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# Doublecloth: History, Technique, Possibilities.

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# **Doublecloth: History, Technique, Possibilities.**

by

**Diane Marjorie Bell**

**A thesis submitted to the University of Plymouth in partial  
fulfillment for the degree of**

**Doctor of Philosophy**

**Faculty of Arts and Education**

**November 1995**

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# **DOUBLECLOTH: HISTORY, TECHNIQUE, POSSIBILITIES.**

**by Diane Marjorie Bell**

## **ABSTRACT.**

The aim of this research is to analyse through practical and historical investigation the manner in which Doublecloth in the twentieth century has been transformed from a traditional woven technique to one of artistic innovation and challenge. The first series of woven samples and historic enquiry concerns the structure and pattern of doublecloth at a time when its industrial and craft-based use was for the production of decorative and utilitarian woven fabrics. The research focuses on the extent to which this technique was given aesthetic credibility by its altered profile at the Bauhaus and the subsequent influence of the writings and work of Anni Albers.

While the philosophy and products of the Bauhaus and the role of Walter Gropius have been documented and widely debated the practice of textiles, and the influence on it of gender, class and the hierarchical practice of craft, has received little critical attention. The research seeks to redress this imbalance, evaluating why the output of the textile workshops was undervalued artistically and considered marginal to the products from other workshops. This leads to a consideration of the interface between the practice of Fine Art and the practice of Craft, between designing and making, between art and industry.

The woven samples are a process of experimentation against which the historic stages can be tested and the technical constraints of contemporary practice can be explained. This primary material leads to a consideration of the new technology and the impact of Nuno doublecloth fabrics on the production of doublecloth for the mass market. The evidence suggests that while new fabric finishes and experimental pattern effects are desirable, the difficulties of hand production are so prohibitive, that it is only with computer aided technology that such ambitions can be met.

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**Dedicated to my daughter, Zoë  
and to John.**

## Introduction

Within established textile history the production of doublecloth has been closely associated with products for industrial and commercial uses rather than for its decorative and design applications. This research analyses the historical background of doublecloth by a synoptic review of textile design and technology literature and the study of doublecloth fabrics in textile and museum collections revealing the manner in which the technical and financial limitations of the process appeared to be impacting on its stylistic development. This made it clear that a research methodology which gave equal weight to the practical and historical forms of inquiry would be essential to fulfil the research objectives.

The collation and analysis of primary and secondary source material was crucial to the development of the practical project by establishing the known parameters of doublecloth. Although the secondary literature is relatively easy to access, references to doublecloth are scattered and have not been singled out for study in this way before. Primary research was conducted to augment these accounts especially with regard to the Bauhaus and the developments in Britain in the twentieth century. Having established a sound understanding of the historical and technical status of doublecloth the research moved into practical experimentation.

The first series of doublecloth samples were woven to explore the fundamental structure and possibilities for colouring, later leading to woven experiments where the qualities of texture and tension have played a more significant role. Throughout the practical project the woven samples generated lines of interest which were developed through correspondence and meetings with Marianne Straub. The studio project at West Surrey was useful to test current art school practice at undergraduate level and to ascertain the pattern limitations of the technique where students did not have access to the new technology with its flexible patterning systems. Later samples acknowledge the impact of Nuno doublecloth fabrics where a new ideology and concern for materials have been



influential on the production of doublecloth for the mass market. Although the use of new materials, new fabric finishes and experimental pattern effects are desirable in hand woven doublecloth they are time consuming and often difficult to produce by hand weaving. The series of woven samples provide the necessary primary material against which historic and current practices can be tested, and the archive material evaluated. The structuring of the final presentation reflects this approach to meet the aims of the research project.

# **Doublecloth: History, Technique, Possibilities.**

## **SECTION ONE**

### **Doublecloth: History and Techniques.**

## **SECTION ONE: Doublecloth: History and Techniques.**

### **Part One**

#### **[i] Origins and Historical Framework**

The weaving of doublecloth fabric has a long history and wide geographical distribution from Scandinavia to pre-Columbian Peru. It has been woven using a variety of equipment from the simplest back strap looms to highly complex jacquard looms.[Figs 1-4] The technique can be identified as either hand crafted or industrially produced, with an artistic or a technical design approach influencing the character of the fabric. However, where designers have been fully aware of both the technical and the aesthetic considerations the resulting doublecloth fabrics, whether hand or machine woven, can be considered as textiles of great artistic merit. For the purpose of this investigation consideration will be given to the doublecloths of Alexander Morton in the late nineteenth century, the Bauhaus weaving workshop, with particular reference to Anni Albers, to the work of Marianne Straub in the 1930's and 40's and to the contemporary doublecloth fabrics of Nuno in Japan.

A doublecloth fabric consists of two single cloths woven on the loom at the same time, one above the other, each being a distinct fabric with its own warp and weft. During the weaving process the two cloths are bound, stitched or tied together to produce a uniform fabric, with each method of binding influencing the character and purpose of the fabric. Doublecloth is not used exclusively by one designer, maker or manufacturer but is used to produce a specific fabric for a particular need. The need could be utilitarian or decorative or a combination of both. In general it has been used to exploit the insulation properties of two layers of fabric woven together or to manipulate the patterning potential of two separate warps of different colours or textures.

Investigation into the use and history of the technique reveals it as a minority activity in the European textile industry until the twentieth century when it was influenced by contemporary design activities in architecture, interior design,

fashion and by advances in technology. The earliest known use of doublecloth was in China around 500 B.C. from where it spread to India and Persia, and north to Russia and to Finland. By the seventeenth century the technique was used in most Scandinavian countries for household furnishings such as bed covers and hangings.<sup>1</sup> The oldest extant examples of doublecloth in Scandinavia date from the thirteenth century and are executed in wool and linen with the pattern picked up on rods or sticks, not as a loom controlled pattern. The technique evolved into a folk art form using animal patterns and floral motifs in a limited colour palette particularly in those parts of Sweden which border onto Norway: these fabrics were to attract new interest in the revival of the technique in the twentieth century.

The same method of 'pick-up doublecloth' appears in Pre-Columbian Peruvian textiles which were skillfully woven with primitive equipment. The weavers of Peru investigated the doublecloth technique on their back strap looms to produce double width fabric, to make straps and tubular bags and to produce highly decorative fabrics using structural variations of the technique which are still not fully understood. In *Les Tissus Indiens du Vieux Peru* first published in 1924 the complexity and potential of these fabrics is clearly documented in eight pages of text and diagrams.<sup>2</sup> The book has become a standard text for students of hand weaving: "It is stuffed tight with textile ideas, ideas of the innumerable ways yarns can be manipulated to produce cloth. Every paragraph could provide the spark for a modern textile as long as the reader can make the imaginative jump."<sup>3</sup> It was these textiles, in particular the doublecloths, that were to become increasingly important to the work of Anni Albers in the 1940's.

Double woven cloth, with its two layer construction, provided a natural insulation for bed covers in cold weather climates and has its roots in several parts of Europe. German pattern books of the nineteenth century show some examples and make specific mention of the weave. There is a fine set of blue and white bed linen in the Museum für Deutsche Volklunde in Berlin and similar covers in Nürnberg and Hesse.[Fig. 5] This province seems to be the only part of Germany where such examples have survived, but they may once have had a

wider distribution. Swiss examples are in the Historisches Museum in Bern woven in blue and white linen.

It is from these areas of Europe that the tradition of doublecloth bedcovers was taken to North America by the European settlers who wove them to commission. Even though the yarns used in North America differed depending on what materials were available, the styles and technical knowledge remain the same.[Figs 6-7] Later Scottish emigrants also brought over the technique of weaving the Kidderminster carpet which was then extensively woven in the United States of America.

In Great Britain the earliest examples of the technique appear to be double woven carpets brought to Kidderminster during the latter half of the seventeenth century by French refugees. These carpets were coarse double or treble cloths woven with woollen wefts on worsted warps and were called Kidderminster carpets.<sup>4</sup> Later the industry moved north to the woollen districts of Yorkshire and next to Ayrshire where it took a new form as a double or triple cloth with a centre warp as a stuffer or padding and became known as the Kilmarnock, Scotch or Inlaid carpet.[Figs. 8-9] Alexander Peddie's *The Linen Manufacturer, Weaver and Warper's Assistant* published in 1822 mentions that doublecloth "is mostly confined to the carpet manufacture, and sometimes on a small scale by customary weavers for bed-covers". John Murphy's *The Art of Weaving* similarly refers to the use of the weave for carpeting and mentions its suitability for bed-covers. While this work was important for commercial reasons the doublecloth technique was also used by weavers in Scotland for the weaving of seamless shirts. This practice was a tradition amongst the master weavers in the eighteenth and nineteenth century with each weaver attempting to improve on the previous example.

In 1820 David Anderson, a Glasgow weaver, wove a shirt which required no extra stitching when it came off the loom.[Fig 10] The shirt with its elaborate ruffles, standing collar, gussets, buttons and buttonholes, is a perfect replica of a conventional shirt of the time. The idea of weaving a shaped piece of cloth for a

simple garment so that it requires no cutting and little or no sewing was historically governed by the need for economy of material or effort. This criterion seems not to be applicable to the weaving of seamless shirts in nineteenth century Scotland, where the production represented a challenge to the weaver in terms of technical expertise, a virtuoso performance of skill which produced magnificent examples of doublecloth.<sup>5</sup>

Although Henry Meldrum had woven a less ornate shirt than David Anderson in 1819, he was responsible for a number of innovations and improvements to a type of doublecloth called Marseilles Quilting used for a stitching pattern on one colour bed covers. David Sands, another Scottish weaver invented a method of weaving doublecloth for corset and stay-makers, which was stitched by weaving in the correct places and required little labour to prepare the corsets for use, and was probably one of the first uses of doublecloth for clothing purposes in Britain.<sup>6</sup>

During this period the manufacture in Wales concentrated on the production of doublecloth bedcovers. The Welsh Folk Museum at Saint Fagans near Cardiff has several examples from the early nineteenth century woven in natural white cotton and indigo blue.[Figs 12-13] Two eighteenth century covers have linen warps with blue wool wefts, with a red violet wool banded into one of them. William Jones's pattern book of 1765 shows weaving drafts and tie-ups for many doublecloth designs using only four shafts of the loom which were intended to be loom controlled and patterned with no manual pick up of pattern as in the Scandinavian tradition.[Fig.11]

The introduction of the Jacquard patterning system into Britain in 1820 increased the scope for the woven textile designer to produce large, complex repeat patterns on an industrial scale.[Fig 14] The authors of nineteenth century technical handbooks stress that the M<sup>étier</sup> Jacquard did not alter the essential principal of draw-loom weaving which had been used since the fifteenth century for weaving patterned fabric nor did it

“add any new effects or combinations of threads to those previously in use. The inventions only affected the exactness

and speed of weaving, and rendered easy a frequent change of pattern. Jacquard's invention made the tedious process of tying up the design on the cords of the loom itself unnecessary...He substituted for the tie-up,an endless band of cards,on which the pattern to be woven was punched line by line".<sup>7</sup>

While the Jacquard system was to have an enormous influence on the style of mass produced textiles, for doublecloth it presented a particular impetus enabling elaborate patterns, hitherto hand woven on a draw loom, to be produced on a commercial scale. Combined with the pattern and colour potential of doublecloth the Jacquard system could produce woven textiles with clean definition of the motifs that were as rich and varied as printed chintz fabrics. The production of complex decorated textiles at a price accessible to the growing middle classes thus established a new market for doublecloth. These doublecloth fabrics became known as 'Jacquards Gobelins' as towards the end of the nineteenth century many were being woven in imitation of traditional Gobelin tapestries, previously an expensive luxury.

The major influence in the style of doublecloths in the second half of the nineteenth century was the British Arts and Crafts movement, the single most powerful influence on applied arts in both Europe and America. The Arts and Crafts movement developed in response to what many saw as the negative results of the Industrial Revolution: mass production, the division of labour, the disappearance of fine craftsmanship and inventive design, the alienation of artisans from their products. These tensions, including the competition for new markets had produced a textile industry which looked to past styles for inspiration and revival, leaving little time for the creation of original work.

In the provincial Schools of Design which had developed around industrial textile centres in the nineteenth century, textile designers were not trained to experiment with pattern and technique. The main concerns of these schools were to design patterns suited to their local industry, ensuring future employment and economic growth, and to teach the processes of transposing the designs into woven and printed cloth. This training of designers had an obvious effect on the style and character of textiles produced:

"Such complacency meant that the appearance of textiles varied very little in the period 1851-1870 and despite criticism from artistic quarters the prevailing concern of manufacturers was the search for cheaper methods, more unnatural technical effects and brighter colours." <sup>8</sup>

It was significant that with the expansion of technical education in the 1880's and the foundation of Municipal Colleges that there was a major split between the industrial and design aspects of textile courses. A primary example is provided by the developments in Manchester, but this is mirrored by other centres of weaving such as Leeds, Bradford and Bolton. This created a climate in which the schools of art aligned themselves with the hand production of textiles. The textile training available to women in the schools of art in Britain was mainly embroidery. In 1896 the Central School of Arts and Crafts and Camberwell School of Arts and Crafts both had embroidery and dress on the syllabus, but it is not until 1923 that weaving was taught at the Central School and at Blackheath School of Art. <sup>9</sup>

The Arts and Crafts Exhibition Society was established in 1888, and by a programme of exhibitions, demonstrations and lectures, encouraged the status of the designer and the sale of individual designs for the increasing interior design market. There were five exhibitions held in the New Gallery in London between 1888 and 1899 which became the focus for those concerned with raising the standards of the decorative arts and the standards of design in industrial products. The society aimed to reintegrate the role of designer and maker, to re-establish hand crafted over mechanically produced, and to invest the crafts with the status of Fine Art. The members of the society believed that an improvement in the standard of design would come from the designer, not the manufacturer, developing a network between craftsmen of similar artistic views. Its success was summarised by *The Studio* magazine in 1896:

"the many objects shown produced by firms and individuals working on strictly commercial lines, are admirable and satisfactory in all respects and are the highest tribute to the work of the Society. If it inculcates ideas, and leaves others to carry them out, if it educates the public and creates a demand which can be supplied by ordinary channels, then indeed it fulfils its purpose."



William Morris, in true Arts and Crafts style, taught himself to weave in order to inform the design process, and through this knew when to rely on the expertise of established manufacturers.<sup>10</sup> Morris was excited by the texture and tactile qualities of cloth and designed for a great number of woven techniques which included double and triple cloths, leno [gauze weave], damasks, brocaded velvets, and compound weaves, all in addition to the embroideries, prints and tapestries produced by the company. This range of textiles shows the versatility of Morris as a textile producer, and their commercial success influenced textile design and manufacture, particularly in the artistic interior design trade.

Morris first used the doublecloth technique for a Kidderminster carpet woven to the pattern of *Daisy*, a printed fabric already in production, by the Heckmondwike Manufacturing Company in Yorkshire in 1875.[fig 15] Morris believed that these carpets called for "a small design in which the different planes of the fabric are well interlocked".<sup>11</sup> The popularity of *Daisy* was noted by Heckmondwike and their own range was influenced, by 1880 they were registering more Kidderminster carpet designs than any other firm. The company continued to weave for Morris and Company, producing ten designs between 1875 and 1883 in 2 and 3 ply qualities. Some of the later designs were sold as triple cloths for wall hangings, portières and curtaining.<sup>12</sup>

In 1878 Morris designed *Bird*, a doublecloth fabric which was hand woven by Alexander Morton on a Jacquard loom.<sup>13</sup> [fig 16 a,b,c] This was followed one year later by *Dove and Rose* hand woven by Morton in silk and wool.<sup>14</sup> By using the doublecloth structure and varying the lifting patterns a number of textures were obtained showing silk, wool or a mixture of the two. Morris was particularly pleased with the subtle play of light and colour on this fabric.<sup>15</sup> A third doublecloth for Morris and Company, *Helena*, designed by Dearle in silk and wool, was power woven by Morton and Company in 1890.

Alexander Morton had established his company in 1862 as a leno wholesale firm and it was his skill and knowledge of weaving that made the partnership between the two companies such a success. It is probable that *Dove*

*and Rose* was the first silk and wool doublecloth woven by Morton and Company but they perfected the technique in the 1890's and it went on to become one of their most popular products, many of them designed after 1895 by the architect C.F.A.Voysey.[Fig 17-19] Morton encouraged the production of adventurous designs by leading designers, in particular Voysey, Lindsay P Butterfield, Arthur Silver and Lewis F Day.<sup>16</sup>

Alexander Morton spent years perfecting the new synthetic dyestuffs which at first produced harsh, bright colours, to translate the subtle, rich colours of these designs into fabric. The silk and wool doublecloths, in particular, display a subtlety of shading and texture which other manufacturers could not challenge. These fabrics were not recommended for upholstery purposes because of the strain on the silk areas. Consequently the fabrics in the late 1890's were all designed as fully reversible hangings. This clear change of intention for the fabric puts doublecloth into the category of art rather than function for the first time

The style of the British domestic interior was largely dictated by traditional furnishers and ladies' magazines but during the 1880's there was a change of attitude as architects and fashionable London shops began to promote a new style. The unity of design in the interior had become important. A light and airy atmosphere in keeping with the architects' buildings was seen to be appropriate and a reaction to the sombre, highly decorated effect of a mid-Victorian interior. William Morris did much to revive the use of printed fabric for furnishings, with heavier woven materials remaining fashionable for portières, upholstery and floor coverings. The floral naturalistic patterns of these heavier materials were appropriate to being woven in the doublecloth technique and Morton and Company seized the opportunity to extend their production range.

An example in the Whitworth Art Gallery collection from Morton and Company woven in 1893 displays the doublecloth technique to its greatest advantage.<sup>17</sup> [fig 20-21] Linen and wool are used but the introduction of hopsack [a basket-type weave] and twill weaves in certain areas greatly increases the textural qualities. In addition, multi-coloured flowers are printed onto the warp prior

to weaving. This technically complex fabric would have been extremely expensive to produce as it combines the extra process of warp printing and uses two disparate warps of unequal tension which had to be woven slowly to prevent tension problems. The fabric was innovative in concept with a freshness of texture and style.

The Whitworth Collection and the Victoria and Albert Museum have numerous examples of doublecloth that Morton produced, many translated into weaves from Voysey's printed textile and wallpaper designs. The doublecloth fabrics were reproduced from watercolour sketches, Voysey himself overseeing the evolution of his design through the weaving trials, to the colouring of the final product. In a letter to Morton in 1896 Voysey criticises the interpretation of a particular doublecloth pattern:

"I trust now you will see that the nobbly, puckered, crinkled effect of light and shade would at once add detail to many a broad leaf of mine and thus destroy its value as a contrast to the richer and more elaborate flowers and other such parts of the pattern. It would give one a monotonous regular irregularity, which cuts up the surface all over and destroys every inch of line and form as if the design had been through a sausage machine." <sup>18</sup>

However, the relationship between Voysey and Morton was to continue and thrive, each respecting the talents of the other. The innovative doublecloth production from Morton and Company and the combination of Voysey's designs established their doublecloth fabrics as leaders in the market of 'New Art' or 'Artistic' textiles. The commercial success of these fabrics was most significant- over forty designs by Voysey were introduced into Morton's doublecloth tapestry range between 1900 and 1902.

The doublecloths fabrics continued to be produced by Morton and Company until 1920 [after 1914 Morton Sundour Fabrics Limited] They were durable, light and warm and proved popular with customers, but the expansion of sales in printed furnishing fabrics, coupled with progress in printed textile production led to little demand for woven patterned fabric. Morton, once the greatest producer of woven doublecloths in England, diversified his business interests to become a leading manufacturer of roller printed furnishing fabric in the

1920's and screen printed fabrics in the 1930's.

In 1922 Morton Sundour produced a doublecloth, designed by Sidney Howard at the turn of the century, which was updated using new fibres, yarns and colours to suit contemporary taste. This was a Jacquard of stylized flowers with the appearance of a printed fabric: the blossoms and leaves in artificial silk dyed in vivid colours placed against a black chenille background. The fabric was later exhibited at the Paris Exposition des Arts Decoratifs in 1925 to much critical acclaim.<sup>19</sup>

The Arts and Crafts yearning to return to traditional skills saw a renewal of interest in the countryside and traditional British gardens. Voysey's designs in particular depict pastoral scenes of flowers, birds, trees and animals with an emphasis on line. This freshness of imagery and style led to an international success of British Arts and Crafts fabrics in the late nineteenth and early twentieth century. The new international market was established which can be directly attributed to imaginative designers leading the manufacturers into innovative production. The commercial success of the textiles of the Arts and Crafts movement with their naturalistic patterns encouraged other manufacturers to develop their production techniques in line with the style.[fig 22-23]

The success of these British fabrics may be explained by the similarity of the Arts and Crafts movement with other European reform movements in the Arts. From the mid 1890's to 1905 the organic fluidity of the style known as Art Nouveau in England, Modern Style in France, Stile Liberty in Italy, and Jugendstil in Germany and Austria, signified a gradual acceptance of the machine as a tool for the designer. In Vienna, the Wiener Werkstätte, founded in 1903 by the architect and designer Josef Hoffman, aimed to reinstate craftsmanship and hand work, as well as producing functional designs at prices the working classes could afford. A further aim of the Werkstätte was to break down the barriers between the fine and applied arts by training artists and designers in a number of media: architecture, ceramics, furniture, jewellery, metalwork and textiles, thus merging the hierarchy between craft and art practice. In Munich, the Deutsche Werkstätten

shared many of these same ideals and goals and between 1910 and 1920 influenced the design of glass, metal, ceramics and textiles in mainstream production.

In 1910 Hoffman, founder of the Wiener Werkstätte, designed a series of printed textiles to be integrated into an interior using geometric grids which reflected his architectural training.[fig 24] While geometric patterns by the architects Pugin and Owen Jones had been evident in British textiles in the 1850's and 1860's these textiles by Hoffman were progressive and created a new abstract vocabulary of pattern related to the Werkstätte goals. The designs used mainly geometric, simplified shapes, appropriate to the spirit of the new century.<sup>20</sup>

It is interesting to compare the Hoffman textiles with examples of doublecloth furnishing fabrics designed by Henry van de Velde in 1900, now in the collection of the Krefeld Textile Museum.[fig 25] Both fabrics use geometric black and white pattern; the Van de Velde doublecloths have dark grounds with a lighter geometric pattern rising to the surface at intervals. One, *Abstrakte Formen*, is of particular interest as the title Abstract Forms suggests an investigation of a new woven imagery. While it could be argued that Morton's doublecloths of around 1900 show a great technical understanding of the woven structure, these formal geometric compositions pioneer the use of abstraction in textiles. However, these abstract textiles were not to be developed by European textile manufactures until the late 1920's.

### **[ii] Hand Weaving Techniques and the Textile Trade.**

The importance of hand made textiles was only a small part of the Arts and Crafts movement but it had considerable significance on the style. Luther Hooper of Haslemere, for example, exhibited hand woven pieces at the 1903 exhibition and was to publish *HandLoom Weaving* in 1910, the seventh in the Artistic Crafts series, edited by W.R.Lethaby. *Handloom Weaving* was the first manual published for craft hand weavers rather than the technical schools and contains several pages on how to weave doublecloth. The explanation does little to excite

the interest of the reader and no reference is made to contemporary industrial production, signifying the distance between the activities of hand made and mass produced doublecloth.

This difference between text books on hand weaving and industrial weaving is an important issue in the history of doublecloth. The hand weaving manuals explain the technique only as interchanged doublecloth, the simplest form, used traditionally for bed covers producing overall patterns of checks and lines. The technical manuals intended for textile technology schools and industrial practice soon lose the uninformed reader in a mass of technical detail, specifying all the variations of doublecloth and the inherent problems. While it must be acknowledged that hand loom weavers would not have access to a draw loom or jacquard loom to weave complex floral patterns, they would have been able to weave some of the variations of doublecloth fabrics, for example stitched doublecloths, had they been made aware of them. It is not until 1977 when Marianne Straub publishes *Hand Weaving and Cloth Design* that twelve types of doublecloth weaving are discussed in a clear manner for hand weavers.

