

A SHORT HISTORY OF THE WAYNESBORO DUPONT PLANT:  
IT'S IMPACT ON WAYNESBORO

Ashley E. Stanley  
American Studies  
May 22, 1997

## Contents

- A. Early DuPont Company History
- B. Safety, Health and Environmental Impact
- C. Fibers Production
  - 1. Acetate
  - 2. Orlon\*
  - 3. Lycra\*
  - 4. BCF Nylon
  - 5. Permasep\*
- D. Benger Lab
- E. Impact on Waynesboro
- F. Family

## INTRODUCTION

As I was trying to decide what to do for my American Studies project, I thought about what kinds of things I had from which to choose. There were many options, such as the history and development of the Waynesboro school system, the movie theaters including the drive-in, old restaurants, Fishburne Military School and Fairfax Hall and the Police Academy, which would also be interesting topics.

I chose to write my paper about the Waynesboro DuPont Plant because I felt like more information was available and also because I could link something in Waynesboro to my family background. Both of my grandfathers, my grandmother Stanley, my uncle and my dad have all worked at the Waynesboro DuPont Plant. Most of the rest of my family have grown up living in a DuPont home. I also became very interested in learning more about DuPont because I attended two "Take Your Daughter to Work" days in 1995 and 1996. I got a grand tour and discovered all the different kinds of products they make.

By doing this project, I have really learned that the DuPont Plant has had a huge impact on Waynesboro and without DuPont, Waynesboro would not be the same place it is today.

I will describe in six different sections about the history of DuPont, the safety, health, and environmental emphasis which DuPont uses, the products they make, and the development work in Benger Lab. I will also show how my family has been a part of the sixty-eight year history.

I would also like to acknowledge my dad for his assistance in showing me all of the old DuPont newspapers and explaining why different pictures were important. Looking through the old newspapers took about fourteen hours on two different weekends.

A. Background

Just as Waynesboro is celebrating it's Bicentennial, the DuPont Company is nearing its Bicentennial in 2002 and the local Waynesboro DuPont Plant will celebrate 70 years in 1999.

"Eleuthere Irenee du Pont de Nemours emigrated to the United States in 1800. (See Figures 1-2) In his native France, he had been an apprentice to the famed chemist Lavoisier, and was well-versed in the craft of manufacturing black powder. E. I. du Pont de Nemours and Company was founded in 1802, on the banks of the Brandywine River near Wilmington, Delaware, to manufacture black powder. From these modest origins, the company has grown to become one of the largest and most diversified industrial corporations in the world." (1)

"With more than 140,000 employees and 200 manufacturing and processing plants worldwide, the company has annual sales that have exceeded \$30 billion. Today, DuPont has largely withdrawn from the explosives business. Meanwhile, however, the company has ventured into more than 90 other major businesses. DuPont products can currently be found in most market sectors. From agriculture to transportation, the company's products are improving the quality of life around the world." (2)

B. Safety, Health and Environmental Impact

Anyone who knows anything about DuPont knows about the tremendous effort DuPont devotes to preventing the pain and suffering of injuries. "DuPont emphasized a safe place to work and encouraged safety performance from all employees. The emphasis of safety allows employees to have a better and more productive attendance". (Rufus McCormick) The company's safety program had its beginnings in the early years when the only product was black powder, which posed an explosion hazard. An explosion in 1818 killed 40 employees. Irenie du Pont assumed responsibility for the establishment and enforcement of safe practices. This commitment by top management to employee safety has been an essential element in the company's program over the years.

Safety begins with management. Each supervisor is responsible for employee safety, and each employee is responsible not only for individual safety but that of fellow employees as well. DuPont's concern for employee's safety extends beyond the plant gates. DuPont is engaged in a continuing off-the-job safety program aimed at reducing the number of injuries away from work. "DuPonters try to carry safety characteristics into their homes and personal lives". (Shirley Wright)

DuPont employees at work and at home are much safer than the average industrial employee in the United States. U.S. industrial employees have 60 times more job injuries per year than DuPont employees, according to my father. Waynesboro DuPont employees are no exception to this fact. During the 68 year history of the Waynesboro plant, the employees have won numerous safety awards for injury-free performance on the job, including the General Managers Award, the President's Award and the Board of Directors' Award. The Board of Directors' Award has been achieved 59 times with the most recent being May, 1997. The plant has also won many state and national honors. The employees of the plant are extremely proud of these achievements but their real satisfaction comes from being able to work every day in a safe environment. (See Figures 37-46)

