1610. The neurotoxicity of TOCP—A slight advance

Bischoff, A. (1967). The ultrastructure of tri-ortho-cresyl phosphate-poisoning. I. Studies on myelin and axonal alterations in the sciatic nerve. *Acta Neuropath.* **9,** 158.

Tri-*o*-cresyl phosphate (TOCP) is a powerful neurotoxin producing degeneration of nerve axons and central and peripheral demyelination, resulting in ataxia and paralysis (*Cited in F.C.T.* 1966, **4,** 112). But the mechanism of action is not understood. Nor is there agreement as to the primary site of attack, which could be central or peripheral, in the axon or the myelin sheath.

The situation has been made somewhat clearer by a study of the ultrastructural changes in the peripheral (sciatic) nerves of chickens following oral administration of TOCP in single doses of 0·5–1·0 ml/kg. In addition to marked nerve-cell oedema, striking proliferation and swelling of the smooth endoplasmic reticulum was observed in the axoplasm of both myelinated and unmyelinated nerve fibres as early as one day after the onset of paralysis. This development paralleled destruction of the neurofibrils. Deterioration of the myelin sheath only occurred several days later, indicating that this is secondary to destruction of nerve axons. Other early changes suggested possible structural alterations in the molecular composition of the axon membrane.

However, although electron microscopy reveals the sequence of the pathological changes, in which axon destruction is an early event, it needs to be supplemented by further biochemical investigations if the primary cause of TOCP-induced toxicity is to be elucidated.

1611. Carcinogenicity studies on water draw a blank

Dunham, Lucia J., O'Gara, R. W. & Taylor, F. B. (1967). Studies on pollutants from processed water: Collection from three stations and biologic testing for toxicity and carcinogenesis. *Am. J. publ. Hlth* **57,** 2178.

Trace elements have been a fruitful field of research into possible correlations between the incidence of degenerative diseases and the quality of drinking-water supplies (*Cited in F.C.T.* 1968, **6,** 388). The progressive contamination of the biosphere with carcinogens has called for an even wider survey of water pollutants. The investigation cited above sought to throw light on the fact that the incidence of bladder cancer in New Orleans was three times higher than that in Birmingham, Ala. Pollutants were collected from the water supply of each area by adsorption on activated carbon filters over a period of 1 yr. Extractions with chloroform and with alcohol yielded in each case a dark-brown, viscous to semi-solid, foul-smelling residue. For each location and solvent, the total residues obtained during the year were pooled. New-born mice were given 0·5 mg of extractive by subcutaneous injection and observed for up to 18 months. Further doses of 1·0 and 3·5 mg were given on days 10 and 20 respectively. No tumours attributable to the pollutants were seen in any tissue examined, including the bladder.

No conclusions could be reached concerning the possible carcinogenicity of such drinking water in man. Gas chromatography and infrared spectrophotometry demonstrated at least 11 major components and the presence of highly-substituted aromatic compounds containing ether, nitrile, alkane, alkene, nitro and chloro groups among the extractives tested.

1612. More about the toxicity of isonicotinic acid hydrazide

Botta, J. A., Jr. & Carlton, W. W. (1967). Studies of the toxicity of isonicotinic acid hydrazide (isoniazid) to ducklings. *Toxic. appl. Pharmac.* **11,** 35.