Another important text book for hand weavers published in America in 1918, which became widely available in Europe, was *Foot Power Loom Weaving* by Edward F. Worst. In his introduction Worst states that "the descriptions given are for the amateur weaver who will find them more easily understood than those given in the more technical books on the subject." It is clear that the volume is intended for females:

"Weaving should be pursued as a most wholesome occupation and it should again find a place not only in the school but in the home. Girls taking the various household-arts courses will find weaving a great aid in understanding the structure of a piece of cloth. The results obtained have such a wonderful effect on the character of the worker that these alone afford ample reasons why weaving should be carried on in both school and community." <sup>22</sup>

Worst describes a plain weave doublecloth of separate colours woven on four shafts and suggests it is "a branch of weaving that amateurs know least about". Again we learn only of interchanged doublecloth with illustrations of "old-time double woven counterpanes" which does little to acquaint the reader with the

potential of the technique and what was currently being woven by the textile industry.<sup>22</sup> There are two significant points to consider here: that these hand weaving manuals by male authors are intended for female domestic use and omit the more technical forms of doublecloth weaving: in contrast the technical school training in weaving was undertaken largely by males and included all forms of doublecloth production for clothing and furnishing use.

The German equivalent of Foot Power Loom Weaving was *Technologie der Handweberei* by Professor Heinrich Kinzer published in 1926. While this publication deals extensively with the mechanical aspects of weaving- spinning, warping, dobby and jacquard looms, and the flying shuttle - there is no reference at all to doublecloth suggesting that Heinrich considered the technique of little consequence to hand weavers.

In correspondance with Ella McCleod, former head of textiles at West Surrey College of Art, the problem of dissemination of information was discussed.

"The spread of knowledge about weaves, constructions, yarns and dyeing was very haphazard and individual among would- be craftsman weavers early in this century. I knew it sadly in trying to find training ground for keen weavers from Howell's School, Denbigh, { in the 1930's to 40's} at which I was teaching a knowledge gained through the workshop of Elizabeth Peacock and through the first Guild Summer Schools which only started in 1936! The choice in 1930 was 1]either a technical college- Galashiels, Manchester, Bradford or Leeds Univesity- {which seemed very competent but arid.} 2]The Central or Royal College which in those days did very elementary stuff, no advance in what we were doing at Howells or 3] the craft schools of Scandinavia, of which we knew a little and which were very tight."

McCleod stressed the importance to interested hand weavers of the Watson book, *Colour and Weave*, first published in 1912 for the technical schools. The seventh edition in 1975 is titled *Textile Design and Colour*, while still intended for use in technical schools a note on the fly leaf suggests it to be "valuable for art school students". McCleod continues:

"It happened that, unlike Ethel Mairet, Elizabeth Peacock <sup>23</sup> was fascinated by construction and with her I delved into Watson *Colour and Weave* and from that we learnt the fundamentals of cloth construction, and used in our own ways which I am sure Galashiels/Leeds would not have allowed! Double and treble cloth included. I'm glad that we had to think for ourselves from such a base, but such ferreting was unusual and apart from Marianne Straub's and

other designs for Holywell Mills, I don't remember much doublecloth about in craftsmen's workshops- but then there weren't many. But one came across very lovely uses of it in industry for dress fabrics and good {and awful} in bed spreads. I'm remembering here 1930-1950's."

In contrast to the lack of information for hand weavers the technical textile handbooks between 1910 and 1939 deal extensively with the designing and weaving of doublecloth fabric for both furnishings and clothing and could have provided the hand weaver with a wealth of design possibilities. William Murphy in *Modern Drapery and Allied Trades* of 1914 suggests the extent of fabrics possible with wool-backed and cotton-backed satins, warp satin backs and reversible doublecloths. *A Handbook of Weaves* by G.H.Oelsner calls attention to "two other weaves for heavy woollen fabrics, the army tricot and the army diagonal", both doublewoven, also "the heavy overcoating known as double satin, president and Eskimo cloth." The *Pitman Textile Educator* of 1927 calls doublecloth a "winter trade fabric" on page suggesting seasonal use for the excellent thermal properties.<sup>24</sup>

Between 1900 and 1939 it is evident that a wide variety of doublecloth fabrics were produced for clothing either for insulated overcoatings or for light, flimsy patterned cloths for the dress trade. Robert Beaumont's *Dress, Blouse and Costume Cloths* of 1921 devotes a complete section to the use of doublecloth in designing spotted and mosaic patterns of dress fabrics.

"Two separate warps of different textures and colours enable small delicate patterns to be woven while the open sett gives the fabric a flowing, fluid quality capable of being draped around the body" [page 431].

This type of fabric was noted to have certain advantages when making up into a garment as both sides are usable. The face side would be used for the main body of the garment with the

"underside for trimmings as in the collar and cuffs especially when they are produced in pleasing colour contrasts or with different textures applied to each side." [page 433]

The general use of doublecloth in clothing was to produce heavy overcoatings where a fine face fabric is given warmth and weight by weaving a



backing fabric onto it. There are two gentleman's overcoats in Platt Hall Museum of Costume, Manchester, one from 1890 [fig 26] and one from 1935, both made from doublecloth fabric and displaying little difference despite the forty five years that separate them.<sup>25</sup> The 1890 example, which belonged to Edward West O.B.E, has a brown and black twilled wool face with a brushed twill backing of green and red checks. There is an additional knitted cotton lining to this coat making a very heavy, warm garment which would have been extremely expensive, probably custom made.

The 1935 overcoat is of the same wool construction in brown, white and grey herringbone with a red overcheck. The reverse side is fawn brushed cotton with no additional lining, and cost twenty guineas ready made from Gudgeons of Stockport. Although these are high quality garments preserved in a museum, they serve as examples for the use of doublecloth in similar cheaper overcoats which were widely available all over Europe.

In the same collection there is an unusual doublecloth ladies cape, made in 1870 in heavily felted wool which displays both the functional and decorative aspects of the technique. The cape is red on the outside with a small oval white spot design and white on the inside with a red spot.[fig 27] The fabric has been heavily felted to produce a warm fabric yet the construction of the cloth and of the garment allows both faces of the fabric to be seen. The narrow hem on the cape is made by turning the inner white onto the outer red, the bottom edge being finished with alternate red and white tassels. A similar hem and binding technique on a doublecloth garment is today used by Wetherall who produce fully reversible jackets which have become their trademark. The cut edges of a two faced stitched doublecloth fabric are separated to allow a reversible seam to be sewn, the garment is then bound around the hems. This specialised construction technique is an easily recognised feature of the expensive garment.<sup>27</sup>

Analysis of the weekly illustrated newspaper *Textilzeitung* from 1909 to 1930 provides a survey of printed and woven fabrics available in Germany during these years. In general the fabrics shown for clothing are floral prints or plaids and

tartans. The printed silks are from Rodier in Paris or Lyons and from Krefeld. There are only two woven doublecloth fabrics featured in the autumn edition of 1929, one from Dick und Goldschmidt in Berlin and the second from Brathwaites in the north of England. Analysis of these volumes suggests that doublecloth was occasionally produced as a novelty fabric but did not have viability as a major commercial fabric in Germany during this period.

### **[iii] Early 20th Century Practice in Germany, France and England.**

Between 1900 and 1930 Germany had a strong tradition of small handweaving studios producing work to commission or for sale at the regular handwork exhibitions in Frankfurt Leipzig and Berlin. These exhibitions were highly regarded as venues to purchase hand made articles and did provide an outlet for many craftspeople to sell directly to the public thus enabling them to earn a living from their work. No doubt contacts were also made with representatives from the relevant industries for designs to be sold for industrial production, although information regarding this is difficult to obtain.

One such handweaving studio, the Werkstatt-Hablik-Lindemann, was established in Itzehoe, near Hamburg by Lisbeth Hablik-Lindemann and her husband Wenzel Hablik. Between 1912 and 1931 they employed fifty hand weavers in their studio where they also gave private tuition. The output of the workshop appears to be initially fabrics based on traditional folklore motifs but in 1914 the studio produced a striking range of black and white geometric furnishings, designed by Wenzel Hablik.[fig 28]

It is possible that these abstract fabrics, which diverted from the middle European motifs previously used, were influenced by the Wiener Werkstätte designs published in magazines such as *Deutsche Kunst und Dekoration*. A set of three cube cushions were woven by Wenzel Hablik in a three dimensional doublecloth technique.[fig 29] It is probable that the technique itself permitted only geometric patterning for the cushions as floral motifs in a three dimensional technique would prove technically impossible. Photographs show these cushions

used in room settings of either a bedroom or dining room, complementing the furniture upholstered in abstract patterned doublecloths.

The Werkstatt Hablik Lindemann catalogue shows photographs of the room settings from the Hablik household in the 1920's [zwanziger jahre] ,the bedroom showing conventional floral wallpaper and patterned curtains as a backdrop to the black and white abstract bedcover and carpet runner at the side of the bed.[fig 28] The walls and door of the dining room, however, have been painted in large non-repeating abstract patterns.which echo the pattern on the door of the stove and directly relate to the carpet runner. These room sets where the whole interior has been designed suggests a conscious link to the Wiener Werkstatte. [fig 30] A shift away from traditional furniture has occurred by the mid to late 1920's with a divan bed upholstered in a striped fabric designed by Wenzel Hablik.[fig 31] Although there are no technical records available [and no firm date] this fabric is certainly a doublecloth as the blocks and stripes of pattern could not be achieved by other weaving methods.

These examples of geometric textiles pre-date similar textile designs and wall painting from the Dessau Bauhaus of around 1926 and leads one to consider the possible influence the Werkstatt Hablik-Lindemann had on the Bauhaus weaving workshop. This is a significant issue with implications for the supposed originality of the abstract Bauhaus textiles of 1926 onwards. Additionally, what should be noted here is the obvious established clientele for hand woven work in Germany enabling small workshops to survive. This commercial dimension is important to the development of the Bauhaus weaving workshop and consequently to the development of doublecloth and will be given full consideration later.

The Bauhaus, founded in 1919 by Walter Gropius in Weimar existed for only fourteen years, moving to Dessau in 1925 and again to Berlin in 1932 before being closed one year later. The weaving workshops in the Weimar period produced rugs, curtains, cushions and lengths of fabric which were sold with other Bauhaus products at the handwork exhibitions in Germany to provide revenue for

the workshop and for the school. Special commissions were also undertaken for architects and private individuals. Initially these woven pieces were lengths of fabric which could be made up by the purchaser into clothing or furnishing items. The production of hand woven dress fabrics for sale ceased at the end of the Weimar period.

In Dessau the products of the weaving workshop became focussed on furnishings designed in relation to architectural spaces with emphasis now placed on new yarns and cloth construction. The workshop became a laboratory to experiment with the potential of the practical aspects of machine production, to produce textiles for a broadening market. When the weaving workshop at the Bauhaus passed from fine art and handcraft production to the social and technological requirements of the twentieth century, a new style of design was embraced, the style of the machine aesthetic.

As the technical training developed at the Bauhaus during the Dessau period the doublecloth technique was used by several students to weave wall hangings, notably Anni Albers, Grete Reichardt and Ruth Hollos who were seeking to achieve the juxtaposition of colour and texture only possible with this technique. The hangings by Reichardt are in great contrast to the stark black and white pieces by Albers. Reichardt uses the technique to display pure areas of finely woven colour next to each other in geometric shapes and from a distance they appear as tapestries. It is only on closer examination that the woven cloth can be seen to have two distinct warps and wefts.

At the beginning of the twentieth century the French Weaving industry produced fashionable silks woven on hand operated Jacquard looms, with an estimated 17,000 still in use at the start of the first World War. As these looms could not adapt to war production the French made a decision to continue luxury hand woven production after the war. The promotion of a luxury style of highly patterned ornate textiles was clearly seen at the *Exposition des Arts Décoratifs* in Paris in 1925.[fig 32]

Germany was not invited to participate in the Exposition and the Americans

declined as they felt they had little to show. Russian 'Revolutionary' textiles were on show at the exhibition and prompted much favourable comment. The British contribution was small, especially as it followed the large Wembley exhibition in 1924, and they felt they could not increase their exports to Europe. The fabrics displayed on the British stand were mainly Scottish woollens, but even the tartan fabrics could not match the impact of the French fabrics by Rodier.

The catalogue from the Paris Exposition contains an essay on the influence of Modern Art, especially Cubism on textile design.<sup>28</sup> The exhibition catalogue suggests that the new shapes, patterns and colours derived from the influence of modern art were best developed by fabric printing and that textured woven fabrics should be used as a backdrop to the colourful prints. Printed fabrics were seen to be avant-garde and modern, they complemented the clean lines of modern furniture, interiors and architecture; they were also cheaper to produce. The flexibility and speed of fabric printing meant that new designs could be produced quickly for a consumer market that was demanding novelty fabrics.<sup>29</sup>

In France the textile manufacturers Bianchini-Ferrier and Rodier already employed artists to design fabric in a deliberate attempt to re-establish their international market. By 1925 at least seventy five French painters and product designers had designed for textiles so the success of the French at the Exposition was overwhelming. The Rodier company had established the hand weaving of light weight tweeds in 1853 in the Picardy region of France and by 1920 were acknowledged to be producing modern textiles with original ideas. Although they did not centre their weaving activity on doublecloth these fabrics were often included in the ranges. Artisan weavers were employed to do the weaving as their looms were more flexible than the power looms: the fabrics woven were entirely regulated by designers or master artists. Rodier discusses the influences on his designers; "the latest theories of colour and form in painting, the new cinema, even the new radio and all the new theories of vibration which science presents to us, help to develop new patterns- five thousand of them each year." <sup>30</sup>

Ethel Mairet was to have a considerable influence on handweaving when

she established her workshop, Gospels in 1920, near Ditchling. Mairet believed that weaving should be of its time and should contribute to art, industry and education. At that time Britain had no traditional training in handweaving studios which Mairet had seen in Europe where she travelled extensively. She noted that

"in Sweden , Germany and Denmark hand-weaving is taught as a profession to girls, who, after leaving school, take hand-weaving as a special study training for two or more years,after which they work as teachers, or make their own workshops, or work in the textile industry."

Mairet continues:

"the production of hand-woven goods in other countries is very large and holds its own in spite of the factories. By this means the standard of machine goods is kept high with constantly new ideas [cf Rodier in France,Elsa Gulberg in Sweden; the large output of German hand-weaving]".

In *HandWeaving Today* published in 1939 Mairet includes a supplement on the Bauhaus which 'explains why the experiment of education at the Bauhaus is important for the future of teaching .She states "Experience with materials came first and foremost -the grasp of materials through actual experience of their possibilities-never to be attained by book knowledge." She concludes the section thus: "Frau Sharon Stölzl,who was one of the textile teachers at the Bauhaus, has kindly contributed the following notes.", indicating a correspondence from Ethel Mairet at Gospels to Frau Stölzl.

Ethel Mairet was a great admirer of Walter Gropius and enthusiastic about Bauhaus ideals being explored at Gospels, but although she travelled frequently in Europe there is no record in her diaries of a visit to the Bauhaus.In *Handweaving Today* Mairet writes that

"Professor Gropius collected together in one great school all sides of knowledge needed for the production of a fundamental artist-worker-thinker-human being. The world was not ready for such an obviously right step, but so great a creative idea cannot be lost. It points the direction for the future, and although it failed as an entity for the moment,the idea has been started and the influence of the school is to be found in all parts of the world." <sup>31</sup>

While she applauds Gropius, Mairet has strong feelings about the nature of handweaving and the hierarchy of craft:

"Handweaving has been in danger of developing on wrong

lines. It has set itself up on a pedestal as an "art", instead of recognising its immense and interesting responsibilities to present needs and to the machine.....The essence of hand weaving is in its continual creativeness and flexibility [this is also its danger] based strictly on traditional knowledge. It is dependant on architecture and clothing ; it must work in collaboration with both. It cannot ever be an art by itself [as a beautifully printed book can be, or a fine piece of metalwork], for always it must be part of a building [curtains, rugs, hangings, etc.] or associated with the necessities of life [clothes, table-cloths, towels]." <sup>32</sup>

The Gospels workshop operated an apprentice system and used natural, often handspun, yarns and vegetable dyes to produce hand woven plain weave fabric. The woven output typically consisted of cloth with Scandinavian M's and O's pattern achieved through a weft distortion, and cloths patterned by spacing and cramming the warp threads.<sup>33</sup> Later, students with technical training came to Gospels and experimented with the range of yarns using more complex weaves, although Mairet herself had no ambition to train designers for industry.

Marianne Straub was one of these visitors in 1933, after completing a City and Guilds textiles course at Bradford. She was excited by the new approach to weaving where "the yarn, colour and cloth construction were not isolated elements but pulled together as the whole thing "<sup>34</sup> This integration of yarn colour and construction in relation to hand weaving was a new approach and all the students had to learn to dye, spin and weave to give them full control of the cloth they were making. It could be argued that Mairet was the first weaver to promote the notion of a designer maker, in control of design from the raw material to the finished product.

Marianne Straub had started her training in Zurich 1928 at the Kunstgewerbeschule where she studied weaving with Heinz Otto Hurlimann who had been a student at the Weimar Bauhaus in 1920-1921. All the teaching staff at the Kunstgewerbeschule were employed on a part time basis and all were practising artists and craftsmen with their own studios. Hurlimann wove rugs and domestic furnishings and was later to join Guntha Stölzl in her Swiss workshop. Straub was determined to become a designer for industry but neither of the Swiss textile colleges would accept women students. Application was made by

correspondence to Bradford Technical College and she was accepted, but the staff at Bradford had expected a Mr Straub to enroll, although previously there had been two women on the course.

Straub had been introduced to doublecloths in Zürich but it was in Bradford that she investigated the weave in great depth. The tutor in cloth construction, Mr Tindall, remarking that he had never known anyone take to the weave so naturally: doublecloth remained the weave that Straub used consistently in her work as an industrial designer. When working for Warners in 1952 she designed a five layer cloth constructed for its extreme rigidity.

Straub was invited to visit Gospels by Bianca Fischer, a colleague from the Zürich Art School, who was working there. At Gospels Straub was "staggered by the dyeing. It was a welcome opportunity to learn to dye and to spin the colours together into a kaleidoscope of yarn." The weaving itself was "like playing a piano, I could play on the loom, experimenting with the cloths"<sup>35</sup> Marianne Straub introduced the double cloth technique to the Gospels workshop in 1933 by weaving together textured cloths of different characters.[fig 33] These developed into cloths of horizontal striped designs using warp exchanges which worked within the limitations of the four shaft looms that were most commonly used at Gospels.

Variations of Marianne Straub's doublecloth, some made up into garments, continued to be made at Gospels for a number of years and were exhibited and sold at the annual Red Rose Guild exhibitions in Manchester, from London Galleries and Ethel Mairet's shop in Brighton. These doublecloth fabrics rely for their impact on the use of hand spun yarns and an open sett to produce heavy textural qualities. The introduction of doublecloth to Gospels revitalised the technique for hand weavers, turning it into a vehicle for more adventurous design relying on contrasting textures rather than colour and pattern.

The influence of the Gospels workshop on British hand weaving increased in the mid 1930's when Mairet began a series of short courses for teachers and groups from educational establishments. On these courses double weave was still



in evidence on warps originally designed by Marianne Straub and it is probable that the technique was transferred from Gospels to schools and colleges. In 1939 Mairet produced a prospectus for a weaving school which had to be abandoned due to the outbreak of war, instead she accepted a part time post in weaving at Brighton School of Art in the Department of Dress. In 1944 Marianne Straub and Alastair Morton both stayed at Gospels and further contributed their technical knowledge to the workshop.<sup>36</sup>

At first Mairet had been dismissive of both art school trained and technical school trained apprentices at Gospels, but without their contribution the output of the workshop would have remained derivative of other cultures. The continuing debate between the craft and industrial production of doublecloth was highlighted at Gospels with visiting designer-weavers influencing the Gospels style. This general survey has established unresolved problems in the textile industry concerning doublecloth and additionally the problems of designer weavers coming to terms with the technique and how they themselves relate to industrial constraints.

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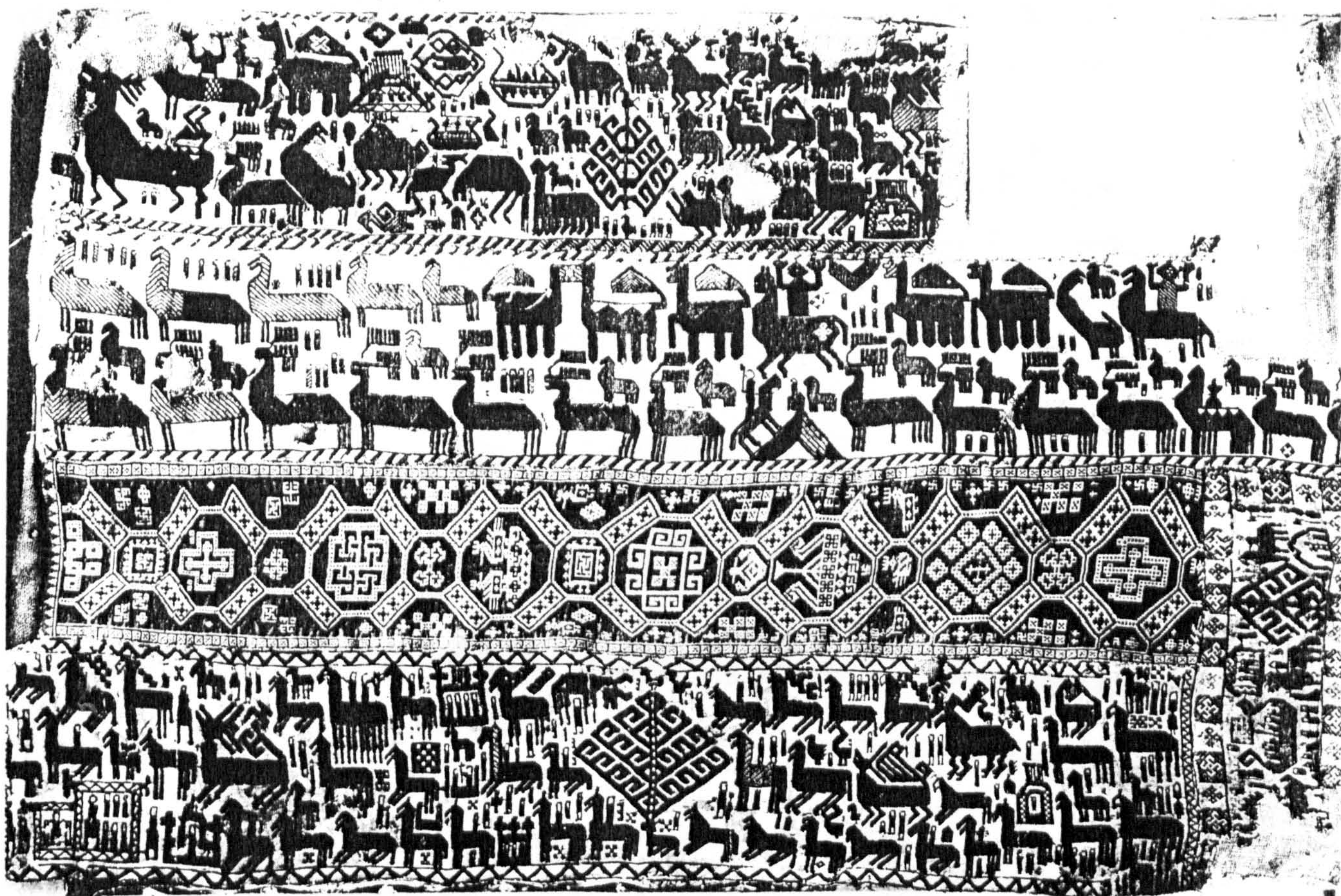


Fig. 1 Doublecloth, Scandinavia 12th century. Läns museet Östersund.

