

# All that glistens is not (green) gold: historicising the contemporary chlorophyll fad through a multimodal analysis of Swedish marketing, 1950–1953

Lauren Alex O'Hagan

*Department of Media and Communication, School of Humanities,  
Education and Social Sciences, Örebro University, Örebro, Sweden*

## Abstract

**Purpose** – This paper aims to historicise the contemporary chlorophyll trend through the first academic study of its early marketing in Sweden (1950–1953). Using multimodal critical discourse analysis, it demonstrates how brands used advertisements to convince female consumers of chlorophyll's necessity to fulfil certain aspirational goals.

**Design/methodology/approach** – In all, 150 advertisements for chlorophyll products were collected from the Swedish Historical Newspaper Archive, as well as 600 additional advertisements for the three most popular products (toothpaste/mouthwash, sanitary towels and soap) from 1940 to 1950 and from 1954 to 1964. Then, multimodal critical discourse analysis was used to investigate how the products were marketed before, during and after the chlorophyll trend, identifying the general themes and linguistic/semiotic structures of the advertisements.

**Findings** – This paper shows how the commercial use of chlorophyll offered a lucrative opportunity for marketers, acting as a “tabula rasa” on which they could use discourses of science, nature, idealised femininity and luxury to draw connections with health, modernity and beauty, despite the product having no real purpose or value.

**Originality/value** – Viewing this fad from a historical perspective emphasises how brands, marketers and influencers continue to capitalise on the anxieties of female consumers with promises around beauty, hygiene and health. It, thus, offers us critical distance to reflect on contemporary claims about chlorophyll's health benefits to make informed choices.

**Keywords** Sweden, Science, Nature, Hygiene, Femininity, Marketing, Advertisements, Beauty, Chlorophyll, Multimodal critical discourse analysis

**Paper type** Research paper

## Introduction

In early 2021, chlorophyll hit global headlines as Instagram and Tiktok influencers promoted its regular consumption to help lose weight, improve skin, combat constipation, boost energy and even prevent cancer (Seow, 2021). As a result, sales of chlorophyll water



immediately increased by 356%, while \$6.7m were spent over the course of the past year on chlorophyll supplements (Khokhar, 2021). The market is projected to grow even further in 2022 because of the increasing prevalence of chlorophyll in juices, yoghurts and energy bars (DataIntel, 2021). Most consumers are young women (18–40 years), unaware that this is not the first time that the substance has been gripped by this health craze. In fact, chlorophyll has a long and troubled history dating back to the 1950s.

Following experiments by American scientists that revealed chlorophyll's ability to stop odours, canny manufacturers began adding a water-soluble form of the green pigment to everything from soaps and deodorants to cigarettes and dog food (Qvarsell and Torell, 2005). Millions of dollars were invested in elaborate marketing campaigns, praising the wonders of this “green gold” and, just as today, these advertisements were targeted particularly at women, taking advantage of their insecurities to promote chlorophyll as essential to maintaining high standards of cleanliness and hygiene. For three years, such advertisements dominated newspapers and magazines, but it all came to an abrupt end in 1954 when various medical and food associations reported that there was no conclusive evidence that chlorophyll had any deodorising effects (Smith, 2019). The health benefits of chlorophyll were declared a marketing scam and all chlorophyll products became discontinued with immediate effect (Young and Young, 2004).

Chlorophyll stands as a powerful example of the long relationship between science and food/cosmetics marketing, demonstrating not only how scientific discoveries trigger new products or lead old products to be branded in new ways, but also how these products' claims can often be fraudulent or overstated (O'Hagan, 2021a, 2021b). However, today, its short-lived popularity in the 1950s is largely forgotten and its commercialisation is framed as a contemporary phenomenon generated by influencers. Across all fields of study, there is a considerable lack of literature on the historical origins and marketing of chlorophyll, with any mentions reduced to brief anecdotes on blogs or forums. This absence is reflective of a more general dearth of literature on the historical link between science and food/cosmetics marketing, with most studies emphasising science in marketing as a product of the modern age (Jovanovic, 2014; Chen, 2015; Chen and Eriksson, 2021). Of the scant historical studies that exist, most concern patent medicines and vitamins (Apple, 1996; Hansen, 1999; Loeb, 2001; Curth, 2002), with little attention paid to food/cosmetics and how science is used to shape discourses, beliefs and behaviours around health and healthy lifestyles (for exceptions, see Nelson *et al.*, 2020; Eriksson and O'Hagan, 2021).

Therefore, this paper sets out to historicise the contemporary chlorophyll trend and showcase that this is not the first time that the substance has worked as a blank canvas for desired benefits through the first academic study of its early marketing in Sweden (1950–1953). Drawing upon a data set of previously unexplored advertisements held in the Swedish Historical Newspaper Archive, it seeks to understand how brands instantly responded to the discovery of chlorophyll and used marketing to convince predominantly female consumers of its necessity to fulfil certain aspirational goals, in this case to remain fresh and clean. Given their multimodality, the advertisements are approached through the theoretical framework and methodological toolkit of multimodal critical discourse analysis (MCDA) – a way of uncovering how meaning is created and conveyed in texts (Ledin and Machin, 2018, 2020). Overall, the study shows how the commercial use of chlorophyll offered a lucrative opportunity for marketers, acting as a “tabula rasa” on which they could use discourses of science, nature, idealised femininity and luxury to draw connections with health, modernity and beauty, despite the product having no real purpose or value. Viewing this fad from a historical perspective showcases the susceptibility of consumers to passing fancies and canny marketing and emphasises how the supposed scientific and medical

benefits of products continue to be exploited by brands, marketers and influencers. Its findings will, thus, serve as an important reference point for those researching the impact of scientific discoveries on both historical and contemporary marketing and demonstrate how the meaning potentials of semiotic resources can be mobilised by those in positions of power for their own personal agendas, often targeting the most vulnerable in society (in this case, women). The findings will also offer consumers a space to reflect more critically on the claims put forward about chlorophyll and other trends today in ways that they may struggle to do when being too temporally close to them.

### **The commercialisation of chlorophyll: its origins and development**

Chlorophyll – the pigment in all green plants that is responsible for their colour and that absorbs light to provide energy for photosynthesis – is one of the world’s most common substances. Although it was first isolated and named in 1817 by French scientists Joseph Bienaimé Caventou and Pierre Joseph Pelletier, it was only in the early twentieth century that researchers began to examine more carefully its structure and functions (Delepine, 1951). In the 1930s, Benjamin Gruskin developed a water-soluble form of chlorophyll (known today as chlorophyllin), which he believed would be an effective remedy for burns and ulcers. However, there was such hype over the discovery of antibiotics at the time that he struggled to convince the pharmaceutical industry of its worth (Frohman, 1955).

Roughly 15 years later, F. Howard Westcott was conducting research into the use of chlorophyll to treat anaemia when he serendipitously discovered its effectiveness as an odour blocker. He noticed that, when his patients took chlorophyll, the smell of their urine decreased, particularly after consuming asparagus or vitamin B. This prompted him to theorise that chlorophyll could work in the body to deodorise bad breath and perspiration (Time, 1950). Westcott conducted a new experiment, where subjects took chlorophyll and used an osmoscope 24 hours after taking a bath to measure their underarm odour. He found that, in all subjects, their odour had halved or disappeared. Next, he asked them to drink a glass of onion juice and then take chlorophyll; once again, it proved to clean their mouths and reduce bad breath.

Marketers quickly latched onto Westcott’s discovery, recognising the huge commercial potential of chlorophyll. In 1950, the salesman O’Neill Ryan bought out Gruskin’s original patent and launched a chlorophyll toothpaste, Chlorodent, onto the US market. Immediately, other US manufacturers followed suit, and soon, consumers could get their hands on chlorophyll chewing gum, mouthwash, air freshener, toilet rolls, washing-up liquid, nappies and socks, amongst many other products (Qvarsell and Torell, 2005). Facilitated by the widespread circulation of the popular press, the chlorophyll trend spread across the Atlantic and manufacturers scrambled to release similar products onto the European market. Newspaper headlines described 1952 as “The Year Everything Turned Green” (Smith, 2019), while a 1953 report by *Popular Mechanics* estimated that chlorophyll products would earn at least \$120m in the USA alone in the coming year.

