

PHYSICAL IMPAIRMENTS AMONG MALES OF DIFFERENT OCCUPATIONAL CLASSES

*A summary of the general results of one of a series of studies
on adult health made by the Division of Research of the Mil-
bank Memorial Fund*

MUCH attention has been given in the past to differential rates of sickness and death according to economic or social level. A very definite association has been found, particularly for certain diseases, such as tuberculosis. Up to the present time, however, this picture has been inadequate because it has not included information as to the physical condition of persons able to be about and at work—that is, when the conditions which lead to sickness and possible death are in their incipency. In the study which is being made by the Division of Research of more than 100,000 records of health examinations of insured persons (forming a part of those accumulated by the Life Extension Institute in the last ten years), it has been possible to determine the relative rate of physical impairment in various broad occupational groups which are more or less descriptive of social levels. These groups are: (a) agricultural; (b) professional; (c) executives, merchants, builders, et cetera; (d) salesmen; (e) clerks (including clerks in stores); (f) skilled trade; and (g) miscellaneous.

It should be emphasized forthwith that the differences found will be a minimum expression of the true relations, since the lower social levels are not adequately represented in data of this character. The semi-skilled and unskilled classes do not as a rule protect themselves with insurance, and when they do are not likely to avail themselves of the periodic health service offered by the insurance companies.

Various factors of selection are discussed in the complete

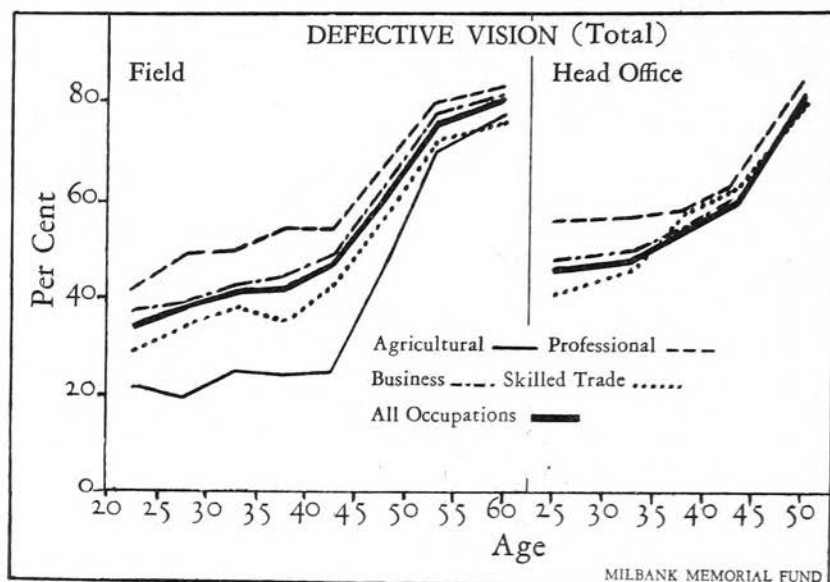


Fig. 1. The agricultural group has the lowest prevalence rate of defective vision, ranking well below average, and the professional group has the highest prevalence. The business group closely follows the average rate for all occupations; the skilled trade group was consistently below average in the younger age groups.

reports of this investigation,¹ and must be kept in mind. For instance, all of those included in the study have previously passed life insurance medical examinations, are generally able to be at work, and in many cases, have come for examination because they thought something was wrong with them. But in a comparison of one occupational group with another, these points are of less significance than in the determination of actual rates of prevalence.

The occupations as recorded by the examiners are not very specific, which has made classification into broad social groups exceedingly difficult. A good deal of overlapping must necessarily exist, the effect of which is to minimize the actual

¹ The Physical Impairments of Adult Life. General Results and Prevalence at Different Ages, Based on Medical Examinations by the Life Extension Institute of 100,924 White Male Life Insurance Policyholders Since 1921, Edgar Sydenstricker and Rollo H. Britten, *The American Journal of Hygiene*, 1930, Vol. XI, No. 1, pp. 73-135.

