

Table 2. PARTS PER MILLION OF ORGANOCHLORINE PESTICIDE RESIDUES IN FOODSTUFFS—1967

| Butter | | Total BHC isomers | | Dieldrin (HEOD) | | DDT+DDE+TDE | |
|-------------------|----------------|-------------------|------|-----------------|------|-------------|------|
| Country of origin | No. of samples | Range | Mean | Range | Mean | Range | Mean |
| Australia | 35 | 0-0.05 | 0.01 | 0-0.03 | 0.01 | 0.01-2.0 | 0.27 |
| Denmark | 12 | 0.02-0.09 | 0.05 | 0.01-0.05 | 0.03 | 0.02-0.07 | 0.04 |
| Ireland | 6 | 0.02-0.12 | 0.05 | 0.01-0.04 | 0.02 | 0.02-0.07 | 0.05 |
| New Zealand | 49 | 0-0.03 | * | 0-0.04 | * | 0.02-0.70 | 0.21 |
| UK | 22 | 0.03-0.15 | 0.07 | 0.02-0.07 | 0.03 | 0.02-0.11 | 0.05 |

| Beef kidney fat | | Total BHC isomers | | Dieldrin (HEOD) | | DDT+DDE+TDE | |
|-------------------|----------------|-------------------|------|-----------------|------|-------------|------|
| Country of origin | No. of samples | Range | Mean | Range | Mean | Range | Mean |
| Argentina | 37 | 0.01-3.9 | 0.65 | 0-0.85 | 0.10 | 0-0.24 | 0.03 |
| UK | 36 | 0.01-1.55 | 0.18 | 0.01-0.12 | 0.03 | 0.01-0.14 | 0.04 |

* Less than 0.01 p.p.m.

from a dead kestrel, for example, contained about twelve nanograms of polychlorobiphenyls and only a total of 0.8 nanograms of pesticides, of which 0.33 nanograms was beta-BHC, an isomer of BHC generally regarded as non-toxic to wildlife. The discovery of contamination by polychlorobiphenyls raises several questions. How are they entering the food chain and why are they accumulated most frequently and in the largest proportions by wildlife? The accumulations in man and domestic animals are very small. The laboratory also collaborated with the British Antarctic Survey in 1967, showing that Antarctic wildlife is contaminated with DDT and organochlorine pesticides which must have been carried to Antarctica in the air or sea (*Nature*, **215**, 346; 1967).

SCREENING

Give Up Smoking

How can the general practitioner detect incipient lung disease? The Office of Health Economics, an offshoot of the trade association of the British pharmaceutical industry, has just published a paper explaining for the benefit of GPs the current screening methods, and the impact on the health of the patient of early detection of disease. "The early diagnosis of some diseases of the lung", written by Dr A. L. Cochrane of the MRC Epidemiological Research Unit and Dr C. M. Fletcher of the Royal Postgraduate Medical School, discusses how the GP can diagnose lung disease, and can reduce mortality by persuading his patients to give up smoking.

In the United Kingdom, chronic bronchitis and emphysema cause 7 per cent of all deaths in men and 3 per cent in women between the ages of 45 and 64. Three manifestations of bronchitis are now recognized and can be diagnosed by the GP: simple chronic bronchitis is characterized by persistent mucoid expectoration, while in mucopurulent bronchitis the sputum is purulent because of active bronchial infection. Obstructive bronchitis, which is characterized by narrowing of the airways and therefore increased resistance to airflow, is diagnosed by spirometry or by use of the Wright Peak Flow Meter. A spirometer records both the forced expiratory volume in one second (FEV 1.0) and the total expired volume or vital capacity (VC), either on a graph or on a dial. When there is narrowing of the airways and therefore delayed expectoration, the proportion of air expired in the first second (FEC/VC) will be less than 65 per cent. The Wright Peak Flow Meter measures the degree of impairment of ventilatory capacity. The length of time required for a forced expiration shows whether impairment is due to airflow obstruction or to restriction of lung expansion—

as might be caused by skeletal disease, pulmonary disease or loss of functioning lung. Normally the forced expansion time is six seconds and in cases of airflow obstruction this is increased.

