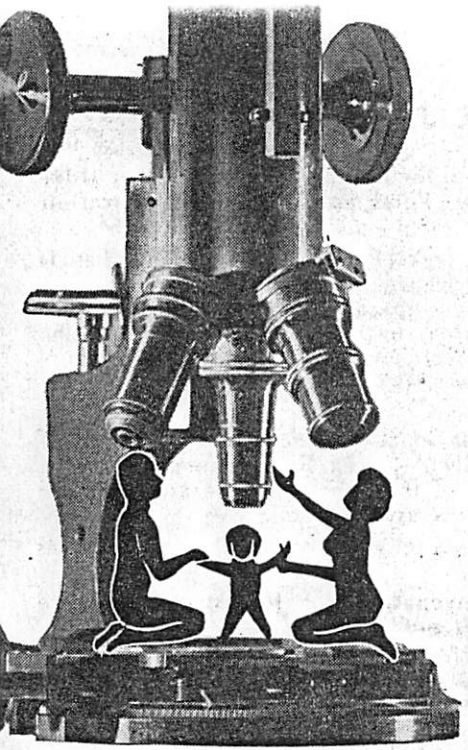

Von Muchow

A Nobel Prize Winner Discusses His Sperm Bank Proposals

IMPROVING

Ever since Darwin's theory of evolution burst upon the world in the last century, men have been intrigued at the theoretical possibility of controlling the future of man through the management of his "natural" selection. Modern science and technology have brought this possibility close to practical realization.

One of the world's leading geneticists, Dr. Hermann J. Muller has been a pioneer thinker in this field since the publication of his book, Out of the Night, *in 1935. Recently he has devoted considerable time to the exposition of his belief that man must plan to control the genes of the population of the future in order to prevent the genetic deterioration of mankind.*

Among his proposals has been a plan for voluntary foster parentage. Under his proposal, artificial insemination would be used on a large scale, utilizing the germ cells of outstanding individuals with proven superior endowment. These would be stored in special banks perhaps until twenty years after the death of an individual, at which time they would be used. Thus, he envisions a time when possibly most people would be voluntary foster parents.

Some of this was spelled out in detail in Dr. Muller's article in SEXOLOGY, *February 1960. Since a number of readers have raised questions about the implications of these proposals,* SEXOLOGY *submitted a list of questions to Dr. Muller. We are pleased to present his answers.*

DR. MULLER, Professor of Zoology at Indiana University, is one of the world's most distinguished geneticists, having been awarded the Nobel Prize for medical physiology in 1946. He served as president of the Eighth International Congress of Genetics in 1948 and has lectured at leading universities throughout the world. He is the author of "Out of the Night" and (with others) of "The Mechanism of Mendelian Heredity" and "Genetics, Medicine and Man," as well as numerous papers and articles on genetics.

by Hermann J. Muller, Ph. D.

MAN'S GENES

Q Why do you feel that there is such danger in the genetic deterioration of mankind? What does this deterioration consist of and what causes it? Aren't people healthier today?

A People in general are certainly far healthier, live longer, and have a much better understanding of the world around them in our day than ever before, thanks to the higher standards of living, improved medicine, and more widespread education that modern science and technology have afforded them.

This means, however, that more of the people who — because of physical shortcomings, mental incompetence or weaknesses in their moral fiber — would in primitive times have met an early death, or have failed to raise a family, nowadays succeed in surviving and reproducing. In fact, their very defects often result in their leaving more children than do persons who can manage their affairs with greater ability and prudence.

Of course none of us is "perfect"; we all carry a fair number of hereditary impairments, differing from person to person. Most of these are very slight, hardly noticeable, yet all taken together they form a sizable load that each of us has to carry through life as Christian did in "Pilgrim's Progress." These slight defects arose as accidental mutations in the germ cells of our ancestors (usually our distant ancestors), and have been handed down ever since.

This load tends to grow from one generation to another because about one person in five carries, in addition to his ancestral load, a new mutation, one that arose in one of his parents' germ cells. In past times, that fifth of the popu-

lation that were burdened with an extra heavy load of hereditary shortcomings were unable to survive or, even if they did survive, failed to raise a family. For this reason the defects did not become more and more numerous in the population even though new mutations continued to arise, and to be added to the old ones.

Now however, since we quite rightly help everyone to survive, these defective hereditary elements must continue to grow more numerous, over the course of generations, unless we wake up to the matter. That is, it has become necessary for us to exert some choice over the kind of hereditary material that our successors are to be derived from. If we do not do this, our inborn ills will gradually grow until all our medicine and other techniques cannot compensate for them.

Forward-looking people should realize that in our modern world it would be a good thing not just to keep the population from genetic degeneration but to have it actually progress. For scientific knowledge has brought advanced techniques that threaten the world with unusual dangers unless they are used wisely.