From as early as 1946, Swedish newspapers reported enthusiastically about the potential health benefits of chlorophyll. Explainer articles were written and interviews were conducted with the country’s top scientists and physicians, while news stories reported on lectures about chlorophyll taking place across the country. Chlorophyll was also parodied in cartoons, poems and jokes. Writing in *Svenska Dagbladet* on 19 November 1951, one journalist bemoaned the fact that the “Light Queen” of the traditional St Lucia’s festival [1] was now “some kind of Miss Lucia advertising chlorophyll underwear”, while an article dated 1 October 1952 excitedly announced the invention of a suit soaked in chlorophyll. Just

one month later, a promotional report of a health food fair in Stockholm described its main event as “something about chlorophyll” (6 November 1952). Despite this vague description, the fair was well-attended, emphasising just how much the substance had captured the Swedish public’s imagination. In addition, large pictorial advertisements for chlorophyll products were a regular feature in newspapers. Thus, as Sweden entered the 1950s, the vast majority of its population encountered chlorophyll on a daily basis or had a basic knowledge of what it was, even if they did not fully understand it.

### The advertising industry in Sweden: a brief history

For centuries, Sweden had been a predominantly rural country, but in the late nineteenth century, it was developing into a modern, industrialised nation (Magnusson, 2002, p. 302). This led to two major (interrelated) changes in Swedish society: the emergence of a new middle class and the birth of modern advertising. Shrewd entrepreneurs recognised that the middle class had greater disposable income and were conscious of keeping up with the latest trends. Thus, they provided a ready-made consumer market for new products and could be easily swayed by the rhetoric of modernity, technology and science (Stendahl, 2016). In its early years, the advertising industry was unregulated and chaotic, with advertisers pushing prices down by playing off agencies and newspapers against one another (Åström Rudberg, 2019, p. 54). The agencies and newspapers decided that they needed to do something to control competition. This came in the form of a cartel.

In 1915, the Association of Swedish Advertising Agencies and the Association of Swedish Newspaper Publishers came together and developed a cartel agreement, which was formalised in 1923. The agreement enabled them to control and influence all parts of the advertising market by developing extensive regulations and strict rules on payments, discounts and price levels, which protected the prices for newspaper advertisements and the agencies’ income – an unusual system compared to other Western countries at the time. Through the agreement, only certified agencies that met four major criteria were allowed to place advertisements: be financially stable, have an established customer base, have an experienced leadership and be of good standing (Åström Rudberg, 2019, 256). Until 1992, advertisements were banned from radio and television in Sweden. Newspapers, therefore, represented the most important part of the advertising market and a crucial means of conveying information to the public.

To market a product, advertisers had two choices: approach newspapers directly or employ an advertising agency. The agency was responsible for all contact with the newspapers and worked on a commission of roughly 15–20% per advertising space (Arnberg, 2019). This meant that they earned money every time an advertisement was published, which incentivised them to publish the same advertisement as many times as possible in different newspapers (Åström Rudberg, 2019, p. 53). In the context of the current study, this is apparent: all advertisements for chlorophyll products frequently reoccur across the three-year period in all major local and national newspapers with no variation in content.

Although the cartel played an active role in creating, shaping, propagating and debating regulatory regimes of advertising, it did little to clamp down on false or misleading advertising (Funke, 2015). Rather, its regulations were concerned with principles of competition and proper business conduct. Shortly after the cartel was founded, Swedish retail and wholesale organisations put forward proposals to regulate marketing practices, but the cartel deemed these as a potential threat to long-term economic interests and they were ignored (Funke, 2015, 93). Under mounting pressure, a new law was agreed against disloyal competition in 1931, which prohibited the intentional use of false statements in

advertisements, as well as the gross misuse of premiums and “buy one get one free” offers. This was updated in 1942 to include the prohibition of the unfair use of trademarks. However, it was criticised for its narrow scope, limited applicability and vague statutes, meaning that prosecutors had little interest in applying the legislation, and it, therefore, failed to have an impact on market behaviour (Funke, 2015, 94). In 1941, a special board for the regulation of pharmaceuticals was formed, which had both clearance and policing functions (i.e. to check proposed advertisements and to ensure that published advertisements were not misleading). A similar board was set up for pesticides in 1948. Proposals were also put forward to regulate non-prescription medications and nutrition supplements in the same way but were rebutted by the Advertising Federation (Funke, 2015). However, at no time was the creation of a board to regulate food or cosmetics deemed necessary. In 1953, the cartel helped shape a new competition law that disallowed competitive practices that were not in the public’s interests. Again, this law neither did explicitly address the problem of false advertising, nor did it pay specific attention to food or cosmetics [2].

Thus, we can see how, at the time of the chlorophyll fad in the early 1950s, there was no general clause to regulate marketing in Sweden. This enabled marketers to exploit loopholes, drawing upon a range of linguistic and visual cues to create a buzz around the newly discovered health benefits of old products (O’Hagan, 2019). As Jonsson (2009) notes, Swedish marketers at this time also aimed to associate products with attitudes and feelings, often tailoring them specifically to women by drawing upon discourses of beauty and hygiene. These early forms of lifestyle marketing and gender segmentation are apparent throughout the advertisements that will be studied in this paper.

### Data and methodology

This study seeks to understand how Swedish marketers used advertisements to convince predominantly female consumers of chlorophyll’s “health-restoring” properties through case studies of the three most popular chlorophyll products: toothpaste/mouthwash, sanitary towels and soap.

Specifically, it asks the following questions:

- Q1. How did the marketing of toothpaste/mouthwash, sanitary towels and soap change upon the discovery of chlorophyll in the early 1950s?
- Q2. How were these changes enacted in the linguistic and semiotic choices of advertisements?
- Q3. How were health claims in advertisements embedded in broader societal discourses to make them appear credible?

The data on which this paper draws comes from extensive research into the marketing of chlorophyll products in Sweden in the early 1950s. Initially, the keyword “klorofyll” was used to search the Swedish Historical Newspaper Archive (<https://tidningar.kb.se/>) for advertisements. The search revealed a wide range of chlorophyll products that emerged on the market in January 1950 only to disappear again by December 1953. In total, 150 advertisements were collected, covering such products as mouthwash, toothpaste, air freshener, plant food, mints, sanitary towels, soap, shaving foam, perfume and washing-up liquid, and were marketed by well-known international brands like Colgate, Air Wick and Palmolive just as much as old and new Swedish brands keen to tap into the potentials of chlorophyll. Of the 150, 88 concerned toothpaste/mouthwash, sanitary towels and soap – the focus of this paper. On the whole, each brand produced one advertisement that was

repeated over the course of three years in all major Swedish national and local newspapers (typically once a month but, at its peak, once every five days). Given their same content, the advertisements gathered for this study and analysed in this paper all come from *Svenska Dagbladet* – Sweden’s largest newspaper.

To investigate how the discovery of chlorophyll impacted brands’ marketing practices, I selected the three most popular chlorophyll products – toothpaste/mouthwash, sanitary towels and soap – and searched the Swedish Historical Newspaper Archive for advertisements ten years before and ten years after the 1950–1953 craze. For the sake of manageability, ten advertisements per product were collected for each year, resulting in a total of 600 advertisements (300 from 1940–1950 and 300 from 1954–1964).

The collected advertisements were then analysed using MCDA, which is a systematic way of studying the co-deployment of language and semiotic modes in texts (Ledin and Machin, 2018, 2020). It draws upon two important methodologies from the field of sociolinguistics: multimodality, which is concerned with how information is communicated both verbally and visually, and critical discourse analysis, which identifies how certain practices, ideas and values are transmitted through discourse (Ledin and Machin, 2018, p. 4). MCDA, thus, provides a way to deconstruct linguistic and visual cues in terms of how they shape the representations of events and persuade people to think about them in a particular way (Machin, 2013).

