



NATIONAL COLLEGE OF ART & DESIGN
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**"THE EFFECT OF UNDERGARMENTS
ON WOMEN'S HEALTH IN 19TH
CENTURY BRITAIN"**

BY

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INTRODUCTION

Britain in the nineteenth century was an age of prosperity. The industrial revolution brought many inventions and technological advances which quickened the pace of life and transformed the nature of communications.

An earnest moral outlook was applied to every aspect of life, particularly the introduction of machinery and coming to terms with the machine-made object. While many liked the modernity, perfect finish and availability of manufactured goods, others deplored their poor design and the lack of discrimination of the public. The fear of losing social values and tradition and a rejection of the materialism of contemporary life encouraged a nostalgia for the past.

New wealth and opportunities created a more fluid social structure which tended to blur the old distinctions of birth, breeding and education. In order to strengthen what was perceived as the old order, complicated rules for manners and clothes were developed and etiquette became an important means of distinguishing one class from another.

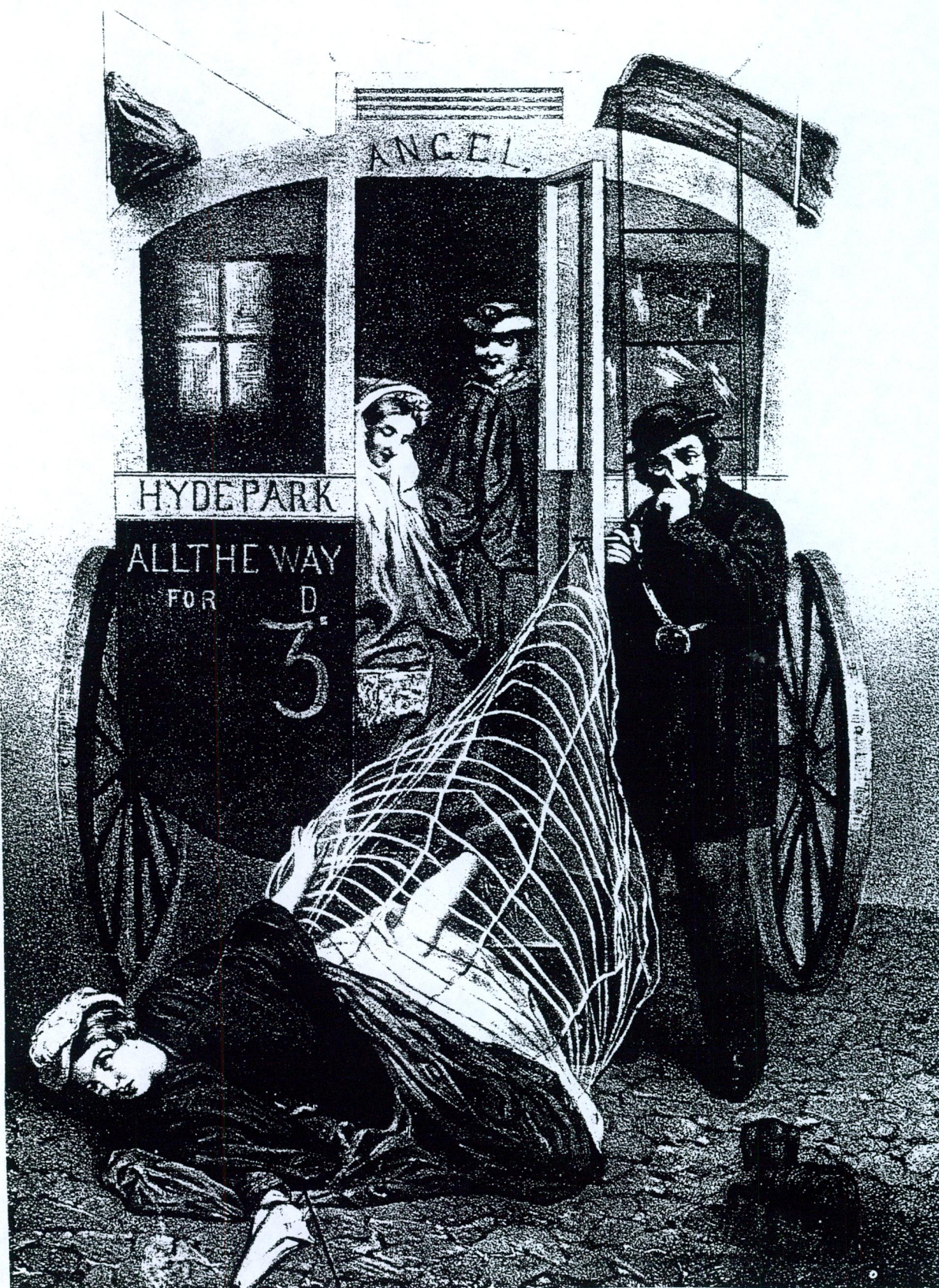
During the middle decades of the nineteenth century it seemed as though women were imprisoned by their clothes. The crinoline and bustle put a distance between them and the approaching male, making them seem inaccessible and untouchable.

Although incidents occurred in which women were burnt to death from standing too close to fires, or trampled to death by their cages catching in carriage wheels, crinolines and bustles had little direct effect on women's health. They were more of a hindrance than a hazard, causing inconvenience to the wearer.

This thesis, however, is primarily concerned with the manipulation of the female body through corsetry and the consequent detrimental effect of tight-lacing. The issues of eroticism, mass production and advertising of corsets have merely been outlined briefly in this discussion so that the reader can understand the nature of Victorian society.

In Chapter One, I will be discussing women's role in society and the attitudes towards them in relation to their dress, and the disfigurement of their bodies to achieve what was deemed the Victorian ideal. Chapter Two, will be concerned with the advances in the Industrial Revolution in relation to corsetry and how improved methods in cutting, construction and design helped to maintain the unyielding tight waist. The effects of tight lacing on the health of Victorian women and the health warnings by the medical profession at the time will be discussed in Chapter Three. Chapter Four will outline the materials used in undergarments and how they relate to hygiene and cleanliness. I will be discussing Dr. Gustave Jaeger's theories on the wearing of wool next to the skin and the effect of the chemical aniline dyes, introduced in 1856, on the health of women. Chapter Five will contain an overview of both the dress reformers and physicians fight to sway public opinion and promote healthy dress. I will discuss how the introduction of sport for women had a notable effect on the liberation of women from the evils of corsetry.

Figure 1: Print from the 1860's. Perils encountered from wearing crinoline.



CHAPTER ONE

THE VICTORIAN IDEAL

Women in Victorian Britain lived a male dominated society where education and position were the preserve of men. Women were brought up to be submissive, to comply with the Victorian ideal of service and devotion to men. This ideal was personified by the sombre persona of Queen Victoria herself, who held the throne for sixty four years (1837-1901).

While it was accepted that lower class women would work both in and out of the home, middle class women worked solely inside the home.; only those left destitute were permitted to work, and even then they were limited to teaching or sewing, as their education ensure that they were fit for little else.

Upper-middle class women, on the other hand, were able to develop the Victorian ideal to the full, as they did not work either in or outside the home.

In accordance with the Victorian ideal of the "perfect lady", her duty was to be beautiful, to please and to marry. Women strove to achieve beauty through dress, to please men and distinguish themselves from other women in the nineteenth century marriage market. It was necessary to maximise the attractions of one's appearance as it was considered a woman's worst fate to end up a spinster at the age of thirty. She was expected to subtly convey

"family status as well as personal desirability: seductiveness, albeit virginal; along with apparent submissiveness and a willingness to obey; the ability to run a household should be suggested; the ethereal qualities of the Angel in the House must somehow be combined with the suggestion of sufficient health, and strength to bear a large family." (Wilson, 1985, p123)

Once married, the "perfect lady" left housework to her servants, and her children in the hands of nannies and governesses. She devoted much of her attention to the arrangement of her toilette and the attendance at social gatherings. Considerable time was spent in the changing of clothes in order to be sure off being correctly dressed for all occasions. There was a strict etiquette about appropriate dressing, and its observance or neglect was considered an indication of ones position in society. Thus women adopted dress as a means of identity, defining both their social status and their respectability.

With the demise of the crinoline in the 1860's and the introduction of the bustle and sheath-like dresses, more emphasis was placed on the waist. Small waists were perceived as beautiful and elegant, and could only be achieve mechanically through the use of the corset. Women were "laced in" so tightly that breathing became difficult and spells of dizziness and fainting occurred frequently. This together with the narrow shaped shoes (which made walking difficult) served to strengthen men in their delusion that the were the protectors of these helpless, fragile creatures.

The Lancet published more than one article a year from the 1860's to the early 1890's on the medical dangers of tight-lacing, the doctors sometimes arguing that the frequency of the practice proved that there was "no need to adopt artificial measures for the repression of feminine brains" (Steele, 1985, p168).

