wedge, can also be used to record the position or the motion of an opaque object in an illuminated field.

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SODIUM AMYTAL FOR ANESTHESIA IN STUDIES ON MITOCHONDRIA[1]

DURING the course of some studies on the mitochondria of the hepatic cell it became necessary to employ an anesthetic. As chloroform and ether are known to modify these cells[2] sodium amytal was tried. Eleven rabbits (New Zealand Whites), selected according to weight to five and three fourths to six pounds, received three grains of sodium amytal intramuscularly. Complete anesthesia usually occurs in fifteen minutes. After one half hour the abdominal cavity was opened and a portion of the liver excised and fixed. One other rabbit required six grains of amytal for anesthesia. The mitochondria of all twelve of the livers were compared to four controls killed at the same time and fourteen used in earlier work. There was no difference between control and anesthetized material. Accordingly, it is concluded that sodium amytal is a safe anesthetic for use in experimental work on the mitochondria of the liver, and when one considers the alteration of the osmotic qualities of the blood effected by ether it seems probable that amytal would be less likely to introduce error in investigations of mitochondria in any tissue.

In addition to the quality of not affecting the morphology of the mitochondria a single injection of amytal has the advantage of keeping the animal anesthetized for hours without harmful results, enabling the performance of prolonged surgical procedures without further dosage.

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A MODIFIED CULTURE JAR

AN experiment was conducted, in which 500 cc capacity inverted bell glasses were used as culture receptacles for soybean, Black Wilson variety, grown in Shive's[1] three salt R2S1 solution. Five hundred cc of fresh solution were supplied to each culture daily through a thistle tube.[2] Minute but equal quantities of iron[3,4] in the form of ferric citrate were added to the culture solutions of each series.

In series A, excess solution was siphoned from near the upper surface of the solution in the jar. In series B, excess solution was carried away from the bottom of the jar by means of a piece of bent glass tubing. Fig. 1 shows the arrangement of the jars in the two series.

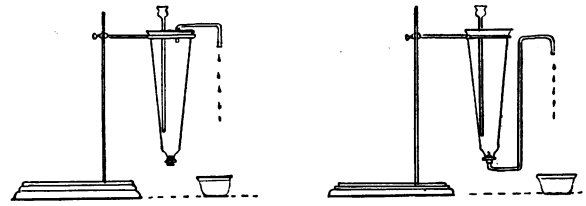

FIG. 1

The main difference in the technique employed in series A and series B was the method of draining away the excess solution. By draining it from the bottom of the jar, as in series B, the solution remained perfectly clear throughout the growth period of the plants, while the solution in series A became definitely clouded. The highest pH value recorded in the solution from series B was 5.4, while the highest pH value recorded in the solution from series A was 5.8. The total green weight of tops and roots from series A, per culture, was 4 grams, while the total green weight of tops and roots from series B, per culture, was 5.2 grams.

The results of this experiment show that more nearly uniform conditions are maintained in the culture solutions when the excess is drained from the bottom of the culture jar rather than being siphoned from near the top of the jar. Better plant growth also occurred when the solution was drained away from the bottom of the jar. This is due, probably, to the elimination of precipitate and plant wastes that could collect in type A jar, largely near the bottom, but were carried away from type B jar.

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