

Letters

Voluntary Choice of Germ Plasm

H. J. Muller is to be congratulated on having bravely broached the subject of eugenics in his thought-provoking recent article, "Human evolution by voluntary choice of germ plasm" [*Science* **134**, 643 (1961)], and when thoughts are provoked strongly enough, I am likely to take up paper and pencil. I therefore would like to add my voice to what undoubtedly will be a chorus.

One can readily agree that genetic control should be used to eliminate the most obvious of hereditary diseases. It is further possible that genetic control could be used by a vicious dictatorship to increase the population percentage of the blond-haired and blue-eyed.

However, I do not think that our present state of knowledge of character traits is adequate to attempt selective development of certain traits over others. Even if one could agree upon the character traits desirable for human evolution, what guarantee could Muller give that the planned result would be achieved in the offspring? Bernard Shaw's famous reply to Isidora Duncan immediately leaps to one's mind.

Nevertheless, the day may come when future geneticists will have perfected genetic mapping to such an extent that they will be able to combine one sperm and one egg and predict precisely what kind of human being will result. Then, let us talk again of "human evolution by voluntary choice of germ plasm."

K. FLOREY

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I was shocked that H. J. Muller, a Nobel Prize winner, would write such an unscientific article in a journal titled *Science*. Muller's argument that individuals should voluntarily submit to artificial insemination in order to obtain the most desirable progeny is based on the indisputable notion that it would be nice to have the best possible nature

for nurture to work upon. Once he leaves this rather obvious thesis, the whole article becomes a shaky collection of unproved assumptions. Witness the following.

1) What is the evidence that family size and low level of productive work have a genetic basis? In the few studies that have been made, how was the factor of environment controlled? What studies have been carried out to see what would happen if a large "white-trash" family were exposed to the best our culture can offer?

2) Muller states (p. 645), "A second proposal has been that of altering the economic and social system in such a way that people of higher gifts and greater natural warmth of fellow feeling—that is, the genetically more highly endowed—would be normally led into occupations and modes of life more conducive to having a large family." What are these "higher gifts" and what is "natural warmth of fellow feeling"? Have scientists agreed on the most desirable human qualities, and if so, is there any indisputable evidence that such traits are a genetic endowment? Obviously, Muller assumes so, but recent work on such a well-agreed-upon standard as the I.Q. suggests that the genetic component may have been overrated. Indeed, Passamanick (who believes that schizophrenia is genetically caused) has recently suggested that his studies show the human brain to be so highly adaptable that the lower end of the I.Q. scale is related not to heredity but to opportunity—including the circumstances of birth and early rearing.

3) If Muller thinks that the fathers of children produced by artificial insemination don't have problems arising from their lack of biological participation, he hasn't spoken to many psychiatrists. But even assuming that this isn't a big hurdle in Muller's plan, I must question his statements (p. 646) that "in this connection, it is important to bear in mind that there is no such thing as a

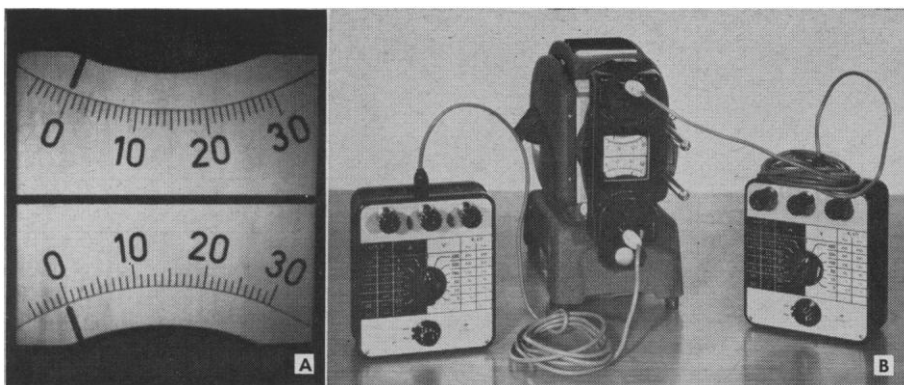
paternal instinct in the sense of an inherent pride in one's own genetic material or stirps." Although chimpanzee males recognize their infant progeny, I would grant that there is no good evidence for an inborn instinct for being a papa in the human male. Is there scientific evidence that there is an inherited instinct in the human female to be maternal? Muller tries to sell us on the notion that nonbiological offspring present no problems not presented by biological ones and, indeed, offer some advantages. This is, I submit, because he is interested in selling his plan and not because he knows of good evidence in support of this conviction.

