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SYNTHETIC AND MAN-MADE FIBRES FOR THE FUTURE OF FASHION

by

Emily Maher

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INTRODUCTION

INTRODUCTION

This dissertation is a study of man-made and synthetic fibres in fashion, more specifically, their role in the upper fashion market. I intend to investigate whether or not synthetic and man-made fibres have a future in this fashion market.

There are three chapters. The first chapter consists of a brief history of man-made fibres. Consequently, this section spans the progression of fashion and society throughout the twentieth century, since the first man-made fibre rayon was publically launched in 1900. Included in the history section is an explanation of the properties and manufacturing processes of rayon. In order to discuss the present and future role of synthetic and man-made fibres in fashion, one must be aware of their function in the past. Correspondingly, I have included, in the first chapter, a section on consumer attitude towards and awareness of these fibres. I intend to show that the consumer plays a significant role in the survival of synthetic and man-mades in the upper fashion market.

A clarification of the definition of 'man-made', 'synthetic' and 'chemical' fibres is very important. The use of the term 'chemical fibres' can be deceptive. Synthetic fibres are 100%chemical. Polyester and polyamide (nylon) are examples of synthetic fibres and, consequently, have no natural properties. Rayon and Lyocell are also chemical fibres, however, they are not synthetic, as they consist of pure cellulose, which is the basic substance of all plants. Therefore, they have natural properties, and while chemical and man-made, they are not synthetic. It is crucial to this thesis to recognize this distinction that exists between man-made and synthetic fibres.

With this distinction in mind, I have included two more chapters, one on synthetic fibres and one on man-made fibres.

Chapter Two explains the history, new technology, fashion and marketing behind three specific synthetic fibres; Lycra (DuPont's brand name for their elastane fibre), Polyester and Tactel (DuPont's brand name for their nylon fibre).

Chapter Three is a similar study of the man-made fibre Tencel (Courtauld's brand

name for their lyocell fibre). Lyocell is a cellulosic fibre, and as such, is classified with rayon. Tencel is the cellulose-based fibre I have chosen to concentrate on, as I believe it has made the most advancement in man-made fibre technology to date.

Currently, there is a significant increase in public interest in synthetic and man-made fibre technology. Many textile and fashion designers have embraced these fibres. This is particularly evident among the young up-and-coming British and Irish designers. However, I have chosen to focus on more established fashion designers, including Issey Miyake and Katherine Hamnett, as I believe this gives more credibility to my arguments. So too have I concentrated on fibres produced by the 'giants' of chemical fibre technology ; ICI, Courtaulds and DuPont.

Due to the current interest in synthetic and man-made fibre technology, there are many promotional leaflets and supplements available, which are mainly distributed by the fibre manufacturing companies. Moreover, one can find many articles regarding chemical fibres and fabrics in fashion and textile periodicals. However, to my knowledge, there are no published studies dealing specifically with the application and significance of synthetic and man-made fibres in the upper fashion market. This, is the focus and drive of my dissertation, in the hope of making a positive contribution to this fascinating and burgeoning area of the Textile and Fashion world.

CHAPTER ONE

A BRIEF HISTORY OF MAN-MADE AND SYNTHETIC FIBRES

While natural fibres have existed for 4,000 years or more, we have had man-made fibres for just over a century. The expense and scarcity of silk was the catalyst behind the invention and development of man-made and synthetic fibres. Initially, man-made fibres were seen to attempt to imitate natural fibres, to be cheap versions of the genuine article.

Count Hilaire de Chardonnet is considered the father of the Rayon industry. In 1884, in France, he invented nitrocellular rayon. However, it was highly flammable and explosive.
In 1892, the Englishmen Cross, Beavan and Beadle applied for a patent for their method to produce rayon, which was the viscose method. At the World Exhibition in Paris in 1900, this fibre, the first "artificial silk", was shown to the public and in 1894 Courtaulds bought it. The present name 'Rayon' was only applied to this fibre, by Courtaulds, in 1924.

While rayon is a chemical fibre, it is not a synthetic fibre since the raw material, cellulose, is a natural substance. Rayon is made from 'cellulose' with chemicals so that it forms a 'viscous' solution. Cellulose is derived from wood pulp or cotton linters. The solution is forced through almost microscopic holes in a jet or 'spinneret'. It emerges from the spinneret in the form of a fibre and is hardened either by the evaporation of the chemicals as they come in contact with the air, or by the coagulation resulting from a bath in chemicals.

There are three processes by which rayon is made today:

1. The cupramonium method
2. The viscose method
3. The cellulose- acetate method.

The viscose method is commonly used today by many fibre companies, including Lenzing (Austria) and Courtaulds, (fig. 1).

fig. 1 : Three stages of the manufacturing process of viscose-rayon fibres.

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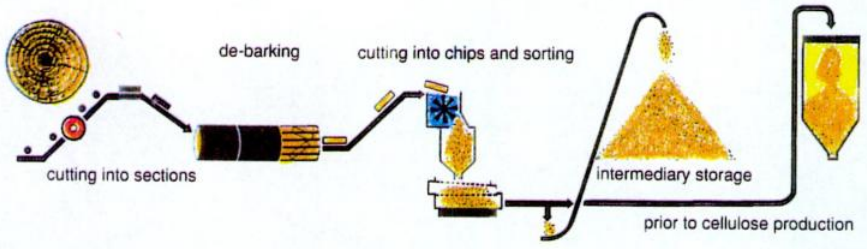
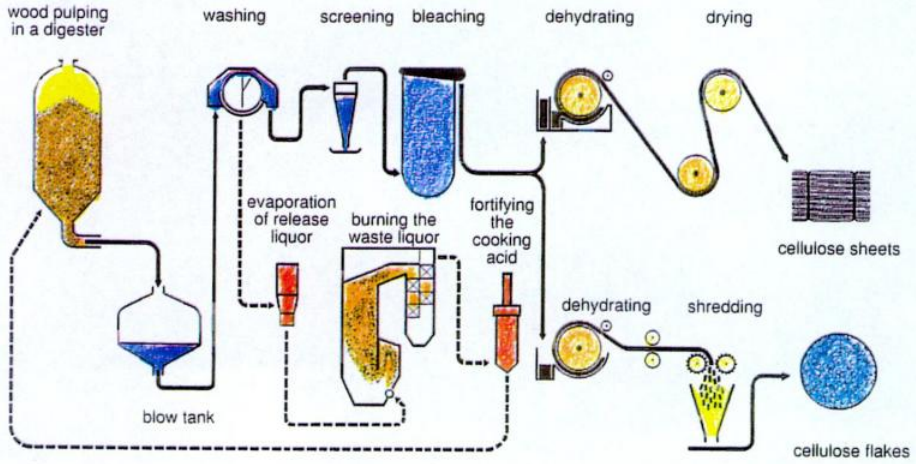
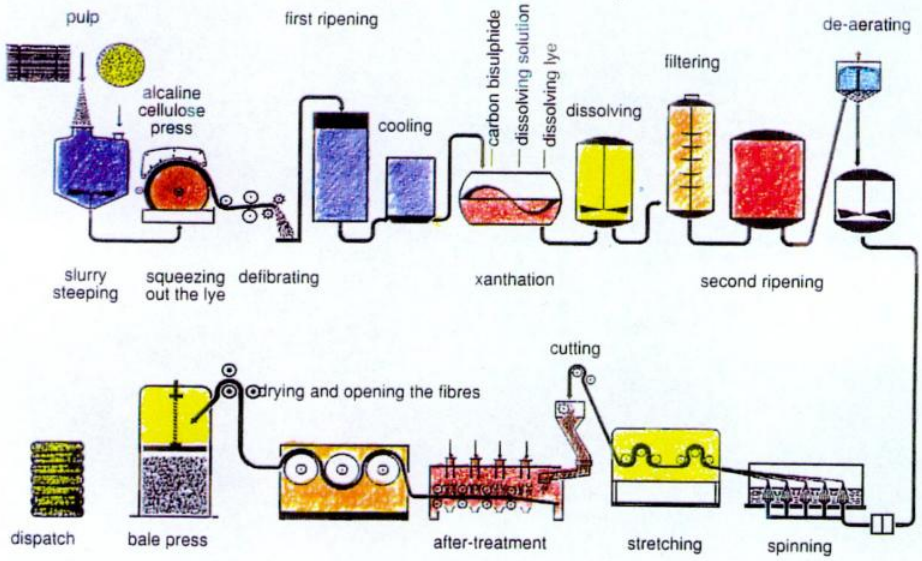


Wood preparation



Pulp production



Producing spun viscose fibres

Cellulose-acetate is so called because an acetate solution is used in the processing of the fibres. Acetate was patented in 1894 but was not commercially produced until after World War 1. Acetate is commonly used in the fashion industry today, manufactured by many fibre companies including Novaceta.

Before the First World War, these fibres found their way into production in place of silk, in particular for lingerie and hosiery. During this time they were a boon to the mass market. The qualities of the fibre were constantly being improved, but, despite promoters' attempts to glamourize the fibres' image, they were shunned by High Fashion. Couture was an unashamedly luxurious market, for which only genuine and expensive fabrics sufficed.

However, breaking all these barriers of acceptability was Elsa Schiaparelli. Schiaparelli was incomparable. Throughout the fist half of the twentieth century, she brought a completely unique talent to the world of haute couture. Fabrics were a huge source of inspiraton for Schiaparelli and, in turn, her exciting and innovative creations have influenced fashion and textile designers since the Thirties. Consequently, I feel it is important to include a brief description of her work with synthetic fibres.

Elsa Schiaparelli was born in Rome in 1890, where her childhood memories of her native city were to be a source of rich images for her designs. At the age of twenty-two she travelled to Paris, which she soon made her home. She collaborated with renowned artists and designers, such as Dali, Lesage and Cecil Beaton, in her quest for perfection. While Paris was her spiritual home, the United States of America served as a source of inspiration, and a substantial market. America's main influence on fashion in the Thirties was rooted in Hollywood. All the major film stars of the day could be found donning Schiaparelli creations; indeed, Joan Crawford came to be the embodiment of the Schiaparelli lady. As such, the influence that film, theatre and art had on Schiaparelli was profound.

In the 1920's artificial fibre manufacturers were responsible for a renaissance in French textiles. This resulted in an increased fluidity in fabric texture. Now living in

Paris, Schiaparelli picked up on the new synthetic trend. She collaborated with textile manufacturers, in particular Charles Colcombet. The Colcombet family and company pioneered artificial fabrics and launched almost all the new ones in France after 1920. She encouraged, almost forced, experimentation with these new materials. From the start, Schiaparelli rejected silk, primarily due to its expense, and adopted Rayon, the 'Artificial Silk'. By 1930 she was quoted in American *Vogue* as stating that, " Rayon is like the times we live in - gay, colourful, luminous . . . it's so pliable to work with and so luxurious in appearance . . . [and] launders to perfection," (White, 1986, p. 124).

In conjunction with Schiaparelli, Colcombet produced various unusual rayons from which, in 1932, she created a whole collection : one such fabric was 'Ribouldingue', a fine elastic rayon crêpe that was crushed. The other was a particular favourite of Schiaparelli's, a goffered (tree-bark) rayon crêpe, known as 'Melodie' due to its raised design which was not dissimilar to musical notes, (fig.2). These are only two of the almost endless list of rayons, designed by Colcombet, which were used by Schiaparelli.

However, she did not limit herself to Rayon. In 1932 she stunned the audience at a London premiere in a dress of red 'Jersela', a satin-effect, synthetic silk jersey. The more unconventional the material, it seemed, the more exciting it was in Schiaparelli's hands. She was the first fashion designer to use the cellulose acetate 'Scetilose'. She made cellulose, as it is more commonly known, into various guises from evening dresses to bags and scarves. Yet, her most memorable creation must be her 'glass' tunics of 1934. Reminiscent of true glass, 'Rhodophane', developed by Colcombet, was a spun synthetic which was transparent and brittle with an unusual lustre. Truly revolutionary, Schiaparelli modelled it into 'glass' capes, to be worn over evening dresses.
"Once described as 'the first hippie' , today she could more relevantly be described as the Mother of Punk", (ibid. 1).

