

in the central nervous system (Bradley, 1968). The formaldehyde-induced fluorescence technique of Falck, Hillarp, Thieme & Torp (1962) can be used for estimating the catecholamine content of presynaptic terminals in the brains of animals in which iontophoretic studies have been carried out.

The purpose of this demonstration is to show how these two techniques are used in conjunction in this laboratory to differentiate between pre- and post-synaptic actions of drugs and to study the way in which the post-synaptic actions of putative transmitters may be altered by changes in the levels of catecholamines in pre-synaptic terminals. The techniques will be demonstrated and results presented showing how the actions of sympathomimetic amines are affected by depletion of catecholamines in terminals by reserpine or synthesis inhibitors.

REFERENCES

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 FALCK, B., HILLARP, N. -Å., THIEME, G. & TORP, A. (1962). Fluorescence of catecholamines and related compounds condensed with formaldehyde. *J. Histochem. Cytochem.*, **10**, 348-354.

A simple device for the construction of multibarrelled micropipettes

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Multibarrelled micropipettes are used in a number of laboratories for experiments involving iontophoresis. Herz, Wickelmaier & Nacimiento (1965) have described how a vertical micropipette puller can be used to form multibarrelled micropipettes from arrays of glass tubing glued together in metal rings. This demonstration shows how metal springs can be used to clamp arrays of glass tubing in the top chuck of a vertical micropipette puller; the glass tubes are fused together during the pulling process and the resulting electrode is strong enough for normal use, obviating any glueing. Two- to seven-barrelled micropipettes have been made with this machine and it is possible to produce satisfactory electrodes after only two or three days practice.

REFERENCE

- HERZ, A., WICKELMAIER, M. & NACIMIENTO, A. (1965). Über die Herstellung von Mehrfachelektroden für die Mikroelectrophorese. *Pflügers Arch. ges. Physiol.*, **284**, 95-98.

Gas chromatographic method for the estimation of noradrenaline, dopamine and 5-hydroxytryptamine

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A procedure has been developed for the estimation of noradrenaline, dopamine and 5-hydroxytryptamine in the rat brain using gas chromatography with electron capture detection. Amounts of the catecholamines as low as 5 ng and of 5-hydroxytryptamine, 10 ng, can be measured in a single piece of brain tissue.

The brain samples are homogenized in n-butanol, according to Ansell & Beeson (1968), and after centrifugation the amines are returned to the aqueous