The Waynesboro site recognizes the importance of employee health and is committed to health promotion and disease prevention. A primary objective of the site is to provide a safe and healthful workplace. The company provides periodic health screening evaluations. Employees have been offered the opportunity to participate in Health Horizons, a comprehensive DuPont employee health improvement program. Health Club memberships are offered at very little cost to employees, although weekly participation is required. (See Figures 75-77)

Environmental concerns and commitment are equal to that of safety. The Waynesboro Plant has made many advances which reduced the impact of the plant on the environment. A large and sophisticated waste water treatment system was installed so that the plant discharges do not in any way impact the beneficial use of the south River. An ash collection system was installed to capture the fly ash that is generated by burning coal in the Powerhouse. There is also much attention given to the proper handling of hazardous waste, spill prevention and control, waste separation and recycling and waste disposal activities. In addition, the Waynesboro DuPont Plant has been instrumental in special activities such as the Habitat Enhancement Program.

Many pictures follow which show the impact these three areas have had on Waynesboro and the surrounding communities, particularly in the environmental field. (See Figures 47-74)

C. Fibers Production

"The announcement in 1928 that DuPont would locate a rayon manufacturing plant in Waynesboro marked Waynesboro's coming of age as an industrial center. DuPont employed 1,240 men in building their new plant and promised to have at least 1,000 employees on the payroll when it opened. The company indicated that they might add additional units, each employing 800, within a few years. Waynesboro boosters calculated that DuPont and existing employers would have jobs for at least 2,000 people by the end of 1929 and hazarded that Waynesboro's population would reach 12,000 by 1935." (3)

The coming of DuPont created a housing shortage in Waynesboro and gave impetus to plans for improving city amenities. The Mayor, City Council, and the City Manager "outlined proposals for a bond issue to provide for improved sewers, streets, lights and water." (4) The gas company brought natural gas to Waynesboro.

Waynesboro's first sanitation officer, was hired in response to questions from C. J. Bacon, DuPont Production Manager, concerning the purity of milk and water supplies. A zoning commission was established to divide Waynesboro into residential, industrial, and business districts.

A DuPont survey in 1929 indicated a need for rental housing in the \$15-\$40/month range. The survey also indicted that none of the DuPont employees would be in the market to buy their homes. Waynesboro was in good shape for the economic crisis of the Great Depression which would begin 1929-1930.

Rayon, a fiber made to emulate silk, is a lustrous, continuous thread formed by dissolving cellulose. The fiber was then put through a rigorous process of solidification, twisted into a threadline and spun into a cake for distribution to the customer. The first cake was spun on November 6, 1929. The Waynesboro plant began production of producer colored, color-sealed acetate yarns in December, 1929. On May 5, 1978 acetate yarn production was discontinued at Waynesboro. (See Figures 78-84)

"Permanent improvements in Waynesboro in 1930 totaled over \$500,000 and included paved streets, sidewalks, sewers and water mains, a new industrial plant, an addition to a public school building, and 35 private homes. General Electric began operating a plant employing over 200 people in 1930 and brought financial stability of a second giant corporation. For a small city of 6,223 people, the future looked bright. DuPont completed construction of additional facilities in 1935 and took on 1,600 additional workers." (5) According to Curtis Bowman, writing in Days of Yore, "the 1933-35 construction project was possibly the salvation of Waynesboro during those dark times". (6)

In 1939, the company constructed and opened a Recreation Center for use by employees and for the enjoyment of events such as musicals, recitals, dances, basketball, bowling, picnics and children's Christmas parties.

