

*“The Enthralling Story of the Discovery of Molecular Dissymmetry”*

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The discovery of dissymmetry (chirality) in the living systems, by Pasteur, provides an enthralling story, demonstrating how the remarkable experiment of the resolution of the racemate of the salts of tartaric acids into enantiomers, can lead to the foundation of the new sub-fields of structural chemistry and molecular biochemistry. In his experiment Pasteur had the ingenuity to combine knowledge from the emerging scientific fields of optics and crystallography.

In my lecture I shall try to place Pasteur's experiment at an historical perspective. This will include the description of the various paths that were associated with the success of his discovery.

Pasteur contributions to science were far more than simply discovering the underlying theory of molecular asymmetry; he foresaw main out comings that might emerge from his findings and performed intentionally designed experiments to confirm or to disprove logical predictions. He applied the principle of transference of the asymmetric property from one set of molecules to another, and he discovered the phenomenon of racemization. He realized that theoretically it should be possible to affect an optical resolution of a racemic mixture by combination with an asymmetric substance. Finally, he understood some of the biological implications of asymmetry in the living systems, and applied them successfully in his pioneering studies on fermentation and microbiology.

