

Professor J. Lederberg

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Dr. Adriano Buzzetti-Traverso  
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Dear Adriano:

For about 12 years, I have meant to give some thought to possible experiments on genetic selection, and so far am just thinking about it still, but hoped to get some advice from you. I am aware of *Drosophila* evidence, etc., on the transmission of gross hypoploidy, but it still seems to me quite incredible that the spermatozoon should be absolutely independent of its genetic constitution. The only encouragement for this incredulity is the purported deviation from equality in the primary sex ratio in man and other mammals. Sex is obviously the most likely marker to use in any such experiments.

It is obvious that previous experimentation in this field has been done with experimentally impossible material, likely those messy experiments on pH effects about 20 years ago with mice. The desiderata seem to me as follows:

1. Abundant production of eggs and sperm.
2. External fertilization; preferably male-heterogamety, though  $\rho$  would also be interesting.
3. Easy culture.
4. Fairly prompt recognition of sex-correlated or known sex-linked characters.

Given such an assay system, one could then do straightforward experiments on the separation of sperm into classes (by centrifugation or other physical ~~AND CHEMICAL~~ and chemical procedures) and to verify a genetic fractionation. (as has been claimed occasionally)

It seems very likely that fishes of some species would be the most likely groups in which to look for this experimental material, though there may be some equally apt invertebrate species. You are the obvious person to consult on such a question, if indeed you are not already studying the same problem. I do not know what would be done here with your advice, though it is not impossible that some sort of program might be started if the prospects were encouraging. On the other hand it came as an afterthought (partly at Dan Mazia's suggestion) that this type of research might be quite apt just for a marine station, and we would be by no means averse to considering a diversion of this sort (though this, and probably next summer are not likely).

For the moment, however, this is a purely intellectual exercise, on which your counsel would still be much appreciated.

With best regards,

Yours sincerely,