A German anatomist, Samuel Thomas von Soemmering published drawings of the female skeleton in the late eighteenth century. He was criticised for showing the incorrect proportion of ribs to the hips: "Women's rib cage is much smaller than that shown by Soemmering, because it is well known that women's restricted lifestyle requires them to breath less vigorously". (Schiebinger, cited Gallagher, 1987, p59)

It was believed that as well as the woman's skeleton being different, her breathing also functioned differently to a man's. Havelock Ellis writing in 1910 stated that:

"until recent years it was commonly supposed that there is a real and fundamental difference in breathing between men and women, that women's breathing is thoracic and men's is abdominal. It is now known that under natural and healthy conditions there is no difference, but men and women breath in precisely identical manner." (Ellis, cited Rudofsky, 1972, p108)

Drawings of the female skeleton were also used to define women's role in society. In 1759, a French anatomist, Marie-Genevieve Charlotte Thiroux d'Arconville published drawings of the female skeleton. predictably she portrayed the female skull as much smaller than the males, and the female pelvis much larger than the male's. This was used to maintain the concept that women's intellectual capabilities were inferior to that of men and that they were structured specifically to produce children. This ideology existed throughout most of the Victorian era, as women appeared to have little other connection with an functional or responsible role in society.

Clearly, therefore, the representations of the human body in the eighteenth and the nineteenth century was laden with cultural values, reflecting contemporary ideals of masculinity and femininity.

In many instances, women were considered a beautiful objects to be admired rather than human beings. They were economically dependant on their husbands or fathers with little autonomy. Any effort to improve the education was considered unnecessary for fulfilling their role as mothers and wives as it was believed, (by men), that "too much learning would unsex a woman" (Vicinus, 1985, p134).

Many doctors were convinced that time spent studying would drain maternal energy and the possibility of infertility, brain damage or mental breakdown could result from overwork. As the American physician, Dr. Coleman, states in 1899

"Women beware. You are on the brink of destruction: You have hitherto been engaged in crushing your waists; now you are attempting to cultivate your mind Beware!! science pronounces that the woman who studies is lost." (Steele, 1985, p165)

Claims such as these, reinforced ideas of a women's role, and their inferior intellectual capacity. Women were encouraged to adhere to their occupations of attracting husbands by rendering themselves beautiful.

The Victorian definitions of beauty were prejudiced in favour of a specific type of woman, with a combination of physical attractions and moral sensibility. The corseted body represented the female physical ideal and was also considered a moral device. To be without a corset was to be without morals. This duality in the role of the corset, as a sexualizing device and as a moral device, is a typical example of the hypocrisy of the era. As Valerie Steele notes; "both the symbolism of the corset and the ideal of femineity were ambiguous, embracing at the same time the erotic and the respectable" (Steele, 1985, p161).

Fashion dictated that due to a woman's inherent inadequacies of form, the corset was essential to achieve beauty, but from a social perspective it functioned to define her role as a mother by emphasising her bosom and hips. This manipulation of the body involved much suffering and suggests an underlying masochism.



As psychoanalyst Anthony Storr points out,

"the purpose of abuse is not to inflict pain or to experience it, but to establish relations of dominance and submission. The pain involved is the most obvious and believable sign that one is willing to be truly submissive, and the other will be accorded total dominance" (Storr, 1964, p43)

Figure 2: Day dress with bustle, 1879.



CHAPTER TWO

CORSETRY IN THE INDUSTRIAL REVOLUTION

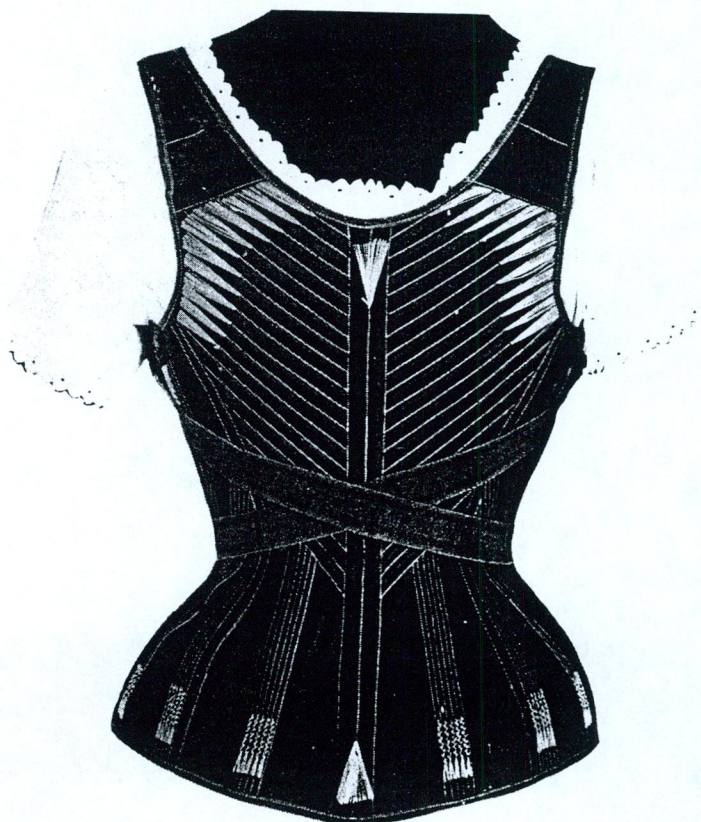
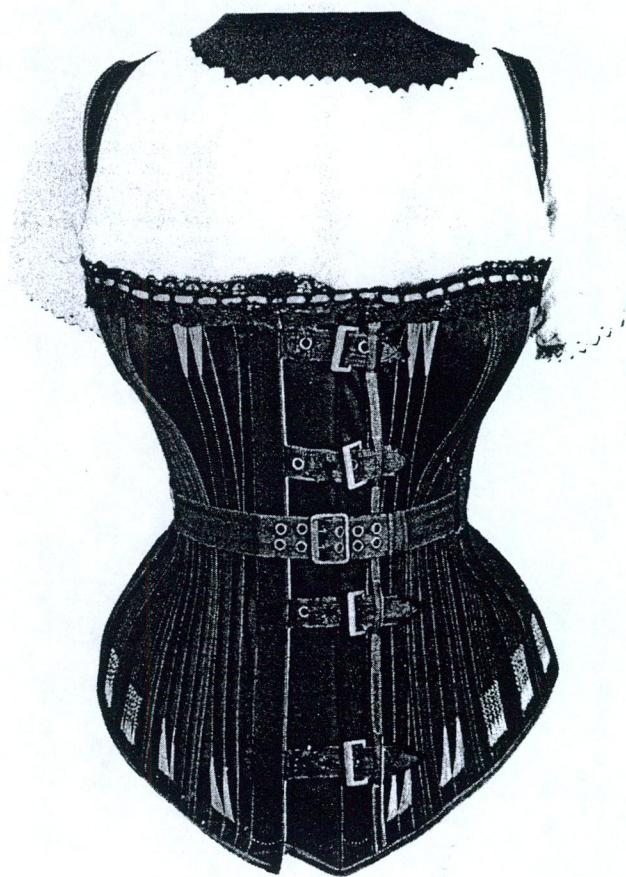
By 1860 Victorian Britain was approaching its peak of prosperity and confidence as the leading and most highly industrialised nation in the world. New techniques and inventions revolutionised production; the sewing machine being one of the most notable.

An American inventor, Isaac Merrit Singer patented the sewing machine in 1851 and established the company I.M. Singer. The invention of the sewing machine brought about the factory production of clothes and Mr. Robert Symmington claimed to be the first person to bring the Singer machine to England in 1855. He saw the potential of the continuous stitch and developed his family business, Market Harbourn in Leicestershire, into an immense corset making company.

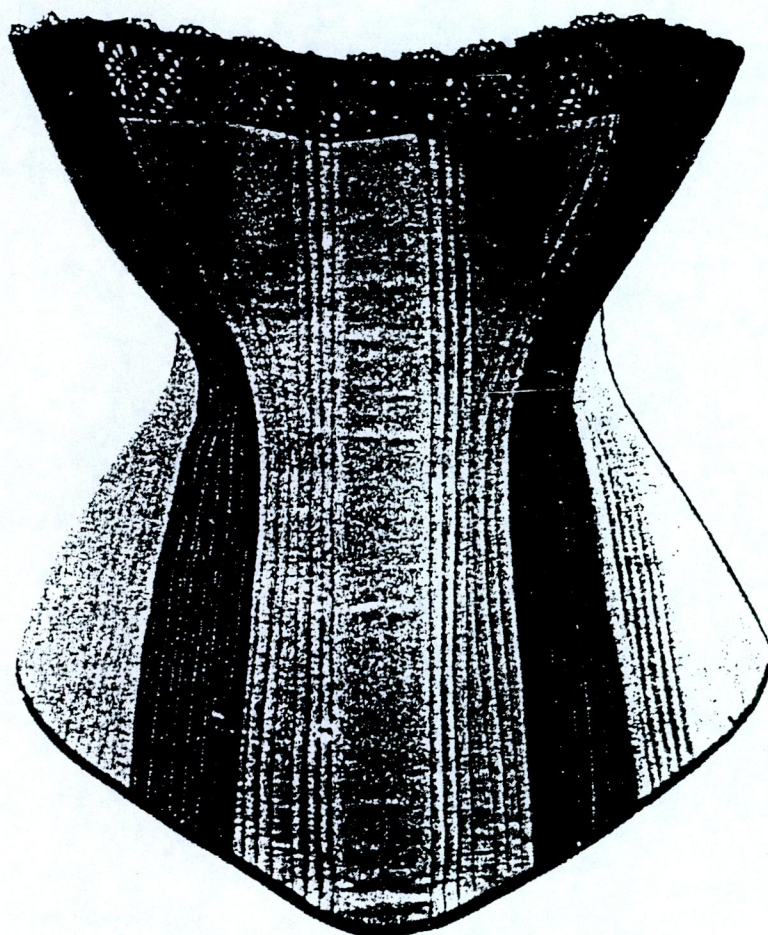
The firm of John Barron in Leeds developed the first cutting machine in 1858 called the band knife. This was an adaptation of the band saw used for cutting furniture veneers, and was able to cut through several thicknesses of material enabling garments to be cut out in batches. These break-throughs, initiated a new era, that of mass production which developed corset and underwear manufacture into a major industry with a substantial annual turnover.

