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The devaluation of stockings

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Abstract: Consumer practices related to how we use and take care of products have changed throughout history. Especially within clothing consumption, the changes have accelerated in the Twentieth Century. In this paper, we use thin nylon stockings for women as an example product to see how their value, use, care, and lifetimes have evolved. The material is based on a literature review on nylon stockings from 1940 to today, accompanied by an analysis of consumers' written narratives from 1990 where people were asked to describe their use and memories of stockings and pantyhose. Our contemporary data is based on consumer focus groups on product lifetimes and plastic materials conducted in 2021 and 2022. The tight-fitting nylon stockings for women were launched around World War II by the American company DuPont. Cheap nylon substituted luxurious silk stockings and increased their popularity throughout the 1950s and 1960s. Around 1970, synthetic substances were devalued when fashion changed from elegance to more casual styles, and the political opposition to plastic as environmental damage and a symbol of the established society permeated the growing youth culture. Consequently, nylon stockings went out of fashion. Today, thin pantyhose is seen as disposable consumables with low value. Thin stockings represent a good example of how we value and take care of delicate items has a significant contribution to their lifetimes. Looking into the historical context is beneficial for learning about the points in time when changes occurred and how they contribute to consumer practices.

Introduction

Consumer practices related to how we use and take care of products have changed throughout history. Especially within clothing consumption, the changes have accelerated in the Twentieth Century. In this paper, we use thin nylon stockings and pantyhose for women as an example of a product that first was recognized as high fashion but later has been devalued and is now seen as a disposable product.

Nylon stockings for women have been in use for 70 years. The appearance is quite similar, tight, silky and transparent, but the status has changed, going from fashion to anonymous everyday goods. This paper will discuss how the value, use, and lifetimes of thin stockings have changed throughout the past century. Is it possible to trace any connections between the amount of unwieldy and anonymous plastic waste characterizing today and the economic and cultural values consumer goods like textile fibres had before synthetic oil-based plastics were introduced in the 1950s? Our aim is that this analysis will contribute to a better understanding of how some objects have lost

their cultural value and been invisible, though they never went out of use. This may explain some of the reasons for the huge waste problem the world is facing today.

Production figures from the global knitting industry show that the Datang Province of China, also known as 'Sock City', produced 13,5 billion pairs of socks in 2009, which is slightly less than two pairs per person on the planet. The estimated numbers of socks made in the world were around 40,5 billion pairs (Adrian, 2017, pp. 38-39). The sheer stockings and pantyhose segment is expected to grow further by a 3.3% Compound Annual Growth Rate for the next 8-year period (ReportLinker, 2023). In a recent study of textiles going out of use in Norwegian households, 9.7 % of the female clothing items destined for disposal were nylon pantyhose (Sigaard, personal communication, 16th March 2023). This indicates how immense volumes of waste the thin nylon hosiery creates annually.

This paper will go deeper into two research questions. The first will unfold the production

story of nylon stockings in the Western World and especially Norway, as a part of the industrial reconstruction after World War II which included a major investment in the renewal of the textile industry. The second will investigate how nylon stockings became unfashionable in the 1970s, while consumption increased, prices decreased and opposition to plastic coincided with the introduction of single-use products.

Methods

Artefacts, private archives and photographic documentation together with published advertisements, newspapers and magazines, will be central to the historical research together with literature within history of technology and fashion. This will be supported by a survey about clothing consumption carried out in 1990. Norwegian Ethnological Survey (NEG) manages a cultural history archive that collects and processes people's information about everyday life, in the past and present, by sending out questionnaires. In 1990, they sent out a questionnaire about clothing and accessories, which also included questions about use and attitudes to stockings and pantyhose (NEG, 1990). These questions were answered by around 130 participants and used here to enlighten the users' experience in the period before 1990, back to the first memories the participants had of these products.

For the contemporary data, we use descriptions from consumer focus groups that took place in 2021 and 2022. The first one was about product lifetimes where participants from six groups talked about products that they were either satisfied or dissatisfied with. The second project included three groups that discussed the use of plastic materials including synthetic textiles. Examples from these groups are used with citations in the paper to illuminate the current experiences and status of pantyhose. Citations are given with a pseudonym, the participant's age, and the year of the interview.

