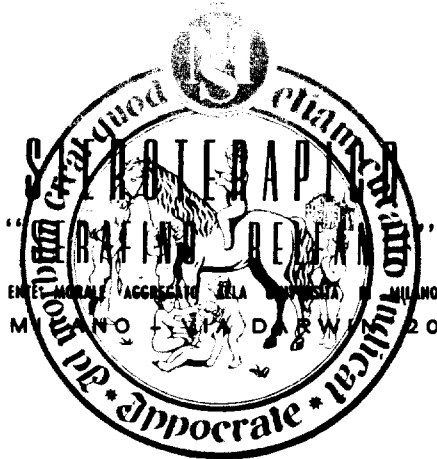


ISTITUTO



MILANESE

10/4/52

Dear Hayes,

Thank you for your letter of 8.4.52, and the preceding one, which I was about to answer. Phenomena similar to the ones you describe have in fact been observed by Lederberg or myself or both in the past month. I shall be airmailing to you in the next few days a copy of a paper which the Lederbergs and I are sending jointly to Genetics; it is being retyped now for you. This paper contains the data in a highly condensed form and is designed for genetical readers, while L. and I thought a more microbiological paper would be suitable for JGM. It is clear enough that this work has implications which are more pertinent to genetics, and others which have more interest for microbiology, so that a microbiological and a genetical edition would seem both useful. The paper for JGM has only been planned, but should be ready soon - of course its content cannot differ much from the genetical one.

To anticipate a few of the matters to be developed in such papers, and which will answer your questions, there are hints to a system of "relative sexuality", such as those found in a number of fungi (e.g., Phycomycetes). The relatively smaller yield of a $F+ \times F+$ mating as compared with $F- \times F+$ matings fits within such a scheme. But there is no such a thing as a theory of self-compatibility; all that this word can indicate is, in my views, that there are strains, like $F-$, which are self-incompatible, without any prejudice as to what may happen ~~for~~ as to yield for other crosses.

The different genetical contribution of $F+$ and $F-$ parents has certainly made the former, simpler view of a fertilization between two complete, haploid sets impossible. But from data available until now it would seem that slightly more complex, but by no means "unmendelian" explanations can fit the data. It might be enough, for instance, if the $F-$ parent were polyploid, using this term very loosely, to account for the polarity ~~for~~ of segregations as affected by $F+$. However, the accurate testing of such theories will take a longish time, in view of the number of data necessary and/or the complication of fitting to them the relevant theories.

I still believe that ~~the~~ use of the word "gamete" is unacceptable. It is clear enough that a process of fertilization goes on, and in such a process there are always two opposite gametes. However, the use of such a word should, in my views be strictly controlled until the details of the fertilization process will be known.

I shall be very pleased to read your forthcoming paper; ~~anything which~~ we shall certainly reciprocate, by sending our JGM manuscript as soon as ready.

ISTITUTO



MILANESE

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Dr. Hayes.

Re the Hfr* strain, a subculture of which I am enclosing, I doubt that it will be useful in the sense you mention, i.e. the recovery of a lambda free strain; ~~since~~ it has no marked radiation resistance in respect of other K-12 strains. I send it anyhow, as you may like to test a fact which may interest you in relation to your UV experiments; that is, that it seems to give a still higher yield of recombinants after UV irradiation, than a normal F+ strain. I should like to mention, however, that this strain is now being the subject of research, both in L.'s laboratory and mine, with a view to check older data about it, ~~and~~ ^{to} ~~use~~ ^{to} test its position in the system of relative sexuality, and more especially, use it for a morphological demonstration of the fertilization process. I hope you do not mind if I send the strain and reserve its main uses; it may still be useful to you for ~~your~~ ~~problems~~ some of your problems.

The Symposium ~~of~~ Microbial Genetics will be held at Palanza, from the 2nd or 3rd of September to the 6th; you will shortly receive an invitation for it.

Yours sincerely

Luca Cavalli

c/to Lederberg

* Hfr stands for high frequency of recombination.