# National Aniline and Chemical Company
# Buffalo, New York

**Jacob F. Schoellkopf, Jr. (1858-1942)**
**Founder of Schoellkopf Aniline & Chemical Co.**

**Jacob Frederick Schoellkopf, Jr. was born in Buffalo in 1858, the son of the wealthy industrialist Jacob F. Schoellkopf. He attended St. Joseph's College, Buffalo, and then went to Germany where he studied chemistry in 1873-79 at the University of Munich and in Stuttgart. He graduated from the Stuttgart-Polytechnic College and returned to Buffalo.**

**In 1879, Schoellkopf Sr. established the Schoellkopf Aniline and Chemical Company for his sons Jacob and C. P. Hugo. A Dr. Koehler appears to have been hired as a consultant for the production of aniline dyes. It is said that Schoellkopf, Sr. was anxious to help his sons make a success of the venture. Their success was more important to him than the money necessary to sustain the venture. Schoellkopf, Jr. had thorough training in chemistry and was convinced that making dyes from coal tar would be a very profitable business in the United States**

**The Schoellkopfs are said to have designed and built a plant for the production of aniline. They contracted with a large gas works for the distillates from which they expected to obtain benzene. But just as they were ready to start, the gas works**

**changed to water gas. As a result, the by-products were useless. The Schoellkopfs' plans were ambitious and they were reasonably successful, staying in business despite the drastic tariff reduction in 1882-3 that shutdown several other fledgling dye makers in the U. S.**

**The company developed a good reputation with the textile industry and soon found it necessary to build several branch operations. The first was built in New York in the 1880s. The second was built in Philadelphia in 1893. On January 1, 1900 the branches were united under the firm name of Schoellkopf, Hartford & Hanna Co. with capital in excess of $3 million. Jacob F. Schoellkopf, Jr. was elected president.**

**Early attempts to manufacture some naphthalene intermediates were thwarted by German competition. But the business grew on the basis of imported intermediates and the company became the largest producer of dyes in the U. S. by the outbreak of War World I. In 1912 the Buffalo works consisted of 36 acres of land on which 30 brick factory buildings were erected. This company employed 350 men, with a monthly wage pay roll of $15,000. About 100 dyes were being made, mainly azos, representing the acid, direct, and chrome colors in addition to a few food colors, basic colors and nigrosines. By 1915, 600 men were employed and worked around the clock.**

**The British blockade of German shipping forced Schoellkopf to make its own intermediates, starting from nitrobenzene and aniline available from the Benzol Products Co. of Marcus Hook, Pennsylvania. This led to the manufacture of benzidine, p-aminoacetanilide, p-nitroaniline, dinitrobenzene, m-phenylenediamine, and sulfanilic acid. The Solvay Process Co. supplied chlorobenzene for conversion to dinitrochlorobenzene needed for sulfur blacks. In 1915 the important naphthalene derivatives of beta-naphthol, H-acid, and chromotropic acid were introduced. In 1916 more intermediates were added including derivatives of toluene and a broader range of naphthalene derivatives such as Neville-Winther's acid and the "letter" acids R salt and G salt. The dye line had increased to 136 products. Schoellkopf became the leading producer of sulfur black and added safranines, methyl violet and methylene blue to the line.**

**A major step in the development of the U.S. dye industry occurred in 1917 when the National Aniline and Chemical Company, Inc. was formed by the merger of Schoellkopf Aniline and Chemical, Beckers Aniline and Chemical of Brooklyn, and the Benzol Products Company. Included also were certain facilities of Semet-Solvay, the Barrett Company, and the General Chemical company that made coal tar intermediates. The total capital invested was $18.9 million. The new company represented a highly integrated approach to dye manufacture beginning with coal tar crudes and intermediates. National Aniline then had 75 percent of the dye market. The consolidation was designed to meet foreign competition after the war. The dye lines of Schoellkopf and Beckers were complimentary since Schoellkopf specialized in cotton, silk, leather, and paper colors while Beckers was strong in colors for woolens. The executives were Jacob F. Schoellkopf, Jr. C. P. Hugo Schoellkopf, I. F. Stone, and Dr. William G. Beckers.**

**After the war, synthetic indigo was made for the first time. Alizarin sapphire dyes were in high demand due to their**

**resistance to fading. By 1919, National Aniline and Chemical Company had spent $845,000 in R & D and manufacturing capacity to produce alizarin sapphire and carbanthrene blue, a vat dye, in its plants. Another important step occurred in 1920 when National Aniline discovered the constitution of the developed black called Zambesi Black D, which was a closely guarded German trade secret. Manufacture of both the intermediate, aminocresol methyl ether, and the black was successful.**

