

Although there is no evidence that the Beckenham vaccine was directly responsible for the reported encephalitis, supplies are being frozen all over the world until further evidence has been assembled. This unfortunate setback is almost certain to cause a shortage in the mass measles vaccination programme announced by Mr Kenneth Robinson, then Minister of Health, in February 1968. But in spite of this, as a spokesman at the ministry pointed out, there are no plans to import vaccine from overseas. Some 500,000 children under the age of 14 were vaccinated during the first 4 months of the programme; recent figures are unfortunately not available.

#### POWER STATIONS

### Too Much Delay

POWER stations built for the Central Electricity Generating Board (CEGB) tend not to be built on time. The reason, according to a committee of inquiry under Sir Alan Wilson which reported last week, has less to do with technical faults than with management problems (*Report of the Committee of Enquiry into Delays in Commissioning CEGB Power Stations*, HMSO, 5s). The report makes clear the magnitude of the problem. At present, the power station programme is running about 18 months late, and there seems little hope of reducing the backlog before the end of 1972. Between 1959 and 1967, 22 new power stations involving 70 generating sets were released for construction, and the report is based on an analysis of the delays that occurred. Of the 70 generating sets, 30 are known or expected to be more than twelve months late, involving 14 power stations. The reason is not that the CEGB is excessively optimistic about the time needed to build a station—the targets it set itself are if anything less ambitious than in the United States where power stations are usually finished on time.

The difference, according to the report, is that the CEGB management is less effective than its American counterparts. The chief cause of the delays which the report points out occurred in the early 1960s, when the programme was increased to cover the shortage of electricity which was then becoming apparent. But the expanded programme turned out to be too much for the CEGB and its contractors to cope with. The report therefore urges more efficient long term planning, which would also have anticipated the fall in demand which has now left the CEGB with far too much capacity. The burst of activity during the early 1960s also found the management structure in the CEGB and in the contract industry less well defined than it might have been. One of the chief criticisms of the CEGB is that, perhaps unwittingly, it is placing too much emphasis on the engineering aspects of its brief to the detriment of management. And with the construction of a power station involving up to ten large contractors accounting for about 70 per cent of the cost, with many different workers from different trades on the site, effective management is a prerequisite for completion on time.

But much of this is past history. The committee also enquired whether the CEGB has learnt its lesson, and the conclusion is that by and large it has not. This is why the report says it does not expect a major

improvement in the backlog until much nearer the end of the 1972 deadline. A number of suggestions are put forward. The CEGB should reduce the amount of time consuming dialogue with the contractors over the specifications, the number of contractors should be reduced and there should be more allowance for design difficulties when prototype machines are installed. The committee is also surprised at the scant attention paid by either the employers or the unions to labour relations on the site.

#### OPEN UNIVERSITY

### Physicist of the Air

It seems that Dr Gerald F. Elliott has been appointed the professor of physics of the Open University, Britain's University of the Air, which is planned to start broadcasting in late 1970 or early 1971. Dr Elliott is at present a member of the Medical Research Council's Biophysics Unit at King's College, London, although for the past several months he has been on leave of absence at the Carnegie Mellon University in Pittsburgh. Ever since taking his first degree in physics at Oxford, he has been a member of the muscle group at King's, which is headed by Professor Jean Hanson and included, until he recently took a chair in Denmark, Dr Jack Lowy. Dr Elliott is, of course, well known for his X-ray diffraction studies of muscle. As a physicist who works with biological systems, he is ideally suited to the interdisciplinary approach to science which the Open University promises.

The most serious drawback of the Open University, as far as staff are concerned, is the provision of facilities for research. The Open University has said that its staff will be given research facilities, presumably at Milton Keynes when it has settled down there. It is, however, difficult to see how the Open University can hope to match the facilities provided by conventional universities, or indeed whether it is sense for it even to try. There is a strong case for arguing that the Open University would do better by encouraging its staff, if need be by arming them with grants, to find laboratory space in the nearby conventional universities.

#### INFORMATION RESOURCES

### Data for Innovation

from a Correspondent

ASLIB seems to have embarked on a programme to reassess the importance of information services as adjuncts of industrial innovation. At a symposium held at the University of Nottingham on March 21 and 22, Dr Jeremy Bray, Joint Parliamentary Secretary at the Ministry of Technology, emphasized the need that industrial leaders should continually be trained and retrained. He also pointed out that innovation too often seems to be outside the control of society, and urged a shift of emphasis away from a concern with techniques to a concern with goals: society should decide its goals and implement innovations which will further those goals.

Mr Dargan Bullivant argued that information should be treated like raw material which has to be processed to the specific needs of the firm. Mr J. K. L. Thompson of the Ministry of Technology drew attention to the

fact that 90 per cent of British firms employ less than 200 people, and that most of these firms neither employ graduates nor possess library facilities. He described the activities of the regional offices of the Ministry of Technology, and cooperative ventures with research associations, in bringing information about innovations to small firms in a form that would be easily understood and applied.

