

the asbestos fibre. This is laid down in concentric rings. The Ferritin material is a normal body constituent, and the iron component is believed not to be derived from the iron present in asbestos.

- 4.2.2. Mortality Rates: Examination of the figures covering the two periods 1931-46 and 1957-64 reveals that there has been no striking change in the years of exposure or duration of illness in the deaths from asbestosis. There has, however, been a marked change in the average age at death - a rise of nearly 10 years in men and 20 in women. (This increase has been attributed to a virtual elimination of tuberculosis in the U.K. in recent years.) In 1964, the average age at death was 57 years, but even so, subjects who had been under heavy exposure to asbestos were dying in their 30's and 40's.
- 4.2.3. Experimental Work: Quantitative inhalation experiments on animals are now being carried out by Wagner et al. They have already shown that Chrysotile produces less fibrosis than Amosite or Crocidolite for the same dose by inhalation. This appears to be due to a more rapid elimination of the Chrysotile, probably due to a solubility effect. Figure 1 shows the results of giving equal doses of Chrysotile, Crocidolite, Amosite and finely powdered glass to rats by inhalation. Each point on the graph is the mean of 8 rats, (equal numbers of male and female).

The importance of particle length in the development of fibrosis is still not solved. Wagner has shown that in several animal species, fibrosis of the lungs is produced by fine particles or very short fibres. It is believed that long fibres may still be more fibrogenic for a given mass than short ones.

#### 4.3 Bronchial Carcinoma

- 4.3.1. Nature of Disease: This is the same type of cancer as that produced by cigarettes, and it is now accepted that asbestos also predisposes to this condition.
- 4.3.2. Mortality Rates: The proportion of asbestosis death certificates which also record a thoracic tumour (lung cancer), has risen in both sexes disproportionately to the number of uncomplicated cases of asbestosis. Currently, over 50% of males dying with asbestosis also have a neoplasm. Even when viewed against the steadily rising incidence of lung cancer in the population as a whole, there seems little doubt that the increase is a real one. Evidence of this is shown below in Table 1: