monitored by the method described by Bourke *et al.* (1971). A priming dose ($1.4 \mu\text{Ci/kg}$) and sustaining dose ($1.4 \mu\text{Ci/kg}$) of [$1\text{-}^{14}\text{C}$]glucose was commenced and, after a 40 min equilibration period, urine collections and arterial and renal-venous blood samples were withdrawn continuously for six successive clearance periods by using a modification of the technique of Churchill & Malvin (1970).

Total glucose was measured enzymically by using the hexokinase trap. Radioactive glucose was measured by its enzymic conversion into ribulose 5-phosphate and $^{14}\text{CO}_2$ by the method of Costello *et al.* (1972). Glycolysis was calculated from the arteriovenous [^{14}C]glucose difference expressed in $\mu\text{mol/min}$. Similarly net and total gluconeogenesis were calculated.

Glycolysis was demonstrated under conditions of acidosis and alkalosis. Under alkalotic conditions however, significantly more glycolysis was consistently demonstrated. Although no significant difference in net gluconeogenesis between the two groups was observed, gross gluconeogenesis was significantly greater in the chronically alkalotic dogs.

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Concentration of Oestrogens in Jugular-Venous Plasma of Cows during the Oestrous Cycle

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Samples of jugular-venous plasma were collected daily from lactating dairy cows during three 7-day periods each including oestrus, and subsequently during five complete oestrous cycles.

Concentrations of oestradiol and oestrone were determined in samples by radioimmunoassay after extraction with ether and chromatography on ion-exchange resin and lipophilic dextran gel.

Two antiserum preparations, A and B, had been prepared from immunogens in which oestradiol-17 β was conjugated through the 17 β -oxygen, and another antiserum preparation, C, from an immunogen in which 6-oxo-oestradiol-17 β was conjugated at C-6. Antisera A and B cross-reacted considerably with oestrone and oestradiol-17 α whereas antiserum C had very little cross-reaction with oestradiol-17 α relative to the 17 β isomer.

Concentrations of oestradiol were determined in all samples, about half with antiserum A or B and half with antiserum C. Concentrations of oestrone were determined in samples from three complete cycles by means of antiserum B.

Mean concentrations of oestrone were below 1 pg/ml throughout the cycle except for a possible small rise 1–2 days before oestrus.

Oestradiol concentrations measured with antiserum A, B or C were very similar at comparable times of the cycle, and it is tentatively concluded that it was oestradiol-17 β that was being determined. Pooled oestradiol-17 β determinations show two peaks: (1) a pre-oestrus peak with concentrations above basal values for 4 days and a maximum of 5 pg/ml 1 day before oestrus; (2) a post-ovulatory peak with concentrations above basal values for 3 days and a maximum of 7 pg/ml 6 days after oestrus.

The present results are consistent with those obtained by bioassay by Pope *et al.* (1965) and with those of Echternkamp & Hansel (1971) and Wettemann *et al.* (1972), who used radioimmunoassay and uterine protein binding assay.

Whereas the physiological significance of the pre-oestrus oestradiol-17 β secretion is generally accepted, that of post-ovulatory oestradiol-17 β is relatively unknown. The possibility that it has a luteotrophic action will be discussed.

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Isolation of a Fraction from Rat Cerebellum Enriched in Nerve Terminals of One Single Type (Mossy-Fibre Terminals)

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Isolation of synaptosomes has advanced the understanding of the processes of neurotransmission (Whittaker, 1965; De Robertis, 1967). Preparation of synaptosomes from tissue homogenates has the limitation of heterogeneity of terminal types often contaminated by other structures. An improved

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