However, the 'true' synthetic century really only began in 1938 when a scientist with DuPont, Dr. Wallace H Carothers, introduced nylon to the world. In doing so he

fig. 2 : Elsa Schaparelli's 'tree-bark', rayon crêpe dress and cellophane scarf from 1932.

fig. 2 : Elsa Schiaparelli's 'tree-bark', rayon crêpe dress and cellophane scarf from 1932.

opened the door to a new era in fashion and textiles, (fig. 3). The impact of nylon on the U.S. market was instant and overwhelming.

Nylon stockings were the most sought-after fashion item during the war; they "became synonymous with female yearning", (DuPont/ Nylon, 1994, p. 6). Elsa Schiaparelli adopted nylon after the war and continued to use it until her final collection in 1954: "Dark Allure; so sheer that the Schiaparelli leg seemed barely stockinged", (White, 1986, p.126).

After the war, with a shortage of materials and growing consumer demand, the popularity of synthetics rocketed.

The egalitarian social atmosphere which prevailed in the U.S. in the 1950's, and in Britain in the early 1960's, meant that cheap substitutes for the real thing, synthetic for natural, were quite acceptable. Actually, synthetics came to be seen as a symbol of modernity. Synthetics in all forms, furniture, shiny new radios and TV's, nylon carpets and sheets, infiltrated American homes. Women were encouraged to re-stock their family wardrobes with the new "miracle" fabrics - Nylon, Orlon, Dacron, Terylene, Courtelle and Crimplene. Visions of an easy care, drip-dry, crease and stain-resistant world represented the scientific future.

Manufacturers pushed to link their fibres with prestigious fashion designers. In the 1960's, ICI and Courtaulds joined to form British Nylon Spinners and they staged impressive fashion shows at the Albert Hall, the aim of which was to encourage the use of nylon for couture standard gowns. Later that decade, ICI invested large sums of money in promoting their synthetics, like PVC and Crimplene, for use in the fashion industry. They sponsored design projects in the fashion school at the RCA in London, (fig. 4).

The Space Race and the general fascination with technological advances had an unprecedented effect on fashion design. Synthetics became shiny and spacey. Unlike earlier in the century, synthetics became popular even with the couturiers. In the Sixties, Paco Rabanne and Courrèges produced their famous Science Fiction collections. Similarly, Pierre Cardin patented the revolutionary 'Cardine' fabric which could be moulded just like egg boxes, and subsequently provided the fabric for his

fig. 3 : Extract from 'Textile Fabrics', New York, 1946

fig. 3 : Extract from 'Textile Fabrics', New York, 1946

reel. Yarns so made are sized according to the denier system given for rayon. Nylon yarns now generally being used for hosiery range from 15 to 70 denier.

Physical properties of nylon. By the process now used, the fiber is made as a continuous filament. Nylon filaments can be produced in a wide range of diameters which are selected in relation to the use for which they are intended.

Undyed filaments of nylon yarn are more similar to rayon than any other fiber when viewed with the naked eye. Nylon filaments have a naturally high luster, but can be made dull by pigmentation.

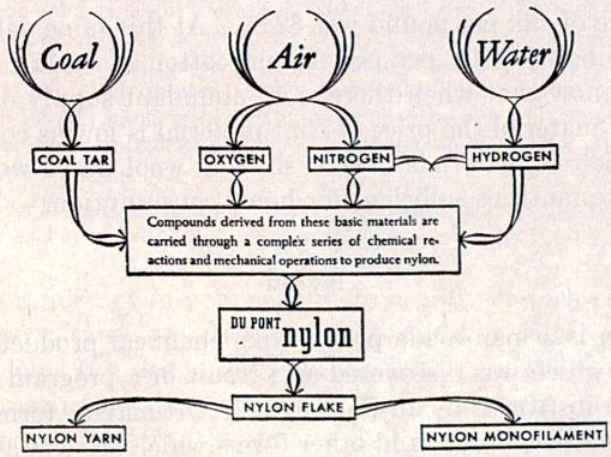


Fig. 16. The "Genealogy of one type of nylon." Nylon flake is used for electrical insulation coatings; nylon yarn, for hosiery, undergarments, foundation garments, gloves, raincoats, dress fabrics, fish lines, surgical sutures, bead cords, and sewing thread; nylon monofilament, for brush bristles, surgical sutures, fish leaders, and racquet strings. (*Courtesy of Du Pont Company.*)

Nylon filaments, when dry, are stronger than any other man-made or natural fiber—even silk. When wet, nylon loses approximately 12 per cent of its strength, whereas silk loses roughly 25 per cent and rayon 30 per cent or more.

Nylon filaments under the microscope closely resemble those of cuprammonium rayon. Their diameters are even and the surfaces smooth and structureless like glass rods. There are no crenulations as in most rayons (see figure 15). The dull

fig. 4 : 1967 RCA / ICI Scooter Suit

Fig. 4 : 1967 RCA / ICI Scooter Suit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extraordinary three-dimensional dress.

fig. 5: "Space-age" synthetics,
Terlenka advert, 1969.

However, in the early 70's, a decade of disillusionment with synthetics set in. The nylon shirts yellowed with age, the negative sparkling- crackling- sticky- static aspects of acetates, acrylics, polyamides and polyesters began to register. With rising chemical ecological disasters and the increased cost of raw materials, which resulted from the oil crisis of 1973, the consumer public began to distance itself from synthetics. With the hippy generation had come a return to nature, a nostalgia for the past, a disenchantment with science. Charming hand-made, natural cloth in silk and cotton were imported from the Far East and third-world countries, at very low cost. The harsh, chemical properties of synthetics were no match for these fabrics. Synthetics became associated with the lower end of the market, their popularity continuing to plummet throughout the 70's and into the 1980's. Couture returned to traditional, natural fabrics like wool, linen and silk.

Now as we approach the 21st century, after twenty years synthetics have been re-invented. New and improved man-made and synthetic fibres have initiated a renaissance in fashion, entering into "the High Fashion sphere and the public consciousness", (DuPont/ Nylon, 1994, p. 9).

THE CONSUMER AND FASHION IN THE 90'S

There is a marked change in attitudes towards clothing in the 90's. Interest in fashion seems to be more general and less intense than in the past. There is a new freedom in dressing, no longer one fashion, but several fashions. Short or long, full or slinky, sophisticated or casual, each one is equally legitimate.

The individualism in fashion is partly about lifestyle. Sport and leisure are a major influence on fashion today. This is reflected in the trend towards comfort, relaxation and fluidity in fabrics and garments. Elizabeth Browning, marketing strategy director for Lycra worldwide says, "The Nineties are less formal than the eighties. There is a cohesiveness in the culture worldwide. People are looking for freedom of movement in their clothes." (*Drapers Record* (supp.), Sept. 1994, p. 5)

When DuPont and the IWS both carried out independent research into consumer trends, both reached similar conclusions: "Comfort, shape retention, movement, trans-seasonal versatility and interest in value-added blends". (Interview/ Karen Jones, 1995) As Karen Jones, marketing manager of Lycra outerwear says, "People have experienced the comfort of leggings and of the sweat-shirt, and they don't want to give that up." (ibid.) Other factors of major importance, as regards consumer opinion, are quality and value for money. More and more, consumers are looking for lower-priced quality products and are becoming more disinterested in ostentatious expenditure.

Moreover, the consumer of the 90's is a more environmentally aware beast. Textile and garment manufacturers are pressured into researching and developing new and environmentally sound manufacturing and recycling processes. As fashion guru Nelli Rodi says of textiles in the future, "Nature is becoming a fundamental point of reference for all choices in all sectors of our society. Textiles will be recyclable and will become environmentally friendly and wearer friendly, incorporating, for example, copper to combat stress. Accessories will not only be recyclable but will be manufactured from waste. Nature will be found in everyday objects." ("The Eco-epoch", *International Textiles*, Feb. 1993, p. 36)

Consequently, important factors which must be considered when dicussing the role of synthetic fibres in fashion, now and for the future, include:

(a) The consumer being less dependent on fashion trends

(b) Greater environmental awareness

(c) Interest in comfort, easy wear and easy care in garments

(d) Interest in Quality and value added blends.

CHAPTER TWO

MICROFIBRES

Microfibres were introduced to the fashion and textile industry in the late 1980's. The initial response towards these fibres was overwhelming.

What are microfibres?

There is no standard definition which exists to define microfibres. However, "in Western Europe it is generally accepted as meaning staple fibre, or yarns with filaments, having a decitex* of less than 1.0," ('The Microfibres Evolution', *International Textiles*, Feb. 1994, p, 56). In 1992, ICI launched their polyamide (nylon) micro yarn, 'Tactel micro'. All the filaments in this yarn are guaranteed to be less than 1.0 decitex. Some confusion can arise however, due to the fact that Japan and North America chose to remain with the yarn linear density, denier**. In those countries microfibres are defined as having a denier of less than 1.0., which actually translates as a decitex of less than 1.1. The denier definition does perhaps make more sense when it is considered that the finest natural fibre is silk, and silk has a denier of 1.0.

About 60% of all microfibres produced are used in the fashion sector; of this amount about 10% is for purely functional clothing. Fabric for functional clothing must be waterproof, windproof and permeable to water vapour. Microfibres can be produced up to ten times finer than a human hair. As a result, they have greater flexiblity than standard polyester filament. The fine filament count imparts to fabrics excellent drape, fluidity and increased softness. With regard to functional clothing, it has been proved that the properties of breathability, windproofing and hard-wearing, easy-care qualities are considerably improved with finer counts.

* The decitex measurement indicates weight, in grammes, of 10,000 metres of a yarn, ie: 10,000 metres of a 22 decitex yarn weighs 22 grammes.

** The denier measurement indicates weight, in grammes, of 9,000 metres of a yarn.

"Total West European production of microfibres for all end-uses was estimated in 1992 to be about 25,000 tons, of which polyester (PES) accounts for about 60% and polyamide (PA) accounts for about 40%. In the last two years, the growth rate has been 23% for polyester and 5% for polyamide," (ibid. 55). Throughout the Eighties the trend towards finer yarn counts increased, which resulted in European fibre producers introducing microfibres. The process and technology for producing microfibres is much the same as for producing standard counts. Consquently, while hailed as a revolution in fibre technology, it was really "a further step within an on-going evolution",(ibid. 55).

However microfibres' intrigue and mass popularity went into decline around 1990. There are a few reasons for this, one of them being that microfibres were highly priced whereas, simultaneously, huge quantities of these fabrics were being produced. Another contributor to this decline was that many fabric producers entered quickly into the business, producing low quality fabrics and abusing the "Micro" label.

Despite this, microfibres have retained a significant popularity and are still associated with the quality end of the fashion market. Consequently, I shall attempt to assess the importance and potential of these fibres in the upper fashion market later in this dissertation.

LYCRA

In 1802, scientist, Eleuthère Irenée DuPont de Nemours opened a black powder mill on the Brandywine River in the American State of Delaware. He never suspected that this family business would develop into the diversified chemical, energy, life sciences and speciality products company it is today. DuPont is one of the world's largest producers of chemical fibres. In 1959 they launched Lycra.

Lycra is a segmented polyurethane that belongs to the elastane family of man-made fibres. It is an invisible, or chameleon fibre which takes on the look and handle of the fibres with which it is blended, natural or man-made, while imparting its unique characteristics of stretch, drape and recovery. The Lycra molecule is solid and, to be turned into a format that is compatible with textiles, must be melted and then spun into a thread. Once it is spun it must rest; Lycra has been called a living fibre for this reason. For more than thirty years, it has influenced and impacted on the development of the clothes we wear.

Lycra revolutionised women's underwear in the Sixties, as it is stronger and longer-lasting than rubber and twice to four times as stretchable. It is also one third lighter than latex. Girdles with Lycra introduced a new age of comfort. Nylon tights with Lycra became the all-in-one alternative to stockings for women wearing the Sixties fashion thigh-high skirts.

Unlike rubber, Lycra is resistant to both sun and salt water. In the Seventies, Lycra made its mark in the form of swimwear. French and Italian designers also produced lightweight seamless bras, reflecting the emphasis the contemporary woman placed on comfort in clothing.

