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THE DEVELOPMENT OF THE JAPANESE RESIST-DYEING TECHNIQUE, SHIBORI AND ITS RELEVANCE TO THE CONTEMPORARY JAPANESE WOVEN TEXTILE DESIGNER, JUN'ICHI ARAI.

BY

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INTRODUCTION:

I have had a deep interest in Japanese textile design for quite some time. On my visit to London last year I visited Liberty's fabric company in Regent Street, where I was first introduced to the amazing world of Japanese fashion and textiles. I was fascinated by the unusual woven textiles on display within the 'Nuno shop', in particular the work of the contemporary Japanese woven textile designer, Jun'ichi Arai whose patterns created a three dimensional effect with often distorted images.

On close examination of the cloths, I discovered that some had been tie-dyed to create blurred graduated patterns with a velvet texture. Others had been woven with metal, yet the fabrics were transparent and lustrous. And the more three dimensional cloths were crushed, pleated, crimped and puckered because the yarns had been twisted in opposite directions. The cloths had one thing in common - they each contained a hand-crafted feel resulting from Arai's advanced technology.

I ascertained that there were many similarities between the patterns and surface qualities achieved in producing such hi-tech fabrics by Jun'ichi Arai and the Japanese ancient resist-dying technique Shibori. As a textile student interested in dimensional surface quality and pattern, I was immediately drawn towards this ancient yet paradoxically contemporary technique. I began a study on the subject through contact with Libertys of London, the Victoria and Albert Museum, London and the Chester Beatty Library, Dublin all of which contain fine samples of Oriental design.

The extensiveness of the background of this technique, Shibori, prevents a thorough discussion in this thesis (due to space limitations). For this reason, I have decided to concentrate on three types of resists, bound/tied resist, stitch resist and board-clamped resist which, I feel, are particularly relevant to the patterns created and techniques used by Jun'ichi Arai. I will briefly discuss the earliest examples of resist-dyeing techniques during the Nara Period (645-794 A.D.) and Heian period (794 A.D.-1333). I will then trace the development of stitch-resist - Nuishime shibori in terms of style and technique in tsujigahana textiles and the emergence of Kanoko shibori - a type of bound resist, which only played a minor

role in the embellishment of the kosode during this extravagant Momoyama period (1573-1615). Notably, Kanoko shibori became the dominant shibori technique during the Edo-Period (1615-1868) and replaced Nuishime shibori which contributed to the decline of tsujigahana. The persistent demand for Kanoko shibori by courtesans, Kabuki actors, etc. triggered the production of bound shibori and a more advanced type itajime shibori using wooden blocks and clamps. Both types of shibori created soft-edged geometric patterns.

In the past, people have intentionally separated the craft object from an industrial product, which stems from the belief that only fabrics made by hand can convey the chief means of artistic expression. Contemporary Japanese woven textile designer, Jun'ichi Arai has not divided art from craft or artistic expression from every day life. He simply begins with state-of-the-art fabrics such as those created by the ancient craft of shibori and transforms them using advanced technology into contemporary fabrics again with the hand-crafted flavour (Chapter 2).

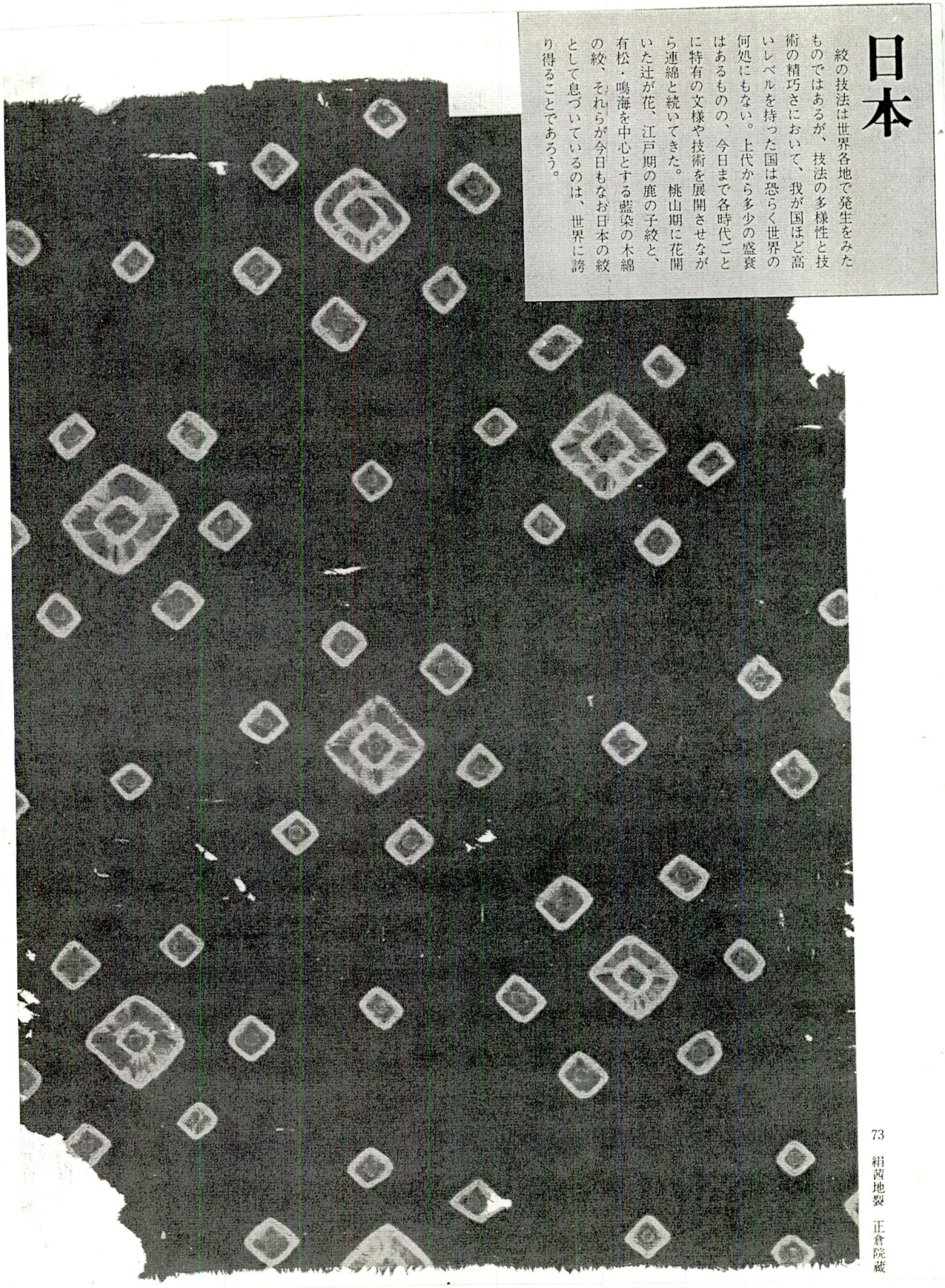
'Arai uses a variety of traditional techniques such as itajime shibori, a board and clamp dyeing process (invented by Suzuki Kanézo in 1880), which establishes soft, blurry-edged patterns. He also vacuum-seals thin layers of metal such as, titanium, chrome or stainless steel to a nylon/polyester base fabric to create a variety of stunning surface effects, and tie-dyes (tie/bound resist) certain patterned areas of cloth before using his burn-out/melt-off process which dissolves the natural fibre in the fabric (Chapter Two).

Chapter Three discusses 'Arai's three dimensional fashion fabrics, resulting from the latest industrial technology. He uses a heat transfer process as a finishing machine to create glimmering pleated and textured fabrics, a photocopying process and a computer-aided jacquard loom to create patterned fabrics with crinkled textures which feel soft and bouncy, and taking transparent fabrics from his melt-off experiments and stuffing them into a vacuum heat machine, He produces three dimensional crushed fabrics which reflect light. The amazingly creative three dimensional fabrics which he produces rise above the restrictions of these advanced technologies and simultaneously broaden the potential of the fibre medium.

CHAPTER ONE

The development of bound/tied resist, stitch resist and board-clamped resist, during the Momoyama period (1573-1615) to the Edo period (1615-1868).

PLATE 1.



'Seven Luminaries' pattern, bound shibori on red silk, 8th century.

The Earliest Examples of Resist-Dyed Cloth.

The earliest known examples of resist-dyed cloth were tied/bound resist (kókeci) wax resist (rókechi) and a more advanced type, a carved wooden block resist which involved folding and clamping the cloth between wooden blocks (kyókechi). The cloths were found in a wooden store house in the Buddhist temple Shosó-in after the death of Emperor Shómu around 756 A.D. Some of the cloths were thought to have come from China because they were made from brocade and gauze which were not yet made in Japan at that time.

Tetsuró Kitamura, a scholar who has examined the Shosó-in piece from around the eight century recorded his findings in his book, 'Shibori'. He found that if the drawn up sections of cloth are bound in one place then this would result in a single resisted ring, and if bound in two places then two concentric rings were created. Plate 1 entitled, Seven Luminaries, illustrates both examples of binding on red silk[1]. Each design motif is made up of concentric rings surrounded by six smaller rings which forms the pattern known as the 'Seven Luminaries'. The large area represents the sun, the six rings surrounding it represent the moon and planets, Kitamura maintains that bamboo may have been used to clarify the resisted rings. He also believed that this type of patterned cloth made of silk was worn not only by Emperor Shómu but by children as well.

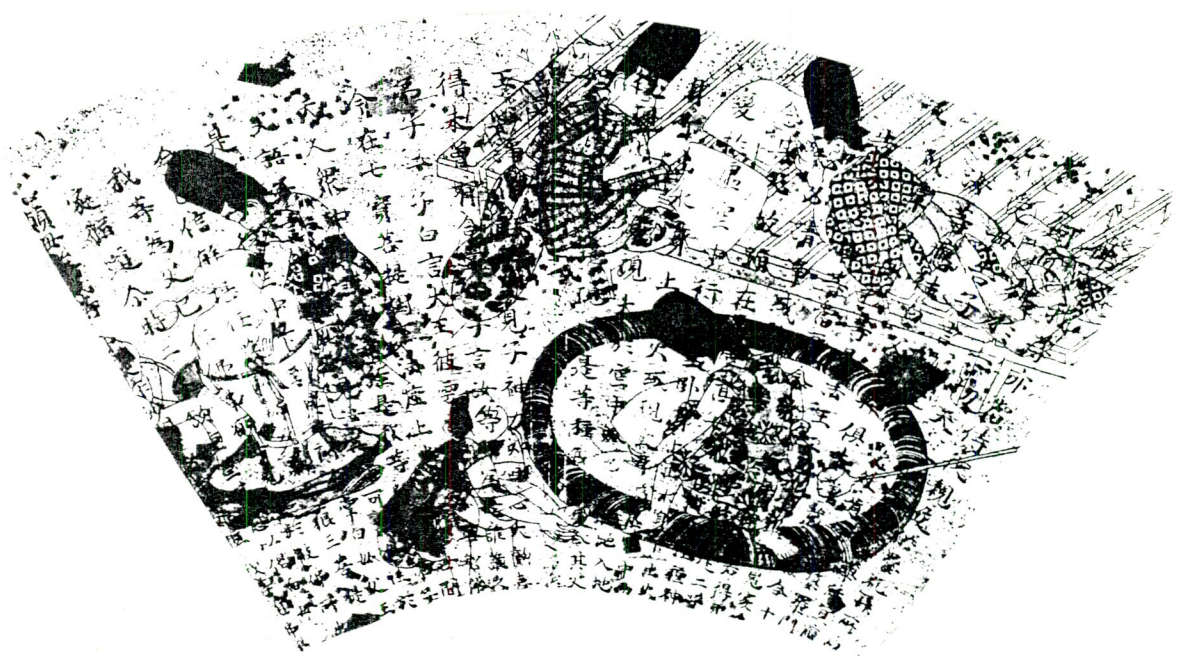
Various resist-dyeing techniques became increasingly popular in relation to the high style of fashion of the Heian Period (794 - 1333 A.D.). Unfortunately very few of these Heian period textiles or garments have survived, although a useful visual source was the fan sutra Buddhist paintings (Plates 2 and 3). According to Dale Carolyn Gluckman in her book, 'When Art Became Fashion'[3], many of the Buddhist paintings present images of courtiers and their servants wearing layered robes junihitoe[4] of undulating silk fabric each dyed a different

colour, worn over full length trousers and a divided skirt called a hakama. Small dot-like motifs of woven embroidered repeated geometric patterns of fine tie-dyeing kanoko shibori decorated the robes, worn by the courtiers. Fine patterned shibori (kokechi) decorated the sashes worn around the waist. The larger, courser, cruder geometric designs worn by the palace servants may also have been achieved by (kokechi) - tied/bound resist. A more simple form of shibori with irregularly spaced decoration resembling scattered leaved may have been achieved by dye or ink painting, by stamping or by the[5] itajime resist technique using boards and clamps (Plates 2 and 3)[6]. the geometric woven silk patterns worn by the courtiers during the Heian Period were replaced by representational designs such as geese, flowers, horses, feathers etc. around the latter half of the twelfth century[7].

