

to its applications for the examination of the iridic angle, depth of the anterior chamber, depth of lesions in the eye media and the ingenious Ronne colloidometer for measuring the albumen content of the aqueous. Mr. C. S. Flick set the question: Do routines and techniques for the measurement of refractive error matter? A set of four typical routines included one which was typically American—a twenty-one point technique with standardized analysis—which led to extensive discussion.

Prof. H. Hartridge provided a fascinating introductory study of the development of X-ray techniques for determining the actual length of the living eye (Rushton, Sorsby and O'Connor) and the Goldmann-Hagen modification for measuring refraction. This led to the development of the main topic of his lecture, the cause of refractive error. Five or six theories were passed under review to explain the normal tendency of eyes so commonly hypermetropic at birth to settle down to an approximate emmetropic condition. The X-ray technique should serve to separate the roles of axial length and of optical refraction, which hitherto was not possible.

Dr. W. S. Stiles reviewed the physics of light absorption (including finer adjustments introduced by quantum considerations) and the bleaching of visual purple. Three curves of corrected means effected a simultaneous comparison of absorption coefficients and photosensitivity of visual purple solutions and the subjective spectral sensitivity of the dark-adapted parafoveal retina. The maxima at 500 m μ all agreed; but further study is needed in order to explain the differences towards the violet side, where there appears an absorption band at about 360 m μ . The curves agree very well on the red side of the maximum, especially as regards linearity and gradient, for which a rough theory giving a good fit of gradient was elaborated. A comparison of spectral sensitivity curves of the parafoveal rod vision and of the foveal cone vision shows, besides the Purkinje shift, a significant gradient difference on the red side of the maximum. This will require explanation in any future photochemical theory of vision.

WILLIAM SWAINE

ELASTICITY OF WOOD AND PLYWOOD

SPECIAL REPORT No. 7, issued by the Forest Products Research Laboratory (London: H.M. Stationery Office, 1948. 2s. net), summarizes the available information on a piece of important research undertaken on the "Elasticity of Wood and Plywood". The work and results embodied in the report are said to be mainly for the designer and the research worker. The forest officer might also have been included, since on the work of the silviculturist all 'wood' of the future, whatsoever its type, may be said to depend, with the exhaustion of Nature's resources.

The theory of wood elasticity rests on the assumption that the gross material possesses three perpendicular planes of elastic symmetry, and that it is perfectly elastic and homogeneous. A point which needs emphasis at the outset is that wood is actually only an approximation to this ideal material. The longitudinal tangential surface (the surface generated by a line parallel to the axis of the tree and moving along the growth rings) is not plane, but

roughly cylindrical. The other two principal surfaces, the longitudinal-radial (defined by the axis of the tree and the medullary rays) and the tangential-radial, are more truly plane; but even in these cases there will be some deviation owing to local irregularities in the growth of the tree. This is where the silviculturist comes in. "The extent to which any actual specimen departs from the ideal material will depend not only on the regularity of the growth but also on the position of the specimen in the tree."

The report is intended chiefly as a summary of knowledge known, but it contains a number of new results, some obtained in America and Australia during the Second World War, here published for the first time. The first part of the report is entitled the "Elastic Constants of Wood"; it deals with the measurement of the nine independent elastic constants of wood and the effect on them of factors such as temperature, moisture content and grain angle. The second part deals with the elastic constants of plywood. The manner in which they are related to the form of construction of the plywood and to the elastic constants of the wood from which the plywood is made is explained.

Under the heading of "The Properties of Plywood Plates and Cylinders", the third part deals with the frequency of vibration, the buckling and deflexion of plywood plates and the buckling of plywood cylinders.

INTERNATIONAL SCIENTIFIC FILM ASSOCIATION SECOND ANNUAL CONGRESS

THE most important outcome of the annual congress of the International Scientific Film Association held in London during October 4-11, 1948, has been the formation of a number of international commissions to pursue in detail the programme of work agreed in general by the member countries for the coming year. Before discussing this programme, a few words on the Association's history may not be out of place.

The International Scientific Film Association was inaugurated last year in Paris, largely as a direct result of the initiative of the British and French Scientific Film Associations. The preliminary work of these two organisations, the first contact of which at the end of the War revealed many common interests, resulted in the assembly last year of representatives from twenty-two countries to discuss and agree to the formation of this international organisation to further the interests of the scientific film. Unesco, recognizing the scientific film as an important aid in the dissemination of knowledge, showed a benevolent interest in the new Association, the maintenance of which was demonstrated by the attendance again of a Unesco observer at this year's Congress.

Some twenty-five countries had accepted the invitation to the second Congress, and the number of those who finally managed to send delegates fell little short of this figure, some unfortunately failing to overcome the many obstacles with which post-war travelling is beset.

The honour of organising this year's congress was given to Great Britain, and its Scientific Film Association, assisted by financial aid from the British Film Institute, rose worthily to the occasion. A very

full programme of eight days of meetings, receptions, demonstrations and film showings was arranged and carried through smoothly.

The general assemblies of the delegates formed the most important part of the proceedings. The events of the first year of the Association's history were reviewed, and delegates gave brief reports of the work being done in their countries. It was striking testimony to the value of the activities of the Scientific Film Association of Great Britain to note how several countries, notably Holland and Belgium, are modelling their own young organisations along closely similar lines.