The basic corset was made from strong twilled cotton or cotton sateen with an interlining of hessian. Stiffened with whalebone¹, they had breast and hip gussets with a busk to slim the waist and support or emphasize the bust. The introduction of the metal clasp busk in the early 1860's provided front fastening and allowed for extra easing and fit by the back lacing.

Figure 3: Front and back views of the first Symington machine-made corset, 1856.



**Figure_4: Corset from 1860 with a rigid wooden support down
the centre front.**

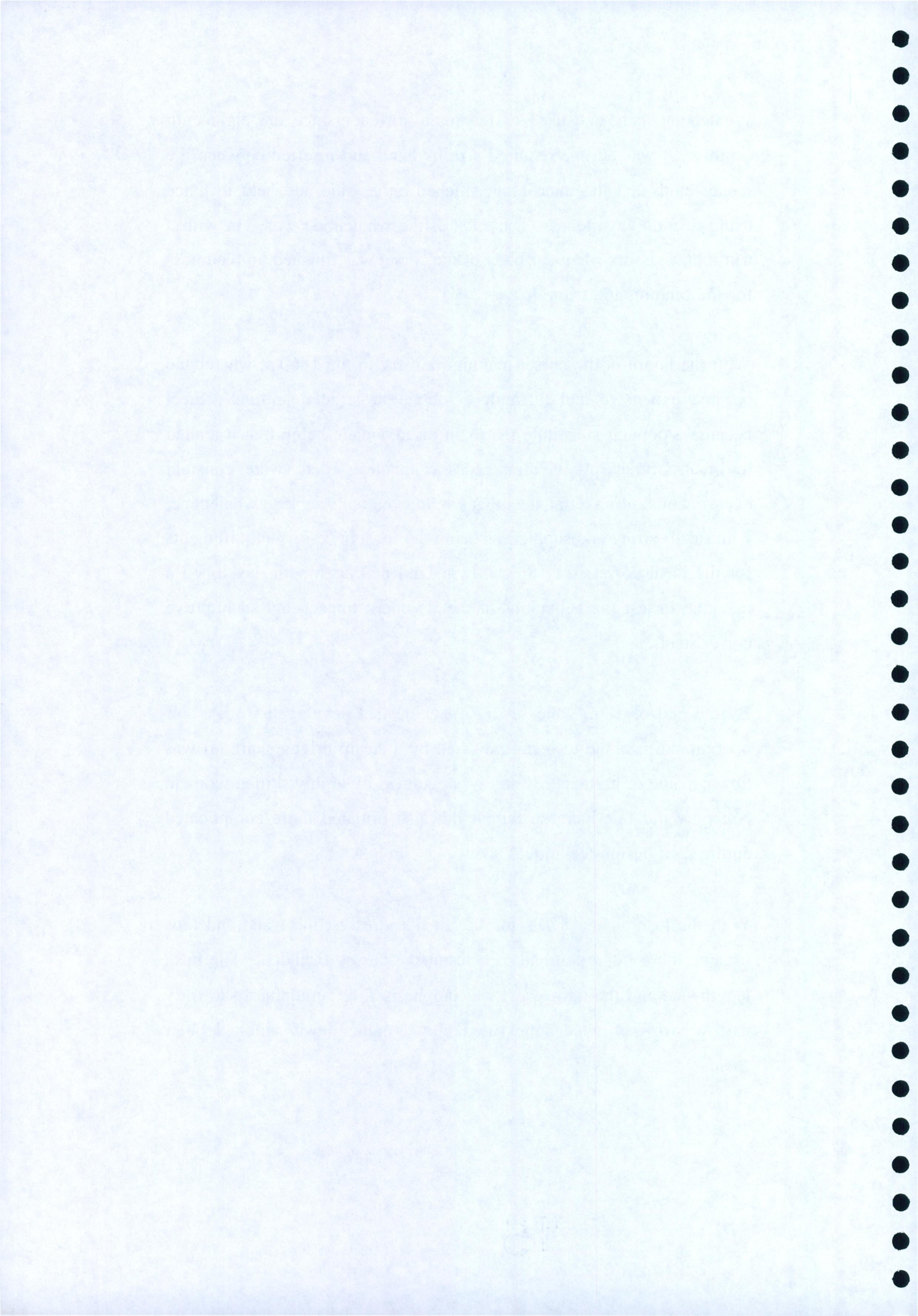


Whalebone had been used as the main stiffener since the eighteenth century. It was cut the required size by hand and inserted between the facing cloth and the interlining, stitched either side and held in place using decorative stitches. The ends of the whalebone were cut with a trimming scissors when the body of the corset was finished, in readiness for the binding and trimming.

With the boom in the corset making industry in the 1860's, whalebone became expensive and difficult to obtain in large quantities. Steel became a popular substitute the main disadvantage being that it tended to break off sharply if tempered too much. There were constant experiments to find a flat steel that would eventually replace whalebone, with rustproofing and suppleness being the most necessary requirements for the ideal corset. In 1862, Edwin Izod of Portsmouth developed a machine to test the behaviour of metals under impact and so improve corset steels.

By the end of 1860's the sewing machine had developed from a self operational machine to being powered by a steam driven shaft. It was now capable of high speeds and was operated by highly skilled women. Not only did this increase output but also initiated more complicated cutting and design techniques.

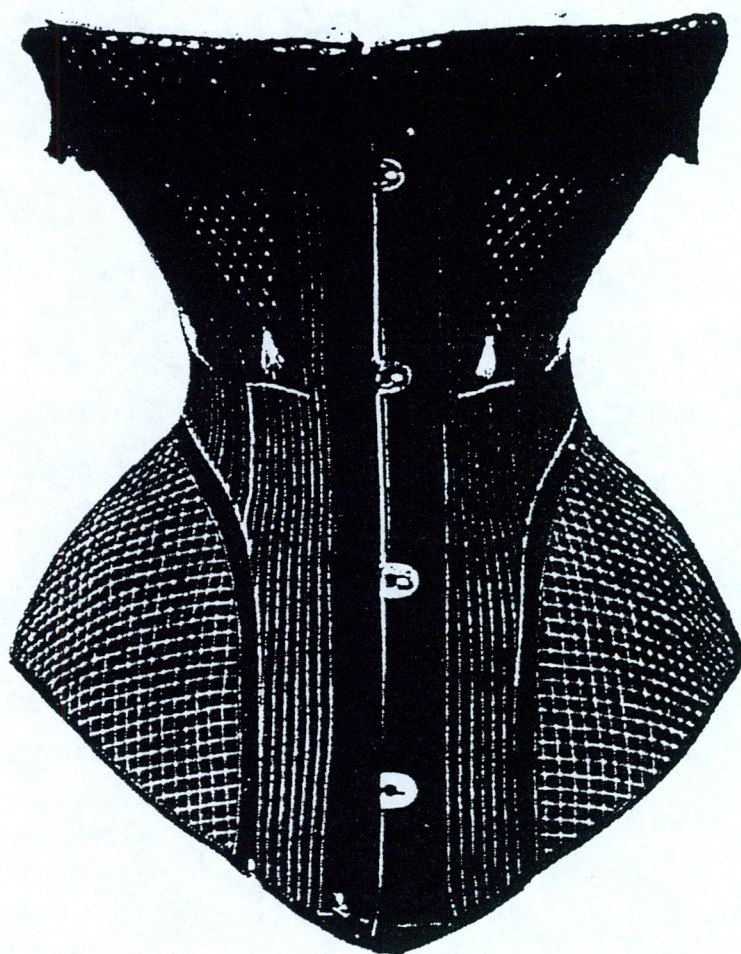
With the fashion in 1870's for sheath like dresses, the waist and hips became more important and as a result the corset extended. The busk lengthened and the tight waist was emphasised by anything up to forty narrow strips of whalebone fitted into a meticulously stitched outer casing.



