forthcoming from studies of the injuries sustained not uncommonly by the early radiation workers. Nevertheless, a great deal of animal experimental work has been required in order to fill in the gaps. It is never entirely satisfactory, however, to have to deduce the reactions of one species from observations on the behaviour of others and, to allow for uncertainties in interpretation, the whole approach to radiological safety has been necessarily conservative. For this reason, there can be no doubt about the need for further information about the effects of radiation on human beings.

A particularly important feature of this volume is the fact that a considerable proportion of the 63 papers contained in it are concerned with human aspects of radiobiology; it is, therefore, a very valuable addition to the literature on the biological effects of radiation. The proceedings are presented in sections—on modes of radiation injury, carcinogenesis and metabolism of bone-seeking isotopes, effects on the reproductive system, mechanisms of radiation injury, protection, recovery, and genetics—and in each, there are several interesting papers. The standard of presentation is so high that it would be impossible to single out any one contribution for special mention. Indeed, the list of authors shows that the cream of international opinion was represented at the conference.

It is obvious that, as a scientific meeting, the Geneva Conference was a notable success. No less important, however, was its contribution to international understanding and goodwill.

A. S. McLean


In 1919, the Industrial Fatigue Research Board published a study by Greenwood and Woods, "The Incidence