FOOD SAFETY

Some Sweetness Left

by our Washington Correspondent

GONE are the days when a few papillomata raised by feeding Gargantuan diets of compound X could spark off a major cancer scare. Those charged with assessing the safety or otherwise of food additives have developed a sharper nose for pitfalls, as the report on saccharin released last week by the Food and Drug Administration goes to show. Prepared by the National Research Council, the operating arm of the National Academy of Sciences, the report concludes that the present and projected use of saccharin in the United States does not pose a hazard to health. But further studies in the toxicology and epidemiology of saccharin should be undertaken.

The recent ban on cyclamates, occasioned by experiments in which rats were fed a mixed diet of cyclamates and saccharin, might have seemed to present logical grounds enough for testing the carcinogenicity of saccharin, after the verdict on cyclamate even if not before it. Be that as it may, the reason for opening the case on saccharin was said by Dr Charles Edwards, Commissioner of the Food and Drug Administration, to be the announcement in March this year by Dr George T. Bryan of Wisconsin University that implantation of saccharin and cholesterol pellets raises cancers in the bladder of the mouse.

The National Academy report gives short shrift to experiments like this. "Tests for carcinogenic effects by applying saccharin to the skin, by subcutaneous injection, or by implanting pellets into the bladder", the report tartly observes, "have no known relevance to the safety of saccharin consumed orally. In the light of present knowledge, positive results by any one or a combination of these tests, as they have been conducted so far, cannot be accepted as evidence of a positive effect through dietary intake. . . . In the case of saccharin, we feel that negative results in well designed and properly executed feeding tests in two species of animals would indicate the absence of any carcinogenic hazard and would override the finding that bladder cancer is produced by pellet implantation".

The panel is equally withering about the high incidence of lung cancer reported in a feeding experiment (Fitzhugh, O. G., Nelson, A. A., and Frawley, J. P., *J. Amer. Pharm Assoc.*, **40**, 583; 1951): "We feel that no concern is justified because (*a*) there was a relatively high normal incidence of this lesion in the strain of rats used in the test, (*b*) the numbers of animals involved were not sufficient for satisfactory statistical evaluation, (*c*) there was a total lack of direct dose-effect relationship through five feeding levels ranging from 5 per cent to 0·01 per cent, and (*d*) no relation between saccharin and lung lymphosarcoma was reported by (two later studies)." People undertaking future studies of this nature will doubtless take care not to put themselves in line of this sort of fire.

On the assumption that saccharin will largely replace the banished cyclamates, the NAS panel calculates that the highest daily average intake in the United States is not likely to exceed 0·21 g, or about 3 to 4 mg/kg for a 60 kg adult. At this level the panel infers that there is, on the basis of present knowledge, no likely risk of saccharin causing decreased growth, bladder stones, kidney pathology, bone marrow hyperplasia or carcinogenesis. It is significant that unlike cyclamate, which in some individuals is converted to the carcinogen cyclohexylamine, saccharin is excreted almost exclusively in its unchanged form. But small amounts of two metabolites have been shown by tracer studies to be formed in rats (*o*-sulphamoylbenzoic acid and *o*-sulphobenzoic acid) and these substances should be investigated further, particularly with respect to the possibility that they may be formed by hydrolysis in foods under certain storage conditions.

The panel notes that saccharin has been used in food for 80 years without evidence of adverse effects (except for rare cases of photosensitization), a circumstance which, though it cannot be accepted as final proof of safety, nevertheless merits "due consideration". When work now in progress and other tests have been completed, the safety of saccharin should again be reviewed, the panel says. Soft drinks manufacturers everywhere will swallow this verdict with relief. It seems a pity, all the same, that a product which is largely consumed by children should have to be sweetened by a totally non-nutritious substance.

URANIUM

Devious Road to Enrichment

by our Washington staff

THE plans of the Administration to sell to industry the three publicly owned gaseous diffusion plants which between them generate the entire supply of enriched uranium for the US met with two setbacks last week. The Atomic Energy Commission announced that it has abandoned its proposal to establish a uranium enrichment directorate to run the plants; this would have operated as a separate unit within the AEC to serve as an interim measure to ease the way for the sale of the plants.

Also under attack are the plans which the Administration has had the AEC propose to change the basis for charging for uranium enrichment. The price which the AEC charges for uranium enrichment is at present fixed under criteria agreed by Congress in 1966 and which provide for the government to recoup "reasonable compensation" for running the plants. The revised criteria which the AEC recently submitted to Congress (see *Nature*, **226**, 1194; 1970) would change this situation by basing the price on supposedly more commercial considerations. The price for separative work would increase from $26 to $28·70 per unit under the new criteria and critics have charged that the purpose of this is to make the diffusion plants more attractive as a purchase to industry.

The lines are now forming for a fight over the legality of the revised criteria. Spurred on by Mr Chet Holifield's Joint Congressional Committee on Atomic Energy, the General Accounting Office has announced that it doubts the legality of the proposals under existing law. In the 1966 hearings which established the present criteria, Dr Glenn T. Seaborg, chairman of the AEC, stated that the basis for the price charged would be to give the government a reasonable compensation which would not include a profit; the AEC, he stated, did not believe it appropriate to seek a profit in view of its monopoly position. But the AEC is now challenging the conclusion of the GAO that it