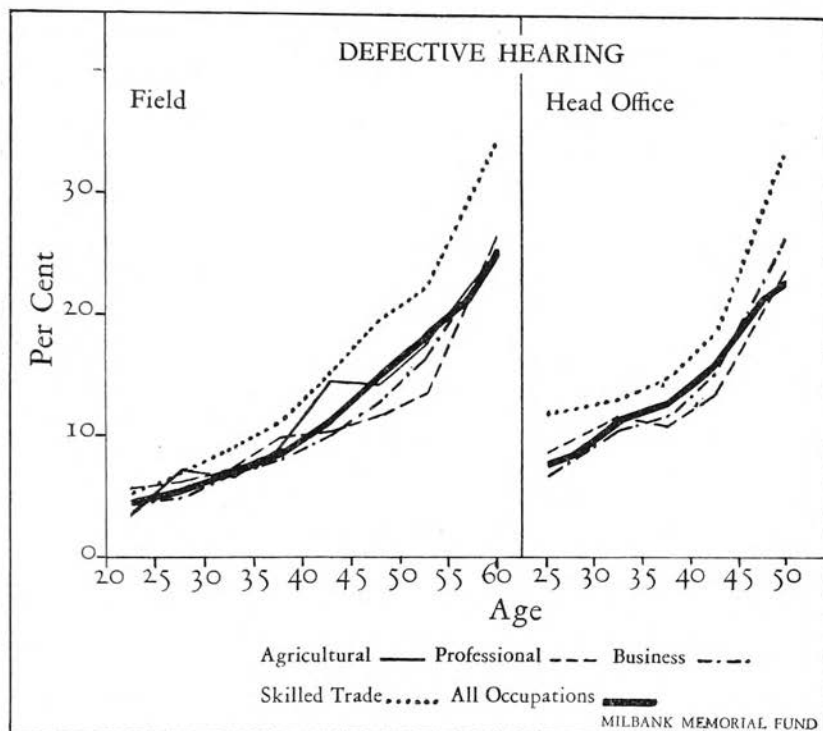


Fig. 2. Defective hearing is more prevalent in the skilled trade group than in all others. The professional, business, and agricultural groups show a prevalence close to the average, the agricultural group being somewhat higher and the professional lower than average at certain ages.

differences in health between social classes by more or less blurring the distinctions.

A preliminary investigation showed that groups c, d, and e, constituting a so-called business group, had practically identical rates for every impairment, when allowance was made for the natural variations due to unlike age distributions in these three classes. The absence of any marked differences among these business classes is a remarkable fact, because the economic status might be quite different for executives and merchants from that for clerks. Economic status, however, is not synonymous with the rather indefin-