Body conscious clothes came to the fore in the eighties. This decade gave birth to two classic, simple garments which are now essential features of a modern woman's wardrobe - the body and the leggings. "This was also the decade when Madonna broke a taboo, turning underwear into outerwear, rewriting the rules about which

garments were fit to be seen in public. Support undergarments are back in vogue, but this time around Lycra makes them a rather more comfortable proposition", (*Elle* (supp.), Oct. 1993, p. 6).

Lycra has become a household name for any garment which moulds to fit the body. It has even won itself a place in the *Oxford English Dictionary*. However, the dictionary definition of Lycra as "an elastic polyurethane fibre or fabric used especially for close-fitting sports clothing" needs rewriting as fashion in the nineties takes new directions.

THE TECHNOLOGY OF LYCRA TODAY

Lycra is a segmented polyurethane fibre that belongs to the generic elastane classification. It is composed of "soft", or flexible, segments bonded with "hard", or rigid, segments. It is this molecular structure which endows the fibre with its in-built capacity to stretch and recover. Lycra has the ability to stretch up to five times its original length and then return to its natural length, repeatedly and without tiring, (fig. 6). Lycra is produced as a 'dull white', semi-transparent 'bright' or 'clear' yarn and comes in a range of different yarn counts, from 11 to 1880 decitex. Depending on the type of fabric and its end-use, the Lycra content may vary between 2 and 40 percent. For example, a woven, tailored suit may contain as little as two percent of Lycra, whereas a garment requiring a lot of stretch, like a swimsuit, may contain as much as fourteen to forty percent.

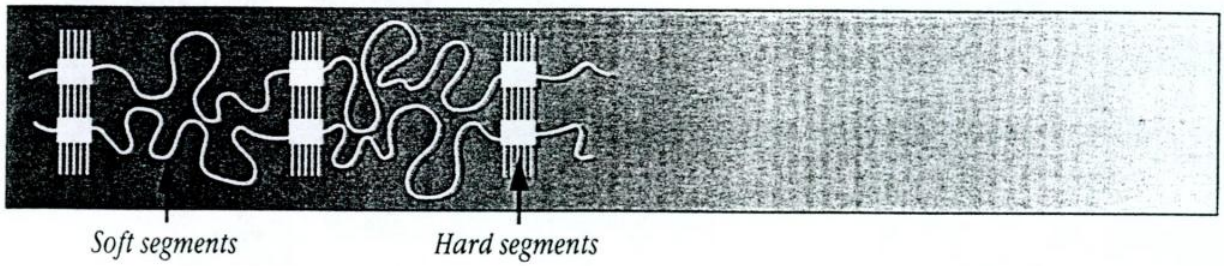
Lycra can be used in all knitted or woven textile constructions, either as a bare yarn, or sheathed with man-made fibres or yarns. Lycra can be used in its bare state. This is possible as Lycra possesses the dyeability and the other processing and finishing characteristics of a man-made textile fibre. Bare Lycra is used in lightweight jersey for bodywear, dresses and sportswear.

However, Lycra is the "invisible" companion yarn. In order to preserve the visual and tactile characteristics of the fabric with which it is blended, Lycra is wrapped in another yarn or fibre that matches those features. This is why the denim in a pair of

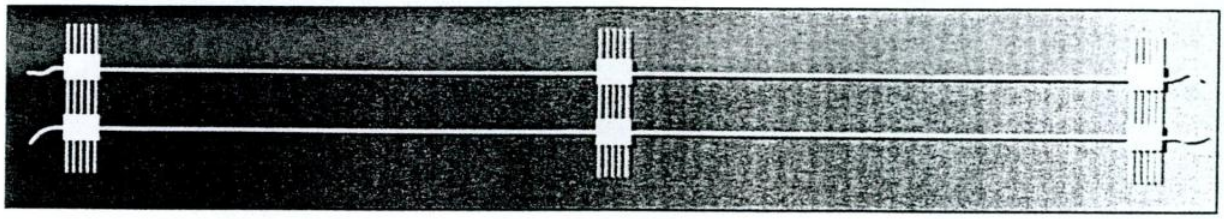
fig. 6 : Lycra - Hard and Soft segments

fig. 6 : Lycra - Hard and Soft segments

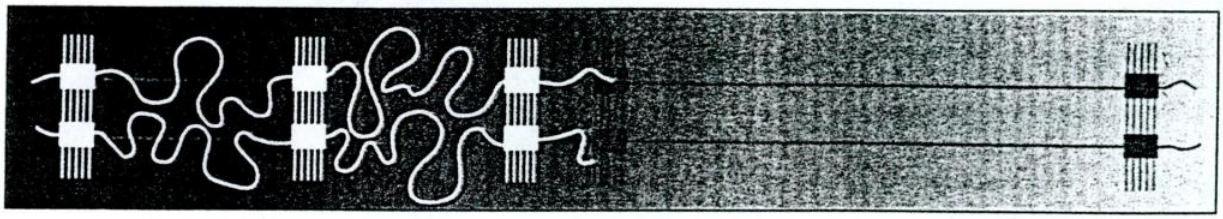
In the fibre's naturally relaxed state, the soft chains lie in tangled disorder.



Under tension, the chains straighten out...



...while always straining to draw back to their natural tangle.



stretch jeans looks just like any other denim. It is only when it is worn that its comfortable stretchiness becomes apparent.

There are also technical reasons for covering up the Lycra: certain weaving or knitting techniques cannot deal with highly elasticised yarns. The Lycra is temporarily stabilized by sheathing it with other yarns or fibres. Full elasticity is restored during the dyeing and finishing processes.

There are three sheathing techniques, single and double covering, core-spinning and interlacing;

Single and Double Covered Lycra

Stretched Lycra is wrapped in a strand of non-elastic filament yarn. For maximum quality sometimes two strands of yarn are used, wound in opposite directions (described as S and Z). The second covering balances the yarn's tendency to spiral, (DuPont/Lycra, 1995).

Core-spun Lycra

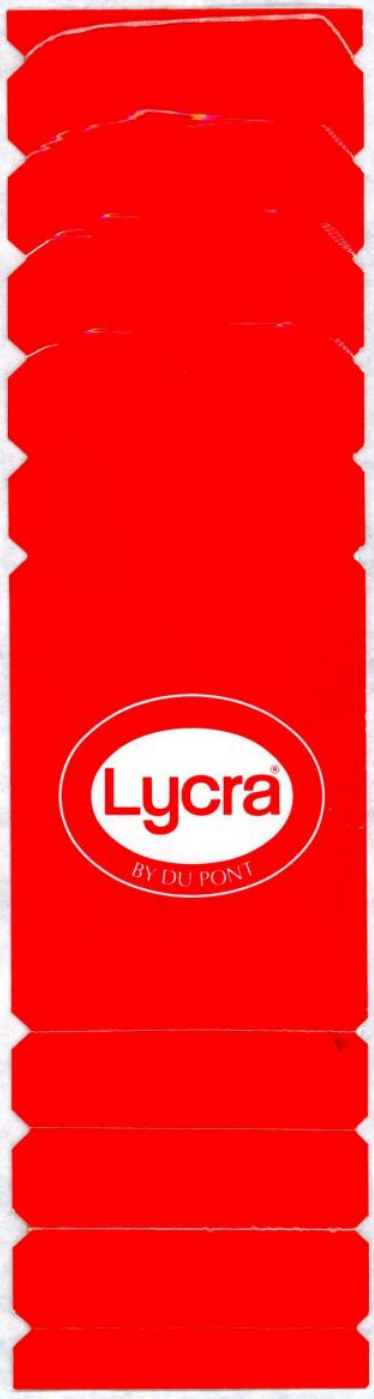
A non-elastic fibre - natural or man-made - is spun around stretched Lycra. The resulting yarn has the appearance and handle of the sheathing fibre, i.e. wool, cotton, nylon, linen or silk. Combined during knitting or weaving with non-elastic yarns, the core-spun yarns enhance fabrics, making them more comfortable and lively to wear. Covered and core-spun Lycra impart comfort and freedom of movement to broad-woven fabrics of all kinds, from sporty cotton denims and corduroys to fine wool gaberdines ; from sturdy canvasses to gossamer silk crepe de chines, (ibid.).

Interlaced Lycra

A non-elastic multi-filament yarn is fed through an air jet together with stretched Lycra. The jet causes the yarns to intermingle, partially covering the Lycra. Because of the random loops on its surface, interlaced Lycra tends to hook onto the yarn with which it is combined, a very useful feature in certain knit constructions where a smoother elastic yarn might slip out of place, (ibid.).

LYCRA SAMPLES

Suggested use of Lycra	*decitex*	*denier*
Narrow fabrics, ie: elastic bands, straps	1880 decitex	1680 denier
Foundation garments, narrow fabrics	940 decitex	840 denier
Foundation garments, narrow fabrics	470 decitex	420 denier
Foundation and lingerie fabrics, narrow fabrics and waistbands	310 decitex	280 denier
Hosiery, lingerie, swimwear, circular knit and woven fabrics	44 decitex	40 denier
Hosiery, lingerie	22 decitex	20 denier



Hosiery and circular knits, woven fabrics	Single-covered Lycra
Hosiery and circular knits	Double-covered Lycra
Socks and outerwear, woven fabrics	'Core-spun' Lycra
Hosiery, circular knits for outerwear	'Core-mingled' Lycra

The 1990's have experienced a diverse ethos in styling. Fluid, floaty fabrics made up the free tactile mood early in the decade, while the middle of the decade has returned to a more tailored silhouette. Despite shape and styling, however, freedom of movement in clothes is a consumer priority. This is where Lycra comes in.

Lycra is not the companion yarn, it is the added plus, it does not change the appearance of a fabric but serves to improve on the natural qualities of the fabric. Karen Jones, DuPont marketing manager for fashion outerwear, explains, "Originally designers would create clothes to show the Lycra. Now clothes are being designed away from the body with Lycra for ease of movement and comfort. The idea is not so much to see or feel the Lycra, but not to feel the clothes ", (Interview/ Karen Jones, 1995).

Fashion and textile designers alike are becoming increasingly interested in the hidden properties which Lycra possesses. The stretch quality offers much more than a tight or clingy fit. Lycra enables designers to cut a narrow armhole, for example, in sharply tailored suiting without compromising on comfort. It is also less wrinkle prone, making it an easy-care fibre. So too does it prevent bagging due to its 100% recovery rate, and consequently it lengthens the life of a garment. In knitwear, Lycra helps to prevent snagging and holds mohair in place. The fashion company, Joseph, comments, "We enjoy using Lycra across the grain - not for close fit but for fabulous crisp lines" (*Marie Claire* (supp.), Oct. 1994, p. 6), highlighting another of Lycra's qualities, (fig. 7).

