

EVOLUTION AND MAN

Several Human Races Likely to Merge and Form One Great Hybrid Race in the Future—Variation Thus Created Will Present Many Possibilities to Eugenics—What Eugenics Can Do at the Present Time

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CHANGE of emphasis is as characteristic of scientific thought in its progress as is change of style in clothes. Today genetics has the stage. A generation ago biologists were discussing evolution. A half generation later the strenuous discussion as to the inheritance of acquired characters was just closing with a recognition of the lack of evidence in favor of such inheritance. Natural selection became dominant; sexual selection being increasingly questioned except among human-kind. Orthogenesis was generally accepted as of some moment.

This idea, however, of definite trends in evolution (orthogenesis) secured less attention than it deserved until the discussion of the inheritance of acquired characters became less absorbing. It was then that the abundant paleontological evidence of evolution by minute changes, too minute to be of "selection value," came to be recognized not as establishing the inheritance of the effects of use and disuse, but rather as indicating the presence of trends of variation in particular directions. It even became evident that these trends in definite directions might produce hurtful results, even leading to the extinction of species.

The huge saurians developed to such size that their very bulk aided in their extinction. The trilobites, so prominent in many fossil faunas, became extinct after a development which culminated in most bizarre forms, so eccentric as probably to indicate an unbalanced condition physiologically as well as structurally. To the paleontologist it is clear that in a number of groups of animals the highly evolved forms have

become extinct, the several groups being represented today by forms much simpler than many that have perished and perished very likely because of overdevelopment.¹ The minute changes in the structure of the feet and in the ridges of the grinding teeth in the horse, familiar to anyone who has read any book upon evolution, cannot by any stretch of the imagination be regarded each as of such value to their possessor as to have determined his survival in the struggle for existence. A better example of orthogenic change, showing inherent trends, could hardly be given. And these changes are not step by step related to utility. Indifferent for long geologic periods during their gradual development, they have now, however, culminated in a condition of specialization so extreme as to threaten the extinction of the horse. Only domestication saves him. The horse is a most grotesque, outlandish animal, a one-toed beast with a head as long as a barrel, a stiff inflexible animal that can't even lie down, much less roll over, without an awkwardness beyond belief, if we had not seen it. Only familiarity breeds respect for the horse. He has a stiff, unplastic quality, is overspecialized until he can fit into only a very narrow field in nature, living in herds upon open plains. Man's spread over the earth has produced a change in environment to which the horse could never adapt himself unaided. Indeed, barring the effects of domestication by man, the whole great group of the Ungulates is on the same road to extinction which the Dinosaurs have traveled before them. The destructive effect of evolution is a

¹ This does not imply that many less-developed forms have not perished also. Over-development is not the only cause of extinction.

subject worthy of extended treatment, but it is not quite germane to the main thesis of this discussion.

Our paleontological records indicate that orthogenesis has been a widely prevalent factor, and in our mental picture of the evolutionary process it should be given a salient position. Natural selection has consisted largely in the elimination of species whose unfitness was shown only after a long period of indifferent orthogenic development. In human evolution and in the growth of human culture as well, such trends may well have played a major rôle. The relative immunity of certain races² to altruism, which has more or less infected some other races, chiefly since Jesus' time, may profitably be considered from the standpoint of racial qualities as developed trends.

ISOLATION OF HUMAN RACES

Gulick and Romanes brought out very clearly the importance of isolation as a factor in evolution, and it is of especial interest in human evolution. The development during the last half million years of so many races of men, some now extinct, some persistent as relatively pure stocks, others intermingled, has been greatly influenced by isolation, has indeed been possible only through this factor. The spread of man over the whole of the habitable earth and the development of communication are destroying isolation and removing it as an influence in the evolution of man. We are approaching the time when every man may fairly be called every other man's neighbor. Intermingling of the peoples through travel, and that breaking down of social bars which always results from the growth of cosmopolitanism, are rapidly reducing the hindrance to amalgamation of the races which existed during the now passing age of relative isolation. It seems clear that there is destined to be but one race of mankind in time, a highly hybrid stock to which all of the present races which are able to persist shall make their contribution.