On the other hand, these new ways can open up inspiring opportunities for everyone, if only people have the inner worth to enable them to make good use of their unprecedented advantages. Fortunately, the same exercise of voluntary choice in regard to the germ cells used for begetting their children will not only allow people to avoid genetic degeneration but will also enable them to make genetic advances.

Q Many geniuses have carried harmful genes. For example, Dostoevski — one of the great novelists of all times — carried a gene for epilepsy. Wouldn't your proposal rule out the possibility for such persons to be born?

A Since everyone carries some hereditary defects, as we noted in the answer to the first question, and since some of these are serious, it is not surprising that highly gifted people and even geniuses are not exempt from them. However, studies have shown that such people are in the over-all run healthier and better balanced both physically and mentally than the average person. In the case of the great majority of outstanding individuals, they accomplished notable things *in spite of* such defects as they had.

Nevertheless, it is probable that there were a few among the "geniuses" who had responded to the challenge of some handicap by especially intensive effort or by "sublimating" their activities.

But the relatively small number of warped personalities of this kind, that would have been lost if germinal choice had been practiced, would have been much more than made up for by the greatly increased number of highly gifted persons of well-balanced constitution that the same procedure of germinal choice would have brought into the world. These persons, being a joy to others as well as in themselves, represent a much healthier type of human advance than the occasional "mad genius" or the genius with very serious physical defects.

Q How can such a proposal for limiting parenthood only to superior individuals be carried out in a democracy? How would you pick the people suitable to be parents?

A I would not limit genetic parenthood only to superior people. According to the way of doing things I propose, everyone would be left the privilege of reproducing entirely in the traditional fashion or of exercising (when in full agreement with his or her spouse) such voluntary choice as was possible over the germinal material from which one or more members of their family were to be derived.

There would be as extensive banks of germ cells as possible, securely stored in deeply frozen condition and preserved over the course of generations. Records, including the results of tests, would show as fully as possible the physical, mental, temperamental, and character traits of each individual whose germ cells were stored. There would also be information concerning the life he had lived, and a survey of his relatives, including any descendants who had already arisen from him.

Persons desiring to make a choice would be expected to consult these records and would also have the benefit of counsel from medical men, geneticists, psychologists, and persons who had specialized in those fields with which the donors being considered had more particularly concerned themselves.

As the practice of germ-cell storage grew, it would be resorted to increasingly (despite the relatively small expense entailed) by laymen in more and more walks of life, to protect their own germ cells against mutational damage by radiation and other noxious influences of our day, such as might occur in war or other emergencies, or as a result of medical treatments, high altitude flights, etc. The same banks could also be resorted to in cases where the donor had become sterilized, or even after his death.

These banks would later come to constitute an even more valu-

Two types of geniuses who might possibly be eliminated by selective insemination. At the left, Leonardo da Vinci, titan of the Renaissance, who was the son of undistinguished and obscure parents. At the right, the great Russian novelist Fedor Dostoevski, who suffered from epilepsy, a genetic disease. However, according to Dr. Muller, selective parenthood would offset this possibility by producing a far greater number of "highly gifted persons of well-balanced constitution." —*Bettmann Archive.*

able supply for couples who wished to range widely in their choice of germinal material. For a person's worth is often not apparent until his later years or some time after his death, and the question whether it has some genetic basis tends to be clarified better as the records of some of his children and other relatives become available.

Thus, germ cell preservation would be open to all, and germinal choice would become an ever more democratic procedure. At the same time, the questions of what characteristics are most needed or most valuable, and what germinal material is most likely to furnish them, would become subjects for ever more widespread and lively discussion on the part of both the public and specialists.

Q What would such a program do to minority peoples who have had less opportunity to develop distinguished individuals?

A Such a program would be an especial boon to minority peoples who have had less opportunity to develop distinguished individuals. For they would find it even more to their advantage than the majority would, to make use of their most outstandingly gifted and obviously worthy people in order to advance especially rapidly in genetic respects and so to compensate for their environmentally imposed handicaps.

Every people has some members so unusually well-endowed by heredity as to have attained recognition despite surrounding prejudices. In fact, such persons have passed through a selection and a wearing-down process so much more drastic than the tests encountered by the majority that the ones who win through anyway are likely to be even more highly endowed than their seeming peers of the majority group. This will in the end work out to the advantage of the minority group, by causing their choices to be on the average even better based, genetically, than those of the majority group.

There should, however, be no limitation of national origin imposed upon those making the germinal choices. A member of a majority group should be at liberty to choose germinal material derived from a member of a minority group, provided that he actually desires to do so. And *vice versa,* a minority member should have the same range of choice as the rest of the population does.

In other words, such choices should be on the same basis, legally, as choices in marriage are. Unlike the latter, however, it should be possible to make them much more freely, from a much wider range of possibilities, with far more deliberation, and on the basis of much more information and counselling.

(To be concluded in the July SEXOLOGY*)*