not changed significantly. By means of this agent, hypoxic CFU could be identified in the bone marrow of restrained mice but not in pentobarbitone anaesthetized mice, indicating that the radioprotective effect of pentobarbitone anaesthesia is caused by some mechanism other than hypoxia. We also showed that pentobarbitone prevents the recruitment of resting mouse bone marrow CFU into S phase following x-irradiation. Evidence for a higher radiosensitivity of mouse bone marrow CFU in S phase compared with resting CFU was presented by Duplan and Feinendegen (*Proc. Soc. exp. Biol. Med.*, 1970, **134**, 319). This might explain the radioprotective effect of pentobarbitone anaesthesia during irradiation.

DISTRIBUTION AND RADIOSENSITIZATION *IN VIVO* OF PIROMELITIC ACID. F. Sanz Sanchez, A. Anadon Navarro, A. Goicoechea Mayo, R. Martinez Larrañaga and M. D. Astudillo, Department of Pharmacology, Madrid, Veterinary Faculty and Co-ordinated Center of Pharmacology, CSIC.

To test piromelitic anhidride as a radiosensitizer *in vivo* and with acute and subacute toxicity established, a preparatory study was conducted of tissue distribution and blood levels.

The LD_{50} was 1 gr/kg administered intravenously. The oral dosage of 1 gr/kg during 3 weeks did not cause noticeable variations in weight, food consumption and other parameters.

To calculate the distribution kinetics of piromelitic acid-^{3}H at pH 7, using oral doses 1/5-LD_{50}, animals were killed at intervals of 15 min, 30 min, 1, 2, 3, 6, 9, 24 and 48 h and blood samples taken; later brain, heart, lung, liver, kidney, intestine, muscle and skin samples were examined to determine the relation between per cent activity/mg min at time intervals and ratios of fresh organ to dry organ weight; maximum activity was reached in 30 min.

This study of a radiosensitizer was conducted using Swiss/D mice as controls, irradiated and non-irradiated, inoculated with ascitic Ehrlich tumour cells.

RADIATION CHEMISTRY OF GLUTATHIONE AND ITS POSSIBLE ROLE IN AFFECTING RADIOSENSITIVITY OF BIOLOGICAL SYSTEMS. M. Tamba, R. Badiello, M. Quintiliani and G. Gorin, Laboratorio di Fotochimica e Radiazioni d'Alta Energia (CNR), Bologna.

It has been postulated that intracellular sulphydryl affects radiation sensitivity of living cells. Accordingly, glutathione being the main low molecular weight intracellular SH compound, the study of its radiolysis is relevant.

Steady-state radiolysis of reduced glutathione (GSH) in oxygen containing solutions at pH 7 shows that G(-SH) is about 20 at 3 mmol concentration. As the GSH concentration is increased from 2 to 20 mmol the value changes gradually but constantly. Pulse radiolysis studies of interactions of OH radicals with GSH were carried out at different pH's. The primary product of such reactions appears to be the thiyl radical GS', with a λ_{max} at 330 nm. In oxidized glutathione (GSSG) the primary product of the reaction with e^{-}_{aq} is the well known radical anion $GSSG^{-}$ absorbing at 420 nm. The $GSSG^{-}$ radical decays with first-order kinetics ($k = 2{\cdot}4 \times 10^{5}\ sec^{-1}$) producing the thiyl radical. The reaction of hydroxyl radicals with oxidized glutathione ($k = 9{\cdot}9 \times 10^{9} M^{-1} sec^{-1}$) leads to the formation of a transient species with λ_{max} at 330 nm ($k_{form} = 9{\cdot}3 \times 10^{9} M^{-1}\ sec^{-1}$), which we identify as GS.

When experimental solutions are saturated with N_2O containing different amounts of oxygen, reactions between the radical species GS, $GSSG^{-}$ and O_2 are observed.

STUDIES ON $tRNA^{Val}$ ISOLATED FROM CHICK EMBRYO LIVER IRRADIATED *IN OVO*. L. Gyenge, E. Bölöni, A. Benkó and L. D. Szabó, F. Joliot-Curie National Research Institute for Radiobiology & Radiohygiene, Budapest.

Estimation of the *in vitro* effect of ^{60}Co irradiation on $tRNA^{Val}$ and $tRNA^{Phe}$ isolated from chick liver has been previously reported (Abstracts of 9th FEBS meeting). In our recent experiments 15- and 18-day old chick embryos (Leghorn) were irradiated *in ovo* with 400, 500 and 700 R respectively (dose rate 96 R/min); 96 h and 24 h after irradiation the mortality of the embryos was estimated and tRNA was isolated from liver of surviving embryos. UV absorption spectra and amino acid acceptance activity of $tRNA^{Val}$