THE INTERCONNECTED SYSTEM OF PRODUCTION

VIA NYLON & SEAFORD, DELAWARE

by

Brooke Emeigh

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Honors Bachelor of Arts in History with Distinction

2026

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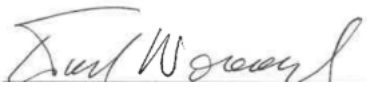
Approved: 

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ACKNOWLEDGEMENTS

A whole-hearted thank you to my thesis advisor, Dr. Norwood, for guiding me through this project, and to my other two committee members Dr. Johanningsmeier and Dr. Trivedi. Special thank you to Little Goat Coffee Roasting Co. in Newark, DE for fueling my productivity, to Adam for supporting me throughout the entirety of this process, and to the University of Delaware for providing resources & funding a portion of my research.

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INTRODUCTION

Produce — [from Latin prōdūcō (“to lead forth”)]
pro·duce | /prə-ˈdüs/

transitive verb

1 : to offer to view or notice

2 : to give birth or rise to : YIELD

3 : to make available for public exhibition or dissemination

4 : to cause to have existence or to happen : BRING ABOUT

5 : to compose, create, or bring out by intellectual or physical effort

intransitive verb

: to bear, make, or yield something

Nylon production is often celebrated as an achievement of mankind since nylon is not naturally occurring but purely comprised of chemicals, making it the first fully synthetic fiber. However, many newspapers often focus on the spinnerets, mechanisms, rails, and cylinders more heavily than the people operating them. True, nylon is an example of the continued sophistication of technology, but the process behind creating an eventual consumer good is more complex than the production that takes place in a factory setting. The machines within these factories are crucial to production, but this is one portion of the broader system of people and processes that work together to make something that is viable and appealing for consumers.

DuPont's teams of research chemists and marketers, Seaford's government that accommodated a nylon plant's construction, Seaford nylon plant workers, reporters covering the new fiber, and consumers using it all contributed to making nylon a new kind of consumer good.

This thesis aims to answer the following question: How can human beings be better credited within the production process, especially amidst technological advancement? The thesis approaches this question using scholarly assessments of DuPont, nylon, and consumerism, especially *Enough for One Lifetime* by Matthew Hermes, *A Consumers' Republic* by Lizabeth Cohen, and *The Theory of the Leisure Class* by Thorstein Veblen, and primary sources, including newspapers, archival materials held by the Hagley Museum and Library in Wilmington, DE, and the Science History Institute in Philadelphia, PA, census data, and an oral history interview with former Seaford nylon plant workers, produced specifically for this inquiry. Through these materials, this thesis argues that by broadening the definition of "production" to its most primitive sense, the term reveals a more holistic and interconnected view of nylon's creation and those involved within it.

Chapter 1

NYLON PRODUCTION AS RESEARCH, TOWN ACCOMMODATION, & WORKERS

While the production of nylon that takes place in a factory setting, the "physical" production, is an integral part of the creation of nylon, there are also many different types of labor that were involved within it as well, such as chemists' research behind nylon's invention and the Seaford residents' willingness to accommodate DuPont's first nylon plant. This chapter dissects what these different types of labor looked like during nylon's creation period, from the mid 1920s to 1939, and how they contributed to nylon's overall success, using the following materials: *Enough for One Lifetime* by Kennesaw State University professor Matthew Hermes, various newspapers, several archival materials from the Hagley Museum and Library based in Wilmington, Delaware, and a few articles from the Science History Institute based in Philadelphia. Through these materials, the chapter first discusses the chemists and their research that created nylon's chemical process, then highlights Seaford's accommodation of the first nylon plant, and finally, examines the detailed process of nylon's "physical" production. Through these viewpoints, this chapter argues that the initial stages of nylon's creation included "physical" production within factories as well as chemists, the research programs they were a part of, Seaford's accommodation of DuPont's nylon plant, and the workers within it, all playing parts within the overall system of nylon's production.

The beginning of nylon's production started with two French chemists, Louis Pasteur and Count Hilaire de Chardonnet. Louis Pasteur had many areas of research, some of the most notable being his impact on the germ theory, during the time when its validity was still questioned, and his idea that microorganisms could cause both fermentation and disease.[1] Pasteur created the first vaccines for fowl cholera and anthrax, two diseases that impacted livestock greatly, and rabies.[2] These discoveries impacted not only the organisms that were prone to infection, but also animal products and by-products they produced.

The question then becomes how Pasteur became involved in the saga of synthetic silks. Because of his experience with animal diseases and vaccines, Pasteur was called upon by the French silk industry in 1862 to help an epidemic amongst silkworms that looked detrimental at the time.[3] Pasteur narrowed the cause of the epidemic to a tiny parasite that infected the worms and their food supply, leading him to a recommendation that the worms and their food should be destroyed to rescue the industry.[4] Once the new worms became functional, Pasteur was primarily responsible for saving the French silk industry.[5] This sparked conversations around synthetic

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[1] Joe Schwarcz, "What Was Meant by 'Chardonnet Silk'?" March 20, 2017, https://www.mcgill.ca/oss/article/history-you-asked/what-was-meant-chardonnet-silk.

[2] "Louis Pasteur," Science History Institute, https://www.sciencehistory.org/education/scientific-biographies/louis-pasteur/.

[3] Schwarcz, "Chardonnet Silk."

[4] Schwarcz, "Chardonnet Silk."

[5] Schwarcz, "Chardonnet Silk."

silken substances, especially since Count Hilaire de Chardonnet was his assistant during this whole process.[6]

The eventual "Father of the Artificial Silk Industry," French chemist and industrialist Count Hilaire de Chardonnet would invent the first variation of rayon. During the time of the silkworm epidemic, Chardonnet became interested in how silkworms spun silk and thought that man could replicate the same.[7] One day, he was working with photographic plates when he accidentally spilled a bottle of collodion, a substance that was commonly used to coat and protect photographic plates and wounds in medical settings.[8] As he was cleaning the spill with a cloth, he noticed that "long silk-like filaments began to form."[9] For the next six years, he focused on furthering his accidental discovery and inventing a man-made silk.[10] Eventually, Chardonnet learned that the cellulose in mulberry leaves, a common food for silkworms, could make a nitrocellulose solution.[11] This could then be squeezed through a showerhead-like mechanism and be transformed into thin filaments.[12] This solution became known as "Chardonnet silk" and later rayon, since sun rays bounced

[6] Schwarcz, "Chardonnet Silk."

[7] Schwarcz, "Chardonnet Silk.",

[8] Schwarcz, "Chardonnet Silk."

[9] Schwarcz, "Chardonnet Silk."

[10] Schwarcz, "Chardonnet Silk."

[11] Schwarcz, "Chardonnet Silk."

[12] Schwarcz, "Chardonnet Silk."

off of the material's surface,[13] which he displayed in the Paris Exhibition of 1889.[14] Chardonnet's rayon is not the rayon used today due to its high flammability and would be unacceptable for modern production practice.[15] Regardless, his invention laid significant groundwork in the realm of synthetic fibers.

Chardonnet's rayon prompted copious amounts of questions. Because Chardonnet used cellulose for his synthetic silk, this gave future scientists leeway to pursue Chardonnet's dream of creating a silk made purely by man. American chemist, inventor, and the leader of organic chemistry at DuPont during the late 1920s to the mid 1930s, Wallace Hume Carothers was interested in furthering this idea and eventually became the lead chemist responsible for inventing the synthetic substance of nylon.

Carothers was offered a position at DuPont's headquarters in Wilmington, Delaware in 1927.[16] This position was part of a new program created by Charles Stine, a vice president of DuPont at the time, called "fundamental research." Stine had proposed this program in 1926 and said that this type of research was a "radical departure from previous policy."[17] He wanted to introduce a kind of research focused

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[13] Schwarcz, "Chardonnet Silk."

[14] *Inventive Genius* (Time Life Education, 1991), 52.

[15] Schwarcz, "Chardonnet Silk."

[16] Matthew E. Hermes, *Enough for One Lifetime* (University of Wyoming, 1996), 84.

[17] Hermes, *Enough for One Lifetime*, 69.

on "establishing or discovering scientific facts" for eventual practical application.[18] After negotiating with DuPont executives, Stine started to hire scientists for his new program by the spring of 1927, and Carothers was hired on October 31, 1927.[19] It was under this program that Carothers and the chemists within his group invented nylon.

In his job at Wilmington, Carothers met another key figure in nylon's creation, Julian Hill. A Midwesterner himself and casual friend of Carothers's at the time, Hill was asked to work on a problem in Carothers's group; his job was to find why DuPont's nitroglycerin, an oily explosive, kept "[fuming] off" in preparation vat.[20] Hill solved this problem in only a few months, prompting Carothers' desire for Hill to stay in his group.[21]

In April 1930, Hill began to gain momentum in the group's polymerization efforts. A May 11, 1940 issue of *The News Journal* explained polymerization as when "small molecules join together to form large molecules"; this is of course explained in a simplified manner, but the general process can be characterized as such.[22] Hill had heated the tray where the molecular still sat for longer than usual, changing the

[18] Hermes, *Enough for One Lifetime,* 70.

[19] Hermes, *Enough for One Lifetime,* 84.

[20] Hermes, *Enough for One Lifetime,* 99.

[21] Hermes, *Enough for One Lifetime,* 99.

[22] "Nylon, Product of DuPont Chemists, Has Varied Uses," *The News Journal*, May 11, 1940, https://www.newspapers.com/image/162248764/.

material and molecular weight of the substance.[23] He then touched a glass rod to the molecular still, which had become a "tough, adherent mass."[24] With this, a cluster of fibers began to appear and climb out of the glass test tube (see fig. 1).[25] Hill was then met with a surprise, for when he stretched the fibers, they did not break and instead "[separated] into two sections joined by a thinner section of the transparent, oriented fiber."[26] This phenomenon would come to be known as "cold-drawing," a common practice that would take place in nylon plants.[27]

[23] Hermes, *Enough for One Lifetime,* 115.

[24] Hermes, *Enough for One Lifetime,* 115.

[25] Hermes, *Enough for One Lifetime,* 115.

[26] Hermes, *Enough for One Lifetime,* 115.

[27] Hermes, *Enough for One Lifetime,* 115.

Figure 1. “Julian Hill recreating synthesis of first completely synthetic fiber,” 1941, 1972.341, DuPont Company product information collection, Hagley Museum and Library, Wilmington, DE 19807, https://digital.hagley.org/1972341_1154.

While the fibers maintained strength, they also melted at low temperatures, not allowing the fibers to be washed without reverting back to sticky globs, and therefore making the substance unfit for eventual commercial production.[28] Hence, in 1933, Elmer Bolton, research director for DuPont at the time, reduced the budget for the fundamental program.[29] This was not purely because Carothers' and his group were not producing conclusive results quick enough; the original funding for the fundamental program by DuPont ran out by 1933, and because of the Great Depression, budget cuts across all departments were common due to DuPont's financial situation.[30]

Carothers eventually created the series of polymers that would make up the fibers of nylon in the spring of 1934.[31] This was when polyamide 6-6 was created, which is what many nylon products are made with today. This polyamide had a uniquely high melting point, 256 ºC or approximately 493ºF.[32] The high melting point allowed the chemical substance to withhold high amounts of heat and, counter to the last effort, did not transform into melted goo once in the washing machine.[33] The task now was to ready polyamide 6-6 for mass commercial production.

