

VII. WAR AS A EUGENIC FACTOR***A. Richards, University of Oklahoma.**

(Read at the Winfield, Kansas. Meeting.)

Shortly after the principles of Mendelian inheritance were first clearly understood investigators tried quite successfully to apply these laws to human heredity. With the knowledge at hand of these facts and of the manner in which wars are conducted many thinking people began to consider the question of war as a positive or negative factor in the betterment of human stocks and the conclusion was quite generally drawn that the net result of war is a lowering of the eugenic value of the people engaged in the war; that is, the survivors are less desirable as parents for the succeeding generation, since war has acted as a selective factor to remove those most valuable. It has commonly been pointed out that for the purposes of war the strongest physically, the bravest and most courageous and those whose spirit of loyalty is most quickly appealed to are the ones taken by war and that those who are left behind are frequently inferior either physically or mentally in respect to some of these desirable qualities. Since the losses in modern wars are so great it is held that those individuals, who must a priori be best fitted to become the parents of the succeeding generations, are destroyed in disproportionate numbers. War, therefore, is a dysgenic factor, that is, on the whole it is harmful to the progress of society. This conclusion was for a long time allowed to pass unquestioned, but recently several writers have subjected it to a more searching analysis with the result that war is shown to have several different aspects from the eugenic point of view, and that these on the whole about balance each other. War may not now be said to be either a positive or negative force in racial breeding.

It is to be noted in studying this conclusion that the question involved in this sort of analysis is not: Has war no dysgenic function? nor, is war eugenically justified? nor, could the ends accomplished by war be brought about by other means? We simply seek to discover whether the net result is, on the whole, a favorable or unfavorable biological factor in racial improvement. We are not engaged in an argument in favor of war, but are

merely discussing its selective effect upon the germ plasm of the people who choose to engage in it.

The orthodox eugenist's point of view has already been stated. Add to this such facts as the following and the horrors of war immediately loom so large that we are led to think of this dreadful force of destruction as leading to a lowering of the eugenic vitality of the people engaged therein. March says that as a result of the Great War the France of 1914 lost 1,400,000 of her inhabitants in the prime of life. Among the survivors of the fighters most of 800,000 total invalids will never give birth to strong, healthy children. Add to this also loss due to the 400,000 births which would have occurred in normal times, but which did not happen during the period of war, and the drain on the eugenic resources of France seems overwhelming. This conclusion deserves careful study.

In considering the effect of war upon the race we must note, first of all, society is not dependent upon the actual number involved, but merely upon the quality of the population. The conclusion so often reached by superficial thinkers that more births mean racial improvement is easily seen to be a eugenic fallacy. More children do not necessarily mean better children eugenically. The number of children born in a generation is not a criterion of their eugenic value. The real question is whether a random sampling of the germ plasm of a race is better or worse or the same after war as before.

Casualties in modern wars have ranged between five and fifteen percent of the forces involved. If we are to demonstrate that such wars have left a weakened population we must show that a marked difference between the military and the civil population exists in their eugenic values. If such a difference exists it must evidently be dependent upon the manner in which the army is raised. Of course an army will contain those persons who are physically superior, whatever the method of raising it may be, for in no case are recruits accepted if they have any serious physical defects. Where voluntary enlistments are encouraged it is supposed that the most courageous and hence (it is assumed) the best eugenically are drawn into the military forces and losses are expected to lower both the physical and spiritual values. Where conscription is practiced, especially upon the selective basis such as was the principle behind the raising of the American military forces of the Great War, the army should contain a representative sample of the population as a whole with respect to all qualities other than purely physical ones. It must be obvious that conscription is much sounder practice biologically than

the method of raising armies formerly resorted to, and that the selective draft is of all methods the best calculated to secure sound results.

