Ureteral Catheter for Microinjection Tubing

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In the usual arrangement for microinjection with the Chambers or Fitz micromanipulators, the syringe is connected to the needle holder by fine metal tubing (*1*). This tubing works satisfactorily during the actual injection, where the amplitude of movement is small, but is subject to fairly frequent breakage during the greater flexions which occur in cleaning, filling, and adjusting the apparatus. When the microinjection apparatus is used separately from the micromanipulator, as it has been in many investigations involving semimicrotransplantation (*2*), or injection of materials into insects or embryos, the frequency of breakage is increased. In addition, the not inconsiderable mechanical resistance offered by the metal tubing interferes markedly with the delicacy of manual operation which can be attained. These obstacles are still more troublesome with a glass capillary connector (*3*). Furthermore, suitable metal tubing is difficult to obtain and repair and is expensive.

We find that the above difficulties can be overcome completely by substituting ureteral catheter tubing for the metal or glass connector. This type of catheter, which is made of plastic-impregnated nylon, is inexpensive and, though extremely flexible, is very resistant to pressure, stretching, kinking, and breakage.[1] Moreover, snug connections to both syringe and needle holder can be made very simply by way of No. 24 hypodermic needles (with the points cut off square and smoothed), providing the basal end of the needle holder is turned down to the standard taper of the hypodermic needle hub.

References

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Improving the Performance of the Flame Photometer

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The following modifications of the Model 18 Flame Photometer (manufactured by the Perkin-Elmer Corporation) have been necessary to bring the performance of the instrument up to an excellent degree of precision and reliability.

The flame characteristics were improved by placing a Bunsen burner inside the original Meeker burner and permanently removing the grid on top of the latter. The installation requires no machining of any kind (Fig. 1). The alteration resulted in a more steady flame with both bottled and Ohio natural gas, irrespective of the gas-jet size.

[1] Size "French 4" ureteral catheter, American Cystoscope Makers, Inc., 1241 Lafayette Avenue, New York City. These catheters are approximately 65 cm. long, 1.35 mm. o.d., and 0.5 mm. i.d.

Additional improvement was obtained by placing an ordinary 250-watt infrared lamp facing the right side of the photometer. The bulb serves to warm the air entering the atomizer by heating an improvized air filter and also warms

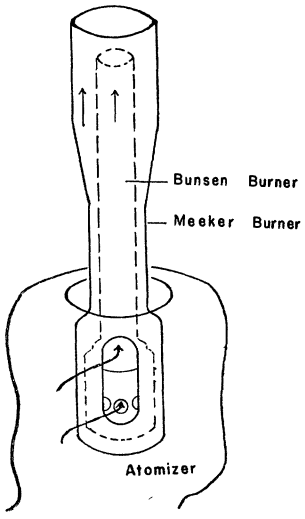

FIG. 1

the atomizer directly, as the door to its compartment is held permanently open. The increase in temperature permits a more rapid attainment of equilibrium within the vessel because of a greater degree of vaporization and a reduction in the excess condensation on the walls of the atomizer.

A Sensitive Cylinder-Plate Assay for Bacitracin

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A cylinder-plate assay is desirable for practically any type of antibiotic work because it is not readily disturbed by slight bacterial contamination, it readily reduces to routine handling by technicians, and it is less time consuming than other assays.

The assay of bacitracin previously described by Johnson, *et al.* (*2*) was a 72-hour dilution assay using *Streptococcus hemolyticus* (Chanin strain). For our preliminary research work on bacitracin, *Staphylococcus aureus* was used as a cylinder-plate assay organism, but its relative insensitivity and rather "fuzzy-edged" zones limited its usefulness.

During the examination of the spectrum of bacitracin four rather sensitive organisms were found which gave good growth on a plate: *Micrococcus flavus*, isolated from the laboratory air; *Gaffkya tetragena* ATCC #6007; *Sarcina flava* ATCC #540; and *Sarcina lutea* ATCC #272. Experiments using each one of these organisms showed *M. flavus* to be superior because of the smoothness of growth and sharp, even edges of the inhibition zones.