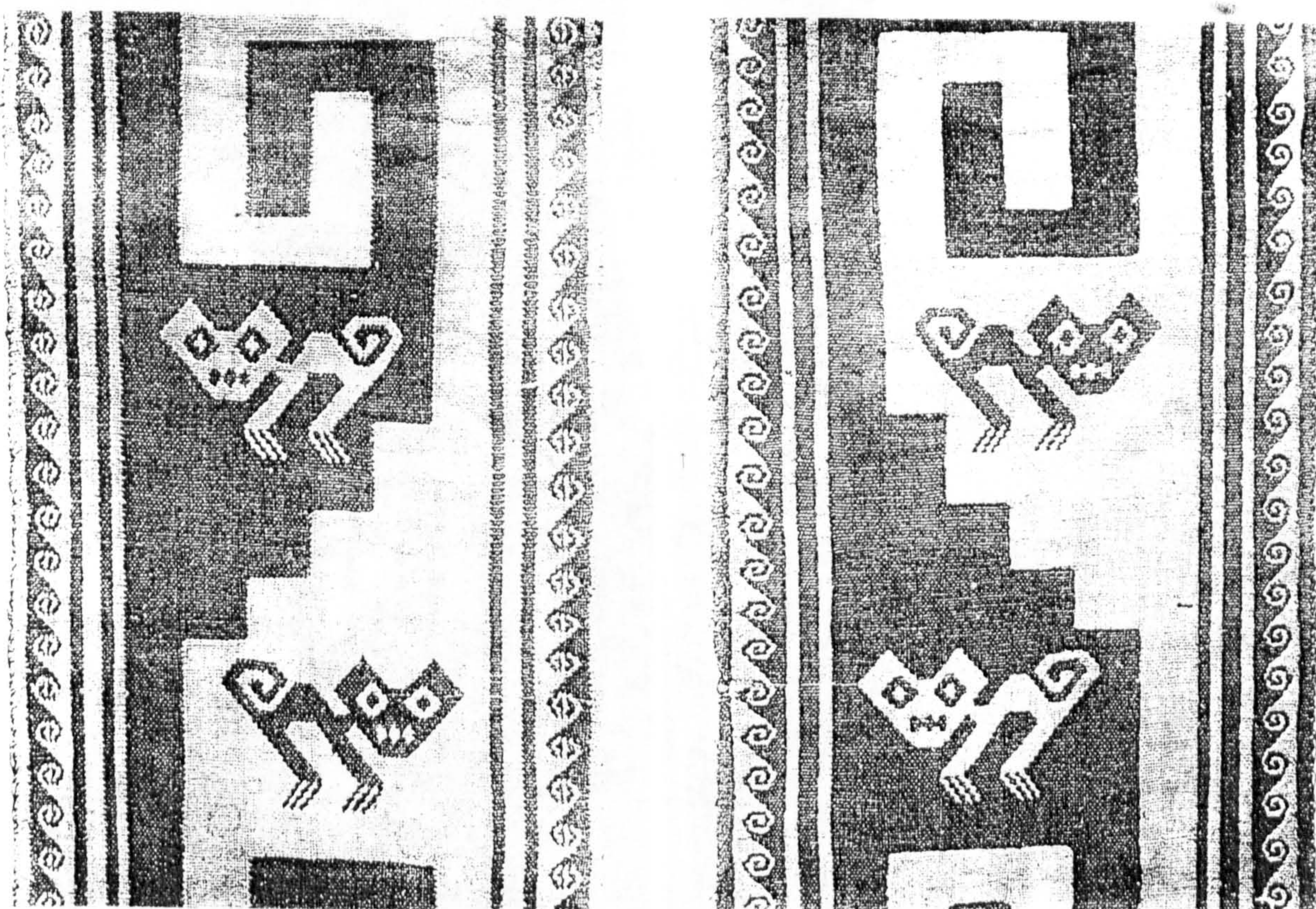


Fig. 2 Doublecloth, pick-up interchanged plain weave. Pre-Columbian Peru.

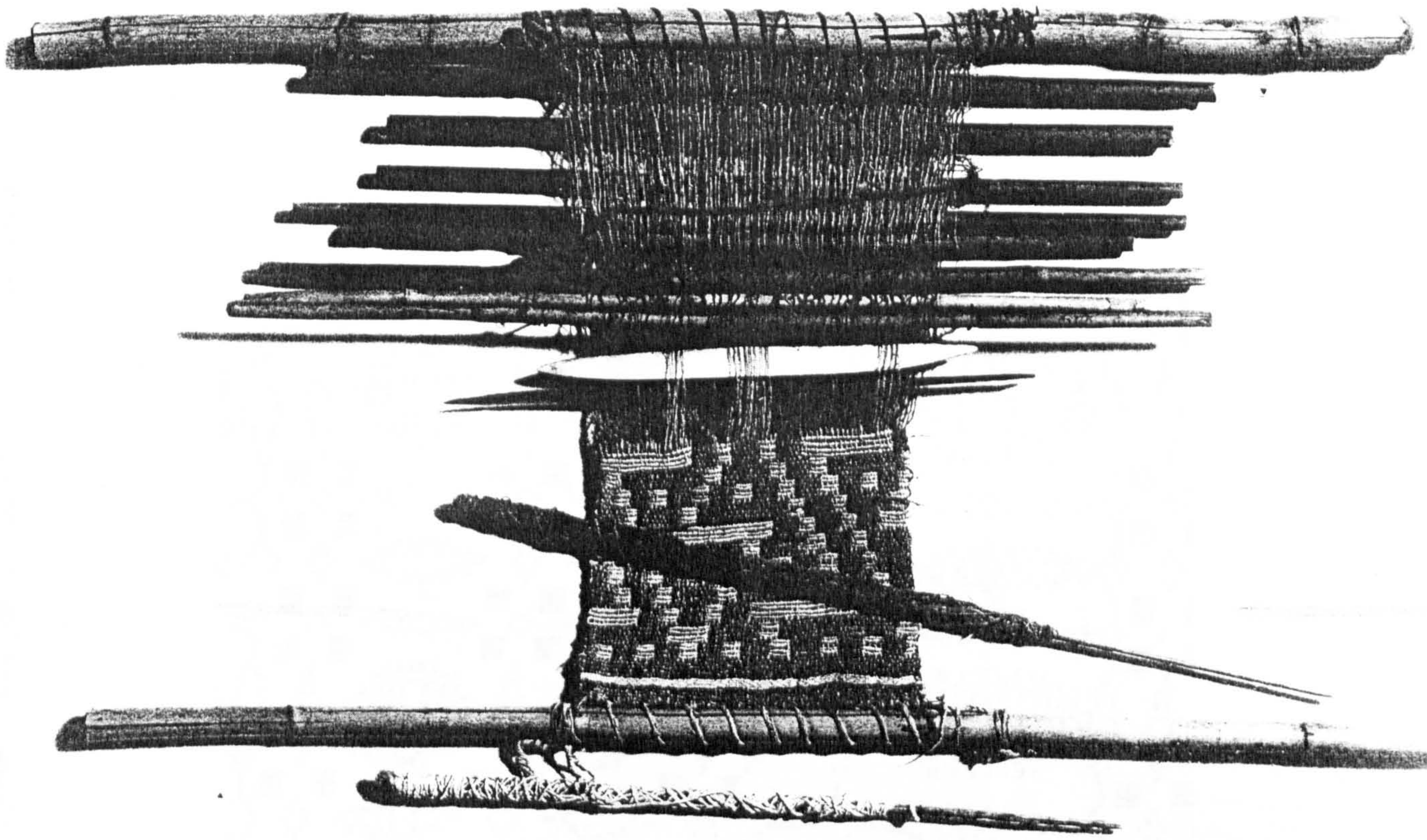


Fig. 3 Back strap loom with pattern sticks, from Lima, Peru

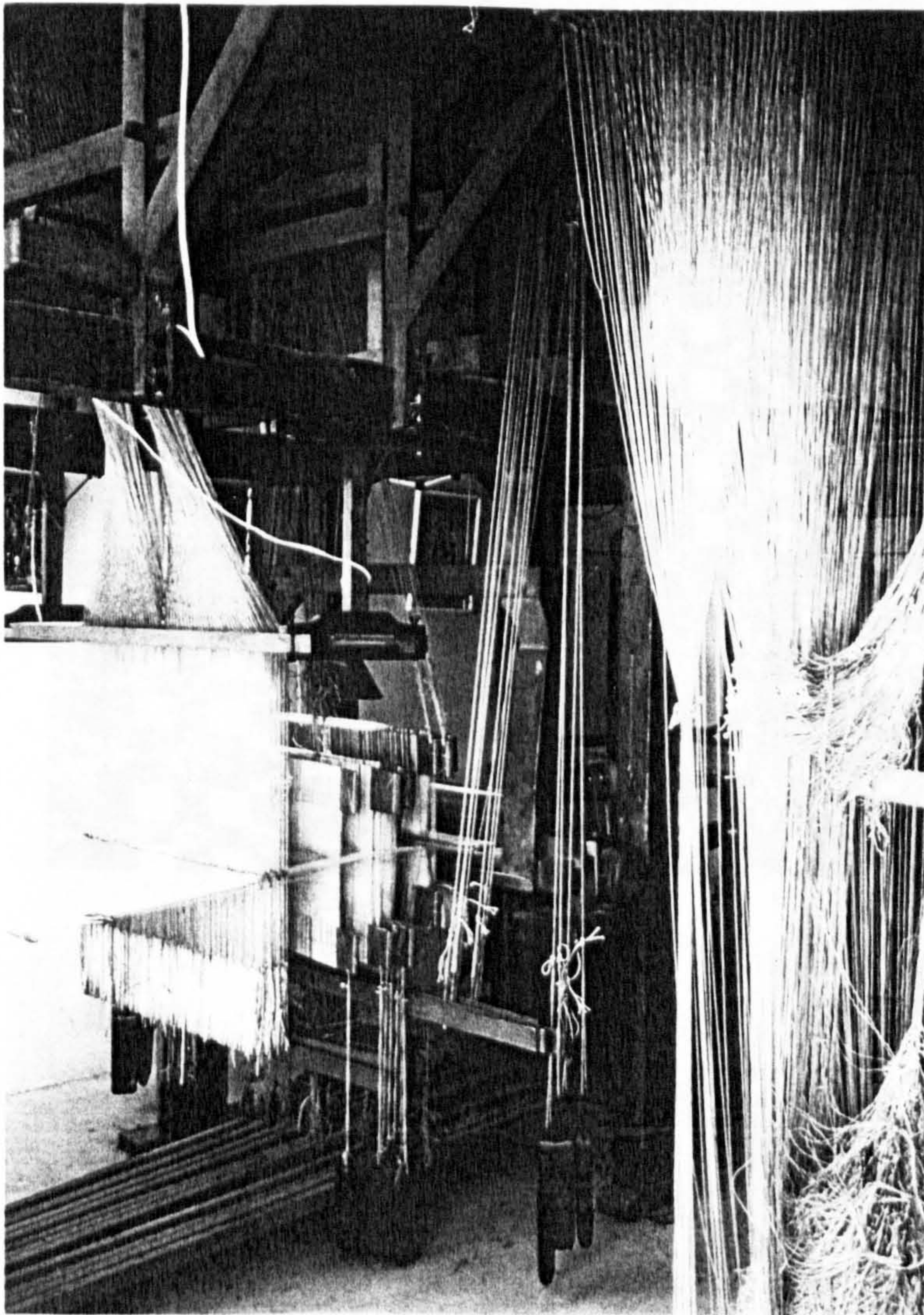


Fig. 4 Draw Loom, Musée des Tissus, Lyons. Photo: Diane Bell

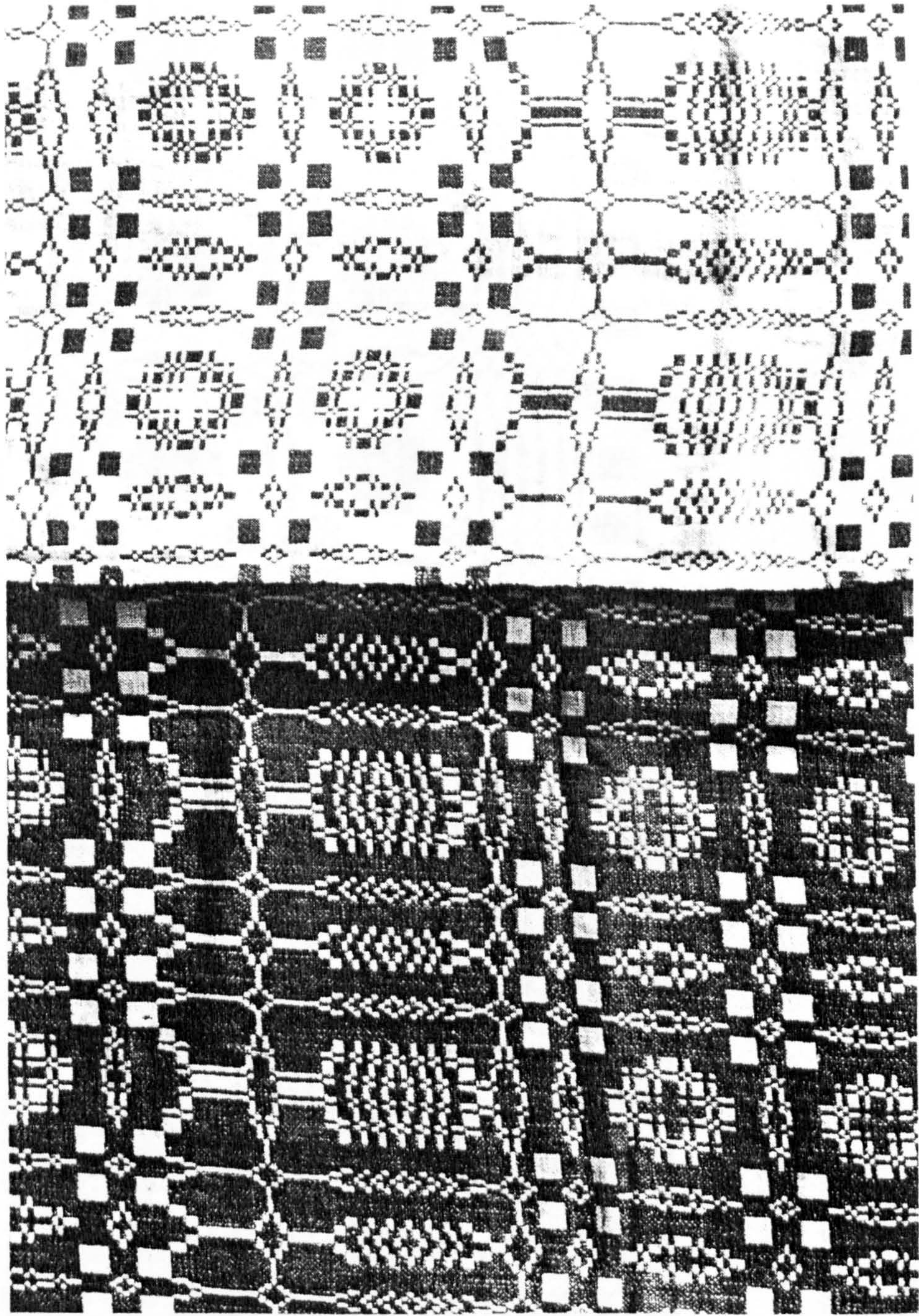


Fig. 5

Nurnberg bed linen. Nurnberg Museum

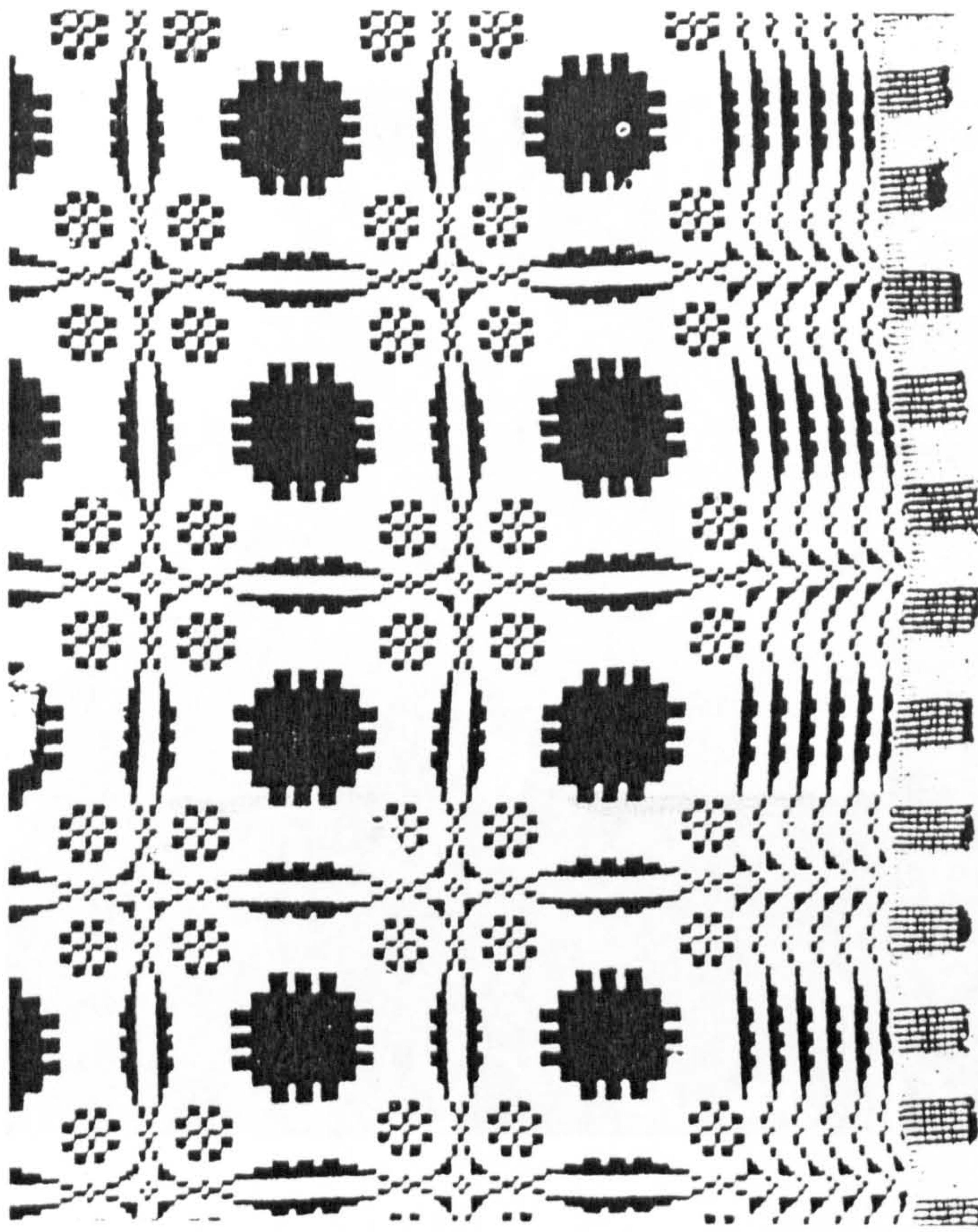


Fig. 6 American Doublecloth Coverlet, 1810-1825. 226 cm by 105 cm

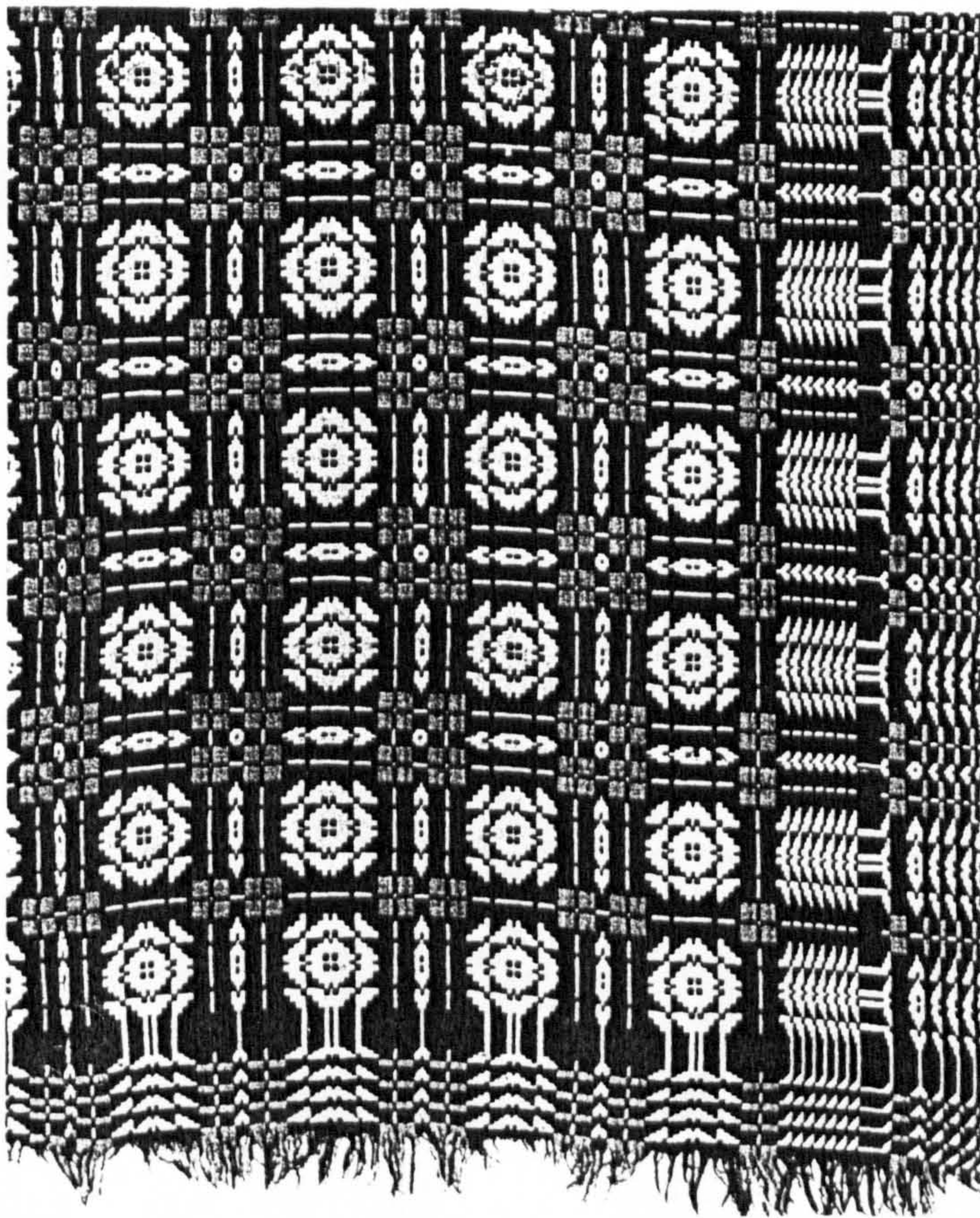


Fig. 7 American Doublecloth Coverlet, 1810-1835. 206 cm by 179 cm

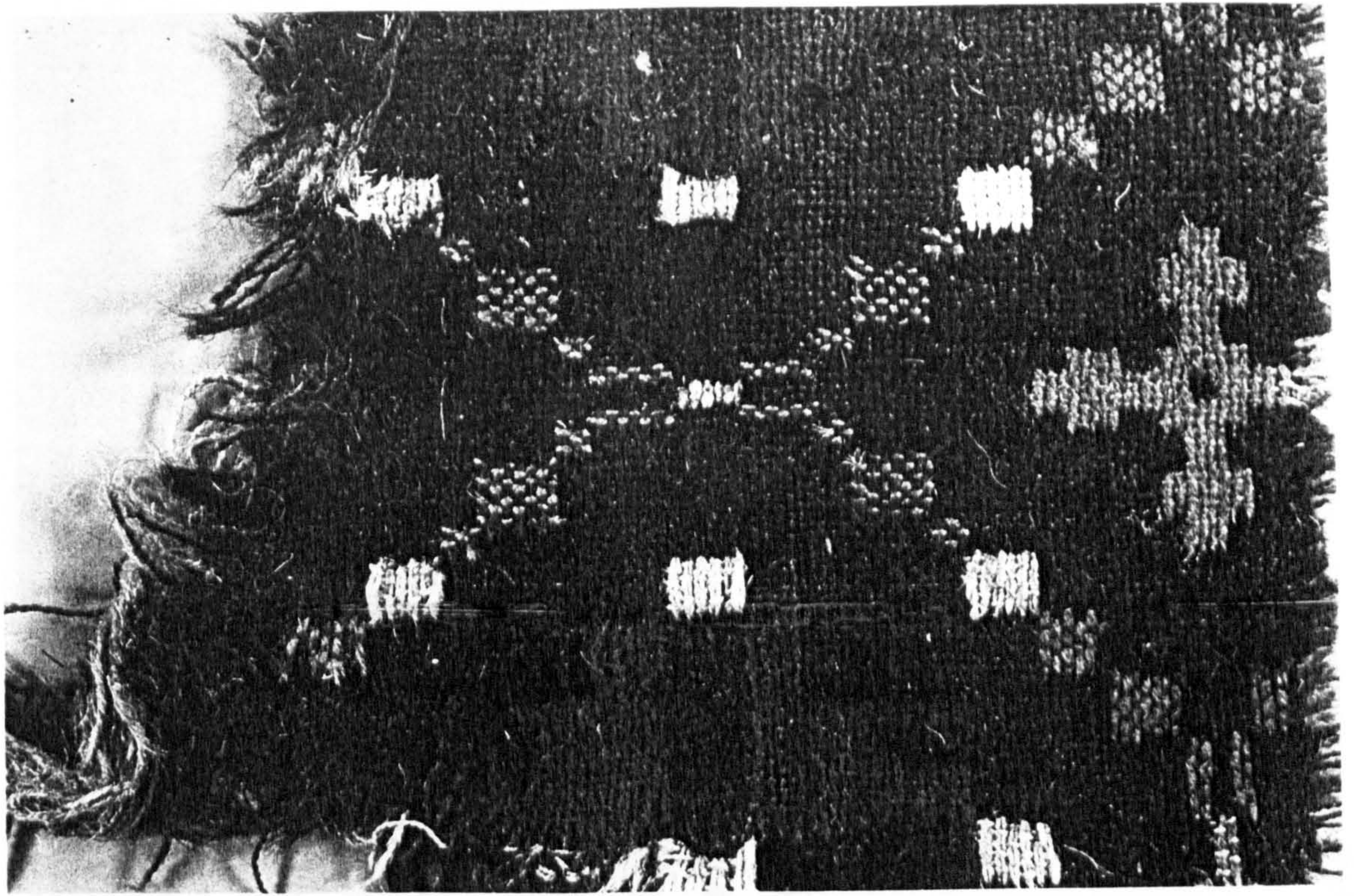


Fig. 8 Northumberland Bedcover fragment. Early 20th century.

