

## Editorial



Vernon Ellis COSSLETT (1908-1990)

### **In memoriam,**

Vernon Ellis Cosslett died on November 21, 1990. He was born on June 16, 1908. We knew that his health was failing these last months but we did not imagine so rapid an end.

He is widely known amongst the community of electron microscopists. He was one of the pioneers in Electron Microscopy. In fact, it can be said that he was long involved in many of the new domains, any new possibility which could appear in this technique, testing new approaches. He was interested in many instrumental developments such as electron diffraction, electron optics, conventional electron microscopy, scanning X-ray microanalysis, point projection X-ray microscopy, High Voltage Electron Microscopy (HVEM).

He began his career as a Research Chemist at the University of Bristol (1930). It was proposed that he should study gas reactions which included a research visit to the Kaiser Institute for Physical Chemistry in Berlin. That surely explains his knowledge of the German language which have been very useful to him for reading the first papers on electron microscopy. In fact, in 1933, Professor Tyndall at Bristol asked him to read the papers of Knoll and Ruska. That is certainly the origin of the interest of V.E. Cosslett in Electron Microscopy. However he began his research work by carrying out electron diffraction of vapours.

He joined the Cavendish Laboratory in Free School Lane in 1946 where he founded an electron microscopy group which welcomed a lot of excellent students and post-doctoral visitors until his retirement. One of them, Ray Dolby, is now famous outside electron microscopy.

In 1962, when he was 54, encouraged by the work of Gaston Dupouy, Franz Perrier and colleagues, he decided to build a High Voltage Electron Microscope. The instrument he built was the 750 kV Cambridge instrument. It came into operation in 1966. HVEM subsequently became a major orientation of his own research for the last part of his life. Following this work, AEI partly influenced by it, constructed the well known 1.2 MV microscope (EM7). More recently, as a consequence of his previous researches, he was the instigator for the construction of the Cambridge High Resolution Electron Microscope (600 kV) which succeeded in showing the ability of high voltage to get high resolution.

I remember him as deeply interested in Analytical Electron Microscopy and High Voltage Electron Microscopy but also in the use of computing in these techniques. The wide interest of V.E. Cosslett in many domains ranged from physics to biology including medicine and chemistry. He had also a special ability and was very efficient in keeping international contacts. He was very active in the foundation of several organizations in Great Britain and also international groups such as IFSEM (International Federation of the Societies for Electron Microscopy). He played an important role in the promotion of IFSEM and more recently of CESEM. I remember his wonderful ability on several occasions to find the right by-laws and efficient rules for international groups, without which their role would not have been clear.

He fully realized that it is of great interest to keep traces of results to the benefit of the scientific community, so he wrote a lot and edited many books and proceedings. He founded the *Advances in Optical and Electron Microscopy* series.

Amongst many other international activities he was invited many times in France on the occasion of congresses or theses. He participated in the first congress which was held in Paris in 1950. He had many opportunities to visit France and he enjoyed coming very much. In particular, I remember his active participation in Toulouse for the annual SFME congress in February 1962 where he was invited to give a talk. A very nice photograph of all the participants in front of the Laboratoire d'Optique Electronique shows him beside G. Dupouy who organized the congress. He also came to Orsay and was again in Toulouse in 1975 on the occasion of the IVth International Congress for HVEM and more recently in 1983, he was invited to attend the 10th ICXOM congress.

He enjoyed very much evening discussions on subjects far from electron microscopy. I remember with pleasure several discussions or parties in various countries, one in particular in Cadiz with Professor Brù near twenty years ago.

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Some of Vernon Ellis Cosslett's principal publications are listed below.

#### References

- COSSLETT V.E., Electron diffraction in carbon tetrachloride vapour, *Trans. Faraday Soc.* **30** (1934) 981.
- COSSLETT V.E., The variation of resolution with voltage in the magnetic electron microscope, *Proc. Phys. Soc.* **58** (1946) 443.
- COSSLETT V.E., Introduction to Electron Optics (Clarendon Press, Oxford) 1946.
- COSSLETT V.E. and JONES D., Design of combined electron microscope and diffraction apparatus, *Comptes Rendus Congrès International de Microscopie Électronique, Société Française de Microscopie Théorique et Appliquée et CNRS* (1950) p.213.
- COSSLETT V.E., The prospects of examining living matter in the electron microscope, id. (1950) p.555.
- COSSLETT V.E., Practical Electron Microscopy (Butterworths) 1951.
- COSSLETT V.E. and NIXON W.C., The X-ray shadow microscope, *J. Appl. Phys.* **24** (1953) 616.
- COSSLETT V.E. and HAINE M.E., The tungsten point cathode as an electron source, *Proc. Int. Conf. E.M., London* (1954) p.639.
- COSSLETT V.E., X-ray Microscopy : a rival to electron microscopy ? Rapport Europees Congres Toegepaste Electronenmicroscopie, Ed G. Vandermeerssche (Presses des Ateliers Publicitaires) 1954, p.281.
- COSSLETT V.E., Problèmes soulevés par la technique des spécimens et les opérations au microscope électronique lorsqu'on désire obtenir une très haute résolution. Les techniques récentes en microscopie électronique et corpusculaire, CNRS, Ed. Ch. Fert (1955) p.27.
- DUNCUMB P. and COSSLETT V.E., A scanning microscope for X-ray emission pictures, *Proc. Symp. X-ray Microscopy and Microradiography, Cambridge* (1957) p.374.
- DOLBY R.M. and COSSLETT V.E., A spectrometer system for long wavelength X-ray emission microanalysis, *Proc. second Int. Symp. on X-ray Microscopy and X-ray Microanalysis, Stockholm* (1961) p.351.
- SMITH K.C.A., CONSIDINE K. and COSSLETT V.E., A new 750 kV electron microscope, 6th International Congress for Electron Microscopy, Kyoto, **1** (1966) 99.
- COSSLETT V.E., Energy loss and chromatic aberration in electron microscopy, *Z. Angew. Phys.* **27** (1969) 138.
- COSSLETT V.E., High Voltage Electron Microscopy, *Quart. Rev. Biophys.* **2** (1969) 95.
- WITTRY D.B., FERRIER R.P. and COSSLETT V.E., Selected-area electron spectrometry in the transmission microscope, *J. Phys. D* **2** (1969) 1767.
- COSSLETT V.E., Recent developments in instrumentation for High Voltage Electron Microscopy, IVth International Congress for High Voltage Electron Microscopy, Eds. B. Jouffrey et P. Favard, published by SFME (1975) p.13.
- COSSLETT V.E., A 600 kV microscope designed for high resolution, *Proc. 5th Int. Conf. High Electron Microscopy, Kyoto* (1977) p.87.