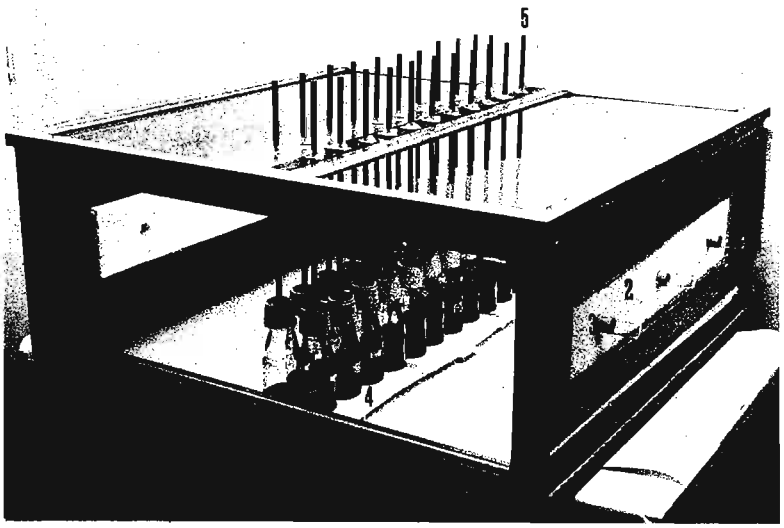

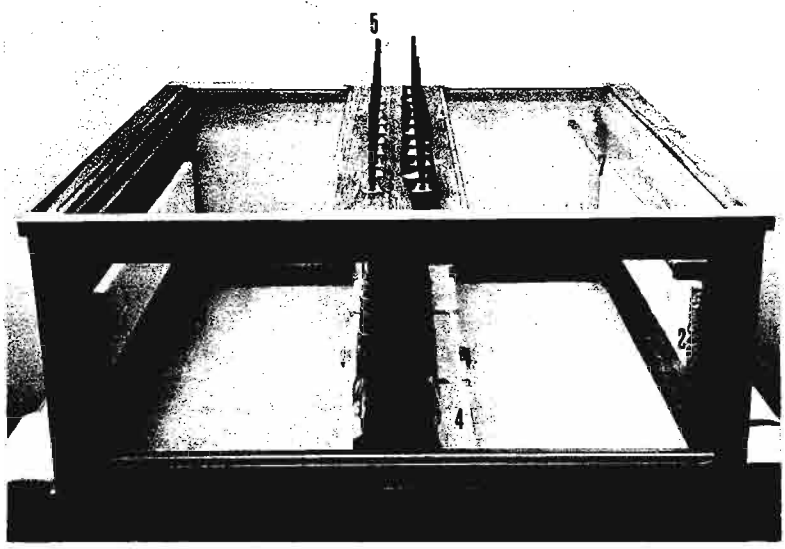

Figs. 1 and 2: Two views of the box for nutritional preferences. (1) Lateral wall;(2) styrofoam sheets; (3) holes; (4) map; (5) rods; (6) plastic hoods; (7) ultraviolet light.

styrofoam sheet there are three well-spaced holes (3) to fix the tubes of flies. Inside, on the glass bottom, there is a map (4) used in order to distribute the 22 bottles (two for each kind of yeast) to avoid association of the same kinds of yeasts together. The lateral wall (1) may be removed in order to place and remove the bottles.

The 34 cm rods (5) passing through the holes in the wooden part of the top terminate with slightly flared plastic hoods (6) which are used to close the mouths of the bottles. On the upper part of this plastic hood there are two washers, to give them greater weight in adapting to the bottle's mouth. When the bottles with certain kinds of yeasts are exposed to the flies, the plastic hoods are not totally elevated, but remain partially covering the entrance to the bottles to avoid an indiscriminate rush of flies to the bait.

Within the box there is an ultraviolet light (7) of 30W (germicidae) used to sterilize the environment. In each test the 11 species of yeasts were placed separately in 0.25 liter bottles containing synthetic medium (Mittler 1952), two days before each test.

Reference: Mittler, S. 1952, Science 115:271-272.

