fisheries biology set the scene and was followed by three lectures on aspects of freshwater fisheries biology.

The first day's second session on the seas restored the balance for the oceanographers present. Mr N. R. Merrett (National Institute of Oceanography) gave a summary of the work conducted at the East African Marine Fisheries Research Organization by himself and his predecessor on an experimental fishery for tuna and billfish (marlins, spearfish, and the like). The fishing method adopted was that used by the very successful Japanese floating longlines modified to suit the available equipment. Considerable stocks of both tuna and billfish were found offshore of the Zanzibar station, and although migration and seasonal conditions caused local fluctuations in the species present there were sufficient stocks all the year. The survey catches, however, averaged about half of the Japanese average catch of 2.8 pounds per hook, a figure which may be partly attributable to the higher efficiency of the Japanese crews and vessels. The problem therefore was whether the potential catch available to local boats could make a viable fishery, and Merrett thinks that it may be possible in view of the closeness of the fishing areas to the East African coast. Certainly these fishes could make a contribution to the tourist industry of the region if treated as sport fish. Merrett pointed out, however, that here, as elsewhere, the catch has fallen considerably in the past four years probably as a result of overexploitation.

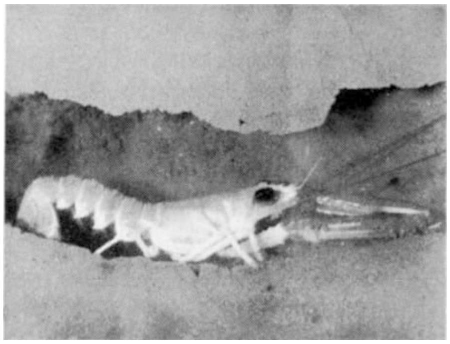
Dr R. F. G. Ormond (Physiological Laboratory, University of Cambridge) reported the studies by two Cambridge expeditions of the coral-eating starfish *Acanthaster planci* in the Red Sea. In this region it has not been reported in the plague quantities that it has assumed in Guam and parts of the Great Barrier Reef, and for this reason it offers opportunity to study the animal under more or less normal conditions. In the vicinity of Port Sudan an average population of from one to four specimens per kilometre of reef was found, but it was noticed that *Acanthaster* does not favour either shallow still waters, or exposed reefs where wave motion is pronounced. It seems to be most common under conditions of moderate exposure and where the coral cover is complete. *Acanthaster* is known to be attracted to areas where coral has been damaged, but in this area of the Red Sea little underwater blasting has taken place. In spite of the valuable contributions that these expeditions have made to a better understanding of this starfish we seem to be no nearer to evaluating the causes of the local plagues. Indeed, the discussion following Ormond's contribution revealed a body of opinion in favour of the hypothesis that these population explosions are normal, if irregular, events in the biology of the starfish, which biologists have not previously been able to observe, and which have never before generated such interest.

The fauna of the kelp in the sublittoral along the north-east coast of England was discussed by Dr P. G. Moore (Wellcome Marine Laboratory, Robin Hood's Bay). Collections from fifteen sites over the single tidal periods had resulted in the identification of some 90,000 animals representing 387 species in the holdfasts of the kelp. This work is part of an overall investigation into the kelp flora of the north-east coast especially in relation to pollution. Moore's work, however, suggests that the local turbidity of the water is a more important factor affecting the variety of the kelp fauna than is pollution.

SCAMPI

Harvest of the Loch

In spite of its importance to fishermen and gourmets, remarkably little is known about the biology of the animal which provides scampi. In 1970 Scottish fisheries yielded 8,000 tonnes of *Nephrops norvegicus*, worth £2 million. It is the tail of this animal, also known as the Dublin Bay prawn although it is really a close relative of the common lobster, which constitutes scampi. *Nephrops* also forms the basis of other important fisheries off the coasts of north-western Europe, and so it is hardly surprising that two biologists have been studying the ecology and behaviour of this animal for three years, as members of the Linnean Society learnt at their meeting on January 14.



Nephrops norvegicus in a burrow.

One puzzle for fishermen has been the variation in the size of catches. And so one of the first aims of Dr C. J. Chapman (Marine Laboratory, Torry, Aberdeen) and Dr A. L. Rice (British Museum (Natural History)) was to investigate the burrowing habits of *Nephrops*, and dis-

Transmuting a Virus

When inoculated into hamsters mouse sarcoma virus can induce tumours, the cells of which, either immediately or after passages in other hamsters, yield a sarcoma virus which is specific for the hamster. How is this change in the host range of a sarcoma virus brought about? In next Wednesday's *Nature New Biology* Kelloff and his colleagues report experiments which indicate that simply growing mouse sarcoma virus in hamster cells in culture is not sufficient to transmute the virus into a hamster specific particle. All their evidence points to the conclusion that the conversion of a mouse sarcoma virus into a hamster sarcoma virus depends on the presence in the hamster cells of the so-called hamster "leukaemia" virus, which, acting as helper, provides the mouse sarcoma genome with the internal proteins and envelope of a hamster virus.

Hamster "leukaemia" virus was itself first identified in a virus preparation obtained from a hamster tumour induced by murine sarcoma virus. As far as is known this virus cannot induce sarcomas, neither has it been proven that it can in fact cause leukaemia in hamsters but by other criteria it seems to be analogous to the mouse leukaemia viruses. Presumably this virus is not present in the cultures of hamster cells in which Kelloff and his co-workers propagated various mouse sarcoma viruses; as a result the viruses obtained from these cells retain all the essential characteristics of a mouse virus. On the other hand the animals which carried tumours induced by the mouse virus but yielding a hamster sarcoma virus presumably harboured hamster "leukaemia" virus, which provided the parts necessary to change the specificity of the sarcoma genome.

Clearly, growing a sarcoma virus of one species in the cells of a second is not sufficient to change the host range of that virus. But if the cells of the second species carry genetic information which can specify a tumour virus, envelope transmutation may occur. This finding and similar observations made on other cell and virus combinations should serve as a caution to those who propagate animal tumour viruses in human cells in culture. There is a real possibility that some human cells might contain either a dormant or defective virus or other genetic information sufficient to provide an animal tumour virus genome with an envelope with a specificity for human cells. And, conversely, the animal virus might provide components which render infectious a defective human tumour virus.