Both processes, extinction and fusion, have been taking place in America's short history, and with such rapidity that they can actually be observed. The unplastic Indian of the East and of the Great Plains and the still more conservative Pueblo Indian of the dry country of the southwest, are disappearing and seem destined to extinction. The negro, on the other hand, is increasing and is rapidly being whitened in spite of strong distaste on the part of the white race to intermarriage and the enactment of stringent laws against such intermarriage. A still better example of the impotence of social ostracism to stay the process of racial fusion is furnished by the Jew, whose blood is strongly infused into all the major nations of the Occident. The Syrian Jew is plainly a Syrian, the German Jew largely a Teuton, the Spanish Jew has absorbed many Spanish characters. Each of these Jews resembles his local neighbor more than he resembles his brother Jew of another country, and this racial fusion has come about in spite of a social ostracism of centuries more rigorous than we of today, especially we Americans, can adequately conceive.

Given racial contacts, even the illegitimate unions, it seems, must be sufficient in time to cause fusion of all races into one. Of course to the biologist, accustomed as he is to think of evolution in periods of geologic time, a thousand years are as one day. The amalgamation of the races of man into one race about as homogeneous as the present European population will doubtless take a few thousand years to accomplish, but, so far as we can judge from the conditions now existing and those seemingly necessarily about to come, such union of the races seems inevitable. And it has one feature of great advantage: it will give in the resultant race a great variety and diversity of unit qualities to be manipulated in eugenic marriage. The greater the range of qualities the greater the possibilities, for both good and evil.

² The author has in mind here the Greeks and the Germans, peoples whose philosophy of life has been self-development rather than service.

From the point of view here suggested the most interesting ethnic questions are: first, those concerning the ability of any human stock to survive in the competition, and second in regard to the character of the contribution of any surviving race to the ultimate human race and its effect upon the ultimate race. To the biologist such social problems as immigration and internationalism, while timely and important today, seem very transient.

Thus far we have mentioned only long familiar factors of evolution. There has been some change of emphasis in these fields, but no new discovery. In the field of heredity, on the other hand, there has been discovery, and a new science—genetics—has been born. We have found that there are two fundamentally distinct types of variation—the first producing new qualities that are not transmitted in breeding, and the second producing characters that persist and breed true. The latter are mutations and are the material with which evolution deals. The transient, unstable type of variation is but shifting sand and gives no foundation for the erection of any superstructure of evolution.

TWO KINDS OF VARIATIONS

In discussions of these relatively new phases of the science of heredity there has been undue emphasis upon some of the less vital features. It is true that the changes produced by mutation (variation of the stable type) are generally somewhat greater than are the changes seen in fluctuating, unstable variation, but this distinction is not universal nor really of much moment. It is the heritability or non-heritability of any newly acquired quality that is of fundamental interest. The usual British terminology, which calls the non-heritable variations continuous and the heritable discontinuous, emphasizes the minor fact that the former are usually slight and the latter greater in amount. It seems far better to call them unstable and stable, emphasizing

thus their most fundamental quality of non-heritability or heritability.

Not only have we learned this great distinction between heritable and non-heritable qualities—we have also found out a few fundamentally important things about the manner of inheritance of the heritable qualities, of the way they behave in inheritance. We think we know that the resemblance between parent and child is not a vague general resemblance, that the child does not inherit resemblance to either parent as a whole or a sort of fused resemblance to both, but rather that he inherits particular qualities, or to be more accurate, inherits a series of determiners, each of which is related to the development of a particular quality. We think too that we have found satisfactory evidence that in general the child carries two determiners for each heritable quality, one received from the father, another from the mother.³ We are beginning to learn something of the interrelation and interaction of the two determiners of each pair within the body of the child, and especially we think we know some fundamentally important features of their behavior in connection with the process of fertilization, which starts a new individual in life.

This is not the place to discuss the phenomena of genetics in any detail. Suffice it to say that inheritance is not vague but definite, not general but particular. Stature is not inherited but rather the child receives from its two parents a whole double series of determiners which guide the development in a number of particular ways affecting stature. Brown eyes are not inherited, but rather apparently two pairs of determiners, each pair for a distinct pigment, whose combination produces a brown iris. Brown hair, red hair, flaxen hair, is not inherited as a whole, but rather there seem to be two pairs of hair pigment determiners which when present in full activity produce even so-called black hair, and the absence or perhaps the relative inactivity of one or more of these pigment

³ One or occasionally both determiners of a pair may be absent, the quality itself being in the first instance less developed and in the second instance wholly absent.

determiners results in various lighter shades. In the complete albino all pigment determiners are absent or at least inactive. It is altogether possible that specific activators must ultimately be brought into our conceptions of inheritance.

