which consist of areas where they have scatterhoarded seeds. He cited three advantages of this type of territory to agoutis: (1) interspecific and intra-specific competition are reduced, (2) during the reproductive season breeding animals are assured of a food supply, and (3) young animals are produced at a time when their survival is maximized.

Dr N. A. Muckenhirn (University of Maryland) reported the phenology of important food trees of the langur (*Presbytis senex*) in Ceylon. He has found that the feeding habits of these mammals shift seasonally from species to species, depending on the leaf, flower or fruit condition of the trees.

Drs G. G. Montgomery (University of Minnesota) and M. E. Sunquist reported radiotracking studies of the three-toed sloth (*Bradypus tridactylus*) during an eighteen month study conducted in Panama. Adult tree sloths confine themselves to rather limited home ranges consisting of a few adjacent trees in the tropical forest canopy. Of particular interest was the manner in which young sloths acquired their home ranges. After weaning their young, female sloths leave the offspring to occupy their home range area, while they migrate to another part of the forest.

OCEANOGRAPHY

Dispersal of Pollutants

from a Correspondent

THE general situation created by man's discharge of pollutants is well recognized, but many difficult problems have to be solved before it will be possible to give precise predictions of the effects of some of these discharges on the receiving ecosystems. Such problems occur particularly in coastal areas, and a symposium arranged by the International Council for the Exploration of the Sea was held from July 4 to 7 at the University of Aarhus, Denmark, to consider the physical processes responsible for dispersal in the sea, with particular reference to the nearshore zone.

Dispersal processes in the open sea seem to have much in common, but the dominant processes in nearshore zones may vary markedly from area to area. Thus Dr A. Okubo (Johns Hopkins University, Chesapeake Bay Institute) based his summary of information on diffusion in the sea on the notion of a spectrum of turbulence and the four-thirds power law, an idea which was also evident in work reported for the Baltic Sea by Dr A. M. Aitsam (Tallin Polytechnic Institute) and others. On the other hand, Mr J. W. Talbot (Fisheries Laboratory, Lowestoft) reported that in many English coastal areas, and even in the southern part of

the North Sea, horizontal turbulence is often of secondary importance. In these areas dispersal is controlled by vertical shear diffusion and circulation effects.

Although understanding of the processes of horizontal diffusion in the surface layer of the open sea is now adequate for most practical purposes, it was emphasized by Dr J. Joseph (International Atomic Energy Authority, Monaco) that this is not the case for diffusion near the seafloor in deep water. An account was given of the first attempt at measurement of diffusion in the deep ocean by Dr T. E. Ewart (University of Washington) who has released rhodamine B at a depth of 1,000 m and, using an acoustically controlled submersible, has succeeded in detecting the dye distribution after a period of five hours. Although this work is attended by great difficulties, it has possibilities in the future.

Another important area of study is that of vertical diffusion under various conditions, including the fine density structure that occurs in some sea areas, and some measurements of vertical diffusion in stratified conditions were reported by Dr G. Kullenberg (Institute for Physical Oceanography, Copenhagen).

In shallow nearshore areas, improved instrumentation for field measurements and developments in mathematical modelling are now enabling more detailed studies of the circulation. It is therefore becoming possible to treat as advection some processes which have previously been included as turbulent diffusion, a procedure which often led to difficulty in the determination of the diffusion parameter. Dr J. J. Leen-

MEDICAL RESEARCH COUNCIL

New Unit

A NEW Unit of Reproductive Biology is being established by the Medical Research Council in the Department of Obstetrics and Gynaecology, University of Edinburgh. The unit will be operated, as from August 1, under the direction of Dr R. V. Short who is at present Reader in Reproductive Biology in the Department of Veterinary Studies at Cambridge.

dertse (Rand Corporation, Santa Monica) described the application of a vertically integrated numerical model to study the circulation in Jamaica Bay, New York, which has a complex topography. A prediction of advective transport due to the influence of wind, using a three-dimensional numerical model of the Irish Sea, was described by Dr N. S. Heaps (Institute of Coastal Oceanography and Tides, Birkenhead). This work indicates that in this particular problem the boundary conditions, including the bottom topography, are far more important than the Coriolis effect.

A different treatment of an advective process was described by Dr W. D. Forrester (Bedford Institute of Oceanography), who has applied the condition of zero salt transport to determine the reference surface in geostrophic calculations of the flow in the St Lawrence estuary. The value calculated for the mean flow agrees remarkably well with that determined from run-off and other factors.

What Makes α -Helices?

It is possible to make some generalizations about which amino-acids, and which kinds of sequences of amino-acids, tend to occur in α -helices in globular proteins. A new analysis, using information theory, is presented by Robson and Pain in next Wednesday's *Nature New Biology* (July 26). The chief object is to determine whether and to what extent the helix-making or helix-breaking tendency of a given residue in a sequence is directional; that is, whether it depends on the direction in which the sequence is read.

The analysis is based on a series of proteins of known sequence and structure. As a baseline Robson and Pain take proline, which sterically forbids α -helix formation on its N-terminal side. The following general rules emerge: alanine, leucine and isoleucine are helix-promoting in both directions; proline is helix-promoting on its C-terminal side; glycine, serine and especially glutamic acid favour helices on the C-terminal

side, and glutamic and aspartic acids both disfavour helices on the N-terminal side. Asparagine and glutamine are neutral. Lysine, and to a lesser extent histidine and arginine, tend to favour helices on the N-terminal side, whereas lysine, threonine and phenylalanine inhibit helix formation in the other direction. The remaining amino-acids are neutral in both directions.

The possible reasons for the polarity of the conformational effects of amino-acid residues are various. Charged side chains can form hydrogen bonds and could interact with the helix backbone dipole. Other residues with hydroxyl or amide groups can also hydrogen bond to backbone peptide groups, and in addition the most stable combinations, in van der Waals terms, of the backbone dihedral angles can also depend on whether the given side chain is on the N- or C-terminal side of the peptide bond in question.