EMPIRE RHEUMATISM COUNCIL

TWENTY-SIXTH ANNUAL REPORT*

The 26th Annual Report was presented by the Chairman, Dr. W. S. C. Copeman, at the Annual General Meeting held at Marlborough House on April 30, 1963.

The chairman stated that the battle against rheumatism was progressing steadily.

The Council had been able to anticipate completion of the actual building of the first Research Institute of Rheumatology, which was being established at the Charing Cross Hospital through the generosity of Mr. and Mrs. Terence Kennedy, by agreeing to make the Institute a grant of £100,000 over the next 5 years, and the research programme had accordingly begun already.

The Middlesex Hospital was also to have a new Institute of Rheumatology, under the direction of Sir Charles Dodds, P.R.C.P., the Vice-Chairman, and for this the Council had agreed to make £50,000 available.

The Rheumatism Research Centre at the Northern General Hospital in Edinburgh—which also accommodates the Industrial Survey Unit—had been at work for some little time. The new building provided for it was complete and would be formally opened within the next few weeks.

There was also to be a new Research Department of Rheumatology at St. Mary's Hospital in London, and to this the Council had offered a minimum grant of £20,000 spread over the next 10 years.

In 1962 a record number of 43 research projects had been supported. Indeed, there were far more of them than could be enumerated individually in the time available, and they were fully described in the printed Report.

The chief activities and successes of the larger units made up an encouraging picture of the Council's scientific work during the year.

Mobile Field Survey Unit.—In preparation for a British winter which the British judged severe, they had studied the incidence of rheumatism among the Blackfeet Indians of Montana, who knew temperatures at −53 °F., 85 degrees of frost. Their findings were to be compared with the results of another survey among Red Indians in the very different climate of Arizona and British Columbia.

In a rural community in Jamaica they had found polyarthritides to be common among the men, but rheumatoid arthritis to be less common among the women than was usual in Europe. On the corresponding influence of genetic factors the work they were still doing on the Manchester Family Survey would undoubtedly be highly instructive.

One discovery which had made a more immediate impact was an incidental result of the Field Unit's survey in Watford. Here they had sketched the theory that the fluoridation of public water supplies aggravated rheumatism. Their tests had satisfied them that this was not so. They had found less rheumatism in Watford, and less loss of work because of it, than in Leigh in Lancashire, where the water had a low fluoride content.

Since their original survey in Leigh the Unit had observed the progress over 5 years of the people they had tested for rheumatoid factor. Their analysis seemed to fasten upon the rheumatoid factor a greater and more precise degree of responsibility for arthritis than they were sure of before; this opened up a line of approach to the problem of preventing arthritis in patients predisposed to develop it.

The rheumatoid factor was now known to be a protein in the blood, connected with gamma globulin, and thanks to notable work by Professor Squire at Birmingham University and Dr. McCormick at Aylesbury, it had become possible during the year to detect this globulin and its main concentrations by various staining procedures.

Industrial Survey Unit.—So much useful information had been gained that the Council had decided to extend their operations for another 3 years. Dr. J. A. D. Anderson, their Medical Officer, had been appointed to a senior post in the University of London, but Dr. R. E. H. Partridge had taken his place.

The Unit's main work of the year had been a sample survey of manual workers at the Rosyth Dockyard. Their interim findings were illuminating: as between indoor and outdoor workers, the prevalence of rheumatic complaints differed by only about 3 per cent.; there was a negligible difference of incidence between one trade and another within the yard, but wide differences between different trades in the amount of sick leave attributed to rheumatism.

These findings were supported in more general terms by a report from the Unit on the first 2 years of their

* Full details of the activities of the Council for the year 1961–62 are given in the Report, which may be obtained from the Secretary, Mr. M. C. G. Andrews, Faraday House, 8 Charing Cross Road, London, W.C.2.
work. They deduced that about 40 per cent. of all Scotland's working men were afflicted to a greater or less degree, that rheumatism alone cost Scotland about 2,000,000 working days in 1961, compared with only 718,000 lost in industrial disputes, and that 72,000 workers in Scotland were driven into lower-paid jobs, while the psychological effects of the disease made many others needlessly despair of getting any new job.

Unit on Drug Action.—Dr. M. J. H. Smith's unit had reported their findings that one of the main mechanisms through which salicylates work was their ability to inhibit the action of certain enzymes.

Other Projects

Four years of labour had rewarded Dr. J. Thomas, the E.R.C. Fellow at the Low Temperature Research Station at Cambridge, with the discovery of the composition of elastin. This was one of the fundamental components of the connective tissues that held the body together: an insoluble fibre, acting rather like rubber.