INHERITANCE IS PARTICULAR

The thing desirable to emphasize here is the particularity of inheritance. Every individual is a complex of minute discrete qualities which in inheritance act more or less as independent units and so are commonly called unit characters. As the independent inheritance of discrete qualities was first discovered by Gregor Mendel, these unit qualities are often called Mendelian units, and their inheritance as independent characters is called Mendelian inheritance. It seems to many students to become more and more evident that all physical inheritance is Mendelian, though the phenomena are often so complex that their complete Mendelian analysis, their analysis into units of inheritance, is extremely difficult or even completely baffling. All this is distinctly new.

The science of genetics is but a half generation old and it is still in its infancy. Great progress is being made, American biologists marching in the van, but the fields still unexplored are vast and many decades are needed for their conquering.

For our present consideration the thing of interest is the fact that we have learned to some extent how to get results from directed breeding. We know how to breed out and throw away particular unit qualities and we know how, on the other hand, to collect and increase them. Having certain unit qualities in a given lot of animals of any species, and having so analyzed them that we know them as units and understand their reaction in combination, we can shuffle them as we will and produce all sorts of combinations within the limits that the life processes place upon our experimentation. One point of much importance must be emphasized. While breeding can combine qualities already

present in the selected individuals, and nurture can often bring such qualities to fuller development, neither breeding nor training can put in what is not already present. We can make new combinations, but we cannot create new qualities. For these we are dependent upon Nature's gift. We must make the best of what she provides.

How does this advance in our knowledge of heredity affect the future of man? How about eugenics? Can we control human development and evolution? There are a number of subsidiary questions that need answering before we can speak confidently of the larger matter of human eugenics. If we should control marriage to this end, we could, of course, produce great physical change in man. With sufficient study probably we may come to understand the unit qualities in most if not all of his physical constitution and we may hope to know how these behave in inheritance. May we hope to analyze psychic qualities into units of inheritance? Are there such psychic unit qualities, and if so are they within reach of our analysis? Are there such things at all as heritable psychic qualities? At least one American psychologist is very skeptical of the inheritance of psychic qualities and regards as especially improbable the whole idea of units of inheritance in psychic qualities.

I know that in the field of psychology I "speak as a fool," yet as a fool, I am convinced by the evidence that psychic inheritance is a fact. We don't know what that which we call disposition is, but it seems to be a complex of psychic qualities, and among men and domestic animals it seems to be heritable. A Jersey bull or a Spitz dog is of uncertain temper. A Hereford bull or a Newfoundland dog is more dependable. These qualities are heritable. Individual dogs of the same breed differ in intelligence and in disposition and, though the evidence is as yet not carefully scrutinized, we are all convinced that such individual differences are heritable. Is the savagery of the Apache or the mildness of the California

Digger Indian any less heritable? Admit to the full the influence of training, especially of subconscious training, and still it seems we must believe that qualities of intellectual ability and of disposition are inherited and that moral stamina and moral weakness are not wholly matters of education. Indeed one is inclined to believe that at bottom these qualities, when strongly present, are less affected by training during the life of the individual than has long been thought, and of course their inheritance is not at all so affected.

MEDELISM IN THE MIND

But if we grant that psychic qualities are heritable, and not merely racial qualities but individual qualities as well, we are still without satisfactory evidence of the presence of Mendelian units in psychic inheritance, and of the manner of their behavior in transmission. If there be units of psychic inheritance, their interrelation may be too complex for analysis. There is no certainty of completely satisfactory solution of the problem even in the distant future.

Leaving out of account for the moment all social considerations and viewing the problem of human eugenics as we would that of animal breeding, could we, if free to do so, so manipulate human beings in marriage as to control psychic as well as physical qualities? Is analysis into Mendelian units necessary to success in breeding?

Thorough analysis is surely the greatest aid, but some result is possible without it. Burbank never analyzed his problems, but he got results, as did all the breeders before his day who produced our diverse breeds of domesticated animals and plants. To be sure they met many failures, but they had some successes. Galton, Pearson, and their followers in the British school, show little interest in Mendelian analysis and are approaching problems of human inheritance from a very different angle. How far we could go by their uncritical method is a question, but something we could surely gain. We could elim-

inate the undesirable and advance the race nearer to its present best.

But under conditions as they are can we do this? How much hampered are we by social limitations?

