

formaldehyde produced. If no liver homogenates were used, about 69 mgm. of formaldehyde was isolated. But with liver homogenates about 32 mgm. of this compound was isolated; the remaining formaldehyde must have been oxidized.

Also, formaldehyde isolated from the reaction mixtures containing vitamin B₁₂ appeared to be slightly more radioactive than without it. This radioformaldehyde may have combined with vitamin B₁₂ to give vitamin B₁₂-formaldehyde complexes. That radioactivity in vitamin B₁₂ was not due to any chance contamination with amino-acids was proved by paper chromatography.

No definite information can be given about the molar ratios of vitamin B₁₂ and formaldehyde in these complexes. In studies with glycine-2-¹⁴C, each mole of vitamin B₁₂ appears to be in combination with 4 or more moles of labelled formaldehyde. This calculation is based on a molecular weight of vitamin B₁₂ of 1,356. But the ratio for the complex isolated from serine-3-¹⁴C studies is very different. Here 2 moles of vitamin B₁₂ appear to be in combination with 1 mole of labelled formaldehyde.

The isolation of vitamin B₁₂-formaldehyde complexes both *in vitro* and in present experiments suggests that these should be further investigated with respect to any role in serine-glycine interconversions.

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as follows: (1) one half of each group, control and irradiated, received 0.5 $\mu\text{C./ml.}$ of specific activity 360 $\mu\text{C./}\mu\text{mole}$; (2) the other half 5.0 $\mu\text{C./ml.}$ of specific activity 36 $\mu\text{C./}\mu\text{mole}$, that is, the total amount of thymidine, was increased from 10^{-3} μmole in (1) to 10^{-1} μmole in (2) per culture vessel. All the vessels were then incubated at 37° C. for 2 hr. At the end of the incubation period smears were made for high-resolution autoradiography and grain counting over 500 labelled cells; alternatively, planchettes were prepared for counting total radioactivity of washed cells^{1,2}. All experiments were performed with quadruplicate samples.

Under the above conditions, a regular depression of the average grain count or total radioactivity of the cells was noted in the first group, the depression being 50–53 per cent of the control value, while in the second group, the depression was rarely significant, the maximum depression being 12 per cent of the control value.

It was concluded, therefore, that irradiated Ehrlich ascites cells may release deoxyribonucleic acid precursors which are capable of diluting the added label. The dilution to 50 per cent of 10^{-3} μmole of tritium-labelled thymidine indicated a release of compounds equivalent to 10^{-3} μmole of thymidine: if the released compound was thymidine, this would correspond to about 1–2 per cent of the deoxyribonucleic acid thymidine content of 10^7 cells.

No such pool dilution was noted with human bone marrow cells *in vitro*, nor (in preliminary experiments) with mouse thymus cells *in vivo*. These investigations caution workers against the indiscriminate use of 'true tracer amounts' of labelled materials, against the use of high specific activity thymidine in particular, unless previous studies have established the absence of a pool dilution effect.

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BIOLOGY

A Pitfall in High Specific Activity Tracer Studies

In experiments on the effects of radiation on the process of deoxyribonucleic acid synthesis in mammalian cells it was noted that, in some systems, apparent 'radiosensitivity' of the synthetic process varied with the amount of isotopic 'label' administered.

Ehrlich ascites cells were washed and resuspended in a medium of 50 per cent supplemented Hank's solution and 50 per cent human serum (10^7 cells per ml. medium). Half the culture vessels served as controls and the other half received 2,000 rads of 250 kV. X-rays. Immediately after radiation, tritium-labelled thymidine was added to the vessels

Control of African Wild Animals

In the past the control of wild animals, where these conflicted with human interests, has been through destruction, and the rate of destruction has increased greatly in recent years. The possibility of the virtual elimination of the wild ungulates from Africa is a matter for concern if only on the following grounds: (1) The value of these animals as providers of meat under a system of game management and selective cropping. (2) The as yet unassessed effect of the disruption of the natural balance on soil and flora, especially with regard to erosion, desiccation and increase in bush density. (3) The danger of extinction of species and sub-species. (4) The value of these animals as a tourist attraction.