

# NEWS AND NOTES

## Views

The National Cancer Institute's clinical trial of the controversial apricot-stone cancer remedy laetrile has found no evidence of benefit (*Science* 1981;**212**:758-9). "What about all the anecdotal evidence?" project head Charles Moertel was asked. "People have said that crocodile dung and leeching have helped to cure disease," he replied. "We need scientific evidence and we now have it on laetrile."

Health Notice HN(81)6 tells us that from 1 June "full bespoke human hair wigs" provided by the NHS are to cost £45. This seemed a lot until Minerva checked the cost of vincristine, a cytotoxic drug which may, states the latest "British National Formulary," cause a variable degree of alopecia, in some cases total. A single vial costs £53.94.

How common is "denturism" in these islands? The practice of dental technicians providing dentures direct to the public (*Journal of the Irish College of Physicians and Surgeons* 1981;**10**:155-60) is steadily growing throughout the Western world, in spite of protests from the dental profession.

Do so many blind people with guide dogs visit hospital that the potential health risk needs to be examined? A report in the "Canadian Medical Association Journal" (1981;**124**:698-700) claims that visits by these animals need control and recommends that "blind people should, after settling their dog, wash their hands before coming into contact with patients." Apparently many Canadian dog owners carry packaged premoistened antiseptic towelettes for this purpose.

In one of the more amazing research projects of the year a survey of 1000 men attending a VD clinic in Newcastle upon Tyne (*British Journal of Venereal Diseases* 1981;**57**:145-6) showed that when screened with Wood's light three had genital vitiligo.

Women whose mothers died while they were young and who themselves have three or more children are more likely to attempt suicide than their contemporaries with smaller families, says a survey in the "British Journal of Psychiatry" (1981;**138**:381-90). The detailed study provides further evidence of the devastating effect on mental health of early, unsuccessful, hostile marriage.

Squamous cell carcinoma is a known complication of x-ray treatment, burns, and trophic ulcers. Less commonly such

tumours develop after a gunshot wound (*Injury* 1981;**12**:499-500), the legs being the usual site and the scar frequently extensive, irregular, and with a great deal of tough fibrous tissue.

And another study in "Injury" (1981;**12**:506-9)—from Sweden—shows that injuries were reduced and hospital admissions fell after the introduction of seat belt legislation in 1975, in spite of a rising number of accidents. Sadly, however, injuries to back-seat passengers are still as bad as those suffered by people in front seats who won't wear seat belts.

Given that a proportion of juvenile diabetes is caused by viruses it is possible to examine various options for prevention by vaccination (*Annals of Internal Medicine* 1981;**94**:395-400). When the sums are done the benefit of vaccinating everyone at the age of 3 clearly outweighs those derived from screening and vaccinating only populations at risk, even with a vaccine that is not very effective. Theory has still, however, to be translated into action.

Minerva was not surprised to read in "Archives of General Psychiatry" (1981;**38**:149-52) that psychologists and social workers believed that normal adolescents were unhappy with low self-esteem, constantly struggling with interpersonal relationships—whereas the adolescents themselves, when questioned, said "nothing of the sort. We're fine."

A man in Massachusetts was bitten by a flea from a flying squirrel which he had shot. Ten days later he became ill with typhus, confirmed by serological tests (*New England Journal of Medicine* 1981;**304**:1166-8). The case caused public consternation because flying squirrels roost in attics in some parts of the United States, and no one had realised that they could transmit typhus.

Threadworms cause a lot of misery to children and vexation to parents: they may also, says the "Journal of the American Medical Association" (1981;**245**:1340-1) cause chronic pelvic peritonitis in women.

Statistics published last week showed a fall in the proportion of Norwegian schoolchildren smoking since the 1975 Norwegian Tobacco Act, which banned all forms of promotion and stepped up health education about smoking.

MINERVA

## EPIDEMIOLOGY

## Foodborne gastroenteritis of unknown aetiology: a virus infection?

HAZEL APPLETON, S R PALMER, R J GILBERT

## Abstract

In almost a quarter of outbreaks of gastroenteritis reported to the Public Health Laboratory Service by medical officers of environmental health and environmental health officers as possible foodborne infection in 1980 food poisoning organisms were not isolated. In a third of this group the incubation period was longer than the usual range for bacterial food poisoning organisms, and possibly some of the outbreaks were viral in origin. Viruses were detected by electron microscopy in 88% of faecal specimens from similar outbreaks associated with shellfish but in only 23% of specimens from outbreaks associated with other foods. Recommendations are made for future investigation of such outbreaks including the collection of epidemiological data and specimens for virological study.

## Introduction

Outbreaks of gastroenteritis associated with the consumption of food are usually investigated as outbreaks of bacterial food poisoning. Reports have appeared, however, of outbreaks where neither the traditional nor less common food poisoning bacteria were isolated from clinical specimens or remnants of food.<sup>1-3</sup> Interest has recently focused on the possible involvement of viruses and, indeed, they have been implicated in two large community outbreaks associated with cockles in Britain<sup>4</sup> and oysters in Australia.<sup>5</sup>

Seventy-four outbreaks of gastroenteritis of unknown aetiology, possibly resulting from foodborne infections, were reported by public health and hospital laboratories between 1976 and 1979. This number probably represents only a small proportion of such outbreaks investigated, since laboratories tend to report only positive findings.

In 1980 a new food poisoning outbreak reporting system was set up that had as one of its objectives the identification of outbreaks of unknown aetiology. Seventy-five such outbreaks were reported by medical officers for environmental health and environmental health officers to the PHLS Communicable Disease Surveillance Centre in that year. This number represented 22% of all outbreaks of food poisoning reported from these sources. Some outbreaks of unknown aetiology may be genuine bacterial food poisoning, but where the median incubation period is between 24

and 48 hours bacterial food poisoning is unlikely. More than a third of the 55 outbreaks in which the incubation period was stated fell into this long incubation group. We describe the epidemiological features and laboratory investigation of such outbreaks and suggest how to investigate future outbreaks.

## Clinical and epidemiological features

Long incubation period outbreaks were often characterised by a very high attack rate. For example, in 1980, in 19 outbreaks where full details were available, the median attack rate was 60% (range 12-100%). This is comparable with experience in previous years. Illness lasted from one to three days, and symptoms usually included vomiting and diarrhoea with abdominal pain and fever. Secondary cases were sometimes detected in close family contacts.

A summary of 10 outbreaks occurring between 1976 and 1980 and representing the range of reports is presented in table I. Details of four of these are as follows:

## Laboratory investigation

Intensive investigations of several outbreaks of foodborne gastroenteritis have been undertaken. Apart from the expected isolation of small numbers of *Clostridium perfringens*, none of the usual food poisoning bacteria or campylobacters were found in specimens from patients, and nor were food-poisoning organisms isolated from samples of food. Faecal specimens from 14 outbreaks occurring between 1976 and 1980 were sent to the Virus Reference Laboratory, but no viruses were isolated by conventional tissue-culture techniques or inoculation into suckling mice. Electron microscopy of negatively stained, ultracentrifuged faecal extracts, as routinely used for detecting rotavirus, did not usually show the presence of any viruses.

A technique was therefore used which has previously proved successful in detecting viruses in outbreaks of winter vomiting disease and which depends on the extraction and concentration of viruses in caesium chloride gradients.<sup>6</sup> Using this method, small, round, featureless, virus-like particles were observed in most faecal specimens from nine outbreaks associated with the con-

TABLE I—Examples of suspected foodborne gastroenteritis of unknown aetiology (1976-80)

Community affected	Suspected food	No ill	No at risk	Incubation period (h)
Widespread	Cockles	797	1745	24-36
Riverboat shuffle	Buffet	120	146	24
Family	Cockles	3	4	44-48
Prayer breakfast	Bacon, eggs, etc	65	105	24-36
Private party	Buffet	30	90	24
Private party	Roast beef	86	104	24-48
Women's club meeting	Egg mayonnaise	25	30	30-40
Dinner dance	Oysters	>80	400	24-48
School	School lunch	95	180	33-38
Yacht club	Cockles	42	49	40-50

(1) A family of four purchased from a roadside stall seafood that included jellied eels, mussels, prawns, and cockles. Three of them became ill with abdominal pain, vomiting, and diarrhoea 44-48 hours later. The only common food among those who were ill was the cockles. The person who was not ill did not eat any cockles.