Surveys have shown a close association between the three manifestations of chronic bronchitis, and this has led to the suggestion that mucous hypersecretion in the bronchi encourages infection which damages the lungs and results in obstructive bronchitis or emphysema. From this came the suggestion that preventive and therapeutic methods applied to simple cases of bronchitis might delay the onset of disabling airways obstruction. Recent studies have thrown doubt on this hypothesis; a trial of the effect of chemotherapy on bronchitic patients showed no difference in the rate of decline of FEV or of the volume and purulence of sputum between the patients and the controls. Improvement was noted, however, among the patients who had given up smoking.

Bronchial carcinoma, which accounts for a steadily increasing number of deaths, is best detected by chest X-ray and sputum cytology; the former method, which is cheaper and quicker, is the more acceptable. Treatment cannot be successful unless detection precedes metastasis; unfortunately, 80 per cent of the patients whose tumours are removed by surgery die with metastasis, showing that this occurs before the disease can be radiologically diagnosed. Until there is an improvement in the methods of treatment of lung cancer, there is little point in advocating regular routine chest X-rays and sputum examination for the prevention and control of the disease. Dr Cochrane and Dr Fletcher do emphasize, however, that the routine testing of cigarette smokers could remind the patients of the risks they run and of the rapidly declining risk if they manage to give up smoking.

INDUSTRIAL RESEARCH

IRDC Laser Show

THE International Research and Development Corporation at Newcastle upon Tyne has been making some progress with the application of lasers. The company claims no radical new invention or even any new slant on the use of lasers, but the modification and streamlining of already established techniques.

The most notable advance has been in the medical field. A new easy-to-use laser ophthalmoscope has been developed in a joint research and development project with the Royal Victoria Infirmary at Newcastle upon Tyne. This instrument is used to "weld" a displaced part of a retina back into position and is designed so that the surgeon can handle it and yet observe the relevant part of the eye at the same time. Collaboration between the hospital and the IRDC in the use of lasers to detect malignant cells in cervical smears has also been fruitful, but a similar series of tests performed with the Queen Elizabeth Hospital at Gateshead has produced results that conflict with conventional diagnoses.

The property of a laser of producing an intense beam of coherent light makes it a useful laboratory instrument for demonstrating the physics associated with waves, and IRD has produced a portable gas laser selling at about £170 for use in universities and schools.

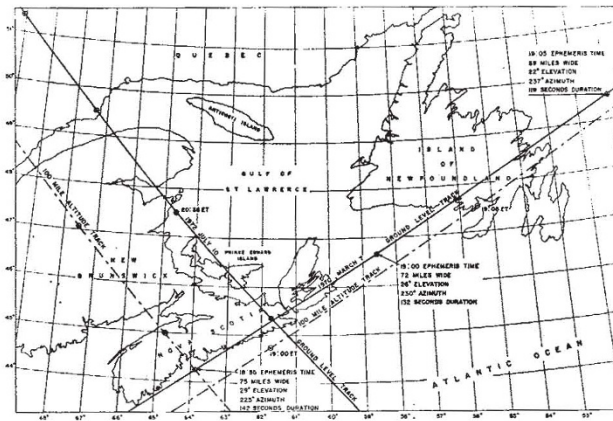
The well-defined pencil of radiation emitted by a helium-neon laser provides a convenient line of reference for alignment and surveying, and IRD reports that it has recently aligned an automatic transfer assembly line 450 feet long to within 0.05 inches. The laser is portable and easily set up, but, in such operations, personnel will have to be trained carefully to avoid looking along the beam.