Results and discussion

In this section, we focus on areas and periods where major changes have occurred that impact the status and value in production and consumption of sheer stockings and pantyhose.

Production

Nylon stockings were an American invention, launched for consumers in 1939 (Meikle, 1995).

In Norway, nylon stockings were first sold after World War II. The reputation had arrived before the desirable stockings, and they became immediately iconic. The nylon stockings became a symbol of the American lifestyle, like chewing gum and Hollywood movies. However, the stockings were in short supply. The import was highly restricted by the currency regulations after the war. The solution seemed to be domestic production. In 1950, five Norwegian factories produced nylon stockings (Hamar Arbeiderblad, 1950). Most of these knitting mills were well-established and had made stockings for decades. The new nylon fibre substituted or was added to fibres like wool, silk, or viscose.

A.S. Stephansen, also called Janusfabrikken after the trademark of the products, was the biggest producer of nylon stockings in 1950. They cooperated closely with the American fibre producer and inventor of nylon, DuPont, who produced the yarn. This was a part of the ongoing Marshall plan, helping European economies on their feet by economic and technological means from the US. Stephansen's trademark for nylon stockings was Jalon. A booklet from 1950 presented the new product for Norwegian consumers and described three important characteristics of nylon stockings: strength, durability, and elasticity. The text explained the technical characteristics of the fibre and the stockings and set up two different types of knitting techniques: single knit and mesh (Figure 1). The first type was the most common with high elasticity but had the disadvantage to rip easily. This technique was used for the thickest stocking qualities. The mesh was less elastic and less likely to rip or run. The technique was used for thinnest qualities (Janusfabrikken, 1950). These stockings looked quite different from today's nylon stockings. First and foremost, it was a pair of stockings, not pantyhose. And they were fitted with a foot and shaped to the leg. The stockings had seams at the back. Also, the material quality has changed as elastane fibres like Lycra were invented in 1958. The elastic fibre simplified the confection of the stockings as elasticity increased. The stockings needed to fit snugly on the leg.

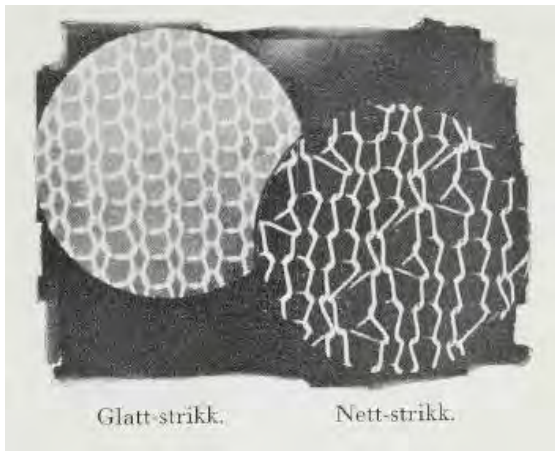


Figure 1. Different knitting structures, regular single knit and non-running mesh (@Janusfabrikken, 1950, p. 10).

The premises for the introduction of the nylon stockings for everyday use, was decided by the fibre plants and the hosiery industry. Chemical industries like DuPont were not only dealing with inventions and production, but also with fashion and marketing. The fashion industry including the fibre manufacturers largely determined the clothing style in the post-war period. The Stephansen's booklet was based on information from DuPont (Janusfabrikken, 1950, p. 2). This showed the connections between the industries and the impact they had on consumption.

As the economy of the Western European countries improved, the markets also opened to imports, and in 1957 the Norwegian import ban on textiles was lifted. Domestic factories stopped to produce nylon stockings around 1960. The huge clothing import to Norway characterizing the last decades, could begin.

Consumption

The demand for the nylon stockings was implemented in the consumer culture in the 1950s. We have used the NEG respondents' rich and quite similar descriptions of their memories from the times that nylon stockings arrived. The first ones were received by those that knew people who had travelled abroad, and were first very expensive and valued items that were taken good care of, such as this description by a woman who was born in 1922: *"The nylon stockings really came to Norway after the war. Those who had relatives in the USA were among the first to receive them. We talked about these miracle stockings that were*

very expensive at first. But then they were very strong in return. [...] Later, they became more disposable and were sold at a lower price" (NEG answer 29606).