(2) Ninety guests attending a retirement party at a restaurant ate a buffet meal. Thirty guests were known to have become ill about 24 hours later. Guests attended from a wide area and several environmental health departments investigated the outbreak. Of 25 people interviewed, 18 suffered vomiting, 16 diarrhoea, and 14 abdominal discomfort. Unfortunately, food histories were obtained only from symptomatic guests so that food-specific attack rates could not be calculated.

(3) Thirty women attending a women's club meeting ate a buffet meal.<sup>3</sup> About 30-40 hours later at least 25 of the women developed illnesses characterised by nausea, vomiting, abdominal pain, and diarrhoea. Food-specific attack rates were calculated, but since most people had eaten a little of each food and only four people were known not to be ill they were of limited value.

(4) Over 400 people attended a dinner dance and 24-48 hours later several suffered from diarrhoea and vomiting. Epidemiological evidence was collected which strongly suggested that oysters were the vehicle of infection. A sample of 90 people was identified by contacting all those residents of one local authority area who had booked for a party of people to attend the function and their guests. Information for all the 90 was obtained. The attack rate in those eating oysters was 75% but only 6% in those who did not eat them.

sumption of shellfish (table II). The particles observed in all these outbreaks were 23-26 nm in diameter with a buoyant density of 1.40 g/cm<sup>3</sup> in caesium chloride, and were similar to those seen in outbreaks of winter vomiting disease<sup>6,7</sup> and a previously reported outbreak associated with cockles.<sup>4</sup>

TABLE II—Virus particles in foodborne gastroenteritis

Food implicated	No of outbreaks	No of patients tested (faeces)	No excreting small viruses
Shellfish			
Cockles	7	82	71 (87%)
Oysters*	2	8	7 (88%)
Various (not shellfish)	5	53	12 (23%)

\*Similar virus particles were detected in oysters from one of these outbreaks.

Control specimens were obtained from two people who consumed meals associated with family outbreaks but who did not eat the shellfish. They were not ill and did not excrete virus. Three people who ate shellfish without developing symptoms, however, did excrete virus. Examination of serial specimens from three patients indicated that maximum excretion occurs four to six days after onset of symptoms and could continue for at least a month after illness.<sup>8</sup> This contrasts with infections with Norwalk virus, which can usually be detected only during the first 48 hours.<sup>9</sup> Norwalk has been implicated in waterborne

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outbreaks of gastroenteritis and one shellfish-associated outbreak.<sup>10</sup>

Virus particles similar to those seen in faecal specimens from patients have been detected in oysters from one outbreak, but attempts to detect virus in several samples of cockles were unsuccessful. There is no evidence, however, that human enteric viruses replicate in shellfish, and therefore the numbers of virus particles present were probably too few to detect by electron microscopy.

In five outbreaks where foods other than shellfish were suspected small, round viruses were detected in only a small proportion of faecal specimens submitted. Although sufficient information from normal healthy people is not available, viruses observed in this group may possibly represent the rate of excretion in the general population. The presence of virus in 88% of faecal samples in the shellfish-associated outbreaks can probably be considered significant.

## Discussion

Evidence is slowly accumulating to suggest that viruses may be a cause of foodborne gastroenteritis. Outbreaks in which this aetiology is most likely are characterised by a long incubation period (24-48 hours), a high attack rate, and symptoms usually including both vomiting and diarrhoea.

A viral cause for an outbreak of gastroenteritis may be suggested by laboratory tests on clinical specimens, but evidence for foodborne transmission will rely heavily on epidemiological data. In outbreaks where only people with symptoms are interviewed epi-

demiological conclusions cannot be drawn, since an essential step in obtaining evidence is to calculate attack rates  $\frac{\text{(number of cases)}}{\text{total at risk}}$  in people exposed and not exposed to a particular factor—that is, consumption of a food. Therefore in an outbreak the total population at risk should be defined and interviewed. If in large outbreaks it is not feasible to interview everyone a random sample of people may be taken.