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[28] Hermes, *Enough for One Lifetime,* 128.

[29] Hermes, *Enough for One Lifetime,* 157.

[30] Hermes, *Enough for One Lifetime,* 158.

[31] Hermes, *Enough for One Lifetime,* 181.

[32] Hermes, *Enough for One Lifetime,* 217.

[33] Hermes, *Enough for One Lifetime,* 218.

However, in 1936, Carothers's mental health was declining greatly. Carothers's mental condition had affected him for a majority of his career, but it became clearer during this time that his mental instability was incapacitating him.[34] On June 4, 1936, Carothers was involuntarily admitted to the Philadelphia Institute of the Pennsylvania Hospital, by his wife Helen Sweetman and his DuPont employers.[35] He was released one month after his arrival and went hiking in the Tyrolean Alps with his friends after his discharge. After his trip, Carothers disappeared for a month with not even his wife hearing from him. Carothers was not expected to perform substantial research from this point on.[36]

His sister's, Isobel's, sudden yet serious illness did not help Carothers's condition.[37] She became ill around Christmas of 1936.[38] She developed a streptococcal infection, and on Friday, January 8, 1937, Isobel passed away with her husband at her side at a hospital in Evanston, Illinois at 36 years old.[39] Her death being a likely contributor to Carothers's own death, Carothers checked into a Philadelphia hotel at 5 a.m., on April 29, 1937, just 111 days after Isobel had died, Carothers was found dead

[34] Hermes, *Enough for One Lifetime,* 259.

[35] Hermes, *Enough for One Lifetime,* 260.

[36] Hermes, *Enough for One Lifetime,* 271, 275, 277.

[37] Hermes, *Enough for One Lifetime,* 279.

[38] Hermes, *Enough for One Lifetime,* 279.

[39] Hermes, *Enough for One Lifetime,* 279.

in a Philadelphia hotel, with his death ruled a suicide.[40] All that was with him was $52 in his clothing and identification cards, no note left.[41] Carothers died at age 41 and never had the privilege of seeing the production of nylon, or the nylon plants in which his polyamide invention was the nucleus of.

In 1937, the press was quiet about nylon or "synthetic silk." However, some newspapers discussed the coming of synthetics more generally, especially in Germany, such as synthetic rubber, synthetic resin enamels, synthetic fertilizers, perfumes, dyes, and "a water-soluble synthetic size for rayon yarn."[42] In other words, the world was becoming aware that synthetics were on the rise, products that were supposedly better than their 'natural' counterparts.

DuPont became much more public about its involvement in nylon once the patent was approved for the "synthetic fiber." On September 20, 1938, patent no. 2,130,948 was approved, and DuPont received the patent for nylon.[43] The 14-page

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[40] "Dr. Carothers Is Found Dead in Hotel Room," *The News Journal*, April 30, 1937, https://www.newspapers.com/image/161845417/?terms=%22wallace%20carothers%22.

[41] "Dr. Carothers Is Found Dead in Hotel Room."

[42] "New Synthetic Products Find Increasing Use," *The News Journal*, December 2, 1937, https://www.newspapers.com/image/161744602; "Synthetic Rubber: Germany's Latest Stunt," Evening Express, June 3, 1937, https://www.newspapers.com/image/963134090; "Magic in a Test Tube," *Evening Press*, September 21, 1937, https://www.newspapers.com/image/963079813; "Synthetic Wool: Use of Substitutes Growing in Germany," *Warwick Daily News*, March 8, 1937, https://www.newspapers.com/image/1027541381.; "Synthetic Fabrics Displayed Before Home Economics Group at Hotel," *The Birmingham News,* March 21, 1937, https://www.newspapers.com/image/572938091.

[43] "Nylon Patent, Wallace Hume Carothers, 1937," September 20, 1938, 2777, box 1, folder 1, DuPont Company Seaford Plant records, Hagley Museum and Library, Wilmington, DE.

document included elaborate details of how the polyamide was created, synthesized, and made into product.[44] Now that the synthetic substance was patented, DuPont could start their endeavor toward creating a monopoly on the long-sought-out-for synthetic silk.

In the same year, the company agreed upon the name "nylon" for the new synthetic fiber after much debate.[45] The actual term "nylon" was not used in the patent, suggesting the coining was done after the patent was written.[46] The company originally wanted to name the fiber "Nurun," but there were too many words that sounded similar and posed trademark conflicts.[47] Then, they tried "Nilon," but to make pronunciation more straightforward, DuPont decided on "nylon."[48] However, DuPont did not trademark the name "nylon."[49] This was because they wanted consumers to think of nylon as a generic material, like wood or glass.[50] This would help advance their efforts towards making nylon a worldwide chemical substance that could be used in various types of products.

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[44] "Nylon Patent, Wallace Hume Carothers, 1937," DuPont Company Seaford Plant records.

[45] Audra J. Wolfe, "Nylon: A Revolution in Textiles," Science History Institute, https://www.sciencehistory.org/stories/magazine/nylon-a-revolution-in-textiles.

[46] "Nylon Patent, Wallace Hume Carothers, 1937," DuPont Company Seaford Plant records.

[47] Wolfe, "Revolution in Textiles."

[48] Wolfe, "Revolution in Textiles."

[49] Wolfe, "Revolution in Textiles."

[50] Wolfe, "Revolution in Textiles."

To facilitate this success, however, they needed a site to produce nylon. Seaford, Delaware was a farm town with a population of 2408 in 1930.[51] DuPont found this town appealing for a few reasons: Seaford had state highways running through it as well as local roads, a rail system that accommodated both freight and passenger transportation, low taxes, farm workers looking for stable income, and a readily available water source, namely the Nanticoke River.[52] On October 19, 1938, a public announcement was made that DuPont bought a 340-acre plot of land in the town of Seaford, costing approximately $7,000,000–$8,000,000, or approximately $165.4 million–$189.1 million in 2025 dollars,[53] meaning that the small farm town would hold the world's first nylon plant.[54]

Choosing which town was best for the plant was just the beginning of the difficulties DuPont would run into, regarding the initiation of the commercial production of nylon. Because nylon was newly invented, the DuPont Nylon Division, an organization within the company responsible for the development, production, and

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[51] "Table 6.–Population of Counties by Minor Civil Divisions: 1930 to 1950," U. S. Department of Commerce: Bureau of the Census, https://www2.census.gov/library/publications/decennial/1950/population-volume-1/vol-01-11.pdf

[52] "DuPont commercial featuring Nylon plant in Seaford, Delaware," 1 min., 9 sec., 1955, 2005.254, DuPont
Company films and commercials, Film and Video Gallery, Hagley Museum and Library, https://digital.hagley.org/FILM_2005254_FC02_01

[53] "Purchasing Power Today of a US Dollar Transaction in the Past," MeasuringWorth, 2026.

[54] "Seaford Selected as Site for Huge $7,000,000 duPont Co. Textile Mill," *The Delmarva Leader*, October 21, 1938, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.php?juwpfisadmin=false&action=wpfd&task=file.download&wpfd_category_id=112&wpfd_file_id=7329&token=&preview=1.

marketing of nylon, claimed that DuPont had to build the first nylon plant itself and all of the machines to make the anticipated volumes of nylon yarn had to be scaled up and, at times, designed and created.[55] The same division also stated that "nothing like nylon had been manufactured before," emphasizing the amount of labor, aside from the invention of nylon, that was needed to begin commercial production.[56] In addition to this, this money DuPont was spending on nylon was largely during the Great Depression, around $27 million in 1995 dollars between the start of the research and the start-up in Seaford,[57] showcasing the measures DuPont took to make nylon successful.

DuPont's decision to build the first nylon plant in Seaford was also a major event for the town itself. Industry coming to a small farm town would change life as the residents knew it. The construction engineers began the excavation of the land on January 23, 1939.[58] Cement foundations were built soon after along with steel and brick construction.[59] The construction of the plant took a shockingly short amount of time, as the construction took less than eight months to complete.

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[55] "Nylon Division address about nylon to the community," 1940, 2777, box 1, folder 9, DuPont Company Seaford Plant records, Hagley Museum and Library, Wilmington, DE.

[56] "Nylon Division address about nylon to the community," 5.

[57] American Chemical Society, "A National Historic Chemical Landmark: The First Nylon Plant," (Division of the History of Chemistry and The Office of Public Outreach, 1995), 3.

[58] "Nylon Now in Limited Test Production by DuPont Co.," *The News Journal*, March 9, 1939, https://www.newspapers.com/image/161417944/?match=1&terms=nylon.

[59] "Seaford Plant Work to Start in Few Days," *The News Journal*, January 16, 1939, https://www.newspapers.com/image/161392260/?match=1&terms=%22Seaford%20plant%22.

The original plant building was 1052 feet long and 272 feet wide.[60] It was "slightly irregular in shape, [and] it [was] essentially an elongated single-story rectangle, extending a six-floor tower at one end."[61] The roof was flat, the walls were made of red brick, "with plentiful window space assuring maximum daylight for the service area," the facades and window openings were relieved by concrete trim, the floors also concrete, and at the this time, there was a temporary wall to close on one of the long sides, "preparatory to a future addition," a reporter in a December 15, 1939 issue of *The Delmarva Leader* said.[62]

As the plant made an impression on the town in 1939, Seaford saw lots of immediate growth in various aspects. Work opportunities for Seafordians and other towns in the vicinity were abundant; an issue of the Seaford newspaper, *The Delmarva* Leader, stated "Seaford this week has become the center of job seekers from at least a half dozen states.[63] The reporters also said "Opening of temporary employment offices at the nylon plant site has brought hundreds of mechanics and laborers seeking jobs," emphasizing the degree of growth that was taking place in the town[64]

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[60] "Nylon Plant At Seaford Begins Operations This Week," *The Delmarva Leader*, December 15, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.php?juwpfisadmin=false&action=wpfd&task=file.download&wpfd_category_id=113&wpfd_file_id=7382&token=&preview=1.

[61] "Nylon Plant At Seaford Begins Operations This Week."

[62] "Nylon Plant At Seaford Begins Operations This Week."

[63] "Hundreds Apply for Jobs at Site of Seaford Plant," *The News Journal*, January 19, 1939, https://www.newspapers.com/image/161393929/?match=1&terms=%22Seaford%20plant%22.

[64] "Hundreds Apply for Jobs at Site of Seaford Plant."

Jobs in areas such as construction and mechanics were in demand because the plant brought lots of opportunities for employment and furnished mass amounts of people with many different types of jobs. Additionally, many businesses were improving and remodeling their properties, providing more work in this area.[65] Seaford needed to construct new roads and bridges to accommodate the wave of people that were flocking to the town.[66] Additionally, acres and acres of land were being bought for developments and mass amounts of houses, were being built. New schools were being built and theaters, too.[67] Because Seaford was becoming a promising site for employment, great amounts of people came to the town and was changing Seaford rapidly in the process.

By March 17, 1939, *The Delmarva Leader* wrote a headline that read "High Street Takes On The Appearance Of A Bustling Center," only two months after the construction of the plant had begun.[68] By May 12th, *The Delmarva Leader* also wrote an article titled "Save This Photo For Your Memory Book," and included an aerial

[65] "Workers Pour into Seaford."

[66] "Workers Pour into Seaford."