**In September 1919 National Aniline exhibited its products with an impressive display booth at the Fifth National Exposition of Chemical Industries held in Chicago. National Aniline Company was proud of its new dye plant in Buffalo and wanted to showcase the facilities at the Exposition. The company commissioned Arthur Covey, noted illustrator and muralist of industrial scenes, to paint several large murals. The murals depicted scenes of dye manufacturing and testing. There was also a panel showing Herreshoff furnaces in operation with piles of Spanish pyrite nearby, a process that made sulfuric acid, essential for the chemical industry. When Herbert Dow, founder of Dow Chemical, saw these paintings at the Exposition, he was inspired and commissioned Arthur Knighton-Hammond, an English artist, to paint scenes of chemical manufacturing at his Midland, Michigan plant. The Covey mural was destroyed in a fire at the American Fine Arts Society gallery in New York in January, 1920.**

**National Aniline went on a publicity campaign to convince the public that their dyes had fastness properties equal to the pre-war German dyes. A travelling exhibit was displayed at various department stores throughout the country (see ad below).**

**In 1921 the National Aniline & Chemical Company was combined with four other companies to form the Allied Chemical & Dye Corporation, with capitalization of $175,000,000. All manufacturing was consolidated in Buffalo and much attention was given to improving the processes hastily introduced during World War I. In the same year the phosgenation of I acid led to a new range of cotton oranges, reds and scarlets of improved fastness.**

**During 1922-1923 the company started commercial production of phthalic anhydride by the vapor phase, catalytic oxidation of naphthalene. The next step was making anthraquinone, the key intermediate for the fast growing vat dyes and alizarins. In 1927 National Aniline entered the market with Carbanthrene Blue GCD, Yellow G, and Black B pastes.**

**National Aniline began to diversify in other chemicals during 1929-1930, making resins and plasticizers from phthalic anhydride. These products were soluble in paint vehicles and air-dried to form tough films. New capacity for phthalic anhydride was installed. Maleic, fumaric, succinic acid and succinic anhydride production followed for the growing demand in resins and plastics.**

**A new blue food color, Brilliant Blue FCF, was introduced in 1929 after lengthy testing to meet the requirements of the Food & Drug Administration. It is still in use today with annual consumption of 1.0 million pounds per year in the U. S.**

**Another step in broadening the company's activities took place in 1930 with the manufacture of the surface-active agent Naccosol A. In 1932 National Aniline became the first importer and distributor of Gardinol, a synthetic detergent derived from coconut oil fatty alcohols. Around the same time, the General Aniline Works also entered the synthetic detergent business.**

**Synthetic detergents from petroleum were introduced by National Aniline in 1934 under the trademarks Nacconol KP and KPR, representing alkylarylsulfonates. An extensive line of detergents was developed giving this business a major role in the company for many years.**

**The stability problems of vat dye pastes were overcome in 1933 with the new easily dispersible powders. A dry, non-dusting flake form was made in 1937. The dye business was expanded with azoics (naphthols and stabilized diazo salts) and dyes for new fibers such as cellulose acetate and specialized rayons.**

**World War II sharply increased demand for products such as Vat Khaki 2G for cotton uniforms, blue wool dyes for Navy uniforms, camoflage dyes, phthalic anhydride for coatings, stabilizers for smokeless powder, insect repellents, and detergents for the military including salt-water soaps.**

**The company built an ammonium picrate ( Explosive D) plant for the U. S. government in Baldwinsville, New York. Production was based on chlorobenzene rather than the scarce phenol used before the war. A key intermediate was dinitrochlorobenzene for which National Aniline had much experience in as the raw material for sulfur black.**

**Another important contribution to the war effort was the production of the anti-malarial drug Atabrine. At the peak, Atabrine was made at the rate of 70 million single-dosage pills monthly. Other companies involved with the Atabrine production effort were Harmon Colors of Haledon, New Jersey and Pharma Chemical of Bayonne, New Jersey.**

**When the war was over, National Aniline expanded its facilities to meet pent-up demand for both dyes and organic chemicals.**

**The parent company, Allied Chemical Corporation, further diversified the colorants business with the purchase of Harmon Colors from B. F. Goodrich in 1959. Harmon Colors was integrated into the National Aniline division and brought a wide range of organic pigments for automotive coatings, inks and paints.**

