then aspirated into a food vial. Our aspirator is made by cutting an automatic pipet top so that the smaller end is 2-3 mm (i.d.), then covering the large end with polyethylene mesh (Fisher Scientific Co.) and inserting it into a length of plastic tubing. Flies are sucked from the plastic bag into the pipet tip and subsequently blown into the food vial by mouth.

This procedure is superior to traditional techniques in a number of respects. First, the traps are virtually indestructible; they are not destroyed by rain nor consumed by animals, although they may be carried away by raccoons. We have used these traps for several months, replenishing the bait at weekly intervals while the traps still hung on branches. Use of red yarn to suspend the traps makes them readily visible in the field. Finally, the collection procedure is remarkably efficient. The transparency of the cups makes it easy to observe the presence of flies without disturbing them, and use of the plastic bag and aspirator as described above provides little or no opportunity for flies to escape. With practice, it is possible to transfer all of the flies from a trap to a food vial in less than a minute.

S.P.M. was supported by a Biomedical Research Grant awarded to Temple University.

Reference: Spencer, W.P. 1950, Biology of Drosophila (Demerec, ed.) pp. 535-590.

Powers, N.R., R.Wirtz & W.Jederberg. Letterman Army Institute of Research, San Francisco, California. Computer assisted techniques for use with the sex-linked recessive lethal testing with Drosophila melanogaster.

At Letterman Army Institute of Research, mutagenicity testing of various materials are being conducted using the Sex-linked Recessive Lethal (SLRL) essay with Drosophila melanogaster. These tests are conducted in compliance with Food and Drug Administration-Good Laboratory Practice Regulations (1978) needing a unique numbering of D.melanogaster, their progeny and storage of raw data. A FORTRAN V program and associated subroutines have been designed for the rapid generation of large numbers of labels for culture vials and cards for recording data for each unique numbered male. In addition, this system records new data, stores it, and allows the user to receive a selected copy of the data set. This program also summarizes the testing results so that statistical techniques can be applied. The use of the system has greatly reduced the time spent generating these materials, eliminated errors and insured continuity from the initiation to the termination of the assay.

The first program generates labels (Figure 1) for vials containing the P_1-F_1 progeny from these vials. To generate lables and cards the program request from the user: study number, replication (run) number, sequential unique identfying number for each fly, code for control or test compound, exposure date and brood number. The

```
GLP STUDY NO.  82001
RUN:   37
  T2-898 BR: 1   5MAR82
COMPOUND CODE:   002MPT
NOTES:
```

```
GLP STUDY NO. 82001
                COMPOUND CODE:   002MPT
 T2-898   BR: 1   5MAR82          RUN:   37

-----------------------------------------
F2 CROSS          MEDIUM BATCH #: _________
DATE: _________        INITIALS _________

FAILURES ____ LETHALS ____ NONLETHALS ____
-----------------------------------------
F3 CROSS          MEDIUM BATCH #: _________
DATE: _________        INITIALS _________

FAILURES ____ LETHALS ____ NONLETHALS ____
-----------------------------------------
NOTES:
```

Figure 1. Sample of the label and card for a test-compound.

```
37 T2 896 002MPT  0 025  0 0 0  0 0 0  0 0 0  0  0 0 0  25  25   .00
37 T2 897 002MPT  1 024  0 0 0  0 0 0  0 025  1  0 0 0  49  49   .00
37 T2 898 002MPT  1 024  0 025  0 025  0 025  1  0 0 0  99  99   .00
37 T2 899 002MPT  0 025  0 025  0 025  0 025  0  0 0 0 100 100   .00
37 T2 900 002MPT  0 025  0 025  0 025  0 0 8  0  0 0 0  83  83   .00
```

Figure 2. Raw data.

LETTERMAN ARMY INSTITUTE OF RESEARCH
SEX-LINKED RECESSIVE LETHAL DROSOPHILA ASSAY
(RAW DATA PRINT-OUT)

DATE: 10JUN82 PAGE: 50

RUN:	MALE:	COMPOUND:	BROOD #1: F:	L:	NL:	BROOD #2: F:	L:	NL:	BROOD #3: F:	L:	NL:	BROOD #4: F:	L:	NL:	SUMMARY TOTALS: TF	SL	ML	TL	TNL	TOTAL TESTS:	MUTATION RATE (%)
37	T2 896	002MPT	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	.00
37	T2 897	002MPT	1	0	24	0	0	0	0	0	0	0	0	25	1	0	0	0	49	49	.00
37	T2 898	002MPT	1	0	24	0	0	25	0	0	25	0	0	25	1	0	0	0	99	99	.00
37	T2 899	002MPT	0	0	25	0	0	25	0	0	25	0	0	25	0	0	0	0	100	100	.00
37	T2 900	002MPT	0	0	25	0	0	25	0	0	25	0	0	8	0	0	0	0	83	83	.00

EXPLANATORY NOTES: F=FAILURES, L=LETHALS, NL=NONLETHALS
TF=TOTAL FAILURES, SL=SINGLE LETHALS, ML=MULTIPLE LETHALS, TL=TOTAL LETHALS, TNL=TOTAL NONLETHALS

Figure 3. Formatted data.

cards are generated with the above information and spaces to record the following observations of SLRL progeny: Dates of the F_2 and F_3 cross, batch number of media, initials of the observer, and the resulting numbers of failures, lethals, and nonlethals. The labels and cards may be generated on a printer with a tractor feed (Diablo Printer). The program is formatted so that lables (1x3.5 in) and cards (3x5) are printed on continuous feed single width stock material. The cards provide permanent records and greatly facilitate data entry into permanent data files on the computer.