Cording became an important design feature giving a measure of suppleness to the corset while still conforming to the desired rigidity of figure control. In the practice of stitch cording, the sewing machine was able to stitch through combined layers, of facing cloth, interlining and lining in vertical rows of varying widths. This new form of design provided support and lessened the need for the use of expensive whalebone, an important factor in expanding commercial production. String cording was the most successful. It appeared at the end of the 1870's. The string, usually hemp twine or made from machine twisted paper, was placed between pieces of facing cloth and lining which were stitched in continuous lengths. String cording was flexible, durable and also produced an attractive design feature in itself. It provided hip control, supple curved insets and gave uplift to the bust. Similarly cane cording was used as it provided an almost unbreakable form of boning. The cane derived from the Mexican ixtle plant² which was expensive to import and consequently, it was gradually replaced by the less costly string cording.

The exaggerated curve of the bust and hips from the small waist often resulted in the wrinkling of the corset and the frequent breaking of the boning at the waist. The two main types of cutting the corset continued either with gussets and a basque or in separate shaped pieces. The introduction of the spoon busk in 1873 sought to overcome some of the difficulties in relation to the corset. This shaped busk was narrow at the top curving into the waist, the metal bar at the centre front, carrying the hooks and stud fastenings, lengthened and curved over the stomach in a narrow spoon shape. A model from the early 1880's has twenty shaped pieces with sixteen whalebones at each side and a spoon busk.

Figure 5: Corset from 1975 with busk fastening and flaired
hipline.



In addition, a notable advance in the construction of the corset was the steam moulding process (1860's). The corset when finished was brushed with cold wet starch, wrapped around a heated metal mannequin mould and allowed to dry. This gave the corset its permanent shape and rigidity.

With improved methods in cutting, construction, design and manufacture, corsets became stronger, heavier and more restrictive than ever - having elaborate cutting in some sections, lines of machine stitching and boning, sometimes reinforced with bands of leather - thus the unyielding tight waist was maintained.

With the advent of, mass production, the industry flourished and by 1868 British turnover was reckoned to be one million pounds per annum for three million corsets, taking orders from the USA and France. There was large scale advertising of underclothes and by the late 1880's, advertisements had become more and more explicit to match the luxury and erotic appeal of the garments. Colour fashion plates were introduced which made the corsets seem more attractive. Names were conjured up, such as "Swanbill" which provoke images of gently curving figures; "The Princess" and "The Dutchess Corset", evoked status and respectability. The product descriptions for these advertisements provided what manufacturers thought would appeal to women. The following advertisement, for example claims that these corsets ensure "a perfection which cannot be otherwise obtained."

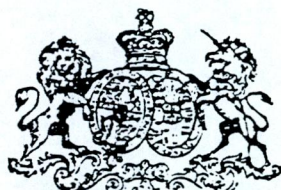
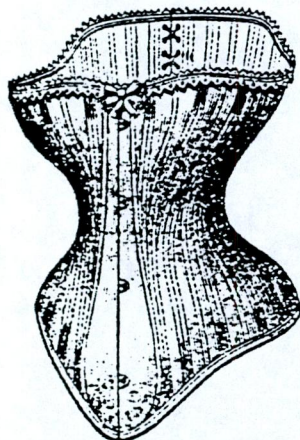
Figure 6: Young Ladies Journal - advertisement, May 1877.

THE YOUNG LADIES' JOURNAL EXTRA SHEET ADVERTISEMENTS.

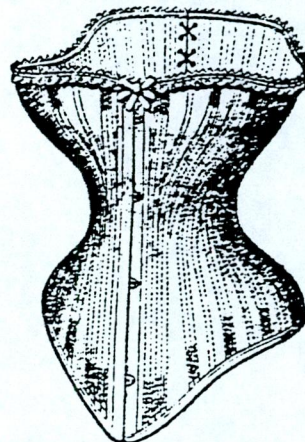
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IZOD'S PATENT CORSETS.

STEAM-HEATED LAY FIGURES FOR CORSET MANUFACTURE.



The BONES are the FULL LENGTH of the CORSETS, thereby giving the GREATEST SUPPORT, and are all curved to the CONTOUR of the FIGURE.
There is no TWISTING of the BONES or INJURING the FIGURE, and by this process the SHAPE of the CORSET CANNOT BE DESTROYED IN STITCHING; therefore disproportioned and objectionable forms of construction are entirely obviated, and, in fact, rendered impossible, or they would not fit the model for the last process.
Under the old system the Corsets have to acquire their shape in actual wear, while these Patent Corsets, being shaped in manufacture to fit so accurately and comfortably, a much smaller size can be worn without injury to the figure. CORSETS, like other garments



In consequence of the very inferior manner in which CORSETS have for a long time been made, the PATENTEE has given much attention (after many years' experience), with a view of producing a THOROUGHLY SHAPED, WELL-FITTING, and DURABLE CORSET, and feels certain that the principle herein adopted and taken out as patent for is one insuring a perfection which cannot be otherwise obtained.

They are MOLDED BY STEAM, so that the fabric and bones are adapted with MARVELLOUS ACCURACY to every curve and undulation of the FINEST TYPE OF FIGURE.

They are made upon properly-proportioned models of either earthenware or metal, in which the respiration of the lungs has been especially considered; nor do they press any of the vital organs.

The Patentees desire to call special attention to their TRADE MARK.

MODELED BY E. IZODS PROCESS
FOR SEWN CORSETS'S
TRADE MARK.
PATENT NO. 20.1868.

ONLY SUCH CORSETS AS BEAR OUR TRADE MARK STAMPED ON EACH PAIR ARE GENUINE AND WARRANTED.

These Corsets may be had of all respectable Drapers and Ladies' Outfitters, through the principal Wholesale Houses.

PROPERLY MADE, will WEAR LONGER than those improperly made.

A few Extracts from Testimonials of the Press:—
"These Corsets are by far the most perfect specimens of Corset manufacture, form, & fit that have yet been submitted to us."—*The Young Englishwoman*.

"I feel convinced that these corsets will meet the unqualified approbation of all ladies, whether votaries of tight-lacing or not."—*The Englishwoman's Domestic Magazine*.

"Lay figures or models have been constructed in exact accordance with Hogarth's Line of Beauty. Ample space is secured for the play of the chest and lungs, thus at the same time preserving health and improving the contour of the figure of the wearer."—*The Queen*.

Any Corsets not bearing this Trade Mark are not genuine, and only imitations.

Ladies could buy underwear from large department stores like Swan and Edgar in London or through mail order from women's magazines but the more distinguished ladies continued to use corsetieres for made to measure corsets.

This thriving business was not just selling a product, it was selling an image. It capitalised upon the Victorian woman's desire to be beautiful and respectable, while trying to attain the female physical ideal.

Figure 7: 1880 - hollow copper figure former

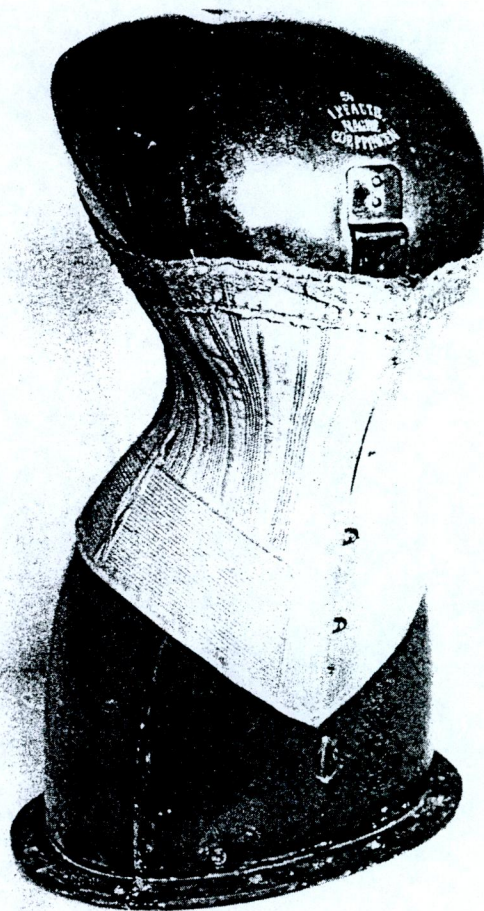


Figure 8: 1884 - Madame Cave's patent corset with 64 narrow whalebones and buckle fastening overbelt.