The need for continuous exchange of general information, and details regarding films in particular, soon established itself as paramount in the discussions. A vital step in its fulfilment was taken by the approval of an index card to record essential data of scientific films and thus to form the material for the first catalogue of such films available throughout the world. One of the international commissions set up was charged with supervising this work and preparing recommendations for the international appraisal and grading, according to merit and purpose, of scientific films.

Other matters of prime interest in the further work of the Association were also entrusted to commissions. It is believed that these will be able to work out practical details for some kind of international co-operation in the joint production of certain specialized films, and that eventually the problem of film distribution on the widest international scale will be solved. Discussion indicated to what extent customs barriers and finance regulations are likely to hinder the early achievement of this aim, but hope for a solution, even if only on a limited scale at present, was not abandoned.

The Belgian delegate offered a very practical contribution by trying to form an international scientific film reference library in his country. The representative of the Dominican Republic suggested that they might help by providing translations of information for the Spanish-speaking countries. Such offers of practical assistance showed the keen interest in the proposed activities and pervaded the meetings with a strong feeling that the aims of this international organisation are likely to be successfully implemented.

Much of the proceedings of the assemblies was in connexion with the constitution and internal organisation of the Association itself. While these may not be of such immediate public appeal as other matters already mentioned, they are none the less essential for the smooth and efficient working of the Association. In accordance with its democratic constitution, delegates from member countries elected a governing Council for the coming year, the officers of which are: *President*: M. Jean Korngold (Poland); *Vice-Presidents*: Mr. John Maddison (Great Britain) and Mr. C. A. Burmester (Australia); *Honorary Secretary*: M. Jean Painlevé (France); *Honorary Treasurer*: M. Luc Haesaerts (Belgium).

In conclusion, mention should be made of some of the many events occupying the full programme of the week. Receptions for the delegates were given by the Council and Congress Committee of the Scientific Film Association of Great Britain, the Royal Microscopical Society and the British Council. At the former, the inaugural reception, delegates were received by the Parliamentary Under-Secretary of State for Commonwealth Relations on behalf of

the Lord President of the Council. These various functions, while dignified, were given a pleasantly informal character by the renewing of many old friendships among the delegates.

The Scientific Film Association of Great Britain had also organised some specialists' meetings dealing with the film in medicine, schools, universities, industry and scientific research. They provided welcome opportunities for discussion between experts in Britain and abroad as to how best the film can help in these various fields. Much valuable material was contributed from both sides and the detailed discussions served to co-ordinate thought on these problems. These links between groups of similar specialized interests, thus established, will serve to strengthen considerably the work of the International Association.

Fifteen of the participating countries sent more than sixty scientific films, some of which were shown during the course of these specialized meetings, but about forty of which formed the programme for a public International Scientific Film Festival held in London on October 8, 9 and 10. Such was the interest in this Festival that the hall of the Royal Empire Society was filled to capacity by some four hundred spectators on six separate occasions. An even wider audience, estimated at 100,000, was reached, however, by means of television. On October 4, a special programme was transmitted giving previews of some of the films to be shown later and ending with the first demonstration in Britain by the French delegate, M. Jean Painlevé, of the combination of television camera and microscope to achieve 'live' broadcast pictures of microscopic organisms.

The second congress of the International Scientific Film Association in London will undoubtedly be remembered as a significant milestone in the history of the Association. One may hope, however, that it served an even wider purpose, for it demonstrated once again the common aim of all men of science to further human progress and happiness. To achieve this on a truly world-wide scale, the film will play a major part by using visual images to transcend barriers of language in the spreading of knowledge.

MICHAEL MICHAELIS

FORTHCOMING EVENTS

(Meetings marked with an asterisk * are open to the public)

Saturday, November 20

ROYAL AERONAUTICAL SOCIETY (joint meeting with the HELICOPTER ASSOCIATION, at the Institution of Civil Engineers, Great George Street, London, S.W.1), at 11 a.m.—Discussion on "Helicopters".

Monday, November 22

INSTITUTION OF ELECTRICAL ENGINEERS (at Savoy Place, Victoria Embankment, London, W.C.2), at 5.30 p.m.—Discussion on "Single-Phase to Three-Phase Conversion Systems" (to be opened by Mr. A. N. D. Kerr).

UNIVERSITY OF LONDON (at the Institute of Education, Malet Street, London, W.C.1), at 5.30 p.m.—Mr. H. E. Bowman: "Education for International Understanding—The Moslem World".*

INSTITUTION OF THE RUBBER INDUSTRY, MANCHESTER AND DISTRICT SECTION (at the Engineers' Club, Albert Square, Manchester), at 6.15 p.m.—Dr. W. McG. Morgan: "Accelerators for Stocks containing Reinforcing Furnace Blacks".

TEXTILE INSTITUTE, YORKSHIRE SECTION (in the Large Hall, Technical College, Huddersfield), at 7.15 p.m.—Mr. B. H. Wilsdon: "Principles of Textile Research".

ROYAL SOCIETY OF ARTS (at John Adam Street, Adelphi, London, W.C.2), at 8 p.m.—Mr. L. H. Bedford: "Some Technical Aspects of Television" (Cantor Lecture).

Tuesday, November 23

UNIVERSITY COLLEGE, LONDON (in the Anatomy Theatre, Gower Street, London, W.C.1), at 1.15 p.m.—Dr. F. W. Jane: "Some Problems in being a Tree".*