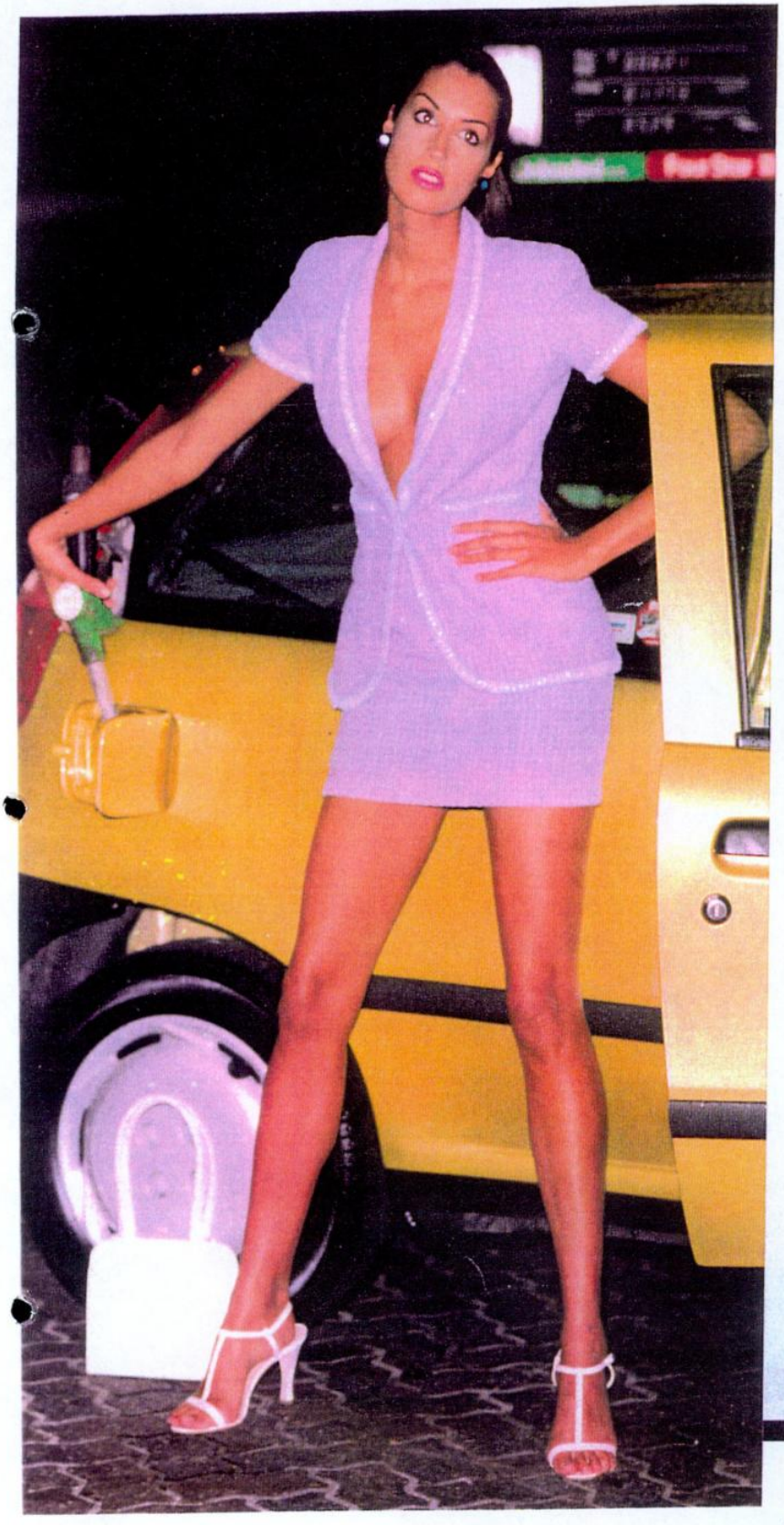
Lycra can add "unusual properties to the most conventional fabrics", says fashion guru Jeff Banks of 'The Clothes Show' and design company, 'Debut' (*Drapers Record* (supp.), Sept. 1994, p. 7). For a 'classic' example of this statement it is not necessary to look any further than Chanel's treatment of the humble tweed. A young, sexy image was created through the addition of colour and an infusion of stretch-providing Lycra, (fig. 8). Richard Ostell of designer duo 'Flyte Ostell' comments, "Lycra brings a modern feel to classic fabrics. Flyte Ostell seeks to couple high-tech invention with a pure simplicity ; Lycra embodies this ideal, " (ibid. 7).

fig. 7 : *Joseph* crêpe dress in 52% viscose, 45% acetate, 3% lycra

Fig. 7 : Joseph crêpe dress in 52% viscose, 45% acetate, 3% lycra

fig. 8 : Chanel Tweed with an infusion of Lycra

fig. 8 : Chanel Tweed with an infusion of Lycra



CHANEL

Most of the prestigious designers operating today use Lycra in one form or another, from Donna Karan to Jean Paul Gaultier and Hervé Leger, who acknowledges women will always want the glamour and sexiness of tight, clingy eveningwear, (fig. 9). As Jeff Banks explains : "Lycra, as a fibre, has endowed so many fabrics with unforeseen properties, and at 'Debut' it has lent itself to so many uses, that I find it indispensable. It's no surprise that it has become such an integral part of people's lives", (ibid. 7).

DUPONT'S CONSUMER AND ADVERTISING CAMPAIGN

In 1990 DuPont launched its 'Lycra Sensations' advertising and promotional campaign throughout Europe. The success of this campaign resulted in Lycra's becoming a household name in the homes of almost 100 million consumers; it increased the brand awareness of Lycra among European women from 66 percent to 81 percent over its four year duration, (*International Textiles*, Jan. 1994, p. 19).

Branding implies a standard and creates an identity for a yarn. There is a minimum percentage guideline of 1 or 2% in order for a fabric to earn the Lycra name. Karen Jones (DuPont) emphasises, "Every piece of fabric that bears the Lycra logo has to be sent to DuPont to be tested that (a) it is Lycra, and (b) it conforms to our minimum guidelines. Because Lycra is a brand and it implies standards, we have to maintain those standards and protect those standards for the consumer," (Interview/ Karen Jones, 1995). Once a fabric has been cleared by DuPont, the fabric and garment manufacturers recieve promotional support in the form of marketing, swing tickets and leaflets.

The new promotional campaign, launched in January 1995, proved to be even more successful than its earlier counterpart. The catchphrase "Nothing moves like Lycra", highlights the campaign's emphasis on Lycra's most appealing quality, freedom of movement. The other benefits of Lycra, which include comfort, drape and high quality, are also emphasised.

fig. 9 : Hervé Leger's figure-fitting ribbon dresses

fig. 9 : Hervé Léger's figure-fitting ribbon dresses


HERVE
LEGER
PARIS

The campaign features clothes from top international fashion designers, including Gianni Versace, Donna Karan and Karl Lagerfeld, and involves a series of striking black and white photographs by leading photographer, Richard Avedon, (fig. 10). DuPont's decision to include such designers served to position Lycra as an upmarket fibre.

Research shows that the consumer understood this move by DuPont. As Jon Penrice, marketing strategy manager for Lycra Europe, explains, "There was no confusion - they (the consumer) didn't think we were trying to sell garments by Karl Lagerfeld. Instead they said that the next time they saw a garment with Lycra in Marks and Spencer they would think even more highly of it," (*Drapers Record* (supp.), Sept. 1994, p. 8). And to re-enforce the success of this campaign, a consumer comments : "It changes our impression of Lycra. It shows it can be high fashion, and the pictures show it can also be easy care and easy wear," (ibid. 8).

The success of the Lycra campaign by DuPont in the last five years has set a promotional standard for other fibre manufacturers to live up to. With this campaign, not only the fabric manufacturers, but the consumer public is made aware of a fibre. Thus DuPont has helped to increase consumer awareness and appreciation of certain man-made textiles.

fig. 10 : Lycra's latest promotional campaign

Fig. 10 : Lycra's latest promotional campaign


Nothing moves customers like LYCRA®
Karl Lagerfeld

... a new "movement" positioning ... says "comf

... excitingly interpreted by world-renowned photographer Richard Avedon

... featuring garments from top international designers

... major consumer campaign to run throughout 1995 in fashion magazines and outdoor posters

fort, freedom of movement, quality and style"

...across Europe: France, Germany, Italy, Spain, U.K.,
the Netherlands, Belgium...
North and South America,
Asia and the world

... ask for the new swing ticket and get on board
the campaign that'll really move your customers,
because remember...

Nothing Moves Like LYCRA®.

® DuPont registered trademark

POLYESTER

Polyesters are made into both woven and knitted fabrics, either alone or blended with other fibres.

Polyester, was one of the 'miracle' fibres of the fifties and sixties. Posing under names like Dacron, Terylene and Crimplene, it promised the housewife a life of easy-care, drip-dry, stain resistant clothing.

Polyester fibres recover quickly after extension and they absorb very little moisture. Prolonged exposure to light reduces strength but does not affect colour. Polyesters have good resistance to chemicals. They can be washed or dry-cleaned with most common cleaning solvents.

Low moisture content makes them likely to accumulate static charges unless treated with antistatic agents; this negative aspect was only one of many which contributed to the dissatisfaction that arose with the fibre in the late Sixties. Then the oil crisis of 1973 made the raw materials for synthetic manufacture far too expensive. The popularity of polyester in fashion waned for many years.

The production of man-made chemical fibres has grown considerably in the last twenty-five years, polyester in particular, whose production has risen 25% since 1970, (Laue, *Textile Forum*, March 1995, p. 35). With technology, the properties of polyester have been vastly improved. The introduction of microfibres in the last six years has contributed enormously to the rise in popularity of the fabric in the fashion market today. While polyester is unquestionably popular in mass-market fashion, it is not so obviously present in the upper fashion market. However the instance of polyester in this market is increasing as both designer and consumer are acknowledging the versatility of this fibre.

One prestigious designer who has been using polyester almost continuously through his career is Issey Miyake.

100% Polyester

100% Polyester

"While fashion designers are stylists, a few like Fortuny, Chanel, Vionnet and Cardin are conceptualists. Instead of reworking old ground, cutting new proportions or rejuggling basic pieces, they start from zero and requestion everything. Miyake belongs to the second category," (Yusuf, *Textile Magazine*, Sept. 1994, p. 122).

Bamboo, rubber, metal, perspex and plastic are few of the many unusual materials with which Miyake has worked in the past. Miyake believes that a fabric can be anything, and a garment can be made from anything. On the other hand he creates functional and practical clothing, which is comfortable and made for everyday living. Miyake has always worked closely with the textile industry, embracing technology and introducing many new concepts. In April 1970, the Miyake Design Studio was opened in Tokyo. The textile designer, Makiko Minagawa, joined Miyake at this stage and has worked with him ever since.

Within only one year of the opening of the design studio, Miyake, in conjunction with Minagawa, had reinvented an ancient Japanese technique called 'sashiko quilting'; this is a tough cloth which is traditionally used for working garments, which he adapted for his designs. Miyake considered denim an important fabric in twentieth century fashion history, he regarded 'sashiko' quilted fabric an equivalent to denim. He introduced his concept of clothing as a "second skin" through his tattoo tops, and he introduced polyester to his work. Miyake had been looking for a universal fabric, suitable for the Sixties fashion market and for women of all shapes and sizes, and all cultures. Polyester jersey was perfect. Miyake has continued using polyester fabrics since 1970.

As early as 1975, Miyake was experimenting with pleats. The polyurethane-coated jersey skirt worn with the rattan bodice on the front of *Artforum* in 1982 was pleated, (fig. 11). The technique of pleating originated in ancient Egypt. More recently, at the turn of the century, Mario Fortuny became renowned for his fine, silk, pleated fabrics.

fig. 11 : Issey Miyake's Rattan Bodice and Pleated Jersey Skirt from 1982

fig. 11 : Issey Miyake's Rattan Bodice and Pleated Jersey Skirt from 1982

In 1988, after much experimentation, Issey Miyake officially launched the "Pleats Please" project. Polyester jersey was designed into simple and basic shapes, each piece first cut and sewn and only then pleated. Usually the polyester is pleated before being cut and sewn into a garment. The reversal of this process allows both texture and form to be created simultaneously, and also results in unique garments, (fig. 12).

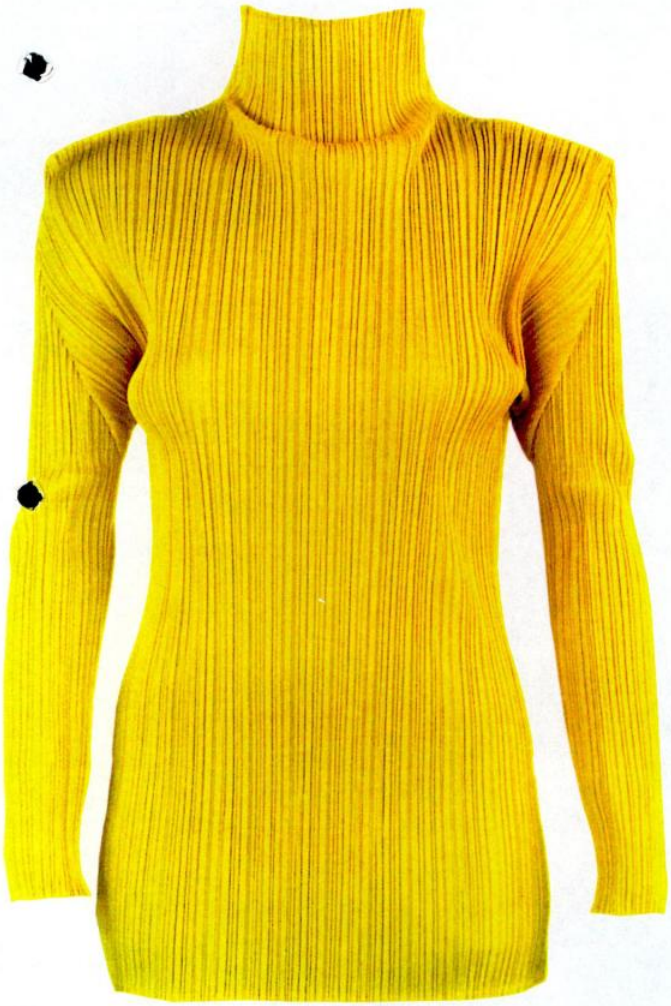
"Pleats Please" garments are functional. They store easily, travel well and require no ironing. They can be hand washed with cold water and dried flat in a matter of hours. "Pleats move and change form with the wearer's body movements. As the pleats move they change colours, giving an optical illusion like a kaleidoscope", Miyake explains, "Pleats contain endless fascination for me and also inspire a multitude of images", (Holborn, 1995, p. 82).