Integral to MCDA is the concept of “modality”, described by Ledin and Machin (2018, p. 10) as a way “to think about how real, or not, a representation claims to be”. Modality can be assessed through lexical choices, such as the presence or absence of modal verbs (e.g. may, will and must) and adjectives (e.g. possible, probable and likely) to express likelihood or obligation, adverbial intensifiers (e.g. very, most and remarkably) to indicate certainty or uncertainty and counterfactuals (e.g. if [...] then [...]) to present something as truthful or untruthful. Modality can also be evaluated through semiotic choices, such as images, illustrations, symbols, colour and typography, as well as patterns, composition and angles. The following analytical tools were used for such purposes (Ledin and Machin, 2018, 2020):

- *Causality*: how elements are represented as affecting each other (e.g. arrows and bullet points);
- *Framing*: how elements are separated according to sameness or difference (e.g. frames and spaces);
- *Orientation*: how advertisements are organised spatially (e.g. centre-margin, bottom-up and left-right); and
- *Symbolisation*: the meanings of shapes in advertisements (e.g. curved or straight lines and angularity).

In what follows, the three most popular chlorophyll products (toothpaste/mouthwash, sanitary towels and soap) are explored in turn, with a chronological outline of how their marketing practices evolved in the period immediately before, during and after the discovery of chlorophyll. Specific attention will be paid to the general themes and linguistic/semiotic structures of advertisements. To emphasise the changes connected particularly to chlorophyll, one prototypical advertisement for each chlorophyll product will be examined through MCDA. Overall, this approach will help generate new knowledge on the ways in which the discovery of chlorophyll marked a transformation in the marketing of hygiene and cleanliness products.



**Case 1: toothpaste and mouthwash**

Commercial toothpaste and mouthwash have their roots in the mid-nineteenth century, but they were met with limited success until two watershed moments in the early 1890s: the invention of the collapsible tube by Dr Washington Sheffield and the endorsement of Listerine for oral care by dentists (Segrave, 2010). Recognising the potential lucrativeness of these events, multiple toothpaste and mouthwash brands suddenly emerged onto the market and invested vast amounts of money into advertising to distinguish themselves from their competitors. The early twentieth-century Swedish dentifrice market featured big US brands like Colgate, Kolynos and Pepsodent, as well as its own national brands like Stomatol, Vademecum, Amykos, Oxygenol and Carnitol. Over the next 50 years, through powerful marketing, the advertising industry successfully built a consumer market around toothpaste and mouthwash, thereby fostering a modern era of oral hygiene.

*1940–1950: the scientification of toothpaste/mouthwash*

Given the long historical connection between toothpaste/mouthwash, science and medicine, from as early as the 1920s, most brands drew upon scientific discourse in their advertisements to make claims about their effectivity for freshening bad breath, reducing plaque and fighting tooth decay. However, efforts were ramped up in the 1940s when toothpaste became officially endorsed by dentists (Segrave, 2010). Advertisements started to use images of bacteria in petri dishes or scientists in white lab coats holding up test tubes or looking into microscopes. These were often accompanied by quotes from acclaimed scientists replete with buzzwords, such as “ultra emulsification”, “microtin antiseptic” and “irium”, as well as claims that “modern science fixes a significant problem”. Although this technical jargon was not understood by most members of the general public, they assigned value to the products based on the claim that they were “scientific” and bought them enthusiastically (Apple, 1996, p. 76). Stomatol – Sweden’s biggest toothpaste brand – was the only brand to adopt a lifestyle marketing approach instead, emphasising the importance of outward appearance to a successful life.

*1950–1953: science for the masses*

The discovery of chlorophyll provided a commercial opportunity that was too important to overlook for the dentifrice industry. Immediately, Colgate and Kolynos released chlorophyll toothpastes onto the Swedish market, with national brands Stomatol and Vademecum following closely behind with their own chlorophyll varieties. Two new Swedish brands – Jodent and Florodyl – were also launched specialising in chlorophyll toothpaste. The launch of these new varieties of toothpaste had a direct impact on marketing, with brands adapting the scientific discourse in their advertisements to reflect the supposed health benefits of chlorophyll for teeth rather than how the disinfectant and antiseptic properties of toothpaste prevented bad breath, plaque and tooth decay. Even Stomatol adopted this approach, keen to remain competitive amongst its rivals. However, while previous scientific discourse had been in unpalatable, hard-to-follow formats, it was now made more accessible in a bid to attract new consumers to this unfamiliar substance.

One way in which brands achieved this was through the inclusion of a small explainer box entitled “what is chlorophyll?” which set out its function in a persuasive and user-friendly manner: “it’s the strange green substance found in the leaves of all green plants and which, with the help of the sun, converts the carbon dioxide in the air into life-giving nutrition” (Florodyl). This statement equated artificially produced chlorophyll with naturally occurring chlorophyll, framing it as something that has been plucked from nature and added to the toothpaste/mouthwash. While advertisements still featured images of

scientists in lab coats, a new addition was scientific diagrams of chlorophyll's effects on the body or infographics presenting the positive results of clinical testing. Both practices presented dense scientific information in a fun way to build product credibility and are still common in contemporary toothpaste/mouthwash advertising (Segrave, 2010). Lists of bullet points to outline the reasons why chlorophyll is good for you were also used regularly, each point punctuated with a clever symbol that connoted chlorophyll's links with science and nature (e.g. teeth, leaves and microscopes) and delivered scientific information in small, digestible chunks.

Another major change was the incorporation of colour into advertisements, green now generously used to signal chlorophyll's origins, as well as the broader connotations of outdoors, freshness and healthiness (Kress and van Leeuwen, 2002, p. 358). This was done overtly through images of leaves and trees or a blob of green toothpaste on a brush or more covertly with green typography or arrows. Although this was not the first use of green in advertisements to signal nature (Eriksson and O'Hagan, 2021 on radioactive shampoo), it demonstrates how marketers cannily capitalised upon the symbolic meanings of green to transmit messages about health and well-being.

Responding to public concern that chlorophyll was being overhyped in the national press, brands also frequently stressed that chlorophyll was "not just an empty modern buzzword" and that its powers were "scientifically proven". To demonstrate its validity, Stomatol produced joint advertisements with the highly reputable department store NK, informing consumers that both were brands "with tradition" and that NK's endorsement marked a "big step forward". This artful strategy was aimed squarely at women who were considered an easy target for emotional appeals about bad breath and poor hygiene. This female targeting is even more explicit in other chlorophyll toothpaste advertisements, which include images of young, beautiful women, claiming that their teeth are pearly white thanks to chlorophyll. Hutchings (2000) describes such practices as capitalising upon notions of "female inadequacy and shame" and notes it as a common feature of past and present cosmetics marketing.

#### *1954–1964: the dentist knows best*

Once chlorophyll was proven to be a hoax, immediate changes took place in the dentifrice industry in Sweden. New brands Jodent and Florodyl disappeared almost as quickly as they had appeared, while all other national and international brands instantly discontinued their chlorophyll products. Brands reverted back to their pre-chlorophyll marketing practices, bamboozling consumers with jargon about the properties of toothpaste/mouthwash that protected against bad breath and cavities or, in the case of Stomatol, emphasising the importance of looking good. All advertisements also returned to monochrome. Many brands also replaced the image of the scientist with a smiling dentist, who acted as a knowledgeable yet friendly figure of authenticity. When women appeared, they were often accompanied by their families and juxtaposed with a dentist, told to follow his advice to ensure their teeth were protected. Therefore, toothpaste/mouthwash became imbued with an expert opinion that was difficult to contest should families want to remain healthy.

#### *"Stomatol goes deep with odour problems!": a multimodal critical discourse analysis*

Figure 1 shows an advertisement for Stomatol chlorophyll mouthwash, which was reproduced regularly from 1950 to 1953 across local and national newspapers. To give a sense of how it differs from other Stomatol advertisements before and after the chlorophyll craze, it is presented alongside 1941 and 1955 advertisements (these will not be analysed because of space constraints).





**Figure 1.**  
Stomatol  
advertisements

**Source:** (From left to right) “Do you want to have a fiancé?” 25 May 1941, p. 22, Svenska Dagbladet, “Stomatol goes deep with odour problems” 28 November 1952, p. 8, Svenska Dagbladet and “Worth more than actual pearls: pearl white teeth” 25 March 1955, p. 13, Svenska Dagbladet

At the top of the advertisement is the bold headline “STOMATOL goes deep with odour problems!” playing on the polysemy of “går på djupet” to signal both that Stomatol is thoroughly addressing a problem and the physical action of the mouthwash in the body. It then informs consumers that “now there is STOMATOL MOUTHWASH with chlorophyll”, the word “chlorophyll” written in bright green italics to emphasise its link with nature and make it stand out on the page.