4) Muller states (p. 648) that it is true that we have next to no knowledge of genes for those traits "we value most. . . ." He then goes on to state, "However, [this] has also been true in all the natural selection of the past and in the great bulk of artificial selection. Yet these empirical procedures, based entirely on the accomplishment of the individuals concerned, did work amazingly well." It appears that Muller knows of proof that children created by artificial insemination are better products than those conceived naturally. The one impressionistic study he refers to cannot seriously be taken as evidence for the whole problem, even if one acknowledged it was possible to obtain a truly random sample of all individuals who have been produced by artificial insemination. Those individuals that I come in contact with who have an offspring conceived by artificial insemination do not tend to advertise it.

Even if Muller could establish what were the desirable traits, and further establish that these had important genetic linkages, I wonder if he wouldn't find himself in Frankenstein's shoes. Given the best possible breed of men—intelligent, fearless, and strong—who would be willing to go to the bottom of the class? In any group structure there has to be hierarchy in order to achieve function. Would superior beings born to India's socio-economic problems solve them, or might they not grow apathetic despite their high genetic endowment? In short, science has a great deal of work to do before Muller's proposal can be considered in any kind of meaningful context.

DON D. JACKSON

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Hurrah for H. J. Muller's article, "Human evolution by voluntary choice of germ plasm"!

My wife and I would like to have a child whose father would be Albert Einstein and whose mother would be Cleopatra. Can you advise me where to get the necessary?

VERNER W. CLAPP

*Council on Library Resources,
Washington, D.C.*

Muller's article on human evolution has just come to my attention.

While I salute Muller's forthright acknowledgment of hereditary psychic differences and the need for eugenic intervention, I cannot help questioning the method he proposes. It seems hardly likely that nature will submit tamely and indefinitely to a permanent fraud — and what other word could be used to describe a systematic deception of instinct? After all, sexual pleasure and attraction and the desire for and love of progeny are adaptive, or they would not exist. Remove their proximate basis, and these feelings, too, will in time disappear.

In his rationalistic scheme Muller assumes that men and women will continue to choose their mating partners by, among other things, "sexual love," even though the act of procreation will have lost all meaning. He assumes that the procreative organ of the "superior" male will obediently continue to yield up its precious genes in response to loveless, mechanical stimulation. He assumes that "parents" will continue to shower love and affection on pre-adopted children who are strangers to them emotionally, intellectually, and physically. He assumes all this because man "has a right to depart from the haphazard method . . . of natural circumstances."

He may have the right (conferred by Muller?), but does he have the power? I think not.

H. GEORGE CLASSEN

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H. J. Muller states, "there is no physical, legal or moral reason why the sources of the germ cells used should not represent the germinal capital of the most truly outstanding and eminently worthy personalities known." This statement is true enough if use is distinguished from abuse. However, Muller seems to overlook this fundamental distinction. He wishes to allow a "salutary separation" of the promotion of genetic quality from the choice

of conjugal partner and the consequent determination of the size of the family. Such a separation, far from being "salutary," would be destructive of the natural basis of human society. This basis is clearly acknowledged by Muller when he says, "It is . . . 'first nature' for men and women to be fond of children and to want to care for them, and more especially, those children with whom they have become closely associated and who are dependent upon them."

The firmest bond between parents and children is the physical bond established by choice of the conjugal partner and use of the conjugal act by which the children are generated. Abuse of the human way of generating a family may induce legislators to place legal obstacles in the way of a practice which destroys paternity and deprives the child of a natural father with a father's rights and duties based on the physical bond. Indeed, the physical bond by which parents and child are most intimately associated and by which the child is dependent upon the parents both for being and for well-being in this world is the natural foundation of the moral requirement that genetic quality be promoted through the choice of conjugal partner and consequent determination of the size of the family. This way may not be perfect from every point of view, but it is clearly the best. "What God has joined together, let no man put asunder."