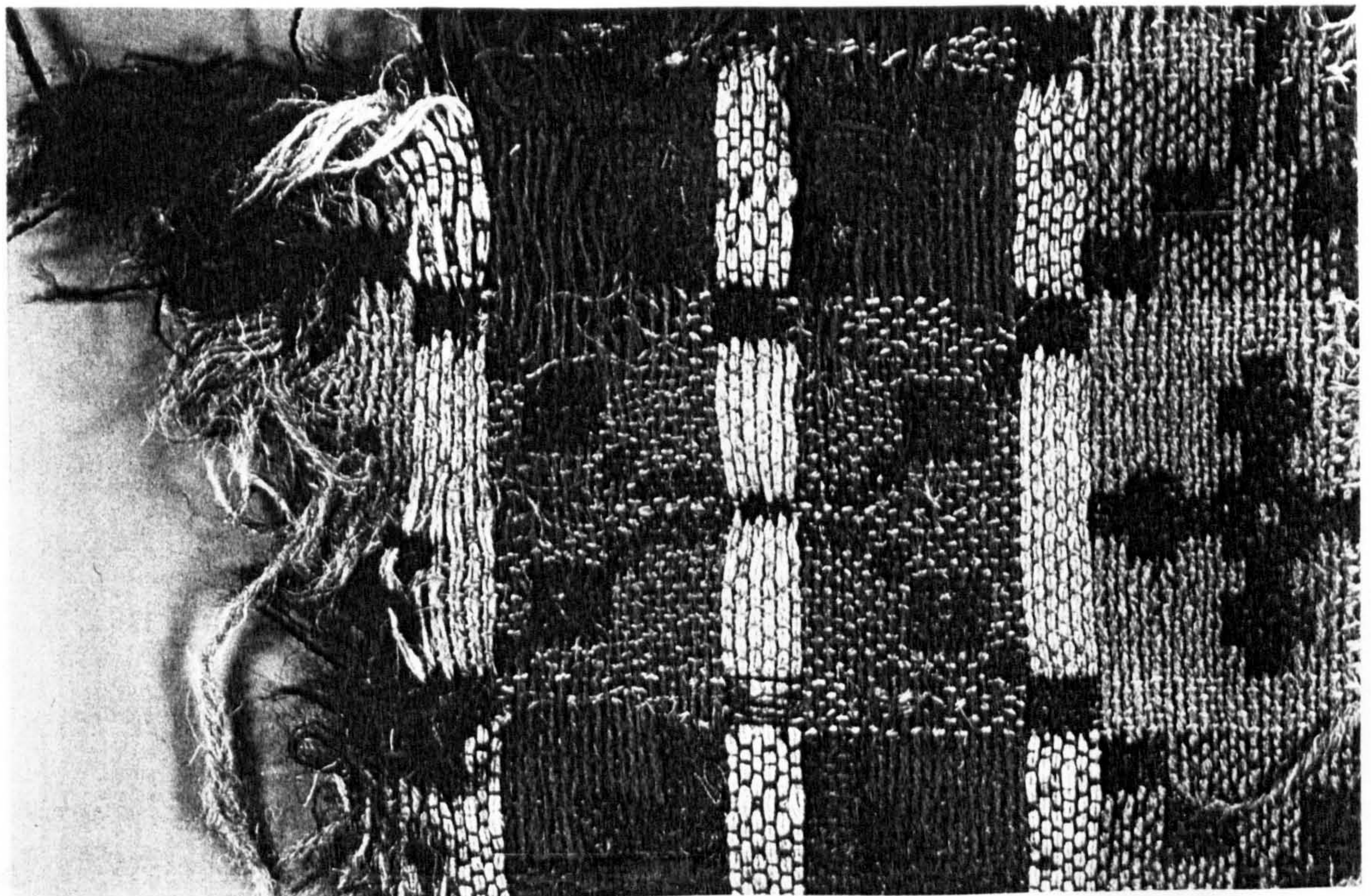


Fig. 9 Reverse of figure 8



Fig. 10 David Anderson seamless shirt. 1820

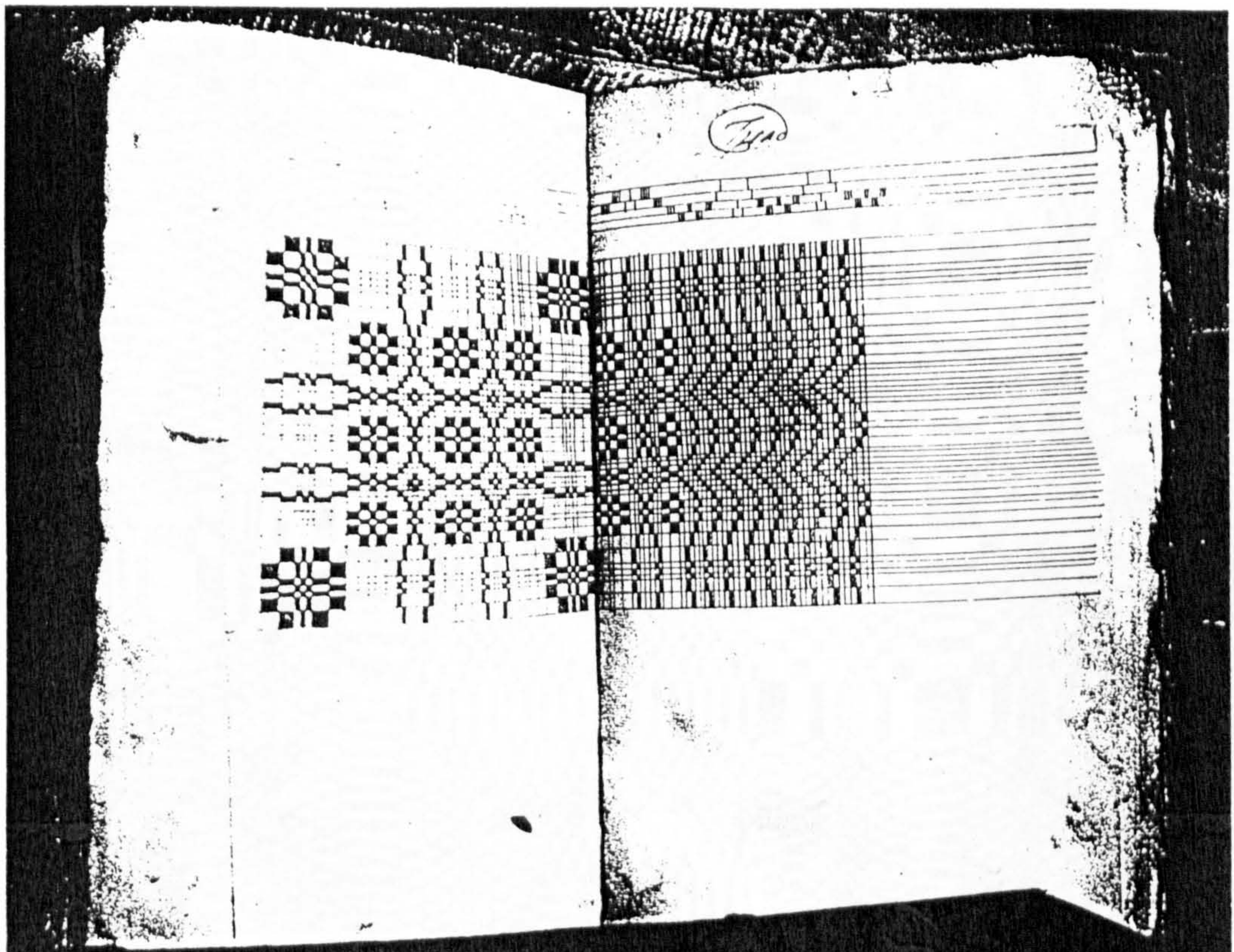


Fig. 11 William Jones Pattern Book, 1765. St. Fagan's Folk museum.



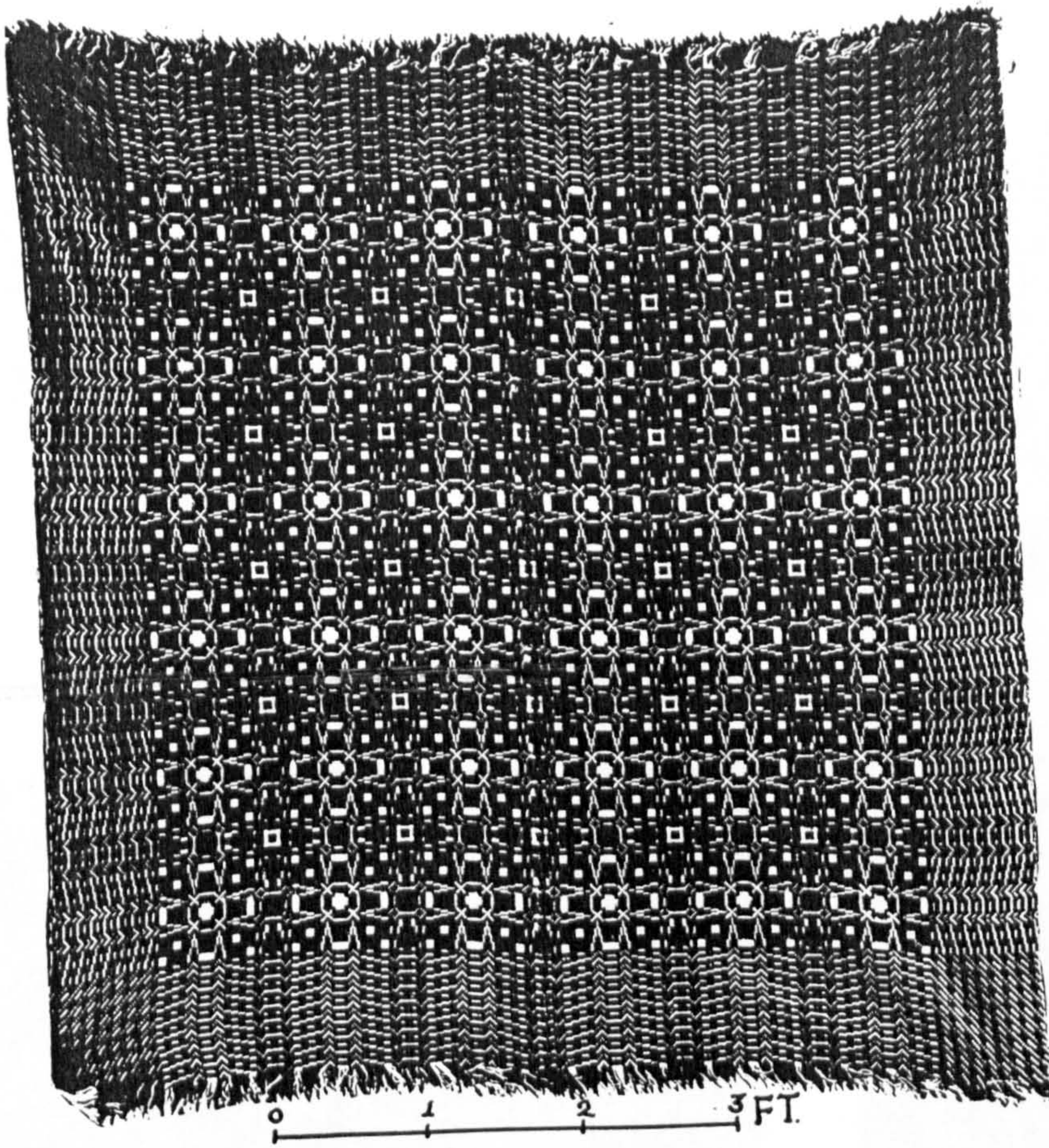


Fig. 12 Welsh Doublecloth, 19th Century. St. Fagan's Folk Museum

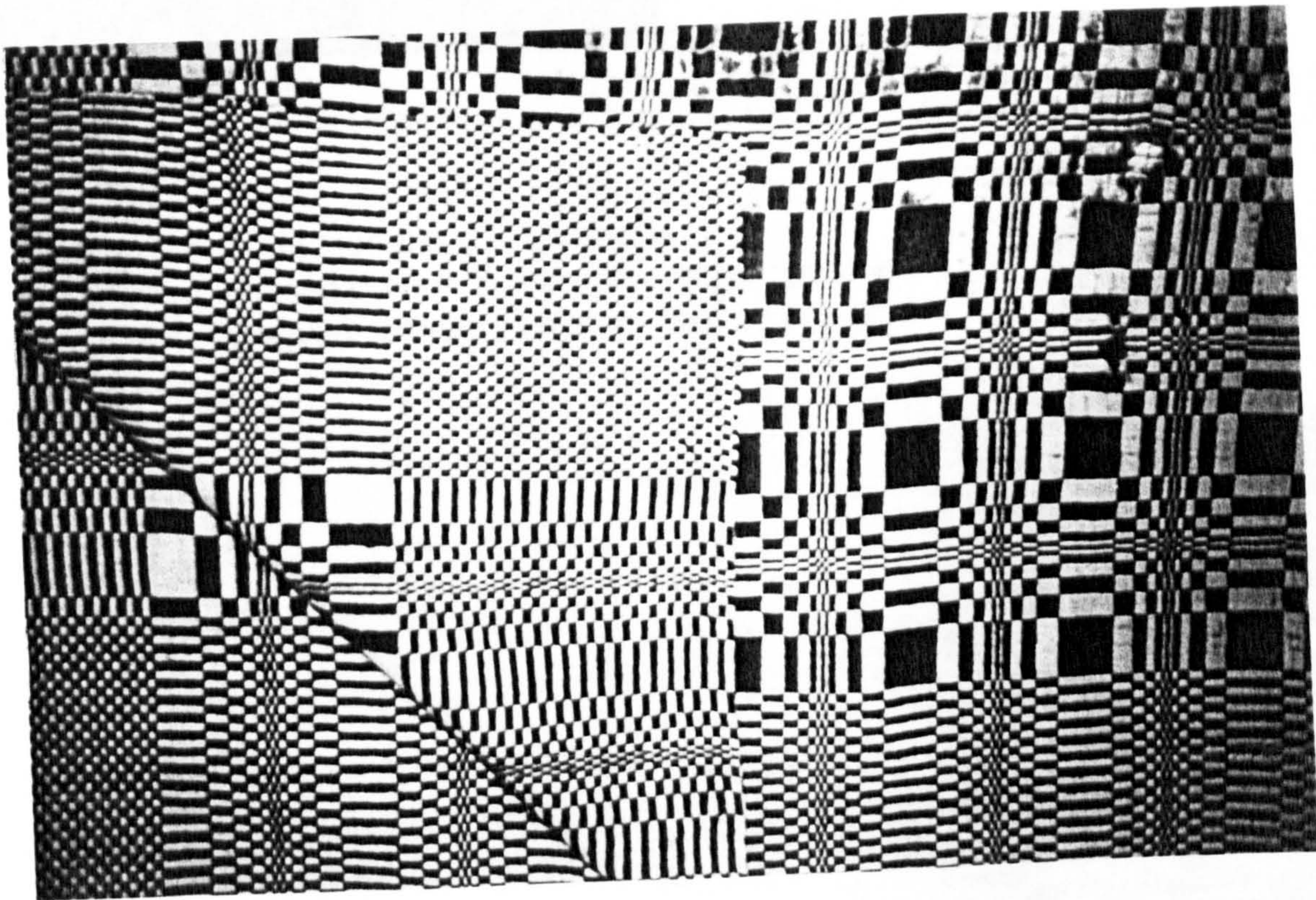
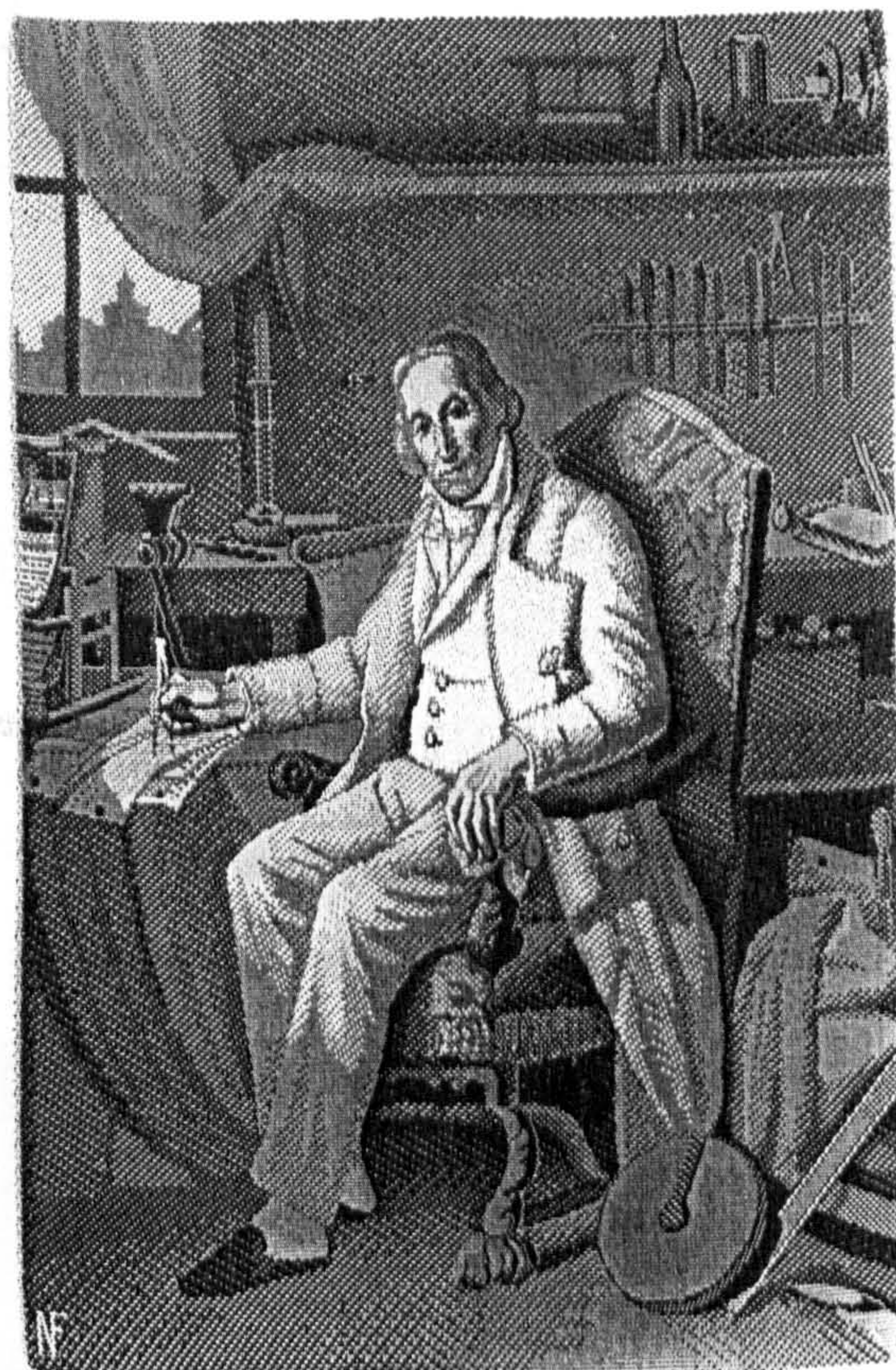
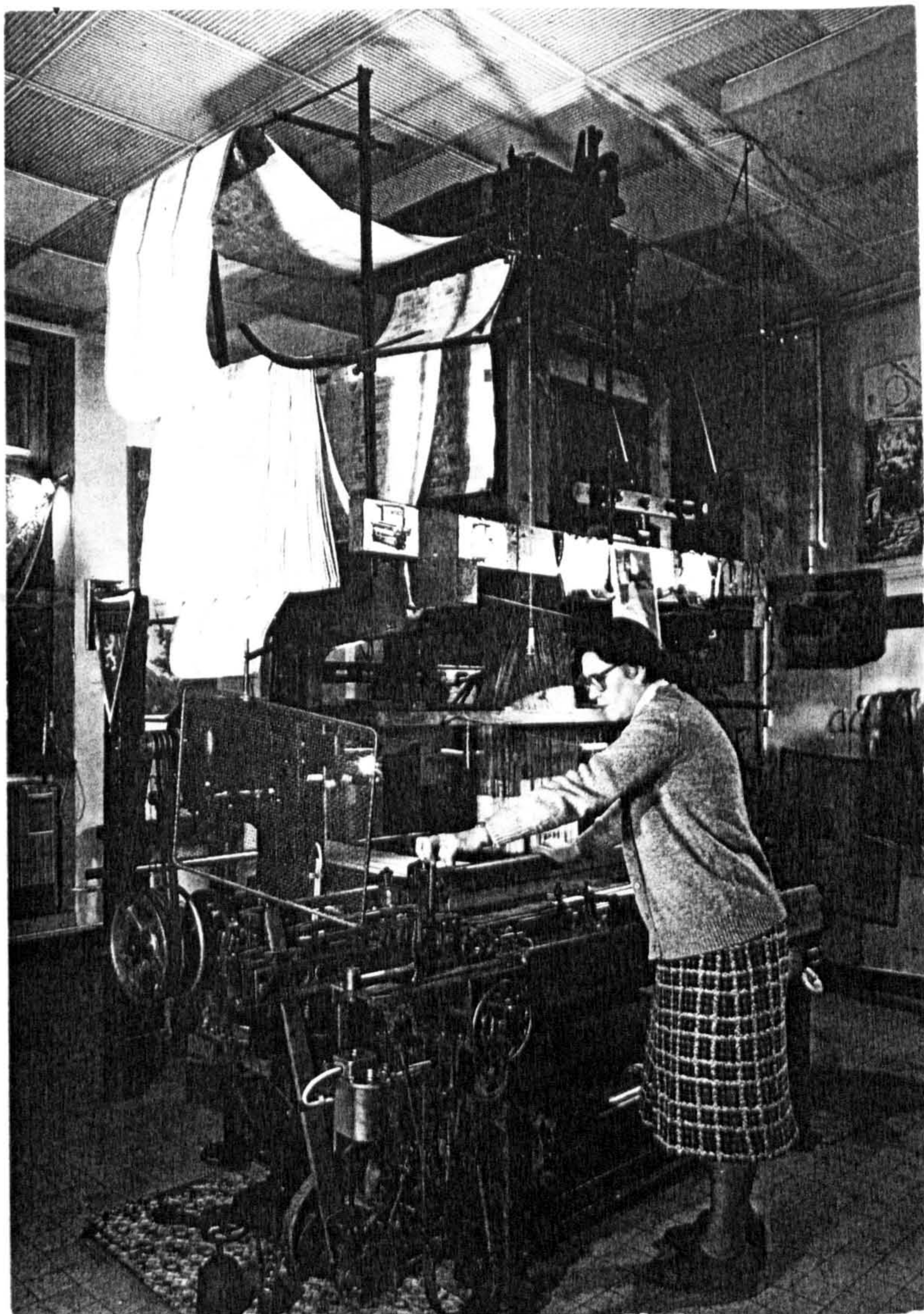