[67] "Business And Real Estate Developments This Week," *The Delmarva Leader*, March 10, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.php?juwpfisadmin=false&action=wpfd&task=file.download&wpfd_category_id=113&wpfd_file_id=7346&token=&preview=1.

[68] "High Street Takes on The Appearance of A Bustling Center," *The Delmarva Leader*, March 17, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.php?juwpfisadmin=false&action=wpfd&task=file.download&wpfd_category_id=113&wpfd_file_id=7351&token=&preview=1.

photo of Seaford from just the prior year, to serve as a tool for comparison.[69] The article read "These pictures were delivered recently to our desk, and we are arranging to present one each week showing the several sections of the town before any new buildings and improvements were made."[70] They then made the point that, as seen in the photo from 1938, many new buildings had since been built where vacant sites had previously sat.[71] Infrastructural transformation was happening rapidly, and the nylon plant had not yet begun to run.

Thus, "physical" nylon production officially began on October 2, 1939.[72] The physical production of nylon was a complex and unique process since nothing of its kind had ever been produced commercially. There are two main stages of manufacturing: the first is the primary chemical process. To clarify, nylon is not a singular product, but "a family of related compounds — the polyamides — of which there are many members," DuPont within a pamphlet discussing nylon's invention said.[73] In other words, it is classified as a polyamide, "a giant molecule made up of

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[69] "Save This Photo for Your Memory Book," *The Delmarva Leader*, May 12, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.

[70] "Save This Photo for Your Memory Book," *The Delmarva Leader*, May 12, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.

[71] "Save This Photo for Your Memory Book," *The Delmarva Leader*, May 12, 1939, https://www.seafordhistoricalsociety.com/wp-admin/admin-ajax.

[72] *The Threadline*, April 1943, 2017.027, Seaford Nylon Plant newsletters, Salisbury University Nabb Research Center, Salisbury, Maryland.

[73] "Nylon," 1988, p. 13, Pam 99.008, Pamphlets Collections, Hagley Museum and Library, Wilmington, DE 19807, https://digital.hagley.org/pam_99_008.

many linking molecules … specifically linked by chemicals called amides," giving nylon the chameleon-like ability to be integrated into various types of products. [74] The basic raw materials that initiate the creation of the nylon polyamide are hydrocarbons obtained from coal, natural gas or petroleum, nitrogen and oxygen from the air, and hydrogen from water.[75] Most of the time, DuPont advertised more simply that nylon's basic ingredients were coal, water, and air.[76]

From there, chemists conduct complex scientific synthesis. In simple terms, the process starts with combining adipic acid and hexamethylenediamine.[77] These two chemicals yield the so-called "nylon salt" which is then transported to nylon plants.[78] At this point in nylon's evolution, nylon salt would primarily come from an intermediary chemical plant in Belle, West Virginia.[79]

Once the nylon salt arrives at the nylon yarn plant, from Belle to Seaford, the process begins in an evaporator.[80] The evaporator is "where the moisture content of the nylon salt solution, which is received in tank cars from intermediate plants, is

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[74] "Nylon Patent, Wallace Hume Carothers, 1937," DuPont Company Seaford Plant records.

[75] "Nylon," 1988, p. 16, Pam 99.008, Pamphlets Collections.

[76] "Nylon," 1988, p. 16, Pam 99.008, Pamphlets Collections.

[77] "Nylon introduction to DuPont employees through its first year," 1938–1940, 2777, box 1, folder 3, DuPont Company Seaford Plant records, Hagley Museum and Library, Wilmington, DE 19807.

[78] "Nylon introduction to DuPont employees through its first year."

[79] "Nylon, Product of DuPont Chemists, Has Varied Uses," *The News Journal*, May 11, 1940, https://www.newspapers.com/image/162248764/?match=1&terms=nylon%20polymerization.

[80] "Nylon," 1957, p. 10, 1996.225, DuPont Company Textile Fibers Department photograph album, Hagley Museum and Library, Wilmington DE 19807, https://digital.hagley.org/AVD_1996255_002.

reduced."[81] Below the evaporator are autoclaves, large dark enclosed vessels, which receive the solution and "[extend] through two floors of the building."[82]

In the autoclaves is where polymerization takes place, the first key factor to the creation of nylon yarn.[83] While there are many uses for autoclaves, an autoclave used for polymerization is a large vessel that is pressurized and can be brought to high temperatures to create a controlled environment.[84] These were necessary because, for polymerization to occur, the molecules had to be placed in specific, temperature-controlled, dark, and enclosed conditions.

Once the molecules were properly converted into a polyamide, the result of polymerization, the molten polyamide "flows onto a large, flat surfaced wheel, which moulds it into long ribbons that resemble ivory."[85] The ribbons are then cut into chips less than a square inch each to then be melted again.[86] Once the chips are melted, the melted solution is then pushed by pressure through tiny holes in a mechanism called a spinneret, the second key factor to the creation of nylon yarn.[87] Once the extremely

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[81] Nylon, 1957, p. 10, 1996.225, DuPont Company Textile Fibers Department photograph album.

[82] "Delaware's Nylon Plant Opens Friday at Seaford," *The News Journal*, December 11, 1939, https://www.newspapers.com/image/161035775/?terms=nylon%20process&match=3.

[83] Nylon, 1957, p. 10., 1996.225, DuPont Company Textile Fibers Department photograph album.

[84] "What Is an Autoclave, and How Does It Work?," Generon, accessed May 15, 2026, https://www.generon.com/what-is-an-autoclave-uses-how-does-it-work/.

[85] "Nylon, Product of DuPont Chemists, Has Varied Uses,"

[86] "Nylon, Product of DuPont Chemists, Has Varied Uses."

[87] "Nylon, Product of DuPont Chemists, Has Varied Uses."

fine “threads” hit the air, they solidify. A machine then stretches the threads between two rotating devices performing at different speeds, known as cold-drawing and, as *The News Journal* illustrated, “the man-made harvest is complete as the strands spin merrily around the cylinder.”[88]

After this, machines perform the final stages of production, and the yarn is twisted, sized, and lubricated to prepare the threads for knitting and weaving.[89] The yarn then goes through final inspection, packaged typically in cones or skeins, and delivered to the far end of the building where the shipping room resides and railroad tracks parallel a loading platform, and the yarn waits to be transferred to the next plant for further manufacturing.[90]

However, a phenomenon occurred within the reporting of nylon’s technical manufacturing. DuPont advertised nylon as the first completely man-made fiber. However, the description within various newspapers includes sentence structures like as follows:

> On the lower levels of the tower, intricate mechanisms designated as spinning units transform the nylon flakes into the slender, web-like filaments of nylon yarn. These units are grouped in batteries of 20, set in horizontal wells through the floor. From the top, they resemble circular flour sifters, shaped to fit into the apparatus. They are kept filled with the flake-like nylon chips by mobile hoppers, traveling along an overhead rail. Here the material is melted, then pumped under pressure through ‘spinnerets,’ —cups pierced with tiny holes. On the level below, the filaments appear almost invisible individually as they become solid upon reaching the air. The fibres are again whisked from view

[88] “Delaware’s Nylon Plant Opens Friday at Seaford.”

[89] “Delaware’s Nylon Plant Opens Friday at Seaford.”

[90] “Delaware’s Nylon Plant Opens Friday at Seaford.”

> down a narrow pipe-like chimney, where on the floor below they are wound on bobbins. The man-made harvest is complete as the strands spin merrily around the cylinder.[91]

The machines help produce the eventual product of nylon yarn, but the workers that operate them are not mentioned once within this paragraph of the article subtitled "Robot Observers Give Signals."[92] The excerpt is filled with active constructions, making the machine the subject: "spinning units transform the nylon flakes" or passive constructions altogether: "The fibres are again whisked from view down a narrow pipe-like chimney."[93] Yet, the blurb ironically boasts that the production is a "man-made harvest."[94] This poses the question of if DuPont, a famously anti-union company, was creating a façade by advertising the importance of the human labor behind nylon's creation while, in reality, more so celebrating the mechanical processes that resulted. This is one of the reasons why widening the definition of production is important: this act of widening gives credit to under-credited human labor inside the factory space.

Between Carothers's and his group's contributions to the chemistry behind nylon, Stine's fundamental research program, Seaford's accommodation of the new DuPont plant, and the commercial manufacturing by the workers in Seaford, these

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[91] "Delaware's Nylon Plant Opens Friday at Seaford."

[92] "Delaware's Nylon Plant Opens Friday at Seaford."

[93] "Delaware's Nylon Plant Opens Friday at Seaford."

[94] "Delaware's Nylon Plant Opens Friday at Seaford."

factors all work together to produce the product of nylon. By accounting for the various definitions of the verb "produce," the workers laboring in the Seaford nylon plant, the chemists, the research programs, and the town of Seaford are all appreciated for their role in creating the first fully man-made fiber.

However, by the time nylon products were available as a consumer good, World War II came two years later. When the United States entered the war in late 1941, nylon production was reserved for military use soon after in early 1942.[95] During this short window of time before wartime production, nylon hosiery in particular piqued many women's interests, creating a pent-up demand for the product once World War II came to an end and nylon hosiery returned to store shelves.[96] Nylon's return in late 1945 led thousands of women to line up outside of department stores in hopes to get their hands on the newly available nylons.[97] Also, DuPont's advertisements within magazines during this time showed that they were trying to reach as many people as possible, integrating nylon into many different types of clothing. After the war ended, DuPont had found a new demand, and it was now up to nylon manufacturers to make sure it would be more than a passing fad.

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[95] "Parachute Makers to Get Output of Nylon Mills," *The Buffalo News*, January 30, 1942, https://www.newspapers.com/image/841333315. "Nylon Hosiery Due for Pinch," *The Globe and Mail*, January 31, 1941, https://www.newspapers.com/image/1225850809 ; "Du Pont Devotes Most of Nylon Production to Military Purposes," *Martinsville Bulletin*, February 12, 1942 https://www.newspapers.com/image/1046121019; "Expansion of Rationing Foreseen at Washington," *Elmira Star-Gazette*, February 2, 1942, https://www.newspapers.com/image/276542811.; "Here are the Real Facts Concerning the Selling of Nylon Hosiery at Our Store," *The World-News*, October 14, 1942, https://www.newspapers.com/image/913799331.

[96] "WPB," *Midland Daily News*, August 22, 1945, https://www.newspapers.com/image/1314170672.

Chapter 2

NYLON PRODUCTION AS MARKETING, PRESS COVERAGE, & ADVERTISING

Nylon's production also included a "conceptual" process, consisting of the marketing of nylon products, the press coverage of events involving nylon such as the "nylon riots," and magazine advertising of nylon products. This chapter explores, from 1940 to the mid 1950s, how these three factors play into one another to produce the "concept" of nylon, a collection of ideas which form the perception of nylon products, using the following materials: the books *A Consumers' Republic* by Lizabeth Cohen and *The Theory of the Leisure Class* by Thorstein Veblen, various articles and archival materials from the Science History Museum, several newspapers, and archival materials from the DuPont collections held by the Hagley Museum and Library. Utilizing these materials, this chapter first looks at how women showed demand for nylon hosiery while nylon was reserved for military use during World War II, then examines how the so-called "nylon riots" were reported on by various newspapers and how this affected the concept of nylon, and lastly, investigates how intermediary companies advertised nylon products within magazines. Through these lenses, this chapter argues that the measures women were taking to obtain nylons during the war, the "nylon riots" themselves, the language within the newspaper articles released on them, and the ways nylon products were being advertised all intertwine to produce the concept of nylon; physical nylon products, the concept of nylon is instead comprised

of the ideas surrounding its products, creating a perception of nylon in tandem to a tangible product.

