

being used to locate the uranium deposits. As much of the area is covered by a layer of peat, detection of radiation by scintillation counters is of only limited value. In addition therefore a technique was used which involved boring into the peat and measuring the concentration of radon in the "ground air". Variations in the radon and gamma ray intensities give an indication of the extent of the uranium deposits, but it is pointed out that probes down to several hundred feet will have to be employed before any firm estimate can be made of the amount of uranium present.

MEDICINE

Watching for Carcinogens

THE International Agency for Research on Cancer has concentrated on environmental cancer biology since it was set up by the World Health Organization in 1965, and its decision now seems to have been an excellent example of foresight. With programmes that cover hazards from asbestos to pesticides, the agency is well placed to feed the massive interest that has since developed in what the environment can (and cannot) inflict on the body, as is clear from its latest annual report. What is more, the report stresses the need to deal chiefly with human disease patterns "as long as our knowledge of comparative carcinogenesis and toxicology in animals and man remains insufficient to permit extrapolation", for "no alternative methods have been established permitting a definite assessment of environmental hazards to man". Those who would cry wolf at the sight of a dead rat might do well to consider this message.

On a budget of just under \$2 million, which is contributed by nine participating states and by WHO, the agency runs its own laboratory in Lyons—where a new building is due to be completed soon—and backs research in national centres; it has set up regional centres in Nairobi, Singapore and Jamaica, and also offers fellowships for training and for travelling. Its aim is to work on international cancer projects which as far as possible do not clash with what its participating states are doing on their own account, although it recognizes its usefulness as a neutral source of second opinions in cases where national sources are controversial or inadequate. In general its role is to gather new information, thus taking part in a convenient division of labour with the WHO Cancer Unit which is responsible for treatment and control.

The epidemiological section of the agency continues to digest statistics and produce uncomfortable correlations. Cancer of the oesophagus in Curaçao seems to be related to the consumption of a hot maize porridge; laryngeal cancer has a high incidence in Thailand and may turn out to be not unconnected with a local cigar which contains uncured home-grown tobacco and tree bark in roughly equal proportions; and there are even hints of a correlation between cancer of the colon and rectum and the consumption of meat. In the future, the environmental emphasis is expected to continue. The agency is hoping to increase the number of participating states, and intends to build up the network of collaborating laboratories engaged in specific programmes with different population groups; but in spite of the training it offers, it is still having trouble in attracting enough good staff to Lyons.

CONSUMERISM

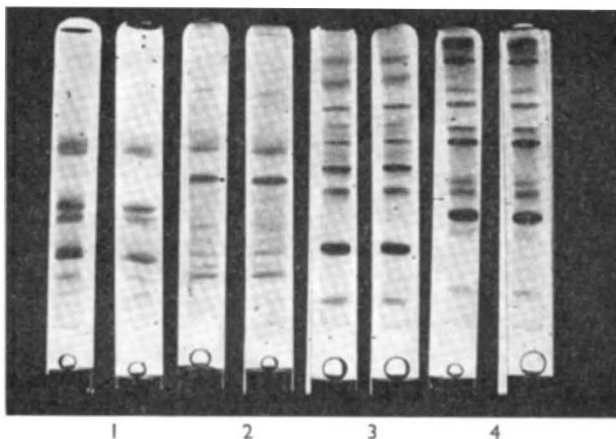
A Fish by Any Other Name . . .

To sell a plaice as a sole may not seem the gravest of crimes, but is nevertheless to be illegal from next year. Techniques for finding out what the species of a fish really is are consequently being made much more subtle, to judge by the report for 1969 of the Torry Research Station in Aberdeen (HMSO, 7s). By an electrophoretic method which identifies the water-soluble proteins from a small piece of flesh, the fish fraud can now be tracked down even if his fish have been skinned, filleted and cooked. For the moment, however, tinned fish will escape this net, because the proteins are changed too much in processing.

Another advance on the human nose is embodied in simplified kits that have been devised at Torry for assessing the freshness of wet fish. Their object is to measure the concentration of hypoxanthine, which begins to form in the flesh of a fish as soon as it is dead; an extract of the flesh is treated with reagents whose colour disappears if the fish is off. Prototype kits are soon to go on trial, but before they can be used regularly the amount of hypoxanthine that is to define an unacceptable fish will have to be investigated more precisely.

Measuring the quality is particularly important for fish that are frozen at sea, because they are sometimes kept frozen for several months. To determine the best way of handling catches, Torry staff have been comparing different methods that are used on board commercial trawlers. Both the delay before the fish are frozen and the temperature at which they are kept seem to be crucial; one promising approach is to use refrigerated sea water to chill the fish first. According to a survey of the consumer end of the fishing industry, however, sea frozen fish are more consistently of high quality than wet fish, and barely more expensive.

About half of the British catch is converted to fish meal for feeding animals. This proportion, however, consists largely of surplus fish and offal from fillets, and the director of the Torry Research Station, Dr G. H. O. Burgess, argues in the report that Britain would do well to develop an industrial fishery, for in 1968 the country imported about six times as much fish meal as it produced. The value of the imports, together with imported fish oil, was £41 million.



Electrophoretic "fingerprints" of fish species: 1, cooked lemon sole; 2, cooked Dover sole; 3, raw lemon sole; 4, raw Dover sole.