To Prof. D. H. Collins, of Sheffield, they owed an important revision of the accepted ideas about osteoarthritis. He had shown that cellular ageing did not explain the disease and that there are chemical changes in the substance of the cartilages which were probably not caused just by growing old, since they were not observed in all joints of the body at the same time. The cause of these changes was being investigated by Prof. Collins in Sheffield and by T. F. McElligott at Durham University.

The study of affected tissue would be aided by Prof. R. Lovell's discovery at Melbourne University of a method of keeping human synovial tissue alive after its removal from the body.

Mr. R. N. Tinning, at the Rheumatic Unit of the Northern General Hospital in Edinburgh, had been engaged in a co-operative study of the place of orthopaedic procedures in the treatment of rheumatic diseases. Practical experience had disproved the old belief that remedial surgery for rheumatoid arthritis in hands and wrists must wait until the disease has faded out. Operations performed on patients with active rheumatoid arthritis were not followed by the exacerbation of the disease which would have been expected in the old days. Pain was reduced in all cases and functional capacity was improved in 75 per cent. Mr. Tinning reported the "strong impression" that surgery on the hand might assist in preventing deformity and in preserving usefulness—and he looked forward to similarly successful treatment of ankles, feet, and knees.

In 1962 the Council's expenditure on research, and its undertakings for the future, combined to lay upon its funds, and upon its financial hopes, the heaviest burden they had yet carried. Though income had increased slightly, they were ending the year with a deficit on ordinary income of over £30,000, which would be exceeded by a wide and unhandsome margin in 1963 unless good friends came to the rescue, not only to the aid of the small army of devoted doctors, scientists, and other workers who were actively engaged in the battle, but also to that of the millions who suffered from the scourge of rheumatism.

Summary of Scientific Work

Research Units

Mobile Field Survey Unit.—Manchester University (Director: Dr. J. S. Lawrence, M.R.C.P.).

Industrial Survey Unit.—Edinburgh University (Director: Dr. J. J. R. Duthie, F.R.C.P.E.).

Scottish Research Unit.—Northern General Hospital, Edinburgh (Director: Dr. J. J. R. Duthie, F.R.C.P.E.).

Unit on Drug Action.—King's College Hospital Medical School, London (Director: Dr. M. J. H. Smith, M.Pharm., Ph.D., F.R.I.C.).

Electron Microscopy Unit.—St. Thomas's Hospital Medical School, London (Director: Professor D. V. Davies, M.A., D.Sc., M.B., B.S.).

Chairs of Rheumatology

Prof. E. G. L. Bywaters, F.R.C.P.—Empire Rheumatism Council Professor of Rheumatology, Postgraduate Medical School of London.

Prof. J. H. Keligren, F.R.C.P., F.R.C.S.—Professor of Rheumatology, University of Manchester.

Other Research Projects

Chemical and Physical Properties of Connective Tissue (Collagen)

Dr. J. Thomas, Ph.D., Low Temperature Research Station, Cambridge.

Dr. T. C. Highton, M.B., M.R.C.P., University of Otago, New Zealand.

Mr. F. R. Partington, B.Sc., Rheumatism Research Department, University of Manchester.

Dr. R. D. Harkness, M.B., B.S., University College, London.

Dr. J. E. Scott, Ph.D., M.R.C. Rheumatism Research Unit, Canadian Red Cross Memorial Hospital, Taplow.

Dr. H. Muir, D.Phil., St. Mary's Hospital, London.

Dr. P. G. Walker, Ph.D., M.B., Ch.B., Institute of Orthopaedics, London.

Dr. T. Bitter, St. Mary's Hospital, London.

Dr. G. R. Tristram, B.Sc., Ph.D., Department of Biochemistry, University of St. Andrew's.

Dr. J. S. Percy, M.B., B.S., Royal Victoria Infirmary, Newcastle-upon-Tyne.

The Rheumatoid Factor

Prof. J. R. Squire, F.R.C.P., University of Birmingham.

Dr. G. Arakapis, Oxford Regional Rheumatism Research Centre.

Dr. J. N. McCormick, M.B., Ch.B., Oxford Regional Rheumatism Diseases Centre, Aylesbury, Bucks.

Auto-Immune Mechanism in Rheumatoid Arthritis

Dr. F. J. Lachman, M.B., B.Chir., M.R.C.P., Department of Pathology, University of Cambridge.
Dr. I. Leslie, B.Sc., Ph.D., Department of Biochemistry, Queen’s University, Belfast.
Dr. R. D. Wigley, M.B., Ch.B., M.R.C.P., M.R.A.C.P., Palmerston North Hospital, New Zealand.