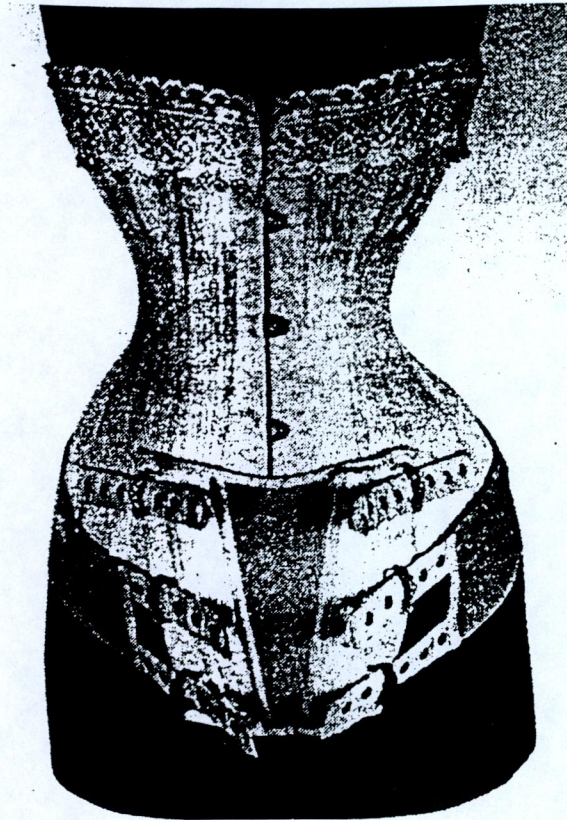


Figure 9: 1895 - Ventilated corset with 22 strips of thin cane

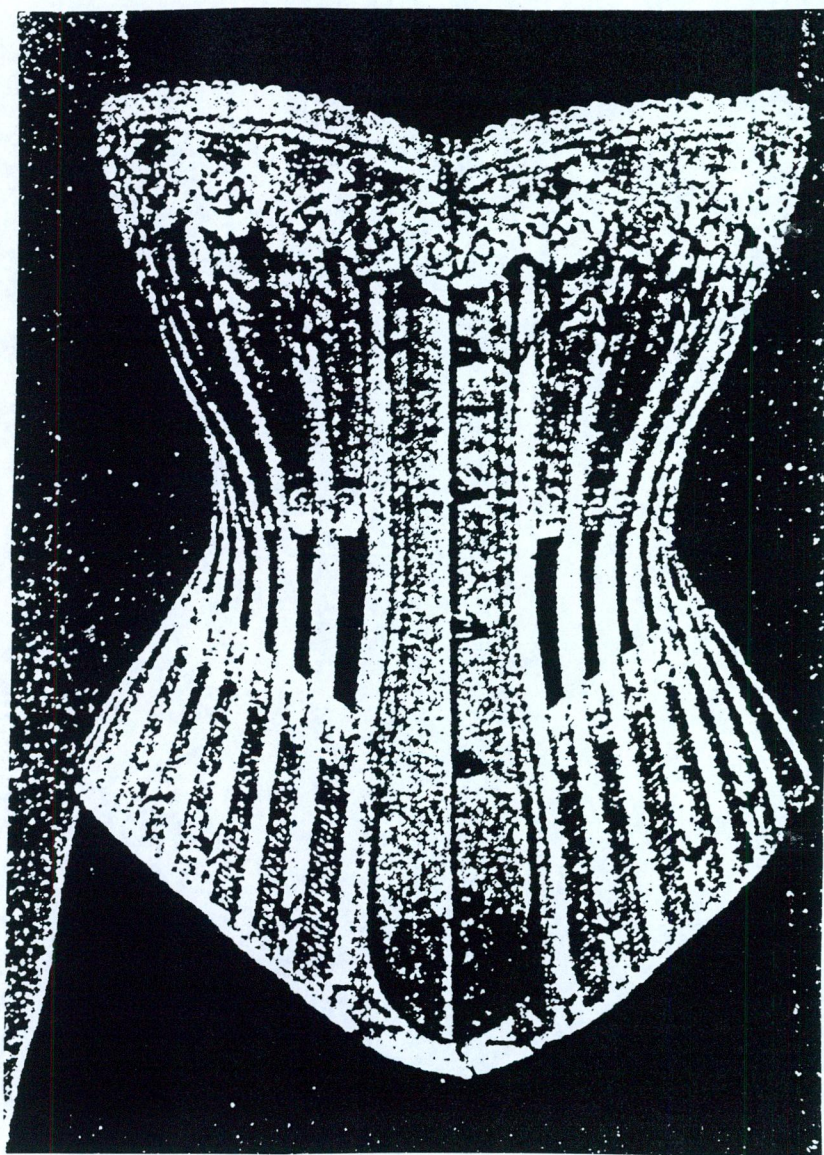
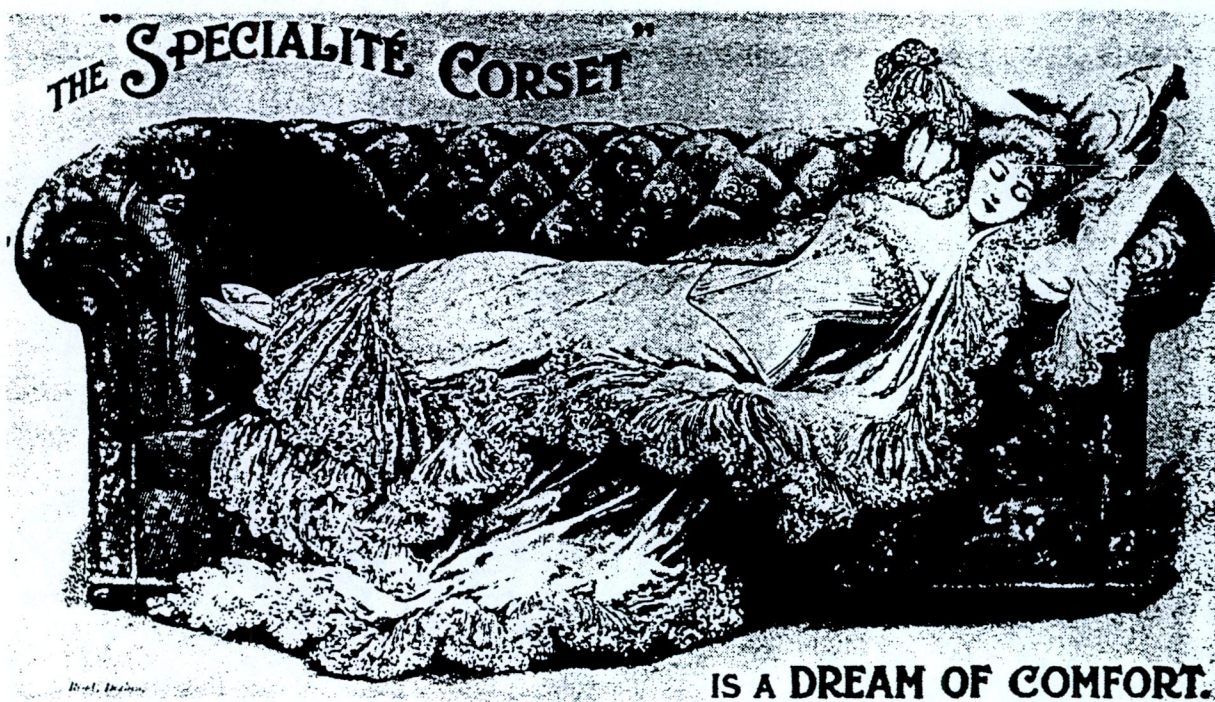


Figure 10: 1901 - Corset advertisement from *The Gentlewoman*



CHAPTER TWO - ENDNOTES

1. All the genus Balaena yield whalebone but the whalebone of the Balaena Mysticetus - or true whalebone is the longest and therefore most valuable. As many as four hundred of these plates of bone may be found ranging from 10-12 inches in diameter at the base to 9-12 feet in length.
2. Lucien T. Warner in his history of the Warner Brothers Company (USA), published in 1948, tells how the Warner Brothers learned before 1880 of the Mexican ixtle plant "and devised machinery for bundling it into cords, sizing and tempering it, so that they had an unbreakable, exclusive boning material, they called Coraline."

CHAPTER THREE

AILMENTS ATTRIBUTED TO TIGHT LACING

The general assumption was that the corset functioned to correct inadequate forms, support weak organs and maintain a figure in accordance with ideals of beauty, as defined by fashion.

The vast majority of women wore corsets and the degree of tightness varied, according to the design of the dress, the social occasion, and the age, personality and figure of the individual woman. A woman might lace loosely at home, moderately when she visited friends, and tightly for a ball. Most women accepted the corset and normal and did not see it as repressive. The need to improve the appearance and shape of the body was accepted by Victorian women in their aspiration towards the perfection of the fashionable silhouette. The corset was considered necessary for this manipulation and because it was the only mechanical means of reshaping the body, objections to its use were not widely accepted.

It was believed that the body could be adapted to the fashionable silhouette if it was gradually trained, and so girls were made to wear corsets from an early age. Cunningham refers to an article in *The Englishwomen's Domestic Magazine* (henceforth *EDM*) of 1866 concerning a girls boarding school where stays were compulsory and were "sealed up by the mistress on Monday morning to be removed on Saturday for one hour for the purpose of ablution." By such means, a waist of 23" at the age of fifteen could be reduced to 13" in the space of two years (Cunnington, 1951, p170). From the same source we learn of a mother urging her daughters to sleep in their stays, "which carries no hardship beyond an occasional fainting fit". (Cunnington, 1951, p171)

The 1860's, in particular, have been stigmatized as the period of tight-lacing, mainly due to the corset correspondence in *EDM*. Many correspondents described either voluntary or compulsory tight-lacing to extreme tenuity. Some dwelled on the painful aspects of tight-lacing, while others described the mingled sensations of pleasure and pain that they claimed to experience. These accounts seem to relate to fetish tight-lacers which were far removed from the norm of a 22" - 23" waist, as measured from corsets in the Symington collection.

