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INTERNATIONAL LABOUR ORGANISATION

# THIRD INTERNATIONAL CONFERENCE OF EXPERTS ON PNEUMOCONIOSIS.

SYDNEY

FEBRUARY-MARCH 1950

# RECORD OF PROCEEDINGS

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control had made pneumoconiosis more and more a disease of very gradual development and one which occurred at a later age. In many cases it did not shorten the life-span of the individual and disability was of a minor degree only.

On examination, the workers in a dusty industry could be divided into seven categories. The first included men who were fit and who had no physical or radiological abnormality; the second, those discovered as having tuberculosis, either uncomplicated or along with some degree of pneumoconiosis; the third, those having advanced pneumoconiosis and who were considered disabled for labouring work; the fourth, those with early pneumoconiotic changes who had no symptoms or only minimal symptoms, and who were considered quite able to continue their labouring work; the fifth and sixth dealt with conditions unrelated to pneumoconiosis and did not require description; and the seventh included men suffering from a condition not due to their employment but who had considerable disability for work as a result of that condition, and in whom pneumoconiotic changes were present which were considered not or only partially disabling.

It was this seventh type of case which presented the greatest difficulty to a certifying authority. As these men grew older disability progressed and a problem arose because it had to be admitted that they had some changes in the lungs although these were considered to be non-disabling. The idea seemed often to have been accepted that every man working in an industry with a dust hazard was either affected or not by pneumoconiosis, and that apart from the presence of the pneumconiosis, which might or might not be disabling, the man was perfectly fit. He did not think that this held in practice. Those suffering from pneumoconiosis were found to have many disabilities from age alone or from other medical conditions, and he would be interested to hear how these complications were dealt with by authorities in other countries.

In New South Wales a sample survey of workers in the coal-mining industry had been made, and it had been found that breathlessness on exertion, a common symptom of pneumoconiosis, had been present in 28.6 per cent. of those examined, while 17.1 per cent. had complained of this symptom when there was no sign of any cardiac or respiratory abnormality either clinically or radiologically. In addition, coughs with sputum had been almost universal, so it was clear that great caution was needed in accepting these symptoms as evidence of disability in the presence of radiographic changes.

A number of associated conditions were frequently seen along with changes in the lungs and he considered that they deserved very close attention. They included such conditions as bronchitis and emphysematous changes, possibly cardiac changes, and respiratory infections and diseases like asthma. It had frequently been found among New South Wales coalminers that those with the

greatest disability showed the smallest radiological changes and that these were usually less than the post-mortem changes.

It therefore appeared that while the radiograph might be the most important element in making a diagnosis of pneumoconiosis those three original elements on which a diagnosis was made, namely, an abnormal radiograph, the history of exposure to dust and the results of a physical examination, had all to be considered. In a given case, one of the other elements might assume more importance than the radiograph in assessing whether or not a man's condition was due to dust inhaled in the course of his work.

The practice had arisen in New South Wales of making a sort of blanket application for compensation. For example, a claim might be lodged to the effect that the worker's incapacity was due to pneumoconiosis, bronchitis, emphysema, myocardial degeneration or a combination of some or all of these conditions. A certificate had then to be issued which took all these elements into consideration.

Associated pulmonary tuberculosis did not give any difficulty, provided there was evidence of a definite pneumoconiotic change, but where there was no such evidence it seemed that the best thing for these men and for their workmates was to take them out of the industry. However, if they were merely withdrawn and no certificate was issued that their condition was due to their employment, they might be deprived of both work and compensation at the same time. Under some legislation, they might be able to claim that the tuberculosis had been accelerated or aggravated by their work. Such cases would, in practice, be rare in countries where a pre-employment examination was compulsory, and he felt it was important to remove the men as soon as possible. There was therefore a very strong case for awarding these men either compensation or some equivalent payment.

Many other difficult cases arose. There were those in which a post-mortem claim was made and it was found that the man had had early pneumoconiotic changes and that his death had been caused by an acute coronary insufficiency of some sort. There were others in which a neoplasm of the lung, for example, was found along with pneumoconiotic changes. The cases in which an attack of acute bronchitis or pneumonia occurred in a pneumoconiotic provided a further problem. He considered that the Conference should give some expression of opinion as to what association, if any, it considered to exist between these conditions. It had been his experience that very often certain of these complications were present and disability was due far more to a cardiac condition than to the minimal changes found in the lungs.

