the district remain under house arrest. Two people bitten by the rabid dog, together with about fifty others who may conceivably have been exposed to infection, were put on a course of fourteen daily injections of anti-rabies virus. They are being kept under observation during the period of potential incubation, but now appear quite healthy.

INSTRUMENTS

Slow Progress by Sira

ALTHOUGH there was an improved performance by the British scientific instrument industry last year, the industry's research association has not done as well as was hoped when the association celebrated its golden jubilee a year ago. The annual report of the Scientific Instrument Research Association (Sira) for 1968–69 records that subscriptions from members and contributions towards projects showed a slight increase of £2,000, but the grant from the Ministry of Technology fell by £14,773. This is because most of the grant comes from an arrangement by which the government donates three times the industrial contribution for work on measurement and control, and in this area the association's income was down. Nevertheless, Sira has been able to make available an extra £50,000 compared with 1967–68 by dipping into £107,272 carried over from last year.

The association's performance is disappointing, however, because last year it embarked on a new scheme to make membership more attractive and thus ultimately to bring in more money from the Ministry of Technology. It is too early to say that the new membership structure has misfired, if only because it had been in action for a mere seven months before the end of the financial year. But the total of 151 members listed in this year's report is only six more than last year. It seems that several large firms, including the Hilger and Watts Group, have taken the opportunity of the new arrangements to opt out of the association. It is clear that Sira has still not found what the industry expects of it.

Last year was more cheerful for the instrument industry as a whole, however, and the figures for the first six months of 1969 are equally optimistic. The export surplus for 1968 was £19·036 million, which is only fractionally more than the surplus of £19·027 million for the first six months of this year. Optical instruments have done less well than electrical and electronic instruments, however, which is attributed to the bogy of German and Japanese competition. The director of Sira, Mr S. S. Carlisle, is particularly eager to encourage closer ties with eastern Europe and much effort has been devoted to the creation of informal links with Hungary and Poland. Sira is also involved in the negotiations with the Soviet Union on measurement and standards, and it is no accident that some of the discussions have been concerned with ways of specifying and measuring the image quality of optical systems. Sira has devised equipment for measuring optical transfer functions, a way of evaluating the performance of lens systems, which last year made £6,500 in royalties for the association. It is hoped that the establishment of international standards for optical components will encourage wider use of the Sira equipment and even be a shot in the arm for the British optics industry.

FISHERIES

Reducing the Import Bill

THE United Kingdom has an import bill for fish meal and oil of more than £20 million a year, equivalent to more than one million tons of fish, and the Marine Laboratory at Aberdeen is one of the laboratories concerned to reduce this bill. In its report for 1968 (HMSO, 15*s*) the laboratory, which comes under the Department of Agriculture and Fisheries for Scotland, says that it is in particular trying to assess the industrial potential of the blue whiting (*Micromesistius poutassou*). This is a species found in enormous shoals off the west coast of Scotland and in the northern North Sea but at present not exploited commercially. Surveys by the laboratory in 1967 and 1968 have shown that the spawning stock on Rockall Bank alone could exceed one million tons, which would provide large catches by bottom trawl in the late winter and spring. It also seems that there are abundant quantities of other fish suitable for the fish meal industry—the silver smelt (*Argentina* spp.) and another small relative of the haddock and whiting (*Gadiculus argenteus*) which could be caught in the same region in October to compensate for the lack of the blue whiting in the bottom trawls at this time of the year. From other surveys that the laboratory and German investigators have made, it seems that the blue whiting during late summer and autumn is instead distributed in mid-water over Rockall and further north, so that it could be caught in large quantities with pelagic trawls.

CSIRO

Continuing the Boom

IT would be misleading to judge the further expansion of the Commonwealth Scientific and Industrial Research Organization of Australia in the past year solely in terms of the $4·1 million increase in the annual budget between 1967–68 and 1968–69. The annual report for 1968–69 shows that several divisions of the CSIRO have been steadily shifting the emphasis of their work, notably in building research, where computers have been coming to the fore, and soil research, where factors involved in soil fertility are receiving added attention. Important new topics have also appeared on the agenda, including several new projects in animal health and horticultural research.

The total expenditure of the CSIRO in 1968–69 was $46·6 million, of which $42·9 million was spent on scientific investigations. The largest division, that of plant industry, increased its budget from $3·4 million

INCREASE IN EXPENDITURE AT CSIRO
(millions of Australian dollars)

Subject	1968–69	1967–68	Per cent increase
Plant industry	3·77	3·44	9·6
Entomology	2·06	1·85	11·2
Animal physiology	1·72	1·58	9·2
Animal health	1·71	1·48	15·9
Applied physics	1·61	1·47	8·9
Food	1·60	1·39	15·3
Soils	1·52	1·41	8·5
Tropical pastures	1·49	1·30	14·3
Land	1·46	1·31	11·3
Textile industry	1·17	0·99	18·0

to $3·8 million in 1968–69, and the table shows the most significant increases in other fields over the year 1967 68.

