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OCCUPATIONAL CANCER

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in this series
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carcinomas,

male and 3 in
females. All these
were found in any
type of epithelium
but without

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evidence here
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considered. All

Age Incidence

85 ± 3

85 ± 2

TABLE 6
MINERAL CONTENT, DURATION OF OCCUPATION AND PULMONARY FIBROSIS IN
IRON-ORE MINERS

	Number in Group	Average Age at Death	Average Duration of Occupation (Years)	Average Per- centage Mineral Content to Dry Lung		Degree of Fibrosis
				Silica	Iron	
Bronchial carcinoma	15	61	32 (11)	1.11	5.3	+
Fibrosis alone	59	60	34 (20)	1.16	6.3	+++
Fibrosis and tuberculosis	75	57	28 (48)	1.14	5.4	++
No fibrosis and no tuberculosis	25	62	26 (19)	0.59	4.04	0

Figures in parentheses represent the number of cases in which the information was available.

The common factor in these 2 types of occupational lung cancer is silica, and it is suggested that this may be the carcinogenic agent. The presence of silica (as silicic acid) causes pulmonary fibrosis, which precedes the initiation of the malignant process. The fibrosis is usually of lesser degree, however, in those lungs in which cancer supervenes. On published evidence the case for an etiologic relationship between nodular silicosis *per se* and lung cancer is much less strong than in silicosis associated with siderosis and in asbestosis. Hueper (1952)⁹ examined the literature very thoroughly and came to the conclusion that "the available evidence supporting a causal relation between silicosis and cancer of the lung is unimpressive." It seems possible, therefore, that the fibrous nature of asbestos or the presence of hematite dust may exert a modifying effect on the chemical action of the silica or on the fibrotic process itself. Further study of the nature of the carcinogenic process in pneumoconioses is thus obviously needed.

SUMMARY

The value to the cancer problem as a whole of the study of occupational cancer in the field and by experiment, together with the time lag between these 2 aspects, is discussed. A short consideration of the total amount of cancer in any population follows, and a classification of the types of recognized occupational cancer.

More detailed consideration of industrial bladder and lung cancer follows. In regard to the former, the extent of the hazard, the nature of the chemicals involved and their metabolism in various species are discussed. In regard to the latter, the occurrence of lung cancer in a group of 72 male and female asbestos textile workers and in 192 hematite miners in Cumberland, England, is described.

REFERENCES

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