WILLIAM H. KANE

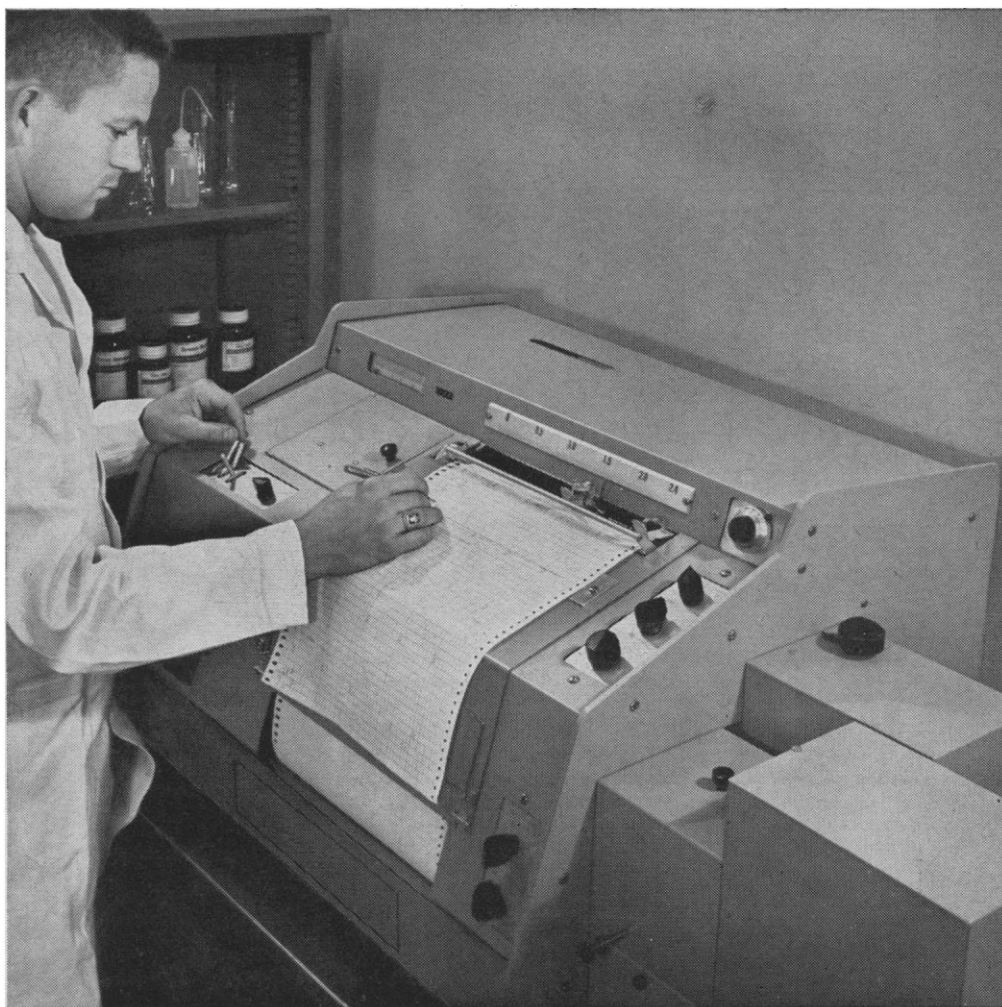
*Albertus Magnus Lyceum,
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I wish to point out what seems to be an inconsistency in Muller's article. Speaking of the advent of improved contraceptive procedures (p. 645), Muller states, "Still more practicable means of contraception seem at last to be on the way, thanks to the efforts of a handful of devoted scientists, and they cannot come too soon, for it is imperative to make similar benefits possible in the less developed [geographic] regions."

