



SAMUEL EDWARD SHEPPARD  
1882-1948

SAMUEL EDWARD SHEPPARD was born in Catford, England, and was educated at St. Dunstan's College and University College, London. At University College he obtained the degree of B.Sc. by research in 1903, for a thesis dealing with the theory of the photographic process, and involving a repetition and extension of the earlier work of Hurter and Driffield. This work was greatly extended in his research for the D.Sc. degree, which was granted in 1906 for a thesis which was published in 1907 jointly with that of C. E. K. Mees under the title of "Investigations on the Theory of the Photographic Process."

In 1913 Dr. Sheppard accepted an invitation to take charge of the sections of physical and colloid chemistry in the Kodak Research Laboratory, which had just been organized under the direction of Dr. Mees at Rochester, N. Y.

His work on photography covered the whole of photographic chemistry including the study of the process of development, the structure of the light-sensitive emulsion, the nature of the latent image, and the causes of sensitivity in photographic emulsion. In addition, he made some important advances in colloid chemistry, including the use of mixtures of powdered coal and oil as a fuel, and methods of electroplating rubber in thin coatings. His early work in the United States dealt principally with the physicochemical properties of gelatin, but about 1920 he turned his attention to the action of light on the silver halides and the nature of sensitivity, and published a series of papers on the theory of photographic sensitivity and the formation of the latent image.

The well-known sensitizing property of gelatin in the photographic process led to a systematic study of the difference between photographic gelatins in their sensitizing power and the nature of the

substance in gelatin which conferred sensitivity. By a painstaking series of analyses, it was found that the sensitizer inherent in natural gelatin was concentrated in the liquors obtained by the acid treatment of the raw material after liming, and eventually it was found that the chemical properties of the sensitizer corresponded to those of allyl thiourea and that therefore the gelatin sensitizer was essentially one which could produce silver-sulfide specks in the silver-bromide crystals.

This discovery is perhaps the major advance made in Sheppard's scientific career. All further study of the photographic properties of gelatin, of the nature of the sensitivity of silver halides, and of the latent image have been conditioned by it. Its publication won for Sheppard instant recognition. He was awarded the honorary fellowship of the Royal Photographic Society in 1926, the progress medal of the Royal Photographic Society in 1928, and the Adelsköld medal of the Swedish Photographic Society in 1929. In 1928 he delivered the Hurter and Driffeld Memorial Lecture to the Royal Photographic Society, and in 1930 received the Nichols medal of the American Chemical Society. He was made a Fellow of the Society of Motion Picture Engineers in 1944 and an honorary Fellow of the Photographic Society of America in 1946.

Since 1930, Dr. Sheppard's scientific work covered a prodigious range of knowledge. Besides the work on the latent image, he studied such matters as the photovoltaic effects, that is, the electrical response of silver halide to light, the colloidal structure of film-base materials and their physicochemical and elastic properties, the nature of development, and particularly the nature of dye sensitizing, the adsorption of sensitizing dyes to silver halides, the structure of the layers which they formed, and their sensitizing effects.

More than any other single worker, Dr. Sheppard has been responsible for our present knowledge of the theory of the photographic process. He explored every section of the chemistry of that process, and everywhere his studies brought light.

C. E. K. MEES

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