Dr. VERSTER: In South Africa the pathologists of the Silicosis Medical Bureau had made a strict survey of cases of coronary thrombosis in the general population as compared with

the mining population, and practically no difference had been found. In another survey the incidence of neoplasm had been found to be rather higher in the general population than among the pneumoconiotics.

The compensation legislation stated that the Bureau had to certify that a man was suffering from silicosis or tuberculosis and in what stage. They looked upon the radiograph as being the only real diagnostic criterion. The definition of the different stages contained in the legislation made it essential to interpret accurately the radiological appearances, and "correlation tests" had been instituted. This meant the correlation of post-mortem with clinical and radiographical findings in all men who had died within six months of their last X-ray. They had found from the 72,000 post mortems that cases showing generalised arborisation only indicated that a scintilla might be present. Only in cases of generalised arborisation with partial small mottling was nodulation found in every case. If a man had generalised arborisation and was perfectly fit they tended not to compensate him; quite a number of these cases would show a scintilla at post mortem and under the present Act they had to be compensated and the dependants were paid. Conditions were admittedly often different in other countries. It had been pointed out, for example, that cases of acute silicosis would never show nodules, however marked they might be. The South African Act, however, did not require the presence of nodulation; the words used were "the earliest detectable signs of silicosis", and each case was judged entirely on its merits.

Dr. EVEN: Silicosis could have either a simple or a complicated evolution. He considered the former to have three stages, bronchitis with expectoration, dyspnoea, and heart decompensation. In the first and third cases no great problems arose for the compensation authorities; with bronchitis the individual should change his employment, and in the case of heart decompensation there would be permanent total incapacity for work so the case would be straightforward. It was the second stage, that with dyspnoea, which gave rise to difficulty. With regard to complicated forms he believed that in the present state of knowledge it was impossible to determine the part of silicosis in a case complicated by hypertension or tuberculosis. In such cases the claimant should be given the benefit of the doubt and everything should be attributed to silicosis.

Dr. OUTHRED asked Dr. Verster whether the diagnosis of first-stage silicosis was made only when there was clinical evidence of disability, or whether it was made on the basis of the radiological appearances for record purposes.

Dr. VERSTER: Four elements were taken into consideration, the radiological evidence, the history of service in a dusty occupation, the results of a clinical examination and the nature

of the occupation. The period after which they expected to see silicosis averaged 22 years and they were very careful in making a diagnosis of silicosis in a man with only a few years' service. A strict control was possible because the men normally appeared for periodical examination every three, six or twelve months. In cases of bronchitis in which the film could be interpreted as generalised arborisation they might feel justified in declaring the man a silicotic. Generally speaking the diagnosis was radiological.

Dr. VORWALD: The elements on which diagnosis depended deserved to be re-emphasised - a history of adequate exposure to an atmosphere containing free silica dust, a physical examination disclosing the signs and symptoms compatible with silicosis and a chest radiograph showing a pattern of pulmonary shadows which were characteristic of the disease. These requirements should be extended to include also a knowledge of the concentration, chemical composition and particle size of the dust and of the modifying influence of certain non-siliceous dusts, for there was no reason to doubt that some such dusts had an inhibitory effect. Finally, the fact that not all men responded similarly to a given atmospheric concentration of dust should be taken into account, though the factors responsible for this individual variation were not yet sufficiently clarified to permit specific identification. Experience had shown that a diagnosis of silicosis could not be made from the radiograph alone except perhaps when stereoscopic films of good technical quality were available.

He wished to stress that a mere exposure to dust should not be incriminated without question in the etiology of respiratory difficulty and that individual variation should again be taken into consideration. The Trudeau Foundation had conducted studies of the pulmonary physiology of 100 men exposed to free silica dust who had shown no radiological evidence of silicosis. Only one of these cases had had any evidence of respiratory difficulty and 50 other men with simple silicosis of the discrete nodular type failed to show respiratory impairment by any of a variety of approved tests. In contrast, respiratory difficulty was regularly associated with the development of emphysema such as was encountered in simple silicosis of the conglomerate type.

Tuberculous complication of a silicotic process was often more difficult to diagnose than tuberculosis in the normal subject. The usual clinical signs and symptoms of tuberculous infection might not be present, and even at autopsy it might be difficult to prove the presence of a complicating tuberculosis. In the Saranac Laboratory's series of cases about 40 per cent. of post-mortem lungs with conglomerate disease had failed to show histological or bacteriological evidence of tuberculous infection.

