[6-¹⁴C]orotic acid *in vivo* for 24h. Cross-over experiments between fed and starved rats in which 1 vol. of labelled postmitochondrial supernatant was mixed with 9 vol. of unlabelled postmitochondrial supernatant indicated that the yield of free polyribosomes depended on whether the labelled free polyribosomes were derived from fed or starved animals, and was little affected by the source of the membranes.

Profile analysis indicated that liver from fed rats contains polyribosomes of larger average aggregate size than does liver from starved rats. It is postulated that the exaggerated delay in the sedimentation of free polyribosomes of liver from fed rats is due to reversible entanglement of large polyribosomes with non-sedimenting membranous components.

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Amino Acid Incorporation into Protein of Neuronal and Neuropil Fractions *in vitro*

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The density-gradient centrifugation method of Rose (1967) produces cell fractions from cerebral cortex that are metabolically active, designated: A, myelin, undisrupted tissue; B, 'neuropil', neuroglia, sections of dendrites and axons, nerve endings; C, 'neuronal', cell bodies with various lengths of processes attached; D, blood cells, nuclei; S, initial cell suspension. When the washed-cell fractions were incubated at 37°C in a phosphate-buffered medium (Elliott & Henderson, 1948) containing 10mM-glucose with a labelled amino acid (e.g. [³H]lysine), all incorporated radioactivity into trichloroacetic acid-insoluble material over a $\frac{1}{2}$ -3h period. The suspension S showed a rate of incorporation less than that of slices (Folbergrova, 1966), comparable with that of chopped-tissue suspensions (Austin & Morgan, 1967) and considerably greater than that of cell-free homogenates (Peterson & McKean, 1969). This incorporation was roughly linear for about 1h, falling off thereafter. The C layer showed a rate of incorporation from [³H]lysine 30% higher than the B layer, calculated

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on the basis of the total protein content of the suspension. This can be compared with the results of Blomstrand & Hamberger (1969), who report a greater difference in the same direction for incorporation *in vivo* followed by a basically similar cell separation.

When a mixture of 19 amino acids and taurine (each 1mM) was included in the medium, an inhibition of incorporation was observed with the initial suspension (20%) and the B layer (35%), but not with the C layer. The most likely explanation for the inhibition, which is similar in magnitude to that reported for cortex slice by Folbergrova (1966) and for homogenate by Peterson & McKean (1969), with individual amino acids, is inhibition of transport across a membrane barrier by competition of different amino acids for a common transport mechanism. The absence of inhibition from the neuronal fraction could indicate a less intact membrane, or a difference in the kinetics of amino acid uptake or utilization. The latter is more likely, since both neuronal and neuropil fractions are known to be able to accumulate ions (Rose & Sinha, 1969).

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Speculations on the Biological Occurrence of Isethionic Acid

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Isethionic acid (2-hydroxyethanesulphonic acid) has been isolated from heart tissue of dogs and rats, from normal human urine, from the axoplasm of the giant nerve fibres of a squid, from the brain of the honey-bee, from taurine in homogenates of rat brain and from the urine of rats after taurine administration (for references see Jacobsen, Collins & Smith, 1967). The possibility that it may occur in some lesser-known polysaccharides, mucopolysaccharides and lipids, giving products analogous to the ordinary sulphated derivatives, is attractive. In such compounds the group :C·O·SO₂·OH might be partially replaced by :C·O·SO₂·CH₂·CH₂·OH,