sible to collect the fibrous material by twirling a wooden applicator stick through the suspension of fibers. The fibers adhered to the stick and could be removed before the bulk of the granular substance came out of solution. This fibrous material consisted of much polysaccharide and some nucleic acid, which was determined by the diphenylamine reaction, the phosphorus, or the purine nitrogen content. Younger cultures proved to be better sources of this material than older ones, in which increased amounts of polysaccharide tended to obscure the relatively small quantities of fibrous nucleic acid present.

With the thought that possibly enzymes simultaneously released from the cells might be acting on the extracted cellular materials, attempts were made to increase the yield of desoxyribonucleic acid by adding citrate or phosphate ions to the glycine solution in order to bind magnesium ions, which presumably activate nucleases or polymerases. Contrary to expectation, the yields were considerably diminished. The failure in this instance merely stresses the point that the extraction of each specific substance poses its own problem.

Reference

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A Pipette for the Rapid Transfer of Measured Quantities of Solution

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Measured quantities of solution are transferred frequently in routine analyses. Rapid measurements with a minimum of equipment are desirable when large numbers of determinations are to be made. This is particularly true in the soil-testing laboratory, where a measured quantity of water is mixed with a measured quantity of soil prior to the determination of the pH of the mixture.

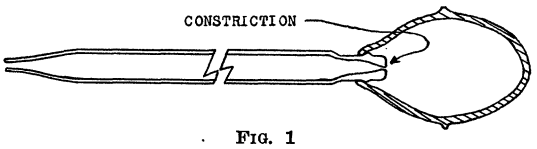

FIG. 1

A rubber bulb attached to a dropping pipette which has been modified by shrinking the upper end to produce an annular constriction with a diameter of about 0.2 mm provides an excellent device for the rapid transfer of liquids (Fig. 1). When water rising in the pipette encounters the constriction, a pronounced click or jerk is produced. The rate of flow of liquid through the constriction is so slow that the pipette may be removed from the liquid with a relatively constant amount of solution. A 200-mm dropping pipette, modified as described above, delivered 5.5 ml with a standard deviation of ± 0.02 ml based on 50 determinations. A Mohr pipette, adjusted to deliver 10 ml of liquid when filled to the constriction, delivered 10.01 ml with a standard deviation of ± 0.06 ml and a maximum deviation of 0.1 ml.

A Method for the Aeration of Liquid Cultures of Microorganisms

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The devices commonly used for aerating and agitating liquid cultures have been found to be not entirely satisfactory for use in culturing certain bacteria in liquid media. These devices are usually extremely difficult to sterilize and keep physically clean; also, because of the size and number of bubbles produced, they may have a low aerating efficiency.

It has been found that air passing at acoustic velocities through an orifice will produce a large number of

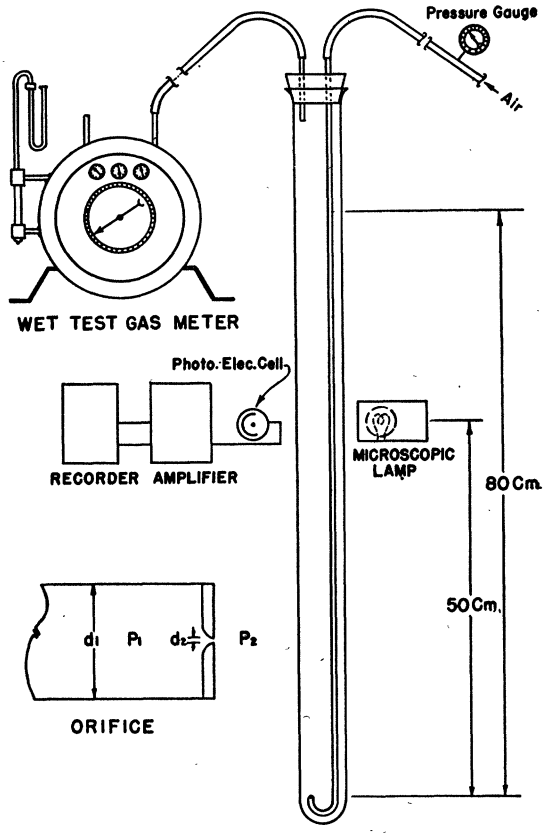

FIG. 1

very small bubbles, many of which are below 10 μ in diameter, and will cause violent agitation of the liquid. This orifice type of sparger was compared with sintered stainless steel, fritted glass, carbon, aloxite, and dishpan type spargers to determine which would produce the highest percentage of small bubbles. This was done by passing an equal amount of air (1 vol of air/vol of liquid/min) through the various types of spargers submerged in 80 cm of a 2% peptone medium contained in a glass tube (8×110 cm). The turbidity was measured, as illustrated in Fig. 1, with a continuous turbidimeter at 50 cm above