If one accepts the argument that civilization as it advances is nullifying the beneficial genetic aspects of natural selection (and the truth of this premise is implicit in Muller's whole proposition), then it is quite clear that the least developed areas are the source of the world's best genes, for it is there that mortality is enormous, and the most fecund societies are barely holding their own. Furthermore, these areas are the least affected by the negative

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genetic influence of civilized warfare and atomic radiation.

I would like to suggest that until such time as society is prepared to deal with eugenic problems in a proper scientific manner, nothing be done to disturb this reservoir of superior genes.

THEODORE D. PERRINE
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Rockville, Maryland

Both Florey and Jackson question the possibility of agreeing on "the most desirable human qualities." It is true that in exercising germinal choice, just as in framing the pattern of a child's education, the making of value

judgments by his elders is a basic prerequisite. In both areas their responsibility is increased, not diminished, by the need for making such judgments, and the most serious deliberation is called for. Fortunately, however, most human beings practically everywhere have already attained the stage where they recognize the primacy for humanity of the major social proclivities and intellectual faculties, as well as of physical well-being. And although they will of course make mistakes, it is in general possible for them to recognize not only gross defects in these respects but likewise, at the other end of the scale, exceptional excellence.

On the other hand, anything like complete agreement is as undesirable as it is impossible in such an open-ended situation, and this is a major reason why the choices should be voluntary, not imposed. While Jackson might promote his seemingly Napoleonic ideal of "the intelligent, fearless, and strong," who wants to be top dog "in the class," and might continue to question the very existence of natural warmth of fellow feeling and of maternal affection, nevertheless it is to be anticipated that the ordinary citizen who is idealistic enough to engage in germinal choice at all will tend to favor a more sympathetic, otherly-oriented yet creative type. Moreover, later generations can be guided, in their future choices, by comparing the fruits of these different judgments.

The same two critics also question the effectiveness of any such selection in achieving the ends sought. As I stated in my article, "there is always an enormous amount of uncertainty concerning the outcome in . . . so cross-breeding an organism as man, especially since the most important traits of man are so greatly influenced by his cultural environment." It is wishful thinking to believe that the progress of genetics can greatly reduce this uncertainty in the foreseeable future, with regard to traits of positive value. Those who elected to engage in germinal choice would realize in advance that this uncertainty applies to every individual case. But they would prefer this risk, as being a much lesser one than that which usually attends the ordinary course of reproduction. And the resultant over-all trend would be in the direction that most of them had chosen.

At the same time, those who still held the naive belief that heredity plays little or no role in the determination of individual differences in man would of course continue to procreate in their own way. But it would be highly inconsistent of them to regard the exercise of germinal choice on the part of the others as endangering the genetic constitution of the population. It is a bit late in the day, however, for anyone still to disregard the evidence for the importance of genetics in the determination of individual differences in respect to either the physical, the intellectual, or the emotional make-up of human beings.

Classen does not question the genetic basis of parental and sexual emotions but fears that this basis will eventually wither when the activities these emo-

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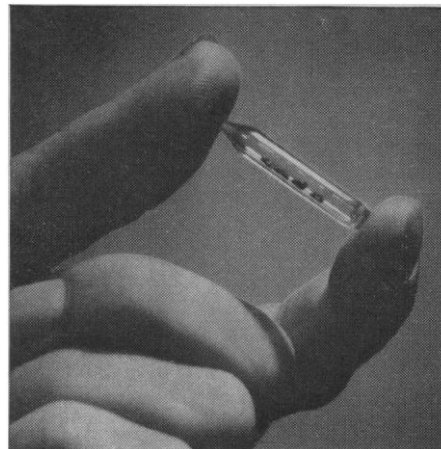
tions lead to are diverted toward somewhat different objectives. He should recognize that loss does not follow disuse directly in the Lamarckian way but only in consequence of the relaxation of selection. However, when the selection is artificial, it tends to follow the objectives of those making the selection. The great majority of people probably value and recognize the importance of both the parental and the sexual drives in the formation of well-rounded human personalities and in the orientation of people's striving toward worthy achievement and humane living. But even if they did not recognize this connection they would tend to base their selection upon criteria of character and accomplishment not likely to be met by persons who were ill equipped in these emotional respects. For these drives no longer serve only their original ends but have become basic to much else in human functioning.