With the onset of World War II, the Waynesboro site was declared necessary industry and a seven point plan was put into effect. One main point, 100% bond participation, enabled the Waynesboro site to become the first industry in Virginia to reach the bond quota with payroll deductions totaling \$54,289. The site received telegrams from Generals MacArthur and Eisenhower thanking the employees for their efforts. (See Figures 3-36)

In 1948, fiber "A" was created at Waynesboro's Benger Lab. Fiber "A" became Orlon\* and was first produced at Camden, South Carolina in 1950. With an oversold market, construction began on the Waynesboro facilities on October 8, 1956 with the first start-up of Orlon\* acrylic fiber in April, 1958. Orlon\* was a simulated wool-type product that had varied used in the clothing profession, such as socks, sweaters, craft yarns, pile, fleece, non-wovens and upholstery. The last Orlon\* at Waynesboro was produced August, 1990.

On April 21, 1958 DuPont announced it was evaluating a synthetic elastomer textile fiber known as Fiber "K" in foundation garment, surgical hosiery and other elastic textiles.

On February 7, 1962 the manufacture of Fiber "K", now known as Lycra\*, began production. It was an elastomer yarn developed to compete with rubber thread in women's intimate apparel in such items as girdles and bras. The molecular chain produces a resulting yarn with the desired stretch/recovery characteristics. The customers then combine the Lycra\* with nylon or cotton to produce the final garment, whether it be intimate apparel, hosiery, swimwear or active wear. Lycra\* has become a fashion innovation since its discovery and was combined with Nomex\*, which was also developed in Benger Lab, for use in the spacesuit worn by the first astronauts who walked on the moon. The North American Expansion of Lycra\*, with its innovative and technological changes is scheduled to start up their new facility in Waynesboro in June, 1997. (See Figures 95-108)

The first BCF nylon fiber was spun at the Waynesboro plant in April 10, 1978. The plant was built with "state-of-the-art" technology. Additional process changes have been made in the past nineteen years to keep the Waynesboro site the highest quality, lowest cost BCF facility in the World today. The fiber made at Waynesboro is primarily for carpet and upholstery markets. Based on weight, nylon filament is stronger than steel wire. BCF offers soil hiding properties and built-in static control. (See Figures 112-115)

The last fiber, Permasep\*, produced at the Waynesboro site is produced on a small scale. It was developed here at Benger Lab in 1967. It has hollow fibers which act as a membrane and salty or brackish water feeds into the permeator at one end and circulates around the bundle of hollow fibers under pressure, which forces the fresh water to pass through the walls to be collected. Many small systems are used for trailer parks, condominiums, farms, hospitals, hotels, motels and laboratories. (See Figures 109-111)

D. Benger Laboratory

By 1930 there was a need for a technical group to devote full attention to the start-up and process development problems of the Waynesboro Acetate Plant, and to organize a research program for the new process. Dr. Van L. Bohnsen, a Research Section Head of the Chemical Division Staff was assigned as Research Supervisor in 1928 to organize this work. Following a visit to France to become familiar with process details, he was transferred to Waynesboro in 1929. Two other rayon chemists, Ferdinand Schulze and Fenton Swezey, joined Bohnsen at Waynesboro in 1930.

Late in 1930, two small laboratories were constructed using scrap lumber and odds and ends left over from the construction of the Plant. Library facilities were nonexistent. Under crude conditions, much research was done and much was learned about the EDA process, the acetylation process and the spinning process.

By 1934, the Acetate Process Research Group had grown to 24 technical men plus about an equal number of nontechnical employees. A new technical building, to house the Control Laboratory, the Acetate Semiworks, a chemical research laboratory, and a five-foot casting wheel was constructed in 1934. The Spinning Semiworks was expanded several times during the 1935-1940 period. Concentrated research efforts continued on Acetate research.

In 1947, major work started on Fiber A which eventually led to the commercialization of the first acrylic fiber, Orlon\*. In 1949 the building of a new laboratory was necessary to house expanded research activities and included a pilot plant for the development of Orlon\*.