Food histories, including foods not eaten, should be obtained using a standard questionnaire from both well and ill people and food-specific attack rates should be calculated to identify the most likely vehicle of infection.

For laboratory investigation two faecal specimens should be examined from as many people as is reasonably practical; the first should be collected within 48 hours of illness and the second four to five days after onset of symptoms. It is also important that control specimens should be obtained from people who did not eat the suspected food and from those who did eat this food but were not ill. Faecal specimens can be stored until a decision is made by the laboratory that further investigation is worth while.

Unlike bacteria, viruses do not replicate in food and if present they are likely to be there in only small numbers. Methods available at present are not sufficiently sensitive to detect gastroenteritis viruses in most foods. Nevertheless, as bivalve molluscs are known to concentrate viruses from polluted water and

small round viruses have been detected in oysters in this study and by workers in Australia,<sup>5</sup> it is, therefore, worth examining any shellfish that can be obtained from the same batch suspected of causing an outbreak.

We thank our colleagues in various public health laboratories and the medical officers for environmental health and environmental health officers who have sent material for examination together with epidemiological information.

## References

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- <sup>3</sup> Public Health Laboratory Service. Gastroenteritis of unknown aetiology. *Br Med J* 1979;**ii**:1008.
- <sup>4</sup> Appleton H, Pereira MS. A possible virus aetiology in outbreaks of food poisoning from cockles. *Lancet* 1977;**i**:780-1.
- <sup>5</sup> Murphy AM, Grohman GS, Christopher PJ, Lopez WA, Davey GR, Millsom RH. An Australia-wide outbreak of gastroenteritis from oysters caused by Norwalk virus. *Med J Aust* 1979;**ii**:329-33.
- <sup>6</sup> Appleton H, Buckley M, Thom BT, Cotton JL, Henderson S. Virus-like particles in winter vomiting disease. *Lancet* 1977;**i**:409-11.
- <sup>7</sup> Christopher PJ, Grohman GS, Millsom RH, Murphy AM. Parvovirus gastroenteritis—a new entity for Australia. *Med J Aust* 1978;**i**:121-4.
- <sup>8</sup> Appleton H. Small round viruses in outbreaks of food poisoning. In: Bricout F, Scherrer R, eds. *Enterites virales chez l'homme et l'animal*. Paris: INSERM, 1980:237-40. (Colloque 90.)
- <sup>9</sup> Thornhill TS, Kalica AR, Wyatt RG, Kapikian AZ, Chanock RM. Pattern of shedding of the Norwalk particles in stools during experimentally induced gastroenteritis in volunteers as determined by electron microscopy. *J Infect Dis* 1975;**132**:28-34.
- <sup>10</sup> Anonymous. Viruses from shellfish. *Lancet* 1980;**ii**:1224-5.

## MEDICAL NEWS

### Appeal for Institute of Occupational health

A "Health at work" appeal aims to raise £2.5m over four years to build and staff the new Institute of Occupational Health in the University of Birmingham. The commitment of over £500 000 by companies in the United Kingdom was announced at press conferences last week. Further information from the appeal organiser, the Revd Paul Nicolson, Institute of Occupational Health, University of Birmingham, Birmingham B15 2TT (0438-832849 or 021-236 1794 ext 242).

### Ombudsman's report

From October 1980 to March 1981, 60 full investigations were completed by the Health Service Commissioner, Mr Cecil Clothier, QC; and in 43 he found some justification for the complaint. In his second report for the session 1980-1 (HMSO, £8.10) he gives an account of 36 of his cases. Two very serious ones that are singled out concern babies. One was a baby who became ill on discharge from the maternity unit and died in a children's hospital a week later; the Ombudsman found that communications at the first hospital were faulty, and he regarded the way the complaints

had been handled by the area health authority as "maladministration deserving of severe criticism." In the other case the baby was stillborn and the necropsy showed intrauterine anoxia; stillbirth was thought to have possibly resulted from the inadequate attention received by the mother after her admission to the general practitioner unit of a maternity hospital. "This is one of the most serious complaints," comments Mr Clothier, "that I have been called upon to investigate."