Fig. 13 Welsh Doublecloth, 19th Century. St. Fagan's Folk Museum



JACQUARD

Fig. 14 Jacquard Loom, Musée des Tissus, Lyons.  
 Jacquard woven self portrait showing the detail possible.  
 Below: double woven Jacquard label for Levi jeans, 1993


  
 WASH INSIDE OUT. WASH AND DRY SEPARATELY.  
 COLOUR MAY TRANSFER WHEN DAMP.  
 LAVAR RETOURNE. LAVAR ET SECHER  
 SEPARATEMENT. DETEINT NATURELLEMENT.  
 BINNENSTE BUITEN WASSEN. APART WASSEN EN  
 DROGEN. KLEUR IN VOCHTIGE TOESTAND KAN  
 AFGAAN.  
 AUF LINKS WASCHEN. SEPARAT WASCHEN UND  
 TROCKNEN. NICHT FÄRBECHT.  
 LAVARE AL ROVESCIO. LAVARE ED ASCIUGARE  
 SEPARATEMENTE. SCOLORISCE FACILMENTE.  
 TVATTA MED AVIGSIDAN UT. TVATTA OCH  
 TORKA SEPARAT. FUKTIGT PLAGG KAN FALLA.  
 VASKES MED VRANGEN UT. VASKES OG TORKES  
 SEPARAT. FUKTIGE PLAGG KAN FÆRGE AV.  
 LAVAR DEL REVES. LAVAR Y SECAR POR  
 SEPARADO. SE DESTINE FACILMENTE.  
 LAVAR DO AVESSE. LAVAR E SECAR  
 SEPARADAMENTE. PODE MANCHAR QUANDO  
 HUMIDO.  
 100% COTTON - COTON - KATOEN  
 BRUNWOLLE - COTONE - BOMULL - ALGODON -  
 ALGODÃO. X12751F

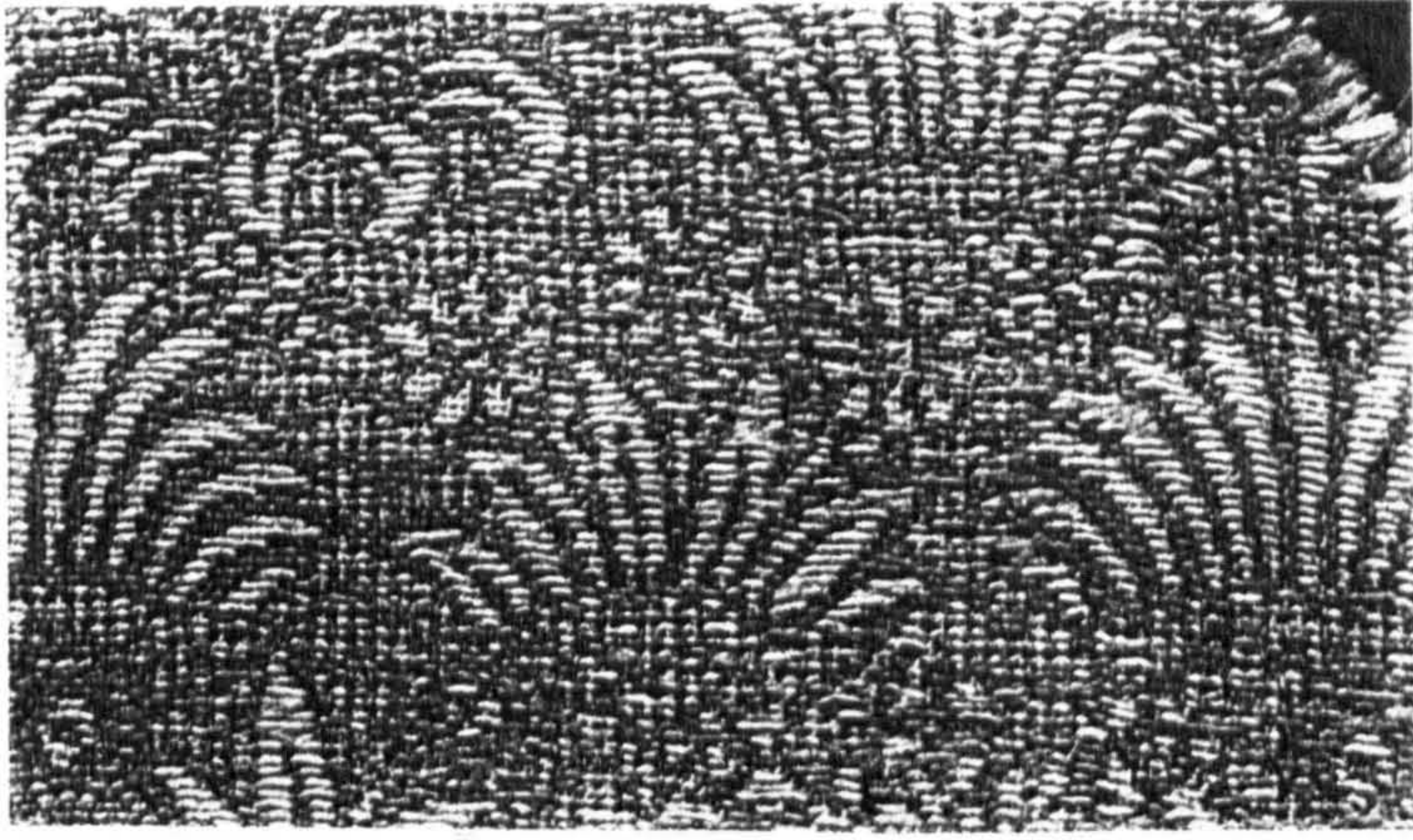


Fig. 15 *Daisy*. Kidderminster Carpet, Morris and Co, 1875



Fig. 16 a *Bird*, Morris and Co, 1878. Hand woven by Alexander Morton on a Jacquard loom.

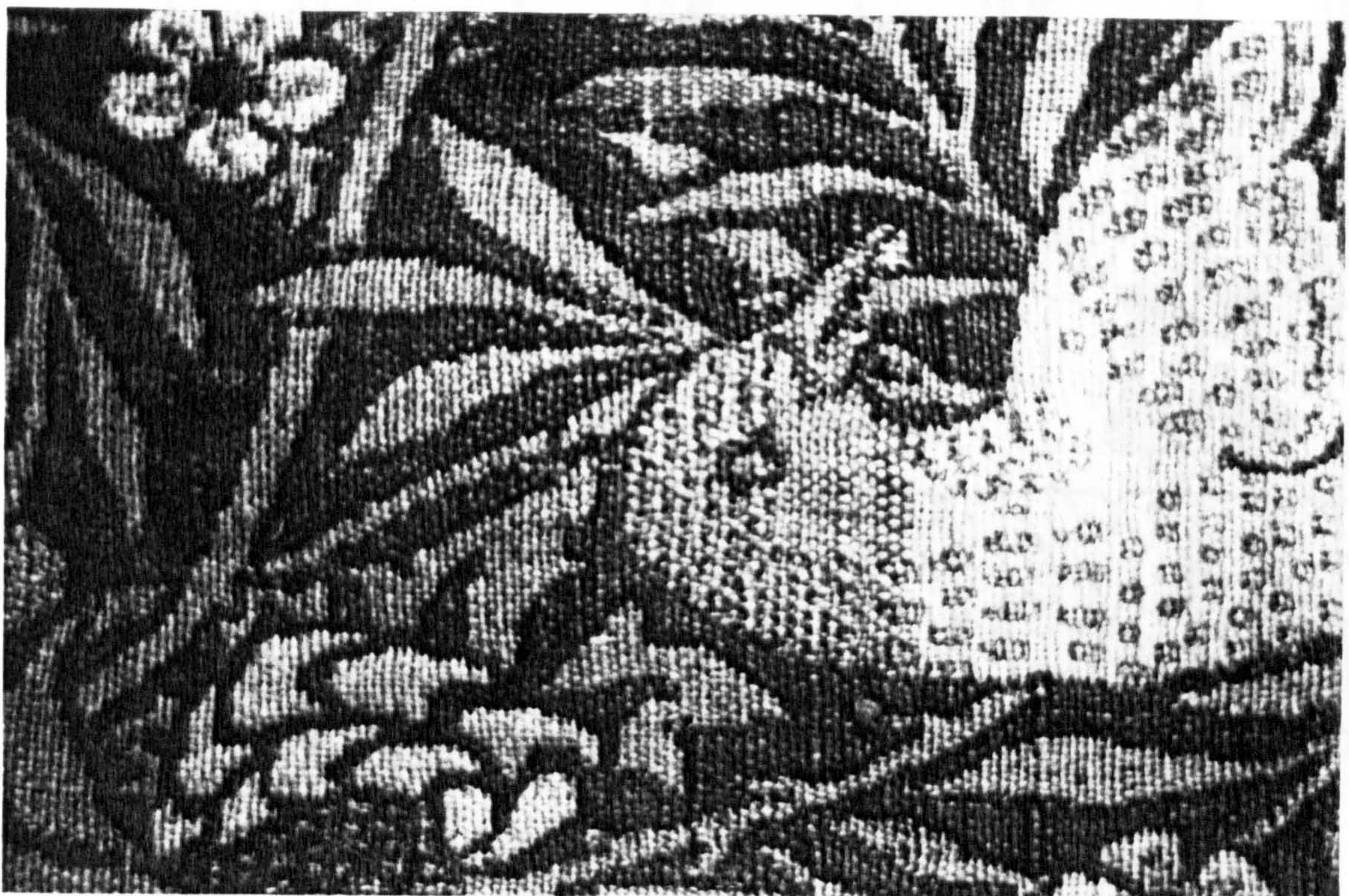
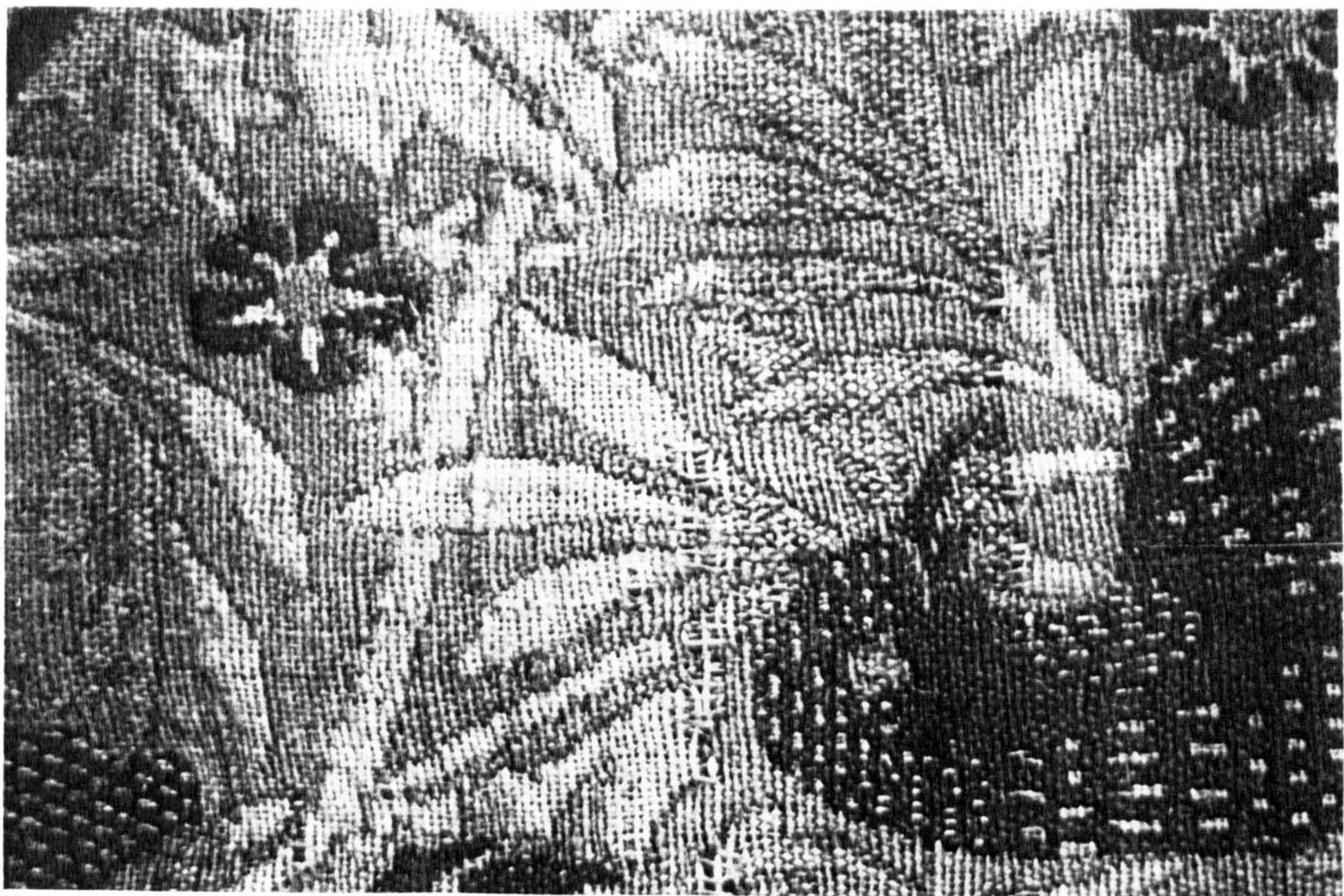


Fig. 17 American Northwest Country, Northwest Coast, 1800's

Fig 16 b,c Details of face and reverse side of bird's head. 54 6-48"

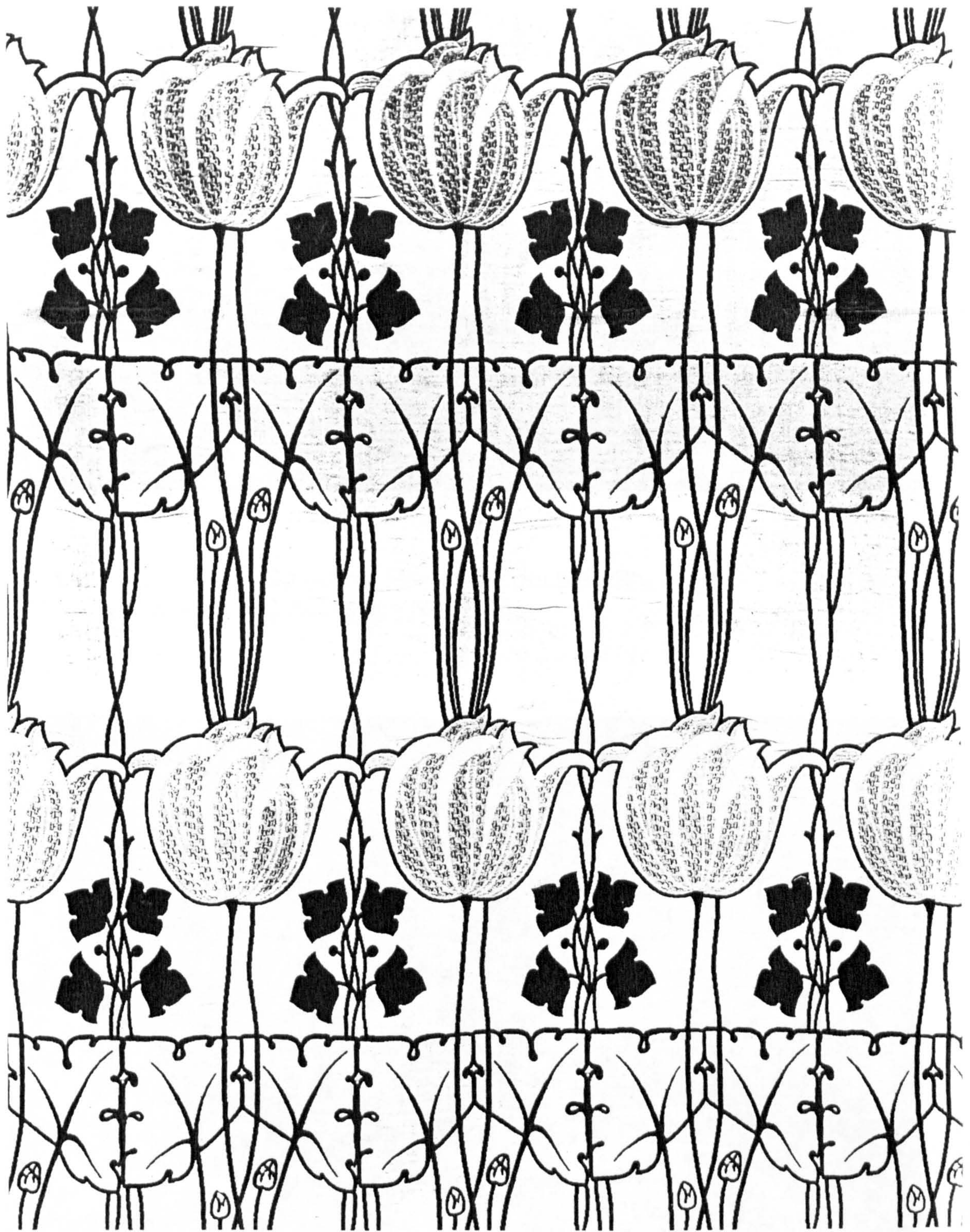


Fig. 17

Alexander Morton and Company. Reversible doublecloth, 1890's.  
Design by Voysey. WAG Accession No. 11889. 54" by 48".

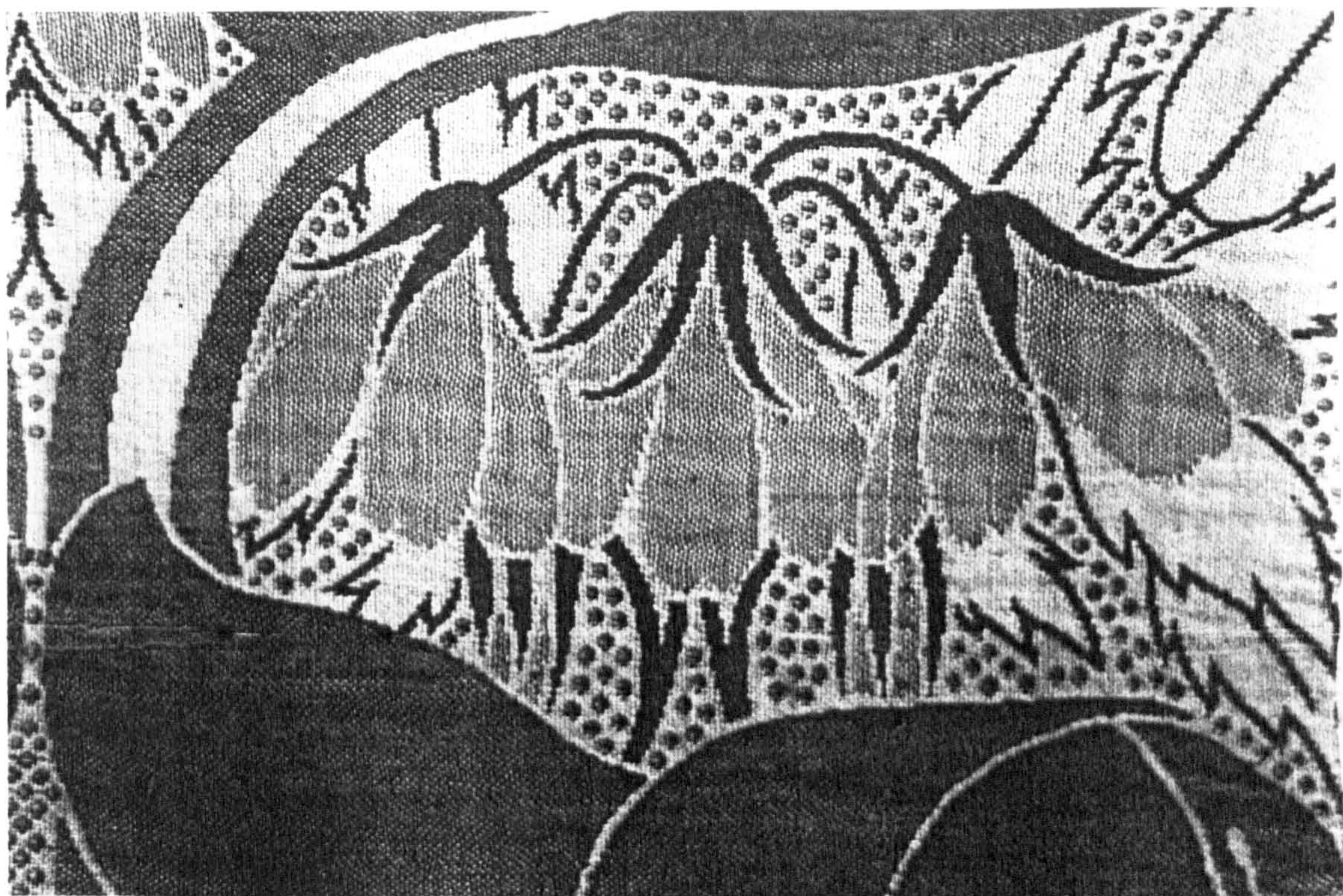


Fig. 18

Alexander Morton and Company. Reversible doublecloth, 1890's.  
Design by Voysey. WAG Accession No. 11845.



Fig. 19

Alexander Morton and Company. Reversible doublecloth, 1890's.  
Reverse of Figure 18.



Fig. 20

Alexander Morton and Company. Reversible doublecloth, 1890's.  
Design by Voysey. WAG Accession No. 11831.



Fig. 21      Detail of figure 20.



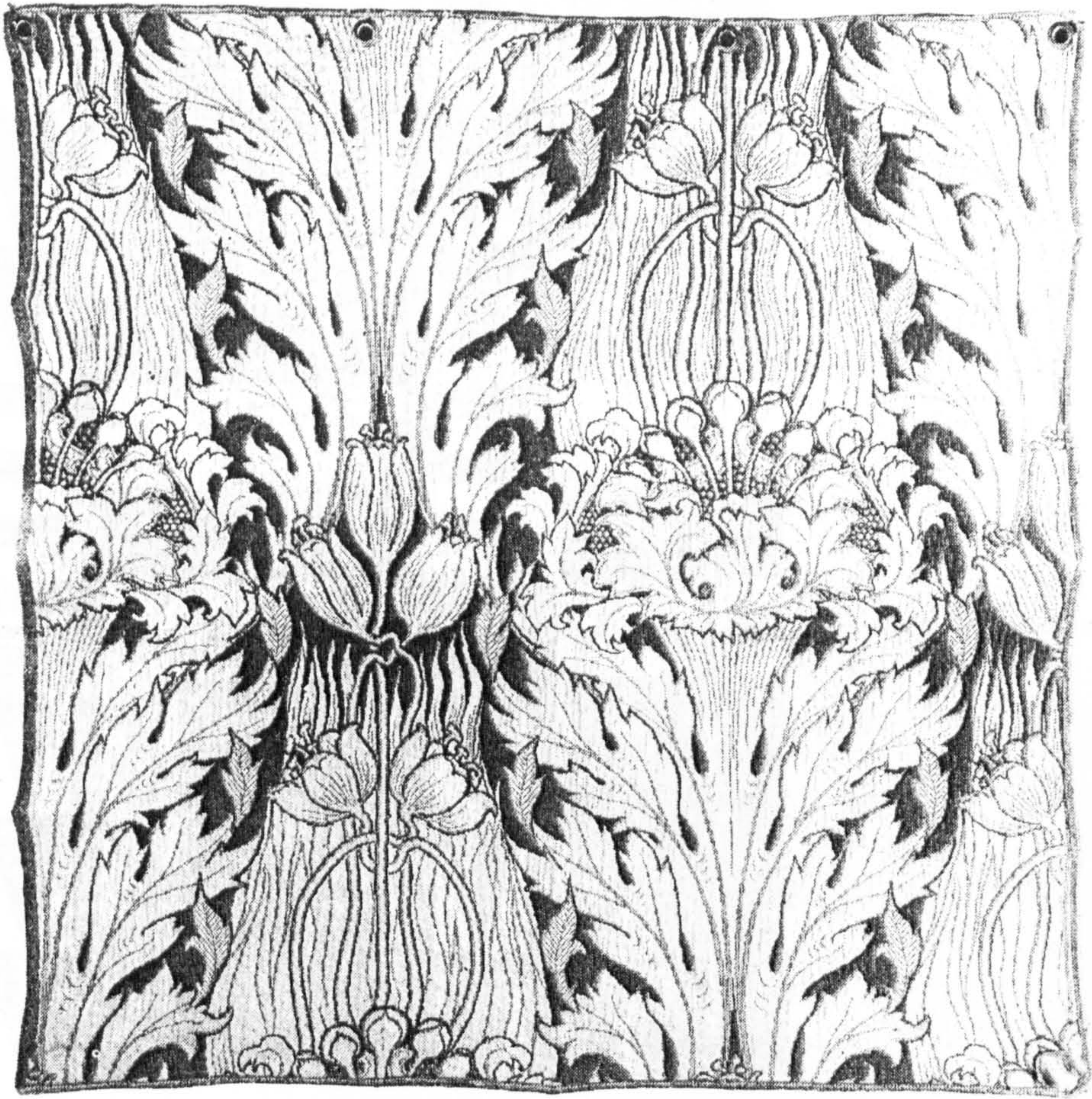


Fig. 22 Samuel Rowe. Silk and wool doublecloth woven by A.H.Lee and Sons. c 1896.

