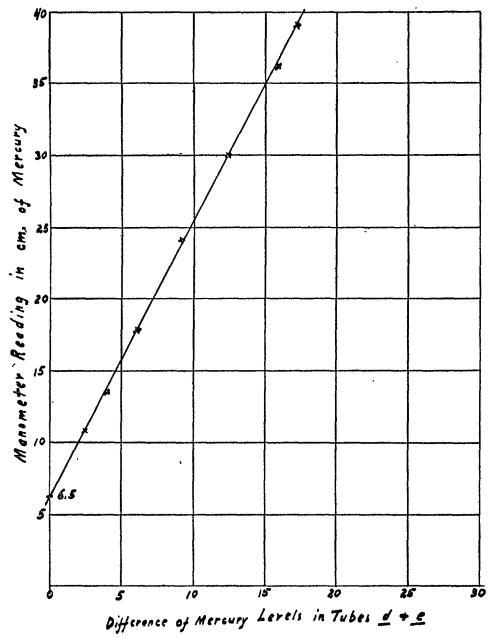

FIG. 2

which the curve crosses the ordinate represents the pressure to operate the spring. The stiffer the spring the greater this pressure will be and *vice versa*. The slope of the curve is equal to the ratio of the difference in levels of the mercury in the open manometer and in tubes *d* and *e*. In Fig. 2 it may be seen that if the difference of the mercury levels in tubes *d* and *e* is changed .55 cm that in the manometer is changed 1 cm. Therefore, if a scale is constructed with divisions equal to the slope of the curve (in this case .55 cm) but marked 1, 2, 3, etc. cm the scale will read the pressure in the system directly in centimeters of mercury. The scale is fastened behind tube *e* so that the level of the mercury in tube *d* (at equilibrium pressure in the syringe) is opposite to the pressure reading equal to that at which the curve crosses the ordinate axis, in this case 6.5 cm.

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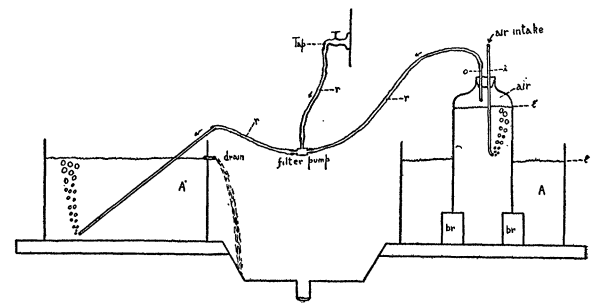
INEXPENSIVE AERATED AQUARIA

FOR several years the writer has been using an economical method of aerating aquaria suitable for high schools and institutions which can not afford the more expensive pressure systems used in the larger research laboratories.

The system of two aquaria (A and A′), as set up in the text figure, can be aerated efficiently at a low cost. The apparatus includes two aquaria, one bell jar (open top high form), one suction filter-pump, three pieces of glass tubing, three sections of rubber hose, one two-hole rubber stopper, and two half bricks.

It is necessary in aquarium A to place the bell jar on two pieces of brick in order to facilitate circulation of water currents. The glass tube (i) can be adjusted so that air will bubble continuously into the jar. In starting the apparatus it is necessary to have the lower end of tube (i) below the water surface (1). When the water level (1′) within the jar almost reaches the lower end of the tube (o), the tube (i) should be raised above the water level (1). The suction from the outlet (o) creates a partial vacuum in the top of the jar. This causes the water in the bell jar to approximate a level which will tend to equalize the atmospheric pressure on the water inside and outside the jar. When these two pressures are equalized the water in the jar maintains a constant level and air will bubble intermittently in the water. This causes aeration and circulation of water sufficient for the whole aquarium.

The second aquarium A′ can be used in cities where the water is not acid nor chlorinated, since the water passing into aquarium A′ is tap water. This second system was devised and used by one of the Hertwig brothers in his German laboratory.



An aquarium of type A into which there were placed fifty-five bullfrog tadpoles, seventy-six crayfish and eight small minnows operated for six weeks with only one change of water and with a loss of only three crayfish and five tadpoles. Either fresh or salt water can be used in Aquarium A.

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DIFFERENTIAL FILTRATION AS A MEANS OF ISOLATING BACTERIUM GRANULOSIS

IT is often difficult to separate very small slowly growing from larger more rapidly growing bacteria. This is especially true in the attempts to obtain *Bacterium granulosis* in a pure growth from cultures of conjunctival suspensions.

Bacterium granulosis usually requires four or five days for a growth sufficient for ordinary transfer. By this time, contaminating organisms such as staphylococci and diphtheroids have been multiplying rapidly, making it difficult, and frequently impossible,