The central image of the advertisement shows two side profiles of a woman. On the left, we see a three-dimensional (3D) made-up face, shiny hair, white teeth and smile as she holds a glass in her hand. This image contrasts with the two-dimensional scientific diagram on the right, which depicts an internal view of her body, focusing particularly on the oesophagus and the effects of Stomatol. The use of a featureless silhouette associates the image with the biological field of anatomy, while the side angle and colour contrast draw parallels with X-Ray imaging, thereby foregrounding Stomatol’s scientific message and increasing its credibility (Eriksson and O’Hagan, 2021). A series of arrows point downwards into the oesophagus, visually indicating the direction of the mouthwash, their green hue highlighting Stomatol’s chlorophyll components. Two of the arrows touch the black dots at the bottom of the trachea, which represent bacteria, creating a connection between the two elements which suggests that the mouthwash immediately takes effect (Ledin and Machin, 2016, p. 333). On the surface, this looks highly scientific and is, therefore, convincing for consumers. However, not only is the visual claim of its immediate effects misleading but it also risks misuse of the product: mouthwash is not to be ingested, yet from the diagram, it perilously implies that Stomatol must be drunk to achieve these desired effects. Despite the clinical style of the right-hand image, it is given a sense of dynamism by the exhalation of white breath that leads to the caption: “a natural air purifier against bad breath and a fresh aftertaste”. While these claims sound authoritative, no evidence is provided to support them. Nonetheless, the way that the words intrude beyond their frame into the wider

advertisement visually connotes the outward effects of Stomatol, thereby persuading consumers of its ability to give fresh breath (Ledin and Machin, 2020, p. 182).

A caption sits between both pictures, its overlapping text signalling a “bleeding” of meaning that interconnects the information presented on the left and right (Ledin and Machin, 2020). Headed “Both deep cleansing and long-term effect!” the text explains that it is the chlorophyll in Stomatol mouthwash that “pushes down the throat’s most difficult to access pockets” and “cleanses the breath right from the start from all bad odours”. Again, although this high modality statement sounds credible, there is no supporting evidence to prove that it is chlorophyll responsible for such effects. Long before the addition of chlorophyll to mouthwash, dentists agreed that it was the combination of eucalyptol, menthol, methyl salicylate and thymol that freshened the breath (Hicks, 2016). Yet, here, chlorophyll is framed as the sole magical ingredient responsible for this.

Stomatol then provides consumers with instructions: “Splash the healthy natural green liquid in a glass of water, gargle lightly and Stomatol mouthwash spreads its lasting deodorising effect to every corner of the throat and oral cavity.” Although these written instructions are clear, most consumers are likely to pay attention to the (misleading) message in the image rather than read the more accurate small print alongside. Scientific discourse is also foregrounded in this description with the use of “oral cavity” instead of “mouth” and the more formal word for throat “svalg” instead of “hals”. Furthermore, the description of chlorophyll as “healthy” and “natural” leaves little room for manoeuvre, while “splash” adds a touch of playfulness that turns consuming mouthwash into an enjoyable activity (Chen and Eriksson, 2019, p. 436).

To the right of the main image is a glass bottle of Stomatol and its cardboard packaging on top of a bed of green leaves. This close positioning highlights the chlorophyll element of the mouthwash, as does the use of green on the bottle and packaging, thereby signalling the product’s ties with nature. Above is a text block informing that there is “big news for everybody who wants to breathe freshly”. This value-laden statement creates a dichotomy between responsible and irresponsible consumers, implying that those who do not buy Stomatol do not care about good mouth hygiene and are, therefore, bad people (O’Hagan, 2021b). It then states that Stomatol has “deep working chlorophyll” that “keeps the whole mouth fresh all day”. Although there is no evidence provided to support these claims, their high modality convinces consumers that they are true. Finally, it asserts that Stomatol’s “fresh aftertaste puts you in a good mood” and that the “awareness of always being attractive to those around you strengthens self-esteem”. This type of gendered language taps into traditional feminine anxieties around physical appearance and demeanour, albeit masked in scientific discourse (Loeb, 1994). When viewed in tandem with the large image of the woman, it frames Stomatol as an aspirational product that goes far beyond its function as a mouth deodoriser, instead selling beauty and grace with the woman offering role model authority.

## Case 2: sanitary towels

Menstrual products were first produced commercially in the 1890s in the form of reusable woven fabrics, but it was not until the invention of disposable sanitary towels in the late 1920s that the market grew, spurred on by a new public interest in hygiene and sanitation (Mørk Røstvik, 2018, p. 416). In Sweden, the production of sanitary towels was dominated by one national company: Mölnlycke AB. Originally founded in 1849 as a weaving business, Mölnlycke turned its attention to menstrual products in the 1930s, before later expanding its range to include nappies, incontinence pads and tissues (Erixon, 2009). By the end of the 1940s, there were four major sanitary towel brands on the Swedish market, all produced by

Mölnlycke: Kronosept, Silkesept, Mimosept and Sanisept. Sanitary towels were also produced on a far lesser scale by the Stockholm firm Beckers in two varieties: Vera and Sanetta. International sanitary towel brands did not enter the Swedish market until much later in the 1980s.

*1940–1950: safety for the modern woman*

Despite the arrival of commercial menstrual products in the 1930s, the topic of menstruation was considered taboo, as were the bodily processes and bodies associated with it (Mørk Røstvik, 2018). Therefore, advertisements did not overtly address the topic, instead depicting menstruation as a “secret” that “nobody will ever find out”. By the 1940s, this “secret” was emphasised across brands by images of smiling women dressed in white and taking part in a range of sports, subtly implying that sanitary towels offered protection, confidentiality and even purity. Consumers were informed that sanitary towels were “for modern hygiene”, yet were left to connect the dots because neither were the images of the pads included nor were there any descriptions of or references to their purpose. Instead, this was implied through an emphasis on safety, with captions telling women that they can “move around securely” or that the brand gives a “lovely feeling of safety in all situations”.

*1950–1953: the transformational power of menstrual pads*

As news reached Sweden about the potential benefits of chlorophyll in stopping odours, Mölnlycke saw a new opportunity and immediately started adding the pigment to its sanitary towels under the new product line Mimosept Lyx, Lyx suggesting that chlorophyll made the pads exclusive and luxurious. Beckers, being a much smaller company, did not venture into this area of production, meaning that Mölnlycke had a monopoly of the market for chlorophyll sanitary towels – something that it was keen to emphasise in its advertisements (“the only pad packed with chlorophyll”).

In many ways, Mölnlycke stuck to the same marketing practices as before, using images to covertly indicate that menstruation should not prevent women from having fun, participating in sports or dressing in light colours. However, now, it accentuated the role of chlorophyll in this process, singling out the pigment as purely responsible for an “increase in safety and hygiene”. Many sanitary towel advertisements emphasised the wonders of chlorophyll through imaginary scenarios designed in comic book style with vignettes and speech bubbles. Similar vignettes can be found in other beauty product advertisements of the era (Eriksson and O’Hagan, 2021), as well as in historical advertisements for the Scottish carbonated soft drink Iron-Bru (Leishman, 2019) and US porridge brand Cream of Wheat (Parkin, 2021), all serving to inject a sense of fun into the product. The Mimosept Lyx vignettes had such titles as “Her first seaside holiday” or “Her first big exam” and then proceeded to follow the same format: the woman has a big occasion, her period arrives and is set to spoil it, but her friend/mother offers her a chlorophyll sanitary towel, which saves the day. Not only does the pad guarantee her “maximum safety and hygiene” but it also has broader positive outcomes, that is, she finds the man of her dreams and passes her exam. In these vignettes, the word “menstruation” was not mentioned; instead, it was referred to with the pronoun “it” and described as “turning up” and making you “off form”. In personifying menstruation through action verbs and value-laden language, the advertisements accentuated it as something unsettling but that can be corrected by chlorophyll.

