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

Butter

Country of origin	No. of samples	Total BHC isomers Range	Mean	Dieldrin (HEOD) Range	Mean	DDT+DDE+TDE 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

Country of origin	No. of samples	Total BHC isomers Range	Mean	Dieldrin (HEOD) Range	Mean	DDT+DDE+TDE 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.