We may consider the general question statistically. First; the argument for racial degeneration as a result of the elimination of the males must make a tacit assumption, which it is seldom openly recognized, that the individuals lost in battle have not left behind any progeny—an assumption which is not borne out in the case of a very considerable percentage of the losses. It is to be noted also that the armies consist almost exclusively of persons between the ages of twenty and forty-five, and the actual fighting armies in most wars consist of men within very much more restricted age limits. Only in dire cases are the older men called upon. In the late American army the selective draft did not call for men over thirty-one years of age. This means that about forty percent of the male population (the part which is under twenty and over forty-five) and actually half of the remaining men between the ages of twenty and forty-five (that is, thirty percent) are not involved directly, and there is little chance of their elimination by war. This seventy percent thus unaffected contains all kinds of germ plasm—good, bad and indifferent. Second; we have already said that the percentage of casualties in modern wars range between five and fifteen percent of the forces involved. In our own Civil War the proportion of the casualties to the total population was only two percent and the proportion to males of breeding age was slightly under nine percent. Combining the figures from the percentages of these two statistical results it appears that not more than thirty-five percent of the male population is involved in war and if the number eliminated is as high as ten percent of this it will only reach a maximum of three and a half percent of the males, or less than two percent of the total population. It is then necessary to demonstrate that this two percent is markedly superior eugenically if we are to show that war has any considerable dysgenic effect. These statements are in harmony with the conclusions of Pearl in a recent book, "Studies in Human Biology."

Some other statistical results are cited by Gini, and are here given upon his authority. I have not seen the figures upon which he bases his conclusions, but his results as given seem very positive. (1) He states that the most robust are the ones who yield to sex impulses. It would follow that robust parents, in general, produce stronger offspring. (2) Deaths from wounds and in battle are an adverse influence, but deaths from diseases, both in army and in civil life, tend to exert favorable influence.

In the Great War there were a large proportion of deaths due to wounds and from this standpoint it was more adverse than most wars have been, but the larger number made selection less rigorous and tended to equalize the chance of elimination by the individuals of greater and of less eugenic value. Excessive mortality may continue for a time after war due to disease and economic stress. Such mortality has a favorable effect and (3) it is compensated for by an excessive birth rate always found in soldier families following war. (4) It is claimed that children of post-war births are more robust and upon the basis of Italian and French statistics Gini states that there is a greater frequency of plural births after war. (It is difficult to understand what biological basis there exists for such a difference). Other points have been made in this connection, but they do not seem to be unequivocal so that they may perhaps be omitted.

It is of importance, however, to indicate some statistical answers to some of the specific claims that have been made. It has been claimed by Jordan and Kellogg that military conscription delays the marriage of most fit young men. Gini asserts that after war these same men marry more readily, have more and healthier children than similar young men in civil population. They claim that venereal disease is more prevalent among soldiers but it is replied that if this were so there should be more still born and more sterile infants than statistics actually show, and the claim that war births produce frailer children is not borne out by statistical study. Gini's final point on this matter is of interest. Of more importance than physical heredity is intellectual and moral heredity. A person of mental genius is an asset though weak in body. It is doubtful whether persons who are deceased during the war, either in civil or military life, would in any category have achieved more than their contemporaries whom war spared. The use on the battle front of the Great War by the allies of their Asiatic and African subjects is well justified eugenically, and the assignment of the whites who had received special training to non-combative positions in the industries and in the professions upon which the conduct of the war was dependent was a stroke of wisdom not only in facilitating the ends of war, but in conserving the best minds from battle losses.

We may consider the problem of the effect of war upon the race, from the standpoint of genetics as well as statistically. Pearl has emphasized the fact long known that the future of the race is dependent solely upon the germ plasm, and the germ plasm is borne equally by the males and females of the race. Except in rare instances the female portion of a race is not di-

rectly eliminated by war. Referring again to the statistics given above, if three and a half percent of the male population of breeding age represents the maximum male elimination in the average war it is seen that the maximum eliminated from the total germ plasm is, therefore, under two percent. It may be argued that females do not marry during war time, but it is again to be pointed out that this fact affects only the number involved and not the superiority of the individuals in question. It is compensated for also by a psychological factor; namely, that the males of undesirable character who are left behind are viewed with disapprobation and are less likely to secure mates in time of war than during peace. It is commonly observed that the glamor of the uniform, both during war and immediately afterwards, operates to the disadvantage of undesirable civilian males.

The law of independent segregation of genes applies to the matter in hand. We know that the characters of a population are not apt to be lost simply because of reduced numbers in a given generation, but that if conditions are favorable for their development subsequently they will reappear unmodified. At the end of two or three generations we should expect all the genes originally present to have reappeared.