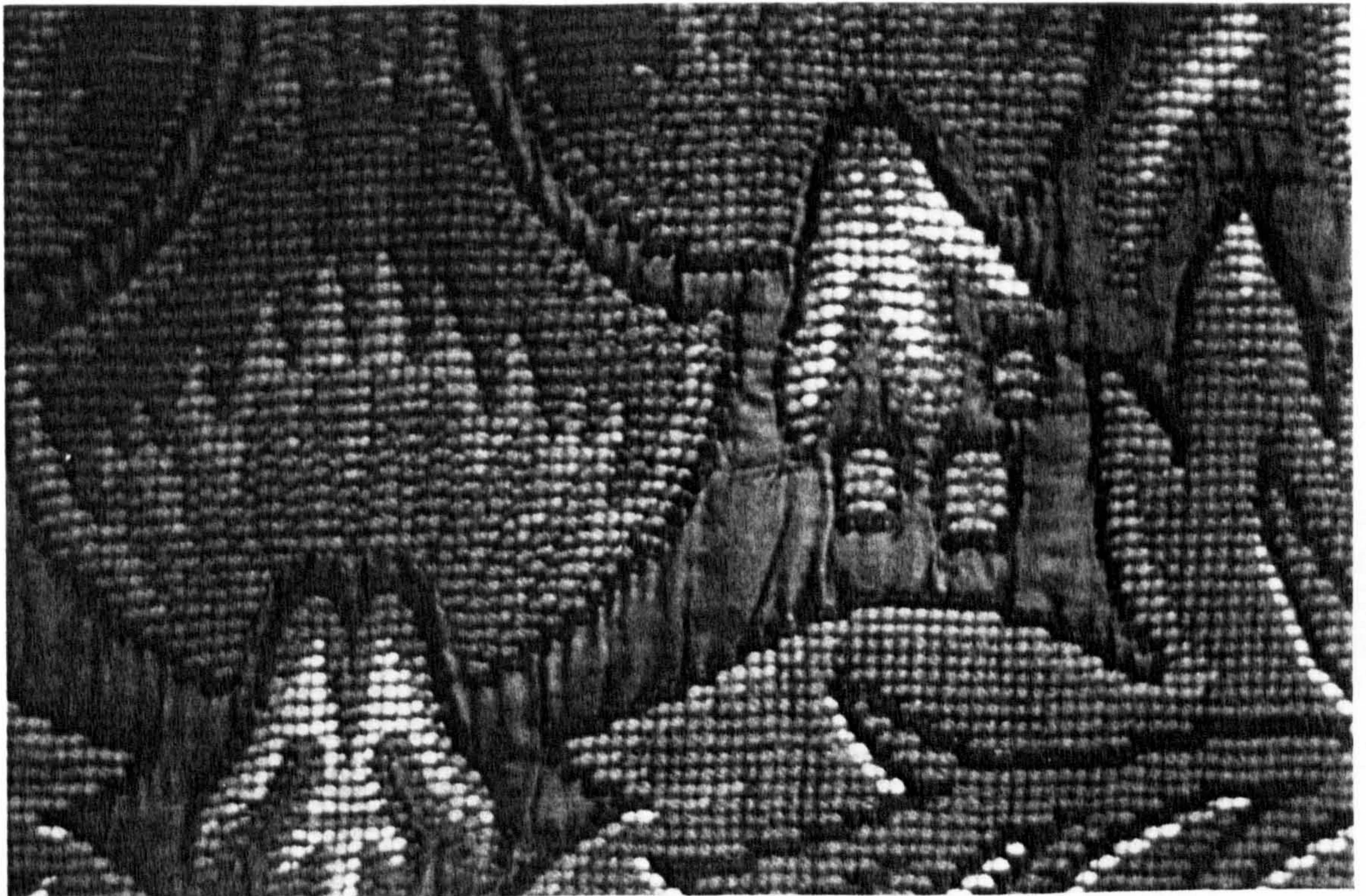


Fig. 23 Silk and Wool doublecloth. English late 19th century. Detail.  
WAG Accession No. 11882.

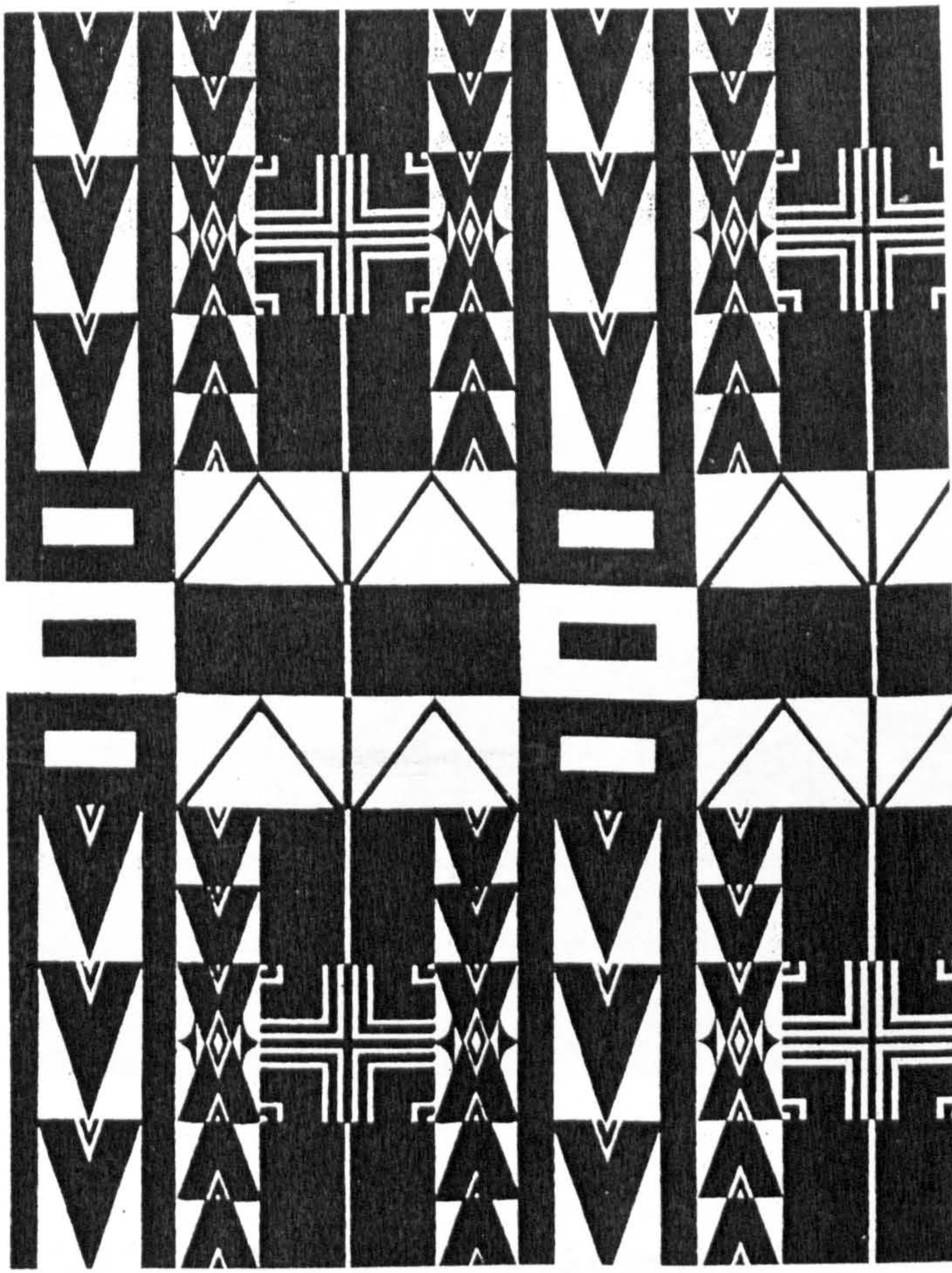


Fig. 24 Hoffman, design for printed textile, 1910.

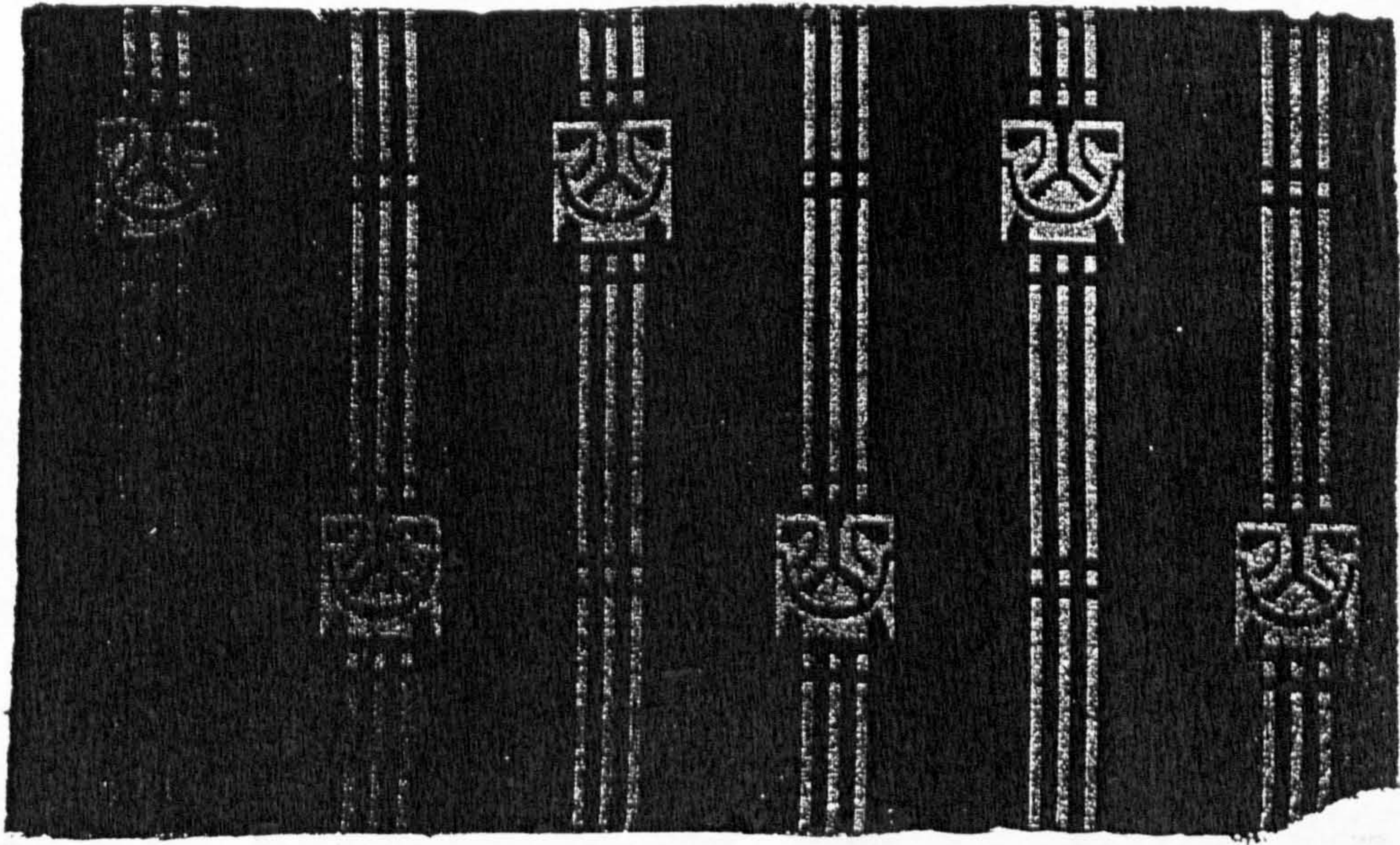


Fig. 25 *Abstracte Formen*. Van de Velde. Doublecloth furnishing fabric. 1900.

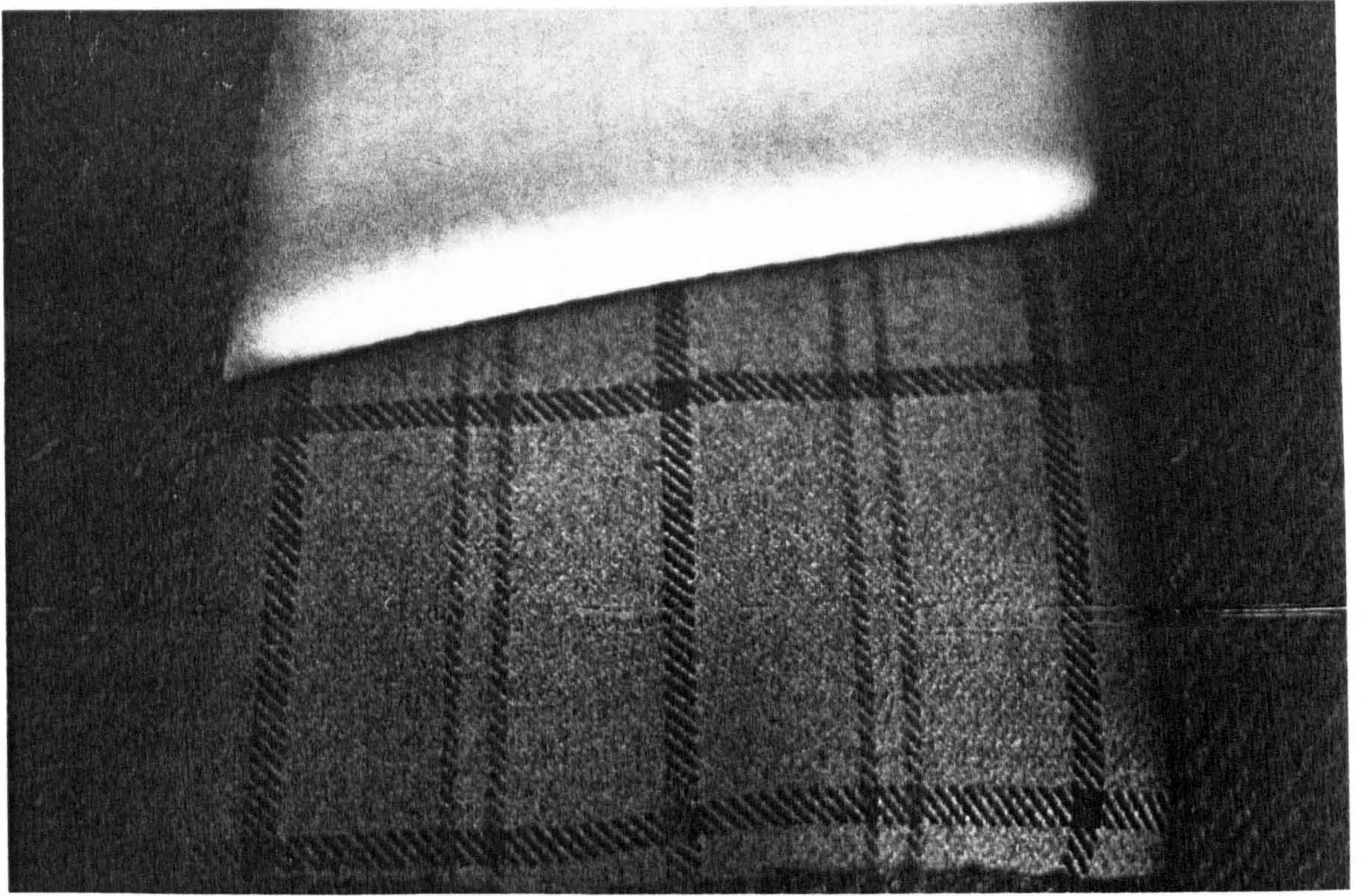


Fig. 26 Platt Hall .1890, gentleman's overcoat.

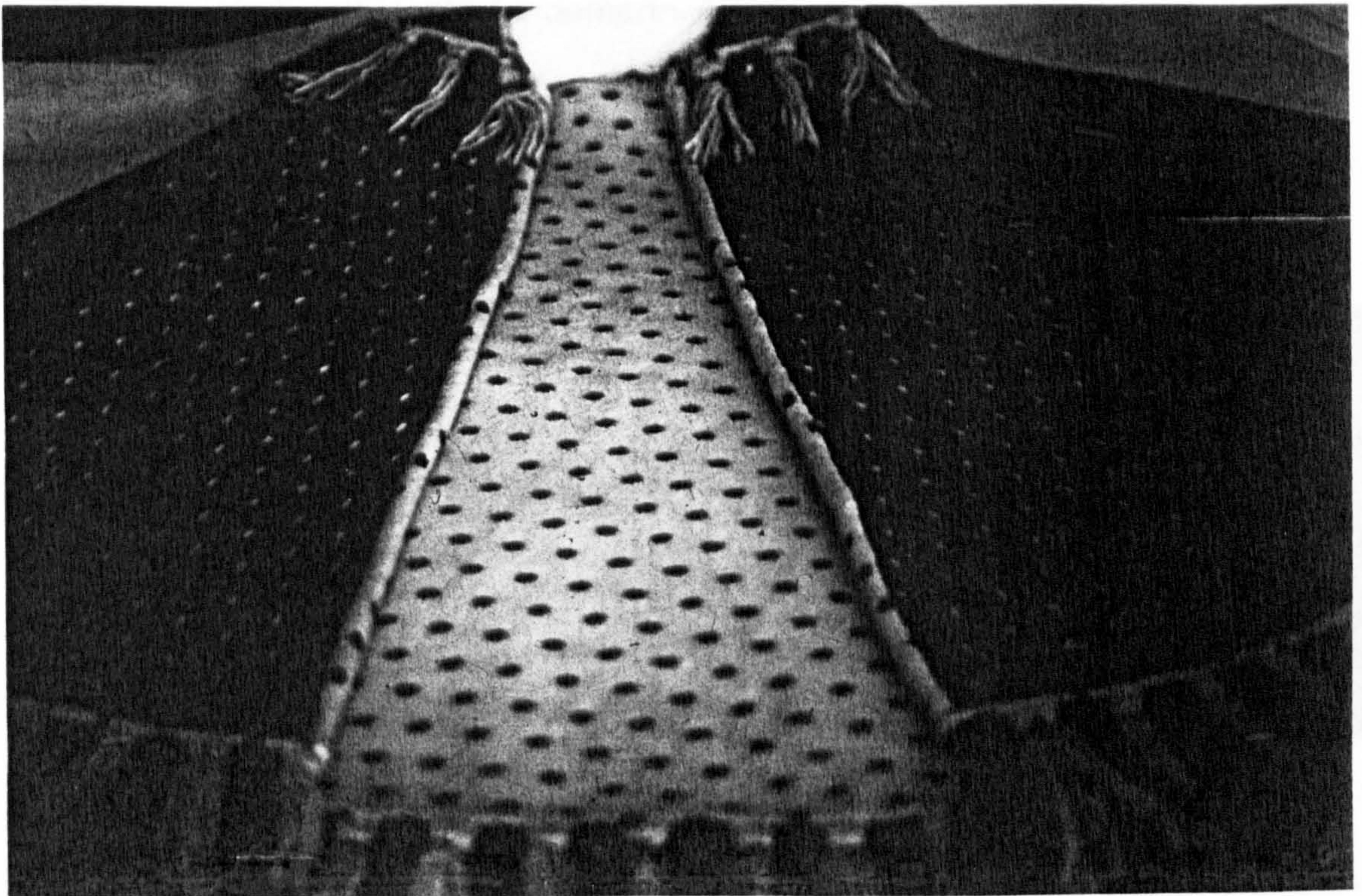


Fig. 27 Platt Hall .Ladies' cape 1870.

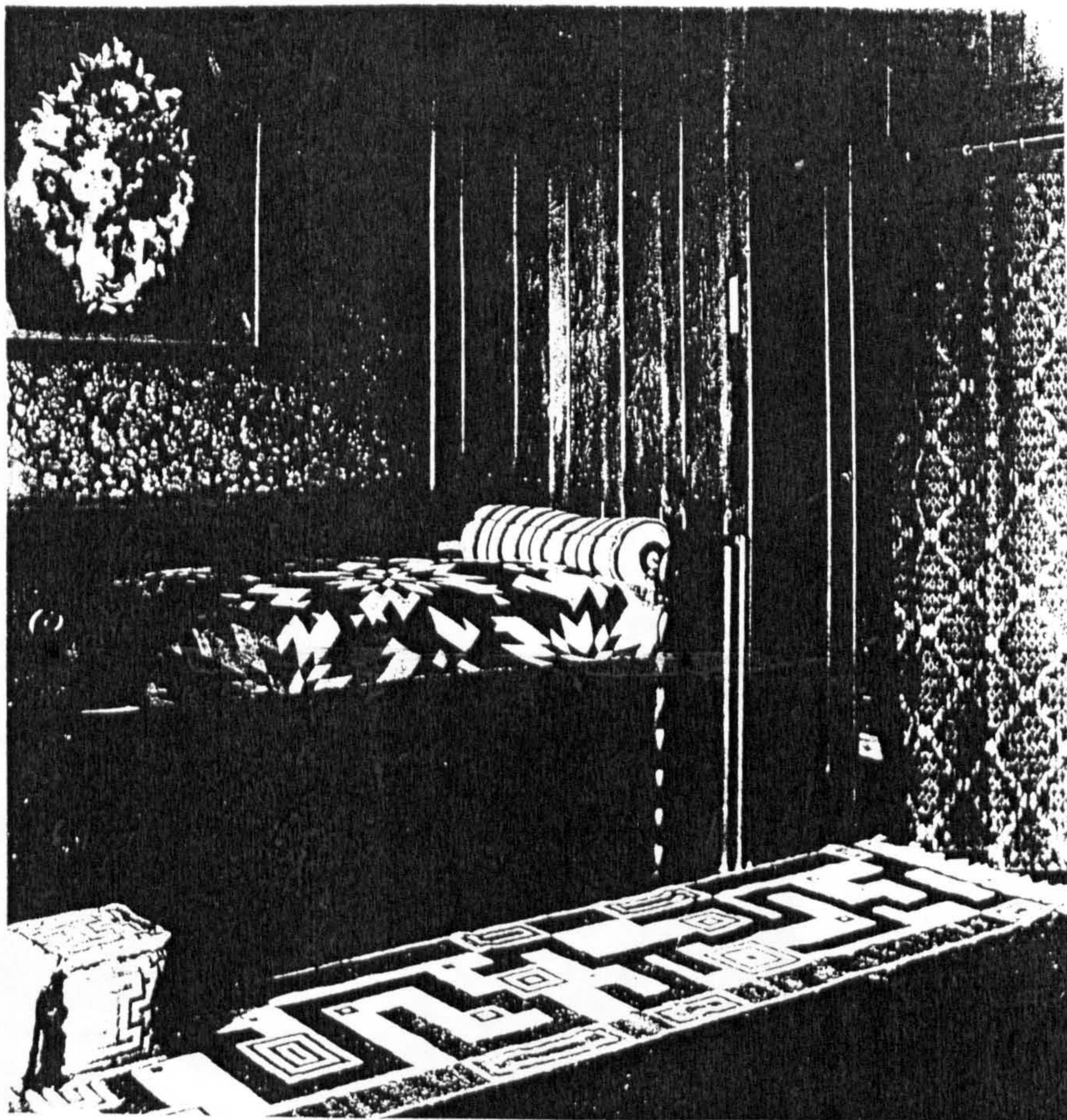


Fig. 28

Bed Alcove. Werkstatt-Hablik-Lindemann. 1914

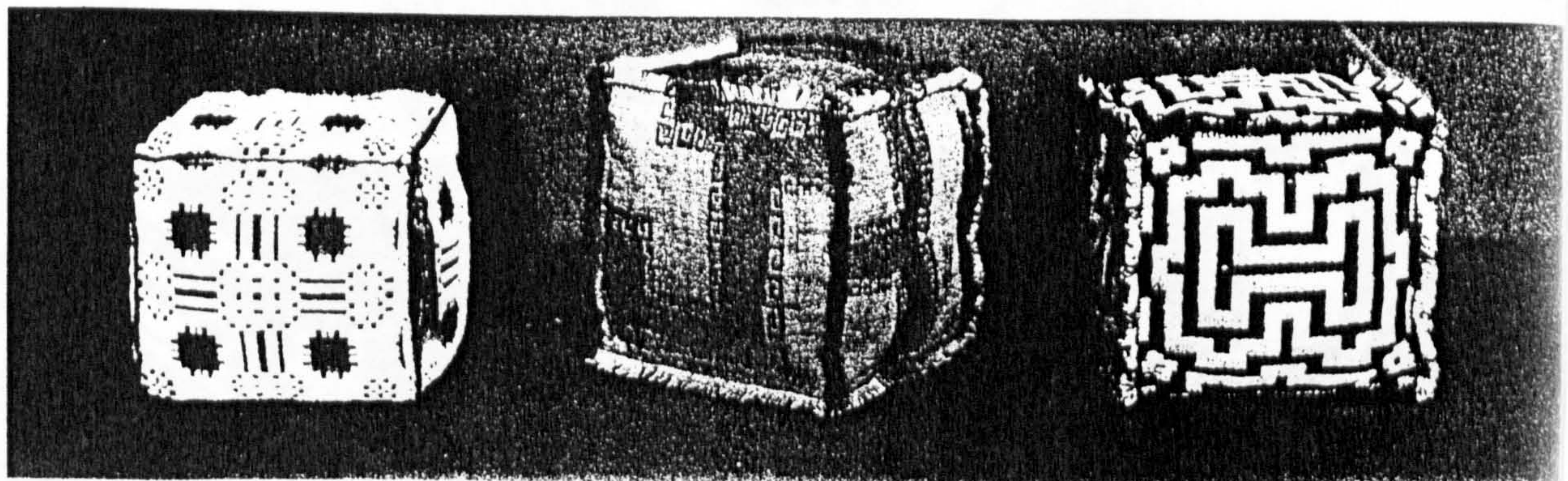


Fig. 29

Cushions. Werkstatt-Hablik-Lindemann. 1914.

