of the reticuloendothelial system is indispensable and should be studied concomitantly.

The experimental details of this work will be published elsewhere.

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A Method for Collecting and Sterilizing Large Numbers of *Drosophila* Eggs

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The techniques used for collecting and sterilizing *Drosophila* eggs, which techniques have been developed mainly for work on the nutritional requirements of the fly (*1*), proved unsatisfactory when employed by one of us (J. H. S.) for experiments on mutation rates. The sterilization was incomplete when the large numbers of eggs necessary for this work were handled and the labor of removing the eggs individually from the agar media was too time-consuming. An elaboration of the earlier technique was, therefore, developed, and is reported here.

In this context, the most desirable kind of medium for collecting the eggs is one which (1) allows the flies to lay their maximum and (2) can be easily and completely separated from the eggs. The two media listed in Table 1 were found to provide a reasonable compromise between

TABLE 1

CASEIN MEDIUM	
Casein (light white soluble)	1 g
Fuller's earth	1 g
1% Acetic acid in 2% ethyl alcohol	3.0 ml
YEAST AUTOLYZATE MEDIUM	
D.C.L. yeast autolyzate	0.4 g
Fuller's earth	1.8 g
1% Acetic acid in 2% ethyl alcohol	1.0 ml

these necessary characteristics. The casein medium, which is placed in watch glasses and applied to the mouths of the usual *Drosophila* bottles, is usually the more efficient oviposition medium; whereas the yeast autolyzate, which is smeared over a 2% agar gel in watch glasses, is the more readily separated from the eggs. In both cases, the routine procedure is much the same. Eggs are collected for a short period from three- to four-day-old flies (*2*) and the surface of the medium is scraped off and dissolved either in 3% sodium bicarbonate (if casein is used) or in water (if the autolyzate is used). The eggs freed by this procedure are then separated from large and small particles by sieving through a coarse and then a fine sieve. The latter has a mesh of 100 to the inch, which is sufficient to retain the eggs but allows the fuller's earth to be washed through.

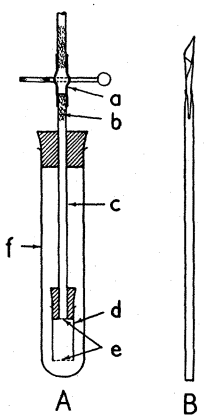

FIG. 1. A. *a*, Rubber connection ; *b*, cotton wool ; *c*, glass tube ; *d*, glass container for eggs ; *e*, platinum grid ; *f*, outer tube. B. Paper spoon in glass tube.

After washing in running water, the eggs are cleaned by immersion for 10 min in a mixture of 5% antiformin in 10% formalin and are then transferred to the sterilization tube (Fig. 1A) which has been autoclaved prior to use. A series of outer tubes are also autoclaved and filled with the sterilizing fluids. It was found empirically that exposure of the eggs for 20 min to the fluid described in Table 2, followed by 35-min exposure to sterile 70%

TABLE 2
STERILIZING FLUID

$HgCl_2$	0.5 g
NaCl	6.5 g
HCl	1.25 ml
Absolute alcohol	500 ml
Water, to	1 liter

ethanol and by 5-min washing in sterile water, gave a high degree of freedom from infection without greatly disturbing the viability of the eggs. Since the eggs are handled in the sterilizing tube, there is little chance of infection from the atmosphere, but as an extra precaution, these operations are usually carried out in a large covered box previously sterilized with an ultraviolet lamp.

The sterile eggs are transferred from the grid of the inner tube (Fig. 1A) by means of sterile paper spoons (Fig. 1B) onto sterile agar plates. The larvae hatch out on the agar and are then picked off with a sterile platinum spoon and placed on the culture media under test. Using this technique it has been possible to set up experiments involving 3,000–5,000 sterile larvae born within 2 hr of each other. When only sterile eggs are necessary, they can be transferred direct from the grid to the medium being studied, and then even greater numbers can be handled successfully.

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Theory of the Electrodeposition of Metals from Aqueous Solutions

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One of the favorite topics of discussion on the results of research is the interpretation of what actually takes place at the surface of the cathode during metal deposition. If we review our findings over a period of almost fifty years, we may summarize as follows:

First, the deposition of a metal at the cathode implies the codeposition of hydrogen. Without hydrogen deposition there is no metal deposition. All metal deposits are crystalline and usually malleable. Amorphous metal deposits at the cathode are due to secondary reactions such as metal oxide to metal.

Second, the hydrogen layer at the surface of the cathode is relatively thin, approximately 0.0001 in. (2.5 micron), and comprises atomic hydrogen, molecular hydrogen, metal hydrides, atomic metal, and an intermediate stage between the metal ion and the metal crystal.

Third, for acceptable metal deposition the cathode surface layer just described must be neither too thick nor too thin: If the layer is too thick the unit metal crystal is not formed; and if the layer is too thin the discharged metal ion is not sufficiently well protected and no unit metal crystal is formed.

The thickness of an active cathode surface layer may be controlled in several ways:

a. *By temperature of cathode surface.* The higher the temperature, the thinner is the surface layer.

b. *By cathode current density.* Within certain limits the higher the cathode current density, the thicker is the layer.

c. *By mechanical means.* By selecting a cathode which is insoluble in the plating bath and moving it through the bath at a fixed rate, we find that the higher the travel rate of the cathode, the thinner is the cathode surface layer.

d. *By addition of catalysts to the bath.* Specifically, certain negative ions, such as sulfate ions (which function at the cathode), vary the thickness of the layer.

e. *By codeposition of a second metal.* The second metal should be comparatively easy to deposit.

f. *By addition agents electrophoretically deposited at the cathode.* The thinner the addition agent layer, the more metallic is the cathode deposit.

An Assay Method for the Behavioral Effects of L-Glutamic Acid[1, 2]

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In 1943, Price, Waelsch, and Putnam (*9*) reported that oral administration of DL-glutamic acid hydrochloride had a palliative effect on patients with petit mal or psychomotor seizures. They also reported improvement in mental and social behavior. Since that time other studies have been made, using subhuman as well as human materials, which confirm these results (*1, 13, 14*) and which attribute them to the action of the L-isomer (*11*). For each of these investigations another could be cited in which no beneficial effects of glutamic acid were found under presumably similar experimental conditions (*6, 7, 8*). The literature on this subject confronts the investigator at one and the same time with theoretical interpretations of facts (*12*) and with negative data, which make it seem that the facts requiring such interpretation do not exist (*10*).

One of the major difficulties has been the nonhomogene-

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[2] This work was done in part at the Division of Behavior Studies, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, during the summer of 1949. The writers gratefully acknowledge the support of the laboratory.