

Rosalind Franklin and the Structure of Graphitic Carbons

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Although the British relied on coal as an energy source during WWII, not much was known about the structure of coal and related materials, such as graphite and carbon black. Rosalind Franklin (1920–1958) made significant, fundamental and long-lasting contributions to our understanding of the molecular structure of sp²-based carbon materials. After receiving an undergraduate degree at Cambridge, she joined the British Coal Utilisation Research Association (BCURA), where her work focused on measuring the density and porosity of various coals. Franklin continued working on carbon at the Laboratoire Central des Services de l'Etat in Paris, where she investigated the process of graphitization using X-ray diffraction techniques. There, she became an expert in interpreting the diffuse X-ray diagrams of poorly organized, non-graphitic carbons and developed a structural model illustrating the potential of crystallites to fuse into well-ordered graphite. Later, following a period at Kings College spent working on DNA, Franklin joined Birbeck College at the University of London, where she continued to publish on the structure of graphitic materials, in addition to studying TMV and proteins. This presentation will take a look at some of Franklin's key discoveries in carbon research while bringing to light the mentors that helped shape her brief but remarkable scientific career.