1992 saw the launch of the "Twist" project, which arose as a development of the "Issey Pleats". The process of producing "twist" garments is similar to that of "pleats". Polyester fabric is cut and sewn into a basic garment shape; then, instead of pleating, it is twisted by hand. Two or three people are involved in the twisting process, they wrench, wring and crumple the garment until it is twisted into a rope and then further twist it into a tight ball. This is then bound and steamed at a high temperature. The special wrinkle that is obtained only from the twisting process is revealed when the ball is unwound, (fig. 13 & 14). "The fabric displays an amazing resilience and buoyancy. The clothes are art, born of human strength, passion and time as well as they are functional, easily carried in a small balled-up form,"(Naoshima Contemporary Art Museum, 1992).

Along with sculpture, dance and theatre, Issey Miyake is inspired by tradition, craft, nature and the human form. He believes that clothing is an extension of our bodies; when clothes are twisted, they yield more easily to the natural movement and shape of the body. They are in harmony with the human body by virtue of the fact that each garment has been painstakingly twisted by hand. These garments represent modern easy-care, easy-wear clothing. Miyake believes that "his 'twist' clothing is the sartorial solution for the next century", (Barbieri, *Independent on Sunday*, 3 Sept. 1995, p. 43).

fig. 12 : Issey Miyake's "PLEATS PLEASE"

fig. 12 : Issey Miyake's "PLEATS PLEASE"



PLEATS PLEASE

ISSEY MIYAKE

1994 SPRING/SUMMER

fig. 13 & 14 : Issey Miyake - "TWIST"

fig. 13 & 14 : Issey Miyake - "TWIST"

NYLON - TACTEL

Nylon was one of the 'miracle' fabrics of the 50's and 60's. It too promised a life of easy-wear and easy-care. However, the consumer tired of the fabric when its scratchy, static, non-aborbent properties became apparent, when 'sweaty' nylon materials yellowed with age. "This was essentially the consequence of putting one basic nylon product into areas to which it was not ideally suited," (*DuPont Magazine*, no. 5/1995, p. 12).

Throughout the 70's and 80's, ICI Fibres worked to improve the aesthetics of nylon for application to fashion. They were constantly improving on the basic product, trying to produce a variety of fabric types to accomodate a growing number of market end-uses and the changing face of fashion. As a result of this research , ICI Fibres in 1983 launched Tactel. In July 1993, DuPont acquired ICI Fibres' world-wide nylon business, and, with it, the Tactel brand.

THE TECHNOLOGY

Tactel, which is derived from the Latin word 'tacto' meaning 'I touch', is a high quality polyamide 6.6 yarn. Ongoing research, undertaken by the Geneva-based Research Institute of Social Change, revealed that the most important factor for consumers of fashion, casual, performance and intimate wear in the 1990's was comfort. Tactel is ideal for this requirement, having progressed a long way from the scratchy, shiny fabric of the 60's. Tactel fabrics can be strong and extremely light-weight; Tactel yarns are 30 percent lighter than cotton or polyester and have the highest strength-to-weight ratio of any natural or man-made fibre.

If required, Tactel yarns can be water-proof, but yet 'breathable'. They are available in a wide variety of fabric finishes and offer vibrant colour, due to their high dye penetration. Tactel is also easy to care for. Initially Tactel was launched onto the ski-wear market. These properties made it ideal for this application and within two years it had taken 50 percent of the market.

There has been a whole range of Tactel yarns developed by DuPont since this success.

They provide a huge variety of qualities and properties for many end-uses in the fashion industry. There are four specific effect yarns in this Tactel range:

Tactel 'texturals'

Heavy decitex matt yarns are used in wovens, in both warp and weft for this effect, which is rugged and coarse in appearance yet soft and lightweight.

Tactel 'texturals' are made from high technology polyamide 6.6 yarns, which provide higher tear strength. These yarns also have a high covering capability which allows for a robust cotton look at a very light fabric weight. These fabrics are best applied to adventure sportswear garments for mountaineering or trekking etc. or to the fashion market, for a young, casual, rugged look.

Tactel 'diabolo'

This yarn is made from an exceptionally pure polymer that ensures excellent light transmission and reflection as well as colour vibrancy. There is a lustre and sheen from 'diabolo' fabrics, and increased fluidity and drape. 'Diabolo' fabrics are also machine-washable, quick-drying, and have a high crease-resistance. They allow the skin to breathe more easily, thus keeping the body cool in summer and warm in winter.

Blended with Lycra, Tactel 'diablo' can provide excellent fit and comfort. 'Diabolo' fabrics are ideal for evening-wear, fashion knits and lingerie. Early in 1994, Tactel 'diabolo' became the inspiration behind a highly successful lingerie collection from UK-based retailer Marks and Spencer.

Tactel 'multisoft'

Tactel multisoft polyamide 6.6 is the result of engineering to produce a range of multifilament, fine decitex yarns to create fabrics and garments with a soft handle, good cover at lightweights and in a wide spectrum of matt or lustrous finishes. Multisoft yarns are used in knits and wovens for all aspects of the fashion market.

Tactel 'Micro'

In 1988 DuPont launched Tactel 'micro', whose microfibre yarns are produced from

filaments of less than 1 decitex; they are 60 times finer than a human hair but six times stronger than silk.

The ultrafine filaments, with their intrinsic strength and lightness, are used to produce fabrics which are weather-resistant but breathable with an "especially soft handle and luxurious aesthetic," (DuPont/Tactel, 1994).

Tactel 'micro' has had a huge impact on the hosiery market. When blended with Lycra it provides a good fit and pleasant look and feel. Top international brands, such as Charnos, Cerruti, Aristoc and leading designer names such as DKNY and Christian Lacroix all use Tactel microfibres in their ranges.

TACTEL AND FASHION IN THE 90's

One of the first leading designers to reintroduce nylon to the high fashion scene was Miuccia Prada, who designs for the Italian design label, Prada. They introduced a range of plain nylon bags, whose Tessuto City nylon range averages at a price of £250 each. These bags are now one of the most sought after fashion accessories! (fig. 15). Prada continues to use nylon in most of their ranges, while garments in nylon include dresses and trousers as well as raincoats, windcheaters and jackets, (fig. 16); they even use nylon in their shoe designs.

Other prestigious designers who have experimented with Tactel include Paul Smith, Helmut Lang, Helen Storey, Jean Paul Gaultier and Issey Miyake.

Welsh fashion designer Jane Davis is a firm supporter of DuPont's Tactel. All fabrics used by Davis are man-made, and are mainly Tactel. Her Autumn/Winter 1995 collection is on a softly draped theme for easy day to evening separates. The silhouette is long and fluid, with tonal layers in Tactel of warm brown and black with rich golden moss velvets for a very glamorous effect. The shapes are complemented by large velvet coats and full, voluminous velvet wraps. The main collection features a strong Audrey Hepburn influence of loose styles in crisply contrasted black and white. Evening-wear includes a Tactel fabric, with a softly textured black stripe on dark navy ground, that works well for floor-length elegance or relaxed separates, (fig.17).

As Jane Davis says about Tactel, "It looks and feels expensive, you can pop it in the

fig. 15 : 'Strictly for Show -offs!', Prada's clear shopping bag and cream nylon purse

fig. 15 : 'Strictly for Show -offs!', Prada's clear shopping bag and cream nylon purse

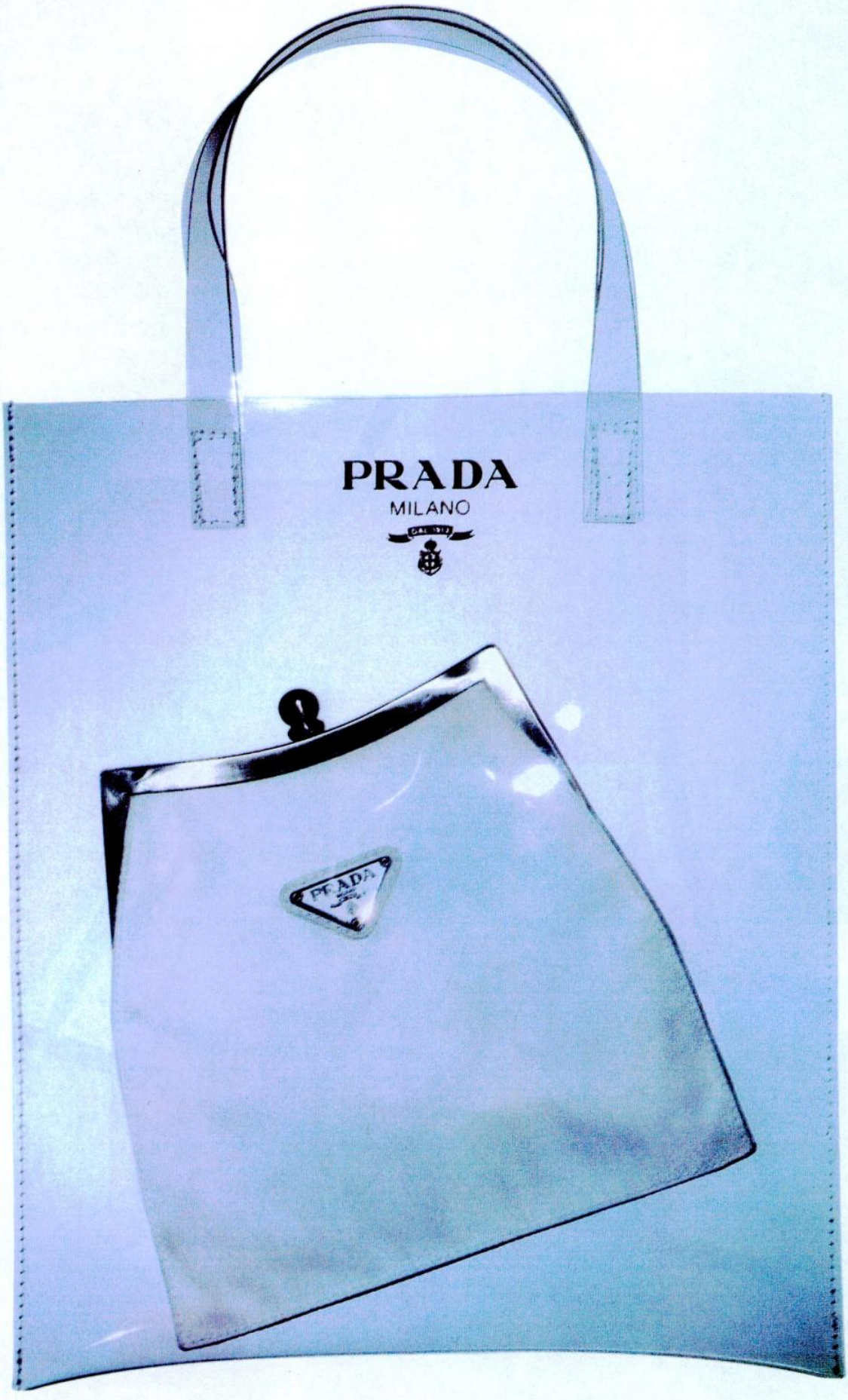
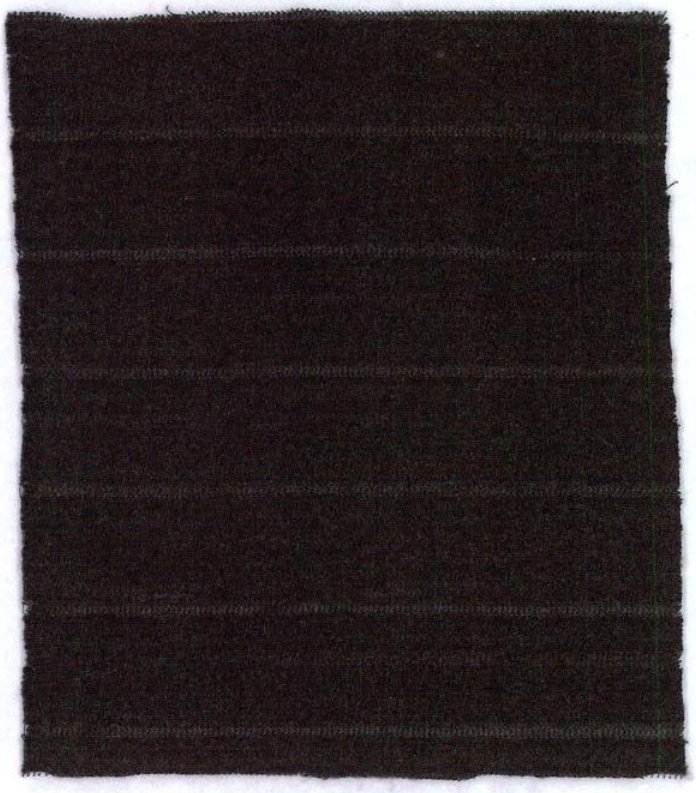

