

organs, whether from third instar larvae, prepupae, or pupae, immediately flattened out when placed on such rafts. After 24 hours in culture most organs were so distorted that it was difficult to visualize their original outlines. None of the organs survived as long as their controls in hanging drops, nor was there, with few exceptions, any significant differentiation. Millipore filter rafts had one further disadvantage in that it was extremely difficult to see the explants against the solid white background. Placement of *Drosophila* organs at an air interface within the culture chamber should therefore be avoided since such an arrangement promotes neither long survival nor extensive differentiation and as such is decidedly inferior to complete submersion of explants in a liquid medium.

Ayala, Francisco J. Columbia University.  
Development of incipient sexual isolation between laboratory populations.

Two strains of *D. birchii* from Cairns, Australia, and from Popondetta, New Guinea (Ayala, 1965a), were crossed in both directions. Two populations were started with 150 pairs of F<sub>1</sub> hybrids each, one being maintained at 25°C and the second at

19°C. The technique of maintaining the populations has been described elsewhere (Ayala, 1965b). After 48 weeks of "natural" selection (about 16 generations at 25° and 10 generations at 19°C) samples were taken from both populations, and crossed to each of the parental strains in the two possible directions. The test was made by placing 10♀♀ and 10♂♂ together in a 1/2 pint bottle for 10 days, and then the females were dissected and examined for presence of sperm. The results are given in table 1. (The control crosses give 90% or more insemination). The two hybrid

Table 1: Sexual preferences between two hybrid experimental populations and their parental strains.

Cross	♀♀ tested	♀♀ inseminated	Per cent inseminated
Hybrid population 25° x Cairns	64	14	22
Hybrid population 25° x Popondetta	57	26	46
Hybrid population 19° x Cairns	55	40	73
Hybrid population 19° x Popondetta	60	31	52

populations show a similar moderate degree of sexual isolation with the Popondetta parental strain. However their behavior with the Cairns parental strain is strikingly different, the 25° population showing fairly high isolation and the 19° very little. The difference in isolation of the 25° and 19° populations with Cairns is highly significant ( $\chi^2=30$ ,  $P<<.001$ ), and the difference between the behavior with Cairns and with Popondetta is significant at  $P<.01$  for the 25° hybrid population and at  $P<.05$  for the 19° population. The two populations have, then, evolved different degrees of sexual isolation with respect to the parental strains. Since the populations were kept completely separated, sexual isolation has evidently arisen as a by-product of genetic divergence.

Literature: Ayala, F. J. 1965a. Sibling species of the *Drosophila serrata* group. Evolution, in press. Ayala, F. J. 1965b. Relative fitness of populations of *Drosophila serrata* and *Drosophila birchii*. Genetics, in press.

Ayala, Francisco J. Columbia University.  
Improvement of fitness in experimental populations.

Two experimental populations, one maintained at 25°C and the second at 19°C, were started with 150 pairs of founders taken from mass culture stocks of the Popondetta strain of *D. serrata*. The technique of maintaining the populations has

been described elsewhere (Ayala 1965), the relevant factor being that strong competition exists