PLATE 2.

Myóhó renge kyó, detail of fan sutra, courtesy of Shitennó-ji temple, Osaka, 12th century.

PLATE 3.

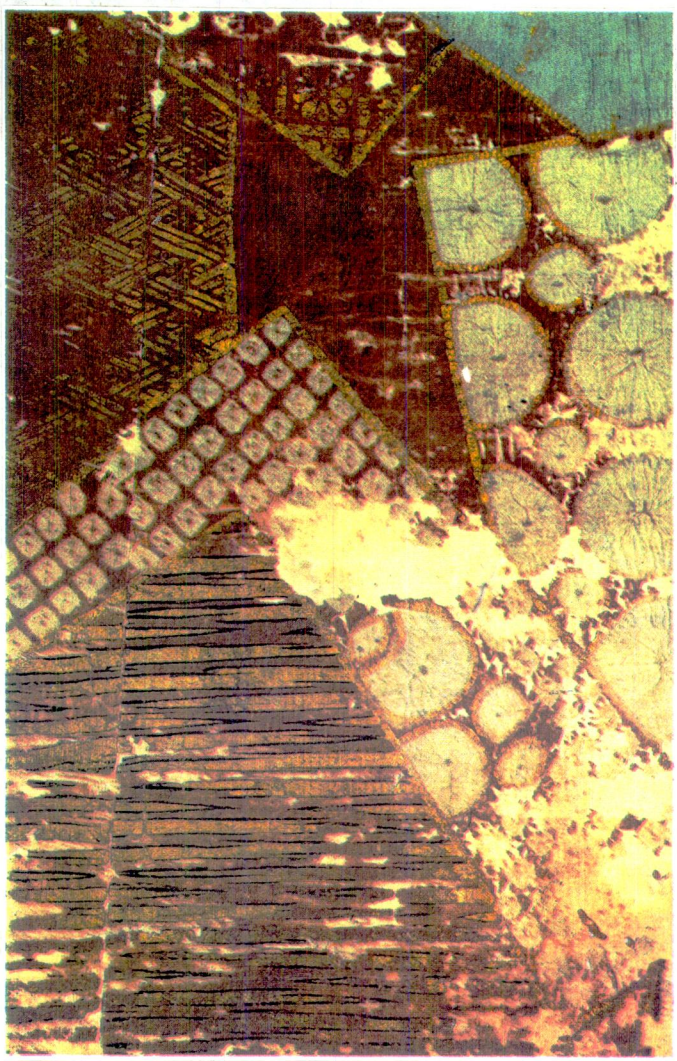


Hoke-kyó (detail) Book of twenty-two leaves; ink and colour on paper, Tokyo National Museum, Heian period, 12th century.

PLATE 4.

Tsujigahana on silk. Example of stitching and capping (large kanoko dots), Momoyama period 16th century.

PLATE 5.



Tsujigahana on silk, featuring patchwork-like interlocking areas of complex disparate designs. The shibori techniques in Plates 4 and 5 are basic and simple, resulting in highly sophisticated designs, Momoyama period, 16th century.

The Muromachi Period (1333 - 1513)

According to Toshiko Itó in his book. 'Tsujigahana - The Flower of Japanese Textiles'. Women's love of colour and pattern ensured the emergence of changing styles. The development of bound and stitch shibori during the Muromachi Period (1333-1513) triggered a new interest in various Japanese forms of dyed textiles decoration and surface techniques as in the case of tsujigahana textiles.

Bound shibori was the main method used towards the end of the thirteenth century, before the emergence of a new style tsujigahana. Motifs created by bound shibori depended on the position and pressure of the binding thread on the folds of a drawn-up section of cloth. The very nature of the binding process limits the type of motif that can be resisted to rings and other forms that are circular or squarish[8] (Plates 4 and 5).

It was during the fourteenth century that Shibori dyers developed a unique way of using stitching as a shibori technique to create designs of stylized natural motifs, in response to the demand made for garments by commoners that were different from the lower-class country people who wore indigo-died shibori patterned cloth for years.

The method of developing this unique form of stitching was carried out in the following way[9]:
By outlining a motif with stitches[10] and drawing the thread up tight, the form of the motif is preserved when the cloth is dyed. And, in response to 'women's love of pattern and colour' - another development was made which was a design made up of motifs preserved on a dyed ground. By protecting the area surrounding the stitch-enclosed areas of drawn-up cloth and by dipping the cloth (the uncovered areas) in dyes of various colours, it became possible to produce multi-coloured designs consisting of motifs on a reserved ground.

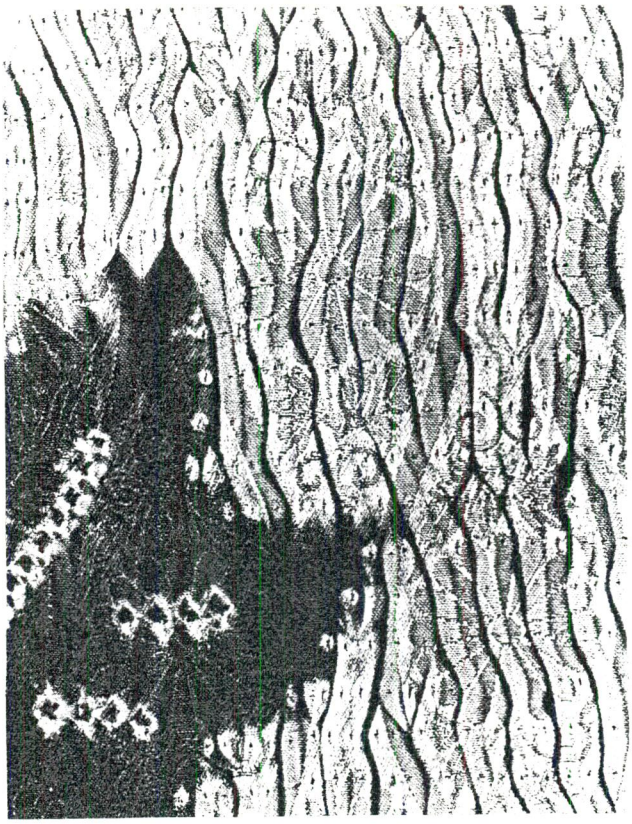
PLATE 6.

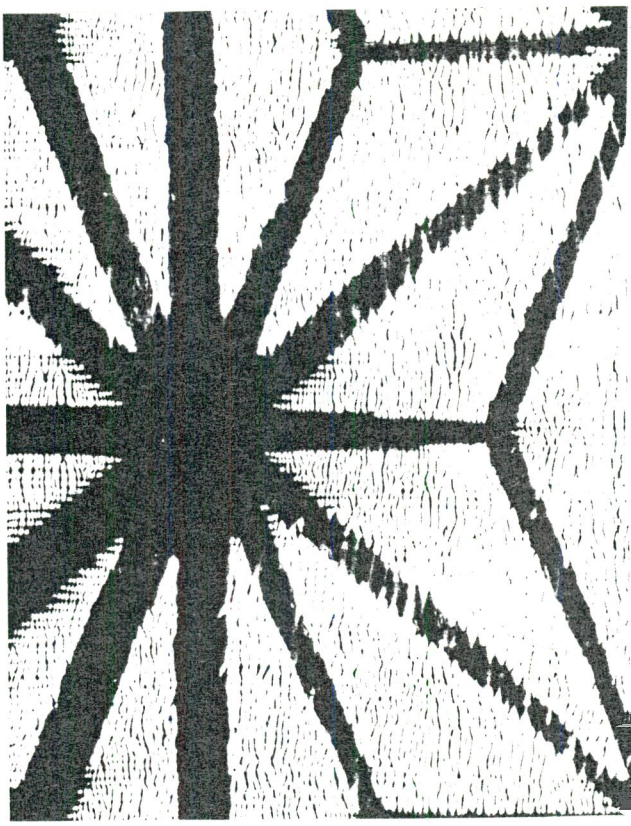
Tsujigahana fragment silk displaying stitching, capping, bound dots (hitta kanoko), divide - dyeing (somewake), dip-dyeing and sumi-ink painting Matsukawabishi motifs divide the textile into bold areas. Another area is created with soft, textured ground of kanoko dots.

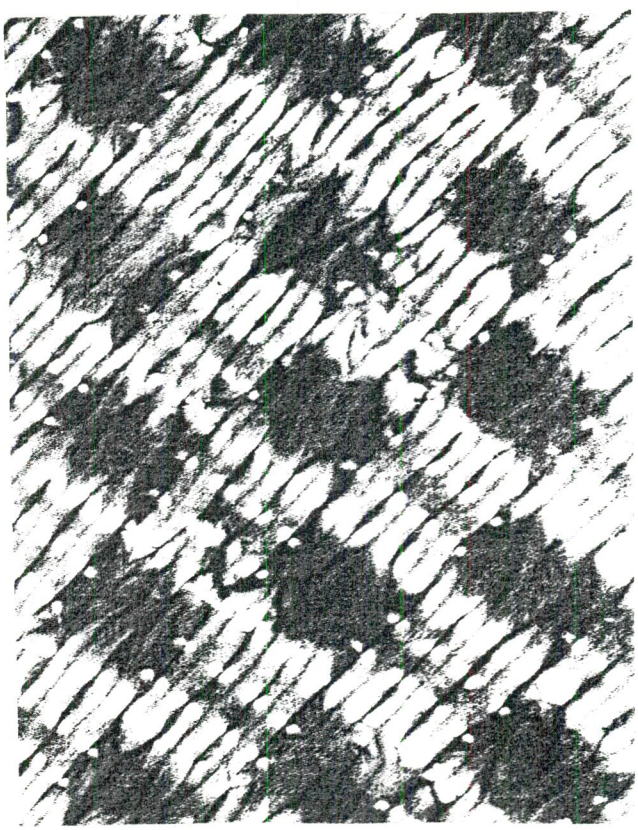
The earliest existing examples of tsujigahana are not garments but banners particularly for Buddhist ceremonies which took place during the fourteenth century near the then capital, Kyoto. Lightweight silks were made into covers for these banners. the motifs were of wisteria flowers, waves, maple leaves, all executed with stitch resists, accents of sumi-ink and forms of flowers in silver leaf in small repeated patterns. In style and technique the banners reflect an advanced state of the art, suggesting a period of great development[11]

Shibori dyeing continued to develop during the last years of the Muromachi period (fifteenth century) but it was during the lavish, joyful, extravagant short period of Momoyama that followed that it reached its peak of perfection.

