

Evidence from episodes in the Orient which afflicted American servicemen and their dependents also shows that air pollution appears to be an etiologic agent for a condition that was originally called "Yokohama asthma" (17). This is now referred to as "air pollution asthma." Some of the servicemen and their dependents were relieved of asthmatic attacks when they were moved out of affected areas in Japan and Okinawa. Conversely, some persons who were not evacuated quickly from the areas continued to manifest asthmatic symptoms. Accordingly, it appears that for some susceptible individuals this kind of asthmatic response may be truly a chronic effect of air pollution.

A further bit of evidence is based on recent data on illnesses of employee groups. These data indicate a high degree of relationship between respiratory illnesses lasting 8 days or more and levels of sulfates in selected cities in the United States (18). If this relationship were to be more completely documented, it might explain some of the striking rise in the prevalence of chronic respiratory diseases which has been observed recently.

The best indication of all of the chronic effects of air pollution is undoubtedly provided by the statistics on chronic bronchitis in Great Britain (19). There, the disease is the third leading cause of death and the leading cause of disability.

In the United States there has been increasing acceptance of the view that a group of chronic respiratory diseases in this country, comprising emphysema, chronic bronchitis, bronchiectasis, and "other chronic interstitial pneumonia," is similar to the chronic bronchitis syndrome observed in Great Britain and that the apparent differences reported in the two countries may merely reflect differences in medical diagnostic criteria and terminology in patients with cases of differing severity and degree of infection.

We are aware that in the United States no evidence has been produced to demonstrate that air pollution is an etiologic agent for the emphysema syndrome. Nonetheless, there is an ever-mounting accumulation of evidence linking the two. Well known is the phenomenal rise of deaths from emphysema in the American population as a whole since 1950 (20). One may, with considerable certainty, ascribe part of the increase to the increasing acceptance of this classification as a cause of death, which in turn is due to the increasing discussion of chronic respiratory disease in the medical literature. Nevertheless, we have no reservation in stating that part, perhaps most, of the sevenfold increase in the frequency of this diagnosis as a cause of death is due to the greater prevalence of the disease.

One reason for assuming an air pollution factor as a cause of emphysema is the urban-rural comparison of mortality in the United States. Certainly, when the age-adjusted urban rates are double the rural rates, there would appear to be some factor which is directly related to residence in cities. Attention has been drawn previously to the fact that smoking differences among males, by residence, are relatively small and presumably do not account for the urban-rural ratio found for emphysema (21). The well-documented greater pollution of urban atmospheres as compared with rural points to a possible causal relationship.

It is recognized, of course, that there may also be an occupational exposure factor. The records of the Social Security Administration show that emphysema is the second leading cause of disability among male workers 50 years of age and older (22). It is clear that the evaluation of the role of air pollution in the increase in mortality from emphysema will have to take account of the occupational history of the decedent as well as his smoking habits.

Because of the increased interest in chronic respiratory diseases there has been a growing awareness of the need to inform people of the importance of certain symptoms. Accordingly, the National Tuberculosis Association has announced its intention of conducting a campaign during the spring of 1963 to alert people to the significance of "shortness of breath" and "chronic cough" (23). It is quite possible that people become so accustomed to these symptoms that they pay little attention or attach no importance to them. An increasing amount of data on the prevalence of emphysema and chronic bronchitis should be forthcoming as this educational campaign progresses.

In order to learn more about the long-term effects of air pollution, it was found necessary to conduct extensive field studies on selected populations. In 1959 the Division of Air Pollution of the Public Health Service, in cooperation with the Pennsylvania Department of Health, the Pennsylvania Electric Co., and others, undertook a study of two small communities in Pennsylvania, Seward and New Florence (24). The study had the elements of a natural laboratory setting inasmuch as the towns were virtually identical demographically. These