Physiology and Metabolism of Corticosteroids in Rheumatoid Arthritis
Prof. I. E. Bush, M.A., Ph.D., M.B., Department of Physiology, University of Birmingham.
Dr. Oswald Savage, O.B.E., F.R.C.P., Kennedy Institute of Rheumatology, West London Hospital.
Dr. John Paul, Ph.D., Department of Biochemistry, University of Glasgow.

Pathology of Osteo-arthritis
Prof. D. H. Collins, O.B.E., F.R.C.P., Department of Pathology, University of Sheffield.
Dr. John H. Glyn, M.D., M.R.C.P., Prince of Wales Hospital, London.
Dr. T. F. McElligott, M.D., D.P.H., Department of Pathology, University of Durham.

Synovial and Other Tissues involved in the Rheumatic Diseases
Prof. R. Lovell, M.D., F.R.C.P., F.R.A.C.P., Department of Medicine, University of Melbourne, Australia.
Dr. G. W. G. Sharp, Ph.D., Institute of Clinical Research, Middlesex Hospital.
Dr. D. L. Gardner, M.D., Ph.D., M.R.C.P.E., Department of Pathology, University of Edinburgh.
Prof. W. J. H. Butterfield, O.B.E., D.M., F.R.C.P., Department of Experimental Medicine, Guy’s Hospital Medical School.

Co-ordinated Medical Orthopaedic Survey of the Rheumatic Diseases
Mr. R. N. Tinning, F.R.C.S.E., Rheumatic Unit, Northern General Hospital, Edinburgh.
Dr. A. St. J. Dixon, M.R.C.P., Chelsea and Kensington Group Rheumatism Unit.

Abnormal Chemical Change in Gout
Dr. K. A. Barlow, M.B., B.S., Department of Pathology, King’s College Hospital.
Dr. A. C. Pollard, M.A., B.Sc., M.B., B.S., Department of Chemical Pathology, Charing Cross Hospital.

Genetic Studies in the Rheumatic Diseases
Dr. E. Kaklamani, Canadian Red Cross Memorial Hospital, Taplow.

Joint Stiffness
Prof. S. J. Hartfall, T.D., B.Sc., M.D., F.R.C.P., Rheumatism Unit, University of Leeds.

Study of Twins with Rheumatoid Arthritis.—It was hoped that this study would elucidate environmental and inherited factors in the aetiology of rheumatic diseases. With the co-operation of centres in Great Britain and abroad, 198 pairs of twins with rheumatoid arthritis and 65 with osteo-arthritis had been found.

Hospital Research Units.—The Council had given financial support to research projects at the following hospitals, mainly in the form of secretarial research assistants:

The London Hospital (Dr. W. S. Tegner, F.R.C.P.)
Northern General Hospital, Edinburgh (Dr. J. J. R. Duthie, F.R.C.P.E.)
Westminster Hospital, London (Dr. F. Dudley Hart, F.R.C.P.)
Chelsea and Kensington Group Rheumatism Unit (Dr. A. St. J. Dixon, M.R.C.P.).

Geigy Travelling Fellowships:
Dr. R. M. Mason, F.R.C.P., The London Hospital.
Dr. J. J. R. Duthie, F.R.C.P.E., Northern General Hospital, Edinburgh.
Dr. A. J. Popert, M.R.C.P., Rheumatism Research Clinic, Manchester Royal Infirmary.
Dr. C. H. Lack, M.B., B.S., Royal National Orthopaedic Hospital, Stanmore.
Dr. A. St. J. Dixon, M.R.C.P., Chelsea and Kensington Group Rheumatism Unit.
Dr. G. W. G. Sharp, Ph.D., Middlesex Hospital Medical School.
Dr. W. A. C. Douglas, Brisbane General Hospital, Australia.
Dr. D. G. Palmer, Masterton Hospital, New Zealand.

Education
The Council’s research workers had published their results in learned and scientific journals throughout the world as well as in the official journal, the Annals of the Rheumatic Diseases, published under the auspices of the British Medical Association. In addition, every effort had been made to disseminate the knowledge so far gained so that it reached the person for whose benefit it was intended—the rheumatic patient.

The first twelve of the Council’s reports on rheumatic diseases designed for general practitioners were now available in book form, and three more reports dealing with specific aspects of rheumatism had been issued during the year

“Rheumatic fever”, by Prof. E. G. L. Bywaters, F.R.C.P.
“Examination of the musculo-skeletal (locomotor) system”, by Dr. F. Dudley Hart, F.R.C.P.
“Treatment of osteo-arthritis”, by Prof. J. H. Kellgren, F.R.C.P., F.R.C.S.

