lactin is injected exogenously. The urinary findings together with the observed improvement in renal lesions strongly implicate prolactin in the physiological control of water and electrolyte balance in rats.

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Induction of liver microsomal drug metabolism in newly-hatched chicks

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The unexpectedly high drug metabolizing activity of liver microsomal preparations from 1-day-old chicks (Drummond, McCall & Jondorf, 1972) has been further investigated.

Microsomal subcellular fractions in 0·25 M sucrose were prepared using the technique of Jondorf, Simon & Avnimelech (1966) from pooled livers of embryos (1 day before hatching) and from groups of female chicks of the Hubbard Golden Comet strain ranging in age from 1 to 7 days. These preparations were assayed for their drug metabolizing capacity *in vitro*, by incubating them with substrates for N-demethylation (aminopyrine) and aromatic ring hydroxylation (aniline, naphthalene) in the presence of glucose-6-phosphate dehydrogenase and the supporting system of Jondorf *et al.* (1966). Washed microsomal preparations were also assayed for cytochromes b_5 and P-450, NADPH-cytochrome C reductase (Mazel, 1971) and NADPH-cytochrome P-450 reductase (Gigon, Gram & Gillette, 1969)

We were able to show that the 3–4 fold increase in the liver microsomal metabolism of all three substrates on the first day after hatching is maintained for a further two days. After this time the metabolic activity declines to about 50% of the neonatal peak value. The endogenous induction of drug metabolism in the newly hatched chick does not appear to be correlated with microsomal cytochrome b_5 or P-450 content or with NADPH-cytochrome C reductase activity. There is, however, a peak in NADPH-cytochrome P-450 reductase activity corresponding with the increased drug metabolizing activity in the first three days after hatching. This finding agrees with the suggestion by Davies, Gigon & Gillette (1969) that changes in this parameter most closely reflect changes in the rates of microsomal drug metabolism in different species.

The time-course of exogenous induction in 7-day-old chicks treated with sodium phenobarbital or 3-methylcholanthrene at the optimal dose levels (100 mg/kg I.P. in both cases) reveals that peak liver microsomal drug metabolizing activity which again is not substrate specific is attained after 12–18 h and then declines rapidly to control levels. The increased activity brought about by the exogenous inducers, as expected by analogy with other species (Sladek & Mannering, 1969) is related to cytochrome P-450 levels associated with the microsomal preparations.

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Variation in the response of rats to chemical and thermal injury

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In 1967, Starr & West showed that a relationship exists between the degree of oedema formation and the amount of bradykinin released when paws of rats were heated. Whilst studying the response of hindpaws of Wistar rats to heat, we noticed that animals from one colony failed to release detectable amounts of kinin yet developed oedema. A comparison was therefore made of the response of two colonies of Wistar rats (Tuck and Ash) to different inflammatory stimuli.

Chemical injury was induced by the topical application of xylene (0·04 ml) to both the foot and the shaved back of rats pretreated with azovan blue dye, and the local inflammatory response was assessed by measuring the amount of protein-bound dye accumulating. Coaxial perfusion of the hindpaw (Rocha e Silva & Antonio, 1960), followed by the application of xylene to the foot, was used to examine the possible release of mediators. The perfusing Tyrode solution was collected and injected on to superfused rat uterus, rat duodenum and guinea-pig ileum preparations (arranged in cascade fashion) to detect histamine, 5-hydroxytryptamine and kinin. Responses of the tissues were recorded isometrically on Devices pen recorders. In other animals, blood pressure changes arising from the topical application of xylene were recorded from the left carotid artery of rats under urethane anaesthesia (1·25 g/kg I.P.). Whereas the hypertensive responses in rats from both colonies were similar, local leakage of dye was markedly greater in the Tuck animals and only in these rats was kinin release detected in the paw perfusate (8 ng average of 4 experiments).

Thermal injury induced by immersing one hindpaw in a water-bath at 50·5° C for 30 min was assessed both by changes in paw volume (recorded on a volume differential meter) and by leakage of dye from the circulation into the subcutaneous tissues. In further experiments, coaxial perfusion of the heated hindpaw was carried out, the perfusate being examined for the presence of mediators, as described above. Blood pressure changes resulting from the thermal injury were also recorded. Rats from the Ash colony responded with a greater oedema reaction and more salivation than did rats from the Tuck colony, although the dye leakage and hypertensive responses were si Correspondingly, kinin release in Ash rats under the heat stimulus (12 ng, average of 4 results) greatly exceeded that in Tuck rats (1 ng, average of 4 results). In no experiment was histamine or 5-hydroxytryptamine detected on the three test preparations.

The results of further experiments using subcutaneous injections of local anaesthetics (e.g. lignocaine, 0·25 mg) showed that, when the thermal responses of rats from both