As World War II came to a close, demand for nylon hosiery persisted though it had been off the civilian market for three years and had only started to be sold within products since 1939.[98] Many newspapers reported throughout the war that nylons would not return back to the civilian market until after the war had ended, creating expectations and pent-up demand.[99] During the war, nylon was sold on black markets.[100] Because they had guaranteed demand, black marketeers were charging exorbitant prices.[101] For instance, a black market selling nylons in Detroit grossed about $1.2 million by selling nylons for about $151 each, both figures adjusted to

[98] Audra J. Wolfe, "Nylon: A Revolution in Textiles," Science History Institute, https://www.sciencehistory.org/stories/magazine/nylon-a-revolution-in-textiles.

[99] "Nylon Stockings Available Soon After War Ends," *Waterloo Region Record*, June 3, 1943, https://www.newspapers.com/image/991279037; "Post-War Nylon Holds Promise For Americans," *The Cincinnati Post*, January 6, 1943, https://www.newspapers.com/image/762214664; "Nylon to perform 1000 Jobs After It Returns From War," *The Buffalo News*, January 9, 1943, https://www.newspapers.com/image/841584886; "Milady May Need To Wait Awhile For Postwar Nylons," *Fort Worth Star-Telegram, January 8, 1943,* https://www.newspapers.com/image/637203185.

[100] "Stafford Posts $5,000 Bond In Nylon Black Market Case," *News and Record*, December 9, 1943, https://www.newspapers.com/image/938051330.

[101] Stafford Posts $5,000 Bond in Nylon Black Market Case."; "Federal Agents Find Nylon Black Market," *The Herald-Press* February 3, 1943, https://www.newspapers.com/image/363143782; "Women! Beware of Black Markets!," *The Michigan Chronicle*, April 10, 1943, https://www.newspapers.com/image/1135651558.

2024 dollars.[102] This proved that demand was still present throughout the war, and served as foreshadowing for the demand nylon would maintain after the war.

Another sign of anticipated demand after the war was that women would paint their legs with products such as Avon to give their legs a golden tint, or in other words, a nylon effect, using eye liner pencil to draw a line down the back of their legs to imitate a seam.[103] This further proves that women were still interested in nylons though they were being produced solely for military use.

Between the sales seen in the Detroit black market, serving as only one example of a profitable black market based on underground nylon sales, and women painting and drawing on their legs to give the illusion of wearing nylons, women were proving to DuPont and intermediary manufacturers that the demand for nylons had not gone away, and their interests in nylon remained piqued.

This demand proved to be legitimate once newspapers began publishing articles that claimed nylons would be returning to stores for civilian use starting in 1945. The War Production Board revoked a regulation which banned the use of nylon or silk in the manufacture of stockings on August 28, 1945; this did not mean that nylons would hit the shelves starting August 28th, this meant that the regulation was

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[102] "Good News Girls! Nylon Price Fixed," *The Wewoka Times-Democrat*, February 5, 1942, https://www.newspapers.com/image/907608175; Leon Henderson, "Nylon Prices Fixed," *The Lewistown Daily Sun*, February 11, 1942, https://www.newspapers.com/image/829000957.

[103] Leg makeup, Golden Tan, 4 oz., with box. Avon artifact collection (Accession D2001.19). 1943. D2001_19_0847. Box 14, Hagley Museum collection, Hagley Museum collection, Hagley Museum and Library, Wilmington, DE 19807. Accessed 2026-04-07; https://digital.hagley.org/D2001_19_0847.

lifted.[104] Various newspapers around the country reported that nylons were projected to hit department stores at Thanksgiving at the earliest.[105] These advertisements of post-war nylon stock led great numbers of mostly women to gather around department stores during the mid-1940s, in hopes to secure nylon hosiery. The press labeled these events as the "nylon riots."

While there were allegedly "nylon riots" after Pearl Harbor, according to the Washington Post and only a few other newspapers,[106] the most prominent " riots" started at the end of 1945, once the war had ended.[107] *The Commercial Appeal* of Memphis, Tennessee published an article on November 4, 1945 claiming that stores in Memphis were taking measures "to avoid near-riots, long waiting lines, broken

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[104] "WPB Move Opens Way For Nylon Stockings," *The New York Times*, August 28, 1945, https://www.nytimes.com/1945/08/28/archives/wpb-move-opens-way-for-nylon-stockings.html.

[105] "Wartime Priorities Abandoned To Speed U.S. Reconversion," *The Daily Herald*, August 22, 1945, https://www.newspapers.com/image/281205414; "Gals, You Can Get Nylons by Thanksgiving!," *Altoona Tribune*, August 22, 1945, https://www.newspapers.com/image/57739776; "Nylons By Thanksgiving," *Grayson County News-Gazette*, August 24, 1945, https://www.newspapers.com/image/1015659285; "Nylons Here by Thanksgiving," *The Cincinnati Post*, October 9, 1945, https://www.newspapers.com/image/762107911; "Nylons by Thanksgiving," *The Herald-Press*, September 14, 1945, https://www.newspapers.com/image/362746611.

[106] "Nylon Saga," *Nashville Journal*, September 13, 1945, https://www.newspapers.com/image/602912618.; "Nylon Saga," *The Evening Sun*, August 31, 1945, https://www.newspapers.com/image/520263766.; "Saga of Nylons," *Times, the Picture Paper, September 4, 1945,* https://www.newspapers.com/image/813999415.

[107] "Dallas Store Advertises Nylons—Riot Follows," *The Missouri Cash-Book*, September 29, 1945, https://www.newspapers.com/image/1001544378; "Every Woman Herself in Nylon Riots," *The Wichita Eagle*, September 24, 1945, https://www.newspapers.com/image/719422979; "Nylon Riot," *Daytona Beach Morning Journal*, September 27, 1945, https://www.newspapers.com/image/1229635696; "Nylons Cause Riots," *Star-Phoenix*, November 7, 1945, https://www.newspapers.com/image/508996909.

fixtures and possible personal injuries as has been the case in other cities."[108] Later in the same newspaper issue, an article called this the "Memphis Plan For Selling Nylon Hose."[109] It should be noted that these measures were being put in place before nylon was being sold in department stores, emphasizing that stores were anticipating intense demand, and possibly as a reaction to the alleged "riots" after the Pearl Harbor attack.

An account of a "riot" after nylons hit the shelves in various locations was reported in Grand Rapids, Michigan on February 2, 1946. The newspaper articles are unclear in regard to its size, for reporter from the *Grand Haven Tribune* merely stated that "police officers Pattock and Stoutjesdyke described the 'riot' as a stampede of women in their eagerness to buy nylon hosiery."[110] Another reporter from the *Detroit Free Press* used verbatim language.[111] San Francisco also saw large numbers of women and men lined up outside of stores and saw the second largest "riot" of about 15,000 people on April 12, 1946.[112] However, the largest "riot" was in Pittsburgh,

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[108] "Take Off The Armour, Ladies—Nylon Sales Will Be 'Tame,'" *The Commercial Appeal*, November 4, 1945, https://www.newspapers.com/image/769598489/?match=1&terms=nylon%20riot.

[109] "An Important Message From Memphis' Leading Merchants Regarding The Distribution of Nylon Stockings," *The Commercial Appeal*, November 4, 1945, https://www.newspapers.com/image/769598604/?match=1&terms=nylon%20riot.

[110]"Nylon 'Riot,'" *Grand Haven Tribune*, February 4, 1946, https://www.newspapers.com/image/1134325556/?match=1&terms=nylon%20riot.

[111] Sale of Nylons Brings Riot Call," *Detroit Free Press*, February 5, 1946, https://www.newspapers.com/image/99201306.

[112] "Operation Weinstein—Fight For Nylons," *San Francisco Chronicle*, April 12, 1946, https://www.newspapers.com/image/1238303255; "Nylon Night Sale Jams S. F. Traffic," *The San Francisco Call Bulletin*, April 12, 1946, https://www.newspapers.com/image/1231490559; "Working Girls Promised First Crack at Nylons," *The San Francisco News*, April 12, 1946, https://www.newspapers.com/image/1230042278.

Pennsylvania on June 13, 1946, with approximately 40,000 people lined up outside the store.[113] A reporter from *Pittsburgh Sun-Telegraph* said "some 30,000 of Pittsburgh's working girls, from bobbysoxers to grandmas, and one man set a new high for the current American pastime of standing in nylon lines in East Liberty last night."[114] To provide a more digestible visual, 40,000 people is equivalent to the amount of people in two sold out hockey arenas, using the Xfinity Mobile Arena in Philadelphia for reference.[115] Thus, the "riots" were present in Michigan, San Francisco, and Pittsburgh, three different corners of the United States, both geographically and culturally. The variety of locations that the "riots" occurred within highlights that this was not merely a regional occurrence but a national one.

With the purchasing of expensive nylons off the black market and using makeup to resemble nylon, and the amount of people around the country who lined up to obtain pairs of nylon hosiery," these phenomena illustrate that civilian demand for nylons survived wartime production and made an impression on consumers when nylons initially hit the market in 1939.

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[113] "Nylon Madness," *The Pittsburgh Press*, June 13, 1946, https://www.newspapers.com/image/149680977.; "Those Girls Throng East Liberty For Nigh Nylon Sale," *Pittsburgh Sun-Telegraph*, June 13, 1946, https://www.newspapers.com/image/524120388.; "Sidelights During Long Wait at 'Working Girl' Nylon Sale, *Pittsburgh Sun-Telegraph*, June 13, 1946, https://www.newspapers.com/image.

[114] "Those Girls Throng East Liberty for Night Nylon Sale."

[115] "Xfinity Mobile Arena," *Stadium Sports US*, https://www.stadiumsportus.com/stadiums/wells-fargo-center.

When analyzing these reports of the "riots," it is hard not to notice that many reports feature varying degrees of misogynist language. However, many of the articles fall on a spectrum and contain varying degrees of hyperbolic, misogynistic language that could possibly distort the event. Within the following excerpt, reporter from *The Pittsburgh Press* William Cooper wrote an article in a June 13, 1946 issue of *The Pittsburgh Press* about the events that happened within the Pittsburgh "riot":

> The legs of Pittsburgh's working girls were bowed, weak and wobbly today, but some wore nylons. The wearers were survivors of one of the most fantastic lines in history–a swirling, shrieking mass of women that last night stretched five abreast for more than a mile from a tiny East Liberty hosiery shop. Veteran police estimated the throng at 30 to 40 thousand when it stretched more than 16 blocks at its peak. It was probably the longest line ever to wait for a single commodity anywhere. A dozen women fainted, but none was injured seriously. The store's harassed manager credited police for this. The police credited Divine Providence.[116]

The first sentence starts with the clause "The legs of Pittsburgh's working girls were bowed, weak and wobbly…"[117] The words "bowed, weak and wobbly" imply weakness: the definition of "bowed," as an adjective, is "lowered; bent forward; curved"[118] and the definition of "wobbly" is "moving unsteadily from side to side."[119] The definitions of "weak," three being applicable to this context, are "lacking the

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[116] "Nylon Mob, 40,000 Strong, Shrieks and Sways for Mile," *The Pittsburgh Press*, June 13, 1946, https://www.newspapers.com/image/149681088.

