always call attention to the possible association with asbestos exposure.

A systematic classification of the radiologic changes associated with asbestos exposure embodying most of the features described, together with the pleural changes, was developed for epidemiologic purposes, first as the UICC/Cincinnati classification (167), later adopted as the ILO U/C classification (168). Its features include a reading sheet, an extended 12-point scale to grade parenchymal changes, and standard films to assist in the evaluation of pleural and parenchymal changes (obtainable from the International Labour Office, Occupational Safety and Health Branch, CH 1211 Geneva 22, Switzerland. Price: Sw Francs 250.–) The use of this classification, by improving precision and probably also comparability between studies, has enhanced the value of the X-ray as an epidemiologic tool (169). Thus, it enables a better placement of the film in the multidimensional "continuum which extends from complete 'normality' at one end to the most severe degree of abnormality at the higher" (Bohlig 7, p. 25). In particular, it has permitted the exploration of the exposure-dose relationships (using the chest radiograph to measure response) in working populations. In addition, this classification has been adopted by compensation boards in several countries to improve consistency in the reading of the chest radiograph and should be used whenever the evaluation of a person's films must be considered relative to those of others. It must be emphasized, however, that this classification is descriptive and not diagnostic; furthermore, although radiologic changes so described relate reasonably well to lung function changes in population studies (87, 95), their relationship to disability, which is likely to vary considerably from subject to subject, has not been widely studied.

Lung Function

Lung function tests have been applied to the study of asbestosis since their general introduction to clinical medicine in the 1940s. In general, there are 4 clinical areas of application (10): first, for diagnosis and assessment of disability; second, for following the evolution of disease with time; third, for the surveillance of healthy workers, with a view to detecting early changes; and fourth, for preemployment examination to screen the "susceptible" person.

In addition, information gained from epidemiologic studies using pulmonary function testing to determine exposure-response relationships has permitted inferences to be drawn about early effects of asbestos on the lung, information that may ultimately have considerable practical value in terms of the worker's health.

Diagnosis. Interstitial fibrosis associated with exposure to asbestos is generally believed to be associated with the restrictive and "alveolar capillary" block patterns of pulmonary function, similar to that seen with the interstitial fibrosis from other causes (Becklake, 7, p. 3). Characteristic features of the established case (with clinical and/or radiographic evidence of disease) are: general restriction of lung volumes, particularly vital capacity (VC), with less effect on residual volume; decrease in flows, such as 1-sec forced expiratory volume (FEV_1), in proportion to the decrease in VC, so that the ratio of FEV_1 to forced vital capacity (FVC) is relatively well preserved; decrease in diffusing capacity, attributable in part to the decreased lung volume (170), although decreased membrane transfer and inhomogeneity of regional ventilation-perfusion relationships within the lung undoubtedly contribute to the impaired gas transfer (43, p. 379). Impairment of gas exchange capability, reflected by arterial desaturation, increased alveolar-arterial Po_2 gradient, and hyperventilation, may at first be evident only under the stress of exercise, but later occurs at rest. The CO_2 exchange is not usually affected, and arterial CO_2 retention is not usually a feature of the established case.

Although there is no evidence to suggest that asbestosis due to chrysotile is any different from that due to other fibers, one epidemiologic study suggests that there may be greater decrease in function for equivalent estimated exposure to crocidolite compared to chrysotile (94), a difference that could be explained by greater retention of crocidolite compared to chrysotile for equivalent estimated exposure; however, in the light of the potential and, indeed, inevitable inaccuracies that beset all efforts to evaluate remote past dust exposure, in amount and/or nature of the fiber, this interesting observation requires further confirmation before it is assumed that different fibers have different fibrogenic potential in man.

It is usually claimed that airway obstruction is not a feature of asbestosis (10, 170–172); however, a review of 375 published cases (173), most with unequivocal parenchymal radiologic changes, indicated that a considerable number of patients had airway obstruction (11 per cent