Table 1: Corset waist measurements from the Symington Collection

| | 18" | 19" | 20" | 21" | 22" | 23" | 24" | 25" | 26" | 27" | 28" | 30" | 34" | 40" | Average Size | Total Number Measured |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----------------------------|
| 1856-1881 | 0 | 1 | 4 | 9 | 17 | 0 | 2 | 4 | 3 | 0 | 3 | 2 | 1 | 0 | 23.2" | 46 |
| 1881-1900 | 1 | 4 | 9 | 19 | 20 | 2 | 6 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 22" | 66 |
| 1900-1910 | 0 | 6 | 26 | 13 | 13 | 5 | 8 | 5 | 7 | 1 | 1 | 0 | 0 | 0 | 21.9" | 85 |

It is important to emphasize both this range of medical opinion and the commonly made distinction between "evil" tight lacing and "necessary" or "desirable" corsetry. Some doctors, such as Dr. Sauveuk Henri-Victor Bouvier and Dr. Ludovic O'Followell, argued that the support of the bust and spine and control of obesity, together with "woman's social destination", necessitated the corset (Steele, 1985, p169). Other doctors responded to the controversy by inventing "improved", "hygiene" versions of the corset. The most notable of these was Dr. Gustave Jaeger's Sanitary Woollen System. He argues that wool corsets had "all the advantages of girded loins without the disadvantages" (Steele, 1985, P169). Dr. Andrew Combe and Dr. Charles A. Cameron, amongst others, believed that corsets did contribute to curvature of the spine, rib displacement, deformities and displacements of the internal organs, respiratory and circulatory diseases, atrophy of the abdominal muscles, diseases of the reproductive system and lethargy.

As early as 1797, Dr. Samuel Thomas Von Sommerring, isolated 92 diseases thought to be caused by tight lacing. Dr. Frederick Treves in his book, *The Dress of the Period in its Relations to Health*, declared that "even a moderate or slight amount of tight-lacing will deform the body". (Treves, 1882, cited Steele, 1985, p169).

The rigidity of corsets due to improved methods in cutting and construction resulted in the wasting away of back and stomach muscles (after prolonged use), to the point where ladies could not sit or stand for long periods unsupported. This was particularly relevant in the case of young girls as it hindered the natural development of their muscles. As Dr. Combe notes

"Let those mothers, who are afraid to trust to nature for strengthening and developing the limbs and spines of their daughters attend to facts, and their fears will vanish. It is notorious that a majority of those girls, who, in opposition to the Laws of Nature, are encased in stays, and get insufficient exercise become deformed ... stays and absence of exercise, so far from contributing to an elegant carriage, are directly opposed to its acquisition." (Combe, 1836, p162)

The most obvious effect of tight-lacing on women was their resultant difficulty in breathing. The compression of the rib cage made it difficult to draw a deep breath and so prevented sufficient oxygen from entering the bloodstream. Spells of dizziness, confusion and fainting were common. An account of extreme cases of tight lacing appeared in *Womanhood* in 1903, called "Fatal Corsets: or the Perils of Tight Lacing". Reports were made of women fainting at balls and only recovering when their stays had been slit, others not recovering consciousness at all.

According to Dr. Charles A. Cameron in his lectures on the Preservation of Health:

"The compression of the waist contracts the volume of the lower part of the lungs; the diaphragm is pushed up higher into the chest, the shoulder blades are forced back upon the spine and the size of the stomach is diminished. The results of these serious malformations are diminished breathing power and impaired digestion". (Cameron, 1868, p138)

In Stevenson's "A Treatise of Hygiene and Health", dyspepsia is singled out for specific comment:

"If the waist, be 'laced in', the heart, lungs, liver and stomach are thrust upwards and the intestines forced downwards. Discomfort after meals and serious dyspeptic troubles must and do result, and these are followed by anaemia". (Stevenson, 1892, p525)

The writer continues to discuss the commonest symptom of dyspepsia in a woman, which is pain under the left breast, a symptom of which men rarely complain. The reason, he maintains for the different symptom for the same disease in the two sexes, is due to the displacement of the stomach by the stays. He also states that "if the respiratory and abdominal muscles be not free to act they will not develop properly", (Stevenson, 1892, p526), a view shared by both Cameron and Combe. Combe also relates one case where the liver was actually indented by the excessive pressure of stays, corsets and tight waist bands which resulted in "long continued bad health and ultimately death" (Combe, 1836, p221)

The complaints attributed to tight lacing ranged from fainting to internal bleeding, with any injury to the unborn child or inability to suckle being viewed with the most concern. The use of corsets during pregnancy could cause complications or miscarriages, and as pointed out in *The Lancet* of 1868: "The mischief produced by such a practice (of wearing stays) can hardly be over-estimated. It tends gradually to displace all the most important organs of the body while by compressing them it must, from the first, interfere with their functions" (Liggett, 1989, p52).

Fleetwood Churchill, an American physician, expands on this hypothesis. In his book *Diseases of Women* he states that:

"The pressures of the womb upon the iliac arteries and abdominal vessels occasions a reflux of blood towards the superior parts of the body. And in the latter months of gestation, the stomach and diaphragm are pressed upwards, the pericardium and the heart more or less displaced, which must necessarily influence the movements of this latter organ and render them more irregular and violent than ordinary" (Churchill, 1957, p86).

Therefore any undue pressure on the uterus caused by tight lacing restricted the blood flow to the unborn child, thereby endangering its life. Many miscarriages and difficulties at birth were attributed to the practice of tight-lacing. It is possible, however, that many Victorian women clung to their corsets as a means of contraception or abortion, liberating themselves from the practically annual experience of childbearing.

According to Thomas J. Graham, M.D., in his book *The Best Methods of Improving Health*, some of the chief rules in regard to clothes are

"That they should be made of soft or pliable materials, so as not to obstruct the free and easy motion of the limbs or the circulation of the fluids in any part of the body. They should be made of such a shape as to be comfortable from their ease" (Graham, 1851, p354).

Corsets were manufactured in direct conflict with these recommendations; they gave no room for expansion or ease, and stays of whalebone, steel or metal together with the practice of tight-lacing prevented mobility and restricted the circulation of the blood. Technical advances in the corset making industry encouraged women in their pursuit of the "perfect" figure by making it seem almost attainable. Health warnings concerning corsets therefore were widely disregarded.

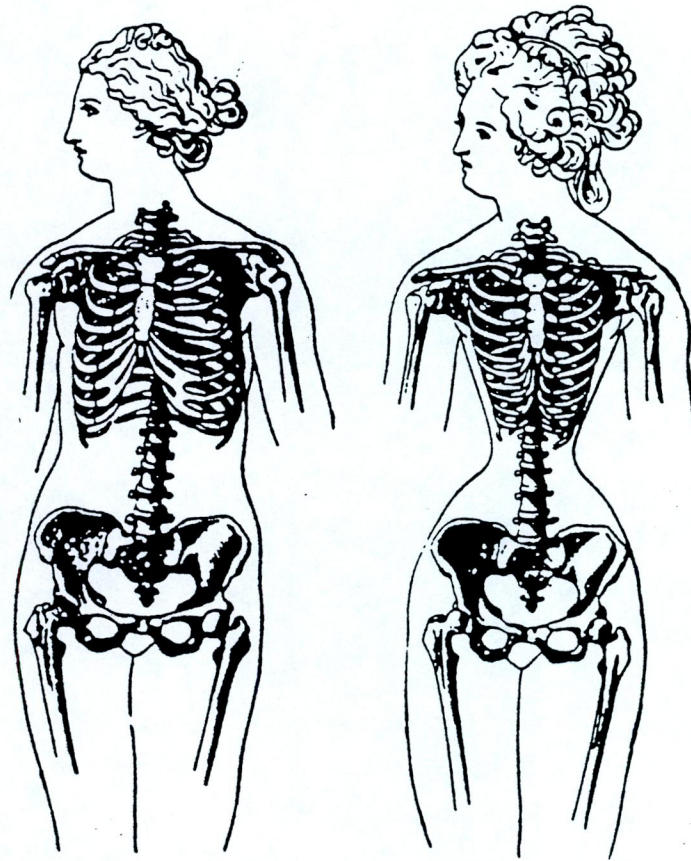
The Morning Post in 1869 reported a nineteen year old nursery maid who had collapsed dead while out walking a child in a pram. It was discovered that she was tightly laced and the reported cause of death was by effusion of blood on the brain, caused by a fatty heart, accelerated by the compression of the chest produced by tight-lacing. *Punch* in reaction to this incident, satirically emphasised women's stupidity in relation to tight-lacing. It notes that

"The typical and average woman can no more deviate from the dress of the day than an animal can choose to change its skin or its spots. There is no feat that any girls accustomed to tight-lacing will ever be induced to relinquish that practice which renders them such delightful objects to ne another, if ridiculous and repulsive to stupid men, by any such nonsense as a report of the verdict of a coroner's jury ascribing death to the effect of tight-lacing in accelerating fatty degeneration of the heart".