PRADA
MILANO
PRADA

fig. 16 : Prada's Nylon, A-line jacket

fig. 16 : Prada's Nylon. A-line jacket

fig. 17 : Jane Davis' 100% Tactel, occasional day-wear and evening-wear dresses

fig. 17 Jane Davis' 100% Tactel occasional day-wear and evening-wear dresses



100% Tactel

100% Tactel

washing machine, it keeps its shape and colour and doesn't require ironing," (Interview/ Jane Davis, 1995). It is unsurprising that she has come to be known as the "Nylon Queen",(ibid).

London-based designer Joe Casely-Hayford also supports the rehabilitation of nylon; "Nylon has cleaner, sharper lines and a more distinct look than other fabrics currently on the market. It is in total contrast to the whole grunge thing, and yet no radical changes to the whole silhouette are necessary. The same A-line skirts, dresses, and jackets with narrow shoulders, look completely different when made in nylon,"(Langly, *Sunday Times* , 23 April 1993, p. 9/18).

TACTEL'S ADVERTISING AND CONSUMER CAMPAIGN

When DuPont acquired nylon and the Tactel brand from ICI in 1993, they started a new promotional campaign. This aimed to increase the awareness of the "new" nylon among the fabric and garment manufacturers, and the consumer. As Brian Johnson, business director for DuPont Nylon Apparel, explains: "In the past, there was little relationship between the promotion of the brand and the selling of the technical product. What we are doing now is to promote a family of product 'effects' which Tactel can give to fabrics and garments, instead of simply selling an added value fibre," ('The Microfires Evolution', *International Textiles,* Feb. 1994, p. 57).
In a way similar to the Lycra campaign, specially designed swing tickets carry the product message to garment makers, retailers, and on to the consumer. Marketing, technical support from DuPont Textile Centre, and strict branding criteria maintain the unique Tactel product and quality.

Nylon has progressed a long way from the scratchy fabric of the Sixties. Tactel is a chameleon fibre, with a variety of fabric effects to suit all fashion trends.

CHAPTER THREE

TENCEL

Tencel is the latest branded fibre to come out of Courtaulds Fibres Plc.. Patrick White, Courtauld's research scientist, and his team started independent research into solvent spun cellulosic fibre technology in the U.K. in 1978. The objectives were two-fold: to improve the performance of existing cellulosic products, and to produce it via an environmentally favourable process. The research and its development successfully resulted in a new fibre 'Lyocell'. The fibre was made commercially in the USA, and marketed, initially, in Japan.

Under the brand-name 'Tencel', Lyocell was first launched to the trade in 1992. The fibre has made a significant impact on the fashion industry in this short time. At 'Premiere Vision' in October 1994, about sixty mills were showing Tencel in woven and knitted fabric - the previous season there had only been four mills carrying it ! (Courtaulds/ Tencel, 1995).

THE TECHNOLOGY

Tencel is man-made, however it is not synthetic. Manufactured in an environmentally sensitive way, it is a high quality cellulose fibre produced from a sustainable raw material - the wood-pulp is harvested from eucalyptus trees. The fibre is managed via a special spinning process using an organic solvent which is constantly recycled in a closed loop system. There is little waste, which is completely non-hazardous. Produced unlike any other cellulosics, the Tencel process technology is unique.

Tencel has a similar molecular level to cotton, which makes it breathable and able to absorb moisture. It has a dry tenacity of 42cN/tex (and it only loses 15% of its strength when wet), making it the strongest cellulosic fibre. It is stronger than cotton and almost as strong as polyester, so it can withstand the most demanding of textile processes without losing its fundamental properties of softness, lustre and fluidity. Yarn counts as fine as Nm80s can be spun from 1.7 decitex fibre. Tencel also has a low shrinkage rate and, if properly constructed, will not bobble.

Tencel is a fibrillating fibre. The property of fibre fibrillation (splitting) is one of Tencel's most important physical properties. Its control and manipulation during the dyeing and finishing process is the key to a wide range of fabric aesthetics. Control can vary from eliminating any occurrence of fibrillation to producing classic smooth fabrics, to the use of processing and chemical enzymes to produce exotic surface effects. One such effect is the 'peach-skin' effect, similar to that achieved by sand-washed silk.

Tencel can be used in its pure form to produce a lustrous fluid fabric or it can blended. Fibres with which Tencel is blended include linen, cotton, viscose, polyester, nylon and silk. Tencel blends well with linen. At Premiere Vision, in March '95 for Spring/Summer '96, the Italians led the way in this field. Blending matt Tencel with fine-count linen resulted in a range of "refined, plain weave fabrics that feature either a dry, modern and sophisticated hand that plays on Tencel's inherent nervosity ; or a deep and rich touch-and-feel aesthetic that exploits Tencels inherent softness and unique fibrillating character," (Courtaulds/Tencel, 1995).
Linen blended with Tencel also has a significantly improved crease recovery.

TENCEL IN FASHION

Since its launch to the trade in the summer of 1992, designers have been fascinated by the new fibre Tencel. The earliest experiments were conducted by the Japanese, which resulted in cloths that mimicked denim. Due to its strength and versatility, Tencel is the only fibre, after cotton, which can be used to create a truly authentic denim look. However, the feel is quite different from the 'cardboard' feel of traditional denim. Tencel denim has the drape, weight and lustre of washed silk and consequently, has been dubbed by the industry as "the cashmere of denim", (Fearon, *World Clothing Manufacturer*, Sept. 1994, p. 52). Tencel denim is bringing a whole new dimension to this casual workwear medium. It has a more 'lady-like' appeal, and attracts a more discerning customer, who might not normally wear denim. Ferre Jeans, based in Italy, and Liz Claiborne in the USA are among many who are capitalizing on these properties.

Tencel, however, is an extremely versatile fibre. The portfolio of fabric types available in Tencel includes velvets, corduroy, colour wovens, gabardines, twills, jerseys, prints, voiles, lace, coated fabrics and crepes.

Italian fabric manufactures, Limonta, have produced a range of 100% Tencel fabrics for rainwear and quilted jackets. These 'peach-skin' effect fabrics have been used by Mulberry, who prefer to use a fabric with the characteristics of a natural fibre. Tencel fits this requirement while maintaining the performance properties and handle of the original synthetic microfibres.

Another Italian textile manufacturer, Larusmiani, in 1994 produced a range of Tencel/cotton blended corduroys, "where rich texture and jewel-like colours have returned cord to its original 'Cord du Roi' status", (Courtaulds/Tencel, 1995). They also produced a range of structured and unstructured suitings- both in 100% Tencel and blends with other natural fibres.

Menswear designer Charlie Allen has used these 100% versions from Larusmiani which are both weighty and soft enough for tailoring in jackets and trousers. His Winter 1994 collection was dominated by Tencel blends, which included light-weight wool or linen-blended suiting and enzyme-treated, washed down knitwear in pure Tencel, shaped into zipped shirt/jackets, waistcoats and crew-necked tops.

Allen explains his use of Tencel: "Tencel has some extraordinary aesthetic qualities which include tremendous fluidity and softness. I applied both design and tailoring skills to this new textile medium to create a new look in menswear," (Fearon, *World Clothing Manufacturer*, Sept. 1994, p. 51).

KATHERINE HAMNETT AND TENCEL

The British designer Katherine Hamnett was first attracted to the fibre as early as 1991, before Tencel was available on the market. After meetings with Tencel Fibres Europe in the following June, the fibre was first used in her Spring/Summer 1994

collection.

Katherine Hamnett Ltd have an 'eco-friendly' company policy. They endeavour to use minimal packaging, insisting on recycling paper and avoiding plastic wherever possible. Other environmental fabrics currently used in Hamnett's collections include organic cotton, bio wool and Wensleydale wool. The company has also recently issued a ban on P.V.C.

Initially, Hamnett was attracted to Tencel due to the significant environmental advances in its production process. Tencel is also biodegradable. Her 'active' range for Spring/Summer 1994 included pure white 100% Tencel gabardine shorts, button-through skirts, sleeveless slip dresses, catsuits and jeans.

Hamnett's use of Tencel-based fabrics expanded in Winter '94, so that her collection included a 50%Tencel/ 50% cotton corduroy for men's suits, and a 15-piece range in 70%Tencel/ 30%wool gabardine from weaver Coiano in Italy, which was used in dresses, jackets, trousers, skirts and waistcoats.

"No fibre is perfect", states Hamnett, "but it [Tencel] is a good step in the right direction", (Modus Publicity, 1995). While Tencel's primary attraction to Hamnett is its environmental soundness, she is also impressed with its physical properties: "It has a beautiful handle with many of the characteristics of a natural fibre", (ibid).

COURTAULDS CONSUMER AND ADVERTISING CAMPAIGN

As mentioned previously, DuPont set the standard as regards promoting fibres among the consumer public. Courtaulds certainly seem to be living up to that standard in their promotion of the Lyocell fibre, branded Tencel.

Again, branding is a very important factor in the promoting of this high prestige fibre. The Tencel name has given Lyocell an identity and quality assurance with which the public can identify. However, Courtaulds has an advantage over its man-made rivals, Lycra, Tactel, Supplex, in that these synthetic fibres cannot compete with the

eco-soundness of Tencel.

Similarly to DuPont, Courtaulds are aiming for a high quality image with promotional connections with selected designers and design-led garment manufacturers. In the Autumn of 1994 Katherine Hamnett, supported by Tencel, launched a major advertising campaign in *Vogue* and *Marie Claire* in the UK, Italy and Germany. The campaign featured Hamnett's womens wear Tencel designs modelled by Cordula. This high fashion campaign was shot by photographer Juergen Teller, (fig. 18).