Looking far into the future I have entire confidence that we shall in time almost banish physical, mental and moral⁴ invalidism, which today are most prominent characteristics of the human species. Negative eugenics, the elimination of the clearly unfit from parenthood, has come and with more knowledge, will be more important, whether the unfitness be physical or psychical. To be sure it may be a thousand years or two before we approach this goal, but to a biologist this is but tomorrow. For the sociologist who thinks in decades there is less comfort in the prospect, though there is much to justify a hope that progress is to be really rapid, a few centuries accomplishing much.

How is this to be? What is the method of approach? *First*—promote the study of the science of genetics by great foundations richly endowed. *Second*—gather with thoroughness and the greatest possible completeness data as to the now existing human stocks. *Third*—educate to ideals of eugenics. *Fourth*—legislate. A few words about each of these four exhortations.

Study of the Science of Genetics.—There is work here for many students for many decades. It must be unhampered, purely scientific work. There must be no necessity of producing "practical" results in order to appeal to the popular imagination and gain financial support. Get good men, then let them alone, don't pester them, and in time there will be gathered a great body of carefully scrutinized data upon which to found intelligent practice of eugenics.

Gather Data as to Existing Human Stocks.—The state should at once gather the fullest data as to matters of possible importance for eugenics (and perhaps as to other things of interest in connection with inheritance) for all families represented in our public insti-

⁴ This is used as a conventional, not a strictly scientific classification.

tutions for the care of the defective and delinquent, and similar data should be gathered by privately endowed institutions of similar purpose. Privately endowed investigations should gather inheritance data as to all types of human stock, especially the most desirable. All these data should be gathered, studied and filed by thoroughly trained experts. They should be open to inspection only by those who can show valid reason for such privilege. Contemplation of marriage by or with a member of any family included in these records should of course make the records available for study. In imagination one can see the day when inheritance records will be made by the State for all individuals and these files be the most valued of all records, but that day is far distant.

THE EUGENIC CONSCIENCE

Education to Ideals of Eugenics.—This includes, first, the education of college and university students in the phenomena of inheritance and, second, education of society to an appreciation of the necessity and beauty of the practice of eugenics. This education of society will come chiefly through the pulpit, the stage, our novelists, poets and essayists. The education will not be real and vital until it has taken such hold of the imagination and has so molded ideals that non-eugenic marriage shall seem unbeautiful and repellant. There is no other crime so heinous as intentionally sharing in bringing into the world a human being who, there is reason to believe, will be an injury to society. This is vitiating the very fibre of the human stock. Not only is the bearing of such children criminal—accessory to the crime are charitable persons, or professional workers in charities, who express their sympathy for the individual in ways that result in such injury to society in the coming generation: The agents of our charitable organizations and the officials guiding state activities in relation to the defective and delinquent, often do not now have in mind the rights of society in the coming generation, to safeguard

those rights. But, of course, appreciation of the principles of eugenics, and respect for them, is a primary requisite for fit service in these lines and should be so recognized. We know as yet but little in this field, but we must not be false to so much of the truth as we have attained. In promoting ideals of eugenics the immediately practical thing is to educate ourselves and our fellows to a warm appreciation of physical, mental and moral soundness and wholesomeness, such appreciation as will make these qualities the most attractive in choice in marriage. This is a long, slow process, but there is never any short cut to results of really vital importance. After 2,000 years the altruism of Jesus has only begun its beneficent work in those aspects of human relations long recognized. It must reach to and come to be controlling in this newly recognized and higher phase of social morals.

Legislation.—This is a minor feature to one who takes the "long look," but it is essential. Legislation can never express and enforce an ideal that is not general, and one does not see that it can ever be more than purely negative, debarring certain clearly recognized types of defective men and women from marriage. In cases of congenital feeble-mindedness and inherited insanity, if accurately diagnosed, segregation may now wisely be used. But legislatures have positive genius for mistaken legislation in scientific matters, and they are sure to be urged by well-meaning but ill-informed persons to enact unwise laws, as some states have already done. Legislation which goes too far or is ill-founded will set back, not advance, eugenics. If one State should enact moderate segregation laws based on sound scientific data and drafted under the advice of those most conversant with these data, it would do great service not only to itself, but also by its example. One concrete instance of wise legislation would not only be a stimulus to other states to enact similar laws but could be used as a deterrent in cases of proposed laws founded on enthusiasm and not on knowledge. So-called eu-

genic legislation to the present time has been mostly unwise and will prove a hindrance.