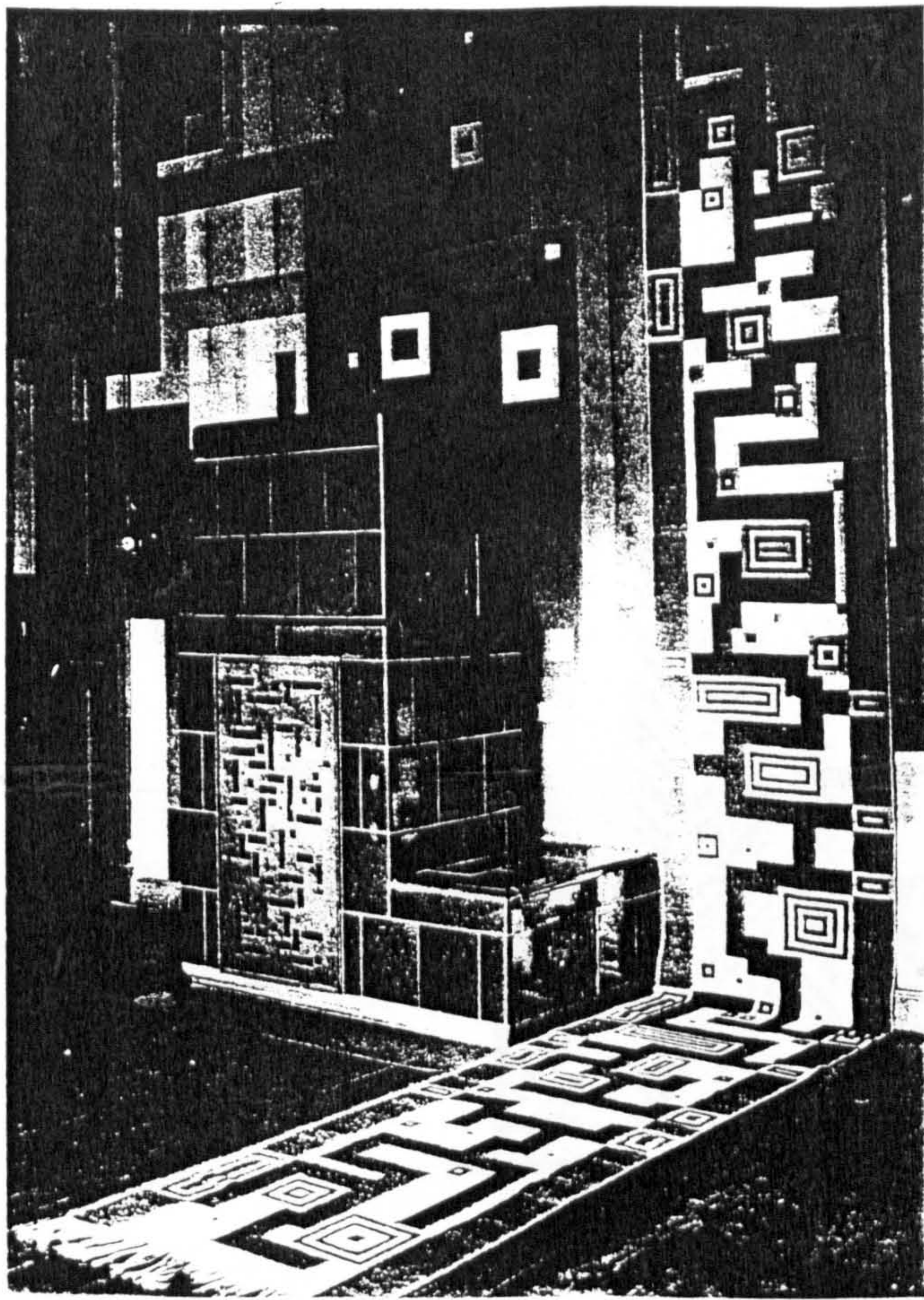


Fig. 30 Stove and Wall Painting. Werkstatt-Hablik-Lindemann. 1920's.

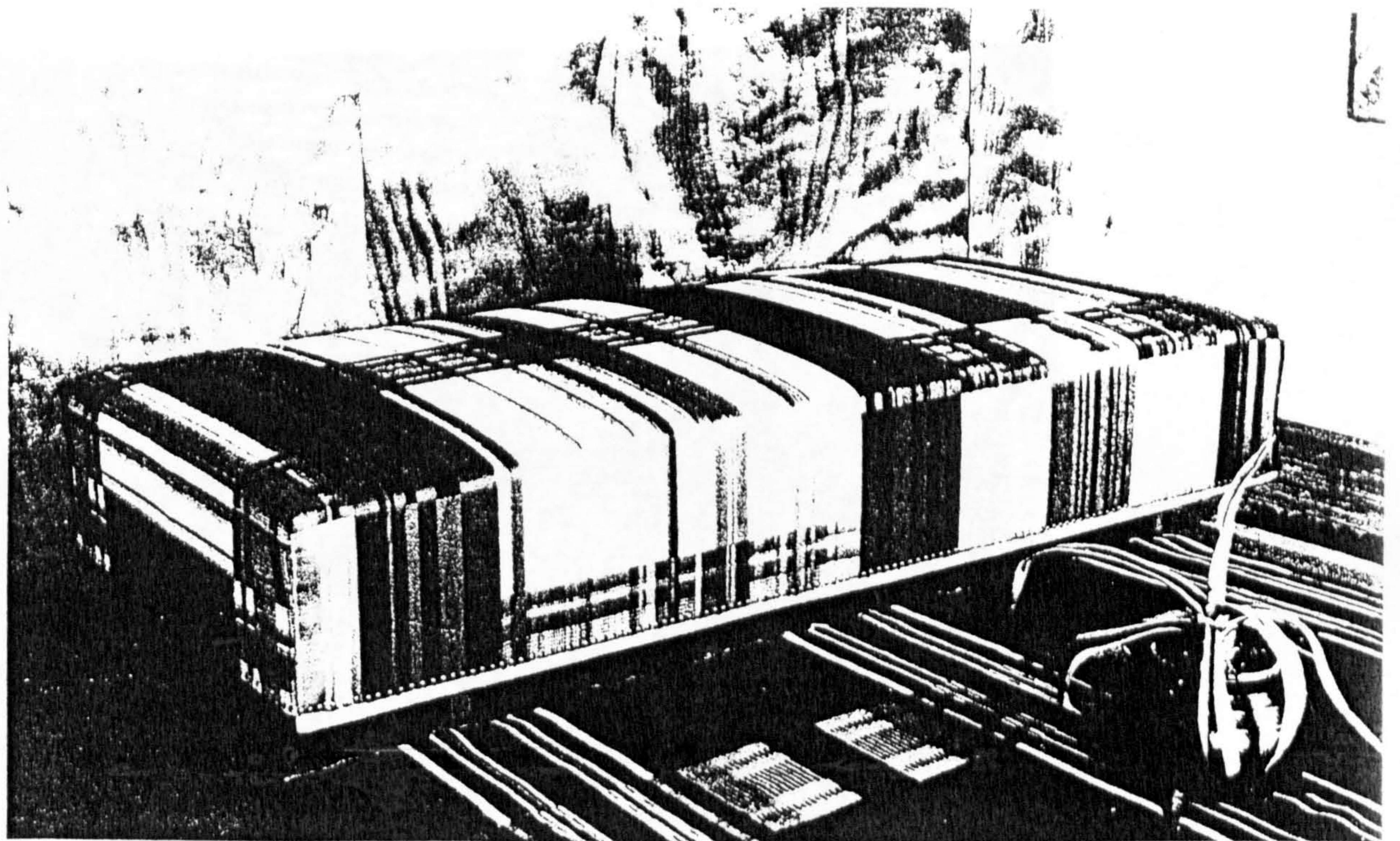


Fig. 31 Divan Cover and Rug. Werkstatt-Hablik-Lindemann. 1920's.



Fig. 32 Rodier Fabric Stand. Exposition des Arts Décoratifs, 1925

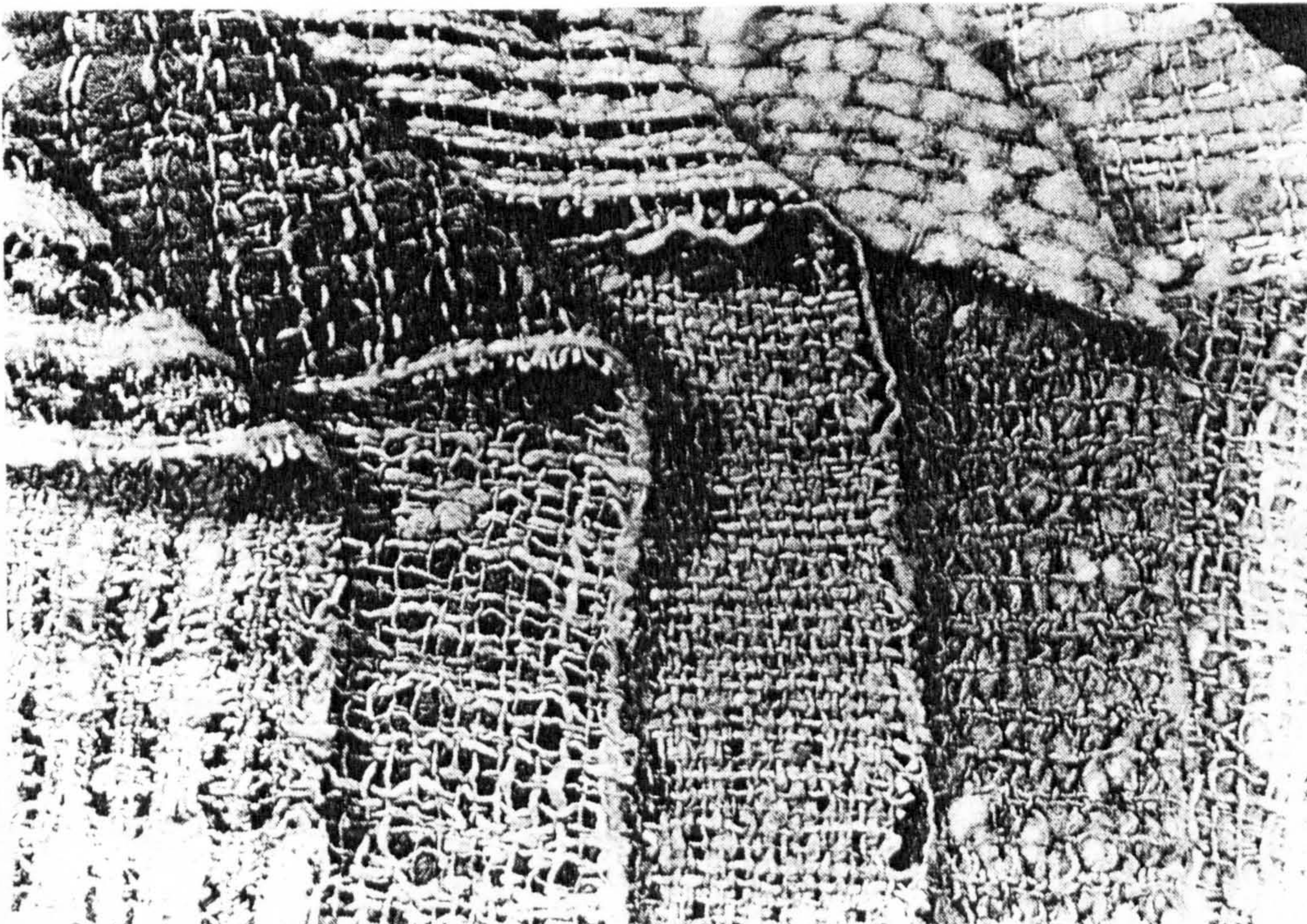


Fig. 33 Straub Doublecloth for Gospels . 1933

# **Doublecloth Fabric Portfolio.**

## **Introduction to Section One.**

The first set of doublecloth samples were woven between 1985 and 1987 after a discussion with Marianne Straub in August 1984. At this discussion it was agreed that the first series of samples should be interchanged doublecloths which explored the two layers of cloth interchanging, the second series would explore the different methods of stitching and finally a series which explored pick up doublecloth. Traditionally the diverse techniques and potential of doublecloth structures have been undervalued and these experimental pieces were necessary to establish the known parameters of the technique.

The limitation of colour to black and white was seen as necessary in the first stages of the practical project to emphasise the woven structures: as the weaving progressed the use of additional colours, although considered, was not seen to be appropriate. This still left the many variables of weave, yarn, sett and fabric finish to be considered when designing even a single layer of woven fabric: with doublecloth fabrics the two layers of cloth provide possibilities and combinations which can at first seem overwhelming. These variables were discussed in meetings and by correspondence with Marianne Straub [Appendix Three] as the sets of samples were woven; each set having a particular focus and supported by archive research in the Victoria and Albert Museum, the Whitworth Art Gallery and visits to the textile industry in Wales, Yorkshire and Lyons.

From this work it became possible to investigate the doublecloth fabrics of Anni Albers woven at the Dessau Bauhaus which is developed in Section Two of the thesis.

## **Series One**

The yarns chosen were black wool and white silk to give two clear textures and colours. Warp sett: 40 ends per inch on each face.

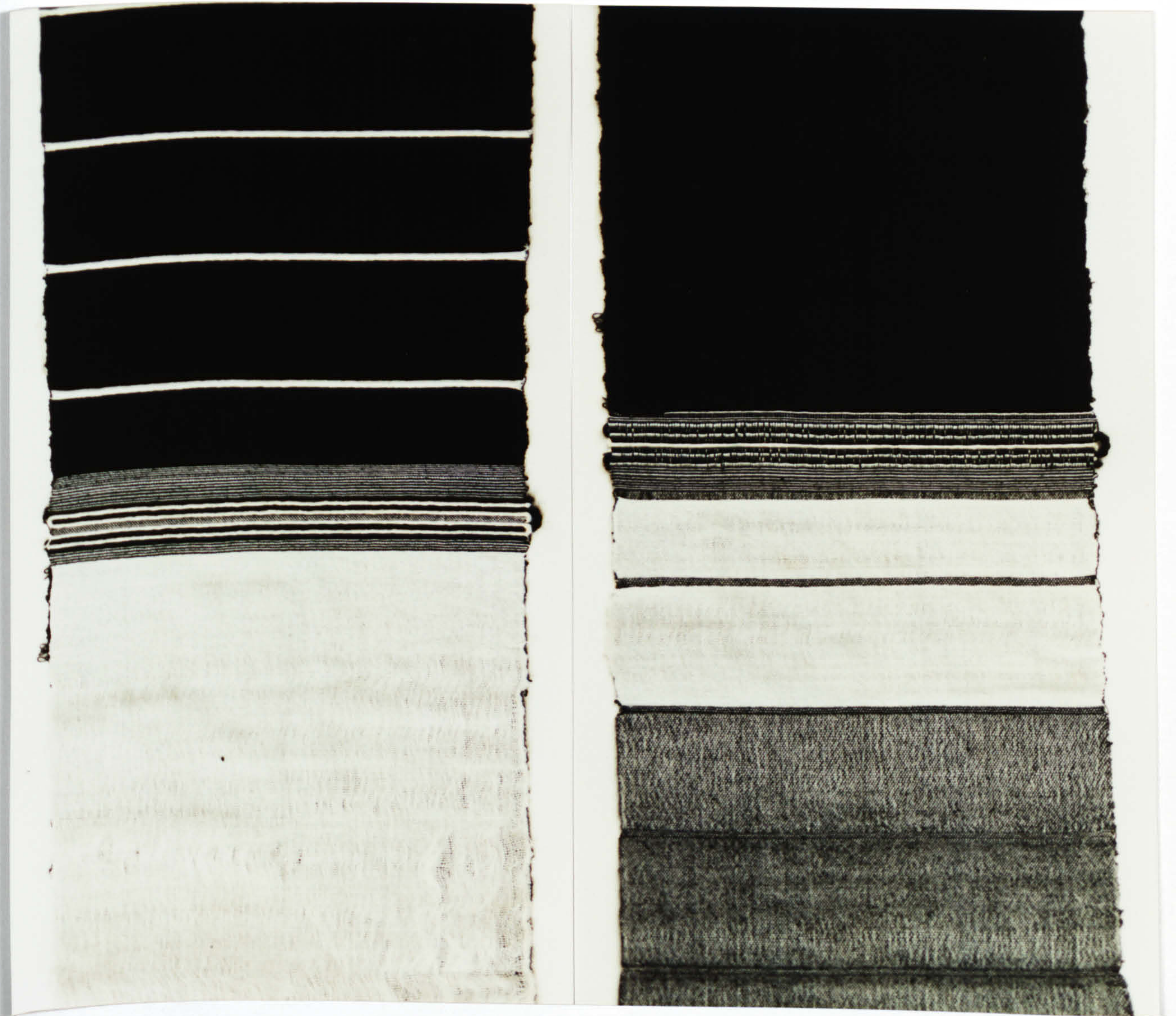
### **Sample One. Two layers interchanging.**

This first sample is woven to show the two separate layers of fabric woven concurrently on the loom. In the top sample the weft threads are linked together to form a pocket opening on the right hand side. If the thin black and white stripes of this sample had not been woven in place the fabric could have been opened out to a double width when taken from the loom. Similarly if the wefts had been linked together at both edges a tube with one white half and one black half would have been woven. Alternatively a tube could be woven with only one weft by weaving the top white layer of the fabric and then continuing to weave the back black layer.

The middle section of this sample shows a small stripe of a colour and weave effect where alternate black and white wefts cross the alternate black and white warp threads.

The lower sample shows the interchanged cloths with the white silk ribs stiffened with a stuffer thread. The reverse of this lower sample shows two ways of weaving the back layer [or back face] of a doublecloth with separate wefts to produce separate black and white layers or with the same weft, in this case black, to produce a mixed effect.

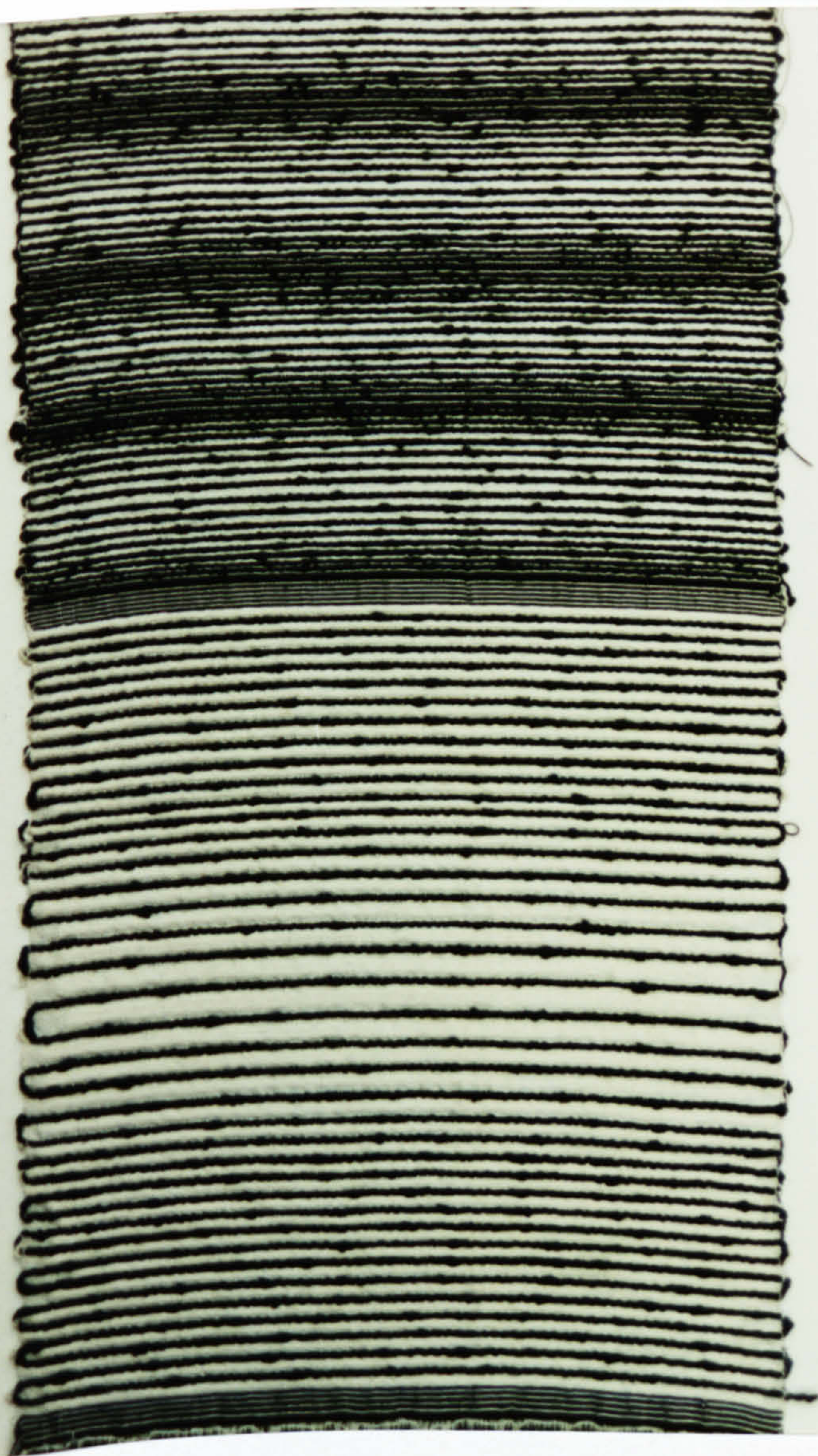




## **Sample Two.**

This sample explores the rhythms and proportions of the black and white, silk and wool textures. The two faces are interchanged frequently to give a stiff fabric suitable for upholstery rather than a dress fabric where more drape would be needed. The ridged textures were emphasised by weaving a heavily textured yarn into the ridge to provide a visual bump thereby reinforcing the tactile bump. These padded ridges became, in this particular sample, small ridges in their own right. The random texture in the black yarn adds further interest to the fabric as the eye is led up and down and from side to side.