PLATE 7.







Mokume Shibori (wood-grain) fabrics. The shibori breaks the negative areas and creates textural effects at the same time. Silk, hemp and/or figured satin may have been used. Tokyo National Museum, 16th century.

The development of stitch-resist (Nuishime shibori) on the kosode during the Momoyama Period (1573-1615).

"..... there was an explosive outburst of brilliant colour and bold design in painting, sculpture, ceramics and weaving. It was a time of national glory and artistic development - the starting point of Japan"[12].

The Momoyama period (1573-1615) was a time when the arts broke free from old traditions. Hideyoshi, one of the three great generals of the sixteenth century who helped to unify Japan, generated an art saturated in a native Japanese love of decoration - the halls of castles and palaces and[13] tea-rooms alike were decorated in a strong style of bright colours, and expanses of gold, which were a means of flaunting wealth therefore power among the military elite. This dramatic brilliance is characteristic of Momoyama's clothing. Hideyoshi's dofuku cloak with arrow design still exists and is a good example of boldly conceived decoration. This garment and indeed others were executed entirely with stitch shibori and indicated great skill[14].

More typically, the tsujigahana style is characterized by a combination of shibori dyed designs and decorative detail in sumi ink, to overcome the feeling of emptiness achieved by motifs outlined with stitches and covered to prevent dye from penetrating the cloth. Previous stitch resisted lines and motifs outlines presented a distinct soft-edged quality. So, the extremely fine detail of flower forms in particular provided an elegant touch. It was the contrast of sharply drawn details with soft edges of resisted motifs and the tonal quality of dark ink with delicate blues, greens and yellows that the dyers used which gave the designs a unique quality. It was according to Yoshiko Wada in her book, 'Shibori', "The balance of contrasts that epitomized the beauty of tsujigahana'.

Stitching was also used as a means of creating textural effects. This application of stitching in resist-dyeing had developed during the Muromachi period and was later known as mokume (wood-grain) shibori[15]. This subtle and simple technique was achieved by repeating parallel rows of stitches

PLATE 8.

Tsujigahana on figured silk twill. The use of kanoko dots is developed in relationship to coloured areas and negative areas to create both linear and textural effects. Momoyama period, early 17th century.

PLATE 9.

Keichó-Kan'ei style kosode, worn by women of the military elite. Abstract shapes, birds, plants and flowers in kanoko shibori embroidered with gold leaf which creates a strong jazzy, rhythmical style. Large areas of colour and black forms, diagonals which were probably drawn from the Matsukawabishi motif of the Tsujigahana style.

drawn-up before the cloth is dyed. Another means of creating textures is by adding details to stitch-resisted motifs whereby tiny resisted dots - kanoko shibori also used in the tsujigahana style. Shibori artisans had developed and perfected their skill, by using tiny stitches, taking up one, two or three of the fine threads of the cloth with each stitch to achieve fuzzy-edged resists with motifs very close together.

A change came about at the end of the Keichó-Era, sixteenth century perhaps because the human evidence of imperfection was missed[17].

PLATE 10.

Keichó-era, details of kosode garments on figured satin-weave (rinzu). The garments display dark colours and large dyed areas embellished with delicately detailed gold-leaf embroidery. (1596-1615)

PLATE 11.

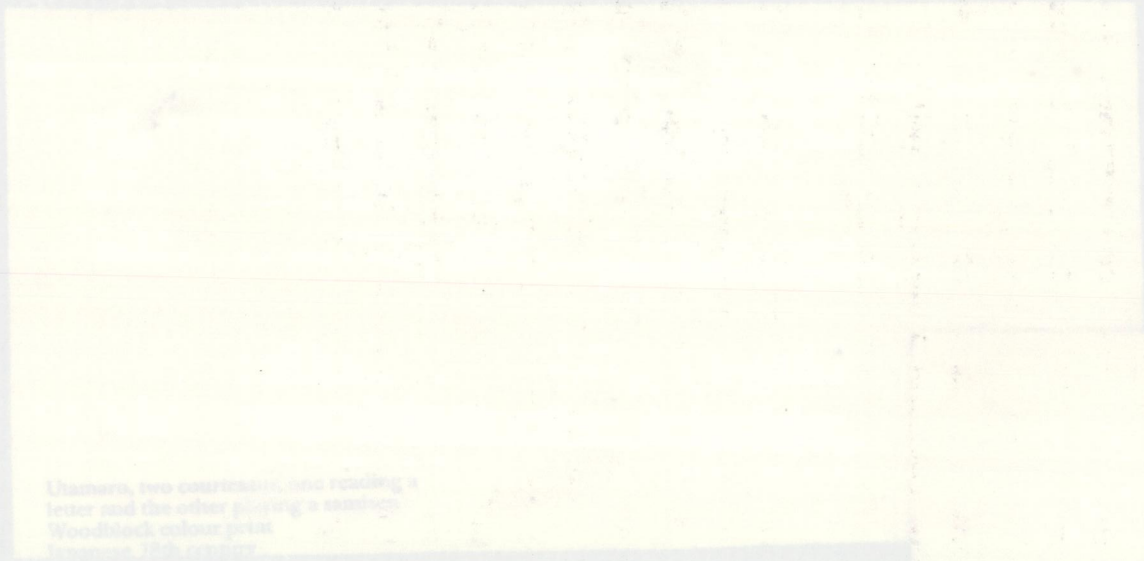
Keichó-era kosode garment, also on figured satin-weave silk. The stitched and capped areas have complexed irregular outlines such as those created by the matsukawabishi motif (1596-1615).

A new style of textile decoration emerged and developed. Kanoko shibori with embroidery and gold leaf created a strong and rhythmical style which appeared quite jazzy. Large areas of colour and black formed diagonals across the garments worn by women of military elite (Plate 9) displays a kosode with overlapping colour areas and kanoko shibori. The bold, contrasting diagonals were drawn from the bark lozenge motif matsukawabishi of the tsujigahana style. The change that occurred, at this time, was the importance of stitch and bound resists, kanoko which played a minor role during the Momoyama period emerged as the dominant shibori technique. Stitched shibori which was so important during the tsujigahana textiles became less important - limited to dividing large design areas so that they could be dyed in a variety of colours in the process called 'divide-dyeing'-somewake. This contributed to the decline of the tsujigahana style (Plate 10).

Toshiko Itó in his book 'Tsujigahana', believes the decline of tsujigahana came about when the process of weaving figured silk was introduced from China in the early seventeenth century. A new interest arose in surface techniques, for the decoration of the silk kosode. At first, these silks were undyed because of the appreciation for intricately woven patterns by the chónin population which included Kabuki actors, courtesans (Plate 12). The popularity of the intricate silks discouraged the weaving of plain weave glossed silk (and eventually replaced it) - which made possible the balance of decorative methods found in tsujigahana. However, the uneven textures of these figured weaves (rinzu) were unsuitable for the type of stitch resists used in tsujigahana as well as the finely-drawn lines of semi-ink painting. Both were replaced by kanoko dots - which was not only used as a means of outlining and filling specific shapes but which also suited new silks. As a result, kanoko reached its peak of perfection in the first half of the seventeenth century.

PLATE 12
Colour print from wooden blocks, Kabuki actors (chónin population) wearing kosodes with intricate finely drawn patterns of sumi-ink painting, 18th century.

PLATE 13
Wood colour print. Courtesans wearing many layered robes decorated in small kanoko dots and flowers.
18th century.



Utamaro, two courtesans, one reading a letter and the other playing a samisen
Woodblock colour print
Japanese, 19th century

Shunkosai Hokushū (active c. 1810–c. 1830)
The actors Arashi Rikan and Nakamura Shikan
Colour print from wood blocks
Japanese (Osaka); c. 1830
6⅝ × 4⅞ in. (16·8 × 12·4 cm.)

E.713-1906

Trying to maintain class distinctions that placed the warrior class on a very high social level, meant that constant attempts were made to prevent consumption by commoners and other people. By 1683, Sumptuary laws were passed which prevented the wearening of luxurious kosodes, merely because too much money had been spent on new garments, as well as forbidding the use of so kanoko, the all-over kanoko used to fill large areas on the kosode. Nevertheless kanoko retained its popularity. The population set the fashion trends by wearing a plain kosode with luxurious linings. Where tsujigahana used a variety of contrasting colours featured overlapping areas of design, the new mode Kanbun style used more refined designs. Tiny resisted squares were sparingly used to create linear designs which substituted the all-over patterning of só kanoko. Work began to appear dull and mechanical and the simple subtle and lively quality created when the repeated resisted squares which were once arranged spontaneously was lost.

Nevertheless there was still a great demand from merchants and commoners for kanoko shibori kosodes. Stencils were then used to mark the location on the cloth of each resist. Resist paste was applied through a stencil onto fabric which was then dyed. When the dye dried, the past was removed leaving a pattern of white spots. The dot in each spot was painted manually[18].

In the dye world craftspeople were experimenting with complex techniques such as top-dyeing and an innovative use of merchants however the refined designs of the 'Kanbun Style' incorporated a more restricted palette. Dyes were not permitted to imitate colours without using the prohibiting dye-plant, Sappanwood could be over dyed with the yellow pigment from gardenia seeds and mordanted with alum or tin to produce a likeness of red-dyed with safflower. Beni (red) appeared in many ways, embroidered as a highlight brushed into a paste-resist design or dip-dyed to form a background colour (Plate 14)[19].

PLATE 14.

Kanbun style Furisode garment with Palace curtains, clouds and fans. The garment displayed nuishime shibori, kanoko shibori and paste-resist (yúzen) silk and metallic embroidery on Beni (red) figured silk satin (rinzu).

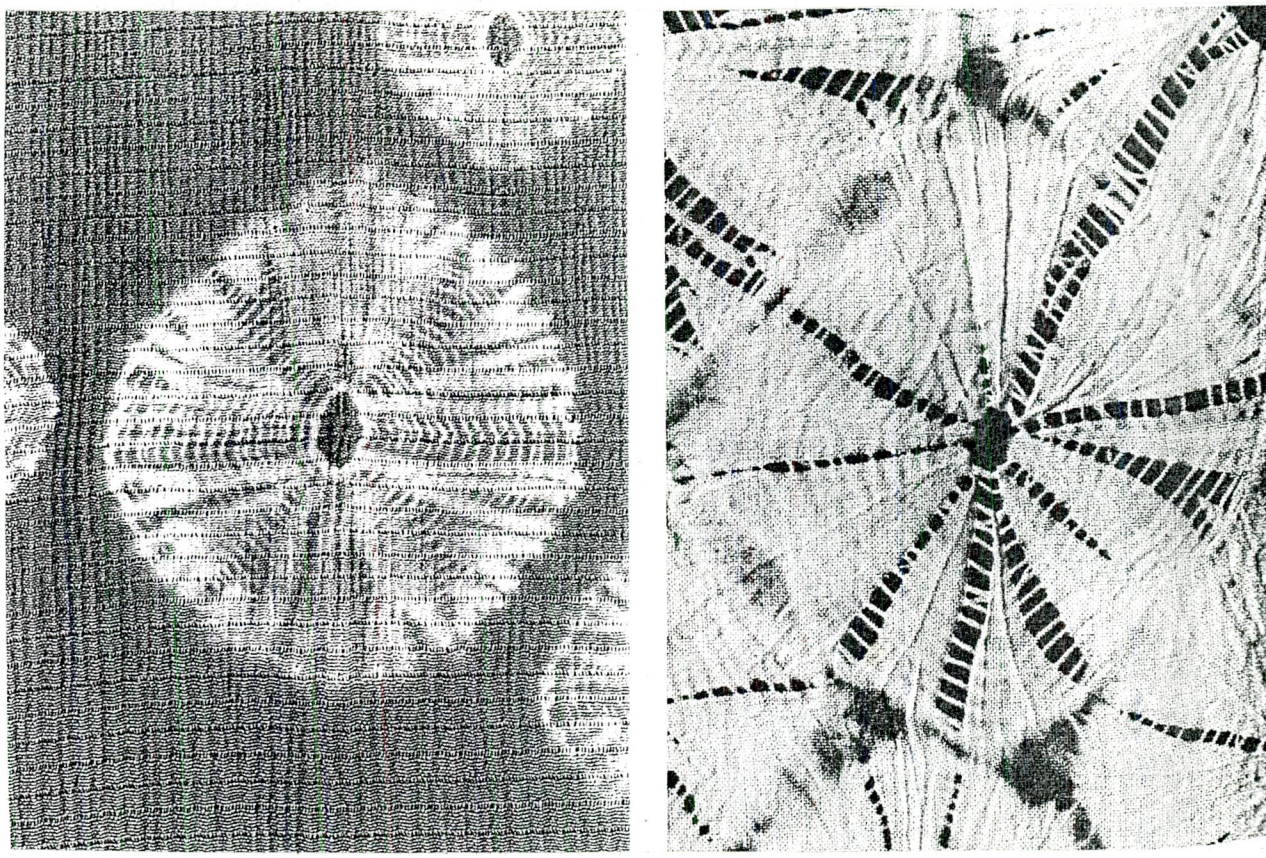


PLATE 15: Kumo (spiderweb) shibori fabrics, on silk or gauze weave. The large dark centres of these motifs resemble a spiderweb. 18th century.