### Nuffield Nursing Homes Trust

In 1980, 68 500 patients were admitted to the 30 hospitals run by the Nuffield Nursing Homes Trust, according to its *Report and Accounts 1980*. There were 1020 beds in use, and nearly 63 000 operations (20 000 of them major) were performed. Sir Richard Bayliss and Sir John Wakeley became the trust's medical advisers on the resignation of Sir Alan Parks. The report may be obtained from the trust at Aldwych House, 71/91 Aldwych, London WC2.

### Alzheimer's Disease Society essay prize

The Alzheimer's Disease Society is offering a prize of £100 for the best essay covering some aspects of research on the disease or care of patients. Details and entry forms from Dr G K

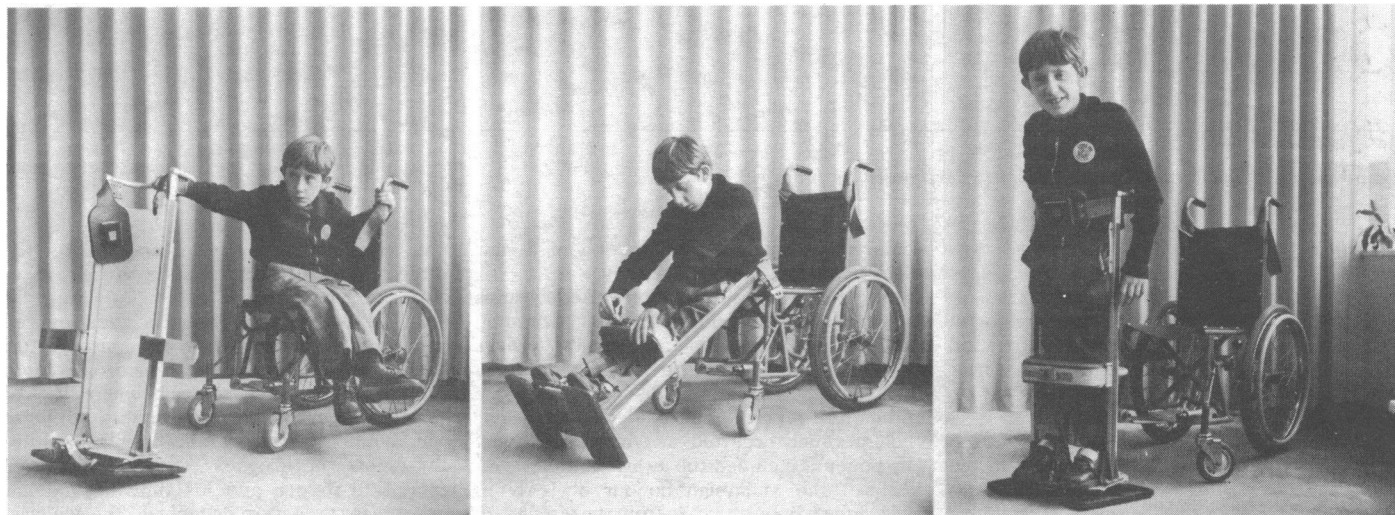
Wilcock, Department of Neuropathology, Radcliffe Infirmary, Oxford OX2 6HE, or Mrs M Fisher, 3 Spencer House, Vale of Health, Hampstead, London NW3 (closing date for application for entry forms 30 June).

### Information, please

Dr Terence Reilly is collecting data by a questionnaire on patients with a mono-symptomatic hypochondriacal psychosis—a false conviction of disease or abnormality in a single part of the body or a single organ system, without other features of psychotic disturbance or appreciable cerebral pathology. Doctors who have had such patients are invited to contact him at the Maudsley Hospital, Denmark Hill, London SE5 8AZ.

Catherine Khorshidian (Psychology Department, Burton Road Hospital, Dudley, West Midlands DY1 3BX) would be grateful to hear from any pain clinic in Britain that has not received her circular about psychologists in such clinics.

Dr C P U Stewart (Dundee Limb Fitting Centre, 133 Queen Street, Broughty Ferry, Dundee DD5 1AG) would like to hear from anyone who has come across calcification of the costal cartilages as a complication of paraplegia.