[117] "Nylon Mob, 40,000 Strong, Shrieks and Sways for Mile."

[118] "Definition of 'bowed'" *Collins Dictionary*, https://www.collinsdictionary.com/us/dictionary/english/bowed.

[119] "Definition of 'wobbly,'" *Collins Dictionary*, https://www.collinsdictionary.com/us/dictionary/english/wobbly.

power to perform physically demanding tasks; lacking physical strength and energy," and "liable to break or give way under pressure; easily damaged." These words, especially since they work in tandem with each other within the same clause, paint these women as frail, feeble, and delicate, common ideas used to subjugate women. Later in the article, Cooper used the terms "swirling" and "shrieking" when describing a "mass of women," depicting a scene of crazed women running around and screaming shrilly. These words work together to portray a scene of chaotic uproar filled with weak and screaming women.

However, Cooper also included objective reports within his article that were free of prejudiced language. He stated that the line "stretched five abreast for more than a mile from a tiny East Liberty hosiery shop," how a "veteran police estimated the throng at 30 to 40 thousand when it stretched more than 16 blocks at its peak," and that "a dozen women fainted, but none was injured seriously." Apart from the claim that 12 women fainted, Cooper's other reports from the excerpt are validated by a photo also within the same issue of *The Pittsburgh Press*. Therefore, his language does not necessarily distort the realities within the Pittsburgh "riot"; however, portions of the article must be read with skepticism because of the misogynist language that weaves in and out of his verbiage. This does not invalidate that Cooper used wording that illustrated the women at the "riot" as feeble and crazed, but this does verify the accuracy of some of Cooper's reporting, humanizing Cooper as a fallible reporter rather than an unreliable narrator.

However, this article was written by a male reporter. The following two articles provide two female perspectives on the "riots," both discussing the San Francisco "riot" in particular. The first article is a letter to the editor, written by BARE-LEGGED, BUT NOT BY CHOICE and is from the February 26, 1946 issue of *The Oakland Post Enquirer*. The second is an excerpt from a April 17, 1946 issue of *The San Francisco News*, also a letter to the editor, by Mary McMillen.

> Up to now I have innocently assumed myself to be an average, fairly normal young woman, but as news of nylon riots increases and approaches closer to home, I begin to seriously doubt my complete femininity! What a lot of hysterical nonsense and disgraceful manners my 'sisters under the skin' are exhibiting these days! Sure, I'd like the luxury and flattery of a pair or two of nylon hosiery myself, but to go to such extremes to get some seems to my mind incredible. If these other females consider the possession of nylons to be so vital to their happiness and well-being, I shall happily stand back and let them satiate their greed until such time as there shall be enough for us all. But in the meantime I sadly ponder whether or not this attitude shows some essential lack in me? Isn't it strange, though, that just as a few nylons are released to the public, all other quality hose is suddenly impossible to find? It occurs to me that all this fuss is admirable and cheap publicity for the nylon manufacturers, and then I wonder if there isn't something sinister behind it all, and perhaps the majority of womankind is not naturally so idiotically inclined after all? 'BARE-LEGGED, BUT NOT BY CHOICE.'[120]
>
> It is true that event was a riot but was this mob composed entirely of women? I, myself, a passer-by, saw plenty of men, including sailors, in that throng of disappointed people. … Many women have been forced to go without stockings–a very great many of us have to wear stockings unless we wish to catch cold in this delightful, cool, windy, foggy climate of San Francisco. … Men are sometimes stupid in their analysis of women and women's motives. The present situation is simply a matter of demand vs. supply, and a real

[120] "Nylon Riots," *The Oakland Post Enquirer*, February 26, 1946, https://www.newspapers.com/image/1000439764.

> necessity of being sufficiently clothed against the winter winds … -Mary McMillen, 2455 Polk-st.[121]

These two women have quite different perspectives on what happened. BARE-LEGGED, BUT NOT BY CHOICE discusses how insensible the women were but then continues to question her own beliefs and femininity. She specifically emphasized in the beginning that lining up for nylons "[seemed] to [her] mind incredible."[122] Her ideas following ideas were that she felt that her absence somehow unearthed a lack within herself and thus within her femininity because the "riot's" attendance was so great and the amount of women present was so substantial.[123] In the last portion of the article, she then discussed how the publicity of the "riot" could benefit the nylon manufacturers and "if there isn't something sinister behind it all, and perhaps the majority of womankind is not naturally so idiotically inclined after all."[124] In other words, she is commenting on how there could be a secret ulterior motive behind this event. Because she only raised this question and did not elaborate what she meant by this, her intentions are unclear.

In terms of dissecting specific pieces of language, BARE-LEGGED BUT NOT BY CHOICE does not use much language that could be viewed as unnecessarily

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[121] "Nylon Riot's Deeper Significance Explained," *The San Francisco News*, April 17, 1946, https://www.newspapers.com/image/1230042886/?match=1&terms=%22nylon%20riots%20significance%20explained%22.

[122] "Nylon Riots."

[123] "Nylon Riots."

[124] "Nylon Riots."

hyperbolic; she is more so commenting on how the impressive attendance within the "riots" and how this affected her view of herself. Thus, BARE-LEGGED BUT NOT BY CHOICE emphasizes the concept that because so many women attended the "riots," some women who were absent began to question their own femininity if they did not feel the desire for the stockings as much as those around them.

On the other hand, McMillen described the "riot" as women lining up out of their necessity for stockings against San Francisco's "delightful, cool, windy, foggy, climate."[125] She refuted the claims the previous people have made about the event, and instead emphasized that the women merely needed stockings to fight the cold.[126] McMillen's article is unique to the other two because she did not say that the "riot" was chaotic and out-of-control; she instead explained that the women were lining up for a good they could finally obtain that could keep their legs warm. McMillen's article adds yet another layer of analysis to the coverage of the "nylon riots."

William Cooper's, BARE-LEGGED BUT NOT BY CHOICE, and Mary McMillen's articles prove that there were wide range of perspectives on the "riots," both in Pittsburgh and in San Francisco. William Cooper claimed that the women were crazy, but also reported realistic occurrences; BARE-LEGGED BUT NOT BY CHOICE provided commentary about alleged hysteria, her own femininity, and possible ulterior motives; and Mary McMillen claimed that the women were justified

[125] "Nylon Riot's Deeper Significance Explained."

[126] "Nylon Riot's Deeper Significance Explained."

in their responses of lining up outside department stores. Judging from these three perspectives, it seems that the phrase "nylon riot" is an incorrect and dramatized description of the events. A more accurate illustration would be that large amounts of women lined up outside department stores and at times got out of hand, and the misogynistic ideas common of the time infiltrated reports of the events, distorting the realities of the event to varying degrees, depending on the severity of the language within a particular article.

These women were also lining up to wait for nylons amidst a prominent economic shift; the mass frugality during the Great Depression defined American spending habits from the beginning of the Depression to the end of the war, creating a culture of people who saved that now were ready to spend.[127] Advertisements for nylon products began to be published within magazines. Many of the visuals within these advertisements appealed to various groups and classes, suggesting that the company was trying to reach as many types of people as possible to keep nylon relevant and novel.

For instance, an advertisement from an October 16, 1948 issue of The *Saturday Evening Post* included an illustration of a white man wearing a long-sleeve button down shirt, grey slacks, and black dress shoes, holding up a pink patterned robe in front of a suitcase, with a caption right of the man: "Pack it—washable, quick-drying nylon man's robe! So light it takes up little room—so long-wearing you'll be

[127] Lizabeth Cohen, *A Consumers' Republic* (Knopf, 2003), 24–25.

packing it for many trips to come! Because nylon can be 'heatset,' wrinkles and creases are no worry," (see fig. 2).[128]

To the right of this caption is another illustration of a different white man, but wearing the same attire, putting laundry bags in a washing machine, with a caption beneath the illustration: "Work With It! In the water—out again—commercial laundry bags must be strong, light, extra long-wearing. And they are—made with nylon! Tough, elastic nylon fibers have a high tensile strength when wet, are unaffected by detergents."[129]

To the right of the illustration of the man features another illustration, but this time of a white woman in a white puffed-sleeve blouse, with a red gem in the middle of her collar, lighting a taper candle in a brass candle holder. The caption below the illustration of the woman reads "Wash It! Your nylon blouse is almost ready to wear again. For nylon is that fast-drying fiber! Needs oh so little ironing; can be set to hold its shape. Your blouse will keep its fresh, crisp and feminine look—wear and WEAR!"[130]

Below these three illustrations is then the physically largest illustration of the advertisement, featuring a younger white woman sitting on an elegant-looking chair, in a long white dress with sheerness at her upper chest, balloon sleeves, and long

[128] News About Nylon. E.I. du Pont de Nemours & Company Advertising Department records.

[129] News About Nylon. E.I. du Pont de Nemours & Company Advertising Department records.

[130] News About Nylon. E.I. du Pont de Nemours & Company Advertising Department records.

draping fabric for the skirt portion of the dress. She is elevating her bare leg, while putting on a black pair of nylon hosiery with red painted fingernails, the seeming focal point of the advertisement. Beside her are other pairs of nylons, but in different colors such as blue, pink, and green. The woman seems to be looking at the following caption: "It all started with a stocking. … a sheerer, lovelier, longer-wearing stocking than woman had ever dreamed of! Today you're choosing filmy nylon hose in fashion-right, costume-bright colors—sheer, resilient, surprisingly strong for their weight. You're finding nylon nicer in sweaters, panties, slips, lace gloves—you're benefiting from nylon's toughness and elasticity in countless industrial uses."[131]

On top of the woman is what looks like a piece of paper, but printed within the advertisement, which says "DuPont makes the nylon fibers used in the products shown. The manufacturers of these products use nylon because nylon products can have these outstanding properties: strength, lightness, elasticity, toughness, long wear, easy washing, fast drying, flame resistance, resistance to moths and perspiration, can be 'set' to hold shape. To manufacturers: Are there textile fibers in your product? Then you'll want to read 'Nylon Textile Fibers in Industry.' Write for this important book now! New! Free book for women, teachers, students— 'About Du Pont Nylon.' Write to Nylon Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Del."

[131] News About Nylon. E.I. du Pont de Nemours & Company Advertising Department records.

Figure 2. "Advertisement for DuPont Nylon from The Saturday Evening Post," 1948, 1803, E.I. du Pont de Nemours & Company Advertising Department records, Hagley Museum and Library, Wilmington, DE 19807, https://digital.hagley.org/dpads_1803_00270.

All the visuals emphasize how nylon's properties provide convenience and time-saving elements, such as needing little drying and ironing. The question becomes who would benefit the most from convenience-based products, who has the least leisure time, and who DuPont's target audience is. In the landmark book *The Theory of the Leisure Class*, written by American economist and sociologist Thorstein Veblen in 1899, Veblen stated the following in "Chapter III: Conspicuous Leisure":

> A life of leisure is the readiest and most conclusive evidence of pecuniary strength, and therefore of superior force; provided always that the gentleman of leisure can live in manifest ease and comfort. At this stage wealth consists chiefly of slaves, and the benefits accruing from the possession of riches and power take the form chiefly of personal service and the immediate products of personal service. Conspicuous abstention from labor becomes the conventional mark of superior pecuniary achievement and the conventional index of reputability.[132]

Veblen is emphasizing that the upper class, which he called the leisure class, has the luxury to perform other tasks other than work while the working class continuously labors to survive and perpetuate the wealth accumulation of the upper classes. So long as the working class needs to work to survive, the wealthy will continue to stay in the upper socioeconomic echelon of society. This is not to say that there are any restrictions prohibiting the upper class to purchase such material, the advertisement is just not specifically aimed at their class.