The co-existence of cancer of the lung and a benign non-specific pneumoconiosis or silicosis had led some investigators to deduce a causal relationship that was not supported by

statistical evidence. The problem was somewhat more complicated with asbestos dust and it was true that selected autopsy statistics suggested a relationship. At the Saranac Laboratory they were, however, far from convinced that inhaled asbestos was carcinogenic. Experimental proof was lacking and absolute clinical evidence required to be based on a comparison of the incidence of pulmonary cancer in a large number of workers exposed to asbestos fibres with the incidence in non-exposed workers of the same age group, living in the same general environment and of the same racial stock.

In this respect experimental and clinical studies had shown that subjects with pulmonary granulomatosis following the inhalation of beryllium could develop osteosclerotic changes in their long bones. However, he was not aware of a single case that had developed a bone tumour in consequence of an inhalation exposure, though it might be that the cases studied had not survived their pulmonary condition long enough to develop such malignant tumours.

Studies by the Saranac Laboratory had failed to show any degree of correlation between the amount and nature of dust particles present in the sputum or bronchial washings and the degree or character of the pathology in the lung. Furthermore, chemical, petrographic and X-ray diffraction analysis of post-mortem lung tissue had offered no strict correlation with the degree of pathology. The healthy lungs from 50 subjects without a history of exposure to industrial dust had revealed on chemical analysis that the free-silica content of the dried lung ranged from 0.002 to 0.16 per cent., the average being 0.03. A series of lungs from persons with a history of exposure to industrial dust, but without silicosis, showed a range of 0.004 to 1.66 per cent., with an average of 0.29. In contrast, a series of lungs with established silicosis gave a range of 0.02 to 5.78 per cent., with an average of 1.11. The overlapping of the various groups showed that great caution was necessary in applying such evidence for diagnosis.

Similarly, the finding of asbestos fibres and/or asbestosis bodies in the sputum and/or lung had little reference to the degree of pulmonary pathology. Fibres in the sputum could be interpreted only as evidence of exposure to asbestos dust, while asbestosis bodies, whether in the sputum, in the lung or in both, indicated that some pulmonary reaction to the inhaled dust had taken place. Neither fibre nor body, however, required the presence of asbestosis.

His final comment related to change of employment. He believed it would be ill-advised to recommend that every case of simple discrete nodular silicosis should be discharged as soon as the diagnosis was made. In the case of a young worker there was some reason to advise a change of employment on the grounds that he might be unduly susceptible to crystalline free silica and that his youth and probable lack of any special skill would

allow him to change easily to a new occupation. Men over 45 who developed silicosis uncomplicatedby tuberculosis might be transferred to work not involving a significant exposure to silica, but in the case of a silicotic with tuberculous complication the physician needed to differentiate between a fresh tuberculous disease and an old one. If the worker had a positive sputum and was thus of danger to his fellow workers he should be removed to a sanatorium for treatment. Different provisions should, however, be made for a worker with conglomerate disease - which usually resulted from a complicating tuberculous infection - who did not exhibit the clinical symptoms of infection, who had a persistenly negative sputum and who showed little or no radiographical change over a long period of time. Their experience with iron-ore miners had shown that the men usually resented such treatment and refused to co-operate. When deprived of exercise their dyspnoea often increased. When kept on the job comparable with their ability they felt much better, were happier, and retained their self-respect. Their condition should be reviewed at frequent intervals by physical examination and chest X-ray and if the sputum was found to be positive their removal from employment became mandatory.

Professor ROSSIER: He considered dyspnoea as being mainly a subjective phenomenon and as providing a bad basis for the classification of silicotics. It might be very marked in cases where the heart and lungs were fairly normal and it could be the effect of strenuous exertion. The sign of dyspnoea had always to be interpreted carefully but it should not by itself be taken as indicative of heart or lung disease.

He wished to distinguish two types of bronchitis, the type with non-consonating rales which might indicate a dilitation of the bronchial tree, and the spastic sibilant type in which the adrenalin test was positive. In the first case the bronchitis might be constant and permanent and in the second it could vary very much from day to day.