We have discussed thus far only negative eugenics, the elimination from child bearing of those recognizably unfit. Even without Mendelian analysis it seems probable that ultimately much may be accomplished by the acceptance of more wholesome ideals of attractiveness in marriage. Through centuries of advance in culture, physical attractions have come to be largely supplanted by spiritual qualities as stimuli to choice in marriage. This change shows how possible it is to modify the standards even in this the most vital, most biological, of all human relations. We may surely anticipate bringing the human stock into a condition more nearly approximating its present best by removing the distinctly undesirable types.

CONSTRUCTIVE EUGENICS

Positive eugenics involving controlled marriage for the sake of bringing together individuals whose children would be likely to be especially valuable to society, seems unattainable without violence to the principle that love between husband and wife is the safest, the most beautiful, foundation for the home, and that the home is essential to the best type of society. Possibly in the case of a people like the French, or still more the Japanese, among whom marriage is arranged by the families rather than the individuals involved, considerations of positive eugenics might come to be controlling, as considerations of wealth and social status are today in large measure. But any attempt to unite a particular man and a particular woman in marriage for the sake of establishing the resultant family in wealth or social position or even in innate wholesomeness of body and mind seems to us in America not only repellant but socially dangerous. Man is so sensitive spiritually to the environing atmosphere, especially within the family, that this should be of the sweetest, most ennobling type, and to this end nothing else is so important as that there should

be between the man and woman founding the family that indefinable attraction we call love, a thing which in primitive man was probably mostly physical, but which at its best today is permeated and suffused with spiritual quality of a type which does most to make a home environment that molds the children into worthy members of society.

The complexity of the problem of eugenics is evident, and the great difficulty of accomplishing to the full the biological result of good breeding without sacrificing the nurtural influences which, while less fundamental, are still essential. Marriage is a most vital thing to the individual and it is socially the most significant of all human relations. The interests involved are complex and may oppose each other. When individual and social interests clash, of course those of the individual give way. The bearing of children is not an individual right, but a social privilege, which may be bestowed or withheld as social welfare shall demand. The only question is, of course, which way social welfare lies—no easy question to approach, much less solve.

Our discussion of eugenics thus far has dealt only with the problem of bringing mankind as a whole nearly to the level of its present best. This is ordinarily what is meant by eugenics. There is a somewhat distinct problem—that of the evolution of mankind to a condition more advanced even than his present best, the bringing of the race to a point beyond the best yet known even in the most desirable individuals. Is there, or is there not, possibility of indefinite advance in humankind? The question of method of securing advance, a question we have already discussed sufficiently to show its complexity, enters here, as it does into eugenics. But there is a further question of material upon which to work. We have convincing evidence that changes effected in an individual through education are not heritable. We have seen also that there are two types of variation producing new qualities which in the one case are heritable, in the other not. Only heritable qualities, stable variations, mutations, can serve as a basis for

evolution. Is man mutating today? Does he present stable variations which may be utilized to secure his evolution to a higher condition? The various species of animals and plants differ in the degree of their mutation. The domestic goose has developed few breeds because it presents few and slight mutations from which to breed new forms. The common pigeon,⁵ on the other hand, has evolved under artificial selection into a host of very divergent breeds. To which type does man belong? Is he mutating or not? By his fruits we can know him. Does the species show high diversification into races, or has it remained fairly uniform?

SEVERAL SPECIES OF MAN

We have evidence of at least two species of true men, the Neanderthaloid species, *Homo neanderthalensis*, with perhaps more than one race, now wholly extinct, and *Homo sapiens*, with at least three subspecies represented in Europe and with numerous very divergent races scattered throughout the habitable earth.⁶ To reach this condition of great diversity, mutation must have been frequent and considerable in degree in the past, and we have no reason to suppose it less today. Few species of organism show more abundant or more extreme mutation than man. The races of men differ not only in such physical characteristics as stature, color, shape of cranium and of face; form of features; color, position and shape of eyes; color, shape and coarseness of hair; relative length and size of different portions of skeleton; form and size of teeth; and numerous others—they differ no less in mental qualities, in intellectual ability, in educability, in disposition. Yes, mutation, physical and mental, has been prevalent in the past and is doubtless continuing today.

Much of the change we see appearing in human families from generation to generation may be but the resolution and

recombination of qualities already in this highly hybrid stock, but the evidence from his past shows almost beyond question that new features must be appearing through mutation and joining the huge jumble of qualities which are reshuffled with every marriage. Along with the ancestral qualities and the new mutations, all heritable, are of course numerous non-heritable features which have arisen by variation of the non-stable type. The condition is one of great complexity, difficult of analysis even if we were free to use experimental breeding. Without experimental breeding, using only observation of chance matings, as is necessary under the conditions presented by human society, the analysis of the conditions presented seems nearly hopeless. We shall learn something, much in time, but it will be slow progress at the best.