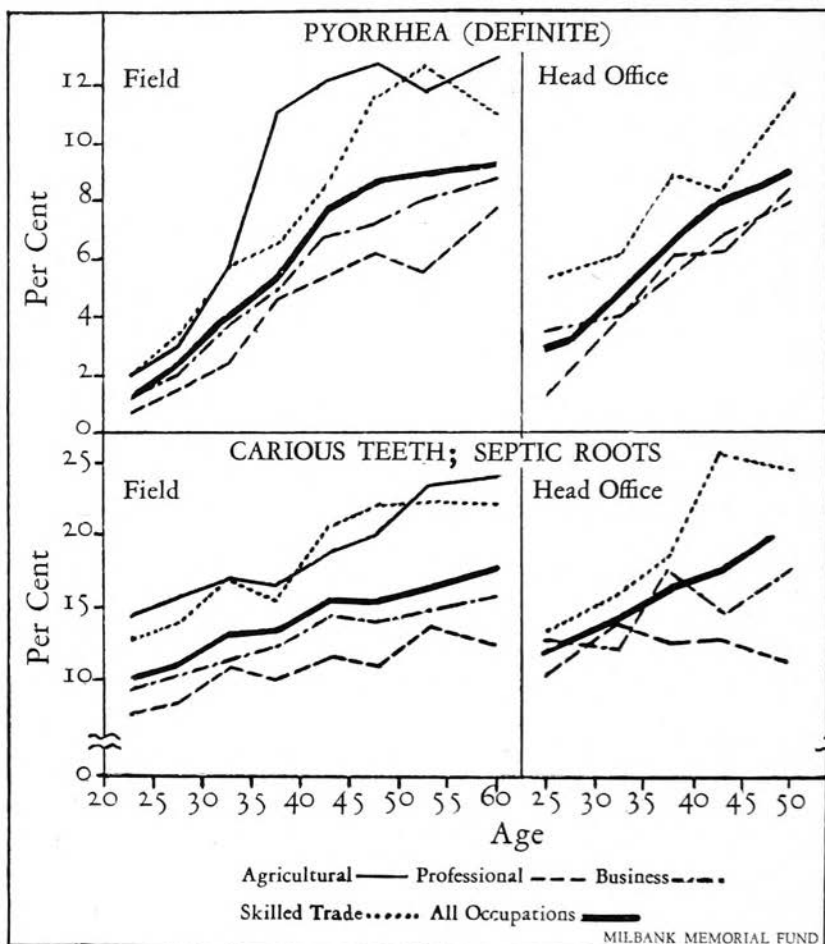


Fig. 3. Diseases of the gums and teeth are much more prevalent among the agricultural and the skilled trade groups than among either the business or professional groups. The lowest prevalence for pyorrhea, carious teeth and septic roots, is found in the professional group.

able social level with which we are concerned in this paper; and accordingly these results do not mean that differences may not be found for contrasting social classes. The fact that the rates in groups c, d, and e are almost identical has simplified the analysis, since it has made it practicable to combine these three groups into a single business class. The miscel-

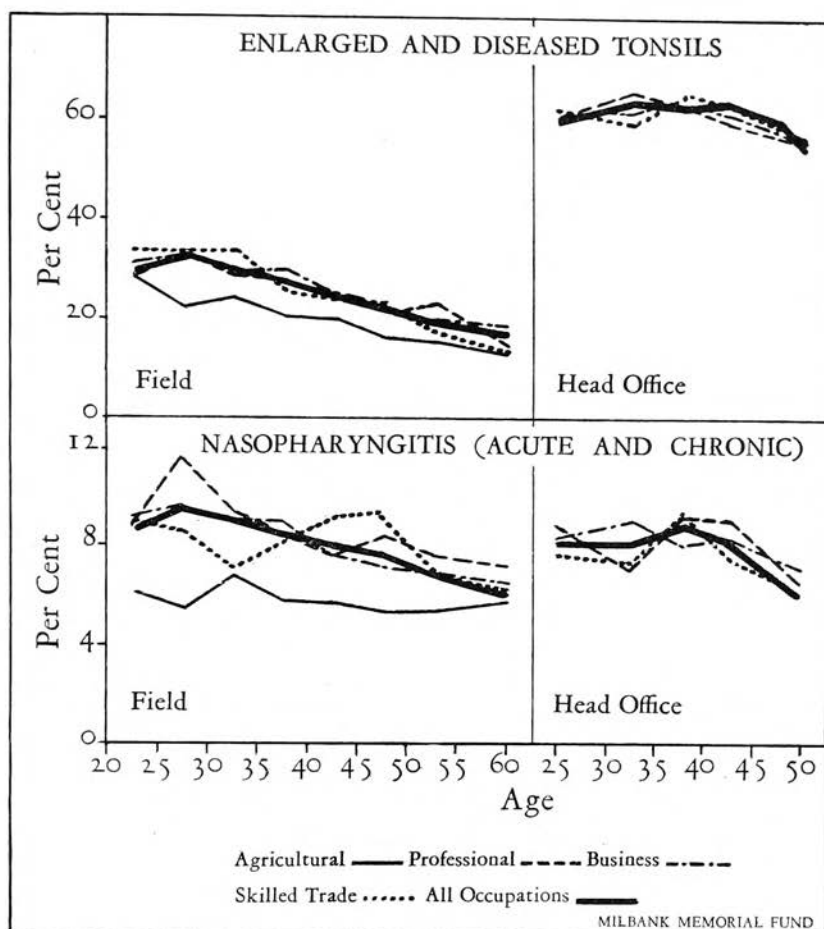


Fig. 4. Enlarged and diseased tonsils are equally prevalent among the professional, business, and skilled trade groups, but noticeably less prevalent in the agricultural group. Nasopharyngitis is less prevalent than diseased tonsils. It is found in a smaller percentage of the agricultural group than in any of the other three groups.

laneous group was disregarded as being quite indeterminable.