In 1950 the new research laboratory was dedicated and named for Dr. Ernest B. Benger who actively promoted and directed the Company's research on synthetic fibers and films. The initial research and development efforts were greatly expanded and led to a host of new products being discovered in Benger Lab, which included:

- 1958 - Lycra\* - the first commercial spandex fiber for support and form fitting garments, and
  - 1963 - Nomex\* - an aramid fiber for high temperature resistance applications, and
  - 1967 - Permasep\* - hollow aramid fibers for permeators used to remove contaminants and salt from brackish water and seawater.
- (See Figures 116-125)

E. DuPont's Impact on Waynesboro

As I stated previously, in the early history of DuPont in 1928-29, DuPonters urged Waynesboro City Council to improve living conditions, utilities and schools. There was a housing shortage in 1929 when DuPont opened their Plant, and DuPont conducted a housing needs survey for their employees. This obviously led to many rental units being built along DuPont Boulevard where the present-day recreation area is located. The Melody Grill was built where the Main DuPont Credit Union is located today so that DuPonters could find some refreshment before they went home. "Waynesboro City Council announced plans in 1931 for new drainage systems on Main Street and DuPont Boulevard. The Staunton-Waynesboro highway link was completed in 1937 since over half the DuPonters lived outside Waynesboro in Staunton and Augusta County." (7) "Massive unemployment and bread lines were facts of life in some Virginia cities and towns in the early 1930's, but not in Staunton and Waynesboro. Augusta County had 2,330 persons at work in manufacturing concerns in 1931-1933. Employment in factories rose to 3,357 in 1935, 3,522 in 1937 and 4,402 in 1939. Waynesboro was responsible for nearly all this growth and increased employment. DuPont completed a new Plant in February, 1935 and hired 1,600 additional workers to staff it. By 1940, 4,250 were employed in Waynesboro's 21 manufacturing establishments, about 60% of these were DuPonters". (8) Based on this increased employment and population growth, I feel sure that DuPont and General Electric were instrumental in the improvements to the Waynesboro City Schools. "Private kindergartens and grammar schools, and a recently completed \$260,000 high school take care of a school enrollment of almost 2,000 Waynesboro children." (9)

A drive for a community hospital began in 1937, and reorganization of Watkins-Weems hospital was completed in April, 1938 when it became Waynesboro Community Hospital. DuPonters contributed to this outstanding effort. My father, his older brother and sister and several of my other relatives were born in this new hospital.

In 1942, "important defense contracts went to Waynesboro industrial plants. The Wayne Manufacturing Company, in particular, made ship fittings for the Navy and DuPont did much war work." (10) "According to the official GOLD STAR HONOR ROLL of Virginians in the Second World War, 227 young men from Staunton, Waynesboro and Augusta County died in military service" (11), 27 of those were DuPonters as inscribed on a memorial at the Main Gate.

As the DuPont Plant continued to grow, so did Waynesboro. "The DuPont Company made the cosmopolitan of Waynesboro and made the downtown grow. There were a lot of places to go shopping in Waynesboro when DuPont first came around". (Shirley Wright). "Waynesboro grew by 27 percent in the 1950's to reach a population of 15,694 by 1960. Medium income in 1959 was \$6154 and 17 percent had incomes over \$10,000. Waynesboro was a manufacturing town with 5,817 people directly employed in manufacturing." (12) Over half of these jobs were at DuPont.

"In 1939, the company constructed and opened a Recreation Area for use by employees and for the enjoyment of events such as musicals, recitals, and instrumental performances by the Melodiers, Waynesboro's own orchestra, which provided many hours of enjoyment whether during 'Saturday Night Sessions' or in concern with the Glee Club or the Men's Chorus.

The site also sponsored musical plays for the enlightenment of audiences. 'Anchors Aweigh' was presented in 1940 with over 100 Waynesboro citizens, as well as a director and producer from New York City involved." (13) Teen-age dances were also held every other Saturday night and drew crowds in excess of 200.

Sports were also among the many activities of the Recreation Hall and I'm told by my Grandfather that the Company used to recruit employees for their athletic abilities. Basketball was the predominate sport of the day, and DuPont teams played opponents from industrial sites around the valley, as well as touring teams, such as the "House of David" and the "Redheads", a women's team. DuPont also sponsored several "world class" softball teams, made up of DuPont all-stars, as well as a Babe Ruth team, the DuPont Braves, in the 1960's and 1970's. Duckpin bowling was also available at the Recreation Hall. Two extremely popular events held at the Rec Hall on an annual basis were "Field Day" in June/July and "Santa Clause" in December for the children and sponsored with much employee involvement. The Recreation Hall was torn down in 1976 to make room for the BCF nylon facility.