Swivel walker for the paralysed, the only piece of medical equipment to receive a Design Council award at the presentation by the Duke of Edinburgh on 19 May. It is designed by Mr Gordon Rose, consultant orthopaedic surgeon, and the DHSS Orthotic Research and Locomotor Assessment Unit (based at the Robert Jones and Agnes Hunt Hospital, Oswestry), of which he is director. Eleven-year-old Lyndon Fishwick, seen here using the device, can swivel walk 6 m in 13 seconds. The user can get into it without help and by rocking from side to side move forward on two swivelling footplates. Costing £250, the equipment may be used from the age of 15 months for people paralysed from the waist downward.

## People in the news

Dr C C Booth has been elected a member of the American Philosophical Society in Philadelphia, which was founded by Benjamin Franklin in 1743.

Professor Sir Andrew Kay has had an honorary Doctor of Science degree conferred on him by the University of Manchester.

## COMING EVENTS

**"Meditation. A prescription for the 80s"**—Conference for health and healing professions, 2 June, London. Details from Siddha Yoga Dham, 01-675 4105.

**Sixth International Cuban Medical Association Congress**—30 June-4 July, Miami Beach. Details from Cuban Medical Association in Exile, 213 Aragon Avenue, PO Box 341016, Coral Gables, Florida 33134, USA.

**Community Health Group for Ethnic Minorities**—Details of weekly workshops on "Women's health in multi-cultural society" to 1 July, London, are available from Usha Rao or Miss Liz Smart of the group, 28a Churchfield Road, London W3. (Tel 01-993 6119.)

**Sorrento Maternity Hospital Premature Baby Unit**—Golden jubilee conference "Perinatal perspectives," 4 July, Birmingham. Details from Dr B A Wharton at the hospital, Wake Green Road, Birmingham 13.

**British Institute for the Study of the Arts in Therapy**—Workshops in movement, drama, and art. 11-12 July. Details from BISAT, Christchurch, 27 Blackfriars Road, Blackfriars, London SE1 8NY. (Tel 01-633 9690 10.30 am-5.30 pm Monday to Friday.)

**Vocal/College of Speech Therapists**—Study day, 12 September, London. Details from Mrs April Corner, Chief Speech Therapist, Frimley Park Hospital, Portsmouth Road, Frimley, Surrey GU 16 5UJ.

**International Study Group for Steroid Hormones**—10th meeting "Hormonal factors in fertility, infertility, and contraception," 2-4 December, Rome. Details from Professor Carlo Conti, Clinica Medica V, Policlinico Umberto I, Università di Roma, 00100 Rome, Italy.

**International symposium on the safe use of solvents**—23-27 March 1982, Brighton. Details from the secretariat of the symposium, 142-144 Oxford Road, Cowley, Oxford OX4 2DZ. (Tel 0865 774051.)

**Winchester and Central Hampshire Medical and Dental Federation**—Details and copies of the May to July programme are available from the Postgraduate Medical Centre, Royal Hampshire County Hospital, Winchester. (Tel Winchester 63535 ext 422.)

## SOCIETIES AND LECTURES

*For attending lectures marked \* a fee is charged or a ticket is required. Applications should be made first to the institutions concerned.*

### Monday, 1 June

INSTITUTE OF DERMATOLOGY—4.45 pm, Dr D Vella Briffa: The use of PUVA equipment.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY—12.30 pm, Professor M Panigel (Paris): Aspects of placental function.

### Wednesday, 3 June

BRITISH HEART FOUNDATION—At Postgraduate Centre, Swindon, 1 pm, Professor J R A Mitchell: It's only a stroke.

INSTITUTE OF ORTHOPAEDICS—6 pm, Dr C B Wynn Parry: Diagnostic aids in neuromuscular disorders. 7 pm, Mr B A Roper: Stroke and spasticity—surgical procedures.

ROYAL FREE HOSPITAL SCHOOL OF MEDICINE—5 pm, Dr R C Muehrcke (Illinois): The place of renal biopsy in clinical medicine.

