

Delaney Amendment was "unanimously and unequivocally endorsed" by an ad-hoc committee of recognized authorities in the field of chemical carcinogenesis, which was appointed by the Secretary of Health, Education and Welfare in 1969, after the amendment was responsible for removing cyclamates from the market.

Apart from the Delaney Amendment, another fundamental issue discussed at the hearings was the suggestion, embodied in one of Senator Nelson's bills, that chemicals found to produce mutagenic or teratogenic effects in animals should also be totally banned from the food supply. Dr Edwards argued against such an extension of the Delaney Amendment, chiefly on the grounds that teratogenesis in animal tests has been reported as a result of injecting substantial apparently as harmless as common salt and zinc, or feeding a diet of raisins or excess vitamin A. He also argued that experiments with chick embryos, which are extremely sensitive to teratogens, would rule out the addition to the food supply of such essential substances as calcium and one of calcium pantothenate (an essential B vitamin).

But Dr Epstein offered his enthusiastic support for the proposed extension of the Delaney Amendment to include teratogens and mutagens, pointing out that the effects of such agents can be distinguished from other toxicity effects by their irreversibility. As for Dr Edwards's arguments about injecting possible teratogens into animals or hens eggs, Dr Epstein pointed out that the Delaney Amendment requires appropriate testing, and that such tests are not appropriate for the evaluation of the safety of a food additive—an appropriate test, he said, would be a feeding study.

Several participants in the hearings were also concerned about the burgeoning growth of the food additive market—now estimated to be worth about \$500 million a year—and the deceptive practices of the food industry in adding flavourings and colouring to disguise the absence of other ingredients, or to create a false impression that a product is packed with nutrient. Ms Anita Johnson, an Attorney connected with a Washington based consumer group called the Health Research Group, called such practices fraudulent, particularly when the presence of additives is not clearly advertised on packaging. But Dr William Lijinsky, a biochemist from Oak Ridge National Laboratory, summed up the feelings of many of the witnesses last week when he expressed concern about the number of additives on the market, and especially about the fact that few have been tested for synergistic effects. "It is hard to approve the use of the American public in a large scale chronic toxicity study", he said.

NUCLEAR POWER

All at Sea

by our Washington Correspondent

THE Westinghouse Electric Corporation believes it has a neat answer to environmentalists' criticisms of nuclear power plants—operate the plants at sea. Not long ago, the concept of a floating offshore power plant was considered to be a pipe dream, but it came a step nearer reality last week when Offshore Power Systems, a company formed jointly by Westinghouse and Tenneco, the largest shipbuilding concern in the United States, signed a contract with a New Jersey utility company for two floating nuclear power stations. The plants will be moored side by side about three miles off the New Jersey coast in about 45 feet of water, and if all goes according to plan, they should be providing electricity by 1980. But the project still has some troubled waters to navigate, even before the first construction rigs are put into place.

The idea is to construct the plants in a new assembly yard being built in Jacksonville, Florida, and then to tow them to their moorings, fully completed. They will be surrounded by a massive semicircular breakwater designed to provide protection from even the most severe storms and from stray ocean-going liners. Construction is expected to start on the breakwaters in 1976 and the plants will be towed into place three years later. Each plant is designed to generate 1,150 MW.

Westinghouse is quick to point out all the possible environmental advantages in siting a power plant at sea. Not only will such a plant take the pressure off riverfront development, thereby leaving more land for "recreational purposes", but it will also be possible to dissipate the cooling water and radioactive discharges easily in the sea. The company's spokesmen even claim that the slight temperature increase in the water around the plant will be beneficial for fisheries in the area and may also open up the possibility of setting up fish farms.

As for cost, the total outlay on the enterprise is estimated at \$1,100 million, far greater than for conventional plants. Of this total, \$750 million will go towards construction of the plants, \$100 million for transmission lines and \$250 million for the breakwater. It seems a high price for Westinghouse to pay for protecting the environment. But the company is looking on the venture as the key to a whole new market for power stations.

For one thing, New Jersey is rapidly running out of riverfront property suitable for power plant construction, and so a new approach has to be tried. But, more important, Westinghouse and Tenneco are setting up the construction

yard in Florida not just for these two plants but for a whole series of carbon copies ready for sale to any utility that may want them. In the past, power plants have been individually designed to meet criteria dictated by the construction site, but offshore power plants can all be built to the same design. By standardizing construction in a conveyor belt operation, Westinghouse and Tenneco hope eventually to cut down on costs by eliminating time overruns, site investment and, since construction time will be shorter than for conventional plants, borrowing costs will be lowered. Moreover, since all the plants produced in Florida will be built to the same design, the companies hope that the lengthy business of licensing hearings will have to be gone through for only the first one or two plants.

But the future for the project is not as rosy as the companies like to suggest. For one thing, three bills have already been introduced into the New Jersey legislature to block construction of the plants. Then jurisdictional disputes about the ownership of offshore areas are likely to arise, which may lead to licensing delays. Finally, not everybody is convinced about the environmental advantages of siting plants at sea. In particular, doubts have been raised about the ability of the breakwater to withstand the full force of a tidal wave or an earthquake and anxiety has arisen over the navigation hazards associated with the plant. All these doubts and fears will have a chance to be aired when the New Jersey state government holds hearings, probably next year, and when the AEC holds its licensing hearings a year later.

Astronomical Coordination

An ad-hoc meeting of 40 astronomers from 27 institutions in North America met at the University of Michigan last month to discuss coordination of observations of variability in extra-galactic objects. The aims of the meeting were to identify important experiments involving the monitoring of extragalactic objects, to discuss ways of coordinating such experiments and to look at the feasibility of establishing a data bank for their results. One committee was set up to promote regular exchanges of observing plans between experimenters and cooperation between institutions, and another was set up to look at the feasibility of a data bank to which observers of extragalactic objects would contribute data in a standard format when their work is accepted for publication. The bank would be accessible to all astronomers. The committee to assist in planning and cooperation needs suggestions: its chairman is Mark Stull, Radio Astronomy Institute, Stanford, California.