

known of Phœnician cosmology would seem, however, to indicate that it too was rationalistic in character. Though this resemblance between Phœnician and Greek thought may have been solely due to their both being seafaring nations engaged in commerce, one cannot entirely rule out the possibility that the former had some influence on the latter.

W. MAYS

BRITISH GELATINE AND GLUE RESEARCH ASSOCIATION RESEARCH PANEL MEETING

THE seventh meeting of the Research Panel of the British Gelatine and Glue Research Association was held at Beale's Restaurant, London, N.7, on November 26, with the director of research, Mr. A. G. Ward, in the chair.

The meeting took the form of a symposium on soluble collagens, the salient points under discussion being outlined in a general introduction, given by Dr. R. H. Smith (Biophysics Unit of the Medical Research Council). The remaining speakers then gave more detailed accounts of the progress made and conclusions reached in studies made using specialized techniques. Dr. R. W. G. Wyckoff (science attaché to the American Embassy, London) reviewed the evidence for the conclusion that the fine structure of reconstituted collagen fibrils, as revealed by electron micrographs, depends upon the conditions for reprecipitation (for example, the pH and the precipitating agent). At present, four kinds of order may be produced, only two of which (with spacings of 640 Å. and 210 Å.) have been seen in native collagen. The remaining forms are fibrils with a spacing greater than 2000 Å. and segmented fibrils.

Dr. F. C. Kelly (Biophysics Unit of the Medical Research Council) described in some detail experiments on the production of segmented material by adding nucleotides (such as adenosine triphosphate) to solutions of alkali-soluble collagen, prepared by extracting rat skin with secondary sodium phosphate.

The preparation and properties of the materials obtained by the reconstitution of citrate-extracted calf skin, acid-extracted tendon and alkali-extracted calf skin were discussed by Dr. J. H. Bowes (British Leather Manufacturers' Research Association). Amino-acid compositions, determined by Moore and Stein's procedure, were compared with that of native ox-hide collagen. These results are of particular significance to the manufacturer of gelatine, who normally pre-treats the raw material under acid or alkaline conditions.

Dr. D. S. Jackson (Rheumatism Research Centre, Manchester) gave an account of recent work on the evaluation of the relative importance of ionic and hydrogen bonds in determining the stability of rat-tail tendon. About one-quarter of the stability appears to arise from ionic linkages between collagen and chondroitin sulphuric acid, the main mucopolysaccharide present in tendon.

An extensive investigation, using human abdominal subcutaneous connective tissue, has led to the conclusion that this tissue contains at least three acid polysaccharides, none of which is identical with chondroitin sulphate. Dr. R. Consden (Special Unit for Juvenile Rheumatism, Maidenhead) described the work leading to this conclusion, and Dr. J. E.

Eastoe (British Gelatine and Glue Research Association) mentioned that he had found similar complexity in the mucopolysaccharides in the ox-femur shaft.

The important question of how collagen fibres arise within living tissue was discussed by Dr. S. Fitton Jackson (Biophysics Unit of the Medical Research Council), who paid attention particularly to the evidence obtained from phase-contrast microscopy and electron microscopic studies on the ossification of embryonic cartilage in the chick.

The final topic for discussion was high-angle X-ray diffraction in collagen. Mr. A. C. T. North (Wheatstone Physics Laboratory, King's College, London), after indicating the difficulties associated with obtaining reconstituted collagen in a form suitable for X-ray diffraction work, discussed the information which has been obtained from diffraction diagrams of swollen rat-tail tendon. Such diagrams are typical of a helical rather than a sheath-like structure for collagen. Dr. P. M. Cowan (also of the Wheatstone Physics Laboratory) elaborated on this conclusion, mentioning the requirements of bulk density and the importance of proline residues in connexion with hydrogen-bonding and stereochemical considerations. The helical structures proposed by various authors for collagen have been examined by the optical diffraction pattern method, and none appears satisfactory.

ARAB NATIONS SCIENCE CONGRESS IN ALEXANDRIA

A SCIENCE congress for the Arab nations, arranged by the Arab Nations Organization, was held in Alexandria, for the most part in the Faculty of Commerce of the University of Alexandria, during September 1-8, 1953, under the presidency of Prof. Mostafa Nazif, vice-rector of Ibrahim University, Cairo. More than five hundred men of science attended, representing Egypt, Iraq, Jordan, Lebanon, Palestine, Saudi Arabia, Syria and Yemen. The congress was opened by the president of the Republic of Egypt, General Neguib, who, with the official delegates from the nations participating, gave short speeches in which they stressed the importance of scientific co-operation among the Arab nations.

The activities of the congress were grouped into three sections. The first section, on original researches, consisted of about sixty papers dealing with mathematics, astronomy, physics, meteorology, biology, geology and chemistry; these papers were read before three groups, each of which held four meetings. Full details of these researches will be published in a special book to be issued by the organizing committee of the congress. At the second section, on general scientific problems, the subjects discussed dealt with scientific terminology; editing, translating and publishing books; the training and equipment of science teachers for schools; and the importance of science to the national economy. The organizing committee for the congress had previously arranged for the discussion of these problems by forwarding questionnaires to members of the teaching staff in the universities and ministries of education in the participating nations, and the replies had been published in book-form and circulated to members of the congress before meeting. The Arabic language was strongly recommended for the teaching of science in universities, and encouragement of the publication