**Over the years, National Aniline was the second largest dye producer of the four major U. S. companies: Du Pont, National Aniline (Allied Chemical), Calco Chemical (American Cyanamid) and GAF. Tariff regulations, which had protected the companies since the World War I era, were liberalized in the late 1960s. American companies faced increased imports of dyes and intermediates and obsolescent facilities. In the early 1970s, stringent environmental regulations were enacted, requiring the companies to invest heavily in air and water pollution control. In order to reduce costs, research spending**

**was curtailed and innovation in the colorants area virtually ceased. Allied Chemical spun off its dye business in 1976 to Buffalo Color Corporation, privately held by the Wm. Sword & Co. investment banking firm.**
**The Harmon Colors business was sold to Bayer in 1977. GAF, Du Pont and American Cyanamid quit the dye business by the early 1980's.**

**Buffalo Color specialized for many years in synthetic indigo, the world's largest volume dye used mainly for blue jeans. At its peak, the company employed 3,000 at the 63 acre plant site. Buffalo Color was hurt when Chinese manufacturers began exporting indigo dye to the US at less than half its price. The company suspected the Chinese of selling below cost and convinced Washington to place 129% tariffs on the imports. The imports stopped but later reappeared via South Korea and without the tariffs. Buffalo Color again went to Washington but time ran out. "We were getting killed," said Larry Kaminski, president of Buffalo Color. The final 170 workers were laid off in early 2003. The site was subject to a comprehensive environmental investigation by the New York State Department of Environmental Conservatiion (NYSDEC). Corrective measures were evaluated and a final remediation strategy was selected. The NYSDEC is negotiating with the company and previous owner Allied to secure funding for the cleanup of the pollution. The PVS Corporation occupies part of the site, manufacturing oleum (fuming sulfuric acid), a product once made by National Aniline.**

**The empty factory now has an eerie ambiance. The place is quiet. One of the World War I buildings has soaring brick arches giving it a cathedral-like appearance; a reflection of an era when industry was held in higher esteem in America. This building, known as the Schoellkopf Power House, is pictured below and will become a rail museum. Click here for more information and photos about this project.**

**Aerial View of National Aniline Dye Plant in Buffalo**
**Photo: EPA July 1973**

**Tanks of the PVS Corp. Tower in the background was part of a now demolished oil refinery located nearby. Photo ca. 2000. www.serc.carleton.edu**

**Buffalo Color Plant Location**

Show Map

National Aniline Memorabilia

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**14) "Chicago Exposition and Conventions", Chemical & Metallurgical Engineering, October 1, 1919, p. 427**
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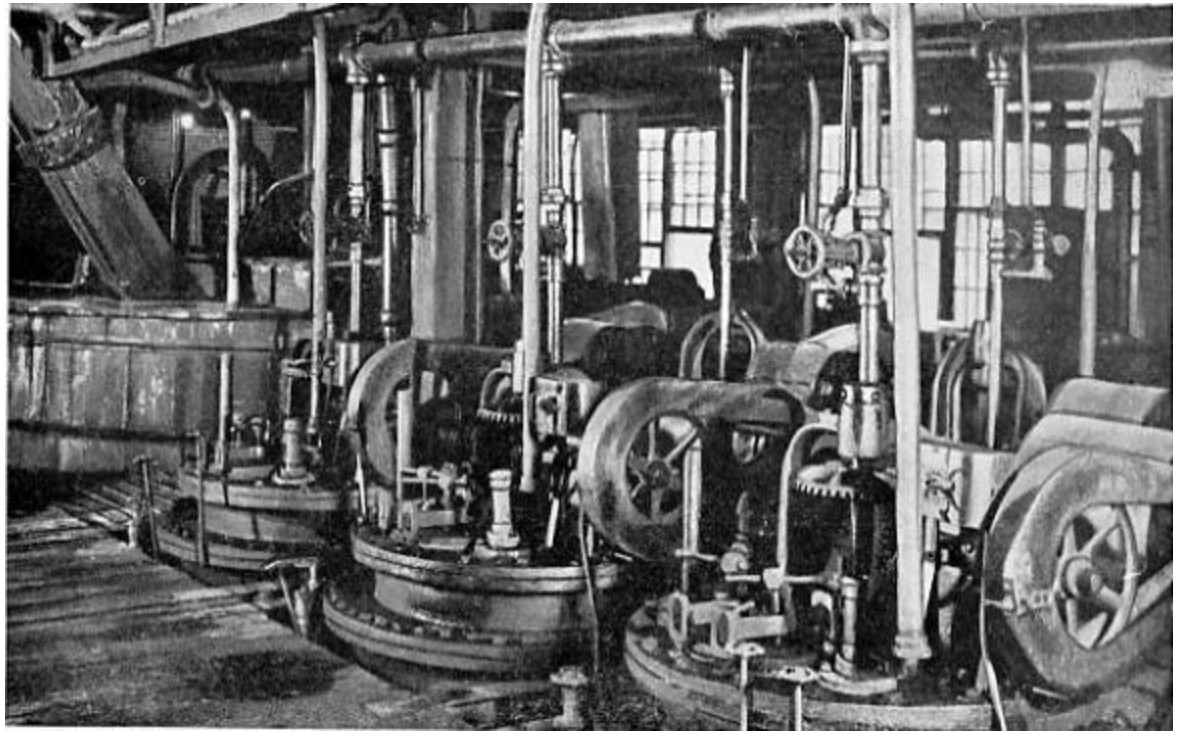
**ColorantsHistory.Org thanks Walt Lockley for documenting the loss of the oil mural Arthur Covey painted for National Aniline's exhibit in 1919.**



