

the joint action of all nations involved. He points to the bilateral control of the migrations of Poles to France as an example of active cooperation in working out mutually satisfactory policies of migration.

To the general reader the materials in the book may appear at first to be poorly organized. However, the book was intended primarily as a text for mature students, and the author has attempted to present in a single volume a mass of material dealing both with critical analyses of investigations and with prevalent attitudes concerning problems of migration in their many ramifications. Consequently, the author has found it necessary to interweave factual accounts of population movements and their restrictions with discussions of the cultural, economic, and biological implications of these movements. It is hoped that the influence of this book will not be restricted to the academic circles for which it was written. Its impartial consideration of the whole migration problem is in striking contrast with the one-sided theories which are the bases for prevalent attitudes toward migration.

CLYDE V. KISER



THE RECENT TREND IN MORTALITY FROM TUBERCULOSIS AT YOUNG ADULT AGES

IT is a well-known fact that tuberculosis mortality in the United States is declining rapidly. But we have no satisfactory factual explanation as to why it is declining less rapidly in rural than in urban areas, or as to why the mortality among males at certain ages is declining more rapidly than for females at similar ages.

A serious attempt has been made in England and Wales to discover through the use of available statistical material the reasons for an increase in recent years in the death rate among young adult females and the slow rate of decline among males at the same ages in that country.¹ Study of the trend of mortality from pulmonary tuberculosis shows that the decline of 75 per cent in mortality at all ages during the period 1851-1860 and 1921-1930 has not been equally derived from the different ages of life. Between 1851-1860 and 1901-1910 the improvement observed was considerably greater for persons under 35 years of age, than in middle and old

¹ Hill, A. Bradford: *The Recent Trend in England and Wales of Mortality from Phthisis at Young Adult Ages. Journal of the Royal Statistical Society*, 1936, xcix, Part II.

age. At the young adult ages, 15-25, the death rate of males was in 1901-1910 only one-third of the rate in 1851-1860, while the death rate of females was about one-quarter the rate in the previous period.

Between 1910 and 1930, excluding the war years, a considerable change in the trend of mortality from pulmonary tuberculosis among young adults in England and Wales was noted. The mortality at these ages declined among males at a slower rate than was apparent in any other age group. Among females there was a slight rise in mortality at ages 15-24 and at ages 25-35 the decline was appreciably less than that observed in any other age group. A division of the country into its administrative areas (urban and rural) showed that the unfavorable change was most apparent in the urban areas.

Inquiry was made as to the influence of the following factors upon the recent trend of the young adult death rate:

1. A decline of immunization in childhood as a result of the fall in the general death rate from tuberculosis producing a lower level of infection in early life.
2. Changes in the occupational environmental conditions of young adults, especially the entry of young females into new occupations.
3. Changes in the regional distribution of population of young adult ages through the slackening of migration from country districts to the towns.

Infection in Childhood. The death rate from all forms of tuberculosis at ages 0-5 was taken as a measure, though admittedly imperfect, of the pressure of infection in childhood. Changes in this death rate over a period of years in a group of English counties were found not to be correlated with changes in the mortality at young adult ages in subsequent years. Hill concludes that, "In general the statistical evidence available (admittedly slender) does not suggest that the level of the phthisis death rate amongst young adults in different areas of the country is materially due to different degrees of immunization in childhood."

Occupational Changes. Preliminary to the changes in female occupations, the trends of mortality from pulmonary tuberculosis for young adult males and young adult females during the years 1911-1913 to 1929-1931 in large urban areas, were examined and compared. Where the female rate showed the greatest increase there was, on the average, a tendency for the male rate to increase also or to show a slower rate of decline than in other towns. Where the female rate declined substantially the male rate, on the average, also declined substantially. The author con-

siders that this suggests that some factor common to both sexes is present and that the special occupational-environmental changes in female life are unlikely to be more than a partial factor.

Only a slight change in the volume of female employment in England and Wales was noted between 1911-1931 and no significant correlation was found between changes in the total volume of female employment and changes in the pulmonary tuberculosis death rate of young adult females. The death rate of females aged 15-25 in the county boroughs did not show any appreciable degree of correlation with the proportion of females employed in factories or in clerical work, but tended to be low where the proportion of women in domestic service was high. This latter relationship was explained on the grounds that where the proportion of women in domestic service is high, there exists a higher proportion of persons in the more economically-favored classes whose death rate from pulmonary tuberculosis is relatively low.

Internal Migration. One striking fact about the mortality from pulmonary tuberculosis among young adults in England and Wales, mentioned in this study, was that in past years there have been higher death rates registered in the rural areas compared with the urban areas, an occurrence observed only at the young adult ages. It was believed that this was due to the migration of young adults from the country to the towns. Two possible explanations were given: (1) that the young adult migrating to the towns or urban centers tends to acquire infection there and returns home to die; (2) that the migrants are a physically select group which strengthens the town population and leaves a physically weaker residue behind. Evidence was believed available to support the second explanation.