Various aspects of chemical research have been cut back during the past year, in particular in applied chemistry, chemical physics and chemical engineering. There has, however, been a new onslaught on the problem of finding insecticides of low mammalian toxicity, and a new laboratory has been commissioned in Sydney at a cost of more than 2 million dollars to house the expanding research on mineral chemistry.

A new microbiology unit has been established at Long Pocket Laboratories in Brisbane to investigate infectious diseases of livestock in northern Australia. Several other major building projects have been started during the past year, including the $340,000 extension to the Cunningham Laboratory in Brisbane for the study of tropical pastures and the new agronomy laboratory and administrative building at Canberra for investigating plant industry. CSIRO is also to have a new head office in Canberra by the end of 1970, at a cost of nearly one and a half million dollars. Two buildings opened in the past year are the structure testing laboratory in Melbourne, which will be used to test building structures and components under loads of several hundred tons, and the extension to the Meat Research Laboratories in Brisbane, where research has now been started on mutton and lamb.

A meteorological research centre is to be set up in Australia under the auspices of the CSIRO and the bureau of meteorology. It will undertake studies of the atmosphere and means of weather forecasting.

PALAEONTOLOGY

Archive for Data

A PLAN for an archive of palaeontological data in Great Britain was discussed at a recent informal meeting of the Palaeontological Association. Although the meeting heard a great deal about "the information explosion", the shortage of government funds for the publication of research findings and the costs and benefits of various publications, traditional and otherwise, the organizers were more specifically concerned with problems such as the need for proper records of all palaeontological collections, channels of communication for identifying such collections and records and ultimately methods for retrieving the information.

The organizers propose a system of "Palaeontological Data Records", each referring to one or more fossil specimens from one locality and rock division, and containing information such as the name of the collector, the grid reference, the horizon, a description of the material and its taxonomy and so on. The consensus of opinion seemed to be that some sort of data bank would be a good thing provided it was complementary to and did not replace the traditional journals, which were useful for browsing and for publishing illustrations of collections.

There would obviously have to be some sort of alerting service. One probability is that the records would be stored, publicized and distributed on request by the National Lending Library. A more likely starting point is the computerized data bank for palaeontology being started by the Institute of Geological Sciences.

Dr W. H. C. Ramsbottom, of the Leeds regional office of the Institution of Geological Sciences, said that it hoped soon to start processing standardized records for a computer file, starting with collections from the Carboniferous in England and Wales. Finance permitting, the service would be extended to palaeontologists outside the IGS so that a central data file open to all could be formed. This store, he said, could be used for data not at present being published. The IGS system would naturally have limitations, but there is obviously room for further discussion. Palaeontologists could also pick up a tip or two from the Biological Records Centre, and from the New Zealand Geological Survey, which has been operating a central file of palaeontological data for some years.

MEDICINE

Computers by the Bedside

DOCTORS and nurses are in danger of being left behind as automation finds its way into the clinical world. The need to devise an organized programme of instruction is stressed by a report (*Computers in Medicine*) from a working party of the British Medical Association Planning Unit, which concludes that this aspect of medical education "has so far scarcely been faced". Many of the existing courses in medical computing whether run by the computer industry or by other private firms, are under attack for involving too many vested interests.

Where training is most needed is for the simple task of information retrieval. Doctors and nurses will need to be taught how to retrieve a patient's medical history out of a computer and how to read in the details of his treatment. Instruction of this kind should be given on university medical courses, but medical qualifications are not required to include any knowledge of computers. Further, with the prospect of computers to aid screening and diagnosis, there will have to be appreciation courses for bringing qualified doctors up to date. The one-day courses run by the British Medical Association have made a start here, but they are already over-subscribed.

The report regrets that there has been no lead from the Department of Health and Social Security, which is supposed to be allocating large sums of money to the Health Service for the introduction of computers to hospitals. In a foreword to the working party's report Dr Henry Miller, director of the BMA Planning Unit, predicts that its findings "will do little to allay the suspicions of some health service workers that the generosity of government in this matter may be intended primarily to serve the purposes of a national computer industry rather than the interests of the health service". The report urges that the University Grants Committee should provide "the necessary finance" for medical schools to develop computer facilities.

A different hazard of medical automation is the reactions of the patient. The authors of the report believe that records will be, if anything, more confidential when stored in a computer than in a cumbrous set of files. To the charge that computer-aided diagnosis will tend to dehumanization the report answers briefly that "the individual doctor and patient in confrontation is the basis of medical practice". Although Professor J. G. Scadding, chairman of the working party, has said that he cannot see the computer reducing the work of the general practitioner, it would do no harm