His third remark related to the small value of the test for the oxygen saturation of the arterial blood in detecting cardiac insufficiency in the silicotic. It was not a sure sign of insufficiency. A normal subject might be made to perform a very strong effort and the saturation might fall to 76 per cent., whereas in a normal person working at a steady rate there would be no desaturation whatsoever. In an individual, and especially a silicotic, having no cardiac insufficiency there might be some slight desaturation; he had found down to 89 per cent., the normal being 95 per cent. If one tried to study the result of effort in a cardiac patient it was probably that he would stop his effort before the saturation fell to a significant level.

He wished fourthly to comment on the individual variations in the proportion of silica in the lungs of silicotics. A man who had continued to work in a dusty environment up to his death would have a very high proportion, but a silicotic who had stopped

working under dusty conditions some years ago would probably have a rather lower proportion and, at the same time, a very marked accumulation of silica in the peripheral lymph glands. This seemed to indicate that if a man having silicosis was withdrawn from dusty employment he had some possibility of cleaning his lungs and the peripheral lymph glands if he had enough time.

Professor GERNEZ-RIEUX: He believed that the methods currently used for the differential diagnosis of silicosis, especially when complicated by tuberculosis, were quite inadequate. It was not sufficient to rely on radiographs and the analysis of the sputum, and far more precise methods were available.

These methods were employed by the pneumoconiotic phthisiological department of the Calmette Hospital in Lille, to which the difficult problems of differential diagnosis arising in the coalfields of Northern France were normally sent. A systematic tomographic examination was first carried out. They also made bronchial endoscopic examinations which revealed certain special lesions of the mucous tissue in the bronchi with an aspect very different from the lesions found in cases of simple pulmonary tuberculosis. To these were added histological examination of endobronchial specimens, which made an early differential diagnosis possible, and a very thorough bacteriological examination, not only of the sputum but also of the result of bronchial washing. Experience of some 500 cases had shown that in 30 per cent. of the cases the culture and inoculation of the product of these washings could lead to the detection of bacilli which had not appeared in the sputum or in the gastric washing.

A thorough study of the humoral state of the subject was also made. He did not consider the sedimentation rate to be of much importance but by performing an agglutination test of the erythrocytes, according to the method established by Middlebrook and Dubos, it had been possible to detect an associated tuberculosis in 85 per cent. of the cases.

It had also been found valuable to employ a therapeutic test by the use of streptomycin in several cases of discrete mottling. The injection of 1 or 1 1/2 g of streptomycin over a period of three weeks had provoked a marked change in the radiographic image. If the opacity was purely silicotic, however, there was no reaction, and there was little reaction in the case of tuberculosis associated with very advanced fibrosis.

He concluded that the methods normally employed were altogether too simple, and he believed that the Conference should insist on the necessity of developing methods of early diagnosis. The lives not only of the miners but of other members of the community were at stake.

Dr. EVEN: Professor Rossier had declared that dyspnoea was a subjective phenomenon, but he wished to add that the fact that it could exist without the disabled persons knowing it was evidence that it was also an objective phenomenon. In his opinion, dyspnoea was the measure of compensable disablement in silicosis. In France, tuberculosis associated with silicosis gave the right to compensation and for that reason they did not affirm the presence of tuberculosis merely on clinical or radiological grounds. They tried tc demonstrate its existence by bacteriological tests, using especially the methods outlined by Professor Gernez-Rieux.

Dr. MIDDLETON: He wished to draw attention to the work of Machle and Gregorius in the United States showing the existence of pulmonary cancer produced by the inhalation of chromate ore dust. He wondered whether Dr. Vorwald had any more recent information on the etiology of this condition.

Dr. VORWALD: He had no more information than that originally published, but this had shown that the incidence of primary pulmonary malignancy in workers exposed to chromate dust was much higher than that in the general population.

He wished to comment on the use of streptomycin for the treatment of silicosis complicated by tuberculosis, which had been mentioned by Professor Gernez-Rieux. Their experimental studies had failed to show that streptomycin had any therapeutic value and it appeared that the effect of crystalline free silica in the lung was able to overcome its action. It might also be that the fibrotic response to silica inhibited the access of streptomycin to the tubercle bacilli.

Reference had frequently been made to silicosis with dyspnoea, but he thought that speakers should make it clear to what form of the disease they were referring - the discrete nodular type, the conglomerate type, or the type with manifest tuberculous infection. In his experience the discrete nodular type failed to show evidence of respiratory difficulty whereas the conglomerate types, especially with massive areas of fibrosis and associated emphysema, commonly produced abnormal respiratory function.