2nd October 1869 (Walkley, 1985, p51)

There is no doubt that the manipulation of women's bodies through the use of corsets had a detrimental effect on their health relative to the degree and frequency of tight-lacing. *Punch* notes that "as the contracted figure suggest a resemblance to the hour-glass, the hour-glass suggests a warning to the contracted figure" (Walkley, 1985, p49).

Figure 11: 1793 - the effects of tight lacing by Dr. Samuel
Sommering



CHAPTER FOUR

MATERIALS AND DYESTUFFS IN RELATION TO HEALTH

In the 1860's, the normal undergarments worn by society ladies included a cotton chemise, corset, coloured stocking garters, a pair of drawers, a corset cover, waist petticoat, crinoline frame, another petticoat and optional flannel layers. Garments were made of linen and increasingly cotton, although initially cotton was considered inferior to linen. Cotton cambric, lawn and muslin were the lightest and thinnest cottons and their use became more usual towards 1890. Woollen flannel was used for winter warmth and recommended to prevent influenza, chills and rheumatism.

A German physician, Dr. Gustave Jaeger, advocated that wearing of animal fibres, such as wool, next to the skin. He believed that dead vegetable fibres, such as cotton and linen, absorbed noxious vapours when cold and gave them off equally noxious, when conditions became warm thus poisoning the air. Wool, on the other hand, "absorbed noxious exhalations and transformed them into wholesome sweetness" (Newton, 1974, p100). Dr. Andrew Combe supports Dr. Jaeger's theory that wool, being a bad conductor of heat, prevents heat from being dissipated quickly and protects the body from the injurious influence of sudden external changes. Combe also believed that the rough, uneven yet soft surface of flannel next to the skin provided a gentle stimulus to the cutaneous vessels and nerves, which assisted their action and maintained their function in health. And "being at the same time of a loose and porous texture, flannel is capable of absorbing the cutaneous exhalations to a larger extent than any other material in common use" (Combe, 1836, p89). A contemporary report in *The Times* (4th October, 1884) refers to Jaegers theory as being "demonstrated by scientific experiments and proved by practical experience" (Wilson, 1985, p214)

Flannel and wool undergarments also encouraged perspiration. This meant that hygiene became very important. The washing of clothes was done far less frequently in Victorian times not because the Victorians were unhygienic, but because it caused so much disruption in the household. Only the innermost layer of underclothes was subjected to body dirt, and these garments were changed frequently. Some magazines advised that underwear should be changed every time a woman changed from morning to afternoon dress. The washing of corsets was not recommended as they were too thick and heavy to dry easily, the stiffening of whalebone or early rustless steels would have been adversely affected by water immersion and this would have affected the shape of the corset. If it was overcleaned, it was difficult to regain the shape, even the practice of dry-cleaning, which was generally available by the 1870's, effected the shape of the corset. The corset itself however, was never in direct contact with the body as it was cocooned between washable layers of chemise or combinations. To ensure absolute cleanliness and hygiene, the wearer usually tacked on artificial lining or a thin calico loose cover which could be taken off and washed separately. Only wealthy families could afford the vast array of clothing which made the practice of infrequent washing possible and thus, this practice became a symbol of status.

Until the latter half of the nineteenth century all dyes used in clothing were vegetable or animal in origin, with the exception of a few mineral colours. Colouring matter was extracted from the roots and stems, leaves, berries and flowers of various dye-plants and from certain insects and shellfish. These natural dyes had little colouring power in themselves, so they were used with a mordant, usually a metallic salt, which had an affinity with both the dye and the fabric thus creating a bond between the two. These colours were usually quite drab or faded and so, with the discovery of aniline dyes in 1856 by a German student chemist, William Perkin, much excitement was aroused. Perkin's discovery was quite incidental, when his attempt to synthesize quinine went wrong he accidentally stained a piece of silk bright purple. It was in fact a mixture of potassium bichromate and impure aniline. It was not long before other chemists experimenting with different chemicals combined with aniline, produced a wide range of colours, making the production of these synthetic dyestuffs commercial.

Aniline itself was first prepared from caustic potash, found in coal tar. It is defined in the *Collins English Dictionary* as "a colourless, oily, pungent poisonous liquid". The arsenite of alumina process was used to the aniline dyes. In this process, the dye was dissolved in water or acetic acid, carefully filtered through a fine cloth and mixed with acetate of alumina, a thickener, and arsenious acid dissolved in glycerine. The mixture was then printed onto cloth and put into a steamer. In the steaming, the acetic acid was liberated and arsenite of alumina formed which was precipitated in the fibres with the aniline colour. Arsenious acid and arsenic acid were found to the extent of 7% in colours such as magenta and rosalinine.

Little consideration was given to what effect these chemical dyestuffs would have on health. Dr. Jaeger believed that these commercial dyes, like vegetable fibres, had a poisonous effect on the human body. Although he did not expect people to confine themselves to dressing exclusively in natural undyed wool, he pointed out that since the wearing of wool next to the skin raises the temperature, it further activates the poison emitted by noxious dyes.

Reported cases of eczema of the legs which resulted from wearing magenta dyed socks and stockings were numerous. This was attributed to the use of arsenical compounds as well as the aniline compound in the process of dyeing.

In Steveson's *A Treatise on Hygiene and Health*, diseases and illnesses attributed to arsenious acid are outlined. It states that

"Absorption of the poison may take place through a raw surface and even though the unwounded skin. It is not an accumulative poison but is eliminated by the urine, sweat and bile. It causes paralysis of the heart, whether directly or indirectly is unknown" (Steveson, 1892, p952).

He proceeds to explain that chromic poisoning may result from one large dose or from repeated small doses.

"Gastric catarrh is the prominent symptom at first accompanied by the peculiar feeling of burning in the fauces, dry tongue, thirst and sometimes superficial ulceration in the mouth. There is irritation often conjunctive with suffusion of the eyes and more or less photophobia. ... There may be well-marked nervous symptoms, even including paralysis".

These dyes were continually used in undergarments such as socks, stockings, corsets etc. and their toxic properties put health at risk. Some physicians in the nineteenth century believed these dyes to be carcinogenic, although no medical proof existed to substantiate these claims.

CHAPTER FIVE

DRESS REFORM

In this discussion I am not concerned with all the different aspects of dress reform as it is a broad and complex topic. This chapter gives a general overview of the dress reform movement and its attempts to promote healthy dress.

The women who rebelled against corset wearing and tight-lacing were in the minority. One such group of women formed The rational Dress Society (RDS) founded by Viscountess Harberton in 1881. The principles of the RDS were to protest against the introduction of any fashion in dress that either deforms the figure, impedes the movement of the body, or in any way tends to injure health. Apart from campaigning against tight-lacing, hampering skirts, and high heels, one of the Society's aims was "to recommend that the maximum weight of underclothing (without shoes) should not exceed 7lbs". They put forward their own rational system of underclothing published in the first issue of the RDS gazette in April 1888. This consisted of vest and drawers (or combinations) of wool, silk or the material called "cellular cloth": a bodice of some firm material made high to the throat, to support the bust, and enable such garments as fasten around the waist to be buttoned onto it: the RDS's chemise (sometimes called Survival): a divided skirt made in whatever shape or material the individual may prefer: over this the ordinary dress. The corset was to be left off and crinolines and crinolettes were regarded as ugly and deforming.

Dr. Andrew Combe, Dr. Beale and Dr. George Wilson all shared the views of the dress reformers in relation to healthy dress. Dr. Wilson, in his dislike for corsets, "advised some arrangement by which the whole weight of the clothing could be borne from the shoulders." (Newton, 1974, p118)

Lady Harberton's dress reform ideas were also supported on medical

grounds by the assistant surgeon at the London Hospital, Sir Frederick Treves. He naively believed that beauty was a relatively minor consideration in dress. The members of the Rational Dress Society, however, were acutely aware that "the effect of singularity in attire is to incur a social martyrdom out of all proportion to the relief obtained. It is in vain to be comfortably and modestly attired if one is to be made an object of observation or ridicule." (The Rational Dress Society's Gazette, September 1888). In fact, the rational dress was quite a normal boring tailor-made suit, but without the wasp waist, and with a draped tunic over the wide "divided skirt" or knickerbockers. Most of the dress reformers disguised their divided skirt with the draperies to avoid social ridicule.

It is notable however that beauty and dress was always associated with fashionable dress. To equate beauty with health in the form of dress it must also be fashionable so as to avoid social ridicule. This explains why the RDS's ideas of dress reform were not adapted into general use until the popularity of sport for women began to grow in the 1880's.