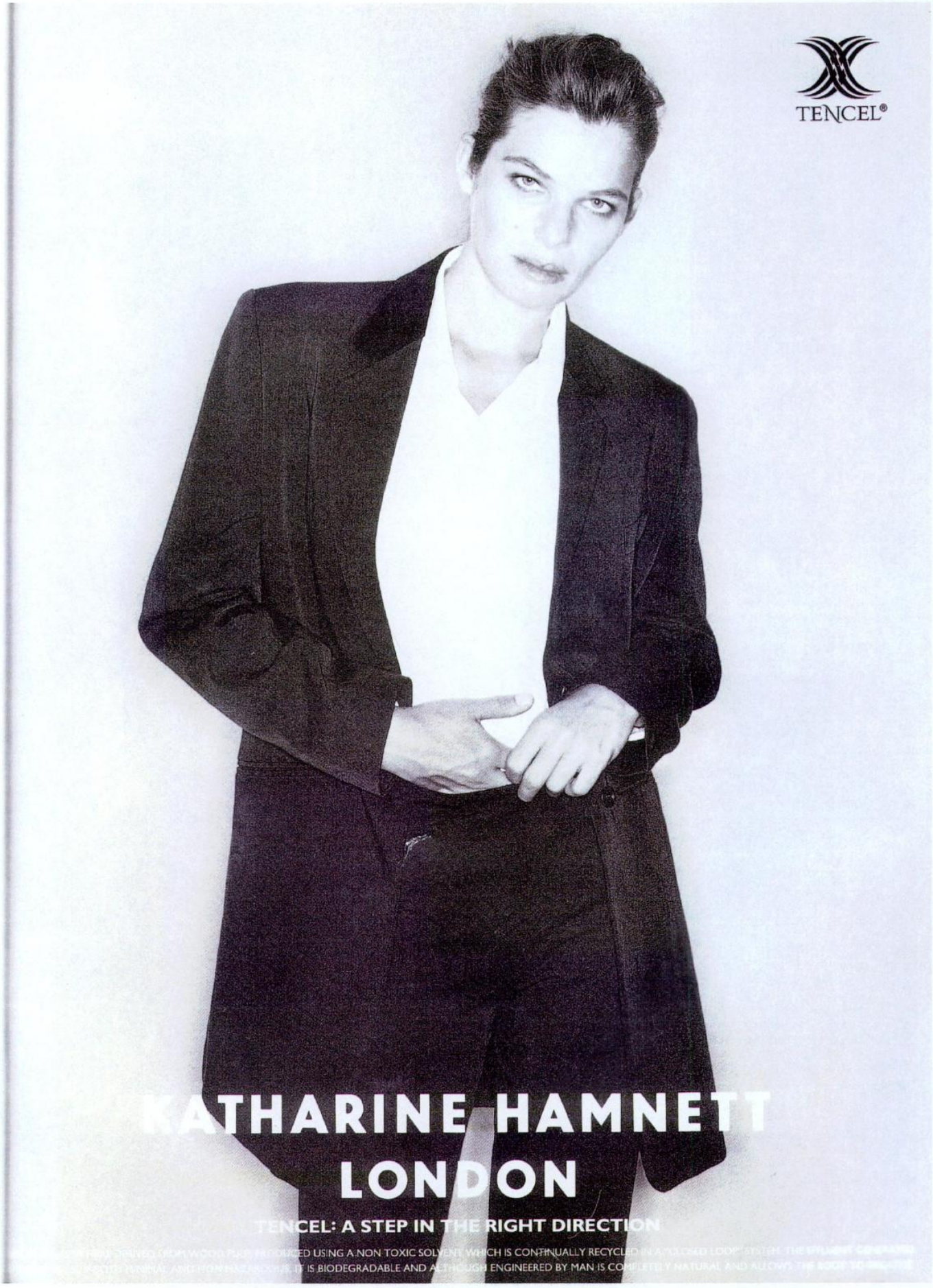
However, this Hamnett campaign was only one facet of the major European consumer campaign. Throughout 1995 Courtaulds embarked on in-store promotions, advertising, including multi-lingual swing tickets, brochures, leaflets and also a 'Branding and Quality Assurance Programme', (fig. 19 & 20). All yarns and fibres bearing the Tencel brand name are tested for quality by Courtaulds, ensuring that the aesthetics and performance of Tencel are protected.

Along with this new branding policy and image came a new logo which was launched for the Spring '95 collections. The previous solid, boxed blue design was devised 10 years ago, before the fibre research reached its completion. The new logo, the Tencel "X", represents the inherent fluidity of Tencel in both warp and weft. The logo is accompanied by the catchphrase, "feel the mystery", inviting the consumer to take on the intriguing 'feel' of this new fibre.

"Tencel is the fibre with the feeling that cannot be defined by rational explanations as to, for example, its high wet strength (the source of Tencel's extraordinary touch-and-feel aesthetics), its natural cellulosic origins (the source of its natural feel), or the ingenuity of the fibre production process (resulting in its environmental acceptability)", (Courtaulds/Tencel, 1995).

fig. 18 : Katherine Hamnett and Tencel, promotional campaign 1994

fig. 18 : Katherine Hamnett and Tencel, promotional campaign 1994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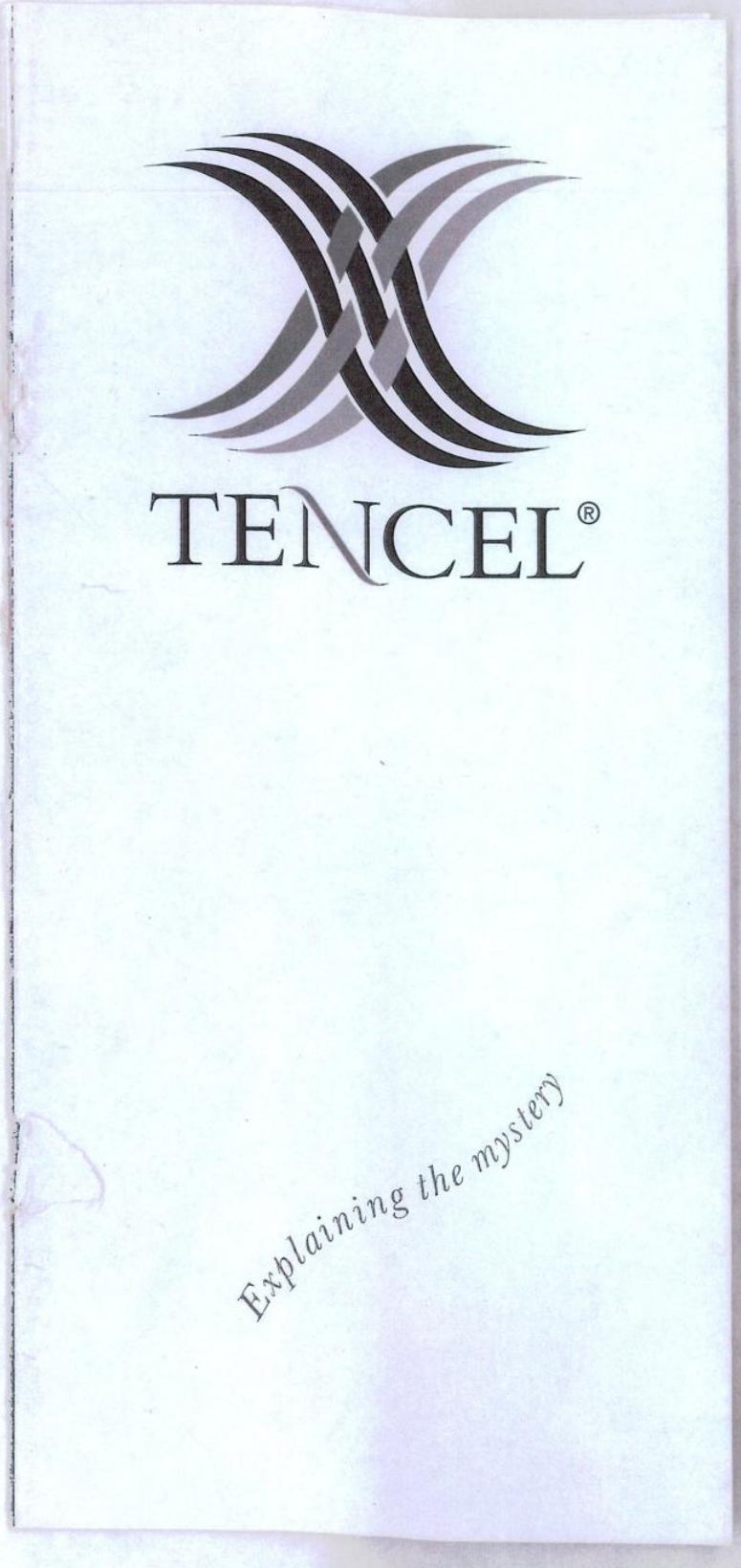
KATHARINE HAMNETT
LONDON
TENCEL: A STEP IN THE RIGHT DIRECTION



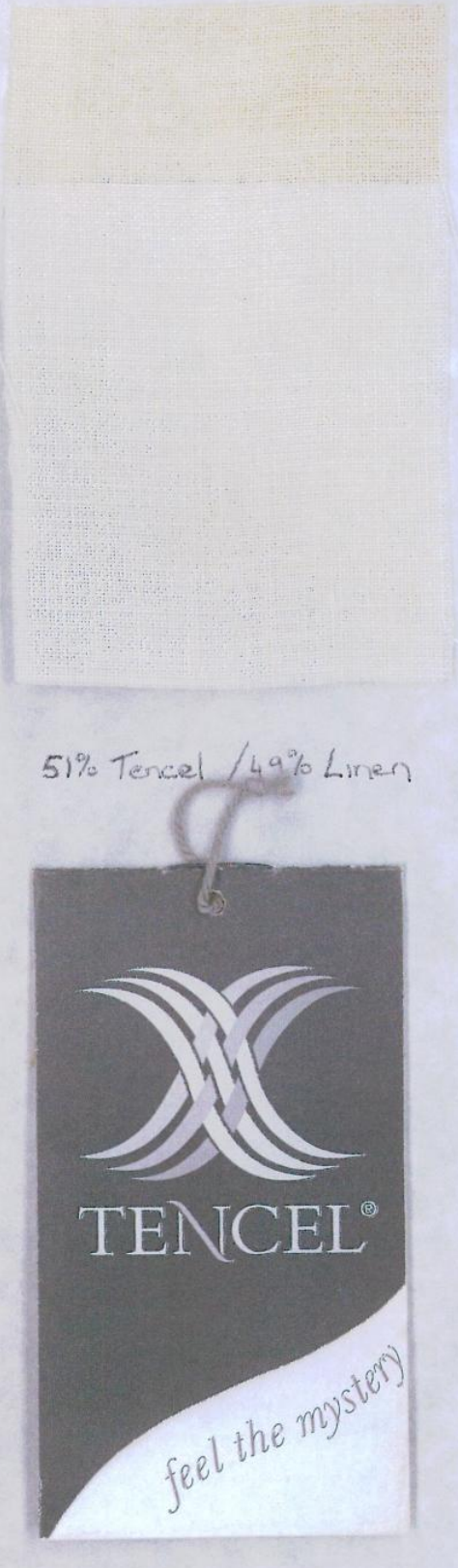


fig. 19 : Tencel - Promotional Leaflet and Swing Ticket

***Can you machine-wash* TENCEL?**

In many cases, yes. But as with any other fibre, the care label should be consulted.

How does* TENCEL *respond to dry-cleaning?

Again, because the fibre itself is so strong, TENCEL stands up exceptionally well to dry cleaning. Again, the care label should be consulted.

How well does* TENCEL *hold and retain colour?

Brilliantly!

TENCEL®

feel the mystery

fig. 19 : Tencel - Promotional Leaflet and Swing Ticket

Explaining the mystery

What is* TENCEL*?

TENCEL is a fibre (not a fabric).

Who makes* TENCEL*?

Courtaulds. It's produced both in the USA and the UK.

What is* TENCEL *made from?

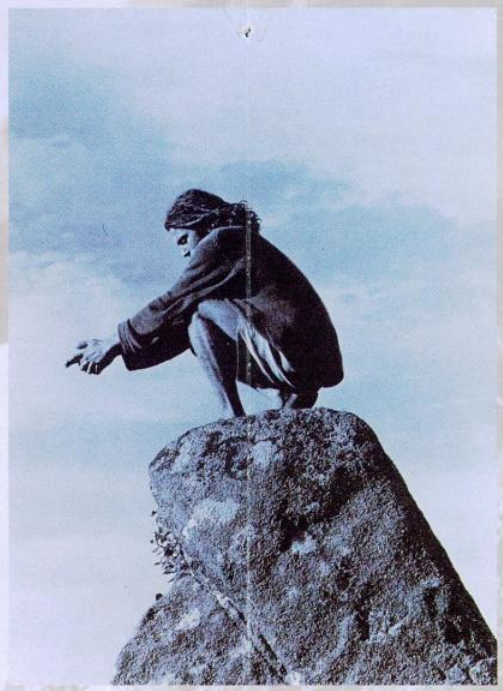
From cellulose (the material that makes up plant cell walls).

Is* TENCEL *natural?