For the purpose of studying the relative differences at various ages and also of assuring us of the degree of significance attaching to our comparisons, the percentage of persons with any given impairment was determined in five-year-age groups for the more common conditions. Some of the graphs

giving these percentages are presented in this paper. The examinations of the Life Extension Institute have been divided into two parts: those made in the "head" offices (primarily New York) and those made in the "field." Marked differences in the rates have been found in comparing these two groups, due to the more rigorous supervision of the examinations in the "head" offices. The former represent in a way the interpretation of the Institute officials themselves, while the examinations made in the "field" may be taken as more typical of the consensus of medical opinion generally. In these graphs, curves are given separately for the two groups of examinations. Of course, for the "head" office data, no rates for farmers will be available.

The significance of the age curves of the impairments was discussed in the January *Quarterly Bulletin* of the Milbank Memorial Fund and will not be referred to here.

For *defective vision* (less than normal in either eye as judged by either the Snellen or the Jaeger tests), the professional group has the highest rate and the agricultural the lowest (especially below fifty years of age). Skilled trade is below the average in the "field" data, but not consistently so in the "head" data. Although no graph is given for the comparison, it may be observed that skilled trade is the highest group for uncorrected vision, while professional tends to be low. Agriculture is low for both corrected and uncorrected vision. The business group follows the average closely for both conditions. One should not be surprised to note that these curves have a tendency to become horizontal in the older ages; they are based purely on the *percentage* with defective vision and do not take into account the *severity* of the defect.

Defective hearing. Any condition showing less than 10/10 in either ear is taken as defective hearing. No audiometer tests were used. The only occupational group showing a per-

