

The Royal Photographic Society's Exhibition.

THE Royal Photographic Society's Annual Exhibition is now open at the Society's House, 35 Russell Square, London, admission being free; and it closes on October 9. In the Scientific and Technical Section the items that seem to be the most novel or the least often seen are some results obtained by a combination of the cinematograph and microscope, and a photograph of the ultra-violet spectrum of silicon by Prof. A. Fowler, of the Imperial College. This is done in sections, from wave-length 2820-2420 Å.U. on ordinary plates, from 2250-1840 Å.U. on plates smeared with a fluorescent oil, and from 2150-1250 Å.U. on Schumann plates using a vacuum grating spectrophotometer.

Cinematography is more fully represented than it has been before. Dr. S. Bayne-Jones shows the life-history of the *Penicillium*, taking the pictures at the rate of two per minute by means of an automatic mechanism which also turns on the light. Dr. S. E. Sheppard and Dr. R. H. Lambert, of the Kodak Research Laboratory, have photographed the electrophoresis of rubber latex particles, the film showing the Brownian movement of the particles and their movements in an electric field. Mr. Loyd A. Jones, also of the Kodak Research Laboratory, has studied the growth of crystals using elliptically polarised light and the 'Kodachrome' process, and he contributes films of six different substances in very realistic colours. There are several other films of the more usual type and also a collection of historic films, including the famous train film of Lumière Bros., which was the first ever exhibited to a paying audience (in 1895). Photo-micrography is associated with colour processes in the four autochromes of Dr. C. F. Elam, of the Royal School of Mines, which show at a magnification of $\times 100$ various crystalline forms of silver nitrate taken between crossed Nicols. Dr. L. F. E. Johnson, besides two slides taken in a similar way, has two illustrations of fabrics as they appear under the microscope when illuminated by Rheinberg's differential colour stop, which shows the warp red and the weft blue.

Of the numerous photo-micrographs taken in the usual manner we would direct attention to Dr. G. H. Rodman's series of 24 which illustrate the various forms of hairs occurring on plants which are recognised as liable to produce mischief (sting, etc.) in those who come in contact with them; Mr. J. H. Pledge's 9 photographs ($\times 10$) of an Indian mistletoe that has no leaves; cultural types of meningococci and gonococci from the Lister Institute of Preventive Medicine; and a series of the rabbit embryo in utero and rabbit placenta, each showing various stages in its development, by Mr. G. S. Sansom. There are many others of considerable merit and interest, and a large collection that shows the present results of metallography obtained in numerous laboratories where it is practised, including the National Physical Laboratory. Viewing the photo-micrographs as a whole, the difficulty of getting good results at certain rather low magnifications seems to have been entirely overcome, and they indicate that no more detail is obtained by increasing the magnification above about $\times 2000$.

Radiography and photographic printing in colours are as well represented as ever. The structure of emulsions, and the changes produced in the silver bromide grains, are shown by Mr. L. F. Davidson and the British Photographic Research Association, and Mr. L. E. Jewell shows the advantage of what he calls 'relief illumination' in photo-micrography, that is, the mirror in the vertical illuminator is considerably decentred so that there is a mixture, in regulatable proportions, of oblique specular and diffused light. The General Motors Corporation of Michigan, U.S.A., contributes prints of its Midgley Optical Gas Engine Indicator, which records as curves the character of the combustion in automotive engines. Of the various trade exhibits, those that impressed us most were Messrs. Ross's rapid speed photographs of the last test match taken with a 40-inch $f/8$ Teleros lens from outside the ground, and Messrs. Ilford's illustrations of the method of making and testing their light filters.

Smoke Abatement Conference.

A CONFERENCE on smoke abatement was held in Birmingham last week, organised by the Smoke Abatement League of Great Britain, in connexion with an exhibition of apparatus and methods bearing upon fuel economy and the abolition of smoke. The conference was divided into two main sections, one of which dealt with the industrial, and the other with the domestic, smoke problem. On the morning of September 7, Mr. J. Robson read a paper dealing with smoke in Bengal, describing the action taken to prevent undue emission. A special smoke commission was appointed, and it was stated that, since 1906, 90.8 per cent. of the smoke from factory chimneys had been abolished—a remarkable achievement. In an evening address on the same day Sir John Robertson, Medical Officer of Health of Birmingham, emphasised the injury done by smoke in obstructing the sun's rays, more particularly the ultra-violet. This affects children especially, and results in a failure to deposit lime salts in the bones and teeth, thus causing rickets and dental decay. It was stated that the exposure of rickety children to sunlight is an almost certain cure if the disease has not progressed too far.

In the conference Dr. Fishenden gave a general summary of the position relative to the low temperature carbonisation problem, and the general trend of

the discussion showed that the real difficulties in producing a low temperature coke, suitable for domestic use, are financial and economic rather than technical. Nothing new or of outstanding interest was brought forward in connexion with the industrial side of the smoke problem, but there was a general agreement that the real reason why industrial smoke still remains a serious evil in Great Britain is not any technical impossibility in preventing it, but rather the absence of any special effort to do so on the part of many manufacturers.

On the domestic and housing side of the conference there were several interesting papers—one by Mr. E. D. Simon and Miss Marion Fitzgerald. This gave valuable statistics of the steps taken in different places in connexion with new housing schemes. The Ministry of Health was criticised somewhat severely for "totally ignoring" the recommendation in the Interim Report of the Departmental Committee on Smoke Abatement that "the central housing authority should decline to sanction any housing scheme submitted by a local authority or public utility society unless specific provision is made in the plans for the adoption of smokeless methods for supplying the required heat." This criticism was afterwards replied to by Mr. Poynton-Taylor, chief assistant architect of the Ministry of