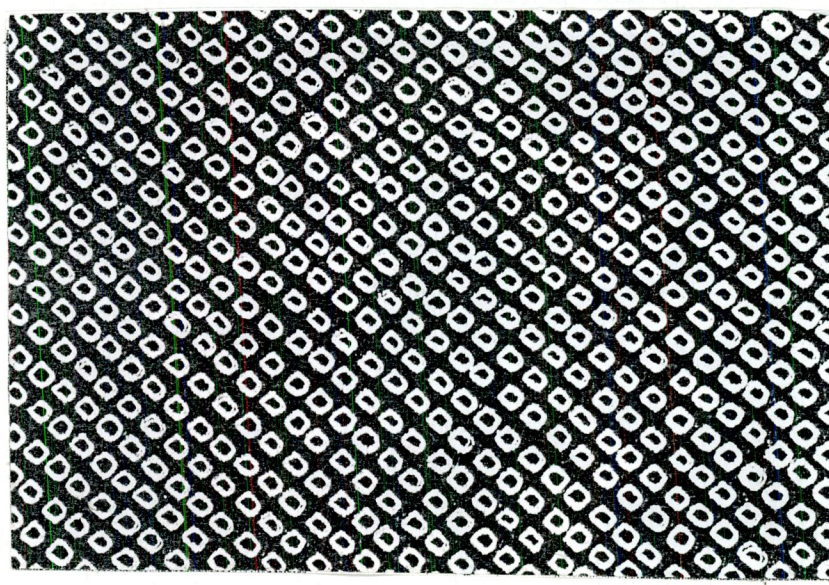


PLATE 16: Yokobiki kanoko (square undyed ring dots) on silk late 18th century.

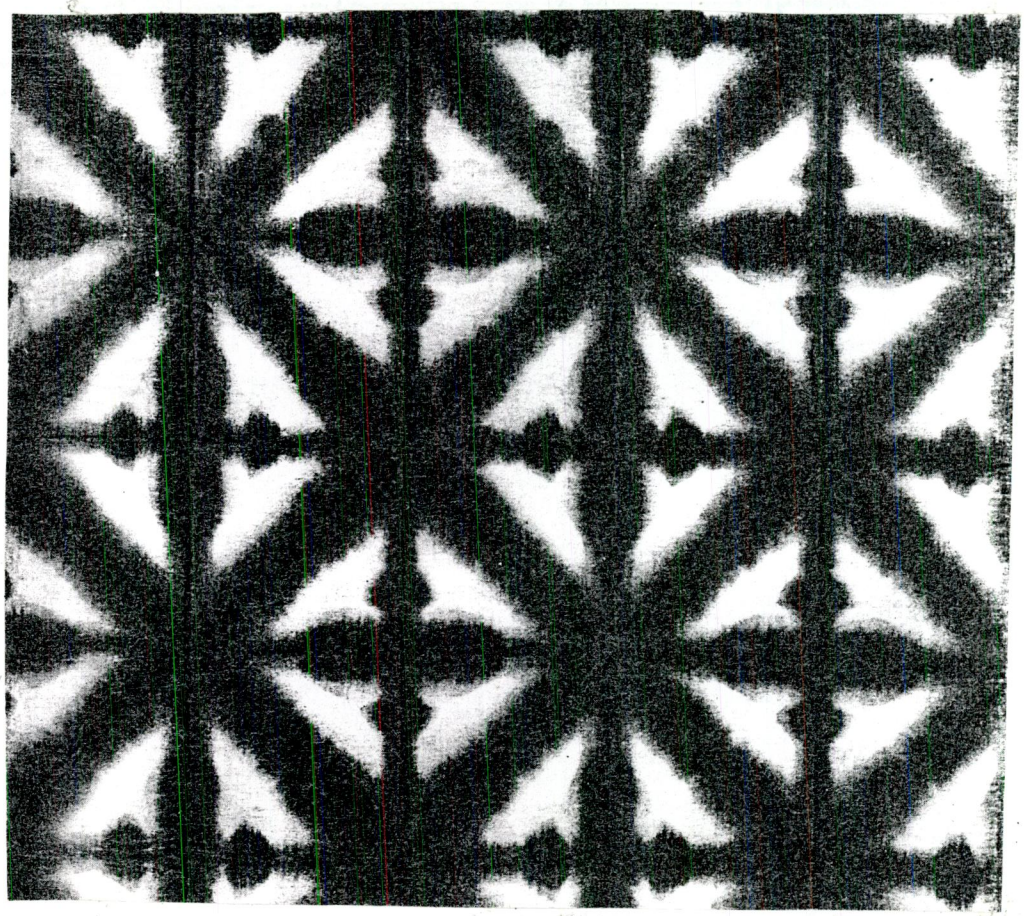
The Production of Bound Shibori during the Edo-Period (1615-1868).

The first patterns produced were variations of the bound shibori called kumo[20] resembling a spider web, around the seventeenth century. The patterns were used to pattern cloth for common peoples garments made from hemp and silk since the Heian times around the twelfth century. The kumo motif was being used in many ways large, small, squarish, circular scattered or closely repeated to decorate the cotton kimono, yúkata or the under kimono - jiban the obi, scarves or fans[21] (Plate 15).

In 1897, a small manually operated machine shaped and binded cloth for the spider webs pattern. The process involved sub-stitching small rings of bamboo for binding thread and use of a long hook fastened to a bench, the rings of the hollow bamboo tied to the hook and placed around the cloth held tightly by the tip of the hook. This simple yet fast method led a man by the name of Matsujuró Okado to use the hook to create a patterned cloth similar to that of kanoko shibori. Placing the hook in a firm position he quickly bound a thread around a small piece of cloth, namely silk. The pressure of the thread left an undyed ring in the cloth. At first, the process was called kikai (machine) kanoko now known as yokobiki kanoko (Plate 16). The silk retained a crimped texture[22]. Okado received a contract to produce kanoko pattered silk for kimono collar bands and hair ornaments. This marked what I believe to be the beginning of the production in Arimatsu of shibori dyed silk.

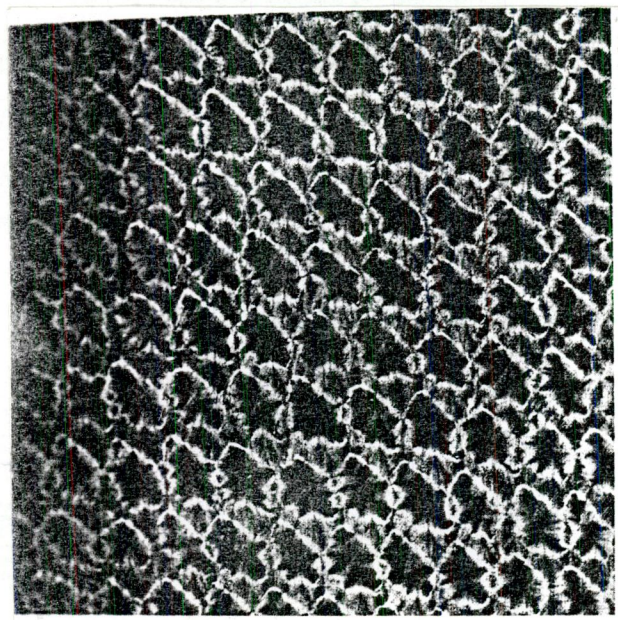
Another way of creating a new and faster method of dye pattering cloth was a pole-wrapping process[23] which produced 'arashi shibori invented by Suzuki Kanezo in 1880. The process involves wrapping the cloth around a pole held in a horizontal position so that it can be rotated. Thread is wound on the cloth covered pole, into compressed folds which is then

PLATE 17

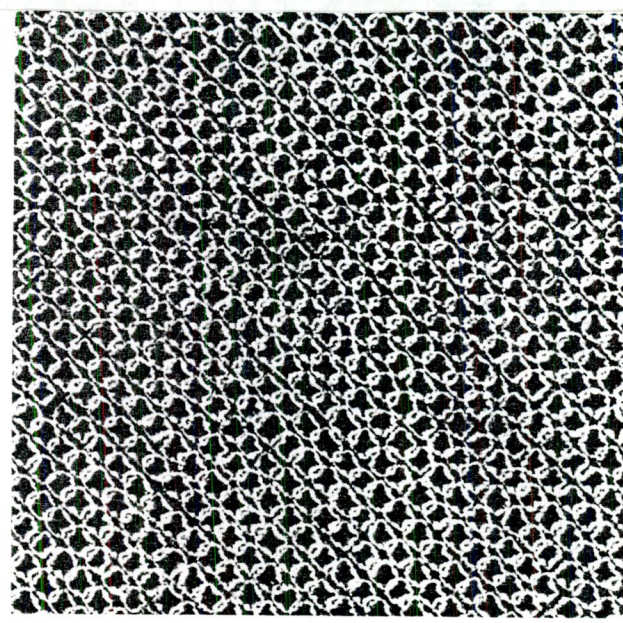


Itajime shibori (board-clamp resist) which creates a lattice pattern with a soft blurry-edged quality. Early 19th century.

PLATE 18.



54. Small shapes bound on weft (*hira miura* shibori)



55. Small shapes bound on bias (*hitta miura* shibori)

Miura shibori fabrics display small shapes bound on the bias or weft, which produce a more refined/delicate effect.

immersed in troughs of indigo dye. This method dramatically increased the production of shibori.

Yoshiko Wada, in her book 'Shibori', refers to another method of binding was produced by using a hook to speed up the process, making it easy to shape the cloth into even pleats producing a more refined effect by holding the pleats taut which the cloth is bound loop binding. This binding is called miura shibori after Mrs. Miura Genchú the woman who invented it around 1624 shibori-dyed cloth of the Miura pattern is still being produced in Arimatsu[24] (Plate 18).

Suzuki Kanezó has also developed the folding and clamping process of itajime board-clamped dyeing later adopted by designer Jun'ichi Arai (see Chapter Two). This process involved cloth folded into wide vertical pleats. The pleated cloth strip is repeatedly reverse folded, horizontally or diagonally into square, rectangular or triangular form. This creates a bundle of folded cloth that is fitted between boards or sticks held in place with cord and dipped in dye. The multiple folds create simple geometric patters and the dye is drawn into the folds created a soft-edged effect (Plate 17) not unlike Arai's soft-edged gradiated patterns achieved using this itajime shibori process (see Plate 21).