Entirely. The cellulose used is from trees harvested from managed forests. It's virtually indistinguishable from other natural fibres, except that it's often easier to wash and durable with it. TENCEL captures the feel and the look of traditional natural fibres. Because TENCEL *is* natural.

Is* TENCEL *environmentally friendly?

Yes. Its revolutionary production process is virtually waste free. And TENCEL is fully biodegradable too.



***How versatile is* TENCEL?**

From the designer's point of view, the possibilities are endless. Fabrics in 100% TENCEL, or blended, respond beautifully to whatever demands are made on them without losing any of their natural feel.

Does* TENCEL *shrink?

Only fractionally and far, far less than many other natural fibres.

What other fabric types can* TENCEL *create?

The range is quite extraordinary. From crêpes, twills, poplins, jacquards and chambrays through to prints, knits and worsteds, TENCEL makes anything possible. And makes it beautifully.

TENCEL®

One touch of TENCEL *and you're instantly captivated.*

That's the mystery of TENCEL.

But you'll want to know why it feels so amazing. Is it easy to look after?

Does it shrink?
Is it natural or is it man-made?

You'll have scores of questions to ask about this miraculous new fibre.

Here we answer the questions most asked about TENCEL.

Soon to be the most asked for fibre in the world.

fig. 20 : Courtaulds' latest Tencel advertising campaign

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Touch me.

Touch.

It's the first thing we do in our lives, and the perfect medium for our most precious sentiments: tenderness, warmth, comfort, love..

To this most vibrant of our senses, Courtaulds offer a new euphoria: the exquisite softness of TENCEL.

TENCEL *is a fibre that can turn a mere touch... into a feeling.*

It sweeps over skin like an affectionate caress; gentle, mysterious and intensely blissful.

TENCEL *is totally natural, but it owes its sensuality to the ingenuity of man.*

It breathes life and weaves a fluid grace into every garment that boasts its label.

Look for that label.

Look for the softness.

Then feel.

COURTAULDS FIBRES

TENCEL®

feel the mystery

CONCLUSION

The huge impact of research and development, and technological advances in fibre technology, in the last twenty-five years has led to this new improved generation of fashion fabrics. The success of these fibres, in fashion today and for the future, lies in the fact that they have such extensive versatility. Many different fabric effects can be achieved from fibres such as Tactel(nylon), Lycra, and Tencel(lyocell). They can be blended with most other synthtetic or natural fibres and by doing so, often improve on the qualities of the original fibre. They have the ability to change to suit consumer demands and fashion trends.

Of course, the marketing campaigns of these fibres also have to be given credit for their success. With DuPont's and Courtauld's recent advertising strategies came a new concept: the concept of selling a fibre to the consumer, and not just to the textile and garment manufacturers. Branding is another aspect of the campaign which is of great importance. It gave the formerly unpopular synthetics a new identity; it also guarantees quality - which has been identified as being of major importance to the Nineties consumer. The consumer of the future is now growing up with this 'new' generation of synthetic fibres. Unlike the older consumer, who will remember the unappealing qualities of the synthetics of the Fifties and Sixties, the next generation of consumer will be more aware of the appealing qualities of the 'new' man-made fibres. As fashion designer Charlie Allen explains, "The consumer's appreciation of fibres and fabrics has increased enormously during the last decade. Design is valued as much as it ever was, but so is the ability to deliver the unexpected in fabric use, whether integrating traditional fabric types in a new way or taking advantages of technological innovation," (Fearon, *World Clothing Manufacturer*, Sept. 1994, p. 53).

Microfibres, with increasing technological advancements, are now being used to develop extraordinary fabrics. Among these are hosiery which releases vitamins to the skin and fabrics incorporating carbon threads - which shield the wearer from microwaves and waves from computer terminals, even fabrics that release a perfume fragrance and those that will regulate body temperature. However, on a consumer

level, microfibres have not been promoted in the past to a similarly high standard as many of the other fibres.
There is a future for microfibres, I believe, through better collaboration between fibre producers and the fabric and garment manufacturers, with assurance of quality regulations and with greater consumer awareness.

Designers are no longer ashamed of using man-mades as they recognise the qualities and possibilities of these fibres. "Nothing looks better than rayon", according to Calvin Klein, "it's as sexy as hell"; and Anna Sui says, "it's Courrèges plus comfort", (Spencer, *Vogue*, Dec. 1994, p. 109). Young designers in particular are hailing the qualities of the 'new' synthetics and man-mades. Flyte Ostell have used Tactel to give a completely new fluidity to their dresses. London-based designer Errol Peak recognises the importance of easy maintenance: his PVC trousers are designed to be machine washable and can be ironed afterwards. He is also developing heat-reactive clothing that warms the body when cold and releases heat when body temperature rises.

Established Irish fashion designers such as Paul Costello, Louise Kennedy and Micheal Mortell use all natural fibres, except for limited use of blends for blouses etc. This reflects the negative attitude of both the designer and the consumer towards man-made fibres. The consumer, in this case, is of an older generation.
However, young and innovative Irish designers such as Mary Gregory and Marc O' Neill are not prejudiced against man-made fibres in this way. Gregory uses viscose rayon in large quantities. Marc O' Neill designs wearable, 'timeless' suits and separates in a commercial set-up, alongside a collection of young, 'street-wear'. He endorses quality design and quality fabrics and has no qualms about using man-made and synthetic fibres. Currently, for his Autumn/Winter '96 collection, he is using "stiff" fabrics which include polyester organzas and fabrics with a traditional "nylon handle", (fig. 21 & 22). "Polyester is making a massive comeback" says O' Neill, "the technological developments in polyester are incredible, it's a really advanced fibre", (Interview/ Marc O' Neill, 1995).

This brings me on to Issey Miyake's use of polyester. "Twist" is the epitomy of comfort, easy-wear, easy-care clothing and yet it has retained the "human touch" in

fig. 21 : Marc O'Neill's Nylon Jacket for Spring/ Summer 1996

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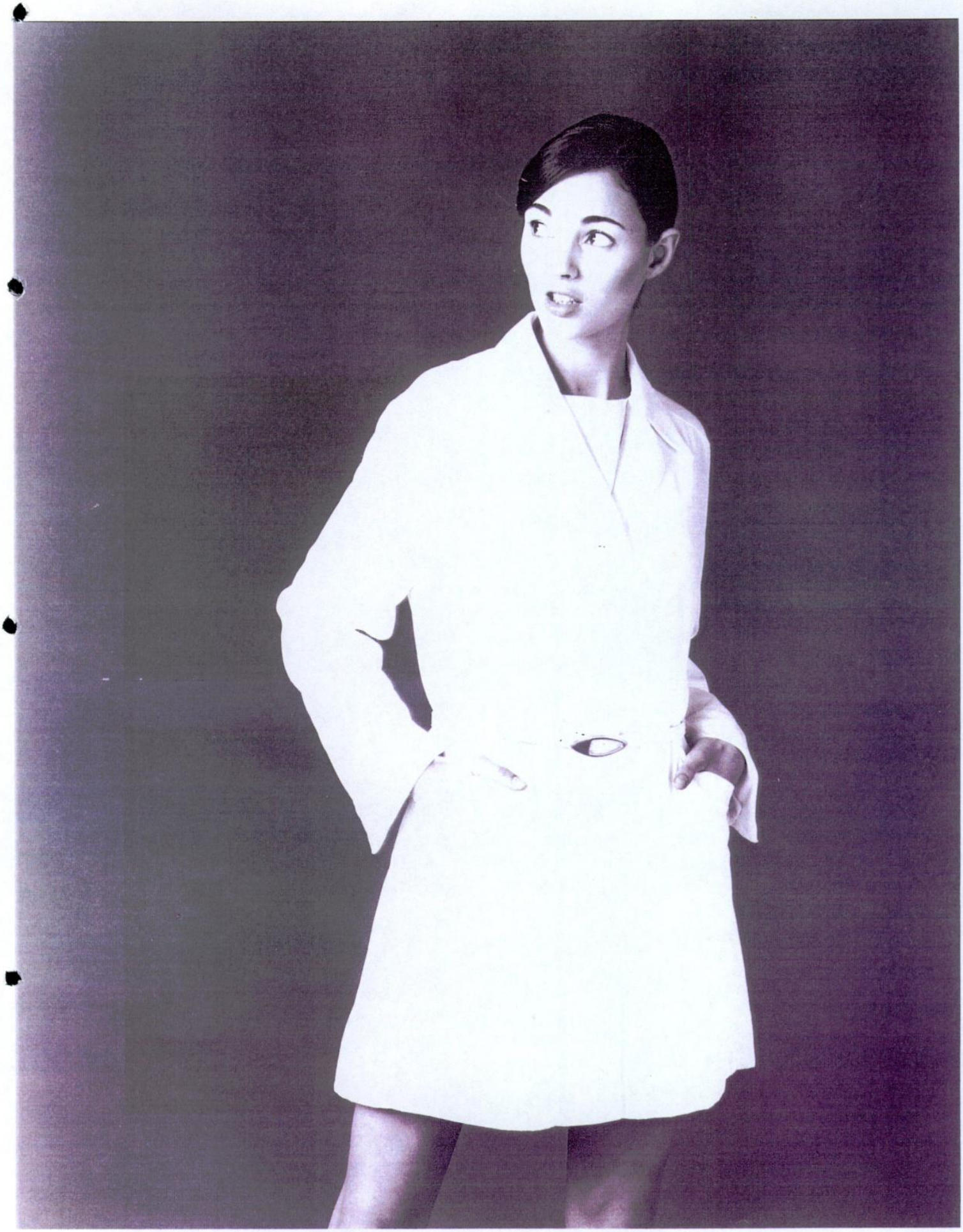

fig. 22 : Heat-treated, Metallic, PVC Jacket by Marc O' Neill

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the fact that each garment is hand manipulated. Issey Miyake is inspired by nature and is concerned with the destruction of nature and beauty itself while our world is taken over by technology. However, there seems to be a contradiction between this policy of Miyake's and the fact that he uses polyester for the "Twist" garments. Polyester is a completely synthetic fibre, and while manufacturers strive to recycle all waste from the production process, the fibre itself is not environmentally friendly.
Miyake, however, is a firm believer in technology and scientific advancement and obviously has reconciled his use of polyester (it is also the most suitable fibre for "Twist") through this belief. Miyake explained his preoccupation with the traditional and modern, and their important relationship, in a recent lecture: "Traditional hand-craftmanship all over the world must continue to be appreciated by all people, not just the chosen few. The only way to achieve this is by making tradition modern through technology. If we cannot make traditions suitable for today's lifestyle, in function and in price, then the traditions will eventually die out," (Holborn, 1995, p. 104).

There are always those who will condemn the use of purely synthetic fibres due to the ecological damage which may be caused by their manufacture and consumption. Synthetic chemical fibres are among the most highly refined products made from fossil resources; their recycling is being constantly improved. An article on chemical fibres in *Textile Forum* in 1995 advises us to be aware of "judging fossil fibre products equal to fossil fuels without having checked first if we would be able to clothe and house seven billion people in the near future using just sustainable and mineral resources," (Laue, Textile Forum, March 1994, p. 35).

The future for synthetic and man-made fibres looks bright. The appeal of synthetics seems to be growing constantly. The world production of synthetic fibres rose from 70,000 tonnes in 1950 to 17.2 million tonnes in 1992, (Barbieri, ***Independent on Sunday***, 3 Sept. 1995, p. 45).
There are many reasons why it is likely that synthetics will play a major role in the future of fashion. The following are a few of importance:

1. The versatility of the "new" synthetics and their ability to change with varying

fashions.

2. Their easy-care properties.

3. The ecological soundness of Tencel is an obvious advantage for this fibre, but the synthetics, nylon and polyester are being constantly improved in this respect.

4. The acceptance and awareness of these fibres by designer and consumer.

5. Synthetic and man-made fibres are also associated with all ends of the fashion market today, including the upper end. In the 50's and 60's synthetics struggled to be accepted into the upper end of the fashion market with little success. With branding and quality assurance programmes, the 'new' synthetics are retaining a high quality image, while many prestigious designers endorse their appealing properties.

As an unequivocal Donna Karan says, "Technology is the future of fashion,"
(Spencer, *Vogue*, Dec. 1994, p. 109).

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