The changes in import of nylon stockings in the end of the 1950s were not immediately followed by changes in consumption. The consumer information continued to be about fashion and being well-dressed on the one hand, and hosiery maintenance on the other. During the 1950s, fashion was still about grown-up women. Dior had success with the New Look fashion line, characterized by tight waists and wide skirts that ended mid-calf. On the feet, there should be neat shoes, and between the foot and the edge of the skirt, the nylon stocking was perfect for the well-dressed. This style was well-received by all strata of the population and dominated fashion during this period (Partington, 1992). This was also visible in several advertisements, where the nylon stockings made the woman's legs more elegant.

The issue about maintenance was manifold. It was important to keep the stockings clean, whole and to protect the fibres so that they would last long. Much could be done by the consumer, and the industry was ready to contribute. The detergent company Lilleborg published the leaflet "A laundry manual for the home", which recommended the housewife to rinse the stockings in cold water after each use to maintain durability and elasticity (Lund, 2008). The leaflet was distributed to homeworking housewives, students and used in education in the mid-1950s. Janusfabrikken recommended washing stockings in a glass jar (Figure 2).



Figure 2. Instruction for careful washing of stockings (@Janusfabrikken, 1950, p. 28).

Ripped stockings had to be mended. The usual way to repair holes in stockings was with a needle and thread. But the nylon yarn was slippery and not always easy to work with. New machinery was invented to professionalise repair and make mending as invisible as possible. Several of the women in the NEG list described how the runs and rifts were mended: «Ladders were pure disasters. We bought some small needles that were made specifically for mending ladders. But it was heavy and slow work» (NEG answer 29474, woman born in 1921).

Professional hosiery mending businesses were also established. In Århus, Denmark the first opened in 1944, and in the 1950's there were 12 companies registered in the phonebook as their main business, just in this one town. The last remaining repair shop was registered in 1973 (Lundskov, n.d.). This was also the case in Norway where there are preserved mending machines in the collection of the Museum of Science and Technology. The efforts done to mend the nylon hosiery show that the stockings were launched at a time when maintenance and repair were still seen as valuable and that this may have contributed to the nylon stockings being seen as valuable in themselves.

The quality of the nylon stockings has been a consumer issue since the release (Figure 3). The first volume of the Consumer Report magazine (Forbrukerrapporten), published in 1958 featured a test of nylon stockings. Here, they described the production methods in detail and define terms like denier, which means the lower number the finer quality of the yarn in the stockings (Figure 4). They tested stockings as thin as 10 deniers and as thick as 60 deniers. It was stated in the article that “the correct stockings for the correct use are crucial for your stockings account” (p. 5). The statement was indicative of the normative tone of this period (Myrvang et al., 2004), and implied that the lifetime of the product depended on the user and her competencies. However, the journalist emphasised that the technological advances in production had led to stockings in finer yarns, and that “this, of course, has led to a great decline in quality”. These [12 to 15 denier] stockings are thin, pretty and elegant, but have a relatively low use value” (Forbrukerrådet, 1958). Although the use value of these

stockings was considered low even in 1958, this tendency continues in the years to come.



Figure 3. Stocking quality control (@Janusfabrikken, 1950, p. 36).

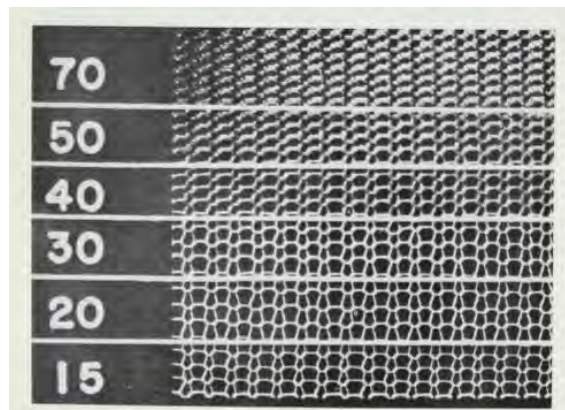


Figure 4. Different thicknesses (denier). “The fine and thin low-denier stockings can of course not withstand the same as the higher deniers” (@Janusfabrikken, 1950, p. 13).