Workshops were set up in Napumi and Animatsu by the early seventeenth century in which small groups of workers were shown how to use pleating machines and other divisions under constant supervision until they maintained great quality of work (chemical dyes came into use at this time also). This time and effort put in by the workers to create better quality shibori products obviously paid off because, after the members of the association of shibori merchants showed at the Paris World Fair in 1900, they received third prize and were recognized for their shibori products within the domestic market. They were asked to make samples of shibori cloth suited to African tastes, using wide cloths and a range of binding, stitching and

PLATE 19.

Bolts of kimono fabric from Arimatsu, cotton and indigo displaying many of the effects achieved by various types of resists, although most of the shibori types pictured here are not longer made.

pleating processes on dyed cloths of red, yellow, green and over-dyed the fabric with natural indigo which was preferred to the chemical dyes the Africans used.

CHAPTER ONE - END-NOTES.

(1) Contemporary Japanese woven textile designer, Jun'ichi Arai incorporates this ancient method of wrapping certain areas of patterned cloth before his 'melt-off' process and the pattern he creates is similar to the pattern formed by the concentric rings in the 'Seven Luminaries' cloth (see Plate 22).

(2) Yoshiko Wada, Mary Kellog Rice, Jane Barton - Shibori : The Inventive Art of Japanese Shaped Resist Dyeing, Tokyo, 1983, p. 9.

(3) Dale Carolyn Gluckman and Sharon Takeda - When Art Became Fashion: Kosode in the Edo-Period. Los Angeles Museum of Art, 1992, pg. 53.

(4) The undulated silk fabric discouraged the development of large-scale designs.

(5) 'Arai has used this method of folding and clamping areas of cloth before dyeing to create soft-edge patterns (see Plate 21).

(6) Zen Buddhism was introduced from China to Japan during this time and its simplicity and discipline appealed to the samurai warriors.

(7) Gluckman and Takeda, 1992, op. cit. p. 57.

(8) Sunny Yang and Rochelle M. Narasin - Textile Art of japan, 1989, pg. 37.

(9) Wada, Rice and barton, 1983, op. cit. p. 19.

(10) Nuishime shibori.

(11) Gluckman and Takeda, 1992, op. cit. p. 22.

(12) Gluckman and Takeda, 1992, op. cit. p. 53.

(13) The lavish tea ceremonies took place with solid gold utensils, priceless porcelains and extravagant textiles.

(14) Wada, Rice and Barton, 1983, op. cit. p. 28.

(15) The balance of light and dark in Plate 7, gives the fabric a textural quality, a subtle yet simple technique.

(16) Amanda M. Stinchecum - Kosode : 16th-19th (Textiles from the Nomura Collections)
Kodansha/The Japan Society, New York, 1984 p. 72.

(17) Gluckman and Takeda, 1992, op. cit. p. 34.

(18) Jun'ichi Arai manually dyes new fibres (see Chapter Two).

(19) Yang and Narasin, 1989, op. cit. p. 42.

(20) 'Arai has incorporated this kumo motif into his fabrics.

(21) Wada, Rice and Barton, 1983, op. cit. p. 46.

(22) Using a vacuum heated machine, 'Arai creates permanently textured and wrinkled fabrics (Chapter Three).

(23) Instead of wrapping the cloth around a tube/pole, 'Arai places it tightly into paper tubes and, using the same vacuum process, he creates three-dimensional fabrics.

(24) Wada, Rice and Barton, 1983, op. cit. p. 49.

CHAPTER TWO

HAND AND TECHNOLOGY

JUN'ICHI ARAI

HAND AND TECHNOLOGY

JUN'ICHI ARAI

The prevailing ethic of our consumer-based societies is that change is a good thing in and of itself. There is a strong need for the creation and consumption of new fabrics.

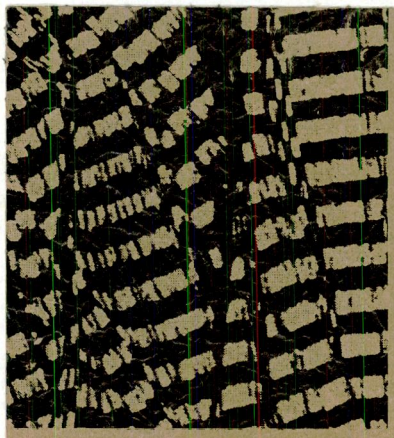
Magnificent fabrics that have stood the test of time are, of course, invaluable. But we are led to believe there is a danger in modern textiles that too much reliance on technology and insufficient emphasis on manual work will result in a product with no credit.

This belief, according to Edward Lucie Smith[25] in Ann Sutton's book, Ideas of Weaving, stems from the protests made by William Morris and John Ruskin of "the machines that changed ancient craft into a production oriented factory based urban nightmare of the Industrial Revolution".

Large-scale production that machines made possible during the Industrial Revolution were believed to have resulted in poor quality, bland, standardised products, which has triggered the argument that only fabrics made lovingly by hand can convey the principal means of artistic and human expression of the maker.

This argument, of course, is nonsensical. There are cases in which hand-woven fabrics are void of expression. There are also cases in which a machine given expression to human feelings. A new more harmonious relationship between the mind, hand and machine with an appreciation of quality over quantity is possible to create an exciting range of contemporary fabrics. The machine is currently being domesticated and re-evaluated by a new craft-community[26] as having the potential to work for rather than against the creative artist[27][28].

In Japan during the recession period of the seventies, like elsewhere, the advent of mass-produced standardised fabrics



「布」は職人たちの見世です
染織職人の悲願が結集した明日の布
のための工房です
作る人から使う人へ、使う人から作る人へ
新しい流通は私たちのなかの交流から始まります
「布」は生産者と消費者との出会いの場となるでしょう
そこでこそ新しい織物は創られ
そしてそれは人々の心をつなぐ
新しい媒体となるでしょう
新しい布の用途は
生産者の感性が発見していくのです

NUNO

NUNO is an artisans' space.
It is a home for the collected
dreams of textile makers
and textile lovers.
NUNO is a meeting place
for the producers of cloth
and the users of cloth.
New trade routes will spring
from our exchange of ideas.
Here we will create
new fabrics and these fabrics
will become a new medium
for collecting and
expressing the hearts of people.
The vision and sensitivity
of you, our customers.
will determine how these
textiles can and will be used.

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11:00am—7:00pm
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A.M.11:00～P.M.7:00
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布
Functional Textile Shop
NUNO

made hand-weaves a luxury for only a few. And yet industry and handicraft did not have to be opposites. Contemporary Japanese textile innovator, Jun'ichi Arai sought to revive "lost traditions in weaving while enlisting modern technologies to make Japan's 'lost art'"[29] more accessible to textile lovers worldwide. He combined industry and handicraft and launched the Nuno Corporation in Kiryu, north central Japan in April, 1984,[30] with textile designer, Ms. Keiko Sudo and merchandising expert Ms. Mickiko Tomidoro. Nuno is a medium-output production scaled to the contemporary market while flexible enough to experiment with exciting new substances, processes and treatments in weaving in producing its own original designs on fabric.

Jun'ichi Arai resigned as company president in 1987, relinquishing all involvement with the planning, production and management of the Nuno Corporation to pursue his own creative activities in the field of art textiles with particular emphasis on hand-finishing processes[31] Arai's professional management is handled by a consultancy.creating company - K.K. Arai Creation Systems, Tokyo. The products of this company are paradoxically ancient and contemporary, elegantly simple yet technologically advanced. This applies to the variety of fabrics it produces[32].

Arai has explored age-old techniques, namely shibori which he refers to as his plangi forms[33]. He combines new technology with this ancient craft. Woven or knit his base fabrics are made up of two or three contrasting fibres. Their surface is often of molten silver or gold. His method is reductive : instead of embellishing these cloths with precious metals, as in the tsujigahana textiles of the sixteenth century, (refer to Chapter One). 'Arai uses tie-dye resists to protect patterned areas of the cloth which, in this case, is lamé[34] and uses a 'burn-out' or 'melt-off' process to dissolve the cotton surface of the lamé thread, exposing the metallic area. In the areas left unprotected the metallic area is removed from

PLATE 20

Jun'ichi Arai's 'burn-out' technique, the cotton surface of the lamé thread is dissolved exposing the metallic area, which creates a velvet texture.

the cloth so that the thin yarns that supported the metal become transparent filigrees.

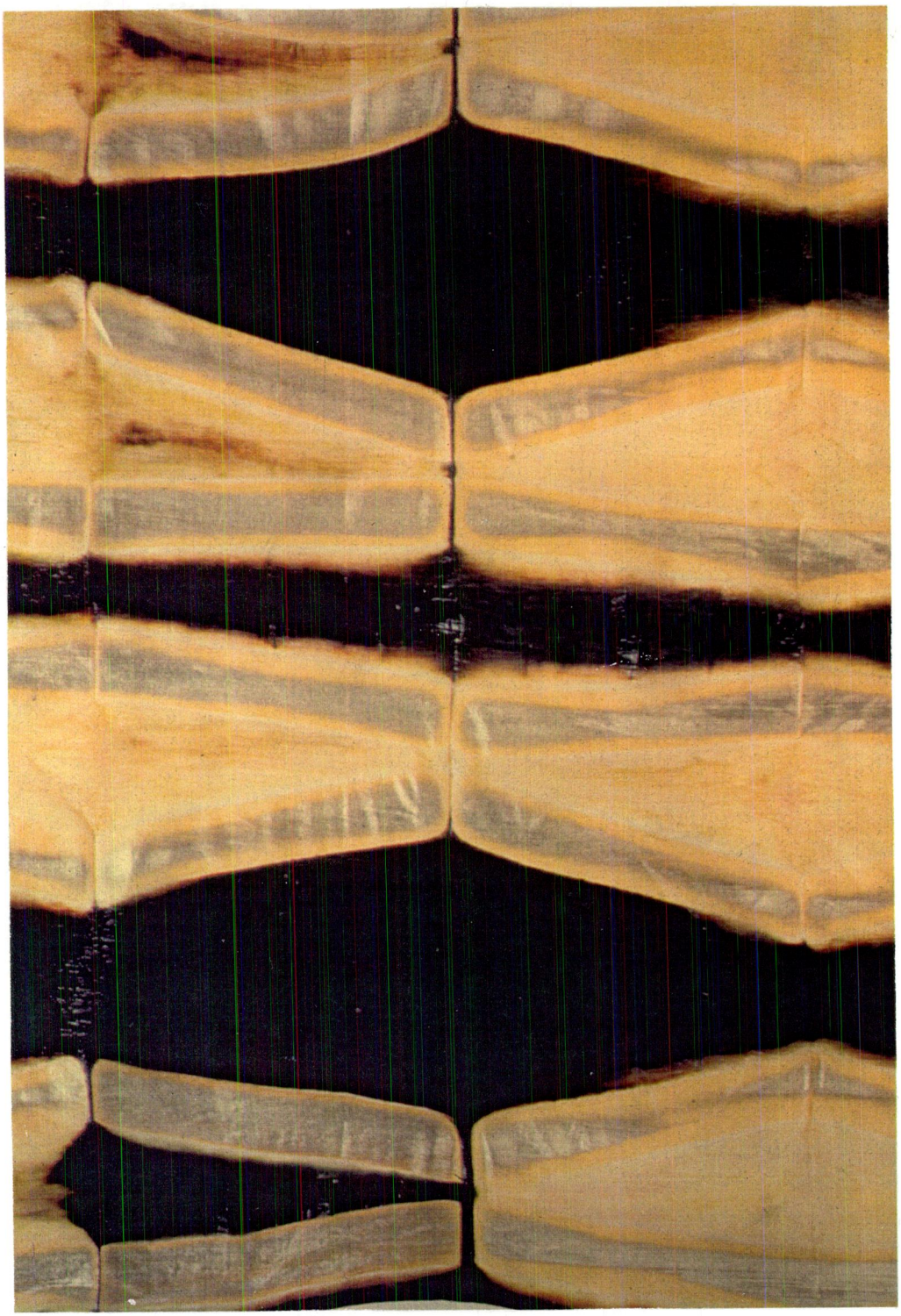
He invented this technique so that the metallic yarns are burnt out of the cloth leaving a transparent film so, he took this craft a step further and reverting to the ancient method of tie-dye resist during the fourteenth century, he wrapped certain areas before the 'melt-off' process to retain some metallic patterned (Plate 22) area. He then tie-dyed colours into this 'burnt-out' fabric. By using 'new generation wool'[35] for the weft, he discovered it was possible in the tie-dyed melt-off process to create a velvet texture (Plate 20).