Many DuPonters have been involved in civic and political activities. Several examples are included in the pictures. DuPont has always been very much involved in sponsoring programs for education, such as "Fun With Science", High School Science Workshop (one week in Benger Lab), Junior Achievement and the Valley Alliance for Education. "DuPonters have been resources for education and there are actually DuPonters who go out into the school system, such as chemists and biologists, who share their knowledge with the children". (Freelyn Stanley, Jr.). "My father, a DuPont, developed the Mentorship Program for the Valley Alliance for Education. This effort was led by the Plant Manager, Tom Harris". "According to my dad, "We have 250 students in the program this year and the number of students is rising every year. I believe this makes a significant impact on students who choose to go on to higher education". (Freelyn Stanley, Jr.). I have included many picture examples of these previously mentioned activities. (See Figures 126-159)

Effort is continuing on reducing costs and improving quality for each of the product lines to help assure the continued health of Lycra\*, BCF nylon and Permasep\* ventures into the next century.

For nearly 70 years, DuPonters have maintained a unique relationship within the site and throughout the community. Strong economic and environmental ties with surrounding localities have enabled the Waynesboro DuPont Plant to keep the strong traditions of the company moving forward. Employees not only shape the future of DuPont, but they are also an integral part of the communities of Waynesboro, Staunton, Harrisonburg, Elkton and Augusta County in many outside endeavors. The DuPont Company pours over \$20 million into the local economy through wages and investments of services. Over \$1 million is paid in local taxes. The Waynesboro DuPont Plant keeps ongoing emission monitors to ensure the safety of the surrounding environment and the people.

F. Family

The last section of my report was added, as an afterthought, as I researched the DuPont newspapers from 1939-1993, to honor my relatives who have also played a role with DuPont for nearly 70 years. Some have been employees, while other family members were included in the DuPont newspaper which featured many family and community activities. It is very sad to see that this tradition of an outstanding company newspaper ended its production in the summer of 1993. I believe future history will be lost without this publication. (See Figures 160-186)

End Notes

- (1) This is DuPont, P1-2.
- (2) This is DuPont, P3-4.
- (3) Augusta County History 1865-1950, R. K. McMaster, P.172-173
- (4) Augusta County History 1865-1950, P.172-173
- (5) Augusta County History, P.173 & 190
- (6) Days of Yore, Vol. 2, P.46
- (7) Augusta County History, 1865-1950, P.179-180
- (8) Augusta County History, 1865-1950, P.179-180
- (9) Augusta County History, 1865-1950, P.179-180
- (10) Augusta County History, 1865-1950, P.196
- (11) Augusta County History, 1865-1950, P.203
- (12) Augusta County History, 1865-1950, P.216
- (13) Fiber Facts - November/December, 1989

## Bibliography

### Books

- o Curtis L. Bowman, Waynesboro Days of Yore, Volume 1, Nov. 1991, The McClung Co., Inc.
- o Curtis L. Bowman, Waynesboro Days of Yore, Volume 2, Oct. 1992, The McClung Co., Inc.
- o William S. Dutton, DuPont-One Hundred and Forty Years, 1951, Charles Scribner's Sons.
- o Richard K. MacMaster, Augusta County History 1865-1950, Sept, 1987, Augusta County Historical Society, Inc.
- o John K. Smith, Jr., Science and Corporate Strategy-DuPont R&D 1902-1980, 1984, Cambridge University Press.

### Magazine Article

- o Myron Emanuel, "Tomorrow's Scientists", Better Living, Volume 20, No. 1, (January/February 1966) Pages 16-19.

### Pamphlets & Newspapers

- o Product Information Center (Wilmington, Del.) Milestones in the DuPont Company's Textile Fibers History, December 1980, Pages 1-10.
- o Waynesboro DuPont 50th Anniversary Committee, Reflections, 1979, Pages 1-10.
- o External Affairs Publications Group, This Is DuPont, 1993, Pages 1-16.
- o Waynesboro Plant, Recreation News\*, 1/25/38-12/22/47.
- o Waynesboro Plant, Acetate News\*, 1/9/48-2/18/60.
- o Waynesboro Plant, Fiber Facts\*, 3/30/60-Summer, 1993.

\* Recreation News, Acetate News, and Fiber Facts were usually published 1/week until 1992 when they were published 4-8 times/year. They ranged from 4-6 pages to 8-12 pages.