annual report, it held five of the private international symposia which the rest of the scientific community will eventually be able to appreciate when the symposium volumes are published. It also held its two main annual lectures, various discussion meetings and conferences and put up 1,101 guests from 49 countries. But it has lost a permanent lodger. The National Kidney Research Fund had by September collected its first £100,000 allowing it, as Dr Wolstenholme says, to have "its own modest office elsewhere".

The report also records annoyance with Dr Margaret Mead, who has apparently published an article on "the small conference" which not only fails explicitly to mention the work of the Ciba Foundation over the past twenty years but has added insult to injury in a footnote which Dr Wolstenholme believes refers to a Ciba symposium held in 1965 at which, Dr Mead says, "almost every rule of how to run a conference was violated". Although she seems to have added that, despite everything, "it was a good conference and a good publication", the sting remains.

The foundation's world remains, however, unruffled. It is good to know, for example, that, towards the end of the year the daughter of an ambassador to London, "has given pleasure to guests and staff alike by coming to work as a receptionist to all our guests and visitors. She is a person who can and does very willingly help them with any personal problems—from the least awkward route to Hammersmith to the purchase of a vintage Rolls-Royce".

PERIODICALS

Journal Redesigned

THE *Journal of Experimental Botany* is to have its face lifted in 1970. The format and appearance of the journal, now in its nineteenth year of publication, have not changed in any essential detail since the first issue. Members of the Botany Section of the Society for Experimental Biology, of which the journal is an official publication, feel that its present image is old-fashioned and staid in comparison with some of its competitors. Details of the new format have not yet been decided, but the aim will be to present an attractive modern periodical.

It is almost certain that the page size will be increased to 176 mm × 250 mm (B5), now popular on the Continent and among paper manufacturers but rarely used in Britain and the United States. It was proposed at a Royal Society conference of editors in 1966 that B5 should be recommended as an International Standard Size for journals, but there was no general agreement to this proposal. The council of the Royal Society has decided, however, that the Proceedings of the Royal Society will be published in this size. An immediate advantage of the larger page is the improved quality and clarity with which half-tone plates can be reproduced.

Professor L. J. Audus (Bedford College, London), editor of the *Journal of Experimental Botany*, hopes that the new format will appeal to contributors and subscribers alike. Professor Audus is particularly anxious to restore the balance of subject matter in the journal. His policy has always been to publish worthy papers from every field of botanical research. Recent issues have been lacking in reports of a biochemical nature. Professor Audus hopes that plant biochemists will feel encouraged to publish their work more readily in the new-style journal, the first issue of which will appear in February 1970. Time taken for the publication of a paper in the journal has now been cut to an absolute minimum of seven months. Authors who would like to see their cherished manuscripts published in the first issue will have to hurry.

SHIPBUILDING

Wooden Ships at Greenwich

THE first of what is promised as a series of select international seminars has just been held at the National Maritime Museum, Greenwich, on the theme of wooden shipbuilding. The series is a manifestation of the new image of the museum being promoted by Mr Basil Greenhill, who took over as director last year. The premises are having a face-lift—workmen on ladders are cleaning, refurbishing and reconstructing the display halls and are at present a hazard for visitors.

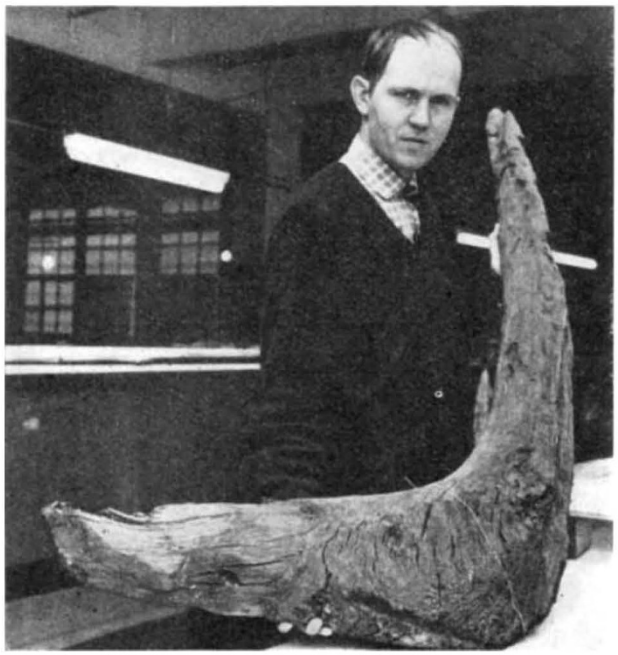
Mr O. Crumlin-Pedersen, the Danish naval architect turned archaeologist, correctly recognized the significance of the five Viking ships recovered in 1962 from Roskilde fjord. He is now director-designate of the Roskilde Viking Ship Museum, where the ships will go on display after preservation and reconstruction are complete, probably in May when one of the largest of the five ships should finally be ready. There has been a year's delay because, when reassembly began, it was found that the keel had taken up the shape of its ten century old resting place on the fjord bottom and none of the timbers would fit until the original shape had been restored. Repeated attempts—using something like a steam-box—were needed before this was achieved. It is now hoped that two months will be enough to fit to it the timbers and planking. Though Viking ships were nailed from earliest times, no nails were used on the keel, presumably to avoid weakening the key structural member. All the ship's lines were gathered up in prow and stem-post to which the clinkers were keyed. Experience with the first ship to be reassembled indicates that stem and stern were even blunter than had been supposed. Ships of this type made the first long Viking voyages. They were known as "askes" because the top three strakes were made of ash.