'Arai later applied his melt-off technique to the traditional itajime shibori resist process which had been developed by Suzuki Kanezo during the eighteenth century (Edo Period) as a means of establishing pattern on a fabric. 'Arai folded the cloth between two wooden blocks. He proceeded to melt-off the metallic content on the areas exposed. By manipulating the folds of the fabric and the shape and position of wood, he is able to create soft edged gradiated patterns (Plate 21). This fabric appears dull and brash but it nevertheless radiates an intensity from its unadorned simplicity. It emits the Japanese ideal of quiet elegance.

Arai, it seems, is capable of exploiting the thermoplastic properties innate to most synthetic fibres, in using this unconventional melt-off process to remove the magnificent glitter from this lamé fabric. And, with each stage of the processes involved in producing such fabrics, the fabrics themselves lose their impersonal machine-made quality and obtain an individual hand-crafted feel from their very advanced technology.

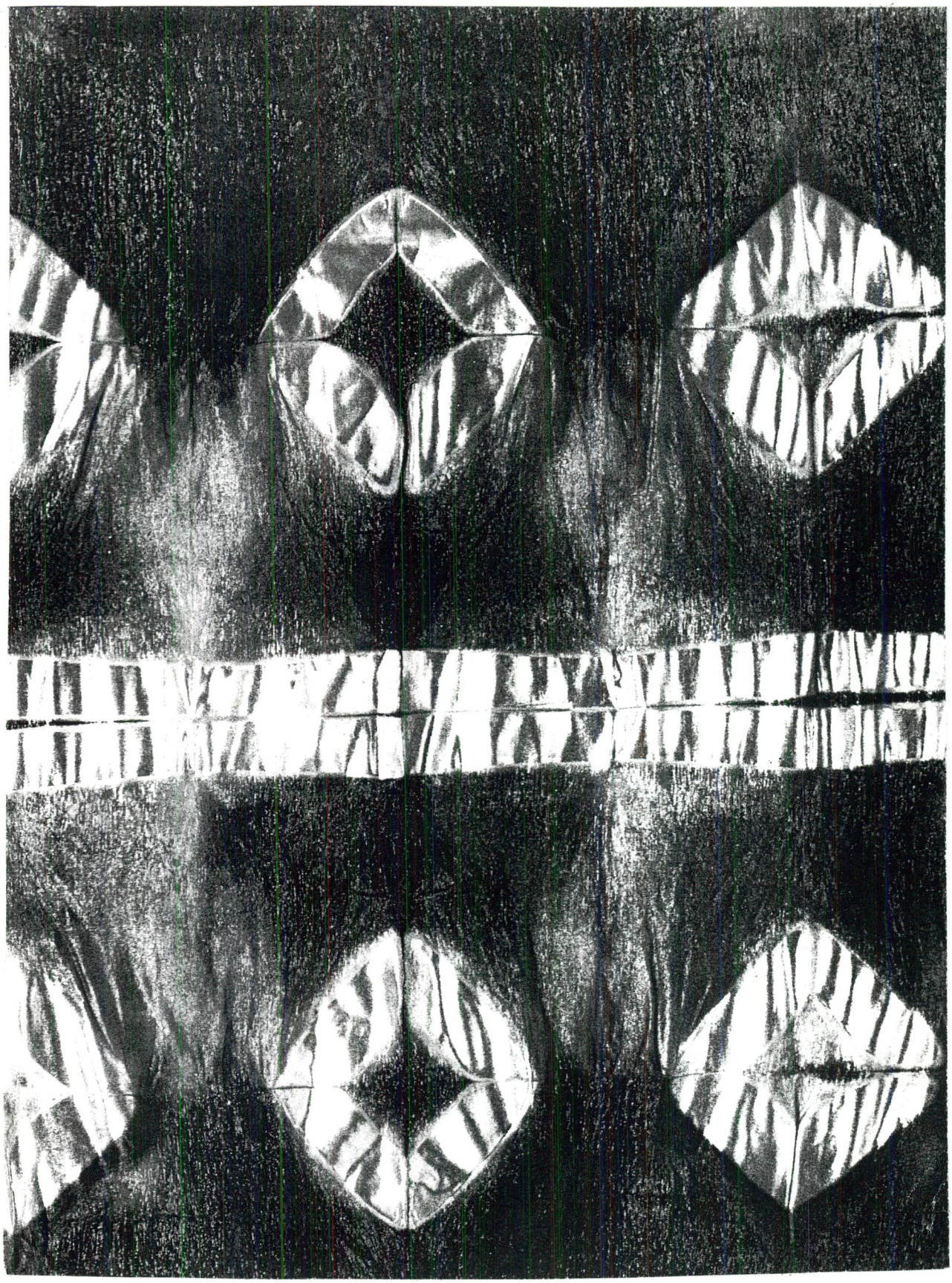
Jun'ichi Arai is quoted in Ann Sutton's book, Ideas in Weaving, : "Japan can be strong on high technology only when old-time

PLATE 21.



Aurora, 1980 Jun'ichi Arai's itajime shibori resist process which creates soft blurry-edged patterns.

PLATE 22.



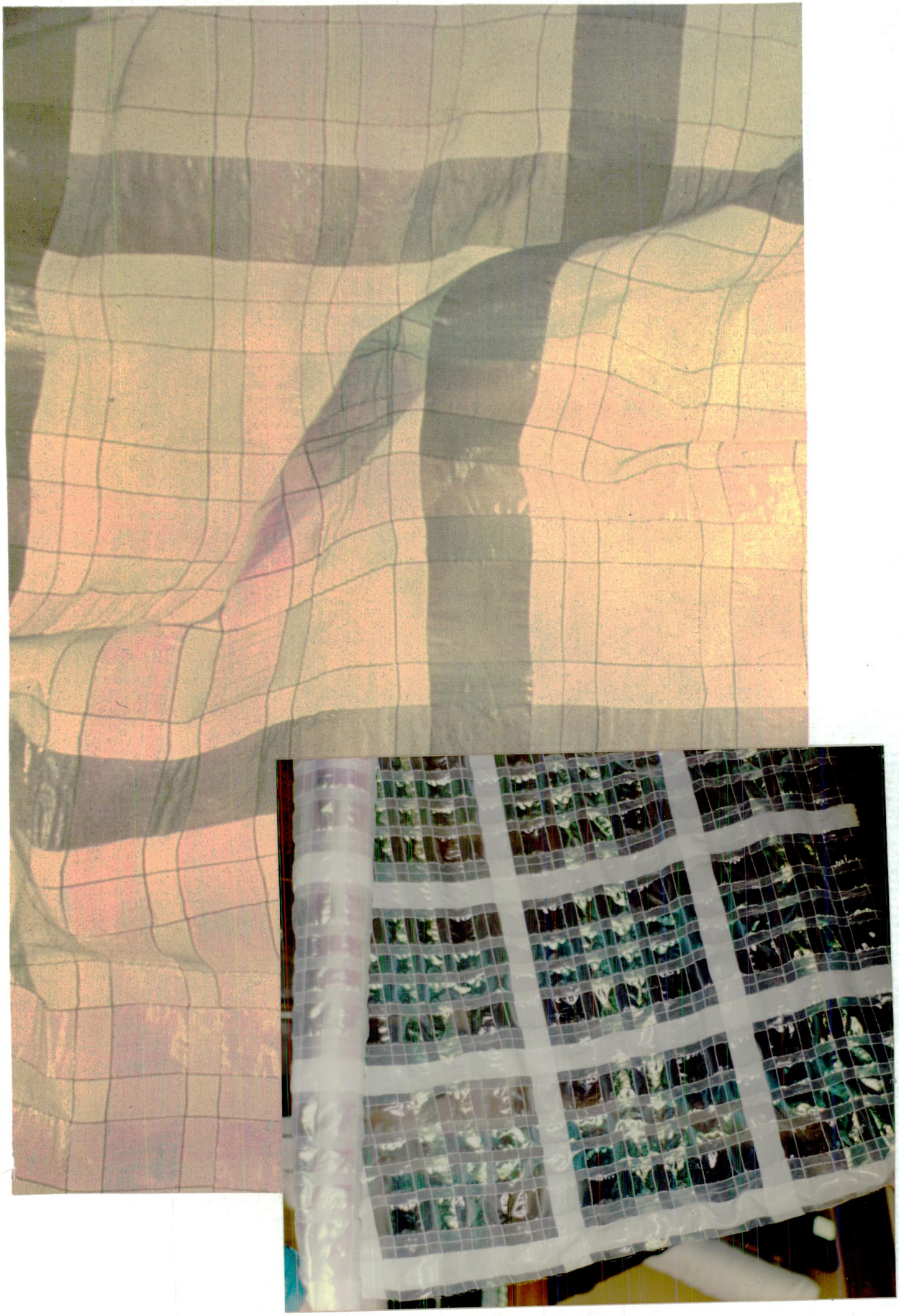
Stella Matis, 1980. 'Arai's uses tie-dyed resist (bound resist). By wrapping areas of cloth before his melt-off process he retains same metallic area of pattern. technology is preserved"[36].

As a highly defiant woven textile designer, 'Arai explores unconventional methods in weaving, taking his craft from the confines of tradition, to create what could be described as, futurist fabrics. This applies particularly to his fabrics woven with metal. Initially, 'Arai researched various slit-film processes during the late eighteenth century by kimono-makers. Originally when kimono makers required gold or silver threads, the threads were made from gold and silver-leaf, washi - Japanese hand-made paper. That tradition continues to provide the impulse to create contemporary slit-films. With the developments in slit-film processes and the advent of high-technology, various techniques have flourished. 'Arai, in response, has made it possible to vacuum-seal an impossibly thin layer of metal such as titanium, chrome, gold or platinum to a nylon/polyester base fabric.

I discovered these fabrics under the 'Nuno' label within Liberty's of London. Big Checkerboard, a rough handle (Plate 23) semi-transparent fabric, which has been delicately woven with three different types of yarn, which gives the cloth a variety of visually interesting surface effects. 'Arai used coloured titanium which creates an iridescent shimmer quite like a dragonfly's wings. He also sandwiched aluminium filaments together (for sheen) between dyed polyester threads. The colour has been achieved through a vacuum process which simultaneously shrinks the polyester fabric to give the fabric its unique surface quality. 'Arai refers to this process in the Fiberarts Magazine as "an offshoot of video and audio technology"[37].

Although this fabric was visually and technically interesting, I was even more intrigued by another fabric which was technologically advanced and visually stunning, at the same time. Three different metals are employed to create this amazing silver fabric appropriately entitled 'Stainless Embossed'. The three metals are chrome, nickel and steel. (Stainless steel is an alloy of these metals). The metal is

PLATE 23.



Big checker board, 1991, 'Arai has woven coloured titanium and polyester together using a vacuum process to create a semi transparent fabric with a shiny finish.

PLATE 24.