Professor ROSSIER: The observations made by Dr. Middleton and Dr. Vorwald with regard to pulmonary cancer due to work with chromates had been confirmed in Germany.

Dr. MIDDLETON: It seemed that persons exposed to the dust of chromates had been affected but those exposed to chromic acid and bichromates had remained unharmed. This was very important in certain manufacturing processes in which persons were exposed to fumes containing chromic acid and chromates from anodising and plating baths.

Dr. MEREWETHER: It was necessary to have a very open mind with regard to this problem in view of the present confusion.

In 1946 Professor Gross had stated quite definitely that they had found an excess of chromate cancer among the anodisers, the very people whom Dr. Middleton had said did not contract the disease.

Dr. DAVISON: The dyspnoea of the silicotic was not due to the nodulation visible on the radiograph but to the emphysema which cast no shadow. No one had commented on what Professor Rossier had described as "rigid chest", the rheumatoid spondylitis which so commonly developed in this age group. With this condition there was less mobility of the vertebral column, the range of movements of the costovertebral joints was restricted or lost and the ribs were more or less fixed; for this reason, the measurement of chest expansion was valueless. These cases depended almost entirely on the diaphragm for breathing and if it had lost mobility because of pleural adhesions or if the lung had lost its resilience or elasticity due to fibrosis and/or emphysema, the measuring of vital capacity as a gauge of disability was also of very little value; the reading might in fact be quite high. Maximum breathing capacity, however, approximated the breathing rate and amplitude of the man when doing his daily work.

In his experience fluoroscopy gave much information regarding the causes of dyspnoea. The movement of the diaphragm and ribs could be watched and measured, the heart contour studied, and the lighting of the lung fields on expiration, indicative of obstructive or non-obstructive emphysema, could be made out. The usual postero-anterior chest film was a prerequisite, but oblique and other projections afforded considerable information regarding vertebral and costovertebral articulations as well as a different view of the pulmonary structure.

He agreed entirely with Dr. Vorwald's opinion on change of employment. If it took a man 25 to 30 years to develop simple nodulation he would certainly not develop much more disease in the time left for him in the trade in which he was skilled. In addition, most of the cases had developed through the years before dust prevention was enforced, as Dr. George's report on the Borken Hill mines had shown. He wondered also whether it was always good policy to tell a man that he was suffering from pneumoconiosis or silicosis merely on the basis of the X-ray. The man might be asymptomatic and have no disability. Too often in these cases he quickly developed an anxiety state and presented all kinds of symptoms. The X-ray findings should, of course, be reported to the compensation authority for future reference if definite disability were to develop.

Dr. FLETCHER: The question of assessing the part played by pneumoconiosis in the disability of a man was a purely political matter; it had nothing to do with medicine. The physicians were asked to separate those men who deserved a disability benefit because of their having an industrial disease from those entitled to a slightly lower rate of pension or sickness

benefit because they had a non-industrial disease. Where an industry was doing everything possible to prevent occupational diseases he felt that if a man became invalided within the industry the question whether it was due to his unfortunate physical make-up or to the small amount of dust he continued to inhale was a matter of complete indifference. It would be much simpler and more just if disability had merely to be assessed and compensation awarded according to the inability of the man to continue his work.

Under present circumstances, however, two possibilities remained open. In the course of time some physiological tests might be developed which would be specific to the industrial disease. This had not yet been achieved, however, so for the time being the other method, the statistical approach, had to be employed. Here again much more information was required on the statistical distribution of disability among the normal working population; then it would be possible to say how far away any particular individual was from the mean disability.

Dr. GEORGE: He fully agreed with Dr. Fletcher's comments. There was an increasing tendency for workers' compensation legislation not to require the medical condition to be due to a man's work. In New South Wales compensation was awarded if the claimant could establish that his work had contributed to his incapacity by any aggravation or acceleration of the disease. He even wondered whether the Conference could suggest that on these questions of associated diseases the medical authority should merely give a certificate that the man was unfit for work and should leave out the question whether his work had contributed to the disease or not. It was of very little importance whether he received payment under workmens' compensation law or from general social benefits.

Dr. McVITTIE: It was important to remember that pneumoconiosis included conditions other than coalminers' pneumoconiosis and the more common types of silicosis. Half the deaths from the disease in the United Kingdom occurred in other industries.