This law has a further application. There is necessarily no correlation between genes borne by a single individual as to their desirability. Good character and bad are present in all individuals and are independently assorted. A weak body may belong to an individual than whom civilization has no greater asset because of his mental and spiritual endowment, and, conversely, individuals with strong bodies, and even with great mental acumen, are not excluded from being morally corrupt and perhaps society's most undesirable members. In short, there is no sound genetic basis for the assumption that the individuals who participate in wars are from all standpoints the nation's best, or taking them as a whole, that they are the bearers of the best germ plasm of the race. We may not think that in their germ plasm is concentrated the most superior germ plasm of their race. Nor is there any sound basis for the corollary assumption so often made that those who remain behind are necessarily, all in all, eugenically undesirable. Eugenists know of many examples in which the most outstanding endowment is correlated with some physical or, perhaps, spiritual defect. The case so many times cited of Elizabeth Tuttle serves as an illustration. Without the germ plasm borne by Elizabeth Tuttle Edwards in the seventeenth century the American nation would be much poorer in outstanding educational, legal and political figures, and many of

its most notable achievements would perhaps never have been accomplished except for the leadership of Elizabeth Tuttle's progeny. Yet, linked with these unequalled characters which she bore and transmitted to her children was a moral nature so perverted that she was divorced from her husband upon the grounds of adultery after having been married twenty-four years. If the facts of her moral delinquency could have been predicted in her early life it is very doubtful if she would have been chosen as a prospective parent by any eugenist of any period. Yet, how eminently valuable were the other characteristics of the germ plasm with which she was endowed, although it contained both desirable and undesirable traits.

Racial crossings has been the subject of considerable investigation in recent years and, while much remains to be learned, yet it may be assumed that where no difference in the social standing of the races involved is to be found—that is, where there is no probability of inferior social inheritance, the effects of racial outcrossing are not undesirable. The offspring of such crosses, when there is no social inequality, do not lack in vigor, size or reproductive capacity, and may be expected to produce, on the whole, intermediates in respect to physical and psychic characters. On the other hand, of course, if the conditions involve social inequalities the results may be very undesirable. It may be said, however, that the history of the past wars have perhaps most often been that such outcrossings tended to vitalize the stocks so concerned.

The considerations which have occupied us so far have largely concerned themselves with selections in races as the result of war conditions. Of selection between races we may perhaps speak with less definiteness. It was formerly supposed on the basis of natural selection that the victors in war must of necessity be the superior race. This conclusion, however, is rather difficult to maintain when we consider the fortunes of war of various European nationalities. The French army which defeated the Prussians at Jena in 1806 was of the same nationality and largely of the same individuals as the one which lost to the Prussians at Leipzig in 1813. On the basis of the Franco-Prussian war of the seventies the Prussians were the superior race, and the French the inferior. Yet, the French aided by the Allies again reversed the situation in the Great War and became the superior race, in spite of the fact that their "proven inferiority" of 1870 was accentuated by the civilian parentage which according to the orthodox eugenists should have been the poorest possible. It is evident from such cases as these that it is unsafe to make sweeping

generalizations. Indeed, wars themselves differ in character and the causes of them influence the character of the armies. Wars which are waged for patriotic reasons and for defense are very different in their character from wars which are due to a spirit of adventure and merely of conquest and no general conclusion can be reached without considering each one specifically as to its eugenic influence.

The points enumerated above lead us to believe that the former pessimistic conclusions regarding war as a eugenic factor are unjustified as a general proposition although there may be single instances which may seem to bear them out. Apparently the only safe conclusion is that war is negligible as a factor. Certainly, the arguments upon which the conclusion was reached that it is only a dysgenic factor either do not warrant that conclusion or were only superficially considered.

In conclusion, it should perhaps be reiterated that no argument for war as against peace is here presented. All moral, economic, political and other factors which bear upon the matter are omitted from this discussion. It is the writer's belief that in the interests of humanity war should be outlawed, but for the sake of straight thinking regarding this important matter let us not urge that one of the reasons for thus dealing with war is the eugenic one that the biological effects of war are necessarily harmful to the future of the race.