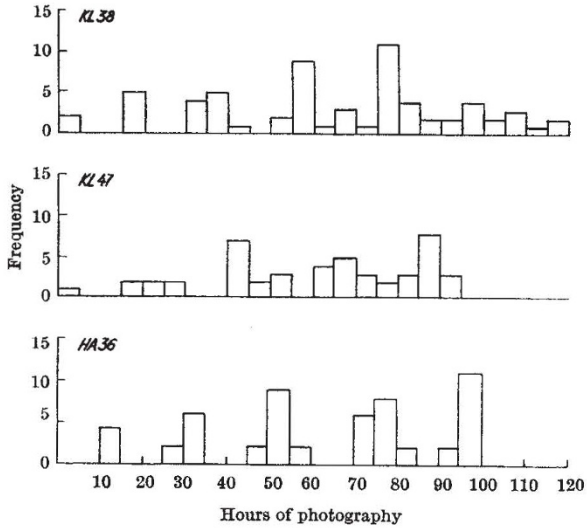

Fig. 1. Frequency of mitoses plotted as a function of time since the beginning of the photography

than 0·1°–0·2° C, although the differences between experiments might have been as great as 0·5° C due to calibration problems and changes in instrumentation.

The only mitoses recorded were those of cells which were traceable from generation to generation. Pedigree diagrams showing generation times of individual cells will be reported in detail elsewhere.

Fig. 1 is the frequency distribution which shows that peaks of mitoses were repeated for at least four cell generations. In *HA*36, synchrony was somewhat better preserved despite the fact that this was the only culture prepared with pre-adapted medium. In these experiments, we were dealing with the offspring of only a few cells in a sparsely populated chamber. To determine whether the synchrony could be due to these unique conditions, a single exploratory experiment was carried out using cells seeded on coverslips in Leighton tubes. While the results in Fig. 2 indicate a periodicity of mitoses for the first 45 h, the degree of synchrony was not great and appeared to have been soon lost.

The reasons for this synchrony are unknown. The experiment in which a pre-adapted medium was used

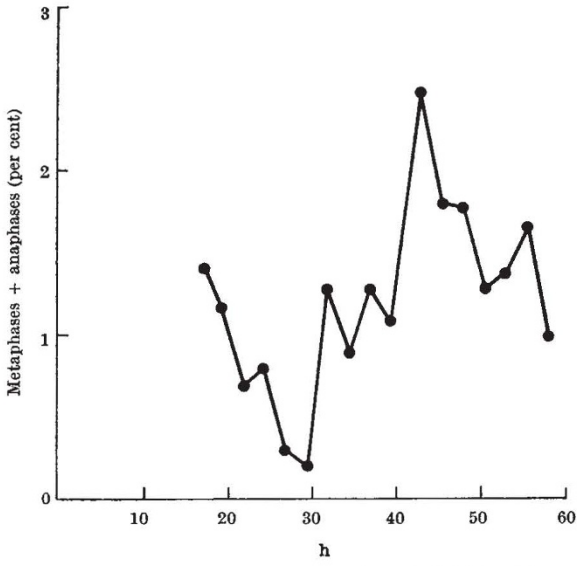

Fig. 2. Frequency of metaphases + anaphases in Leighton tube coverslip cultures of kitten lung cells as a function of age of the culture. Original inoculum: approximately 26,500 cells/ml.

appears to rule out the possibility that subculturing into fresh medium could be an only cause of synchrony. The other possible causes could be either the cooling of the cultures to room temperature during sub-culturing, although this is a gentler treatment than that deliberately used by Newton and Wildy[6] to induce synchrony, or the trauma produced by scraping the cells off the surface of the glass bottle.

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GENETICS

Assortative Mating in producing New Species

Thoday and Gibson[1] have recently reported an experiment with *Drosophila* where assortative mating occurred in a small population artificially selected to remove the central portion of the distribution for number of chæta. This assortative mating was so complete that 12 generations of such selection produced two distinct lines with no overlapping.

Parker[2] reported a fertility problem with the Cornish breed of poultry. Six Cornish males, mated to a flock of 90 females of the New Hampshire breed, gave a much lower average fertility than the same flock with New Hampshire males. Repeated trials gave the same result.

Various tests finally disclosed that both sets of males were equally fertile. However, with Cornish males up to 14 per cent of the hens gave all infertile eggs, but with New Hampshire males only 2 per cent of the hens gave this result. Some of the hens were infertile in two different trials.

Since this was a flock mating it would appear that mating preference was being exercised by males and/or females and that such preference was common to all the males of the Cornish breed and/or several of the New Hampshire females.

This would seem to be further evidence of the possibilities of assortative mating in producing new species.

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Balanced Polymorphism in *Dactylis glomerata* Sub-species *woronowii*

A CASE of balanced polymorphism, involving a recessive gene causing albinism, in *Dactylis glomerata* sub-species *judaica* has been reported by Apirion and Zohary[1]. What appears to be the same phenomenon is now reported for another diploid sub-species, *woronowii*, a seed-sample (No. 24171) of which was made available to me by the Division of Plant Industry, C.S.I.R.O., Canberra. Albino seedlings appear with a frequency of 13·5 per cent in this sample, and it may be taken that one is dealing with a recessive allele which, because of the lethality it confers in the homozygote, is present in unexpectedly high proportion. Evidently some superiority is attached to the heterozygous condition, which probably displays itself through a