Symposia for specialists had been held in 1962 on genetics in the rheumatic diseases and the action of salicylate drugs.
A new set of teaching slides had been prepared on the management of arthritis.
HEBERDEN SOCIETY

A further booklet for patients was being prepared dealing with the diseases of the cervical and lumbar disks.

The Heberden Society’s membership had continued to grow. Regular meetings had been held throughout the year and had been reported in the

Annals of the Rheumatic Diseases.

Commonwealth

A full report of the autonomous affiliated Associations in Canada, Australia, and New Zealand is included in the Annual Report.

HEBERDEN SOCIETY

Clinical Meeting.—At a meeting held on February 8, 1963, at St. Stephen’s Hospital, Fulham, the following communications were presented:

Haemoglobin Levels in Rheumatoid Arthritis. By F. B. Gibberd (Westminster Hospital): The haemoglobin levels of 533 patients with classical rheumatoid arthritis were studied. The average haemoglobin level of the 385 women fell during the course of their illness, while that of the 148 men remained relatively constant. Salicylates, phenylbutazone, and steroids did not affect the haemoglobin. 24 per cent. of the men and 17 per cent. of the women in the series had dyspepsia, but the haemoglobin level in these patients did not differ from that in those who did not have dyspepsia.

In anaemic patients oral iron produced a definite rise in the haemoglobin and this continued for up to 9 months. The final haemoglobin level after iron therapy was usually about 12.5 g. per cent. and was independent of the initial level. Increasing the dose of iron above 200 mg. per day did not produce a more rapid rise in the haemoglobin. The response to oral iron was best in the early years of the illness. Intravenous iron had a similar effect to oral iron.

The lowest haemoglobin levels were found in the patients with the highest Waaler-Rose titres. The x-ray appearances did not correlate with the haemoglobin levels.

It was considered that drug treatment and dyspepsia were not causes of the anaemia found in rheumatoid arthritis. A haemoglobin level below 12.5 g. per cent. was often due to iron deficiency, but there must be some other factor, possibly the rheumatoid disease process itself, which causes the abnormally low haemoglobin levels in patients with rheumatoid arthritis.

Discussion.—Prof. E. G. L. Bywaters (Taplow): Most of us would agree with these conclusions. It is, however, very important in studies of this kind to follow the same patients right through. This study of 533 patients consists, at least in part, of patients seen once at a particular time with a haemoglobin at a particular point. If they were studied right through the picture might be different. In our study of 250 patients followed for 10 years, we found that the patients first seen within one year of onset did better, and had a higher haemoglobin level, than those who were first seen after they had the disease for a longer period. Those seen first 3 or 5 years after the onset of rheumatoid arthritis represent a group selected partly because they have not died and partly because they have not recovered. They are a hospital-attending group, a different population from those seen within the first year. It is necessary to select your group and follow them from the start.

Dr. Gibberd: I agree. Many of the patients whose haemoglobin was estimated did not have a positive Waaler-Rose test when first seen, but developed one later. Hence the haemoglobin levels represent changes throughout the illness.

Dr. J. J. R. Duthie (Edinburgh): We are very interested in this question and our findings have been very similar. I should like to ask whether any of the patients received intravenous iron?

Dr. Gibberd: Only seventeen were given intravenous iron, and these are not included in this series, but they did produce a similar picture.

Dr. J. J. R. Duthie (Edinburgh): This is the point. You will find that these exceptionally low levels are due to iron deficiency anaemia; with treatment they then level off and the rheumatoid anaemia is left. I do not know why this happens and I wonder if you had any examples?

Dr. Gibberd: Unfortunately we had none. When the anaemia started to improve the intravenous iron was usually stopped and the long-term effects were not followed.

Dr. W. R. M. Alexander (Edinburgh): May I ask what you gave the patients when treatment terminated? Did those taking salicylates go on with the drug?

Dr. Gibberd: No. All drug treatment was stopped during this part of the study.

Dr. A. St. J. Dixon (London): Instinctively, I think one agrees with Dr. Gibberd. The three treatments are all associated with the same degree of anaemia so that it is probable that the anaemia is not due to treatment; but logically all these treatments could cause anaemia and give this result. Another point is that, in this kind of study with a large number of patients, an individual who is anaemic from drug treatment, through an individual susceptibility, may be lost in the group.

Dr. Gibberd: Statistically there is no significant difference between starting and stopping treatment with salicylates, phenylbutazone, and steroids. I have excluded those who had severe gastro-intestinal haemorrhage. There would be a different picture if they were included.