Various measures of the loss or gain by migration, at all ages and at young adult ages, in the county boroughs between 1921 and 1931 were correlated with the changes observed in the pulmonary tuberculosis death rate of young adults during these years. A substantial degree of correlation was found. The county boroughs which attracted young adults have, on the average, shown a declining death rate from pulmonary tuberculosis in young adult life; those that have lost population tend to show a rising death rate. Figures for the rural areas suggested a similar relationship, though to a much less pronounced degree.

The author concludes that, "change in migration is unlikely to be the only factor influencing the trend of a form of mortality which is of com-

plex causation, but the evidence suggests that it is a factor which, directly or indirectly, is of some importance, and must certainly be considered in the interpretation of the rates observed in specific areas."

Hutchinson studied internal migration and its effect upon the tuberculosis mortality for the entire resident population of Stockholm² for the years 1921 and 1922. Environment at the time of observation was held constant by restricting the comparison to population groups living in the same area and subject to the same external conditions. The tuberculosis death risk of the Stockholm-born was found to be from 25 to 30 per cent greater than that for the in-migrant population. The author concludes that the higher mortality of the Stockholm-born population could not be attributed wholly to selection of the better risks in migration to the City, or to a less favorable socio-economic status. In fact the in-migrants tended to be more heavily represented in the social groups normally showing the highest tuberculosis death rates. It should be added that more detailed data than were available for this study are necessary for a thorough investigation of the influence of the selective process incident on rural-to-urban migration.

Both studies indicate the importance of the factor of internal migration as directly or indirectly affecting the tuberculosis mortality, yet neither has satisfactorily explained the reason for its apparent effect.

Data for such detailed study of the trend of tuberculosis mortality as that made in England are not available in the United States. However, a comparison of the post-war (1921-1931) trend at various ages with that of the pre-war period (1900-1916) in the original death registration area of the United States in contrast to the English experience shows no increase in the death rate among young adults of either sex.³ In fact the downward trend of tuberculosis has greatly accelerated during the post-war period for both sexes and at all ages except over 65 years. A comparison of males with females indicated that the trends at various ages for both periods are, with one exception, greater for the latter. The exception was found to be for the post-war age group, 15-24, in which the male decline was -6.12 per cent annually and the female decline -4.42, a difference of 1.70 per cent which was considered statistically significant. The author ven-

² Hutchinson, E. P.: Internal Migration and Tuberculosis Mortality in Sweden. *American Sociological Review*, April, 1936, 1, No. 2.

³ Watkins, J. H.: Post War Changes in the Trend of Tuberculosis Mortality. *The American Review of Tuberculosis*, August, 1935, xxxii, No. 2.

tures to suggest that this difference may be due in part to the fact that women, during the period under consideration, have entered the occupational fields in large numbers and are thus exposed to new hazards.

These studies indicate salient characteristics of tuberculosis mortality which are of interest to the worker in public health. Effective control of the disease will in the future demand a more complete understanding of the factors causing differential death rates at various ages and in dissimilar areas.

JEAN DOWNES



MUNICIPAL COSTS OF SYPHILIS

ACAREFUL evaluation of the costs of a disease as manifold in incidence and in pathology as syphilis is a gigantic undertaking. Perhaps for this reason the subject has been approached from various special angles such as the cost of treatment in private practice or the costs of clinic service. Among these special angles of approach, one—the community cost of syphilis—should be of interest not only to the sanitarian but to every other citizen as well. The sources of data for such a study are various depending upon the community and resort must be had to estimate where financial records do not permit of determining the precise costs.

A pioneer study of costs in this country was conducted in St. Louis in 1932 by the Missouri Social Hygiene Association in cooperation with the American Social Hygiene Association under the immediate direction of H. C. Loeffler of the St. Louis Bureau of Municipal Research.¹ The author states at the outset that no attempt is made to differentiate the costs of gonorrhoea and those of syphilis, and further, that some of the estimates made are, at best, approximations. Particularly is this true of the estimates of the amounts paid by patients to private practitioners. The author attempts a comprehensive study but declines to evaluate costs in such fields as "Losses to Industry and Society," where even the basis of estimate is ill-defined. The final figure for the annual costs in the City of St. Louis is considered to be between \$2,071,395 and \$2,559,916. The St. Louis study beside being a pioneer attempt has the merit of outlining

¹ Loeffler, H. C.: *Costs of Venereal Disease to St. Louis*. A pamphlet published by the Missouri Social Hygiene Association, 340 North Vandeventer Avenue, St. Louis, Missouri.