In the following advertisement, the products pictured are a woman's swimsuit and a man's swim trunks made by a brand named Jantzen and produced in Jantzen

[132] Veblen, *The Theory of the Leisure Class*, 19.

Knitting Mills, Inc. in Portland, Oregon (see fig. 3).[133] The advertisement features a man in the background doing a headstand, a phrase at the top of his feet saying "Everything you ever wanted!" and below his head "This is what you want to stand a man on his head … this terrific new Jantzen, assuredly strapless because of the most perfect boned bra in America, the Jantzen Stay-bra', moldable as you want it, softly-lined and wonderful-to-wear. Have it in finest fast-drying, figure-molding nylon and laton taffeta in dream colors like this 15.95. Also to stand a man on his head … these marvelous Jantzen 'Nylastic' racers 5.95 … many other styles, many other colors … at most stores."[134] Below this is a picture of a woman in a swimcap, advertising the price as one dollar.[135] The focal point of the advertisement, however, is the woman in the strapless blue swimsuit.[136] Beside her is a caption that says "NYLON … and the Jantzen magic touch!"[137] The main point of this advertisement seems to illustrate Jantzen's new structured bra that stays in place, and a moldable fabric made of nylon.

The target audience of this advertisement is ambiguous because it is unclear where this advertisement was originally published. However, because people with varying levels of privilege could go swimming, whether this be in their backyard, the

[133] "NYLON... and the Jantzen Magic Touch!," 1950–1959. Science History Institute. Philadelphia, PA 19106. https://digital.sciencehistory.org/works/bg257f82k.

[134] "NYLON… the Jantzen Magic Touch!," Science History Institute. Philadelphia.

[135] "NYLON… the Jantzen Magic Touch!," Science History Institute. Philadelphia.

[136] "NYLON… the Jantzen Magic Touch!," Science History Institute. Philadelphia.

[137] "NYLON… the Jantzen Magic Touch!," Science History Institute. Philadelphia.

public pool, or the ocean, this advertisement is applicable to many groups of people, supporting that DuPont was trying to keep nylon as versatile as possible so people could consume DuPont-made products as much as possible.

Figure 3. "NYLON... and the Jantzen Magic Touch!," 1950–1959. Science History Institute. Philadelphia, PA 19106. https://digital.sciencehistory.org/works/bg257f82k.

Lastly, an advertisement from 1955 featured "Luxite's Crystal Garland lingerie," such as white slip dresses, skirts, and briefs (see fig. 4).[138] Luxite was originally a material made of pure heavy silk; the advertisement is advertising luxite products made with nylon instead.[139] In this advertisement, DuPont is presenting the lingerie made of nylon as a shiny, elegant material that replicates silk, highlighting DuPont's endeavor towards replacing the silk market with nylon.

The visuals of the advertisement contain four white women, one in a gown, one in a slip dress, one in a skirt and topless, and the other in briefs, also topless. Between them hangs a crystal chandelier. Three of the women are wearing white heels, the woman in briefs in bare feet. None of the women are visibly wearing jewelry. The woman in the skirt is leaning one leg on what looks to be a black bench with golden legs, with two of the legs atop a small pool of water shaped in the letter "T." Green grapes in crystal glass bowls are also placed between the women, all the bowls on the floor. The women seem to be posing but not looking at the camera; the woman in the brief's face is away from the camera, the rest of them place their gaze elsewhere.

This advertisement creates a depiction of an upper class lifestyle; the crystal bowls of grapes, the crystal chandelier, and the clothing branded as "Crystal Garland

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[138] "Crystal Garland Nylon Lingerie by Luxite," 1955. Science History Institute. Philadelphia. https://digital.sciencehistory.org/works/jh343s41z.

[139] "LUXITE—the Silk Lingerie of Quality," *Orlando Evening Star*, November 5, 1925, https://www.newspapers.com/image/345230213.

lingerie" are factors typically associated with the upper-class. However, the bottom left corner featured the price of the gown as $10.95, not adjusted for inflation.[140] Additionally, the price of the slip dress is $8.95.[141] To compare, according to advertisements in a March 31, 1955 issue of *The News Journal* from Wilmington, Delaware, a "zipper jacket" was $8.95, a wool sport coat was $19.95, slacks were $5.95, flannel suits were $24.95, and worsted suits were $34.50.[142] The advertisements were also labeled as "value headliners," suggesting modest cost. To compare non-clothing item prices, according to a May 26, 1955 issue of *The News Journal*, fresh eggs were $0.39 per dozen, Maxwell House Coffee was $0.87 per pound, imported white meat tuna fish was $0.19 per can, and chicken legs and breasts were $0.39 per pound.[143] Since the most expensive clothing item in the advertisement was $10.95, it seems that the prices of the garments were average to below average for the time. This creates a juxtaposition of the lifestyle being advertised versus the lifestyle of the people being advertised to, allowing lower socioeconomic groups to artificially partake in this lifestyle. On the same token, these prices also allow for these products to appeal to many different socioeconomic groups.

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[140] "Purchasing Power Today of a US Dollar Transaction in the Past," MeasuringWorth, 2026.

[141] "Purchasing Power Today of a US Dollar Transaction in the Past," MeasuringWorth, 2026.

[142] "Brills, Value Headliners for Easter," *The News Journal*, March 31, 1955, https://www.newspapers.com/image/161928118.

[143] "418 Kings St., Ben Baker, Phone 4-2161," *The News Journal*, May 26, 1955, https://www.newspapers.com/image/161582446.

Figure 4. "Crystal Garland Nylon Lingerie by Luxite," 1955. Science History Institute. Philadelphia. PA 19106. https://digital.sciencehistory.org/works/jh343s41z.

Judging from the three advertisements, DuPont was trying to integrate nylon into as many types of clothing as possible, widening their range of consumers in the

process. These advertisements also ranged from depicting realistic working class lifestyles to showing the stretch and skin-tight fit of Jantzen swimsuits to highlighting the elegance of Luxite Crystal Garland lingerie. This combination of factors showcases the diversity of DuPont's advertising efforts, their strides toward portrayal of nylon as a chameleon-like substance that can integrate into any type of clothing, and their goal to advertise to all classes of people. By not discriminating on the basis of class, this illustrated nylon as a universally applicable substance, and as a generic material like wood or glass, just as DuPont intended.

In all, mass amounts of women sought nylon in various ways, as seen in the purchases of expensively priced nylons off the black market, the leg makeup to replicate the look of nylons and the "nylon riots," and the thousands of women who lined up outside of department stores. These phenomena portray the varying degrees of demand nylon products had during and after World War II. The varying degrees of hyperbole used to portray the mainly-female "nylon riots" within newspapers illuminates the common misogynistic ideas of the time and the varying degrees of distorting this had on the actual happenings of the events. A few years after the "riots," DuPont's advertisements of nylon highlighted DuPont's efforts to appeal to as many groups of people as possible. While the chemists, the research programs, the town of Seaford, and its workers produced the product of nylon, the marketing, press coverage, and advertisements worked to produce the concept of nylon and represents another level within the large and interconnected system of nylon's production.

Chapter 3

THE RESULTS OF NYLON PRODUCTION ON SEAFORD, DELAWARE

From the time nylon products reached department stores in 1939 to nylon's return as a consumer good and integration into the postwar economy in 1945 and beyond, Seaford continued to transform. This chapter investigates how Seaford and its community changed during the peak of nylon production in the mid 1970s, the decline of the plant in the 1990s, and DuPont's eventual selling of the nylon plant to Koch Industries Inc. in 2003, using the following materials: various archival materials from Hagley Museum and Library, census data, an oral history interview conducted with a group of former Seaford plant employees, and newspapers local to the Delmarva peninsula. Through these materials, this chapter first looks at Seaford's expansion from the 1940s through the 1960s, then investigates how the peak the Seaford nylon plant affected the town and its residents, and finally examines how the communities within Seaford were affected once DuPont sold the nylon plant to Koch Industries. These perspectives intertwine to argue that DuPont had a significant effect on the town of Seaford, both positive and negative, as seen through the town's vibrancy in the 1970s and its collapse in the 1990s and early 2000s, emphasizing the power corporate infiltration has on small rural towns.

Amidst the consumption of nylon, during the 1940s and 1950s, Seaford continued to accommodate the nylon plant and the new inhabitants that came with it, which Seafordians reacted to both positively and negatively. Seaford was a town with a population of 2,408, with its economy based largely on agriculture and small,

seasonal industry.[144] According to a report on DuPont's presence in Seaford from 1938 to 1950, the pillars of the town's economy were farming, poultry raising and processing, basket-, crate-, and box-making, fertilizer manufacture, oyster shucking and packing, and produce canning.[145] The same report also said "[Seaford] had natural resistance to any outside influence."[146] Therefore, Seaford was a small and rural town with very few urban attributes.

A few changes that occurred during the 1940s and 1950s was the mass construction of homes, stores, and other buildings, increased funding of schools, new job availability, and population growth. Seafordians' opinions on these changes differed. Some were frustrated because their everyday practices were disrupted since more people were living within the town.[147] Parking became a problem, various facilities had to be expanded, and construction projects "brought immediate changes … and construction workers—strangers—filled the streets, over-crowded barber shops, eating places, bars, and caused lines in the post office and banks," according to a report on Seaford in 1950.[148] This was especially significant to the town's

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[144] "'Seaford and DuPont 1938-1950' report," July 7, 1950, 2777, box 1, folder 15, p. 4, DuPont Company Seaford Plant records, Hagley Museum and Library, Wilmington, DE.

[145] "'Seaford and DuPont 1938-1950' report," p. 4, DuPont Company Seaford Plant records.

[146] "'Seaford and DuPont 1938-1950' report," p. 4, DuPont Company Seaford Plant records.

[147] "'Seaford and DuPont 1938-1950' report," p. 4, DuPont Company Seaford Plant records.

[148] "'Seaford and DuPont 1938-1950' report," p. 5, DuPont Company Seaford Plant records.

inhabitants because the sight of construction projects was not a common occurrence.[149]

However, the influx of new people also made the town a more colorful and lively place, especially during the war. When Seaford schools were understaffed during the war, many DuPont employees who remained in the town helped within the schools when they could and to what extent their availability from shift work allowed them. Supervisor of Area A of the plant F. J. McCall coached football at the Seaford High School, and was assisted by a foreman in the spinning area, W. F. Wilkinson.[150] Recreation assistant M. S. Eaton coached baseball at the Seaford High School, sometimes leaving the plant to coach the high school players.[151] Works engineer T. B. Evans served on the district school board "for years."[152] Many plant employees were involved in school life, fostering community amidst rampant change.

In addition to this, the town was able to support various types of groups and clubs due to the new population. The Seaford Symphonic Choir was created during this time and was made up of many DuPont plant employees, some of their concerts raising money for civic and charitable purposes.[153] Many wives and daughters of plant

[149] "'Seaford and DuPont 1938-1950' report," p. 4, DuPont Company Seaford Plant records.