Another major feature of these advertisements was an emphasis on nature. Since the late nineteenth century, nature had been used by the cosmetics industry as a way of circumventing taboos around bodily functions and effluvia, but the discovery of chlorophyll offered a new way to make this link. Through the use of green typography and images of

leaves, sanitary towel brands framed pads as being “intrinsically good” and making “life easier to humankind” (Andersson, 2019), but in a strange way, they also advocated correcting nature (i.e. menstruation) with nature. Consumers were told that the products were “reinforced with chlorophyll” to make the “perfect pad” and that every pad was “checked by the Red Cross”. At no time is it explained exactly how chlorophyll made pads “perfect” or even why the Red Cross was checking them. Nonetheless, these statements built credibility and a sense of security around the product, as well as a case for chlorophyll as transformational for women’s hygiene.

#### *1954–1964: cotton and D5 as safety devices*

Just as with toothpaste/mouthwash, once the health benefits of chlorophyll were found to be false, Mölnlycke immediately discontinued its chlorophyll sanitary towels. Advertisements dropped the use of green, reverting to monochrome formats, and re-established their pre-chlorophyll practice of promoting sanitary towels as safety devices rather than sources of transformational power. However, this was achieved now by drawing attention to another new innovation in the world of women’s hygiene: cotton. Advertisements showed images of women whispering to one another that “it must be cotton”, with supporting captions stating that Mimossept Lyx is made of “high-class cotton” that “stops irritation”. The advertisements also emphasised that the pads now contained “D5”, which was “the most effective odour repellent” – a claim made by chlorophyll just one month before. Menstruation, however, still continued not to be mentioned directly. This practice persisted in female hygiene advertisements until 2017 when Bodyform broke taboos by showing blood for the first time (Mørk Røstvik, 2018).

#### *“Now the first chlorophyll sanitary towel has arrived”: a multimodal critical discourse analysis*

The advertisement in Figure 2 announces the arrival of a Mimossept chlorophyll sanitary towel and was printed in November 1952 across local and national newspapers. It is presented alongside two other Mimossept advertisements – from 1942 and 1954 – to showcase how the brand’s marketing practices evolved over time (these will not be analysed because of space constraints).

The large green image of a leaf stands out against the otherwise black and white paper. The leaf is tilted on its side and is heart shaped, drawing on “sensory modality” to frame Mimossept as a brand that cares for its consumers (Ledin and Machin, 2020, p. 78). On top of the leaf is a 3D image of a box of Mimossept. The 3D injects an impression of “high modality” into the image (Kress and van Leeuwen, 2006, p. 65), signalling Mimossept as a practical, real-life solution, yet its actual purpose is not overtly stated in line with taboos over menstruation (Mørk Røstvik, 2018). Viewed in contrast to the two-dimensional leaf below, we see a potential conflict between the fantasy of chlorophyll, given that the chlorophyll in products is artificially produced in a laboratory and the reality of the packet of sanitary towels. However, the average consumer will not see this conflict and instead interpret the two elements as intrinsically connected because of their overlap (Ledin and Machin, 2020, p. 182).

The text above the leaf tells us “now the first chlorophyll sanitary towel has arrived”, with chlorophyll written in a bright green, larger font. There is no explanation of what chlorophyll is, what its arrival means to consumers, whether it is positive and why, but the way it is framed leaves little room to question its importance. Under the leaf is the claim that “Nature corrects what nature has messed up.” In describing menstruation as “nature” that is “messed up” turns a normal part of a woman’s life into something abnormal and fits with the historical belief that menstruation was unclean (Mørk Røstvik, 2018). This “problem” is





**Figure 2.**  
Mimosept  
advertisements

**Source:** (From left to right) “She moves around just as safely” 3 July 1942, p. 10, Svenska Dagbladet, “Now the first chlorophyll sanitary towel has arrived” 15 November 1952, p. 9, Svenska Dagbladet and “It must be cotton” 18 May 1954, p. 9, Svenska Dagbladet

then offered a solution in the form of another type of “nature”: chlorophyll. Thus, here, we see the same word being used in opposing ways: the “negative” nature of menstruation can be countered by the “positive” nature of chlorophyll. This statement is paradoxical, given that the chlorophyll in products is artificial, while menstruation that is natural is deemed unnatural. Moreover, the claim that chlorophyll “corrects” nature is confusing and leads readers to make their own minds up about its meaning. We are not sure whether wearing a chlorophyll sanitary towel stops periods, improves periods or takes away unpleasant odours. This confusion is added to by the next line “now you can feel chlorophyll-safe”. The advertisement does not explain the function of chlorophyll, so it is impossible to know what feeling safe means or how safety is defined in this context. Nonetheless, the buzzword works because it is recognisable enough for consumers to develop their own understandings and connotes a message of care and concern for the women who purchase the product (Vincent, 2014, p. 246).

The bottom of the image shows a green banderole with the brand name on top. The tag “lyx” suggests that chlorophyll makes the sanitary towel exclusive and luxurious, although there is nothing to indicate why. The italicised typography is also in keeping with notions of luxury, yet equally suggests handwriting and something artisan or traditional (Ledin and Machin, 2020, p. 135). This links the products back to when hygiene was something carried out at home by mothers and grandmothers, thereby making the claims feel more convincing (Santos, 2020). The other main image of the advertisement is a stylish middle-class blonde woman, dressed in a cloche hat, skirt suit, gloves and make-up and carrying a fan. Her sophisticated appearance strengthens the idea of the product being deluxe and, therefore, only accessible to those in the know. She is depicted from an oblique angle with her head facing away from the viewer, turning her into an act of “offer” (Kress and van Leeuwen, 2006) as viewers are encouraged to observe her. Although the connection between the woman and Mimossept is not immediately obvious, the way that the leaf overlaps her legs suggests that she has her period but is able to carry on her daily life trouble-free because of chlorophyll. Thus, through its advertisement, Mimossept promises consumers that their product is natural, safe and will improve their lives, yet without explaining exactly how and why.

### Case 3: soap

Soap first began to be manufactured industrially in the early nineteenth century, following increasing public awareness of the connection between health and hygiene. Across Sweden, national health campaigns were launched to teach the public about the importance of using soap, not just to prevent diseases but also to encourage respectability and pride in one's appearance. Therefore, soap quickly became imbued with physically and spiritually purifying functions (Bure Wijk, 2020). Sweden's first soap factory was established by Göta Lejon in Gothenburg in 1812. By the turn of the twentieth century, there were 37 soap factories across the country, with Henrik Gahns AB being the largest manufacturer. International soap firms, such as Palmolive, Dove and Lux, first entered the Swedish market in the late 1920s, growing quickly into the biggest brands as a result of their extensive marketing.

#### *1940–1950: new femininity and sexual attractiveness*

Before the arrival of international soap brands in the late 1920s, Swedish soap brands had emphasised the scientific nature of soap in their advertisements, capitalising upon its disinfecting and antiseptic properties. The international brands, however, came with a new lifestyle approach, presenting soap as essential for women in maintaining high standards of beauty. Soon, national soap brands adopted this international practice. Thus, by the 1940s, all soap brands on the Swedish market used images of glamorous women in the style of Hollywood starlettes to promote a new femininity that emphasised sexual attractiveness rather than maternity. Yet, at the same time, they emphasised the notion of “natural beauty” that could be improved upon through the use of soap (Hutchings, 2000).

#### *1950–1953: the scientific key to natural beauty*

Shortly after the discovery of chlorophyll, Palmolive launched a chlorophyll soap onto the Swedish market. Gradually, Swedish brands followed suit, releasing their own varieties of chlorophyll soap, although none could compete with the advertising might of Palmolive. Across brands, a major change that occurred was a reversion back to scientific discourse in advertisements, even in the case of Palmolive who had not used this strategy previously. However, brands did not drop their focus on women's beauty or lifestyle aspirations;



instead, they created a hybrid format, whereby science was harnessed to justify the importance of soap to improve natural beauty. Given chlorophyll's origins in plants, it played perfectly into brands' long-standing arguments that soap could enhance a woman's natural beauty. Thus, nature became framed as something that could be so improved upon that it became impossible to tell where a woman in her natural state left off and the improvement began (Hutchings, 2000).