The other four Roskilde ships are different, though the circumstances of their sinking make them of common date—the first half of the eleventh century. There is a large, heavily oared, speedy warship of the type probably used to raid England about AD 1000 by Svend Forkbeard; a large, pine-built ocean-going cargo ship of distinctively stout build of the type in which the first Europeans sailed to the Western hemisphere; a smaller half-decked Baltic coastal trader; and a small ferry or fishing boat for which there are no parallels or previous evidence. The continuing work on these ships will be on view to the public at the Roskilde Museum once the first ship goes on display.

Viking shipbuilding tradition had a measurable influence on the craft in England for several centuries up to the fourteenth century, when the square-tailed "cog" steered by rudder became the chief vessel type of northern Europe. Large numbers of old

ships have been uncovered in the polder sub-soil—some of them date from the fourteenth century or earlier, and so link up with the Norse–English sequence. Dugouts from Neolithic times have also been discovered, but in nothing like such numbers as in Britain (80) and France (40). Dr G. D. van der Heide, director of the Schockland Museum, described at the symposium what is being done to classify the boats dug up. An example of a thirteenth century boat is notable for its very broad planks. Fourteenth century Zuider Zee specimens have much narrower planks and are all carvel-built. Somewhat later types have carvel outer skins and a clinker-built inner skin.

The sheer magnitude of the task is the main obstacle to gleaning all the information available from the Zuider Zee wrecks, Dr van der Heide made clear. More than 200 old ships have been uncovered in the past few years. Most of them receive only "a quick look". The most immediately promising are properly excavated and in some cases raised for museum preservation and study. But there is little doubt that much of interest is being overlooked. Unlike an underwater discovery, Zuider Zee finds must be tackled swiftly since they disintegrate once they begin to dry out in the exposed mud. Further, unless scheduled as of special interest, they constitute part of the farmer's valuable agricultural land. So far, details of the Zuider Zee ship discoveries have not been published, but a preliminary report on the principal finds is due within the year. Perhaps the special circumstances of the Zuider Zee ships remains make them a suitable subject for a joint international or European effort in this increasingly fashionable and intriguing subject, for which suitable training is so difficult to obtain.



Museum expert O. Crumlin-Pedersen, who originally identified the Roskilde Viking ships and has been in charge of their reconstruction, with a "knee" from one of the ships clearly showing its lines. Processing of the water-saturated timbers has taken anything from 6 months to 2 years in special "hot pickle" tanks set up in a disused warehouse of the National Museum at Brede outside Copenhagen.

Parliament in Britain

Electrical Wiring

MR MERLYN REES, for the Home Department, said that the Electrical Appliances (Colour Code) Regulations would be laid before Parliament on March 17. From July 1, the cores of three core flexes fitted to domestic electric appliances sold in Britain must conform with the new international colour code. The code specifies brown for the live wire, blue for neutral, and a combination of green and yellow for earth.

Flexes coloured in accordance with the old British Standard colour code may be fitted until July 1, 1970. (Written answer, March 14.)

Fluidized Bed Combustion

THE Minister of Power, Mr Roy Mason, said that research into the fluidized bed system of coal combustion showed promise, although it is too early to assess its potential. Studies are being undertaken to provide the engineering data required for detailed design and cost evaluation of new boiler plants. One aspect of this would be the development of an industrial boiler. Mr Mason said that a prototype would be tested later this year. The second aim will be to find a technique for power generation. The results of these studies will determine how much money should be spent on further development. (Oral answer, March 18.)

Dounreay Fast Reactor

DIFFICULTIES have been encountered in construction of the complex steel radiation shield roof for the Atomic Energy Authority's prototype fast reactor at Dounreay. Mr J. P. W. Mallalieu, for the Minister of Technology, said that everything possible was being done to minimize the delay, and that other sections of the construction work were going according to plan. The reactor should be on power by the end of 1972—a total delay of about 12 months. The commercial fast reactor will be unaffected by the delay in completion of the prototype fast reactor, except for the final proving of some components. (Written answer, March 18.)

Concorde

THE amount of noise made by Concorde taking off will not be known until the aircraft has flown in normal operating conditions. Mr William Rodgers, for the Board of Trade, was asked about the suitability of present civil airports for supersonic aircraft and especially about possible noise levels. Mr Rodgers pointed out that debate in the United States on the question of supersonic transport had made the future of the Boeing SST uncertain. The Concorde would be flown over a considerable test period, but it had always been a design aim that the Concorde should be no noisier than current large jets. (Oral answer, March 19.)

Motorway Costs

THE cost of building a dual, two-lane motorway in a rural area is in the order of £550,000 to £800,000 per mile. The corresponding figure for a dual, three-lane motorway is £600,000 to £1,300,000 per mile. Mr Richard Marsh, the Minister of Transport, said that, in the current financial year, about £70,000,000 will be spent on motorways, or double the average expenditure for 1960–64. Spending in the years 1969–74 will depend on decisions about the motorways to follow the first 1,000 miles. (Written answer, March 17.)