**National Aniline employees celebrate a service anniversary in a Buffalo Tavern, ca. 1950.**
**Photos: Courtesy of Martin Biniasz whose grandfather Adam Biniasz worked over 30 years for the company, beginning in 1941. Click to enlarge.**



**Dye Reactors at National Aniline Buffalo Plant**
**Photo: Edwin E. Slosson, Creative Chemistry, 1919**

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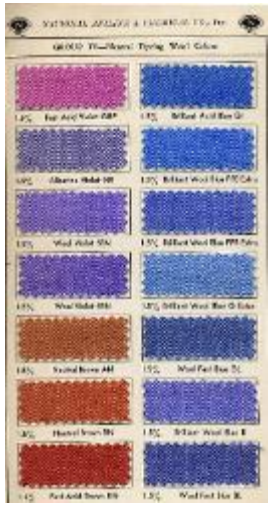
# Fast American Dyes Are Here

**National Aniline & Chemical Company**

Incorporated

21 Burling Slip, New York

**Ad in The Washington Post, September 23, 1918**
**Click to Enlarge**



**National Dyes For Union Materials-ca. 1924**
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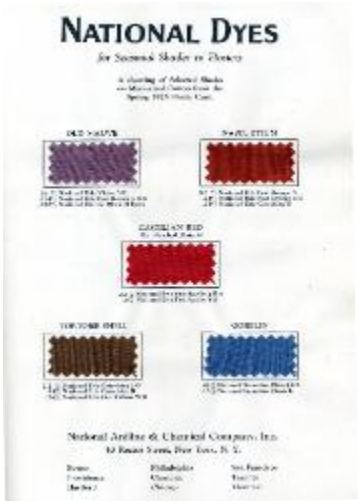
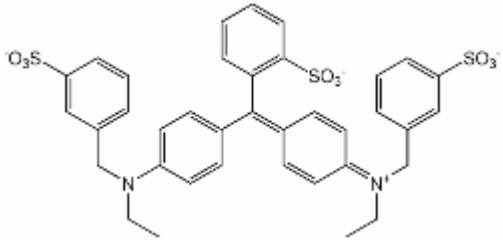



**American Dyestuff Reporter-1925**
**Click to Enlarge**




**Brilliant Blue FCF (FD&C Blue No. 1)**
**Click to Enlarge**


**Schoellkopf Works on Buffalo River**
**Image: 1902 Buffalo Map, Library of Congress**
**Click to Enlarge**

**National Aniline Topographic Map**
**Image: USGS 1950. Click to Enlarge**

**National Aniline Aerial Photo**
**Image: USGS 1951. Click to Enlarge**

**Harmon Colors Plant, Haledon, NJ ca. 1960**
**Acquired by Allied Chemical in 1959. Click to Enlarge**

**National Aniline Publication "Dyestuffs", September 1921**

**National Aniline Exhibit in New York 1918**

**The Chemistry and Manufacture of Vat Dyes (Adobe PDF File)**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**Images of Derelict Buffalo Color Plant, Taken 2008-2009, Courtesy of fixBuffalo . Click to Enlarge.**