Two sessions were devoted to papers by social scientists and operational research workers. Mr G. F. Ray, senior research officer, National Institute of Economic and Social Research, took up Mr Thompson's comments on lack of scientifically trained managers. He described a joint research project by economic research institutions in six European countries to compare the dissemination of ten relatively new technological processes. Provisional results indicated considerable differences in the dates of the introduction of the new processes in the six countries, but even bigger differences in the diffusion rates of the innovations in these countries. While some of the differences could be accounted for by economic factors, the substantial residue was thought to be due to the attitude of managers to technical change.

Mr T. W. Harries of the Centre for the Utilization of Social Science Research, Loughborough University of Technology, emphasized the importance of psychological and sociological factors in the diffusion of innovation. He related the empirical findings of some research projects to Everett Rogers's model of the diffusion of innovation. Some findings suggest the need to modify the model, but the exercise emphasized the need for conceptual frameworks if empirical research is to provide meaningful lessons for practising information scientists seeking to increase effectiveness. Existing models and empirical data suggested that information scientists should not view increased effectiveness in terms of a simplistic cause and effect framework.

Dr T. E. Easterfield of the Ministry of Technology emphasized the need for information about situations as well as information about facts. Mr S. Hunter of the British Iron and Steel Research Association described a research programme to establish criteria for selecting and evaluating research projects. Particular attention was given to the problem of disseminating research results to managers, and "selling channels" were evaluated by means of interviews in terms of (a) informing managers of the existence of an innovation and (b) persuading them to implement. Both the cost and benefit of a given selling strategy were assessed and a criterion was developed to calculate the optimal time for terminating the selling effort.

Finally, two sessions were given over to practising information scientists. Mrs M. Griffin of Corporate Marketing, Research and Information Services Departments, Smith Industries Ltd, described a less orthodox use of marketing research; that of providing the link, sometimes missing, between technical and marketing personnel. In this way market research served both inventors and researchers by stimulating innovation and giving direction for research and development.

Miss Rowena Swanson of the United States Airforce Office of Scientific Research (AOR) Arlington acknowledged the need for models. She recognized that information services are effective only when they "connect" with people, and that complex interrelation-

ships of factors are involved in the diffusion of innovation. She disagreed with the suggested need to concentrate on personal contacts at the expense of the written word, quoting examples in the United States where scientists and engineers had changed to written channels as the result of action research and educational programmes by information scientists.

#### EQUIPMENT EXHIBITION

### Show-All

"BIGGER and better than ever before" is how the organizers of Labex International described this year's exhibition which opened at Earls Court on Tuesday. This fairground ebullience was tempered on the opening day with apologies, for last minute labour troubles meant that the exhibition had to open before it was complete. All the planned exhibits were on show, but lack of decoration gave them something of a makeshift air. The exhibition is the tenth Labex, and as usual is sponsored jointly by the Scientific Instrument Manufacturers Association and *Laboratory Practice*. There are 212 exhibitors this time, 73 of them first-timers, and the organizers expect 25,000 visitors. This is a fair coverage of the scientific profession—it is fully one quarter of the number of scientists practising in Britain.

As usual, the exhibition caters for every level of price and sophistication. Test tube holders and filter funnels stand next to the gleaming last word in ultracentrifuges. No single theme dominates the exhibition but it is impossible not to be struck by the new generation of spectrophotometers, with typewriter consoles (for digital read-out) nestling happily alongside the familiar sample holders and strip chart recorders. Impressive, too, was the latest automatic assay equipment designed for clinical laboratories.

New reagents are on display as well as new machines, and an enzyme preparation capable of making a specific and sensitive assay of noradrenaline is bound to attract wide attention. The enzyme is phenylethanolamine-N-methyltransferase, and it is claimed to be able to measure noradrenaline in less than one milligram of tissue.

A wide ranging programme of lectures and discussions has been arranged in parallel with the exhibition. The organizers were proud to relate that one lecture—by Dr Eglinton of Bristol on the organic constituents of ancient rocks—had to be cancelled because Dr Eglinton has left for the United States to help organize the analysis of the NASA moon samples that are due this year. The handful of people seeking to hear the government chemist, Dr D. T. Lewis, describe his heterodox theory of fundamental particles were seriously impeded by the unfinished woodwork

#### COLOUR TECHNOLOGY

### All Things Bright and Beautiful

WHAT must certainly be the most colourful of the scientific exhibitions was held this week at Alexandra Palace. For the contributors to the technical exhibition of the Oil and Colour Chemists Association presented its wares amid a kaleidoscope of fluorescent