His cases of prgressive massive fibrosis fell into two groups, men who had been certified between the ages of 40 and 45, and those certified at 60 years of age and over. The average interval between certification and death had been about five years in each case, and it was clear that some action was needed to prevent these premature deaths among the younger group.

It was a very narrow conception of disability which related the handicaps caused by pneumoconiosis to a man's particular job; in fact the disability would affect him in all his normal activities.

In the United Kingdom Dr. Keating had laid down that the diagnosis of pneumoconiosis depended on X-ray examination, the industrial history and clinical examination. While the X-ray

remained the most reliable single piece of evidence in the diagnosis of the commoner pneumoconioses, the clinical signs and the disability appeared first in the case of asbestosis. Moreover, the characteristics of the common pneumoconioses might be simulated by certain forms of pulmonary tuberculosis and in massive fibrosis the possibility of carcinoma and hydatid diseases had to be borne in mind. In this respect the industrial history, when correctly ascertained, might be the next most reliable aid to diagnosis. Clinical examinations, for which Dr. Fletcher seemed to have little use, were necessary in order to assess a man's condition in the light of the X-ray appearances. Symptomatology might admittedly be completely unreliable, since it varied with the circumstances and the psychological attitude of the man. He had observed that the symptom of dyspnoea was never of recent origin except in the particular complication of spontaneous pneumothorax. He had also been impressed by the fact that in dyspnoea the mechanical ventilatory component of respiration was very important and that a pneumoconiotic who developed pleurisy or fixed diaphragm was likely to be far more disabled than a man with massive lesions.

Dr. MEREWETHER: Disability, i.e., its diagnosis and assessment, should not be confused with the money or other benefits which attached to it by virtue of the law of any particular country. In the United Kingdom the legislature adhered to the view that a man who suffered from a disease resulting from his occupation was entitled to more benefit than a man who contracted the same disease due to the ordinary vicissitudes of life. The principle followed was that industrial accidents and diseases should not occur and that they therefore entitled the victim to an additional element of compensation or benefit. Other countries, however, had thought differently, and the Conference should be careful to distinguish the two aspects - the disability and the benefits attached to it.

Dr. GREENBURG agreed with Dr. Merewether. In many countries, including the United States, compensation and social benefits were regarded as entirely separate and an attempt had to be made to gauge the effect of an occupational disease in assessing the amount of benefit. Standards of silicosis and pneumoconiosis should not be based purely on the X-ray appearance and other manifestations of the disease in selected large groups exposed to dust - for example, coalminers. In many countries a large number of men were exposed in other dusty occupations in which the X-ray assumed very varied appearances.

Professor GERNEZ-RIEUX: Professor Vorwald's statement on the proportion of silica in the lungs of a silicotic compared with a non-silicotic had been confirmed by research conducted by Professor King in the United Kingdom and Professor Policard in France. However, Professor Rossier's findings with regard to the fixation of silica in the lymph glands were contradicted by

Dr. MEREWETHER: The Conference might be interested to know that draft legislation had recently been issued in the United Kingdom for prohibiting the use of most siliceous materials in parting powders.

Dr. FLETCHER: A recent experiment they had conducted on the radiopacity of coal had shown the intricacy of the problem. They had made a radiograph of a man with a lump of steam coal held in front of the chest on one side and another lump held at the back on the other side, and it had been found that the lump at the back had been visible while the one in front had not.

Dr. VORWALD: He would suggest that if Dr. Fletcher were to remove the lung from a rat, inflate it, and take a radiograph of it, he might see some interesting things in this respect.

Dr. GORDON: Returning to the question of disability, it seemed that the problem was at present insoluble, because they were trying to speak with two voices. As medical graduates they had to admit that in some cases they did not know whether the disability was due to occupation or not. On the other hand, as members of compensation boards they had to give a definite opinion one way or the other. His personal opinion was that the only people who were disabled and had negative radiographs and could be recommended for compensation were those who showed definite clinical signs of emphysema; he recognised, however, that this was only a compromise solution. If the patient showed a positive radiological sign and also exhibited clinical signs of either cardiac or respiratory disease, they normally gave the man the benefit of the doubt and recommended compensation to be made.

He believed that they could not cease to differentiate between disease due to the occupation and disease which was non-occupational and gave disability. If they did so, it would soon lead to a situation in which, in industries having no hazards, all the cases would be non-occupational, while other industries would be burdened with unnecessary preventive measures.

The Conference adjourned at 12.50 p.m.