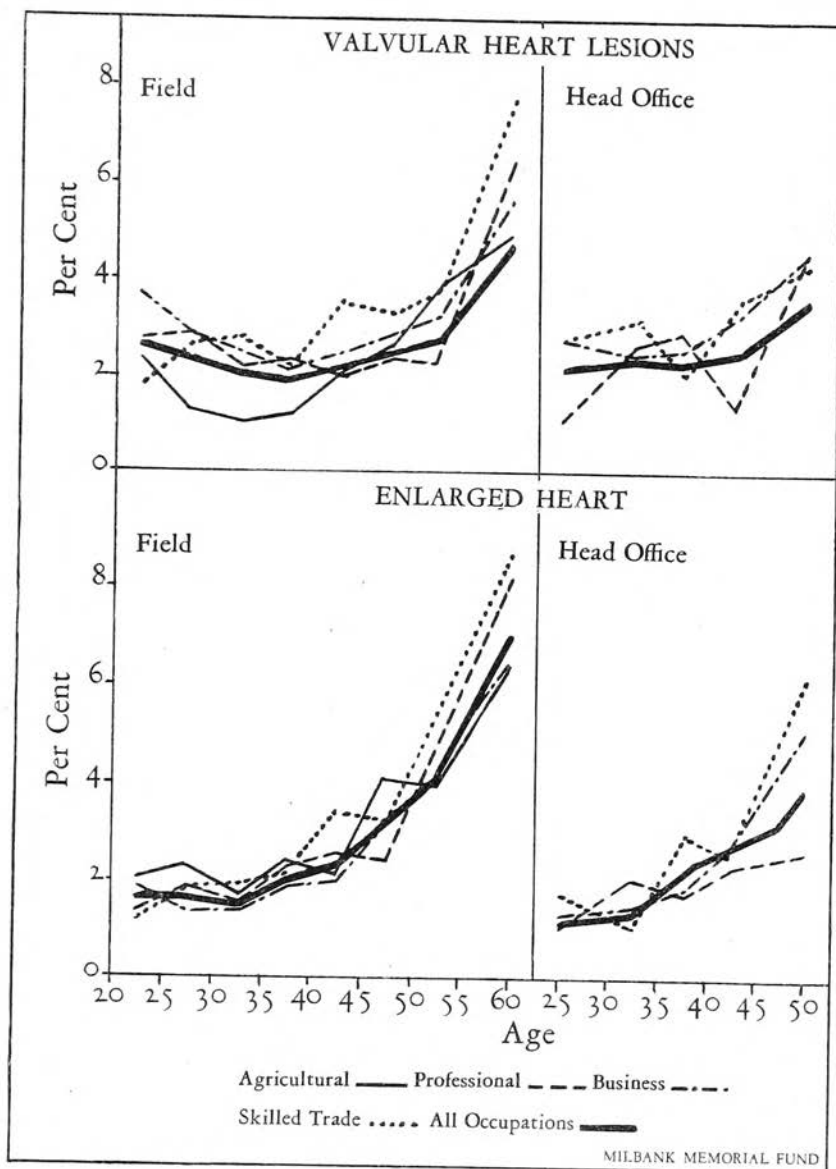


Fig. 5. The skilled trade group shows the highest prevalence of valvular heart lesions at most ages and was somewhat high for enlargement of the heart.

centage for defective hearing widely different from that for the total data is the skilled trade. Here the difference is clear-

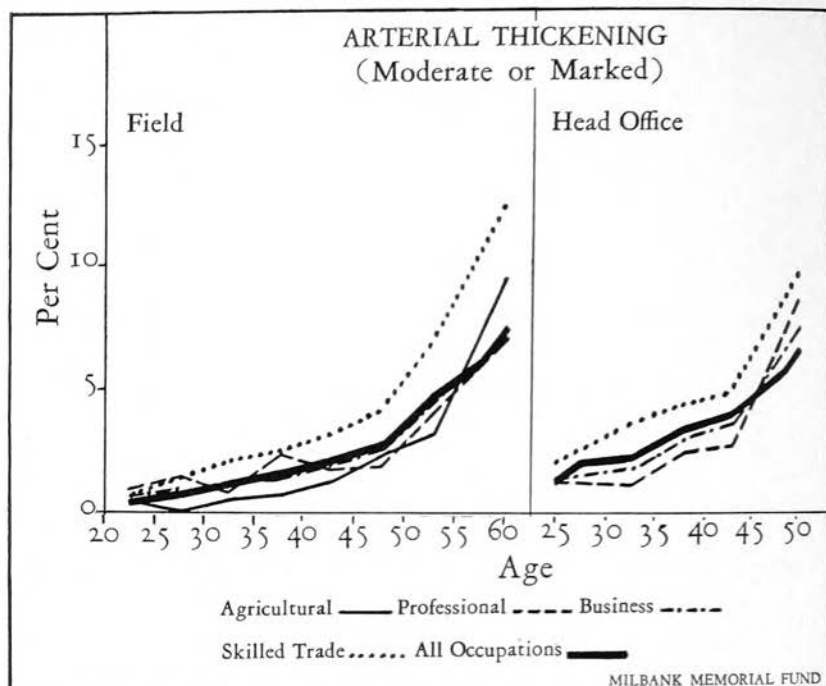


Fig. 6. Arterial thickening is markedly more prevalent in the skilled trade group than in the others. The agricultural group on the other hand shows a prevalence of arterial thickening which, except for the age group over 55, is below the average for all occupations.

cut in both "head" and "field." There is a tendency for the professional group to have rates slightly below average.

Teeth. Pyorrhea (definite) and carious teeth have been selected to represent the dental phase of the investigation. The percentage of farmers with pyorrhea rises rapidly with age and reaches eleven before the fortieth year, at a time of life when none of the other occupational groups has a higher percentage than seven and the average is little more than five. Carious teeth (septic roots) also show a high percentage for the agricultural group. High rates in both "head" and "field" are noted for the skilled trade group, while the professional group has low rates for both of these conditions. That these results reflect differences in dental care is suggested.

