

Your Committee on Eugenics begs to make its second report. It may be observed that to each member of the committee has been assigned some topic chosen by himself; and that for each of these short discussions or essays, the person whose name is signed is alone responsible.

(Signed) DAVID STARR JORDAN,
Chairman.

EUGENICS.

By DR. ALEXANDER GRAHAM BELL, *Washington, D. C.*

The name Eugenics was suggested by Francis Galton for the group of facts and lines of investigation constituting the science of being well born. Galton defines eugenics as "the study of agencies under social control that may improve or make pure the racial qualities of future generations, whether physical or mental." It is, in short, the art of selective breeding, and the science on which it depends, extended to the human race. This difference must necessarily obtain. In selective breeding of animals or plants, the individual is passive in the hands of the breeder. In human breeding, or eugenics, the enlightened will of the individual must be in the long run the chief factor in selection. If the individual were to be passive in the hands of science, the finest of all human qualities, the power of initiative, would tend toward elimination. For this reason this fine art of selective breeding under skilled hands will never be a factor in human development. Our selections of the best physically, mentally, morally, whatever it may be, must take some indirect form. Race improvement must look to social control for its factors of selection and segregation, the external factors in evolution, while the internal factors, described by the terms variation and heredity, are potent in human life, whatever its station, as they are potent in the lives of animals and plants.

ELEMENTARY PRINCIPLES OF EUGENICS

In studying the distribution in a community of any desirable characteristics of an inheritable nature we find that, although individuals differ in the degree in which they possess it, there are no very great divergencies from the normal type of the race save in exceptional cases. Those who are much above or below the average are few and far between. We may then conveniently divide the people into three classes: The *average*, or normal, who constitute the bulk of the population; and two small groups on either side, the especially *desirable* and the *undesirable*,

composed of those who possess the characteristic in a markedly greater, or markedly less degree than the average.

In studying the inheritance of the peculiarity we may note that the offspring of all these three classes possess a strong tendency to revert to the average or normal type of the race, with the result that the offspring of the desirable, upon the whole, will be less desirable than their parents; and the offspring of the undesirable, more desirable.

All three classes will be reproduced in the offspring of each class but in different proportions. Among the offspring of the desirable there will be a larger proportion of desirable, and a less proportion of undesirable, than in the normal distribution. The opposite will be the case among the offspring of the undesirable; but among the offspring of the average the normal distribution will re-appear. It is also worthy of notice that all three classes have contributed to the production of each class. While all three classes have sprung mainly from average or normal parents, a larger proportion of the desirable than of the undesirable have had desirable parents, and a smaller proportion undesirable parents.

Our great problem is how to increase the quantity and quality of the desirable element, and raise the general average of desirableness in the whole community.

The thought presented last year to the American Breeders' Association¹ that an improvement of this kind would be more promoted by an increase in the number of marriages of the desirable with the desirable, than by preventing the marriages of the undesirable, seems specially worthy of consideration in this connection.

Since the undesirable are mainly the offspring of average or normal parents, it is obvious that interference with the marriage of the undesirable would not cut off the main source of supply of the undesirable. It would simply diminish somewhat the production of the undesirable without increasing the production of the desirable.

The cutting off of the undesirable from reproduction would on the one hand only slightly reduce the number of undesirable offspring born in the community, while on the other hand it would rob the community of the normal or desirable children born to the undesirable, who constitute after all the majority of their children. So that such a plan would

¹ See "A Few Thoughts Concerning Eugenics," by Alexander Graham Bell, Proceedings of American Breeders' Association for 1907. Published also in the National Geographic Magazine, February, 1908; and in the Association Review, April, 1908.

actually reduce the numbers of the desirable and of the normal born in the community. It operates at the wrong end of the scale.

If we start at the other end, and promote the marriages of the desirable with the desirable we not only increase the proportion of the desirable offspring per family born to them, but, intensify, in the offspring, the desirable quality itself. So that the offspring of such unions spreading out among the population at large and marrying into average or undesirable families will prove prepotent over their partners in marriage in affecting the next generation.

Increasing the potency of the desirable seems to be the most hopeful method of improving the inheritable qualities of the race. By promoting the marriages of the desirable with one another during a number of successive generations we would ultimately secure the presence in the community of a large number of individuals who would not only be desirable in themselves but would also be the descendants of desirable parents, grandparents and other ancestors.

In order to produce the result intended it would neither be necessary nor advisable that the desirable should marry exclusively with the desirable and it would only be practicable to cause an increase in the number of such unions. This, however, would be sufficient to cause an increase in the number of individuals possessing strong inherited tendencies to transmit their desirable qualities to their descendants. The thoroughbred stock, however small it might be, could not be made to keep to itself. Little by little the improved blood would spread out among the people at large by marriages with those who do not possess it and tend to raise the level of desirableness of the whole.

It would therefore seem that one of the most important elementary principles we could adopt in our efforts to improve the human race would be to promote the marriages of the most desirable with one another so as to favor the formation of a prepotent stock.

RIGHT ATTITUDE TOWARD LIFE.

BY LUTHER BURBANK, *Santa Rosa, Calif.*

Life flows along certain general lines laid out by heredity and environment. The hereditary tendencies of metals and minerals are very thoroughly fixed and sharply defined and great force is required to turn them in new directions; environment has little to do with their characters.