

The act in its present form was passed in 1933 and served to clear the situation which had become involved by the tie-up of large sums of money in reserve funds against possible future claims by men adjudged silicotic previously, but who had since been lost sight of or who were carrying on at work showing a minimum or no disability.

From the workman's point of view, the new act is a great step forward, as it allows a man to continue at his usual duties underground as long as he is able to work without any serious degree of discomfort. Previously, a workman was advised to quit underground work when a certain stage of fibrosis had been reached, regardless of his ability to carry on, and sacrificed his rights to compensation if he continued to work.

In the X-ray examination of the chests of the 2007 men employed at the Hollinger mines during 1933, determinations are graded as follows: *Normal* is a chest showing little or no fibrosis, where the condition of the lung is better than the average for the age. *M. F.* or "More Fibrosis" is a chest which is normally found in the average adult at the age of the miner under consideration. *M. F. P.*, "More Fibrosis Plus" is a chest showing slightly more fibrosis than normal for the particular age. *M. F. P. P.* or "More Fibrosis Plus Plus" is a chest showing considerably more fibrosis than normal and is a pre-silicotic stage. Silicotics are that group which show a great deal of fibrosis and taking into consideration the mining history and consequent exposure to silica, are thus termed. Admittedly, disability may or may not be present. This last group ranges from the early silicotics with a minimum of disability to the late complicated or secondary cases with marked disability and tuberculosis. It must be added that a large number of men at the commencement of employment at the Hollinger, and without previous mining experience or contact with silica, show chests of *M. F. P. P.* rating. Following are the results of this examination:

Normal	33	1.6%
M. F.	920	45.8%
M. F. P.	932	46.4%
M. F. P. P.	98	4.9%
Silicotics	24	1.1%

Average contact with silica of men working and *M. F. P. P.*.....12 years.
Silicotic.....15 years.

Next is an analysis of the changes in chest rating in 1933.

Normal	to M. F.	11
Normal	to M. F. P.	3
M. F.	to M. F. P.	207
M. F. P.	to M. F. P. P.	9
M. F. P. P.	to T. B.	1
M. F. P. P.	to A. P.	1
A. P.	to P.	231
M. F.	to Normal	11
M. F. P.	to M. F.	231
M. F. P. P.	to M. F.	1
M. F. P. P.	to M. F. P.	20
T. B. ?	to M. F.	1
T. B. ?	to M. F. P.	1
A. P.	to M. F. P. P.	1
P.	to A. P.	266

Total 497

These figures cover approximately 500 men in whom there was some change in chest rating during the year, and the direction of the change. The remaining 1500 men show no change from the previous year. It will be observed that 231 men showed an increase in fibrosis rating, while 266 show chests which are improved. The explanation given for the group which shows improvement is, in the first place, that some concurrent bronchial or upper respiratory infection had complicated the picture at the previous annual examination and so caused a more

advanced rating to be given. The second explanation is that constant improvement in radiological technique is making diagnosis more accurate.

It would seem, therefore, that on the whole the situation is showing considerable improvement from this viewpoint. During 1933 no case progressed from the pre-silicotic to the silicotic stage. In the years up to 1933, 120 men had been rated silicotic and the total cost to the Hollinger involved a sum of \$915,950, which figure includes the progressive and contingent funds set aside to cover future costs and possible future claims.

Two objects have been kept in mind during the many years of study of the dust problem at the Hollinger Mine.

1. The collection of complete data regarding the nature of air breathed by workmen in different occupations, its chemical composition, temperature, humidity, dust content and rate of flow.
2. Working tests of all practical methods of improving the condition of such air.

In searching to adapt a method for the determination of air dustiness, it was realized that no instrument has been devised which would measure the dust content of the air with scientific precision. Furthermore, it was felt that the principal object of making determinations was to ascertain if the dust count of the air was unduly high, and if such a condition was found, to devise a method of reducing it. Hence, for practical purposes, the instrument which possesses a high efficiency in the range of desirable concentrations and gives a quick indication of dangerous quantities of dust is most desirable. The circular Koumometer, invented by Sir Robert Kotze and introduced to the Miners' Phtisis Prevention Committee of South Africa in 1916, has therefore been used in the Porcupine District for the past eight years.

A summary of our investigations along this line may be given as follows:

1. About 900 of the underground force are engaged in work which will produce dangerous dust if measures of control are not applied.
2. Of this number a little over 400 are engaged in shoveling broken ore into cars and the average dust exposure does not exceed 300 particles if the muck piles are kept thoroughly wet and blasting carefully restricted.
3. The remaining 500 men are engaged in drilling and blasting operations and are subjected to severe potential hazard. Men engaged in stopes who do not have to return to the working faces have an average exposure of about 1200 particles, while using the ordinary type drills. It is felt that the use of the "dustless" type of drifter will reduce the concentration of dust to somewhere near 300 particles.
4. The men engaged in development drifts are exposed to the same concentrations of dust, namely, 1200 particles. Where possible, two development drifts are worked simultaneously by the one crew, so that the men do not have to go back through the dense dust after blasting the cut. There are only a few exceptions to this rule and when necessary to go back to load the remaining holes, the men are provided with the special respirator.
5. The high dust concentrations in the vicinity of stopers we hope to deal with by the use of compressed air masks. Also the practice of driving adjacent raises simultaneously has reduced the hazard after blasting.

With the constant improvement and maintenance of general health conditions kept always to the fore as most desirable and necessary in aiding in the solution of the silicosis problem, the men at the Hollinger Mine are cared for under a contract medical system. The facilities and service at mine, office and hospital are most complete and efficient and in combination with the annual or semi-annual check made by the medical staff of the Compensation Board, health of the workers is under constant supervision.

Men who report with such conditions as non-tuberculous or non-silicotic chest trouble, with focal infection in teeth, tonsils, sinuses, etc., are singled out and treated and observed and where necessary changes in occupation are made or rest and vacation periods advised.

At the mine, constant improvements have been made and at present the following is the routine. A worker coming off shift removes all his mining clothing, usually wet, and racks them on a set of hooks attached to a chain and pulley. These wet clothes are pulled up to a height of 15 to 20 feet and hang thus in a hot, dry