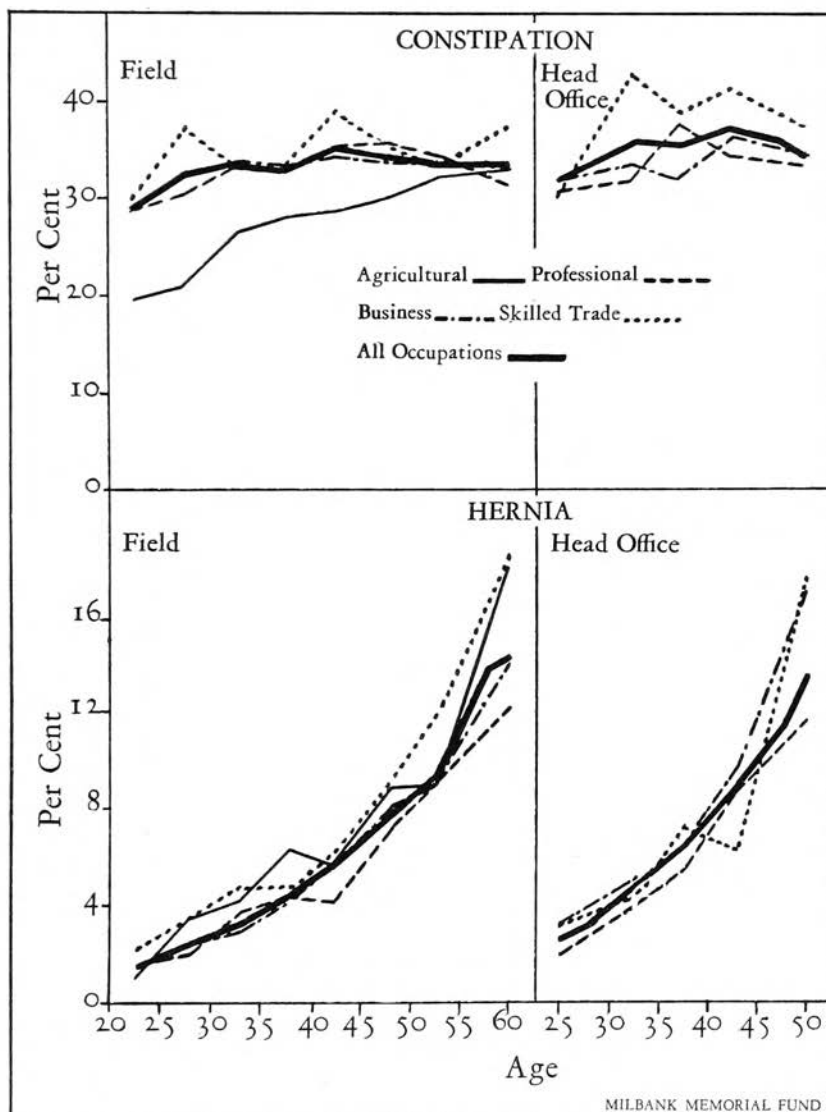


Fig. 7. Constipation is most prevalent in the skilled trades; and least so in the agricultural group. With advancing age the divergence disappears and constipation becomes prevalent in the agricultural group.

Nose and throat. For tonsils (enlarged, diseased, buried or cryptic, plus-plus or more) and for naso-pharyngitis (acute and chronic), the agricultural group is found to have the low-

Summary of Rates of Impairment in Broad Occupational Groups as to Whether Higher or Lower than Average

