hepatic arginase activity observed in near-term foetuses would enable arginine that is released into the foetal circulation (Hopkins *et al.*, 1971a) to be metabolized in the liver.

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The Molecular-Weight Factor in the Biliary Excretion of Quaternary Ammonium Cations

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There appears to be a molecular-weight threshold, which varies with species, for the significant biliary excretion (i.e. >5–10% of dose) of organic anions. This threshold appears to be about 325 ± 50 for the rat, 400 ± 25 for the guinea pig and 500 ± 50 for the rabbit (Millburn *et al.*, 1967; Abdel Aziz *et al.*, 1971). A study is now in progress on the biliary excretion of organic cations, and from the results already obtained it would appear that for mono-quaternary cations the molecular-weight threshold for significant biliary excretion is less than for anions and that species variation may not occur to any marked extent.

The cations used contained ^{14}C -labelled methyl groups and the animals were bile-duct-cannulated as described by Abou-El-Makarem *et al.* (1967). In the rat the biliary excretion of the cations *N*-methylpyridinium (mol.wt. 94), trimethylphenylammonium (mol.wt. 136), diethylmethylphenylammonium (mol.wt. 164), dibenzyltrimethylammonium (mol.wt. 226), cetyltrimethylammonium (mol.wt. 284) and tribenzylmethylammonium (mol.wt. 302) was 0.6, 0.5, 6, 27, 15 and 39% of the dose in 3h respectively. These cations were not extensively metabolized and were excreted in the bile mainly unchanged. These results and others in the literature would suggest a threshold value in the region of 225 ± 25 for these cations in the rat.

Preliminary studies with three of the above-mentioned compounds in rats, guinea pigs and rabbits showed no significant species differences in the extent of biliary excretion. Thus the biliary excretion of

trimethylphenylammonium was 0.5% in the three species, whereas for dibenzyltrimethylammonium and tribenzylmethylammonium all three species excreted 30–40% of the dose in the bile in 3h.

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A Kinetic Analysis of Pinocytosis in Rat Yolk-Sac

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Rat visceral yolk-sac, from 17.5-day pregnant animals, was suspended in medium TC 199 containing 10% (v/v) of calf serum and incubated at 37°C. ^{125}I -labelled polyvinylpyrrolidone added to the culture medium (3 µg/ml) was accumulated at a linear rate, up to 7h. In four separate experiments the endocytic index, defined as the volume of medium processed by the tissue in unit time, was $1.92 \pm \text{s.d. } 0.15 \mu\text{l/h}$ per mg of yolk-sac protein. Accumulated polyvinylpyrrolidone was not released from the tissue, and the endocytic index was found to be independent of polyvinylpyrrolidone concentration at least within the concentration range 0.15–15.0 µg/ml.

Similar experiments with as substrate ^{125}I -labelled bovine serum albumin (3 µg/ml), which is digested intracellularly after pinocytosis by rat yolk-sac (Williams *et al.*, 1971), showed a steady tissue concentration of substrate once the rate of accumulation was balanced by the rate of digestion. When this steady state was reached (after about 2h) the rate of release of trichloroacetic acid-soluble radioactivity was linear for at least 5h and was used to calculate the endocytic index. In four separate experiments this value was $15.80 \pm \text{s.d. } 1.29 \mu\text{l/h}$ per mg of yolk-sac protein. Further experiments showed this endocytic index to hold over the concentration range 1.5–52.0 µg of ^{125}I -labelled albumin/ml.

The discrepancy between the two values obtained for the endocytic index could reflect a stimulation by ^{125}I -labelled albumin of the rate of internalization of culture medium, or alternatively a depression by polyvinylpyrrolidone. Such explanations are made unlikely by the concentration-independence of the