

Richard J. Weiss (1923–2008)

Richard Weiss was the prime mover for the establishment of the IUCr's Commission on Charge Spin and Momentum Densities. He was also largely responsible for the renaissance of Compton scattering in the 1960s as a probe of electron (momentum)-density distributions and saw it take its place alongside X-ray and neutron diffraction, positron annihilation and electron scattering. Under the auspices of the IUCr, the Sagamore conference series, his brainchild, continues to flourish, with its 16th triennial meeting in Santa Fe in 2009.

Dick Weiss, as he was usually known, was born in 1923 and grew up in New York before joining the US Navy. After the war ended he gained his PhD, studying under Oppenheimer, and worked at the Brookhaven National Laboratory. He then joined the Army Materials Research Center at Watertown. Perhaps Dick's greatest contribution to X-ray science was to persuade the US Army that electron-density studies were vital to military development. There was great interest in understanding the behaviour of 3d electrons in Fe, Co, Ni and Cu and their alloys. In *Physics Today*, in 1965, Dick prophesied that, 100 years hence, the US Army would specify tanks on the basis of knowledge of the wavefunctions of materials. Tongue-in-cheek or not, he was successful in obtaining continued funding for basic X-ray research and the Sagamore conferences, the first two of which were held at Sagamore, a hunting lodge, near Lake Raquette. It was to Dick's credit that not only did the meetings attract the 'big names' in neutron and X-ray physics but also the American Army bankrolled the operation even when they left the original venue and went first to Aussois (France 1970) and then to Minsk (1973) which was then still firmly in the USSR.

Dick Weiss's scientific reputation did dip due to an extinction-plagued interpretation of an X-ray study of paired reflections from Fe: he got the e_g and t_{2g} attributions wrong. However, he rehabilitated himself by championing X-ray Compton scattering as an alternative method of studying electron density. In 1965, together with John Leake and

myself, he co-authored the first paper on experimental Compton scattering to appear for more than two decades and, despite the limited data quality, it did correct earlier misleading results and kick-start the development of the technique to probe electron density. Dick contrasted the information forthcoming from diffraction and Compton scattering in the book *X-ray Determination of Electron Density Distributions* (North Holland 1966) and in a 1969 paper in *Acta Cryst.* (A25, 248–257), which was an interesting themed issue, whose author list is a roll call of famous crystallographers from that era.

Together with Erwin Bertaut, who chaired the 1970 Sagamore meeting in Aussois, and myself, Dick Weiss made overtures to the IUCr to bring the Sagamore community under the wing of the IUCr. The Commission was established *ad interim* in 1975 at the Amsterdam Congress and then permanently in 1978 with a mission to do more than just run conferences. Projects to standardize analysis techniques for charge-density studies (the oxalic acid project) and Compton scattering (the water project) were early examples.

After his retirement, Dick devoted more time to writing, with a number of plays and books, mostly on non-scientific subjects. He also indulged his theatrical interests by reopening an old coaching inn, Blanchard's Tavern, in his home town of Avon, Massachusetts. In this tavern he often performed the role of Benjamin Franklin, who just might have been a visitor.

Dick Weiss made a lasting impact on our community: he pioneered the establishment of Compton scattering as a probe of charge density, was responsible for the creation of the Sagamore conference series and our IUCr Commission. Dick died on 13 December 2008 aged 85, leaving a wife, Daphne, and daughter, Catharine.

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