	AGRICULTURAL		PROFESSIONAL		BUSINESS		SKILLED TRADE	
	High*	Low*	High*	Low*	High*	Low*	High*	Low*
Eye and Ear		Def. vision— Corrected (M) Uncorrected Diseases of external eye (?) Perforation of eardrum (?) Wax in ears	Def. vision— Corrected	Def. vision— Uncorrected Def. hearing (S)			Def. vision— Uncorrected (M) Def. hearing (M) (Ranks highest in most of group)	Def. vision— Corrected
Teeth	Carious, septic (M) Pyorrhea, def.			Carious, septic (M) Slightly infected gums Pyorrhea, def. (M) Insufficient dentistry (S)		Carious (S) Pyorrhea, def. (S)	Carious septic (M) Slightly infected gums Pyorrhea, def. Insufficient dentistry	
Nose, throat and other Respiratory	Asthma (?)	Deflected sept. Enlarged and dis. tonsils (M) Naso-pharyngitis (M) Hypertrophic rhinitis (M)				(Tendency to rank lowest in this group)	Frequent colds (S) Bronchitis	
Heart and pulse	Slow pulse	Functional murmur Valvular (S) Rapid pulse					Valvular (S) Enlarged (S)	
Arterial thickening		Arterial thickening (S)		Arterial thickening (S)			Arterial thickening (M)	
Stomach and abdominal	Gastric disorders Tenderness gall bladder region (M) Tenderness appendix region Hernia (S)	Constipation (M) Weak inguinal rings Hemorrhoids (S) Hab. use of lax- atives		Hernia (S)			Constipation Hab. use of lax- atives (S)	
Genito- urinary	Enlarged prostate Frequent urination (M)			(Tendency to rank lowest in this group)				
Miscellaneous	Dizziness Backache	Adenitis Chronic skin Use patent medicines Enlarged thyroid Varicocele	Chronic skin Mastoids	Backache			Backache Insomnia Use patent medicines Varicose veins	Mastoids (?)

*S—slight difference; M—marked difference; ? indicates that it is doubtful whether difference is significant

est incidence; other differences are apparently insignificant.

Heart and arteries. The curves for heart conditions are presented primarily to indicate how little difference there is among the broad occupational groups. However, although one cannot with assurance conclude that any occupational group has significantly higher rates, an interesting difference is indicated for the farmer group with respect to the character of the age curve for valvular heart lesions. During the early part of life the rate is relatively low, but later it rises to about the same level as that for other occupational groups. Does this suggest that the rates in the agricultural group more nearly represent the prevalence to be expected as a normal part of the aging process? There is a bare suggestion of a higher rate for valvular lesions and enlarged heart in the skilled trade group. In the case of arterial thickening, the skilled trade group is very much higher than the others, and the agricultural group is somewhat lower.

Miscellaneous conditions. Many other comparisons by age have been worked out and discussion will be found in the complete paper in regard to this subject.² Two graphs have been included in this summary, one for constipation and one for hernia. In the case of the former the most marked condition is the low rate among young farmers. The skilled trade seems slightly higher than the average. For hernia, the differences are not marked. The skilled trade and agricultural groups are perhaps slightly above the average.

The general impression left by these comparisons is the higher rate of impairments in the skilled trade group. Thus a difference according to social level is evident, conforming to that found in the case of sickness and death records. A summary table expressing these relations in a purely qualitative

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form is also given to bring into relief the important aspects of the comparison and to include many impairments which have been omitted from the present discussion because of limited space. The table indicates what impairments have "high" rates and what have "low" rates for each of the four broad groups. The degree of difference is indicated roughly ("M" means marked; "S," slight; and "?," of doubtful significance). The "head" and "field" results are not considered separately, but the consistency of the determinations in the two divisions has been taken into account.

It is possible from this table to see rather clearly what the broad differences are. For most conditions, the agricultural group would seem to have rates definitely below the average for all examined, but there are important exceptions, notably for teeth, stomach and abdominal conditions, and the genito-urinary system. The rates are low for diseases of the eye and ear, nose and throat, heart and pulse, blood vessels, and many miscellaneous conditions.

The professional group conforms more nearly to the average for the entire population considered. Few conditions are found to have excessive rates, but, on the other hand, there are not very many with particularly low rates.

The business group approximates the average for the entire population considered in nearly every respect.

The skilled trade group stands out distinctly from the others in a number of respects. Its rates of impairments are excessively high for eye and ear, teeth, heart and pulse, and many miscellaneous conditions.

A further study in progress deals with the specific skilled trade occupations, and was undertaken for the purpose of ascertaining just where these excess rates are found. In general, preliminary analyses show that the differences are more or less common to most of the skilled trade occupations.