

one time, nearly half the British population has some sign of osteo-arthritis and thousands of children get a form of arthritis called Still's disease. Another way of expressing all this is that only two people in a hundred in Britain can hope to escape some form of rheumatism or arthritis by the time they are seventy.

The sociological report suggests that in contrast to the "ingrown" public attitude that arthritis is an inevitable accompaniment of old age, an education programme is needed to inform the public that this is not so; that early treatment can do a great deal for the sufferer, and that welfare can do much to relieve the suffering already present. But is this not an over-optimistic view? The causes of arthritis are innumerable and often unknown. As Dr A. M. Denman of the Rheumatism Research Unit in Maidenhead points out, some cases of arthritis where the cause is known can be cured and others can be controlled but not cured. At the other extreme, diseases of unknown origin such as rheumatoid arthritis can sometimes be controlled by large doses of aspirin, and cytotoxic drugs will kill cells infiltrating the synovial membrane of infected joints. Unfortunately, however, undesired effects often accompany the use of these drugs.

Dr Lucille Bitensky and Dr Joseph Chayen of the Kennedy Institute of Rheumatology are hopeful that they are on a path which may lead to an effective treatment for rheumatoid arthritis. They have been using microchemical techniques to investigate the activity of enzymes within the lysosomes of the synovial membranes of joints. According to the two workers, by using very thin slices of intact tissue and examining it through a scanning and integrating microdensitometer, they have shown that the apparent activity of cathepsins within the lysosomes increases near the junction between the synovial membrane and the articular cartilage, and is very much higher than normal in rheumatoid patients.

As has been shown by much detailed work undertaken at Strangeways Research Laboratory, the permeability of lysosome membranes can be altered under certain physiological conditions, and it seems that in the rheumatoid patient the permeability is greatly increased; the cathepsins leak out and attack the cartilage. Drugs such as hydrocortisone, the two doctors say, stabilize the membrane by acting on the lipid portion. Their own work, however, suggests that stabilization can also be achieved by aiming at the protein component of the membrane. Dr Bitensky and Dr Chayen have shown that the lysosome membrane of rheumatoid tissue grown in culture can indeed be stabilized by changing the redox potential of the cells. Why the lysosome membrane in rheumatoid patients becomes permeable to the enzymes in the first place, however, is still not known.

It is obvious that there are serious sociological consequences of rheumatism and arthritis. The report indicates that these range from light restriction of movement to severe isolation and economic hardship; in addition, psychological factors may produce stress in a family where there are severely afflicted parents. It suggests that more should be spent on research into rheumatism than the present £400,000 a year. But because research, for example, into the inflammatory response underlying rheumatoid arthritis is of interest in several fields including transplantation, it is difficult to define lines of research which are associa-

ted with arthritis and rheumatism only. Perhaps the best solution is to have better organization of large teams representing many disciplines who can work in well-equipped centres on the many underlying mechanisms concerned with the disease, and then apply the results clinically.

Prizes for Teachers

THE fifth series of Guinness awards to science and mathematics teachers were presented last week, in London, to teachers in service, in training or working overseas. The subjects described in the award-winning entries covered topics such as scientific models, clubs, approaches to teaching of various subjects and, from the winner, a record of experiences and suggestions for starting work with the Nuffield approach to junior science teaching. Prizes were also presented to the winners of the third national mathematical Olympiad; the top five schoolboys from the seventy finalists in the national mathematical contest which is also sponsored by Guinness. Speaking after the presentation, Lord Snow condemned the Government for not allowing a team of young British mathematicians to go to Moscow to compete in the international Olympiad. In the equivalent competition in Yugoslavia last year the British team came fourth, a creditable performance. In refusing to allow a team to compete this year, Lord Snow believed that the Government, through an administrative decision, must have stirred up unnecessary ill-will in Russia, and all for £1,500 which is the sum required to finance the team. Before presenting the awards Mrs Shirley Williams, Minister of State at the Department of Education and Science, upheld the honour of the Government from beneath an elegant felt hat with the comment that although this year's contest had been missed the DES was prepared to consider suggestions for the organization of a team for next year.

Planning the North-West

THE problems of the increasing holiday traffic in the north-west of England are the subject of a new report by the National Parks Commission. The report, *The Coasts of North-West England* (HMSO, £1 5s), is the sixth in a series on coastal preservation and development. There are to be nine reports altogether, based on nine regional conferences arranged by the commission with local planning authorities. When all the reports have been published there will follow a final report on "The Planning of the Coastline" which will be a digest of the work of the conferences and other special studies together with recommendations to the ministers.

About a tenth of the whole coastline of England and Wales is involved in the area covered by the North-West England regional conference. As ten different local planning authorities are responsible for this varied coastal region, it was natural that the subject of co-operation in surveying and analysing problems was discussed. Fairly informal co-operation between some of them already takes place at regional level, but it was agreed at the conference that coastal preservation and development is an obvious field for closer integration. Much of the discussion revolved around the belief that you cannot plan the north-west coast with-