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Culture methods for species of the Drosophila (Scaptodrosophila) coracina group.

Special methods have been in use for some time in several Drosophila laboratories for rearing species which cannot be cultured on one of the several standard media. In particular, a number of the Hawaiian endemics can be cultured quite successfully if the larvae are given coarse moist sand in which to pupate; vials containing young larvae are placed without stoppers into a jar containing the sand, and the larvae ultimately leave the food vial and bury into the sand for pupation. Adults of the next generation are aspirated from the sand jar.

The Australian Drosophila fauna is dominated by members of the subgenus Scaptodrosophila. Most of the latter species cannot be collected by fruit baiting and have to date proved impossible to culture, but species of the coracina group (Bock and Parsons, 1978) are attracted to fruit baits and have been cultured successfully by the method mentioned above. When ready for pupation, larvae of the coracina group species crawl to the top of their vial and "skip", landing either on the surface of the sand into which they immediately burrow, or on the side of the sand jar, in which case the process is repeated.

If a culture of one of the above group of species is maintained in a stoppered vial when the larvae are ready to pupate, most larvae crawl to the top of the vial, attempt to squeeze past or burrow into the stopper, and die; pupal integuments are formed in some cases, but the pupae are generally inviable. A small yield of adults of the next generation may be obtained from the minority of larvae remaining to pupate in the food medium itself. However, if the sand jar technique is used, a very substantial yield of adults of the next generation can be obtained.

Except for D. coracina itself which is Japanese, the species of the coracina group are Australian. D. coracina has been regarded as difficult to culture (Toda, pers. comm.), but newly-collected specimens arriving from Japan went readily into culture using the sand jar technique. D. coracina breeds in tree sap (Toda, 1977). The breeding sites of the Australian species are not yet known, although it seems likely from experience with collection methods that some at least may breed in rain forest fruits or fungi. Separate larval feeding and pupation sites are clearly suggested by the behavior of the final instar larvae at the point of pupation, and it is not inconceivable that the technique described above may be extended to species of other groups in which the larvae normally pupate away from the source of food.

The recipe for the larval medium that we use is 36 gm agar, 72 gm dried yeast, 108 gm raw sugar, and 24 ml of 10% nipagin in 75% ethanol. All ingredients are boiled for 5 min in 1000 ml water, then a further 1000 ml cold water with 10 ml priopionic acid is added before the medium is dispensed. This medium is more suitable than one with live yeast.

We have cultured the following species with the sand jar technique: D. coracina, D. lativittata, D. enigma, D. nitidithorax, D. specensis, and a new species of this group recently discovered on Lord Howe Island. In some cases adding a piece of mushroom appears to facilitate oviposition, a not unexpected finding given that the last two species at least are additionally and preferentially attracted to rotted mushroom baits in the wild when given a choice of baits.

Culture temperature is important, since 18-20°C appears more suitable than 25°C, a common D. melanogaster culture temperature. This is predictable since many Australian rain forest species are difficult to culture at temperatures as high as 25°C, as is also true of many Hawaiian endemic species (Carson et al. 1970).

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References: Bock, I.R. and P.A. Parsons 1978, Syst. Ent. 3:91-102; Carson, H.L., D.E. Hardy, H.T. Speith and W.S. Stone 1970, in: Essays in Evolution and Genetics in Honor of Theodosius Dobzhansky (M.K. Hecht and W.C. Steere, eds.), pp. 437-543 (Appleton-Century-Crofts, N.Y.); Toda, M.J. 1977, Jap. J. Ecol. 17:197-214.

Cobel-Geard, S.R. and H. Gay. University of Michigan, Ann Arbor. A new simplified method for the preparation of neuroblast mitotic chromosomes from D. melanogaster.

A number of procedures have been devised for spreading metaphase stage chromosomes of neural ganglia from Drosophila melanogaster third instar larvae. We wish to report a technique which has been used in our laboratory with great success to obtain large numbers of neuroblast slide preparations. These are highly suitable for in situ hybridization experiments because they contain well-spread metaphase stages with longer, less condensed chromosome arms. Our procedure is an adaptation of a technique described by Holmquist (1975) and based on an ear-