

WORK IN PROGRESS

LONG-TERM CARCINOGENICITY TESTS OF ORALLY ADMINISTERED ZINC AND TIN

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Rats

No tumours have so far been observed in 2 groups of 40 rats fed continuously with a 20% protein diet containing 5% sodium chlorostannate or 0.83% stannous-2-ethyl hexoate, nor in a similar control group fed the same diet without the additive. The experiment has been in progress for approximately 8 months.

Mice

Groups of pregnant mice, and the litters subsequently born to them, were exposed to the following:

- (1) Sodium chlorostannate in the drinking water (either 15 g/l equivalent to 5000 ppm tin, or 3 g/l equivalent to 1000 ppm tin).
- (2) Stannous oleate in 20% protein diet (31.25 g/kg equivalent to 5000 ppm tin).
- (3) Zinc sulphate in the drinking water (22 g/l, equivalent to 5000 ppm zinc or 4.4 g/l equivalent to 1000 ppm zinc).
- (4) Zinc oleate (50 g/kg reducing because of anaemia to 12.5 g/kg equivalent to 1250 ppm zinc).
- (5) 20% protein diet and water without the added chemical.

These experiments have been continued for over a year and many animals from each group have been killed (because of an intercurrent infection) and examined *post mortem*. A few cases of malignant lymphoma have occurred, one in the control group and not more than one in any other group. One hepatoma was seen in each of the two groups treated with zinc sulphate in the drinking water. Although no such tumours have been seen in the control group it is known that untreated animals of the same stock strain not infrequently develop tumours of this type.

So far, therefore, there is no evidence that high levels of dietary zinc or tin increase the incidence of cancer in rats and mice.

These experiments, which will be continued, were undertaken after certain misleading statements, concerning the hazard from canned foods, that had been made in the House of Lords (in Hansard, June 15th, 1961) and the various letters to *The Times*, between the 28th June and 9th July, 1961, inclusive.

STABILITY TESTS ON E.E.C. COLOURINGS

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IN the light of the possible entry of the United Kingdom into the Common Market, some laboratory trials have been carried out on the stability of colourings included in the E.E.C.

Directive on Colouring Matters and not already on the United Kingdom List. The colourings involved were Scarlet GN, Ponceau 6R, Orange GGN, Acid Yellow, Quinoline Yellow, Chrysoine S and Patent Blue V. In meat paste retorted for 1 hr at 115.5°C (240°F), all the red, orange and yellow colourings showed substantial loss of colour on retorting. The residual colour from Scarlet GN was stable to light, but the other colourings all showed fading. In fish paste, similarly retorted, Orange GGN and Quinoline Yellow showed no loss on retorting; Orange GGN also showed good light stability after retorting. All other red, orange and yellow colourings showed losses during retorting and fading on subsequent exposure to light.

Tests were also carried out in which the colourings were added to fondant, high-boiled sweets containing 30% glucose, 70% sucrose-invert sugar syrup, and finally a 30% sucrose syrup containing citric acid and sulphur dioxide. All the colourings were relatively stable in the presence of glucose but the red and blue colourings showed substantial fading in the sucrose-invert syrup. In the syrup containing sulphur dioxide slight or moderate fading developed slowly in most colourings.