ECLIPSES

Planning for Mexico

from our Astronomy Correspondent

ALTHOUGH it was once doubtful whether the Olympic Games would be held in Mexico City, it is certain that Mexico will be one of the favourable locations for viewing the next total eclipse of the Sun on March 7, 1970. As the map prepared by the US Naval Observatory shows, much of the path of the eclipse is unfortunately over sea, starting near the equator in the Pacific Ocean. The eclipse does cross Central America, however, near the narrowest part of Mexico, and grazes the Atlantic coast of North America before ending in the North Atlantic Ocean. Astronomers are already planning for the eclipse, and the working group on eclipses of the International Astronomical Union is setting up an information clearing centre for the Mexico eclipse under Professor Rigutti of the University of Florence, who is chairman of the working group. Information on



the British effort is being collected on behalf of Professor Rigutti by Dr Gordon Henderson, of the Department of Physics, Heriot-Watt University, Chambers Street, Edinburgh 1, who would like to know of interested British astronomers.

Canada is in a fortunate position just now as far as eclipses are concerned, which must give Canadian astronomers some small reason for satisfaction now that work has stopped on the 3.8 m telescope in British Columbia. There was an eclipse in Canada in 1963, and there will be others in 1972 and 1979. Plans for the 1970 eclipse, which will pass over Nova Scotia and Newfoundland, include the launching of a series of four rockets to study the effect on the ionosphere when the solar radiation is abruptly cut off. The rockets are the Canadian built Black Brant, and are to be launched for the National Research Council and the Defence Research Telecommunications Establishment. The first rocket will measure the undisturbed daytime

ionosphere just before the start of the eclipse; the other rockets will be launched an hour later at six minute intervals to cover the period when the Moon obscures more than 80 per cent of the face of the Sun. This includes the time of the total eclipse itself which will last 140 seconds. The launch site the Canadians are to use is near Port Dufferin on the Nova Scotia coast, chosen because it is at more or less the same latitude as Ottawa, so that simultaneous radio wave propagation measurements at the Defence Research Telecommunications Establishment in Ottawa can be readily compared with the rocket measurements.

Parliament in Britain

by our Parliamentary Correspondent

Queen's Speech

THE Government's programme for the new session of Parliament contained little of direct scientific interest. But the Queen did announce that the Government intends to ratify the Non-Proliferation Treaty, and continue to work for disarmament, both in the nuclear and non-nuclear fields. Legislation will be introduced to convert the Post Office from a department of state to a public corporation. A Bill will be introduced to effect the change to decimal currency.

Heart Transplants

MR NORMAN ST JOHN STEVAS asked Mr Richard Crossman if he intended to introduce legislation to control heart transplant operations. When Mr Crossman replied that he was not yet ready to make a statement, Mr Stevas warned that he himself might have to seek leave to introduce a private member's Bill on the subject. That, Mr Crossman said, was a prospect which he could contemplate with equanimity. He thought a little caution would be advisable—it was a complicated and difficult matter. To legislate for just one kind of organ would be wasteful; the problem was one that should be dealt with as part of modern surgery. (Oral answers, November 4.)

Social Science Research

MR KENNETH BAKER asked Mr Crossman what was to happen to the research departments of the Ministry of Health and the Ministry of Social Security now that the two ministries were merged. Mr Crossman said that the two research departments would be merged, and coordination with the Government Social Survey would continue as before. Mr Baker suggested that the scale of research had been inadequate, and Mr Crossman agreed that there was a crying need for better intelligence right across the field. One difficulty, he thought, was the shortage of statisticians—everybody wanted them, and some people paid more. (Oral answers, November 4.)

Foot and Mouth

VISCOUNT LAMBTON urged the Secretary of State for Social Services to include foot and mouth disease, when caught by humans, as a disease under the Industrial Injuries Act. During the recent outbreak, Mr Robert Brewis caught foot and mouth disease, and deserved compensation for suffering and loss of earnings. Mr Loughlin said that a survey of Mr Brewis's case was being made, and he promised to write to Lord Lambton when it was complete. (Written answers, November 4.)