Classen, Kane, and Jackson all make the mistake of assuming that children who are pre-adopted are (to quote Classen) "strangers [to their elders] emotionally, intellectually, and physically." Surely it is a calumny on humanity to assert (with Kane) that "the firmest bond between parents and children is the physical bond." As Calvin Kline once put the matter in a personal communication, the product of man's brain and heart, engendered through his conscious choice and exerted in the interests of the child himself, enlists his devotion as deeply and as truly as the product of his loins. And how can we decide, on the mere basis of what is "natural," which morality is the higher, so long as all man's living is a turning of the artificial into the natural? Of course Jackson can point to some foster parents and adopted or pre-adopted children of today who are ashamed of their situation, but that is because the parents had not embraced the new morality; they had simply been involuntarily inadequate, and they and their physician had carried out the whole transaction in an atmosphere of guilt. In contrast to this, follow-ups of cases conducted in a better spirit—which, however, are also kept secret, in compliance with present mores—have given evidence of highly gratifying results.

Perrine appears to grant my argument [given more fully in *Perspectives in Biology and Medicine* (Autumn 1959) and, along with discussions by others, in *Daedalus* (summer 1961)] that modern civilization, when associated with our present reproductive

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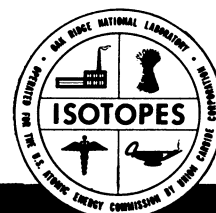
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mores, is genetically debasing. However, he makes this into an argument for letting the technically underdeveloped peoples remain underdeveloped, in order to conserve their genes, rather than joining in my plea for higher mores of reproduction. If he really believes in his thesis, why does he not recommend that we abandon our machine technology and higher living standards so as to conserve our genes also? Or does he realize that if we manage to hold back technological development elsewhere, instead of aiding it, we ourselves will inevitably become engulfed in the overflowing global ghetto, and that the solution he proposes will thereby be arrived at throughout the world?

The only rational and humane position is quite the contrary. That is, the avoidance of world catastrophe demands the extension of technology everywhere, and its application not only to production but also to reproduction. The latter measure involves, most urgently, the effective quantitative limitation of population, and it also involves, no less inescapably in the long run, the adoption of mores and techniques that recognize the importance of genetic quality and permit its enhancement by voluntary means.

HERMANN J. MULLER

Department of Zoology,
Indiana University, Bloomington

Public Opinion in the U.S.S.R.

"You Americans don't know anything about the Soviet Union. You think bears still wander the streets of Moscow." How many times we heard this in Russia!

How right the Russians were is brought out by K. B. Krauskopf's article in *Science* [134, 539 (25 Aug. 1961)].

Krauskopf's discussion of Soviet public opinion seems both true and shocking, as for example in the fact that Russians believe: "How happy the world could be, if only America weren't so belligerent!"

But in other respects one sees in this article an American scientist, not specifically trained in Soviet politics, taken in like many American tourists. They resemble Catherine the Great, impressed by a few model villages her minister Potemkin wanted her to think were typical of the whole Crimea.

Krauskopf reiterates what high-rank-

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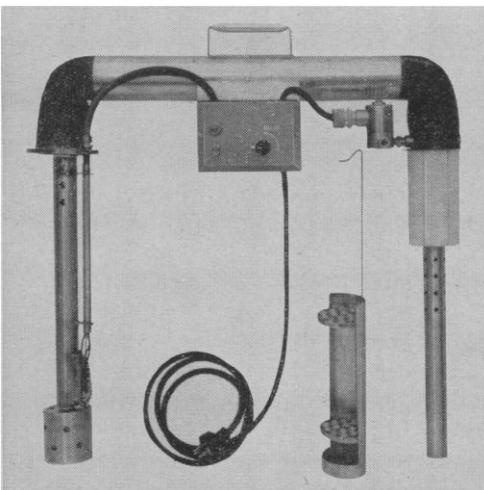
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