John Rex Whinfield Biography

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Biography

Whinfield was born in Sutton, England and attended the Merchant Taylor's School and Caius College, studying chemistry. He worked as an assistant for Charles F. Cross and Edward John Bevan and became interested in textile fibers, perhaps inspired by Cross's and Bevan's earlier work with viscose rayon in 1892.

When Wallace Carothers introduced nylon in 1935, Whinfield, working as a research chemist at the Calico Printer's Association, began researching other substances that might be viable fiber material. Carothers and his research team had investigated polyesters, formed by reacting diacids and dialcohols, but were unable to develop the polyesters into fibers of significant strength. They turned to polyamides research.

In 1941 Whinfield and J. T. Dickinson reacted terephthalic acid and ethylene glycol in a condensation reaction; ironically, terephthalic acid was the sole diacid Carothers and his group did not try. Whinfield and Dickinson named the terephthalic-acid-based product Terylene. In 1946 they were granted a patent for their polyester, which was marketed by Imperial Chemical Industries in Great Britain and by Du Pont, under the names Fibre V and Dacron, respectively, in the United States.

Terylene fibers are made by a process known as melt spinning, in which Terylene is heated and forced through a metal plate with small holes. The polymer fibers emerging from the holes solidify in the cool air and are then passed through godet wheels, or rollers, that rotate at different speeds. This draws the fibers out and orients the molecules into a long linear chain.

Terylene revolutionized the British textile industry. It was used alone and in wool blends, and is still a staple of the clothing industry. Whinfield published few papers and received little recognition for his achievement, but by the time he died Terylene/Dacron was being produced at the rate of hundreds of tons a year.