### Thursday, 4 June

ST MARY'S HOSPITAL MEDICAL SCHOOL—5.15 pm, Aleck Bourne lecture by Professor Desmond Pond: What do we mean by the term "psychosomatic"?

WESTMINSTER MEDICAL SCHOOL—5.15 pm, Dr Louis Kreef: Abdominal fluid collections on CT.

## BMA NOTICES

### Central Meetings

#### JUNE

- |          |   |
|----------|---|
| 2 Tues   | Scottish Joint Consultants Committee (7 Drumsheugh Gardens, Edinburgh EH3 7QP), 10.15 am. |
| 3 Wed    | Council Executive, 10 am.   |
| 4 Thurs  | General Purposes Subcommittee (GMSC), 10.30 am.   |
| 9 Tues   | Scottish Council (7 Drumsheugh Gardens, Edinburgh EH3 7QP), 10.45 am.                     |
| 10 Wed   | Finance and General Purposes Committee, 10 am.  |
| 11 Thurs | Annual Conference of Representatives of Senior Hospital Medical Staffs, 10 am.            |
| 12 Fri   | Negotiating Subcommittee (CCHMS), 10 am.  |
| 13 Sat   | Hospital Junior Staff Conference, 10 am.  |

### Division Meetings

*Members proposing to attend meetings marked \* are asked to notify in advance the honorary secretary concerned.*

**Blackburn**—At Blackburn Royal Infirmary, Tuesday, 2 June, 8 pm, extraordinary general meeting.

**Burton upon Trent and District**—At Burton Graduate Medical Centre, Tuesday, 2 June, 8 pm, Dr I McKim Thompson: "The financial crisis, manpower and jobs—are doctors on a hiding to nothing?"\* (Light refreshments served.)

**Darlington**—At Darlington Memorial Hospital, Wednesday, 3 June, 7.30 pm, dinner meeting, speaker Sir John Walton: "Some medical meanderings."\* (Guests and non-members invited.)

**Enfield**—At Highlands Hospital, Wednesday, 3 June, 7 for 7.30 pm, clinical meeting "An eye for an eye."\* (Spouses welcome. Buffet supper available.)

**Kesteven**—At Grantham Hospital, Thursday, 4 June, 1 pm, agm.

**Sutton and West Merton**—At St Helier Hospital, Tuesday, 2 June, 8.30 pm, agm.

**Trafford**—At St Anne's Hospital, Wednesday, 3 June, 7.30 pm, business meeting, slide/tape presentation on thermography, and buffet supper.

## UNIVERSITIES AND COLLEGES

### LONDON

MD—J E Harvey, M J Lancaster-Smith, A C Scott-Keat.

### ROYAL COLLEGE OF RADIOLOGISTS

The following candidates were admitted to the fellowship on 15 May—J Aaron, A G F Aitken, M C Au-Yeung, R M Blaquiere, E S Breatnach, Ann E Brown, N T A Couper, D D Dundas, C A Farrelly, D A Gould, K Hughes, J K Hussey, K H Jawad, H A Jordan, R G M Kendrick, D I Lauckner, A J Longstaff, C A McConnell, Pamela C Martin, R R Mason, M A Musaji, Ingeborg B Nockler, B O'Dwyer, Sheila C Rankin, H S Sharif, S Sivathasan, I S Stewart, Evelyn M Teasdale, Patricia E Thurley, W C Wotherspoon, M Adams, J J Bolger, M A Coe, D C Fermont, T D Goode, Anna Gregor, Jeanette K Kremer, Jennifer J Lovett, D A L Morgan, J J Mould, G J G Rees, C G Rowland, P L Xavier.

## CONSULTANT APPOINTMENTS

**EAST ANGLIAN RHA**—Dr J F B Dossetor (paediatrics); Dr M F Naguib (geriatrics); Dr D J Elliott, Dr J R Jenkins (anaesthetics); Dr K R Karia, Dr P G Kitchener, Dr J S Cantlay (radiology); Mr H M Adair (general surgery); Dr R C McGouran (general medicine).

**NATIONAL HOSPITALS FOR NERVOUS DISEASES**—Dr Christina J Williams (physical medicine and rehabilitation).

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