

and to accomplish reproduction, a certain proportion of the offspring will revert to the healthier, sturdier type of their ancestors, while the major part of the remainder will be so handicapped by the lack of that vigor and resisting-power which their enfeebled progenitor could not impart to them, has either to perish during infancy or to break down under the strain of grand rallying of all the vital forces for the act of procreation which marks the period of adolescence. Is not inherited syphilis, with its enormously increased mortality from the third month of fetal existence on, an example of the former method of elimination, and the tuberculous tendency, with its harvest-time just before or early in the reproductive period, of the latter method? I think we are prone to underestimate the perfection of this check in the case of specific disease. The vast majority of ova impregnated during the period of active syphilization in either parent are destroyed before parturition, while of children produced, the few who, scarred and shattered, survive infancy seems every year to present a rapidly decreasing line toward extinction; in fact, in my own limited personal and hospital experience of some three hundred cases of hereditary syphilis, I do not believe that I have ever met with a case that had passed the age of thirty-five which presented the characteristic facial, ocular, and dental changes. Broadly speaking, all disease is self-limited, either in the individual or in the family.

In order to arrive at some practical estimate of the actual connection between heredity and disease as we find it already existing, I have endeavored to collect some statistics bearing upon the history in respect of the three great maladies to which the term "hereditary" is generally though somewhat loosely applied, and by which the welfare of posterity is supposed to be most seriously threatened, viz., insanity, tuberculosis, and carcinoma.

In regard to the first of these, it need hardly be said that it is an open question if we have any right or reason for regarding it as a disease or distinct pathological entity in any strict sense of the term, any more than lameness, blindness, or general debility; yet as it is generally most vehemently denounced as such and declared to be the one dark shadow on the future of our civilization, I shall make no further apology for so treating it. Through the kindness of my friend, Dr. G. W. Hill, of the State Asylum at Independence, I have succeeded in obtaining reports of some fifty public institutions for the care of the insane in all parts of the United States, with an aggregate of over 54,000 inmates. Of this number, 5093 cases, or barely 9.4 per cent., are recorded as "hereditary," or in other words as having had one or more insane relations. Of course, this figure can only be taken as a very rough estimate of the condition of affairs,

on account of the difficulty of obtaining accurate or reliable histories of the cases previously to their entering the asylum; indeed, some superintendents refuse to classify their cases according to cause, while a few even omit heredity entirely from their list of causes. Although in some cases, for instance, in comparatively recent immigrants, almost no family history can be elicited, while in others the patient's relations will from family pride even endeavor to conceal the existence of other "skel-tons in the cupboard" among their mutual kindred, yet in many instances no such motive exists, the family being ready to tell all that they know and even more for the sake of getting someone to take charge of the unruly sufferer. On the other hand, the existence of a lunatic or "queer body" in any family is a decidedly macroscopic symptom to the eye of the dullest observer. Like murder, insanity "will out," and when we consider that many of these cases have been duly and elaborately examined and passed upon by a public commission that could call as many witness as it might desire, I think we may fairly claim that this record represents at least the major proportion of all cases in which such a coincidence existed. Even supposing that mental unsoundness in the family was discovered in only half the cases in which it actually existed, we should still be distinctly below the 22.6 per cent. which represents the proportion of cases in which heredity is recorded as a factor in the total aggregate of the English and Welsh asylums. This fact, together with the strikingly excessive proportion of patients of foreign birth in our institutions, would seem to me to go far to prove that the much-lamented increase of insanity in this age and country is in no sense attributable either to heredity or to the cumulative effect of civilization upon successive generations, but is principally due simply to the sudden and excessive changes of physical, social, and political environment to which our immigrant, and to a lesser degree our native, population has been subjected. Statistics upon this subject are scarce and difficult to obtain, and what few I have been able to collect seem rather to shake one's confidence in the popular belief that "figures won't lie" than to give any reliable and consistent information, the reports before mentioned varying from as low as 0.6 per cent. to 35 per cent. of hereditary influence. Maudsley found hereditary predisposition in 16 of 56 cases; Trelat in 43 of 73; a report to the French government in 1861 give 530 of 2000 cases; Jacobi reports 24 of 220; Hagen discovered "direct hereditary predisposition"; in 26 of 187 cases, and Mitchell in 20 of 64—a total of 659 in 2594, or a trifle over 25 per cent., apparently attributable to hereditary influence. Estimates are somewhat more numerous, but vary almost widely; Burrows regards hereditary predisposition as the cause of six-sevenths of all cases.