This was apparent in the headings of advertisements, which frequently informed consumers that they could "get more naturally beautiful skin in just 14 days" by using chlorophyll soap and that it had been "scientifically proven by doctors". Images of doctors and scientists not used since the 1920s were now reintroduced into advertisements, but this time, they were inspecting the skin of beautiful, young women with magnifying glasses to emphasise their youthfulness. Other male figures were also introduced into advertisements in the form of handsome Hollywood stars with pencil-thin moustaches and tuxedos. They were often depicted in an embrace with the women or even kissing them on the cheek. Accompanying captions emphasised that it was the chlorophyll in the soap responsible for this attraction, therefore extending the pigment's actual properties to sell an experience or an adventure. Similar strategies can be found in other advertisements of the period for beauty products (Schweitzer, 2005), as well as in advertisements for products as diverse as nerve food (O'Hagan, 2019), chewing gum (O'Hagan, 2020) and cod liver oil (O'Hagan and Eriksson, 2022).

Like the advertisements for toothpaste/mouthwash and sanitary towels, nature was emphasised through the use of green typography and images of flowers and leaves. However, these images were more subtly embedded, with women holding bouquets of flowers in their hands and smiling up at the male protagonists. In this way, chlorophyll was depicted as part of the everyday life of women, yet tapped into the idea of beauty enhancements as being something that must be kept hidden from men (Wolf, 1990). Such images, thus, accentuated the natural properties of chlorophyll, as well as its ability to keep a woman looking young and fresh, but guaranteed that men would not discover the secrets of their sexuality. This resulted in a strange dual goal of promoting female inadequacies to encourage uptake of the chlorophyll soap, yet at the same time, of hiding its usage from others so that the woman appeared naturally beautiful (the very thing that she was shamed for in the first place).

Another recurring feature in these advertisements was the claim that the soap was green because of chlorophyll. However, green was already the predominant colour of soaps because of their combination of vegetable oil and glycerine. Such strategy demonstrates how a colour produced by a technological process can become colonised, shaped and remarketed to fit marketers' arguments. A similar technique was used by cod liver oil brands of the time when manufacturing processes were refined, resulting in a whiter product (O'Hagan and Eriksson, 2022). In this period, white was often exploited in this way in food marketing because of its long associations with purity, as well as its racial connotations of superiority (O'Hagan, 2020).

#### *1954–1964: living models as symbols of trust*

As soon as chlorophyll was found to be a hoax, all chlorophyll soaps were immediately withdrawn from the market. Brands also rapidly shifted their marketing focus, now returning once again to lifestyle (only Palmolive kept a vague scientific reference in its advertisements, claiming that doctors endorsed its 14-day skincare regime). Some brands introduced Hollywood stars and well-known Swedish actresses into their advertisements (e.g. Ava Gardner and Märta Torén) to show that every woman could

become more like them if they purchased the “right” products (Schweitzer, 2004). Others instead depicted “everyday” Swedish women, informing them that they are “prettier than [they] think” in an attempt to make a personal connection with consumers and rebuild the trust that had been lost as a result of the chlorophyll scam. The only exception to this lifestyle approach was a new brand Oral Nerve Soap, marketed as a “scientifically composed soap” guaranteed to “stimulate the nerves”. Within just five months, it had disappeared from the market – a clear sign that consumers were anxious to trust in science so soon after being let down by it.

All that  
glistens is not  
(green) gold

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*“Nature’s own chlorophyll”: a multimodal critical discourse analysis*

Figure 3 shows an advertisement for a chlorophyll soap released by Palmolive in 1952. The same advertisement was published regularly for the next year across local and national newspapers. It is also accompanied by two advertisements from 1942 and 1958, that make clear how Palmolive responded to the discovery of chlorophyll, as well as the news that it was a hoax (these will not be analysed because of space constraints).

Its bright green headline declares “NATURE’S OWN CHLOROPHYLL”, with “IN PALMOLIVE SOAP” written below in smaller black print. These words are attention-grabbing and set up the product as something natural, thereby removing soap from its laboratory setting and placing it within the great outdoors. Below the headline is a large image of the soap in bright green, its matching green wrapper coiled so as to resemble fallen

The figure consists of three separate advertisements for Palmolive soap, arranged horizontally. The central advertisement is the largest and most prominent, featuring a bright green headline that reads "NATURENS EGET KLOROFYLL I PALMOLIVE TVÅLEN!". Below the headline, there is a photograph of a Palmolive soap box and a woman's face. The text around the soap box includes "Det är naturens eget klorofyll som ger Palmolive dess gröna färg!" and "Vad är klorofyll?". The bottom of the central ad features a large headline: "Amerikanska läkare har bevisat att Palmolives skönhetsmetod ger de flesta kvinnor vackrare hy på endast 14 dagar!". To the left of the central ad is a smaller advertisement from 1942, showing a woman's face and the text "Tvål och våtan ingår i min skönhetsvård". To the right of the central ad is another smaller advertisement from 1958, showing a woman's face and the text "Ni är vackrare än Ni tror!".

**Source:** (From left to right) “Soap and water are part of my beauty care” 8 March 1942, p. 12, Svenska Dagbladet, “Nature’s own chlorophyll in Palmolive soap!” 5 October 1952, p. 5, Svenska Dagbladet and “You are prettier than you think” 9 March 1958, p. 12, Svenska Dagbladet

**Figure 3.**  
Palmolive  
advertisements

leaves. The black ribbon running around is suggestive of a sash placed over the winner of a competition, subtly indicating that Palmolive soap is superior and high quality.

The soap is flanked by two text blocks framed by green arrows that point directly at it, making it the nucleus of attention and the reference point for the written messages (Ledin and Machin, 2016, p. 333). The left-hand text states “It’s nature’s own chlorophyll that gives Palmolive its green colour!” In implying that it is nature that has made the soap green, Palmolive removes the scientific process behind its colour, thereby turning the soap into a mystical product with unique properties. The right-hand text asks, “What is chlorophyll?” before informing consumers that: “it is more than plants’ green colour, for chlorophyll is the life-giving substance in every plant. It’s chlorophyll that gives Palmolive its luscious green colour—give yourself nature’s freshness.” The description of chlorophyll as a “life-giving substance”, again, imbues it with mysticism, overexaggerating its potentials and suggesting that it will give consumers vitality and sustenance. In this way, Palmolive soap is equated to the Fountain of Youth or Elixir of Life rather than a simple washing product. The repetition of why Palmolive soap is green further drives home the message that chlorophyll is something special, while the direct address and description of chlorophyll as “nature’s freshness” is emotive, suggesting that using Palmolive soap is just as good for you as walking in the forest or swimming in the sea. Thus, the soap offers a chance for consumers to explore the outdoors in the comfort of their own home, offering them an experience not just a product.

Underneath the soap in a new frame are two black and white photographs of beautiful women using the product. Both resemble Hollywood actresses and look directly at the viewer. This act of “demand” (Kress and van Leeuwen, 2006) is provocative, teasing viewers into observing their skin and bodies in a bid to showcase the benefits of chlorophyll soap. The way the soap overlaps the vignettes, as well as the way that the women’s heads exceed them, indicate their interconnection (Ledin and Machin, 2018, p. 182), leaving no room for doubt that it is chlorophyll responsible for their healthy appearance, despite the fact that all scientific experiments focused on chlorophyll’s deodorising abilities only. The woman on the left-hand side is topless and displayed from the chest up as she rubs soap on her face. The caption in green states “NEW FOR YOUR SKIN”, before continuing: “Palmolive’s beauty foam cleanses and beautifies at the same time.” Roy (2002) notes that buzzwords are often words that are new, different, euphonious and loosely connected to science. Here, “beauty foam” creates an iconic idea to which consumers can attach special or even magical meanings, believing that the soap has the ability to make them more beautiful. The woman on the right-hand side lies in a bubble bath, the caption underneath stating, “NEW FOR YOUR BEAUTY BATH [. . .] Enjoy Palmolive’s exquisite perfume in the bath and shower.” Again, the concept of a “beauty bath” invites readers to move in a particular direction (Vincent, 2014, p. 246), suggesting that to use Palmolive soap is to become more beautiful. None of the two images or captions is explicitly to do with chlorophyll, yet the green font subtly signals their relation, thereby connoting the pigment’s beautifying properties.