It was not until the 1890's, however, that women's sport made its most striking advances. The first ladies cricket club was formed in 1890, the ladies golf union in 1893, and the first ladies international hockey match took place in 1897. Fashion was not immediately modified to suit these new activities. The v-neck, for example was not introduced until just before the First World War, so for ten or twenty years women were playing strenuous games constricted in whalebone and cambric, and muffled up to their necks. The widespread sport of bicycling, however, did mean the advent of new costumes. Woollen combinations, a flannel bodice in place of a corset and a pair of knickerbockers or cloth trousers buttoned onto the bodice could be worn.

It was the sporting crazes of the late nineteenth and early twentieth century that made trousers popular wear for women and liberated them from the restrictions of their corsets.

The corset, meanwhile, gradually changed shape and evolved into other undergarments such as the brassiere and girdle. The practise of tight-lacing was no longer prevalent and the demist of the corset heralded the end of an era, the Victorian era.

Figure 12: 1880's - costumes worn for sport



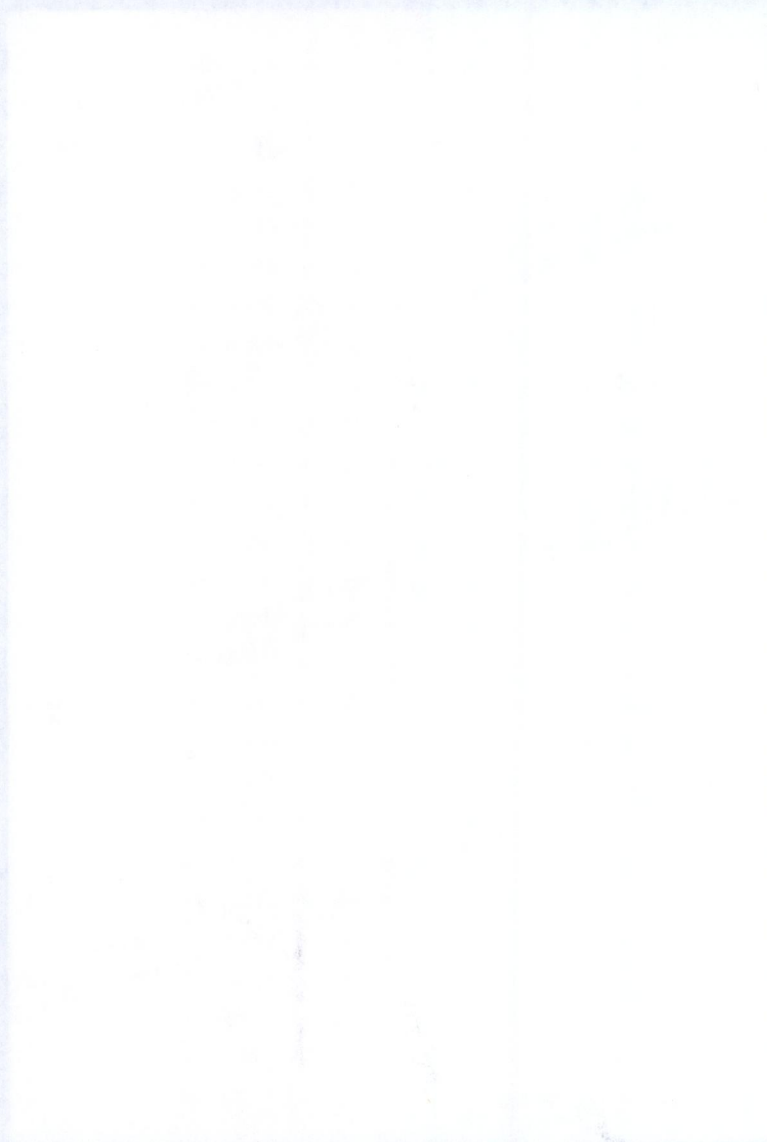


Figure 13: 1890 - reform dress, illustration from *Girls Own* paper.

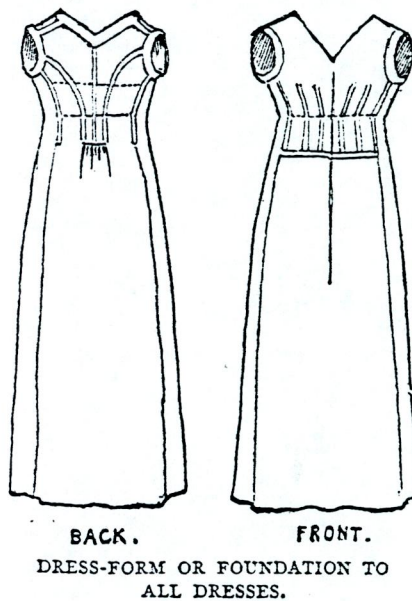
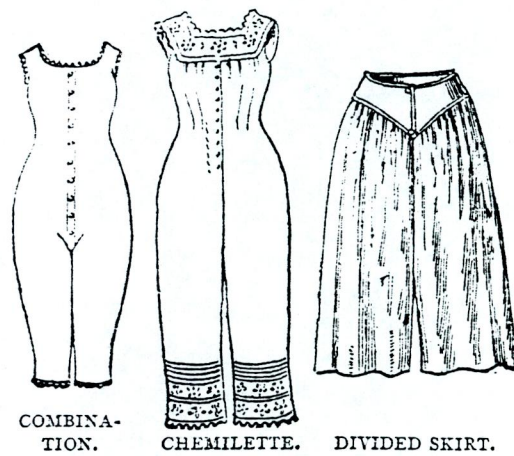


Figure 14: 1890's - advertisement for reform underwear

Reform C.B. Underwear

TRADE MARK

Reform C.B. GUARANTEED QUALITY

LADIES DESIROUS OF OBTAINING THE MOST PERFECT UNDERWEAR MANUFACTURED SHOULD INSIST UPON HAVING GOODS BEARING THIS TRADE MARK.

CONCLUSION

Society in Victorian Britain imposed restrictions relating to both dress and manner on women to lead them to conform to an ideal which was neither practical nor healthy. Women were both the victims and perpetrators of these restrictions. They manipulated their bodies through corsetry in their aspiration towards what was deemed beautiful, regardless of the suffering it entailed. Women's dress projected feminine characteristics such as frivolity, delicacy, inactivity and submissiveness, and so, by accepting and wearing the uniform of fashion, they strengthened the belief that they were the inferior sex. Men's superiority and social control prevented women from entering careers in the social, economic or political arenas by denying them access to colleges and universities. In industry it was largely men who controlled the construction and shape of women's clothing. And so, it seems that men wanted to repress women both physically and mentally, to retain their superior role as protector and breadwinner.

Medical knowledge in the Victorian age was mainly supposition as medical men could not prove any long term effects of chemical dyes and tight-lacing by scientific means. Many diseases and general ill-health of women were attributed to corset wearing and tight-lacing as it provided an easy scapegoat for doctors. Therefore, it is difficult to ascertain the exact effects of tight-lacing from medical reports of the time.

However, the view of modern doctors suggests that corsets were unlikely to have severed the liver or displaced any other organs such as the stomach or pancreas, any more than they caused epilepsy or tuberculosis (supposedly through the friction of lung and rib) (Steele, 1985, p170) The stories of crushed ribs and deliberately removed ribs have yet to be authenticated, as do other claims attributed to tight lacing.

Some doctors have tentatively suggested that the "mechanical pressure upon the liver and upper gastro-intestinal tract from the wearing of tight laced corsets" might have contributed to "chlorosis, an unexplained (hypochromatic iron deficiency) anaemia that afflicted many young women in the late 1800's" (cited Steele, 1985, p171). On the other hand, it may be that better nutrition today is responsible for the disappearance of the disease, or that the condition still exists but is known under a different name. Until modern science and medicine have fully researched this area, the true facts of tight-lacing will remain uncertain. According to an article by Katie Hayward in the Irish Independent, 25 February 1993, clothing is still an aspect for concern. Dr. Jean Monro, medical director of the Breakspear Centre in Hertfordshire explains that a lot of fabrics have number of chemicals within them that don't suit certain people. The materials are impregnated with formaldehyde, as a sort of moth-proofing and others use chemicals such as dieldrin, which is present in some woollens. It is a poison. These chemicals can damage the liver and were originally designed as nerve poisons and have been known to impair the thought process.

Tight trousers and leggings restrict the blood flow around the legs resulting in phlebitis - inflammation of the walls of the veins. The hereditary problem of varicose veins may be aggravated and in extreme cases can result in thrombosis or blood clots.

Underwear also comes under attack. If the skin cannot breath properly through the use of clingy underwear, it creates a warm damp environment which is an ideal breeding ground for infection. Dr. Monro also claims that even though we change our underwear everyday, it is usually washed at about 40°C and can still be far from sterile. It is only at 70°C that all the harmful bacteria and germs are banished.

She also relates to the "bra-strap headache syndrome", which is caused by wearing one which is too tight. It can cause irritation to the spinal muscles, leading to spasms and pain in the neck area.

And so it appears that even in this day and age clothing can effect our health but where are all the health warnings? The answer is simple. People are not informed because manufacturers are not required, by law, to outline the chemicals used in the treating and dyeing of materials, if they were, they might not have a business!!

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