impedance matching transformer. The transformers used to couple the output transistors to the speaker in a personal radio are ideal.

The ratio should be from 1:3 and 1:10 step-up or to match 3 ohms and 30 to 300 ohms. The transformer is used to step down in the radio so the ribbon should be connected to the speaker or secondary winding and the primary to the pre-amplifier (Fig. 2).

The microphone can be tested by feeding from a signal generator when it will radiate sound or by feeding it into a high sensitivity oscilloscope, when it should respond to sound.

The output from a ribbon microphone is at low impedance and very low level. A suitable pre-amplifier with a gain of 200 and output impedance of 200 ohms is shown in Fig. 2 and will give an output compatible with most transistorised tape recorders. The first stage operates in the grounded base condition with low input impedance, high gain and high output impedance. This drives an emitter follower to give a low output impedance. Suitable transistors in Europe are BC 109 and in North America, types 2N 3904, 2N 3906, 2N 5087 etc. As current drain is about 1 mA, small 9 V batteries can be used.

The frequency response of the microphone is substantially flat between 50 to 70 Hz and about 5 to 7 kHz. The response of the pre-amplifier is flat within 1 dB over this band and falls at 6 dB per octave at the extremes. The background noise of microphone and pre-amplifier is equivalent to a sound of less than 40 dB so adequate signal to noise ratios can be obtained with many species of flies which produce sounds whose particle velocity is 70 to 100 dB at a range of 2 to 5 mm (2).

A detailed account of the theory and construction of ribbon microphones is given by Olson (3).

References: 1. Ewing, A.W. and H.C. Bennet-Clark 1968, Behaviour 31:288-301; 2. Bennet-Clark, H.C. 1971, Nature (London) 234:255-259; 3. Olson, H.F. 1957, Acoustical Engineering, xix+718, Van Nostrand, Princeton, N.Y.

Tartof, K.D., D. Tartof and M. Jones. Institute for Cancer Research, Philadelphia, Pennsylvania. A fly trap.

When fruit flies escape their culture bottles, they become a nuisance. Indeed, they are a danger to experiments involving sucrose gradients, cell cultures or sophisticated enzymology and can threaten the amicable relations between neighboring laboratories. Therefore, we sought to find a convenient trap for fruit flies that we could dispense to our neighboring cell culture and biochemical colleagues. It was imperative that the trap contain no yeast since yeast, like fruit flies, is anathema to those working with cell cultures. For reasons that we consider imprudent, we shall not discuss those events which led to our discovery of the ideal fly trap. Suffice is to say that a little (10-20 ml) Mogen David Concord Grape Wine in a half-pint bottle containing a Kleenex tissue and capped with a cardboard disc perforated with a 1-2 mm hole makes an extraordinarily efficient fly trap. The effectiveness of various vineyards and vintages awaits further exploration.

Novitski, E. University of Oregon, Eugene, Oregon. Instant triploids.

For many purposes the triploid condition is a convenient tool, as for the insertion of mutants into attached X's and other compound chromosomes. One convenient way of achieving this result quickly is to mate attached X females to males carrying compounds for both the second and third chromosomes. Since the males produce some small fraction of sperm that are essentially diploid with respect to the autosomes, along with a single X and a single fourth chromosome, a new triploid zygote may be produced when such a sperm fertilizes an egg with the attached X.

In a test of about 7000 C(1) females mated to C(2);C(3) males, 57 triploids were produced and the desired genetic change was achieved; i.e., the Bar locus (which had previously been attached to the tip of 2L, see DIS 47:91) was added to the tip of 2L on C(2L). It should be noted that 3N ♀♀ with compound autosomes are quite infertile and a stock is difficult to keep going, even for a few generations, so that this technique is useful only in a hit-and-run type of experiment, where the 3N condition is needed only ephemerally.