The second program enables the user to record and store raw data in such a manner that it can be retrieved as a printout in raw form (Figure 2) or in a formatted form (Figure 3) of selected data. This program requests of the user: replication (run) number, unique number of the male; compound (test or control) code, number of failures, lethals and non-lethals for that unique numbered male. If a mistake was made in entering the data provisions in the program allow the user may re-enter the corrected data. The user may request a print-out of the raw data or data in a formatted form. By utilizing this program the raw data may be presented in a form which is easy to view and saves time in analysis.

```
NAME OF FILE TO BE SEARCHED: DROSDATA.31.32

        **** DROSOPHILA RECORD SEARCH AND SUMMARY ****
        PLEASE ENTER RUN NUMBER TO BE SUMMARIZED: 37

        ENTER GROUP DESIGNATOR TO BE SEARCHED FOR :
        (T1,T2,P1,OR C1 ETC. ALLOWED):T2
                  SUMMARY TOTALS:
        RUN NUMBER:     37
        GROUP TYPE:   T2
                  BROOD DATA:
        LETHALS:          0          1          1          0
     NONLETHALS:        572        532        524        464

        GRAND TOTAL LETHALS:            2
     GRAND TOTAL NONLETHALS:         2093

        TOTAL RECORDS PROCESSED:       25

        TOTAL TESTS REPRESENTED:     2094
```

Figure 4. Data summary.

The last program searches the raw data file and summarizes the data of a specific subgroup (control or test) of a given replicate (run). The program requests: name of the file to be searched, replicate (run) number, and group designation code of males exposed to the control or test substance. The number of lethals and nonlethals for each brood is printed out as well as the total number of lethals, nonlethals and total records of males assayed for a particular group of replicates (Figure 4). This program summarizes the raw data in each brood from either a control or test compound so that statistical analysis may be performed with ease.

All three of these programs and their subroutines can be modified to fit a particular laboratory protocol. Copies of these programs and subroutines may be obtained from the senior author.

Food and Drug Administration. Good Laboratory Practices regulations. Federal Register 43(163): 377336-37403, 1978.

This materials has been reviewed by Letterman Army Institute of Research and there is no objection to its presentation and/or publication. The opinions or assertions contained herein are the private views of the author(s) and are not to be construed as official or reflecting the views of the Department of the Army or the Department of Defense.

Remington, M. & S.K. Hotchkiss. Clarkson College, Potsdam, New York. An alternative method of feeding a chemical to adult Drosophila.

We have developed a method of feeding a chemical to adult Drosophila in a paste of cellulose rather than in sucrose solution on tissue paper. Since the cellulose paste method solved a particular technical problem for us, it may be useful to others as well. We found the frequency of X-linked recessive lethals produced in sperm of males fed on N,N-diethylnitros amine (DEN) in cellulose paste was the same as when the mutagen was fed on tissue paper.

The cellulose we used was Avicell, a powder obtained from the FMC Corporation. Before preparing a paste, we dried Avicell in 37°C incubator overnight and ground it to a fine powder with a mortar and pestle. Each treatment vial received 0.7g of the Avicell powder and 0.5 ml of DEN in 1% sucrose solution. Since the cellulose powder absorbs water readily, we stoppered the vials, allowed them to sit at room temperature for 24 hours, then added more DEN solution to give a consistency similar to that of instant fly food. The flies could then be added to the vials and allowed to feed in the usual manner.

TEACHING NOTES

Erickson, J. Western Washington University, Bellingham, Washington, USA.
A temperature-sensitive yellow eye color.

I've found that the yellow eye color trait which I reported previously (DIS 51:22 1974) shows an interesting change with temperature.

The trait, w^{se-y}, originated spontaneously in my sepia stock, and I use it in this way, that is, w^{se-y}; se. The eyes are a clear lemon-yellow color at 25°. At 18°, the eye color of the flies of this stock is indistinguishable from w.

I have found that sepia-yellow works well to show the effect of temperature on phenotype. Students simply make up cultures from stock and incubate them at the two temperatures, or at several temperatures. One may also use the trait, of course, for temperature-shift experiments, so that students may observe what stage of development is sensitive to temperature, in the development of pigment in this case.

I shall be pleased to send the stock.