men employed for shorter periods would be disproportionately great and, so far as was known from Table 2, would be comparatively unrewarding.

The date of birth, date of completing 20 years' work in the " scheduled areas ", and, where applicable, date of ceasing employment and date and cause of death were obtained, for each man, from the records of the firm's Personnel Officer. Full details were, in most instances, already available for the men who had ceased employment as well as for the greater number who continued to be employed, since some of those who had left were registered as having asbestosis and the attention of the firm had been drawn to the death of others, in view of the possibility of the cause of death being industrial in origin. All the remaining men were successfully traced and the relevant details obtained. This was not difficult since, by limiting the study to men who had been employed in one place for 20 years, few were found to have changed their job or to have moved out of the region.

From the data the numbers of men alive in each five-year age group were counted separately for each of the years from 1922 (the first in which a man was recorded as having had 20 years' service) to 1953. A man who had completed the 20 years before the beginning of a year and who was alive at the end of it was counted, for that year, as one unit; a man who completed the period before the beginning of a year but who died during it, and a man who completed the period during a year and who survived to the end of it, were each counted, for that year, as half a unit; the one man who died the same year as he completed his 20-year period was counted as a quarter of a unit.

The causes of death were recorded as they were given on the death certificate or, when available, as they were finally determined by necropsy. The causes were classified in five categories (see Table 4), and the numbers in each category were then compared with those which might have been expected to occur by multiplying the numbers of men alive in each five-year age group by the corresponding mortality rates for men in England and Wales over the same period. Because of the small numbers, however, the populations were not considered separately for each year, but were added together to form five groups living in the periods 1922–33, 1934–38, 1939–43, 1944–48, and 1949–53, and the mortality rates used for each group were those for the years 1931, 1936, 1941, 1946, and 1951. The rates for 1931 were used for the period 1922–33, rather than those for the mid-years, since disproportionately few men were under observation during the early part of the period. As an example of the method, the mortality rate for all neoplasms other than lung cancer among men in England and Wales aged 55 to 59 in 1951 was 2·778 per 1,000. The numbers of years lived in this age group in the five years 1949–53 were respectively 15 years, 15 years, 17½ years, 19 years, and 19 years. The number of deaths expected in the period was, therefore, estimated to be $(15 + 15 + 17\frac{1}{2} + 19 + 19) \times 2{\cdot}778/1{,}000 = 0{\cdot}238$. The total number of deaths expected from each category of diseases was obtained by adding the numbers thus calculated for each age group for each of the five periods.

The great majority of the men lived and, when they died, died in the town in which the works was situated, so that it would have been preferable to have based the calculation of the expected deaths on the death rates observed in that town rather than on the rates for all England and Wales. These, however, were not known in sufficient detail. Little error in the expected number of deaths from lung cancer is likely to have been introduced on this account since, according to Stocks (1952), the age-adjusted death rate for lung cancer among men in the town concerned was 96% of the rate for England and Wales. Stocks's figure was calculated only for the period 1946–49, but the proportion is unlikely to have varied greatly over the longer period of the investigation. The expected number of deaths from all causes is, however, likely to be somewhat underestimated since the age-adjusted death rate from all causes for the town is about 25% higher than the England and Wales rate (*i.e.* the excess was 22% in 1950, 28% in 1951, and 22% in 1952).

Results

The number of men studied was 113; the numbers of man-years lived in each of the five periods in each age group are shown in Table 3. The total number of deaths from all causes and the number of deaths observed in each of the five disease categories, together with the expected number of deaths, are shown in Table 4. From Table 4 it appears that the men who had been exposed to asbestos dust suffered

TABLE 3
NUMBER OF MAN-YEARS LIVED BY MEN WITH 20 OR MORE YEARS OF WORK IN A "SCHEDULED AREA"

Age (years)	Period					All Periods
	1922–33	1934–38	1939–43	1944–48	1949–53	
30–	0	0·5	1·5	0	0	2
35–	4·5	2	11	17·5	9	44
40–	9·5	16	33·5	48	55	162
45–	9·5	19·5	50	78·5	84	241·5
50–	6·5	23·5	39·5	85	96·5	253
55–	12	6	30	52	85·5	185·5
60–	15	3	5·25	25·5	36	84·75
65–	1	13·5	3	10	21·5	49
70–	0	2	9	3	3·5	17·5
75–79	0	0	1	1·5	0·5	3
All ages	58	88	183·75	321	391·5	1042·25