Frugality was an important value in Norwegian society in the years following the second world war (Nielsen et al., 2011). The nylon stockings that were ruined beyond repair still had some lingering value (Türe, 2014) for consumers. “Discarded stockings can have several lives” was the introduction to one of many brief news items presenting ideas for alternative use of

damaged stockings. Examples were to use stockings to pack your pleated skirt (Sandefjords Blad, 1962), dusting (Østerdølen, 1964) or for eel fishing (Pressens Spalteservice, 1966). Such tips continued into the 1980s but became fewer. Repurposing practices especially for hobbies might still occur today, but the main tendency is that the used pantyhose are discarded directly.

In the post-war period fashion went through profound changes. The 1950s style had implemented thin and transparent nylon stocking and in the 1960s the mini skirt opened for fancy hosiery (Chapman, 2002). Pantyhose became more important when miniskirts were in high fashion, as the “skirts would be shorter than the stockings were long” (Caputo, 2009). In the 1970s pantyhose had taken over the market from the former pairs of stockings (Chapman, 2002, p. 218).

However, the large increase in nylon consumption led to a corresponding drop in reputation (Handley, 1999, p. 125). The positive attitudes towards synthetics changed into negative opinions about falseness and cheapness. With the rise of the anti-materialist counterculture in the late 1960s and 1970s, synthetics contrasted increasingly with the ethos of naturalness and the rising awareness of ecological problems. The increase in production volume made possible by the synthetic materials led to a saturation of the market, and the novelty value of these products decreased (Handley, 1999).

The resistance to synthetics continued in the 1980s and 1990s. An American study from 1994 revealed statements like synthetics “does not breathe” and “feels inferior” (Handley, 1999, p. 127). Science journalist Kimbra Cutlip wrote in 2015 how “The mere mention of pantyhose ruffles some women’s feathers” as they were “oppressive,” “sexist,” “tacky” and “just plain ugly” referring to a blog commenting on a pantyhose marketing campaign trying to re-invigorate the market among younger women. Another fashion journalist added that nylon hosiery was “a non-issue in fashion” (Cutlip, 2015). A review of Norwegian newspapers from the period 2010 to 2010 shows that nylon stocking was not on the agenda in the fashion reports. The nylon hosiery had sunk into oblivion within fashion.

The contemporary data confirms the negative attitudes to pantyhose. 32-years old Fiona (2021) complained: *“It [pantyhose] lasts once, or maybe not even a whole evening. Sometimes they unravel when you put them on for the first time, it’s like that, I just think the durability is far too poor. It’s not an expensive product, but it’s like that, they’re so disposable now... If they could withstand the washing machine and a couple, more than just a couple of uses, then that would be really nice”*. This statement is similar to the citation from the woman who described her experiences with nylon stockings after the war, and was supported by the other participants from the most recent study. When asked about any single-use textiles, women in one of the groups came up in unison *“Pantyhose!”*. Further, they described *“Yes, the 20 deniers are disposable. They’re almost ruined before you put them on”*.

Although consumers view sheer pantyhose as almost single-use garments, the quest for quality is still relevant. Women’s magazines still run tests on nylon pantyhose (Gaden et al, 2022), and start-ups like Sheertex that rely heavily on Instagram marketing has gained attention for their 90-day guarantee and “impossibly resilient tights” (Sheertex, 2023), and was named one of Time Magazine’s best inventions in 2018 (Time, 2018).

Conclusions

The analysis shows that stockings used to be an expensive and valued item that was used and maintained with care. We see similar tendencies to other product groups especially within clothing, where the volumes have increased, and prices decreased with cheaper synthetic materials and improved automated production technologies. At the same time, some skills such as mending thin hosiery have disappeared, and in general, consumers do not take as good care of their clothing during use. As a rule, large changes in society such as war, regulations and development in materials and technologies have had an impact on our consumption patterns. Similar changes are likely to impact our future consumption, where for example extending the EU prohibition of single-use plastics to also apply for textiles would impact thin nylon hosiery production and consumption.

