A Simple Ink Writer for the Mercury Manometer

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Methods have been described for recording, in ink, carotid and femoral blood pressures in experimental animals, employing the mercury manometer (*1*, *2*). These methods involve rather complex apparatus.

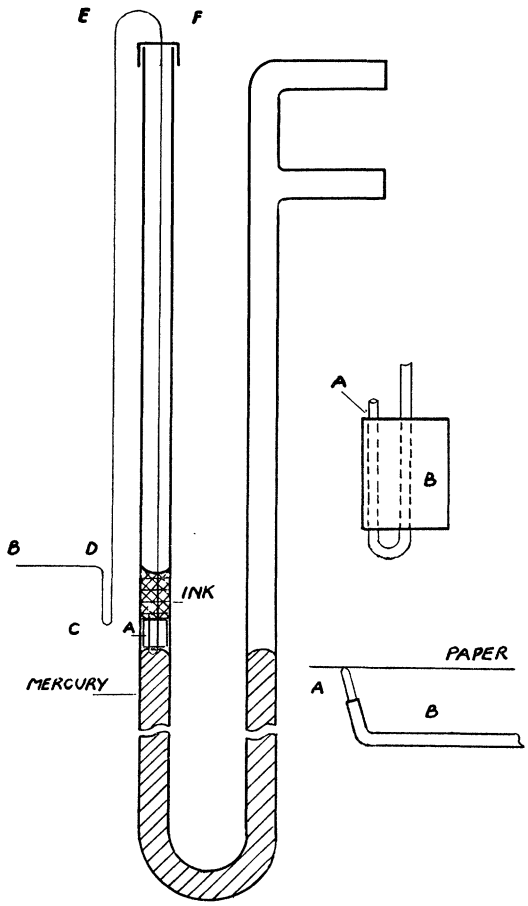

FIG. 1. Mercury manometer with ink writer in operating position. Illustrations at right show (top) detail of attachment of tubing to float (A, open end of tubing; B, solid Bakelite float) and (bottom) writing point viewed from above (A, 27-gage, and B, 22-gage stainless-steel tubing).

The ink writer now in use in this laboratory consists of a length of 22-gage stainless-steel tubing,[1] one end of which is attached to a float (A) and dips into a reservoir of ink floating on the mercury. The other end of the tubing serves as the writing point (B). Ink is drawn over to the writing point by siphonage.

[1] Obtained from Becton, Dickinson and Co., Rutherford, New Jersey.

The ink writer illustrated (Fig. 1) is approximately 20 cm in height. The writing point is 27-gage tubing, rounded on the end and inserted into the lumen of the 22-gage tubing. The float, a solid Bakelite cylinder 6 mm in diameter, fits the bore of the glass manometer, the cap of which is shown at F. Bends in the tubing (C and D) permit the writing point to be slightly above the level of ink in the reservoir, so that the ink is transferred to the kymograph paper by capillary action.

A small 'V' guide, clamped to the manometer support, eliminates lateral motion in the writing point due to vibration. The 'V' so rests against the tubing that it holds the writing point against the kymograph paper and at the same time allows unrestricted vertical excursions.

Prior to use, the writer is filled with ink from a hypodermic syringe by fitting a 27-gage needle hub, from which the shaft has been removed, over the end of the writing point.

Ink writers for signal magnets are constructed from 22-gage hypodermic needles, bent so that the hub serves as the ink reservoir. The needle hub is held by a spring clip soldered to the spring bar of the signal magnet.

References

1. FEITELBERG, S. *Proc. Soc. exp. Biol. Med.*, 1942, **49**, 177.
2. QUIGLEY, J. P. *J. lab. clin. Med.*, 1934, **19**, 1342.

The Demonstration of P^{32} in Bone by Radioautography

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The study of phosphorus metabolism in bone by radioautography, using P^{32}, has been limited by the technical difficulty involved in obtaining undistorted thin sections of undecalcified bone. Axelrod (*1*), who noted the removal and shifting of radioactive material during the process of decalcification, resulting in unsatisfactory or inaccurate autographs, developed a technique to cut 6- to 10-μ sections of celloidin-embedded undecalcified rat bones. The writer, using her technique, obtained satisfactory autographs in rats, but the histological detail of the stained sections was quite distorted. When the method was tried in rabbits, the bone proved to be too hard to cut with the microtome-blade technique.

A method was sought, therefore, to prepare bones of larger animals, containing radioactive phosphorus, for radioautographic studies. The possibility was investigated of using relatively large amounts of radioactive material as a tracer dose and partly decalcifying bone to the extent that thin, undistorted sections could be obtained, both for radioautographic and histological study. Using the inorganic acids usually employed in the decal-

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