A clear footing shift is apparent in the next section of the advertisement, which is text-heavy and focuses more on the science behind Palmolive soap. A long bold headline marks a boundary with the nature aspect of the advertisement (Ledin and Machin, 2018, p. 182), stating: “American doctors have proved that Palmolive’s beauty method gives most women more beautiful skin in only 14 days!” The term “American doctors” is an impersonalised and abstracted reference to expertise that cannot be traced or, indeed, proven to be true. Nonetheless, it adds scientific credibility to the product, particularly as the USA was then associated with progress and was a country to which many Swedes emigrated (O’Hagan and Eriksson, 2022). This credibility is further strengthened by the accompanying

image of a middle-aged man in a white lab coat, a pair of glasses in one hand and a microscope in the other – all visual indicators of intelligence and knowledge. The box alongside the image states that “36 leading American doctors” did “1285 scientific tests” that proved Palmolive’s effectiveness. Although there is no information provided on the types of tests carried out, by whom and for what purposes, the term “leading” and the large numerical quantities are convincing.

The sections of small print reveal that these scientific tests have absolutely nothing to do with the addition of chlorophyll to Palmolive soap; rather, they refer to Palmolive products more generally and their supposed ability to make women more beautiful. Nonetheless, readers are likely to connect this information with the images and green colours above and assume that chlorophyll is responsible for such effects. The paragraphs go on to state that “from the first time” consumers try Palmolive’s “beauty method”, they will appreciate how it “cleanses and beautifies” and it is “all [they] need for excellent skincare”. The buzzword “beauty method” signals a scientific process, thereby rationalising its skincare outcomes, even though none of the scientific tests on chlorophyll were related to this area.

The text continues: “Remember that 36 American doctors through 1285 scientific tests have proven [...]”, the repetition emphasising the scientific nature of the product. Consumers are then told that they can “try the method for [themselves] at home” and “see results within 14 days.” This direct address and sense of challenge signals high modality, making Palmolive very confident in the claims they put forward. Finally, clear instructions are offered to consumers, advising them to “massage in the foam for just under 1 minute”, “rinse and pat skin dry” and “do this 3 times a day”. In providing this advice, Palmolive takes on an authority role, mimicking a doctor giving out a prescription to a patient. By following these instructions, consumers are guaranteed to get “fresher, cleaner, prettier skin today”. The paragraph ends with the bold statement “see how beautiful you are”, suggesting that it is only through the use of chlorophyll soap that one’s real beauty will become apparent.

Underneath this text block is the strapline “Palmolive—The chlorophyll green soap with the white beauty foam”, “green” and “white” marked in their respective colours. The fact that the soap is described as “chlorophyll green” highlights the importance of the pigment, while white plays upon connotations with purity in terms of cleanliness, morality and safety (O’Hagan, 2020). Used together, Palmolive is able to frame itself as both natural and scientific, while also playing to wider concerns about women’s health and feminine ideals.

## Discussion

From the three case studies, we can see how canny manufacturers instantly responded to the discovery of chlorophyll, launching new products onto the market and/or rebranding old ones and promoting them through extensive marketing that emphasised the supposed benefits of the green pigment. Furthermore, as soon as chlorophyll was revealed to be a hoax, we see how all chlorophyll products were immediately discontinued and brands reverted back to their previous marketing strategies or turned their attention to the next big trend, thereby demonstrating the fickleness of the advertising industry and the fast pace at which it moves. Across brands and products, four overlapping themes reoccur in their advertisements: science, nature, idealised femininity and luxury. They work together to embed chlorophyll in expert authority yet simultaneously promote it as a natural and exclusive way for modern women to maintain high standards of beauty. Within these themes are a series of sub-themes that can be articulated into arguments around the benefits of chlorophyll and are conveyed multimodally. They reveal how brands overtly or covertly use language and other semiotic resources to tap into consumers’ insecurities and sell their

products. While these themes and sub-themes/arguments have been touched upon in the previous analysis, this section will discuss them in more detail.

Given the scientific origins of chlorophyll, it is unsurprising that **science** became a core aspect of brands' marketing strategies. Scientific discourse was first introduced to marketing in the 1880s, but its usage grew particularly in the early twentieth century as scientific knowledge developed and manufacturing processes became increasingly technologised (O'Hagan, 2021a). By the 1950s, the scientific rationalisation of home management, beauty and well-being was firmly established as a method to sell products (Scheire, 2015). Thus, marketers simply adhered to this tried-and-tested formula with chlorophyll, whether by drawing upon the medical origins of toothpaste/mouthwash and soap to show how chlorophyll acted on the body or more subtly in the case of sanitary towels by framing them as "the best that science and research can offer".

Five key arguments can be identified under this theme. The first concerns sanitation and the belief that *science is essential to achieve cleanliness and hygiene*. This belief is also strongly tied up with the notion of purity, in itself having gender, class and even race connotations, with advertisements connoting that those who were unwilling to embrace this new scientific advancement were irresponsible and did not comply with norms of healthiness (O'Hagan, 2021b). The second promotes the notion that *science is necessary to combat ageing* and frames beauty and youth as scientific methods. In other words, female consumers were encouraged to dispense with kitchen physic and traditional word-of-mouth advice networks (i.e. mothers, aunts and grandmothers) and instead embrace laboratory-made products and the intervention of experts (i.e. scientists and doctors) with evidence-based guidance (Barker, 2009).

Linked to this are the third and fourth arguments that *science is progressive/modern and, therefore, truthful*. Through the use of scientific buzzwords, illustrations, technical descriptions, infographics and testimonials, brands imbued chlorophyll products with high authority and credibility, leaving little room for consumers to question the information presented. As Loeb (1994, p. 78) notes, most consumers assigned experts status on the grounds that they possessed cutting-edge knowledge that they did not have and, therefore, did not question the veracity of the information presented. Again, this emphasises how science in marketing encouraged a move away from "thick" networks of friends and family to "thin" networks based around institutions and authority figures (Putnam, 2000). Finally, the fifth argument is that *science is safe*. Consumers were frequently told that chlorophyll is safe (although no evidence was provided as to why) in a bid to reassure those who might be reluctant to try these new products. By reiterating safety, brands symbolically communicated a discourse of safety, even though consumers had no pre-established knowledge or supporting evidence to determine whether this was actually the case. Similar strategies can be found in the historical marketing of radium-based products (Eriksson and O'Hagan, 2021) and nerve food (O'Hagan, 2019).

Another core theme that cuts across advertisements is **nature**. It may seem contradictory for science and nature to be co-deployed in advertisements, but this was, in fact, common in early twentieth-century marketing (O'Hagan, 2021b, Eriksson and O'Hagan, 2021, 2022) and can still be found today, particularly in the marketing of cosmetics and toiletries (Kenalemang-Palm and Eriksson, 2021). Santos (2020) notes that this approach was not as paradoxical as it might seem because beauty was originally a kitchen physic, where preparations were made at home using plants, flowers and herbs. Therefore, as products became taken out of the domestic context, beauty companies exploited this tradition in their marketing to invoke feelings of homeliness and safety, yet also added supporting scientific evidence to modernise and validate these traditions. Although the



chlorophyll in products was made in a laboratory, marketers recognised an opportunity in emphasising its natural origins to achieve specific communicative goals. In accordance with the nature theme, four major arguments can be identified.

The first is an emphasis on a *return to nature or harmony with nature*. Across advertisements, brands presented chlorophyll as a way of helping consumers escape from the hustle and bustle of modern life and return to a back-to-basics way of living. This idea fit with the then-popular Physical Culture Movement, which saw healthy bodies as an “obligation of citizenship” that was essential for a country’s economic success and social harmony (Zweiniger-Bargielowska, 2006, p. 596). It drew on a self-help ideology that advocated that one should take responsibility for their own health to limit the burden they might place upon society, which bears striking similarities to how neoliberalism works today in marketing (Andersson, 2019; Chen and Eriksson, 2021). This idea was also tied up with the concept of *nature as a form of romantic nationalism*. While nationalism in early twentieth-century marketing was linked with politics in most European countries, in Sweden, it was cultural, driven by Swedish intellectuals and focused specifically on cultural traditions and the great outdoors as fundamental to the Swedish character and temperament (Andersson, 2019; Chen and Eriksson, 2021). Historical examples of romantic nationalism in Swedish marketing can be found in advertisements for beauty products (Severinsson, 2018), the Olympic Games (Tolved, 2008) and even agricultural machine catalogues (Alsvold, 2005). Here, tradition was seen as fundamental to modernity, a way of declaring a nation was forward-thinking yet in touch with its roots. Such strategies can still be found in Swedish advertising today to promote the principles of openness, freedom, equality and collective responsibility (Andersson, 2019).