[150] "'Seaford and DuPont 1938-1950' report," p. 8, DuPont Company Seaford Plant records.

[151] "'Seaford and DuPont 1938-1950' report," p. 8, DuPont Company Seaford Plant records.

[152] "'Seaford and DuPont 1938-1950' report," p. 9, DuPont Company Seaford Plant records.

[153] "'Seaford and DuPont 1938-1950' report," p. 7, DuPont Company Seaford Plant records.

employees helped revive a cultural group for women called the Acorn Club that had been dormant since its inception in 1939.[154] Engineers assisted in survey work and the reconstruction of buildings.[155] Various types of employees served on the boards and governing bodies of churches throughout Seaford.[156] Employees were packed in every corner of the town, contributing to many different areas of Seafordian life. Thus, the growth in both population and infrastructure also led to an abundance of opportunity to strengthen communities across the town via the creation and revitalization of various organizations.

Seaford continued to expand as the DuPont plant proceeded to manufacture nylon and attract employees. The population in Seaford increased at varying rates from 1930 to 2000,[157] but Seaford saw the biggest jump in population between 1950 and 1960. The population increased from 3,087 to 4,430, a 44% increase. The second

[154] "'Seaford and DuPont 1938-1950' report," p. 9, DuPont Company Seaford Plant records.

[155] "'Seaford and DuPont 1938-1950' report," p. 9, DuPont Company Seaford Plant records.

[156] "'"Seaford and DuPont 1938-1950' report," p. 9, DuPont Company Seaford Plant records.

[157] U. S. Department of Commerce: Bureau of the Census, "Table 6.—Population of Counties by Minor Civil Divisions: 1930 to 1950."; "Table 7—Population of Counties, by Minor Civil Divisions: 1940 to 1960," U. S. Department of Commerce: Bureau of the Census, 9-8, https://www2.census.gov/library/publications/decennial/1960/population-volume-1/vol-01-09-c.pdf.; "Table 10. Population of County Subdivisions: 1970," U. S. Department of Commerce: Bureau of the Census, 9-13, https://usa.ipums.org/usa/resources/voliii/pubdocs/1970/Population/Vol1/1970a_de-01.pdf.; "Table 4: Population of County Subdivisions: 1960 to 1980," U.S. Department of Commerce: Bureau of the Census, 9-10, https://usa.ipums.org/usa/resources/voliii/pubdocs/1980/1980a_deABCD-01.pdf.; "Table 1. Summary of General Characteristics of Persons: Place and [In Selected States] County Subdivision [10,000 or More Persons]: 1990," 1, https://www2.census.gov/library/publications/decennial/1990/cp-1/cp-1-9.pdf.; "Table 1. Age and Sex: 2000–Con.," U.S. Census Bureau, 4, https://www2.census.gov/library/publications/2002/dec/phc-1-9.pdf.

largest jump was between 1960 and 1970, the population increasing from 4,430 to 5,537, translating to a 1,107 increase.[158] This is sensible because the DuPont plant saw its peak employment numbers in the 1970s, with approximately 3,600–4,600 employees,[159] and the population growth between 1950–1970 shows an approximated trend of the amounts of people coming into the town.

To dissect the experiences the workers had within the nylon plant, a group interview with three ex-DuPont employees was conducted on January 9, 2026. One ex-employee was a mechanical engineer, the second was a shift nurse, and the third was woman who worked many jobs during her time at the plant but spoke most about her time as a shift supervisor. The woman who worked many different jobs started working at the plant in 1965 at 18 years old. The shift nurse began working there in either 1970 or 1972, at 23 or 24 years old. The mechanical engineer began working there in 1973 at 22 years old. All three of them worked at the plant during the peak years of employment and through the decline after the mid 1970s, providing that their experiences were overall positive due to the strong camaraderie within the plant, all during key periods of the plant's lifespan.

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[158] U. S. Department of Commerce: Bureau of the Census, "Table 7—Population of Counties, by Minor Civil Divisions: 1940 to 1960."; U.S. Department of Commerce: Bureau of the Census, "Table 10. Population of County Subdivisions: 1970."

[159] "Historical Note," DuPont Company Seaford Plant records, Hagley Museum and Library, accessed April 26, 2026, https://findingaids.hagley.org/repositories/3/resources/1864.; Interview by Brooke Emeigh, January 9, 2026, 54:43.

While not absent of woes, their overall experiences seemed positive due to the passion they had for their jobs and the camaraderie that accompanied it. When asked about the main challenges the three faced, the common difficulties were the following: doing intense work without help during shift work, traveling from the main office to the manufacturing buildings, learning new things, switching jobs consistently as a supervisor, and getting used to the odd hours associated with shift work.[160] However, all three stated that in many instances, they either acclimated to the obstacles of their jobs or persevered through the hardships.

The woman of many jobs' main concerns was shift work hours and the lack of time supervisors had with their assigned group of workers. She said "Shift work was hard. I finally got used to it, but I did realize that the older I got, the longer I was there, the longer it took me, my body, to adjust from one shift to the other."[161] For context, the shifts at the time were 8 am to 4 pm, 4 pm to 12 am, 12 am to 8 am, and employees would work for seven days at a time, with three to four days of off time in between.[162] The woman said "I did not know there were three weekends in a month until I retired. I thought there was only one," all three of them laughing during her statement.[163]

[160] Interview by Brooke Emeigh, January 9, 2026, 48:24.

[161] Interview by Brooke Emeigh, January 9, 2026, 48:30.

[162] Interview by Brooke Emeigh, January 9, 2026, 53:33.

[163] Interview by Brooke Emeigh, January 9, 2026, 40:31.

Working as a supervisor for much of her time at the plant, she said that the company would move supervisors around frequently, making it difficult for relationships to form. She said, "If I stayed with a group of people for a year or two, I was happy because, by then, they had learned me and I had learned them, and I knew what made them mad, they knew what made me mad."[164] Nevertheless she still went on to say "We all got along fine, we got the work done. We had a good time. We had Christmas parties, and once in a while, we'd have a summertime party,"[165] highlighting that while the job came with challenges, she and her employees managed to enjoy their time in the plant for the most part.

While the shift nurse also had to do shift work and agreed that it was difficult, she said that her biggest challenge was learning how to perform things that hospital nurses were not expected nor allowed to do like drawing blood and doing breathing tests.[166] Additionally, the doctors were only there during day work, and on call during the night, with only one nurse working per night shift, leaving nurses largely to their own devices during the nighttime hours. She said, "We were pretty much left on our own unless we were on day work."[167] However, the nurse also said that she saw this as an area of great growth since she eventually learned how to perform the various

[164] Interview by Brooke Emeigh, January 9, 2026, 49:50.

[165] Interview by Brooke Emeigh, January 9, 2026, 50:04.

[166] Interview by Brooke Emeigh, January 9, 2026, 48:24.

[167] Interview by Brooke Emeigh, January 9, 2026, 29:48.

procedures. She continued, “we had a lot of leeway there as to how to help people, and I think that all the shifts did a very good job, and we rotated shifts, just like the rest of the workers. I was on B shift my entire career, and I loved helping the people, and I really feel like that, for the most part, they appreciated having nurses on shift, somebody to help them, somebody to talk to.”[168] Her words illustrate that the shift nurses had to wear many different hats, but she managed to enjoy her job since it revolved around helping other employees, both medically or mentally.

Unique to the other two, the mechanical engineer did not have to do much shift work, but the times he did were difficult, especially when he had to perform tests without a “test follower.” He explained that a test follower was someone who tracked the engineer’s tests on a certain machine when he or she was not present, and took samples, brought the samples to the lab, took the results back, and wrote them down.[169] This way, the engineer could come into work the next morning, and see the results of his or her test. Thus, not having a test follower was difficult. However, the engineer explained “I guess in engineering, almost everything that you do new is a challenge. So if something hasn’t been done before, you got to figure out ways to do it. You got to test ways to do it, and hopefully you find a way to do it.”[170] He also went on to say “Overall, it was very gratifying. As an engineer, you know, that’s a part

[168] Interview by Brooke Emeigh, January 9, 2026, 33:13.

[169] Interview by Brooke Emeigh, January 9, 2026, 33:13.

[170] Interview by Brooke Emeigh, January 9, 2026, 43:19.

of our desire and our training. It was good."[171] Even though these procedures were difficult, he still talked positively about this aspect of the job, supporting the idea that oftentimes the jobs within the plant came with difficulties, but some employees grew into the position and had a positive outlook on the job.

It is safe to say that all three of these workers enjoyed their time at the DuPont plant, making the plant's decline especially difficult. The plant began downsizing in the mid 1970s, after the peak of employment, until Koch Industries Inc. of Wichita Kansas bought the DuPont plant, and rebranded the plant under the name Invista in 2003.[172] The plant downsized because DuPont began investing in more profitable and faster-growing businesses such as coatings, farm chemicals and the bulletproof material Kevlar.[173] Global competition was also steadily increasing since China was making nylon and polyester more cheaply.[174] Additionally, DuPont began to focus on robotics between the 1970s and early 2000s to reduce labor costs.[175] Therefore, DuPont began to cut jobs by the thousands, and most of the cuts were to the textile unit.

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[171] Interview by Brooke Emeigh, January 9, 2026, 43:54.

[172] "From parachutes to stocking, nylon — 'new silk' — made its mark," *The News Journal*, April 24, 2004, https://www.newspapers.com/image/165552812.; "Purchasing Power Today of a US Dollar Transaction in the Past," MeasuringWorth, 2026.

[173] "DuPont Plans to Cut 2,000 Jobs," *The Washington Post*, April 29, 2002, https://www.washingtonpost.com/archive/business/2002/04/30/dupont-plans-to-cut-2000-jobs.

[174] "DuPont to Cut 4,000 Jobs as Demand Slows," *Los Angeles Times*, April 3, 2001, https://www.latimes.com/archives/la-xpm-2001-apr-03-fi-46220-story.html.

[175] Interview by Brooke Emeigh, January 9, 2026, 54:58.

The mid 1990s was when the plant officially began the shutdown, according to the mechanical engineer.[176] DuPont began shutting down areas of the plant, nylon production itself decreased, and the number of employees was reduced, with the workforce going from about 3600 in the 1970s to 1200 by the mid 1990s.[177] The first employees to be cut were volunteers and then the robust six-level management system after them. The first large Early Retirement Opportunity (ERO) was in 1985, according to the woman who had multiple jobs.[178] She said that those who retired within this ERO were some of the people who helped dig the foundation of the plant back in 1939.[179] The other two EROs happened in 1991–1992 and 1993. The woman who had many jobs said that "[the EROs] wouldn't be as large if we had stayed another 10 or 15 years," giving an incentive for workers to leave sooner rather than later and benefitting DuPont's downsizing efforts in the process.[180]

The impact of the downsizing and "voluntary" retirements within the plant was often accompanied with sadness and nostalgia. The mechanical engineer recounted the experience by underlining its bittersweetness since he had to leave earlier than he anticipated:

[176] Interview by Brooke Emeigh, January 9, 2026, 55:18.

[177] Interview by Brooke Emeigh, January 9, 2026, 55:26.

[178] Interview by Brooke Emeigh, January 9, 2026, 57:18.

[179] Interview by Brooke Emeigh, January 9, 2026, 58:15.

