plutonium concentration (Boocock, Popplewell & Taylor, 1968; Taylor, 1969).

The isotope ^{241}Pu is suitable for an electron-microscopic-autoradiographic approach to this problem, since the β -radiation emitted is of low mean energy, comparable with that of tritium. The resolution afforded by this isotope, which also has a half-life of 14 years, allowed the storage sites in hepatic parenchymal cells to be observed. At periods up to 4 days after intraperitoneal injection there is an increase in peribiliary dense bodies and approximately 70% of the developed silver grains were found in the vicinity of these organelles.

There are many reports of the uptake and disposal of foreign materials such as dextran, polyvinylpyrrolidone, sucrose, iron compounds and carbon (see Hampton, 1958; de Duve & Wattiaux, 1966) by hepatic parenchymal cells, which indicate the involvement of lysosomes with heterophagy.

The possible involvement of lysosomes and other components of the 'vacuolar apparatus' with the heterophagy occurring with ^{241}Pu will be discussed.

Boocock, G., Popplewell, D. S. & Taylor, D. M. (1968). *Rep. A.W.R.E.* no. 028/68.

de Duve, C. & Wattiaux, R. (1966). *Annu. Rev. Physiol.* **28**, 435.

Hampton, J. C. (1958). *Acta anat.* **32**, 262.

Langham, W. H. (1959). *Brit. J. Radiol. Suppl.* **7**, p. 95.

Rahman, Y. E. & Lindenbaum, A. (1964). *Radiat. Res.* **21**, 575.

Taylor, D. M. (1964). *Brit. J. Radiol.* **37**, 95.

Taylor, D. M. (1969). *Brit. J. Radiol.* (in the Press).

Taylor, D. M., Sowby, F. D. & Kember, N. F. (1961). *Phys. in Med. Biol.* **6**, 73.

Inhibition of Protein Biosynthesis by Salicylate in Gastric-Mucosal Scrapings of Pig and Man *in vitro*

By K. D. RAINSFORD and M. J. H. SMITH. (*Department of Biochemical Pharmacology, King's College Hospital Medical School, London, S.E. 5*)

Salicylate (0.1–20 mM) has been shown to inhibit protein biosynthesis in the rat diaphragm and in cell-free systems of rat liver (Dawkins, Gould & Smith, 1966). Kent & Allen (1968) found that salicylate (15 mM) inhibited the incorporation of L-[U- ^{14}C]threonine into the glycoprotein fraction of sheep colonic-mucosal scrapings. An inhibitory effect of the drug on protein biosynthesis in the gastric mucosa may be relevant to the problem of salicylate-induced gastrointestinal damage in man. We therefore studied the effects of this drug on the incorporation of ^{14}C -labelled amino acids into the gastric-mucosal scrapings of pig and man.

The tissue preparations were incubated in the

presence of salicylate (3–60 mM) in Krebs medium III at pH 7.3 with added L-[U- ^{14}C]threonine or U- ^{14}C -labelled *Chlorella* protein hydrolysate. The time of incubation ranged from 5 min. to 3 hr. with pig mucosal scrapings and from 15 min. to 1 hr. with the human material. With the pig preparations a significant inhibition of L-[U- ^{14}C]threonine uptake was observed after 5 min. incubation with 6–60 mM-salicylate. After incubation for 5 min. with the labelled *Chlorella* protein hydrolysate, inhibition was obtained only with 30–60 mM-salicylate. With the human material, significant inhibition of the incorporation of the radioactive threonine occurred after 15 min. incubation with 30 mM-salicylate and after 30 min. incubation with 3 mM-salicylate. In all the experiments the inhibition usually increased with both time of incubation and concentration of salicylate.

This work was supported by a grant from Monsanto Chemicals Ltd.

Dawkins, P. D., Gould, B. J. & Smith, M. J. H. (1966). *Biochem. J.* **99**, 703.

Kent, P. W. & Allen, A. (1968). *Biochem. J.* **106**, 645.

Bacterial Oxidation of Dimethylamine, a New Mono-oxygenase Reaction

By R. R. EADY and P. J. LARGE. (*Department of Biochemistry, University of Hull*)

Washed cell suspensions of *Pseudomonas aminovorans* (den Dooren de Jong, 1927), grown on dimethylamine hydrochloride as sole carbon source, oxidized dimethylamine, methylamine and formate (Q_0 values, endogenous subtracted, respectively 92, 52 and 32 $\mu\text{l./hr./mg. dry weight}$), but not methanol or formaldehyde. Semicarbazide hydrochloride (75 μM) produced 90% inhibition of methylamine oxidation while leaving dimethylamine oxidation unaffected (J. M. Cook, K. M. Dawson & P. J. Large, unpublished work). Crude extracts of dimethylamine-grown cells catalysed the NADPH-dependent formation of formaldehyde from dimethylamine. Methylamine could not replace dimethylamine. No methylamine-oxidizing activity has so far been detected in cell-free extracts of this organism (cf. *Pseudomonas* AM1; Eady & Large, 1968).

By using as assay the measurement of NADPH oxidation spectrophotometrically at 340 m μ , the dimethylamine oxidation system has been partially purified about sixfold. The preparation is rather labile but can be stabilized by the presence of 5 mM-dimethylamine hydrochloride. The reaction has a broad pH optimum over the range pH 5.8–7.3. The partially purified system catalysed the