Stainless embossed, 1990, 'Arai uses a splattering process to fix stainless steel polyester to create a silver patterned fabric with a lustrous handle.

then fixed to the polyester to create a shiny finish using a 'splattering' process which is used in the Japanese automobile industry for applying metallic trim to car parts. The resulting fabrics, contrary to expectation, obtain a light and lustrous handle. In a bizarre way the fabric was transparent (with the exception of the undulated patterned areas formed by the stainless steel) yet opaque which probably had something to do with the light reflecting off the surface of the fabric[38] (Plate 24). Most would refer to these high-tech fabrics as 'man-made', 'Arai merely considers the materials as 'contemporary natural fibers'[39].

'Arai begins with state-of-the-art fabrics developed by Japan's technology as his starting point, unceremoniously takes away their all too perfect uniformity and, using the same technology that created them, he gives rise to new interpretations of spontaneous expressions in woven textiles. Therefore, the more reliant the elements of the fabric are on high technology, the more its inherent uncertainty increases. He is quoted in the book, 'The Genius of Jun'ichi Arai', that "the human hand and technology must not be separated[40].

CHAPTER TWO : END NOTES

(25) Ann Sutton, Ideas in Weaving, London, 1989 pg. 5..

(26) small business.

(27) The integration between a craft object and an industrial product.

(28) Ann Sutton, - 'The Genius of Jun'ichi Arai'
International Textiles, Dec. 1992, p.5.

(29) craft.

(30) Today, Nuno textiles are produced not only in Kiryu, but in many other locations all over Japan, from Kagoshima in the South-west to Yamagata in the far North.

(31) Nuno continue to produce their own original designs which are sold through the showroom, Nuno franchaise shops and selected retailers worldwide.

(32) Lisa Hammel, Jun'ichi Arai : A Magician with Textiles, Nov/Dec. 1990 p. 24.

(33) This involves binding and gathering the cloth.

(34) 'Arai created this lamé fabric for fashion designer, Kansai Yamamoto in 1979.

(35) The International Wool Secretariat provided state-of-the-art technology to weave synthetic weft fibres such as polyester/nylon with natural wool (warp fibres) using a sirofil technique.

(36) Ann Sutton, Ideas in Weaving, London, 1989, p. 15.

(37) Hammel, op. cit., p. 24.

(38) The new techniques of vacuum bonding metal on to yarn cloth and highly reflective polyester slit films appear to create fabrics that are sensitive to changes in light in an interior.

(39) Sutton, 1989, op. cit., p. 27.

(40) Sutton, 1992, op. cit., p. 13.

CHAPTER THREE

INNOVATION IN FABRICS

JUN'ICHI 'ARAI

INNOVATION IN FABRICS
JUN'ICHI ARAI

Individuality and innovation epitomized the eighties. Style no longer associated itself with any particular class of people[41]. The individual art-oriented expressionist prints, yearned for, for so long, suddenly lost their popularity and fashion turned its attention to fabrics for inspiration and innovation, using finely crafted textural surfaces and pattern as a means of expression. Japanese textile designers[42] notably Jun'ichi Arai pioneered innovation in both the design and manufacture of fashion fabric for leading fashion designers such as Issey Miyake, Kansai Yamamoto and Rei Kawakubo (Comme des Garçons).

By combining traditional craft techniques of pleating, twisting, folding and crumpling the fabric through the Japanese shibori resist-dyeing process with the latest industrial technology such as computer control, 'Arai produces three-dimensional cloths of supreme artistic value. As described by Chloë Colchester, 'The New Textiles, Trends and Traditions'.

> "Arai never draws his designs but regards weaving as a three dimensional construction, a sensual form of engineering with fibres."[43].

There was a profound interest in fibre technology during the mid-eighties, which spurred 'Arai to consider ways in which he could maximize or express natural fibres 'performance' qualities. This resulted from the trend surrounding the synthetic industries 'performance' fibres which are highly elasticated, highly absorbent and repellent against heat as body temperature fluctuates[44] 'Arai experimented with high twist yarns such as wool and cotton (which react differently to extreme heat).

PLATE 25.

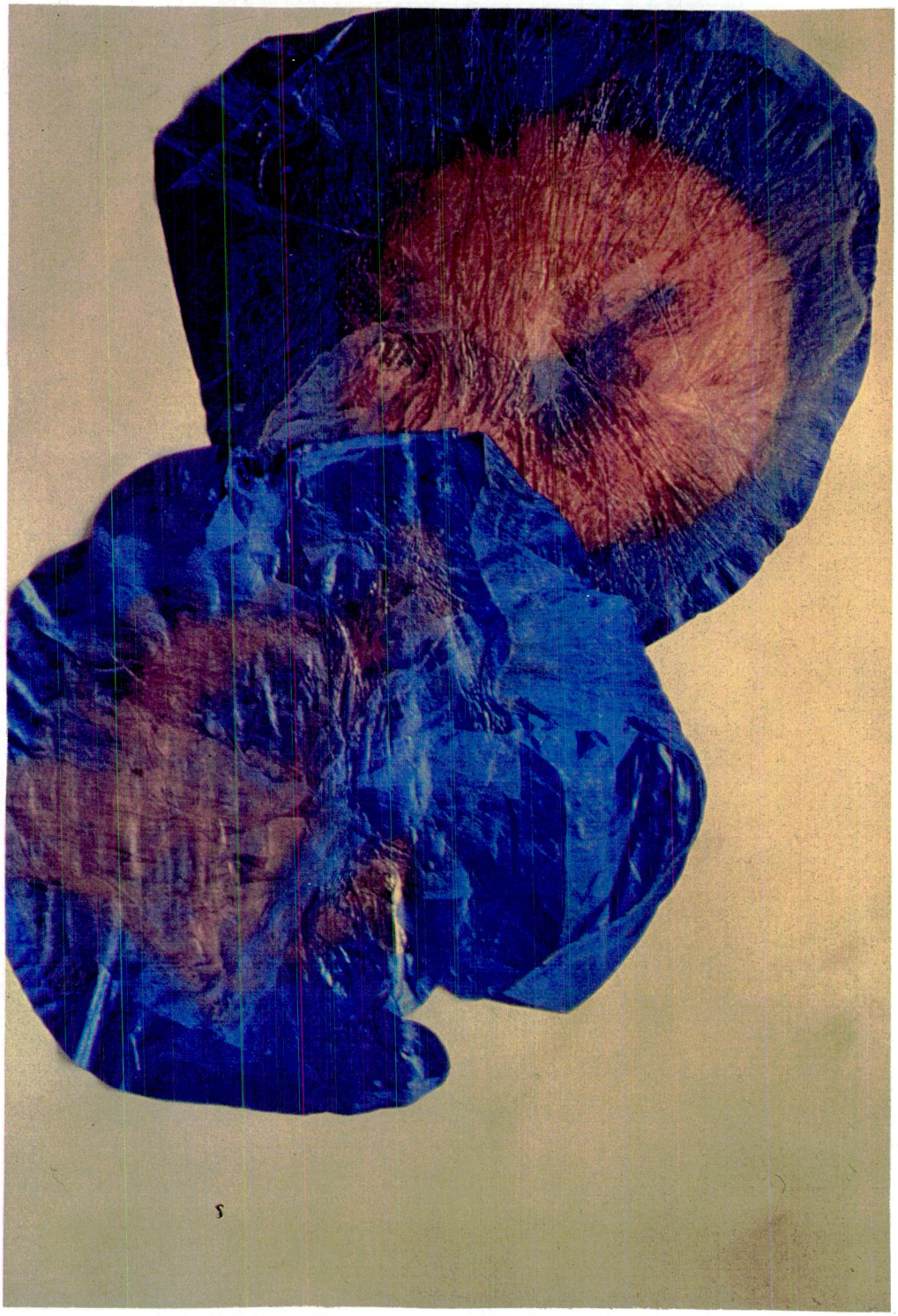
'Woven Structure' pattern, Jun'ichi Arai, 1987

I was fascinated by one of these fabrics entitled 'Woven Structure' on display at the Nuno shop within Libertys store in London (Plate 25). It obtained a crinkled texture and felt springy and bouncy. The pattern resembled those created by arashi shibori[45]. But, I discovered, in fact, that the pattern is created by photocopying a piece of roughly woven black and white Kente cloth from Africa and then transferring the photocopy into a computer programme and running through a computer-aided jacquard loom. By tightly twisting the yarns in opposite directions the fabric is given this elasticated springy effect. According to the fabric's weave structure and pattern 'Arai could give it a three-dimensional form by placing it in a heated dryer to distort its shape. It was this combination of synthetic textiles, a new generation of natural fibre production techniques and computerization that enabled textile/fabric designers such as 'Arai to produce short lengths of specialised fashion fabric.

Another means of creating textural effects on fabrics is by the heat transfer print machine. 'Arai performs an unconventional new use for this machine which is often used to transfer designs and colours onto the surface of fabrics[46]. He crafted a process of repeated pleating wrinkles into fabric. Amazing patterns and textures are created by overlapping layers of permanently pleated wrinkles, shapes, creases etc.[47] Although 'Arai uses the transfer-print process as a finishing machine, it can alternatively be used to add layer upon layer of colour to fabric. 'Arai was fascinated with the glimmers of colour retained in the cracks and folds of fabrics after his transfer-print process. He called these fabrics 'Minerals', which were specifically designed for fashion[48](Plate 26). This is one among many of 'Arai's talents which lies in his personal familiarity with high-tech machines, enabling him to creatively subvert his fabrics into functions for which they were never designed[49].

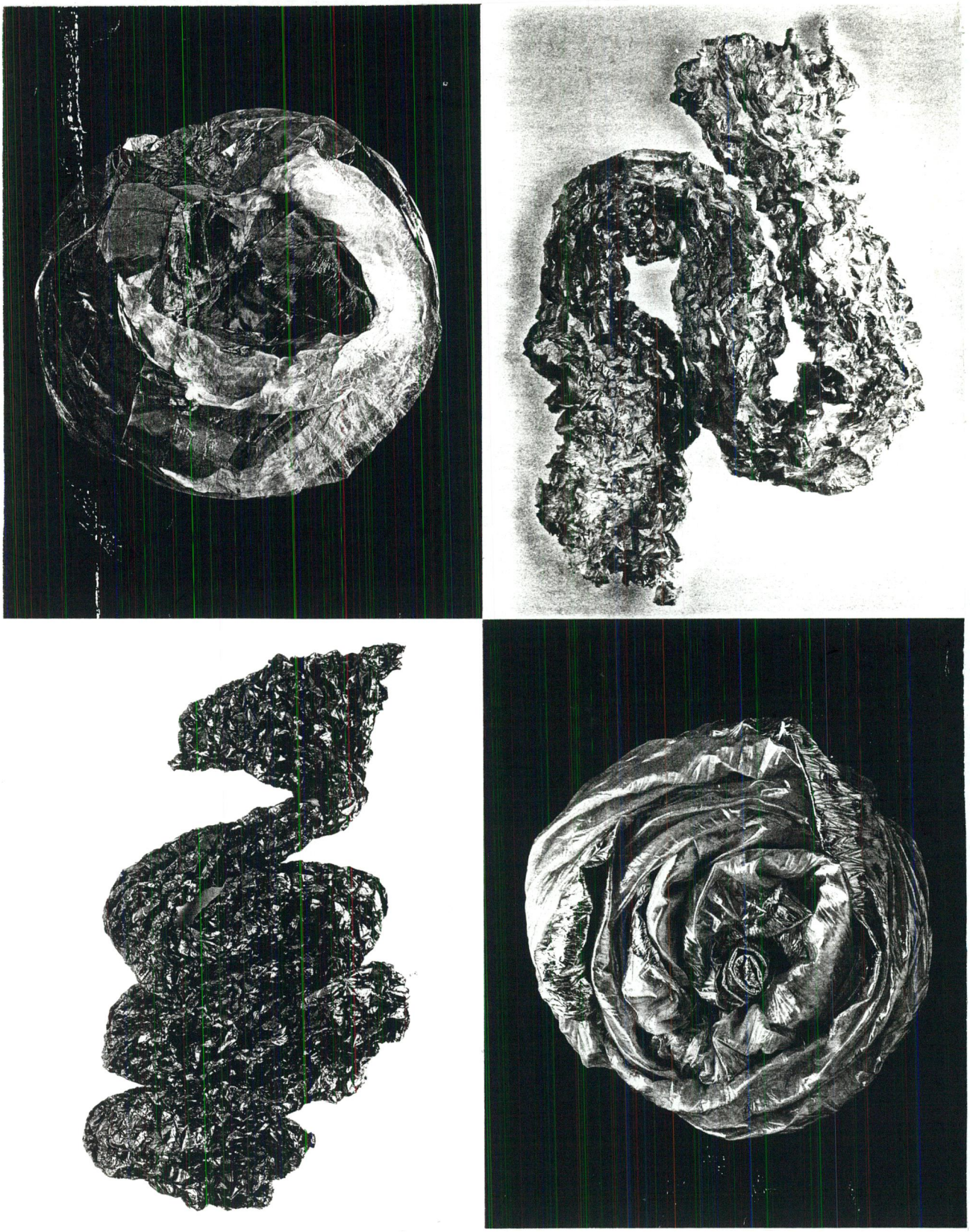
Following the success of his 'Mineral' series, 'Arai began to

PLATE 26.