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References

- Adrian, K. (2017). *Sock*: Bloomsbury.
- Caputo, J. (2009, 7 July). 50 Years of Pantyhose. *Smithsonian Magazine*. <https://www.smithsonianmag.com/arts-culture/50-years-of-pantyhose-33062523/>
- Chapman, S. (2002). *Hosiery and knitwear: four centuries of small-scale industry in Britain c.1589-2000*. New York: Oxford University Press.
- Cutlip, K. (2015, 11 May). How Nylon Stockings Changed the World. *The Smithsonian*. <https://www.smithsonianmag.com/smithsonian-institution/how-nylon-sockings-changed-world-180955219/>
- Forbrukerrådet. (1958). Glatte nylonstrømper. *Forbrukerrapporten*, 1(1). https://urn.nb.no/URN:NBN:no-nb_digittidsskrift_2012121780013_001
- Gaden, M., Kemba, P. W. C., & Gulbrandsen, E. A. (2022). Test: Dette er den beste strømpebuksen. *Min mote*. <https://www.minmote.no/mote/klaer/a/OrWQjk/test-dette-er-den-beste-stroempebuksen>
- Hamar Arbeiderblad. (1950, 10 November). Fem norske fabrikker lager nylonstrømper.
- Handley, S. (1999). *Nylon: the story of a fashion revolution: a celebration of design from art silk to nylon and thinking fibres*. Baltimore: Johns Hopkins.
- Janusfabrikken. (1950). *Jalon: strømpehåndbok*.
- Lund, E. C. (2008). *Branding Blenda: Lilleborgs markedsføring overfor husmødre 1950-1970*. (nr. 351). Universitetet i Oslo, Oslo.
- Lundskov, K. (n.d.). Det gamle Århus - Strømper opmaskes i Århus. <https://www.lundskov.dk/text/aarhusbegivenhed/arh-opmaskning.htm>
- Meikle, J. L. (1995). *American Plastic: A Cultural History*: Rutgers University Press.
- Myrvang, C., Myklebust, S., & Brenna, B. (2004). *Temmet eller uhemmet: Historiske perspektiver på konsum, kultur og dannelse*. Oslo: Pax forlag A/S.
- NEG. (1990). Spørreliste nr. 154 Klesplagg, smykker, frisyre. <https://dms09.dimu.org/file/022wazTP5M7B>
- Nielsen, M.-B. O., Orning, H. J., Søbye, E., Eriksen, T. B., & Hegge, P. E. (2011). *Etter 1914* (Vol. B. 4). Oslo: Aschehoug.
- Partington, A. (1992). Popular fashion and working-class affluence. In J. Ash & E. Wilson (Eds.), *Chic thrills: a fashion reader* (pp. 145-161). London, U.K.: Pandora.
- Pressens Spalteservice. (1966, 24.08.1966). Nylonstrømpe og ål på krok. *Vestfold Fremtid*. https://urn.nb.no/URN:NBN:no-nb_digavis_vestfoldfremtid_null_null_19660824_41_193_1
- ReportLinker. (2023). *Global Hosiery (Women and Men) Industry*. Lyon, France: https://www.reportlinker.com/p01053014/Global-Hosiery-Women-and-Men-Industry.html?utm_source=GNW
- Sandefjords Blad. (1962, 8.03.1962). Kasserte nylonstrømper. *Sandefjords Blad*. https://urn.nb.no/URN:NBN:no-nb_digavis_sandefjordsblad_null_null_19620308_101_57_1
- Sheertex. (2023). About Sheertex. <https://sheertex.com/pages/about>
- Time. (2018). Unbreakable pantyhose. <https://time.com/collection/best-inventions-2018/5454315/sheerly-genius-pantyhose/>
- Türe, M. (2014). Value-in-disposition: Exploring how consumers derive value from disposition of possessions. *Marketing Theory*, 14(1), 53-72. doi:10.1177/1470593113506245
- Østerdølen. (1964, 12.10.1964). Trekk en nylonstrømpe utenpå børsten. *Østerdølen*. https://urn.nb.no/URN:NBN:no-nb_digavis_osterdolen_null_null_19641012_64_2_37_1