AET would become available in the cell for action on radiosensitive structures which either do not react with glutathione or are only little protected by it.

Our results show that combined treatment with AET, glutathione and serotonin still offers some protection to mice subjected to whole-body X-irradiation at 2,000 r.

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Note added in proof. An experiment now completed indicates: (1) that the $LD_{100/30}$ days of mice treated with glutathione, AET and serotonin before X-irradiation is 2,200 r., as compared with 900 r. in the controls; (2) that glutathione added to AET or to AET plus serotonin decreases the toxicity of AET.

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Oxygen Effect with 14-MeV Neutrons

The modifying effect of oxygen on the biological response to 14-MeV neutrons has been discussed in relation to the use of these neutrons in radiotherapy[1-5]; but no direct experimental data were cited. We have recently obtained for another purpose some data for 14-MeV neutrons on yields of chromatid-type aberrations in meristematic cells of bean root tips in aerated and anoxic conditions. The dose modification factor for true aberrations was about 1·5 and for non-staining lesions ('gaps')[6] about 1·3. These values are very little greater than those found for chromosome damage in the same biological material with 3-MeV neutrons[7] or in *Tradescantia* microspores with fission neutrons[8].

It has been estimated[9] that half the yield of chromosome damage seen with 14-MeV neutrons is due to the α-particles produced by inelastic nuclear reactions[10]. The dependence upon oxygen of the effect of these α-particles should be appreciably less than for the recoil protons, so the comparatively low overall value of oxygen dose modification factor found by us is not unexpected. It seems to be a reasonable presumption that for other biological effects besides chromosome aberration induction the oxygen factor for 14 MeV neutrons should be small and that, as regards oxygen dependence of effect, 14 MeV neutrons should be almost as suitable for radiotherapy as fast neutrons of lower energy.

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BIOLOGY

Ultrastructure of the Sensory Hair-cells in the Labyrinth of the Ammocœte Larva of the Lamprey, *Lampetra fluviatilis*

In a previous publication[1] the ultrastructure of the sensory epithelia of the labyrinth of *Raja clavata* was described and brought into relation with what is known of the responses of single sensory cells to angular acceleration, tilting, and to vibrational stimuli. It was found that the compound hair-processes of the sensory cells show a topographic polarization which could in most cases be correlated with the directional functional properties of the receptor cells.

The hair-cells are secondary sensory cells, and as such they synapse with the end branches of the bipolar neurones which constitute the first neuronal stage of the afferent pathway. Synaptic membrane structures were described but there was very little demonstrable evidence for the presence of synaptic vesicles associated with them.

We have now extended our electron-microscopic studies to the labyrinth of the ammocœte larva of the

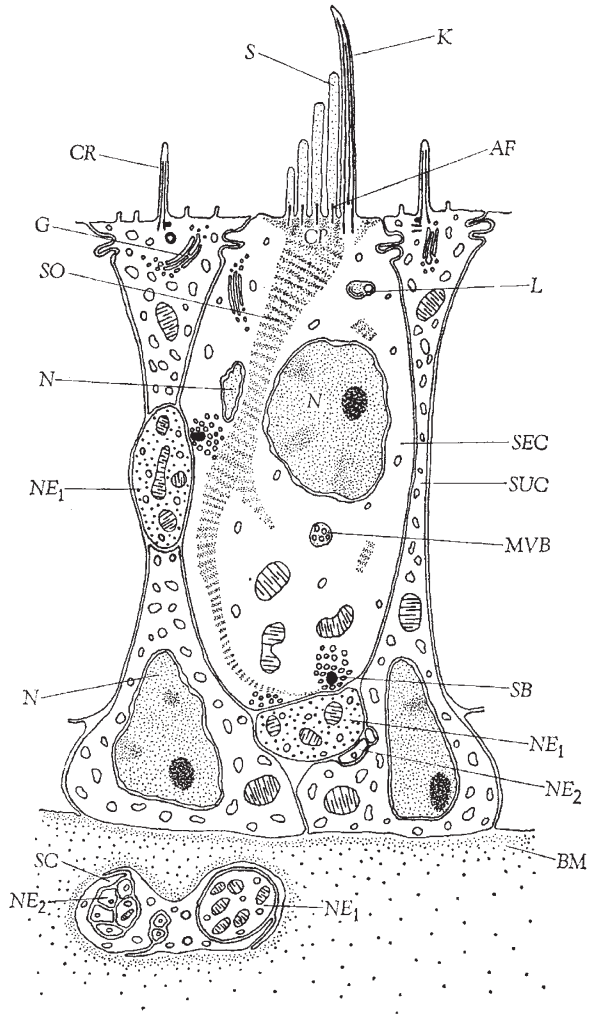

Fig. 1. Schematic drawing of a single sensory cell from a crista of the ammocœte labyrinth. Note the striated organelle which originates from the cuticular plate and runs to the base of the cell where it terminates in close proximity with synapse. Nerve fibres synapse with basal and nuclear regions of the cell. *AF* = axial fibre; *BM* = basement membrane; *CR* = ciliary rod; *CP* = cuticular plate; *G* = Golgi apparatus; *K* = kinocilium; *L* = lysosome; *MVB* = multivescular body; *N* = nucleus; NE_1 = large nerve endings; NE_2 = small nerve endings; *S* = stereocilia; *SB* = synaptic bar; *SC* = Schwann cell; *SEC* = sensory cell; *SO* = striated organelle; *SUC* = supporting cell