'Vaidurya', Jun'ichi Arai, 1991
One of the fabrics created for the 'Mineral' Series.

PLATE 27.



Each of these fabrics have been finished with a technique called 'heat-set' to produce three dimensional crushed fabrics.

explore new realms within the finishing technique called 'heat-set'. After numerous experiments, he thought of a method of stuffing 'melt-off' (see Chapter Two) transparent fabrics tightly into paper tubes and finishing them in a vacuum heat-set machine, used to twist fibres tightly into thread, which produce three-dimensional crushed fabrics (Plate 27)

'Arai's conscious rejection of the conventional and disinterest in the finished product, leads him to deny total and dispassionate flawlessness[50]. His manipulation of chemical finished processes and 'heat-set' allows for creativity and spontaneity in ever-changing expressions. 'Arai sometimes ties/finds fabrics for tie-dyeing (see Chapter Two) then intentionally discards the dyeing and places all the tied fabrics directly into a tumble dryer produces dimensional fabrics in unpredictably shrunken and buckled textures. 'Arai has not only presented us with remarkably innovative fabrics which transcend the confines of these technologies but has broadened the potential of the fibre medium[51].

CHAPTER THREE : END NOTES

(41) Resulting from the production of bland, standardised poor quality products during the seventies.

(42) As well as Reiko Sudo, Koji Tatsuno and Issey Miyake's fabric designer, Makiko Minagowa.

(43) Chloë Colchester, The New Textiles, Trends and Traditions, London 1991.

(44) In America large firms such as Dupont experimented with combining lycra with a variety of natural fibres and British designers such as Nigel Atkinson and Bridget Bailey influenced by traditional craft techniques such as shibori to produce exciting heat treated dimensional fabrics.

(45) Arashi shibori creates patterns resembling rain water and wind. Arashi means storm.

(46) Even during the 17th century kanoko shibori dots were painted manually which created colourful textured designs on kosodes.

(47) 'Arai also uses the itajime board-clamped dyeing process which involves folding the cloth into wide vertical pleats which is then dipped in dye, to create textured patterns.

(48) 'Minerals' fabrics debuted in designer Yoshiki Hishinuma's fashions in glittering beautiful coats in his 1991 show.

(49) Colchester, op. cit. p. 36

(50) Japanese fashion designer, Issey Miyake uses technology to create magical surface effects. Flaws that replicate hand-made irregularities are programmed in to a computer. He believes fabrics are more unique when they are not perfected.

(51) In America, during the eighties, contemporary surface designers such an Ann Lisa Hedstrom used fibre as a medium to create three dimensional fabrics in a rich array of muted and deep subtle colours which created wonderful faded looks. She used arashi shibori as her main source and wrapped fabric around a pole four times (this method was invented in 1880 by Suzuki Kanézo (see Chapter One) and discharged/hand-dyed the fabric using acid dyes at each step. Hedstrom may not be as innovative or experimental as Jun'ichi Arai in her manipulation of fabric but she has perfected her own personal and perhaps conventional method of dyeing through numerous experiment.

CONCLUSIONS

CONCLUSIONS

In compiling this thesis, I have discovered that shibori in a traditional context, is a Japanese term used to describe a variety of methods of embellishing textiles by either binding, stitching, folding or clamping areas of the cloth (to prevent dye penetration) before it is immersed in a dye bath. By removing shibori from its traditional context it can be open to all sorts of interpretations. It can also be understood as the manipulation of a two-dimensional surface into a three-dimensional form which is then dyed to record the process itself.

Jun'ichi Arai's profound interest in fibre technology coincided with a appreciation for finely crafted textural surfaces and patterns (resulting from various resist dyeing techniques) by Japanese fashion designers during the eighties. Advances in technology such as the computer-aided jacquard loom, heat transfer machine and industrial technology in 1987 enabled 'Arai's small business, Nuno, to produce three dimensional one-offs with the look of hand-crafted fabrics at a very high speed. Thus, 'Arai pioneers both the innovation and manufacture of specialist fashion fabrics.

Some craftspeople, particularly those working in a traditional idiom, firmly believe that only fabrics made by hand can convey the chief means of personal and artistic expression. They also maintain that large scale production results in poor quality, bland standardised products. Contemporary woven textile designer, Jun'ichi Arai, has proved that industry and handicraft do not have to be opposites and a new more harmonious relationship between mind, hand and technology is possible with an appreciation of quality over quantity. He intentionally integrates the craft object and industrial product and explores age-old techniques, namely shibori and combines new technology with this ancient craft to create an exciting range of contemporary fabrics, yet paradoxically with a hand-crafted quality.

APPENDIX

APPENDIX

In researching my thesis I have contacted .....

* Judy Inglis, the Cultural Section at the Embassy of Japan, Dublin.

* Elizabeth McCrum, Assistant Keeper, The Art Department at the Ulster Museum, Belfast.

* Susan Fitzgibbon, the main buyer for the Fashion Department in Libertys Fabric Company, London.

* Anna Jackson, Assistant Curator of the Far Eastern Department at the Victoria and Albert Museum, London.

* Miko Uono, Public Relations Manager for the Nuno Corporation, Tokyo.

* Managers at the Issey Miyake shop - Libertys and Brompton Road, London.

* The Museum of Applied Arts, Helsinki,
  The Museum of Art, Rhode Island, U.S.A.
  The Cooper Hewit Museum, New York.
  (all three museums have a permanent collection of Jun'ichi Arai's work).

* Fashion Fabric Private Ltd., Parsram BDL, Tokyo.

* Arimatsu-Narumi, Shibori Museum, Japan.

* Kyoto Prefectural General Museum, Kyoto, Japan.

* Bunka Fashion Museum, Tokyo, Japan.

* Reginald Tom Conway, who is knowledgeable on Japanese Collections, Co. Wicklow.

* Professor Toshio Watanabe, Director of Research at The Chelsea School of Art, London.

* Sallie O'Sullivan - a weave tutor and colour specialist at N.C.A.D., who is particularly interested in specialised fabrics produced by the Nuno Corporation.

* Susan Bennett - the Library Administrator at the R.S.A., London.

* The Textile Institute - Blackfriars St., Manchester.

GLOSSARY

GLOSSARY

Beni: a dye extract from the petals of the safflower plant.

Dófuku cloak: a medium length outer cloak worn over armour and other clothing by the warrior class during the Muromachi Period (1333-1573)

Hakama: Full length trousers or culottes worn by men and women during the Heian Period.

Itajimi: A resist process in which the cloth is folded and clamped between wooden blocks or sticks then vat-dyed. This method of patterning which resulted in a design with attractively blurred edges was popular for red and white fabrics for linings.

Júnihitoe: Twelve unlined robes, each robe dyed a different colour worn by the court ladies of the Heian Period.

Kanbun Kosode: Style of kosode popular during the Kanbun era (1661-1672). A full-length design sweeping down from the shoulder to the hem with a large area of open ground.

Kanoko Shibori: 'Fawn spot dyeing. A type of resist dyeing which involves binding or wrapping small pinches of fabric with string or twine. When the bindings are removed after immersion of the cloth in dye, a white spot circular/square with a raised dot in the centre is formed, which can be used to fill space, create lines or texture.

Kasuri: Japanese term for ikat. The process of patterning cloth by binding yarns before weaving to reserve areas from dye, involves calculation of where the reserved areas of yarn will be in the final worn piece.

Keichó Kosode: A style of kosode popular during the Keichó Era (1596-1614). It had interlocking and overlapping areas of contrasting colours.

Kikai: 'Tortoise-shell' hexagonal motif used as an all over pattern or singularly during the Edo Period (1615-1868)

Kimono: The traditional garment of Japan, developed from the Kosode during the Edo period (1615-1868). A straight cut wrap around robe worn with sash (obi).

Kókeci: Ancient term for tied or bound resist. Examples from 7th or 8th century Shosó-in repository.

Kosode: An undergarment during the Heian period with smaller sleeves and sleeve openings than the outer robes. Developed as an outer garment during the Meiji period and evolved into the modern kimono.

Kumo Motif: A pattern resembling a spiderweb produced from variations of bound shibori used to decorate cotton kimono garments worn by common people during the Heian times (12th century).

Kyókeci: Ancient Japanese resist process in which cloth is folded and then clamped with wooden blocks. Several colours are applied through holes int he blocks which form reservoirs to contain dye. Examples from the seventh and eight centuries are in the Shosó-in collection.

Matsukawabishi: 'Pine-bark-lozenge', a geometric motif composed of three super-imposed diamond forms used as an all over repeating pattern as well as a single unit.

Muira Shibori: A type of binding produced using a hook to speed up the process. It holds the pleats taut while the cloth is bound-looped, is called after the woman who invented it, Mrs. Muira Genchú in 1624.

Mokume Shibori: Wood grain tie dying. Rows of parallel running stitches five to ten metres apart are tightly drawn up before the cloth is immersed in dye. When untied, the resultant irregular pattern resembles wood grain or tree bark.

Obi: An elaborately patterned and very expensive sash worn with the kimono. A woman's obi is wide and tied in a large knot or bow. A man's obi is narrow and worn around the hips.

Plangi: Malay-Indonesian word for shibori which involves binding and gathering the cloth.

Rókechi: An ancient term for wax-dyeing. Examples from the seventh and eighth century Shosó-in repository.

Shibori: A resist-dyeing technique and the fabric produced by it, often incorrectly termed tie-dye, shibori encompasses a wide variety of resist techniques using folding, stitching (nuishime shibori), binding (kanoko shibori) and sheathing (Bosho shibori) in many combinations. It is sometimes combined with embroidery and past resist dyeing.

Só Kanoko: All over Kanoko shibori. The entire surface of the cloth is covered with small reserved areas, known as so-hitta.

Somewake: Partly coloured dyeing involving the use of stitch shibori (nuishime) to create a background divided into areas of different colours. Typical of tsujigahana and Keicho kosode.

Tsujigahana: A decorative style combining several techniques which became fashionable during the late fifteenth and early sixteenth centuries (Muromachi period) stitched shibori, gold or silver leaf embroidery etc. were used to achieve typical effects of tsujigahana.

Yúkata: An unlined indigo-dyed cotton garment worn for the bath or casual wear during the Edo period embellished by paste stencil dyeing or shibori.

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PERIODICALS

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