extent and progress of the lesions and locating the point at which the earliest radiographic signs appear, and finally as a check upon the human factor presented by the examiner himself.

4.—Results of the Inquiry.

To anticipate, examination of the data collected in this investigation leads to the conclusion that the inhalation of asbestos dust over a period of years results in the development of a serious type of fibrosis of the lungs.

Asbestosis—the Pulmonary Fibrosis of Asbestos Workers.—It is helpful to visualise fibrosis of the lungs as it occurs in asbestos workers as the slow growth of fibrous tissue (scar tissue) between the air cells of the lung wherever the inhaled dust comes to rest. While new fibrous tissue is being laid down like a spider's web, that deposited earlier gradually contracts. This fibrous tissue is not only useless as a substitute for the air cells, but with continued inhalation of the causative dust, by its invasion of new territory and consolidation of that already occupied, it gradually, and literally, strangles the essential tissues of the lungs.

In common with other essential organs of the body the lungs have a large reserve of tissue for use in emergencies and to permit of a diminution of functional capacity due to advancing age or disease. For this reason, and because fibrosis of the lungs is essentially a local disease, it is only when the fibrosis progresses to the extent of obliterating this reserve, that undue shortness of breath on any extra effort draws the worker's attention to the fact that his health is not what it should be. The other symptoms of the disease such as cough are equally unassuming, and are readily ascribed to some common and trivial cause.

From this point the progress of the disease is more rapid, since it is now encroaching on the remaining sound tissue of the lungs, already only just sufficient to maintain him in his ordinary daily activities. Ultimately, if no acute respiratory infection has precipitated a fatal termination, a stage is reached when the lungs can do little more than maintain life, and the shortness of breath becomes extreme.

In its main clinical features, therefore, the disease resembles silicosis, as might be expected. It differs from silicosis, however, in the mode of distribution of the fibrous tissue in the lungs, in its more rapid development, in its radiological features, and, there is some reason for believing, in a lessened susceptibility to the supervention of pulmonary tuberculosis, the liability to which disease is so definitely an added hazard in silicosis.

The Asbestos Bodies.—In the lungs of those exposed to asbestos dust, angular particles derived from asbestos,[7] and spicules of asbestos[10] are found on microscopical examination, and also numbers of peculiar bodies described by Cooke and Hill[7] and Stuart McDonald[8]. They are yellowish brown in colour, of elongated, bead-like form, often with bulbous ends. Cooke[8] and Roodhouse Gloyne[9] independently demonstrated a mineral core in these bodies, evidently derived from the asbestos fibre. Stewart and Haddow[10] have also demonstrated their presence in the sputum of asbestos workers. These bodies have not been found to occur in any other human affection. They have been found in the sputum within a comparatively short time after exposure to asbestos dust, and in the absence of clinical or radiological evidence of pulmonary fibrosis, their presence cannot be taken at present as indicating anything more than previous inhalation of asbestos dust.

The Incidence of Pulmonary Fibrosis in Asbestos Workers.—The extent of the risk to health associated with exposure to asbestos dust under present industrial conditions may now be considered in detail.

Of the 374 workers of both sexes examined, 105 were found to have a diffuse fibrosis of the lungs attributable to the inhalation of dust. Ten of these, and one other in which there were earlier signs of the same condition, have been excluded from further consideration, inasmuch that it was felt that previous work in other dusty occupations, such as quarrying, and coal mining, may have been the prime or a contributory factor in the development of the pulmonary lesions found.