The third argument is that *nature can correct the consequences of one’s lifestyle or body*. In line with what Apple (1996) calls the “reason why” technique, brands presented a problem and then offered their product as a solution. In the case of this study, bodily consciousness and disdain of natural functions were emphasised, with consumers warned of the dire social consequences they would face if they did not look young or had bad breath/body odour. Through this assertion, normal bodily processes such as perspiration or menstruation were made abnormal and viewed as dirty. Furthermore, consumers who did not trust in chlorophyll to correct them were seen as deviant. This shaming tactic was (and still is) commonly deployed across advertisements for anti-ageing creams and deodorants (Hutchings, 2000). As Mørk Røstvik (2018) has shown, nature also offered an effective way to bypass societal taboos around bodily functions and effluvia; in emphasising forest smells and freshness, brands distanced themselves from the scientific and medical and instead focused on creating an experience for consumers that associated their products with the great outdoors and, therefore, shaped attitudes towards personal cleanliness and hygiene. Similarly, nature is presented as *mysterious and quasi-mythological*. In most advertisements, consumers were not told exactly what chlorophyll did or its abilities were even overstated, turning it into a magical elixir that was guaranteed to make them younger or more beautiful. Advertisements for radium-based products (Eriksson and O’Hagan, 2021), cod liver oil (O’Hagan and Eriksson, 2022) and protein-enhanced food (O’Hagan, 2021b) also use this strategy, making the products more accessible to consumers by removing them from the realm of elite science and linking them with naturopathy.

Underpinning all of these advertisements is the third theme of **idealised femininity**. While sanitary towels had a clear female market, toothpaste/mouthwash and soap became feminised through clever marketing, all three products focusing on women’s bodies and the idea that they were a site on which social rules of conduct could be inscribed (Mandziuk, 2010). Across advertisements, women were the main protagonists, portrayed as



young, glamorous Hollywood starlettes rather than typical middle-aged housewives. Thus, the advertisements became “magic mirrors” (Runefelt, 2019a) through which women saw their potential if only they disciplined and reshaped their bodies in accordance with expected norms of beauty. Here, a clear set of beauty standards were presented that supposedly increased physical attractiveness and not to adhere to them was framed as going against a woman’s feminine nature (i.e. by not purchasing a chlorophyll product). Chlorophyll, thus, was not only the right choice for smart and modern women to remain clean and beautiful but also empowering because it could offer women broader sociocultural aspirations, such as finding a boyfriend or passing an exam. What was fundamental, however, was the “mystique of feminine ideal” (Wolf, 1990), that is, that women’s “trick” to achieving these goals should remain a secret. Thus, brands emphasised that the average woman could realise her own beauty potential with their products, but that they must remain as natural looking as possible so as not to compromise their female identity. These themes were and still remain a common feature of cosmetics marketing, indicating how women’s insecurities have always been and continue to be a target for brands (Schweizer, 2005; Kenalemang-Palm and Eriksson, 2021).

The final theme that runs across advertisements is **luxury**. All brands frame their products as exclusive thanks to the addition of chlorophyll either directly through the use of value-laden words (e.g. “high class” and “lyx”) or indirectly through images that adhere to middle-class fashions. These techniques served to appeal to a middle-class target audience who had greater disposable income and were seen as highly susceptible to fashionable, rather than, necessary goods (Gurney, 2017). Luxury items have their own special register of consumption that cues rhetorical meanings related to taste and fashion regulation, semiotic virtuosity and the reproduction of elite status (Appadurai, 1996, p. 36). As such, it became a key part of marketing in the late nineteenth century and still remains important today. Although class divisions were not as strong in Sweden as other countries at this time, what Runefelt (2019b) calls a “democratisation of luxury” was a common and successful feature of Swedish advertisements. He notes how brands promoted products as exclusive, despite the fact that they were widely manufactured, and consumers anxious to distinguish themselves from others bought into these marketing messages. Chlorophyll stands as a clear example of the success of this democratisation of luxury strategy.

## Conclusion

This paper has sought to historicise the contemporary chlorophyll trend through the first academic study of its early marketing in Sweden. Using multimodal critical discourse analysis, it has presented three case studies of advertisements for products – toothpaste/mouthwash, sanitary towels and soap – that demonstrate the immediate response of brands to this new scientific discovery and how they used marketing to convince female consumers of chlorophyll’s necessity to fulfil certain aspirational goals. Brands cleverly blended together themes of science, nature, idealised femininity and luxury in their advertisements, using language and other semiotic resources to promote chlorophyll as a health-restoring substance that would improve the lives of women. By placing chlorophyll in the social climate of the period, advertisements resonated with women’s anxieties and desires, thereby giving weight to weightless claims about the substance. Key to this was an emphasis on technology, modernity and rationality, yet coupled with tradition, conservatism and respect for authority, as well as core Swedish values of individual responsibility, self-improvement and strong work ethic. Bearing strong parallels to contemporary neoliberalism, women were expected to work continuously on becoming the best version of themselves. Yet, this best version was only possible through the *right* consumption practices (in this case, purchasing

chlorophyll products), thereby turning their bodies into gateways to freedom and empowerment rather than their minds.

From 1950 to 1953, Swedish newspapers were flooded with chlorophyll advertisements. However, the trend ended abruptly in 1954 when damning reports found that its deodorising effects were simply not true (Smith, 2019). Since 2021, there has been a steady growth of interest in chlorophyll once again as a result of social media influencers presenting it as a “new” cure-all wonder nutrient. Its rapid uptake by young women in particular showcases just how impressionable this audience can be, particularly when authority figures tap into their insecurities with promises around beauty, hygiene and health. Despite more stringent regulations on false advertising today, chlorophyll advertisements like those of the 1950s are starting to reappear. This is because most directives concern text and do not account for how images, colour, font, texture, layout and composition can be used to imply what cannot be overtly claimed in writing. By reconstructing the roots of this seemingly contemporary phenomenon, we can help consumers to cast a critical eye over the claims put forward about chlorophyll in ways that they may struggle to do when they are too close to the trend. Paying greater attention to the broader history of chlorophyll and the way that semiotics have been manipulated over time to make claims about its functions can, thus, empower us to recognise that all that glitters is not (green) gold.

## Notes

1. In Sweden, the Feast of Saint Lucia is celebrated on 13 December to commemorate Lucia of Syracuse who brought food and aid to Christians hiding in the Roman catacombs under the Diocletianic Persecution, wearing a candle lit wreath on her head so as to carry as much food as possible in her hands. On this day, towns and cities across the country hold processions, where girls dress in white robes and carry cookies and saffron buns.
2. After mounting criticism from politicians, consumer activists and public intellectuals, the cartel was disbanded in 1965. Six years later, in 1971, an extensive state-run institutional structure for protecting consumer rights was implemented. This included the Market Practices Act, a Consumer Ombudsman and a Market Court (Funke, 2015, p. 21), all of which paved the way for the marketing laws and consumer policies of today.

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### About the author

Lauren Alex O'Hagan is a Researcher in the School of Humanities, Education and Social Science at Örebro University, Sweden, where she works on the "Selling Healthy Lifestyles with Science" project. She specialises in performances of social class and power mediation in the late nineteenth and early twentieth century through visual and material artefacts, using a methodology that blends social semiotic analysis with archival research. She has published extensively on the sociocultural forms and functions of book inscriptions, food advertisements, postcards and writing implements. Lauren Alex O'Hagan can be contacted at: [lauren.ohagan@oru.se](mailto:lauren.ohagan@oru.se)