New qualities which arise in any species are often slight at first, their value appearing only after generations of orthogenic intensification. In experimental breeding many such must escape notice and be lost. Among human-kind any quality to be repellant or attractive in influencing marriage must be well developed and prominent. Marriage selection, therefore, cannot act upon any new quality unless it be well developed at its origin (what breeders of animals and plants call a "sport") or until, if slight at first, it be given probably many generations to develop and become prominent. We should note further that by the time adult life is reached every individual has been so modified by education and by self-training that his inborn character is obscured, so that he may be chosen in marriage on the basis of character which in considerable degree is "acquired" and therefore is not transmissible. The subject is extremely complex. Not even its outlines can be indicated in this paper.

What conclusion, if any, can we

⁵ It is possible the domestic pigeon is of hybrid origin. Better examples of non-mutating and mutating stocks would be the potato, which has shown little divergence under prolonged cultivation, and the wild cabbage (*Brassica oleracea*) which has been developed by selection of its mutants into the domesticated cabbage, kale, Brussels sprouts, cauliflower, kohlrabi, and Swedish turnip, leaf, flower and stem all having been greatly modified.

⁶ Cf. Osborn, Henry Fairfield, "Men of the Old Stone Age," New York, 1915.

reach? Can genetics and eugenics register in human betterment, in improvement of the stock itself? Surely they can if we will have it so. But will we consent? Again surely yes. The ideal of a human race wholesome in its innate character is so beautiful that it must win its way. Caring for the weak, comforting the sick, rescuing and regenerating the base, are beautiful, but how much more beautiful it is to build a race that is physically sound, intellectually keen and strong and whose natural impulses are wholesome! Not a race of men who are decent because they are restrained from following their natural bent, but a race whose natural quality is wholesome, who need not so much to restrain as to develop themselves. This seems destined to be included in the religion of the future, and it is Christian; not in Jesus' thought, so far as we can judge, but a necessary development of his gospel of altruism. If the facts of human inheritance are as they seem to be, man's future takes on a new glory.

ANTITOXIN FOR CIVILIZATION

Thirty years ago Carpenter⁷ wrote a keenly interesting essay in which he depicted civilization as a disease from which no people, once afflicted, has ever made a good recovery. He traced its history in several peoples, showing its similarity in all, the same prodromal stages, its culmination in feverish strength, and the patient left either dead or permanently weakened. It was not a pleasant study, for it had too much of truth. The people who make eugenics part of their religion and are loyal to its truth will have found the antitoxin for this dire disease, and with it the fountain of youth. But this is a dream of the distant future, the day of that ultimate race that shall people the whole earth. Yet we can carry this dream

with us, can have the inspiration of the vision, and can be loyal to it in our endeavor to secure to children their right to be well born.

We have said that the gospel of eugenics is Christian. Can any follower of Jesus see this ideal understandingly without finding that all his loyalty to Jesus' gospel of altruism is back of it to push it? Eugenics is also Confucian. This religion of common sense maxims, if it be called religion, has broad contacts with the religion of eugenics. There are also possible considerable contacts with Buddhistic philosophy. Forgetfulness of self and merging all into the infinite completeness of the whole Communion of the Universe are ideas that readily unite with the ideal of eugenics. Islam is not sufficiently altruistic to let us hope that it can help toward the enforcing of eugenics, though pride of birth and joy in worthy sons is highly characteristic of many Mohammedan peoples. Shintoism might be brought to urge improving the quality of those who are to be given as ancestors to posterity. The contacts with Shintoism may conceivably prove of practical value.

Among the civilizations of the world positive antagonism to eugenics is hardly to be expected. Buddhism is too contemplative to push anything. Shintoistic-Buddhistic-Christian Japan, with her readiness to adopt new conceptions if they look to national advantage, may perhaps be among the first to grasp and enforce eugenic ideals. But for its real growth eugenics seems, as a matter of fact, if not of philosophy, to be dependent chiefly upon Christian civilization. It is wholly Christian, though not exclusively so, and nothing less seems truly and adequately Christian.

⁷ Carpenter, Edward, "Civilization, Its Cause and Cure." London, 1889.