than is the case with natural and synthetic oxytocin[5,6].

These results show that for 'valyl-oxytocin': (1) there is good correlation between the effect on the blood pressure in the chicken and that on the isolated rat uterus; (2) the effect on the milk ejection pressure of the rabbit mammary gland bears no correlation to the effect on the blood pressure in the chicken and the effect on the isolated rat uterus; (3) there are great differences between the effect on the uterus *in vitro* and on the uterus *in situ* of the same species (rats and cats); (4) there are distinct species differences in sensitivity (rats and cats).

These findings suggest that synthetic compounds with oxytocin-like properties should be tested not only on the isolated rat uterus and on the blood pressure of the chicken but also on a much larger battery of tests to define their characteristics.

Extensive investigation into the chemistry, pharmacology and clinical activity of 'valyl-oxytocin' and related compounds is being pursued, and the results will be published in detail elsewhere.

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In vivo Inhibition of Oxidative Phosphorylation of Rat-liver Mitochondria by 2 : 4 Dinitrophenol

In a recent publication, Dianzani and Scuro[1] claimed that the oxidative phosphorylating capacity of mitochondria isolated from various rat tissues was greatly decreased 20 hr. after intraperitoneal injection of 2 : 4 dinitrophenol. The inhibition of P/O ratios from the mitochondria was 60 per cent; from kidney, 54 per cent; from heart, 51 per cent; and from skeletal muscle, 87 per cent.

Changes such as these are difficult to reconcile with the existing knowledge of the mode of action of 2 : 4 dinitrophenol. Like 3 : 5 dinitro-ortho-cresol[2], 2 : 4 dinitrophenol is an acute poison which, by intravenous or intraperitoneal injection, either kills an animal in 2–3 hr. or is followed by complete recovery in the next few hours. Further, this compound can be injected daily without any increase in susceptibility[3,4]. It has also been shown that *in vitro* inhibition of oxidative phosphorylation may be reversed by washing[5,6].

Table 1

No. of animals	Treatment	Oxygen uptake (μmoles)	Inorganic phosphate uptake (μgm. atoms)	P/O (± S.D.)
5	None	3·39 ± 0·59	7·91 ± 2·0	2·36 ± 0·26
5	Dinitrophenol*	3·56 ± 0·60	8·23 ± 1·0	2·35 ± 0·26
3†	Dinitrophenol*	3·83 ± 0·92	8·92 ± 2·4	2·32 ± 0·20

* Intraperitoneal injection of aqueous solution of 2 : 4 dinitrophenol at 3 mgm./100 gm. body weight.
† Mitochondria isolated in sucrose.
Mitochondria prepared as in Aldridge and Cremer (ref. 7).
Each manometric flask contained: mitochondria equivalent to 250 mgm. fresh tissue; 0·02 *M* sodium phosphate buffer, *p*H 7·4; 0·001 *M* adenosine monophosphate; 0·0067 *M* magnesium sulphate; 0·025 *M* potassium chloride; 0·00001 *M* cytochrome *c*; 0·033 *M* glucose; 0·0167 *M* sodium fluoride and 300 units of yeast hexokinase ('step 3' purity, according to Berger *et al.* (ref. 8)), 0·5 ml. 30 per cent perchloric acid in side-arm. Total vol. 3·5 ml. Temperature 25° C. Gas phase, air. Potassium hydroxide in centre. Equilibrium for 7 min. followed by measurement of oxygen uptake for 10 min. Reaction stopped by tipping acid from side-arm. Phosphate on deproteinized fluid by Fiske and Subbarow (ref. 9).

In view of the importance ascribed to oxidative phosphorylation in energy metabolism and the relevance of these observations to the toxicology of 2 : 4 dinitrophenol and related compounds confirmation of Dianzani and Scuro's experiment was sought. Table 1 shows that there was no significant difference between the oxidative phosphorylative capacity of mitochondria isolated from the livers of normal rats and that of mitochondria from rats previously injected with 2 : 4 dinitrophenol. As during the preparation of these mitochondria they were washed with potassium chloride, a further experiment was made in which the mitochondria were isolated entirely in 0·25 *M* sucrose. Again no difference could be detected. Finally, six rats were each injected with 3 mgm. 2 : 4 dinitrophenol/100 gm. body weight on each of five successive days. These animals survived the experiment.

The discrepancy between these results and those of Dianzani and Scuro awaits elucidation.

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An Estimation of the Nature of Nucleoproteins by an Analytical Method

In previous publications[1,2] we have shown that a very constant relationship exists between the amount of deoxyribonucleic acid and the amount of arginine in the nucleus of an erythrocyte; we found the ratio 5·0 in the erythrocytes of all the species we studied (trout, pike, carp, tench, perch, barbel, roach). In the case of spermatozoa of some of these species, we found that this ratio is not the same as in erythro-