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sucrose and clearly separated from mitochondria gave the orange fluorescence with Acridine Orange characteristic of lysosomes and, in several preparations examined, green fluorescence caused by mitochondria was not observed (Koenig, Gaines, McDonald, Gray & Scott, 1967). The succinate dehydrogenase concentration in this fraction was less than 0.025% of that of the mitochondria on a protein basis, a value that is comparable with that of Koenig *et al.* (1967). The method can be used to prepare a lysosomal fraction rapidly from 12–15g of brain tissue. The synaptosomal fraction was also clearly defined and exhibited the high occluded free lactate dehydrogenase ratio characteristic of this material (Marchbanks, 1967). The distribution of 5'-nucleotidase and acetylcholinesterase in all fractions was also studied.

The methods employed and their probable value will be discussed.

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The Use of Zonal Centrifugation in the Preparation of Subcellular Fractions from Brain Tissue

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The first attempted separation of a brain homogenate into its subcellular components in a zonal centrifuge was by Barber, Rankin & Anderson (1966), who loaded whole brain on to a continuous density gradient of sucrose. Later, Cotman, Mahler & Anderson (1968) used a similar gradient to subfractionate material comparable with the crude mitochondrial fraction (P_2) of Gray & Whittaker (1962). A discontinuous gradient was used by Rodnight, Weller & Goldfarb (1969), who were able to prepare relatively large quantities of components of the crude mitochondrial fraction from ox brain. Suitably adapted discontinuous gradients in a zonal head offer a method of obtaining certain fractions more quickly and in larger amounts than is possible with the conventional bucket rotor and we have been investigating the possibilities.

The crude mitochondrial fraction obtained from whole rat brain or up to 15g of cat cerebral hemispheres and prepared by the method described by Gray & Whittaker (1962) was loaded on to a discontinuous gradient of sucrose (0.4–1.7M) in a B-XIV aluminium rotor (capacity 650ml) which was run in a modified MSE 50 ultracentrifuge. The separation was allowed to proceed for 2h at 67 000g, after which the rotor was unloaded and fractions (20 ml) were collected. After the distribution of protein had been determined, from the extinction at 280 nm, the nature of the subcellular fractions in the different peaks was examined by a number of methods, particularly enzyme assay.

A fraction moving through a band of 1.4 M-

Biochemical Studies of Taurine in the Developing Rat Brain

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Taurine is found in high concentration in immature neural tissue although, unlike glutamate and γ -aminobutyrate, there is a striking decrease in its concentration during development of the brain (Agrawal, Davis & Himwich, 1968). Since taurine is probably formed through decarboxylation of cysteinesulphinic acid, we have examined the activity of cysteinesulphinic acid decarboxylase during development of the rat brain in relation to taurine concentration. Surprisingly, there is a steady increase of decarboxylase activity from after birth to 20 days *post partum*, closely resembling the increase in glutamate decarboxylase activity seen during the same period.