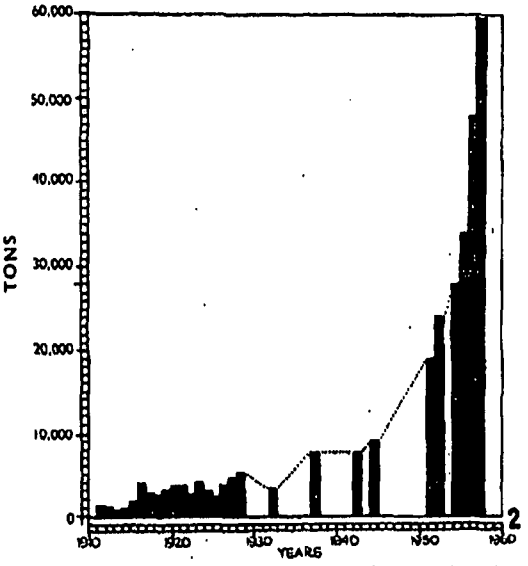

Fig. 2. Production of crocidolite by asbestos mines in the North West Cape in tons per year (1910-1958).

the few remaining smaller producers. With the building of more mills, hand cobbing* has diminished. In 1915 the first crushing mill was established at Koegas in the south. This was followed by a large mill at Kuruman (operated between 1926 and 1931) where it was situated within 300 yards of the main street, close to which hand cobbing was also done for a few years (1927 - 1930). This was followed by a mill at Prieska in 1930, which was completely rebuilt in 1957. Griquatown had a small mill in 1928. The practice today is for one mill to serve several mines in the immediate vicinity.

In the early days the manager and labourers lived within a few yards of their place of work, and even today the non-White personnel prefer to live as close as possible to the mills and the children play on the dumps from the mines and mills.

The industrial use of asbestos has increased during the last 30 years. In 1930 Hall stated that there were 4 firms in the Union manufacturing asbestos products (in Cape Town, Durban, Johannesburg and Meyerton) which used a total of 900 tons of fibre annually. In 1952, 17,000 tons of fibre were used in local industry. Carroll-Porczynshi[18] lists 7 firms dealing with asbestos in Cape Town and 44 in Johannesburg. Asbestos cement and an asbestos clay compound are used extensively for insulating boilers in power stations, industries and railway locomotives. Three of our patients were employed in this way. Another patient was employed manufacturing fire-proof clothing. Cases of asbestosis have been observed in a variety of industries on the Witwatersrand.

Asbestos and Carcinoma

The association of asbestos with carcinoma of the lung was first described by Lynch and Smith in 1935.[19] By 1955, according to Doll,[20] a total of 61 cases had been reported. Merewether[21] analysed the cases that had occurred in Britain between 1924 and 1954. He found that in a total number of 344 cases, carcinoma of the lung was present in 55 (16%), the figure for males being 41 (20% of males) and for females 14 (10% of females). Six cases of mesothelioma of the pleura associated with asbestosis have been described. One was mentioned by Doll,[20] 2 by Cartier,[22] and 3 by Van der Schoot.[23] A further 33 cases with possible asbestos exposure were described by Wagner *et al.*[1]

In our series of cases the latent period, between first apparent exposure to asbestos dust and the initial symptoms of the disease, was between 20 and 60 years. In some cases the patients had left the North West Cape and, in others, the exposure had been of such a transitory nature that it was rapidly forgotten. Evidence of exposure was only obtained after long and detailed questioning. According to Day[24] and Stewart,[25] a long latent period between initial exposure and the development of evidence of malignancy is one of the features of occupational tumours. The reason for the tumours having been found in the vicinity of the Cape asbestos fields and not in the region of the Transvaal asbestos mines may be due to this time factor; assuming that the association is significant, since the industry was established earlier in the Cape than in the Transvaal, where large-scale mining began comparatively recently. The type of asbestos mined is another possible factor which would apply to the chrysotile mines of the Eastern Transvaal. However, the amosite fibre found in the Lydenburg district is similar to the Cape crocidolite and the crocidolite mined around the Pietersburg district is identical.

CLINICAL PICTURE OF MESOTHELIOMA

Clinical Presentation

The majority of patients are over the age of 40, and usually present with symptoms suggestive of a primary tuberculous effusion. Pain varies from a feeling of heaviness to acute pleuritic pain. From the beginning or after a variable time there may be increasing dyspnoea on exertion. Cough is not a predominant symptom in this group. A few patients present as cases of acute respiratory infection with a productive cough. This is accompanied by a pleural effusion. In some cases there is an interval between the respiratory infection and the finding of the pleural effusion. The course of the disease, while ultimately similar, usually takes one of two forms — either the pleural effusion continues to increase, requiring frequent paracentesis, or it undergoes a temporary quiescent period, while the pleural space becomes obliterated by tumour. Towards the end the patient is seriously disabled through pleuritic pain and dyspnoea. Terminally ascites may develop due either to peritoneal metastases or to cardiac failure.

Clinically the disease may be described as having 3 stages. Initially the presentation is one of pleurisy and bronchitis and the usual diagnosis is a virus or pyogenic pneumonitis. At this stage antibiotics are usually successful in alleviating the symptoms. The second stage is one of

* Freeing the fibre from the ore by striking the lumps of rock with a hammer.