[180] Interview by Brooke Emeigh, January 9, 2026, 1:00:06.

> The last days were… [pause] …interesting. … I was given an option to leave early, basically as a buyout. I did not realize that it was to get ready for the sale, but I'm sure it was. So that was tough because I was only there for 28 years at that time. I expected to be there for at least 10 more years, but when they come to you and say 'Hey, we will give you a year's salary to leave,' I took that. So it was tough. I basically was not ready to go. And what I found was it's not the work, it was the people that you associated with and your friends, because there's no doubt DuPont hired the best people.[181]

The shift nurse also explained that there were cuts within the medical unit due to the downsizing of employees overall and was eventually offered an ERO due to her age. However, she later returned to the plant as a subcontractor before she stopped working permanently. During this time, she microfiched medical records from as far back as 1939 and shipped the records up to the "graveyard" in Wilmington, Del. which was where ex-employee medical records were stored. She recounted her final days as the following:

> It was very dismal. Like I said, we were empty, and there was just one of us there at a time. I mean, they had to let the secretary go, and we were there to, again, take care of anybody that might need to be taken care of. But we were only there during day work hours. There was no nighttime care that was being taken at that time, so I got sick of papers. Like I said, we had all the charts to go through. You had to go through every test, every piece of paper in those charts before you sent them off to the graveyard. … It was almost like a cutthroat operation. Yeah, everything just got cut. Nothing was the same. The morale wasn't the same, the caliber of people was not the same. I doubt that job requirements were the same, and certainly the jobs changed strategically.[182]

The woman of many jobs verified that the plant changed drastically during its decline, especially in the late 1990s.

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[181] Interview by Brooke Emeigh, January 9, 2026, 1:00:55.

[182] Interview by Brooke Emeigh, January 9, 2026, 1:11:36.

Unlike the other two, the woman of many jobs retired in the early 1990s, and therefore did not see the outright shutdowns within the plant while she was formally working there. Similar to the shift nurse, she returned to the plant in the late 1990s to train newer employees.[183] When she came back to the plant, she said that the current employees at that time did not have much orientation around the plant and were unsure what they wanted her to teach the new employees.[184] She recalled "I went back and, in five years, I said, well, 'What's changed in five years?' and I don't think anybody knew."[185] Thus, she only had her memory from five plus years ago to reference when training the new employees,[186] illuminating a lack of continuity between the older generations that experienced the peak years of the plant, and the newer generations that worked during its decline.

Similar to the engineer and the shift nurse, the woman of many jobs' last days in the plant were filled with emptiness and drear, even though she retired earlier than the other two:

> When you retired, they gave us a silver pass where we went through the main gate, and we could go in and visit with friends or whatever. And I went back in and the area that I had spent my most time in, probably 15 of the 25 years or 28 years, was empty. It was like a ghost town. Every piece of equipment was gone. The machines were gone. The desks were gone. The lights were still on, but that was it, and it was very sad. … It hurt this community because we had a domino effect. … It hurt the entire Seaford area, and not just Seaford: Laurel,

[183] Interview by Brooke Emeigh, January 9, 2026, 1:14:02.

[184] Interview by Brooke Emeigh, January 9, 2026, 1:14:30.

[185] Interview by Brooke Emeigh, January 9, 2026, 1:15:35.

[186] Interview by Brooke Emeigh, January 9, 2026, 1:15:44.

> Milford, Bridgeville. We had people that drove all the way from Chrisfield, Maryland, and all the way from Oxford, Maryland and Easton, Maryland, to come to work every night.

The engineer followed this by emphasizing that the Seaford plant "was the place to work, especially in the 50s and 60s." This shows that the Seaford plant was seen as a hub for job opportunity, since people across the Delaware, Maryland, Virginia peninsula commuted into the town.

From the challenges they faced within their various jobs, to the obstacles they overcame, from their retirement experiences to their last days at the plant, the stories of these three workers accentuate the sadness DuPont employees faced not only from the eventual selling of the plant, but also from the downsizing and deterioration of their community. As the shift nurse expressed, "It didn't leave the community in a bad place, it left us in a sad place."

CONCLUSION

Growing up in Seaford myself, it has been interesting to see the ways the town has changed over the years. I was born in 2004, one year after Koch Industries Inc. bought the DuPont plant. I never saw what many people call the "heyday" of Seaford. The town I grew up in was scattered with areas of depression and wealth, some roads lined with older, more rundown houses, others boasting newer, more roomy homes. Some roads were fine to walk down, others my mother would advise me to stay in the car.

I did not go to Seaford public schools either. The common narrative spoken was that the school district was horrible: unruly kids, drugs, and police at the schools every day. Whether it was true that the Seaford school district was as bad as those around me said it was, I am still unsure. What mattered was that my parents thought it would be best for me to go elsewhere.

For preschool and kindergarten, I went to a school called Child Craft which is a private school in Seaford that teaches preschool through fourth grade. With the little recollection I have of my experiences there, I remember them to be positive and my parents were happy with how the school was running things and treating me. After Child Craft, I went away from Seaford and moved to a private school in Berlin, Maryland called Worcester Preparatory School. This was a K–12 school, 55 minutes away from where I lived, which I started in the first grade.

Many of the people at Worcester were from the Delaware beach areas, Lewes, Rehoboth, Bethany, Fenwick Island, Ocean View, and the eastern Maryland beach

area, namely Ocean City and West Ocean City. While there were enough kids from western Delaware for a bus to run towards that direction, very few people in my age group were from Seaford or even any towns 30 minutes away.

While I was in lower school, from 2010 to 2016, Seaford did not have much; as a kid, I remember the town being quite dull. The town mainly revolved around the Seaford marina, where the lucky few kept their boats, King Street, which had the Mount Olivet United Methodist Church, a barber shop, a fine dining restaurant named Bon Appetit, and Route 13 which was lined with an array of fast food restaurants.

It was around when I entered high school that Seaford began to host more businesses that were common in my friends' towns: an independent coffee shop named Every Fiber Coffee Co. opened in 2018, Starbucks returned in July 26, 2019 after closing a location in 2008,[187] Chick-fil-A opened on August 22, 2019,[188] and Wawa opened on November 5, 2021.[189] Also, new riverfront apartments were built in 2022, with a current price range of $1,695–$2,120 per month.[190] The Nylon Capital Shopping Center, a once bustling hub, is currently undergoing a $60 million

[187] "Starbucks in Delaware," Starbucks Everywhere, https://www.starbuckseverywhere.net/Delaware.htm.

[188] "First 100 at Seaford Chick-fil-A to win year's supply Aug. 21," *Cape Gazette*, August 15, 2019, https://www.capegazette.com/article/first-100-seaford-chick-fil-win-year.

[189] "New Wawa opens in Seaford," *WMDT*, November 5, 2021, https://www.wmdt.com/2021/11/new-wawa-opens-in-seaford/.

[190] "The Residences at River Place Apartments," ApartmentHomeLiving.com, accessed May 25, 2026, https://www.apartmenthomeliving.com/apartment-finder/The-Residences-at-River-Place-Seaford-DE-19973-12762426.

redevelopment project, along with $3.1 million of taxpayer funding from the City of Seaford, $20 million from the federal American Rescue Plan Act of 2021 (ARPA), and at least $2 million from the state toward redevelopment costs, reporter Jennifer Antonik from *Delaware Business Times* said.[191] All of these renovations occurred once I entered high school.

However, the depression that I remember from when I was growing up has not left the town, but perhaps been better masked. As of 2024, the poverty rate sits at 18.8% in Seaford,[192] compared to the 9–15% state average, the approximation due to differences of methodologies between sources.[193] Census data claims that of the 18.8%, 25% are children under the age of 18.[194] Seaford also has the third to last median income level in the state, which sits at $54K as of 2024,[195] compared to the

[191] Jennifer Antonik, "How one developer brought a city idea to Sussex County," *Delaware Business Times*, April 2, 2026, https://delawarebusinesstimes.com/news/the-mill-seaford-opening/.

[192] "Seaford, DE," Poverty Rates, Census Reporter, accessed April 30, 2026, https://censusreporter.org/profiles/16000US1064320-seaford-de/.

[193] "QuickFacts: Delaware," United States Census Bureau, accessed April 31, 2026, https://www.census.gov/quickfacts/fact/table/DE/BZA110223.; "What is the poverty rate in Delaware?," USA Facts, accessed April 31, 2026, https://usafacts.org/answers/what-is-the-us-poverty-rate/state/delaware/; "Poverty rate in Delaware in the United States from 2000 to 2023," Statista, accessed April 30, 2026, https://www.statista.com/statistics/205445/poverty-rate-in-delaware.

[194] "Seaford, DE," Census Reporter, accessed April 30, 2026, https://censusreporter.org/profiles/16000US1064320-seaford-de/.

[195] "Seaford, DE," Census Reporter, accessed April 30, 2026, https://censusreporter.org/profiles/16000US1064320-seaford-de.

county median of $85.3K,[196] and the state median of $87.4K.[197] Therefore, these factors have not vanished with the revamping efforts made within the town. Albeit, as a lifelong Seaford civilian, seeing these changes happening throughout the years is promising. However, the dark underbelly of this excitement is the poverty rates that remain above the state average and median income levels that remain below average. Seaford continues to have a nuanced relationship with growth and stagnation, leaving behind an apocalyptic feeling that the good taking place is perhaps a fabrication of a false reality.

While Seaford is not as enticing as the beaches, nor the scenery as beautiful, the town remains a place filled with its own eccentricity. The buildings that reside within the town may not strike the eye as something awe-inspiring. Rather, Seaford is a place which requires thoughtful observation for its beauty to reveal itself—the serenity of the Nanticoke River that snakes along its borders, the remnants of an industry desperately holding on amidst modernization. Through the process of dissection is when you are rewarded with its beauty.

Seaford is far from the only rural town impacted by continued technological advancement and the outsourcing of labor. While each town and its residents have their own idiosyncratic ways of coping with these phenomena, various industries that once furnished towns with jobs and communities are becoming or already have

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[196] "Sussex County," Census Reporter, accessed April 30, 2026, https://censusreporter.org/profiles/05000US10005-sussex-county-de.

[197] "Delaware," Census Reporter, accessed April 30, 2026, https://censusreporter.org/profiles/04000US10-delaware.

become obsolete. By viewing the “physical” production of a consumer good as one facet within a vast interconnected system of labor, this reveals the volume of towns which were, have been, and are affected by shifts in corporate interest. While a broader understanding of the verb “to produce” accredits labor to more people and occupations, this definition also reveals how many have been affected by profit incentive and individualism, something corporations continue to be obsessed with.

Figure 5. Intersection of High St. & Church St (Seaford, DE). Photograph taken by the author.

High Street is the road that runs through downtown Seaford; Church Street is a side street that leads to Mount Olivet United Methodist Church.

Figure 6. View of Nanticoke River with Silos (Blades, DE). Photograph taken by the author.

The Nanticoke River runs along Seaford and Blades, a neighboring town. The silos pictured are part of the Diamond Fabrication LLC facility on S Bradford St, a welding and fabrication business based in Seaford.

Figure 7. Nylon Plant Marker, Invista Sign, & Ex-DuPont Plant Smokestack (Seaford, DE). Photograph taken by the author.

Figure 8. Landscape of the Ex-DuPont Nylon Plant, Current Invista Plant (Seaford, DE). Photograph taken by the author.

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