This particular sample reinforced the concept of touch and manipulation related to a visual effect which makes the fabric successful. This concept was identified as something to be developed later in the practical project.



### **Sample Three. Pleats.**

The interchanged doublecloth structure allows woven pleats to be formed during the weaving process. This particular sample shows a variety of pleats woven in different proportions in clear white and clear black. In this process the two layers are woven separately with the fabric to be pleated woven to twice the length of the back fabric; the warp tension is then relaxed on the pleat warp allowing a pleat to form when the back fabric is brought up and woven under its normal tension. The pleat warp is then retensioned to allow weaving to continue.

Pleats can be woven at random or in order as the weaver requires. The warp to be pleated must be on a separate beam to allow the tension changes and will generally be twice as long as the back fabric warp. In this case both warps were used to make alternate black and white pleats.

The top sample is developed a stage further by weaving pleats onto the edges of the interchanged doublecloth stripes. This is accentuated by a thin white line stitching the black pleat onto the black cloth and by a thin black line stitching the white pleat onto the white cloth. This sample has a thicker white wool weft used in the back fabric, this is quicker and cheaper to weave while preserving the visual effect of the cloth and is widely used in industrial production. The main drawback is that the reverse fabric does not have the same tactile or visual quality as the face fabric.



#### **Sample Four.          Non reversible doublecloth**

This sample is also non reversible, using quicker methods of production as seen in industrial samples, but with the related drawback that the face fabric is the most important surface. In hand weaving, as in industrial weaving, it does save a great deal of time allowing ideas to be explored on the surface fabric much more quickly but for me the end result is not as satisfactory as a fully reversible doublecloth.

The lower sample deals with the progression of black and white stripes and the close textured effects of the bouclé yarn. This is developed by enlarging the white stripes as the series progresses producing an optical three dimensional effect to the fabric. The back fabric is here woven completely into the face fabric so that it is not possible to pull the fabrics apart.

The white warp in the top sample has been dyed prior to weaving to produce an ikat effect which the eye can follow along the warp threads. This pattern is interrupted by the weaving of a black regular stripe on the face of the fabric as the back layer is interchanged. This regularity of woven doublecloth pattern and irregularity of dyed ikat has many possibilities. Of further interest is the slight seersucker effect which is caused by the floating black warp on the reverse. These floats would make the fabric unsuitable for dress purposes but the floats could be woven into just to keep them together.



**Sample Five.            Single cloth with double cloth flap.**

This sample was woven on a white cotton warp with a sett of 40 ends per inch to each face of the fabric. The lower section is woven as a single cloth of 80 ends per inch and then woven as two separate double cloths. The cloths are woven together on the right hand side by twisting the black and white wefts together at the edge and left open at the top causing the white face fabric to hang as a flap. The back cloth is plain weave but uses a variety of twisted and thick wefts to alter the texture and appearance of the plain weave, contrasting with the light, crisp face fabric.





## **Second Series. Methods of stitching.**

This series of samples explores the ways of stitching the two layers of fabric together, a technique widely used in industry to produce a firm doublecloth for dress, suit and coating fabrics. This form of the doublecloth structure allows no friction between the two faces of the fabrics and is therefore also used for the production of upholstery and furnishing fabrics. In some textile technology books these fabrics are identified as double faced rather than as true double cloths, but the discussions with Marianne Straub highlighted the possibilities of using the stitching as a decorative element rather than a purely functional one.

### **Samples Six to Nine. Concealed self stitching.**

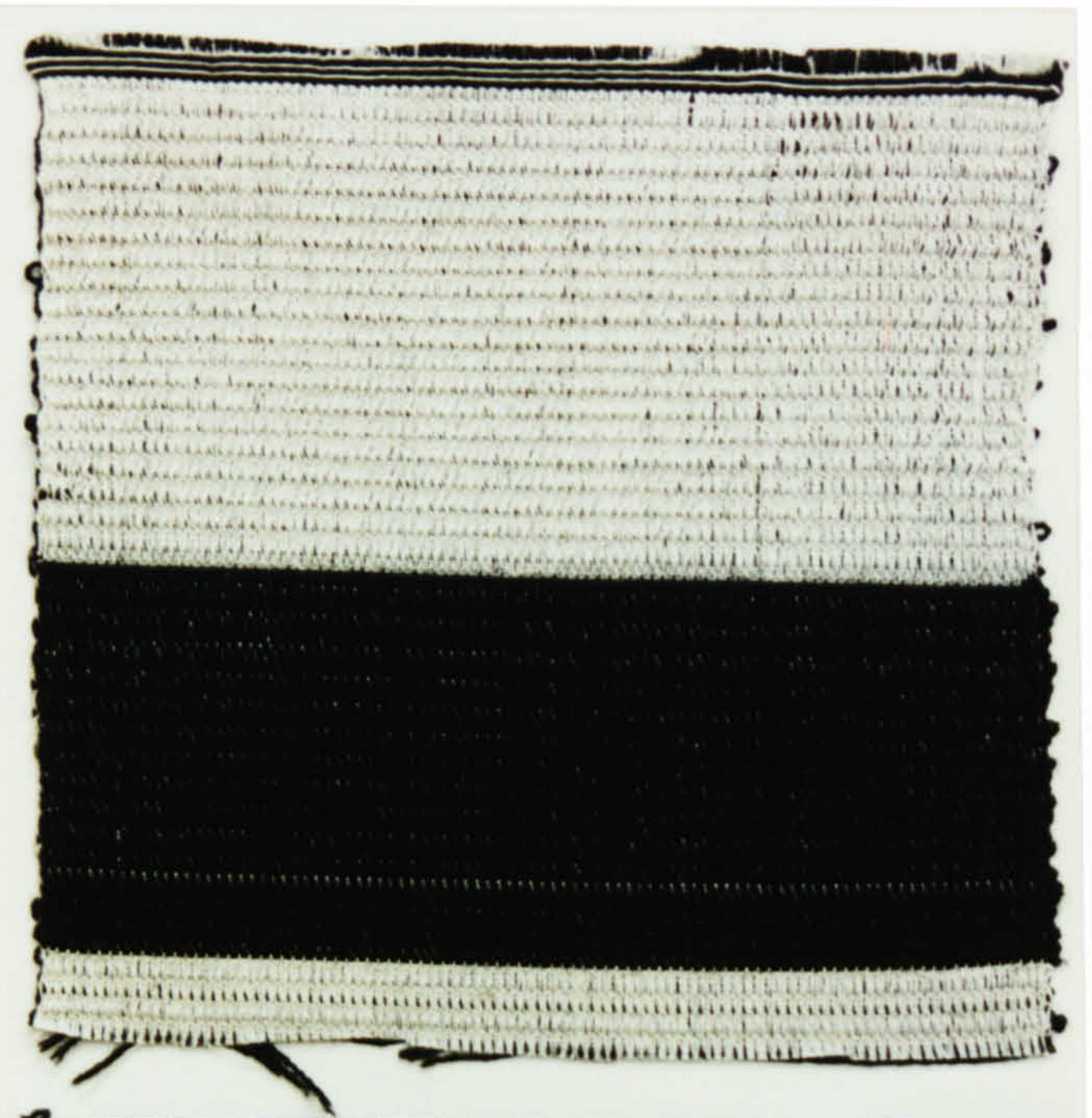
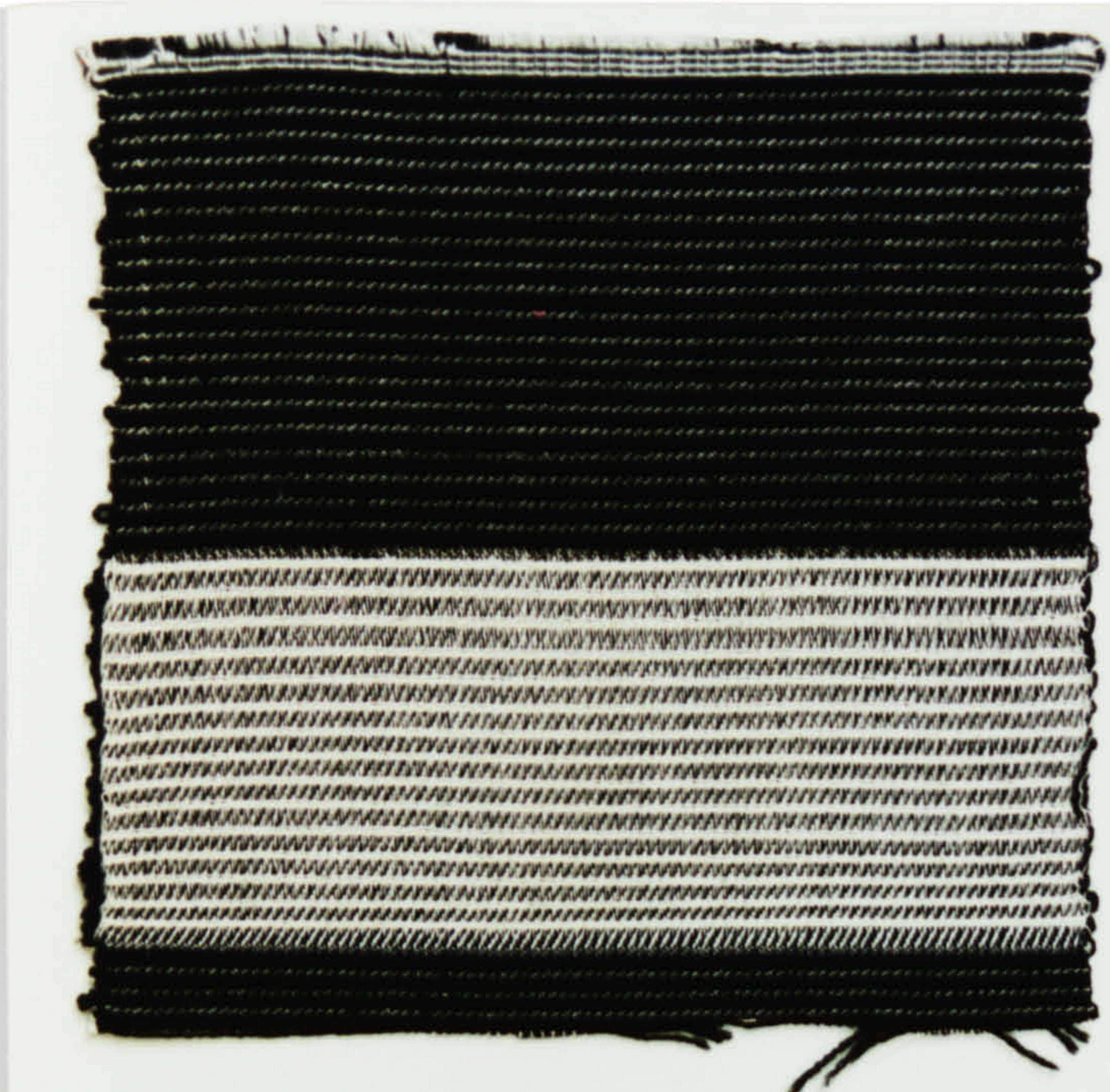
The twill weave was used in these samples as it is easier to hide the interlocked stitchings between the two faces. The twill weave also has better draping properties than plain weave thus making a more pliable fabric for constructing garments. In concealed self stitching different effects are achieved by the type and the frequency of stitching the two cloths together as in the following :

a face end is dropped under a back pick	Sample 6
a back end is lifted over a face pick	Sample 7
or both the above are used together	Sample 8

Sample 9 is an interlocking twill woven on 8 shafts, stitched from back to face.

The warp is all black with alternate weft picks of black and white. This gives one colour on the face of the fabric and mixed colours on the other. The fabric itself is reversible and by changing the weave sequence at regular intervals, interlocked twill stripes can be woven.

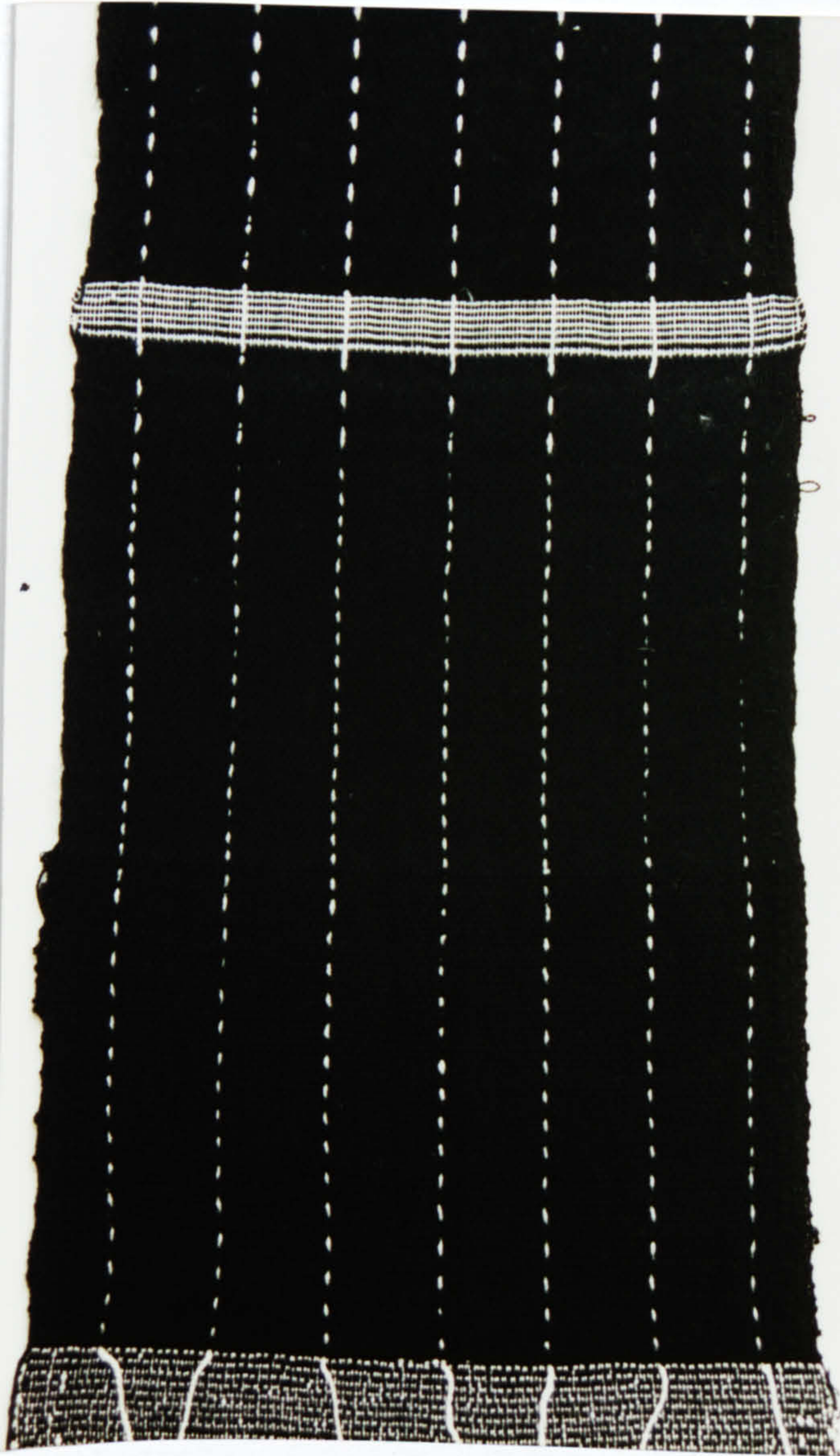




## **Sample Ten. Centre Stitching.**

Two cloths can be stitched together by a fine extra warp thread hidden between the cloths which never becomes visible. Alternatively the centre stitching can be exploited as part of the design, visible as a functional and decorative extra thread. This sample has a white slub silk stitching thread clearly visible on the black face fabric. On the reverse white side the small gaps left by this stitching become an integral part of the fine silk textures. The top sample is woven using a 7/1 twill for the reverse side which causes some problems with the stitching thread shifting in the weave.

The middle section uses a loosely woven plain weave and a finer stitching thread but the best solution is the lower sample where a firm textured weft is introduced every two rows to conceal the stitching thread. The stitching end requires a separate beam on the loom thus limiting the warp beams available for the two warps; hand looms normally have two warp beams, although an extra beam can be improvised if necessary.

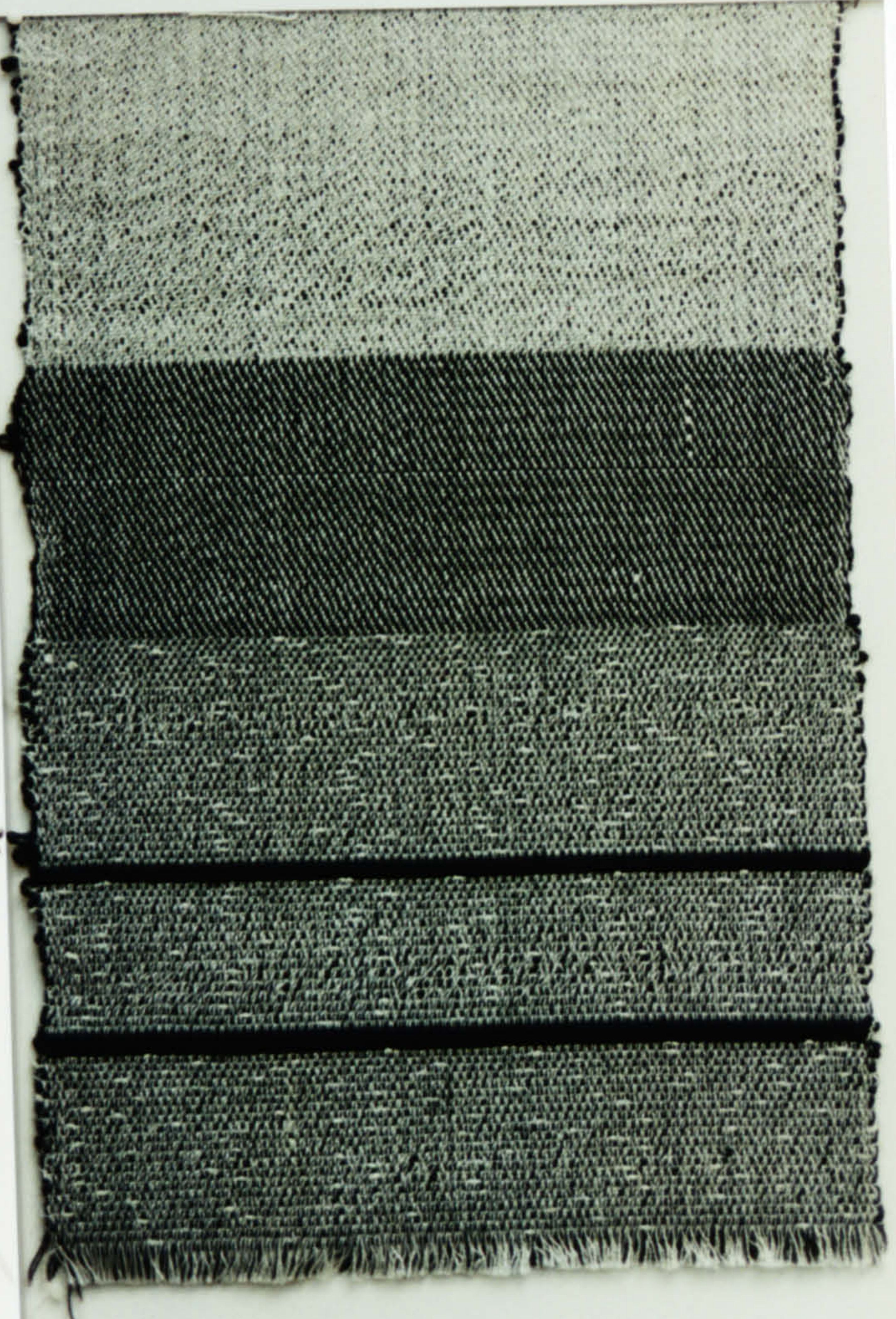
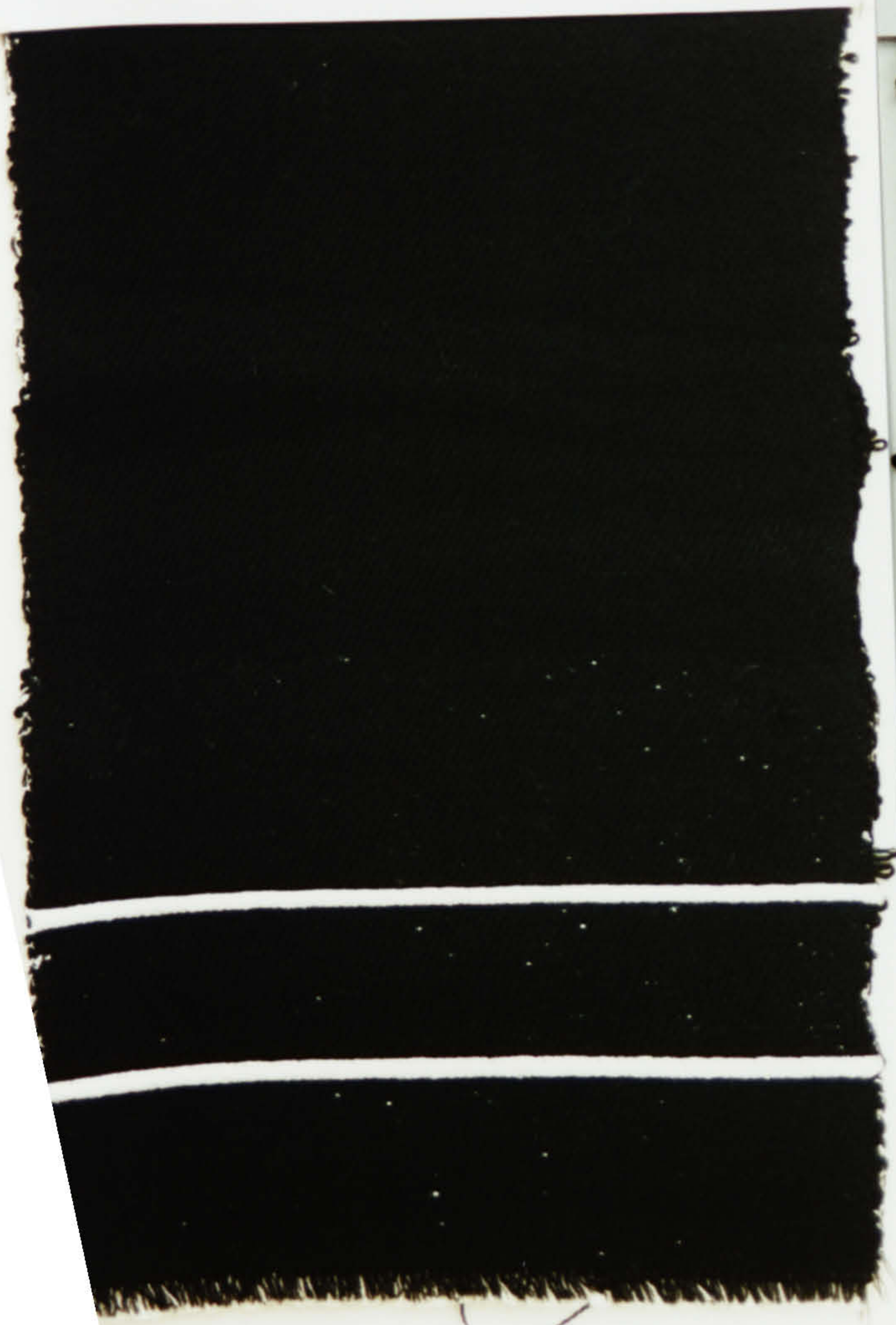


### Sample Eleven.

This sample was the result of designing a reversible dc fabric of interlocking twills with a different appearance on each side. While the sample has an appearance of simplicity it is in fact difficult and time consuming to weave. The top sample has a pure black face while the reverse has both a white silk and a black wool stripe. Either of these stripes could be used to produce the reversible fabric.

The lower sample has a white random fleck which appears on the black face. This fleck is the result of weaving the secret stitching threads to the surface out of the normal sequence where they would normally remain hidden. The padded white ridges are formed by the interchange of the two fabrics as in the earlier series. The use of two or more joining methods are rarely used in doublecloth production and present the designer with many functional and decorative possibilities.



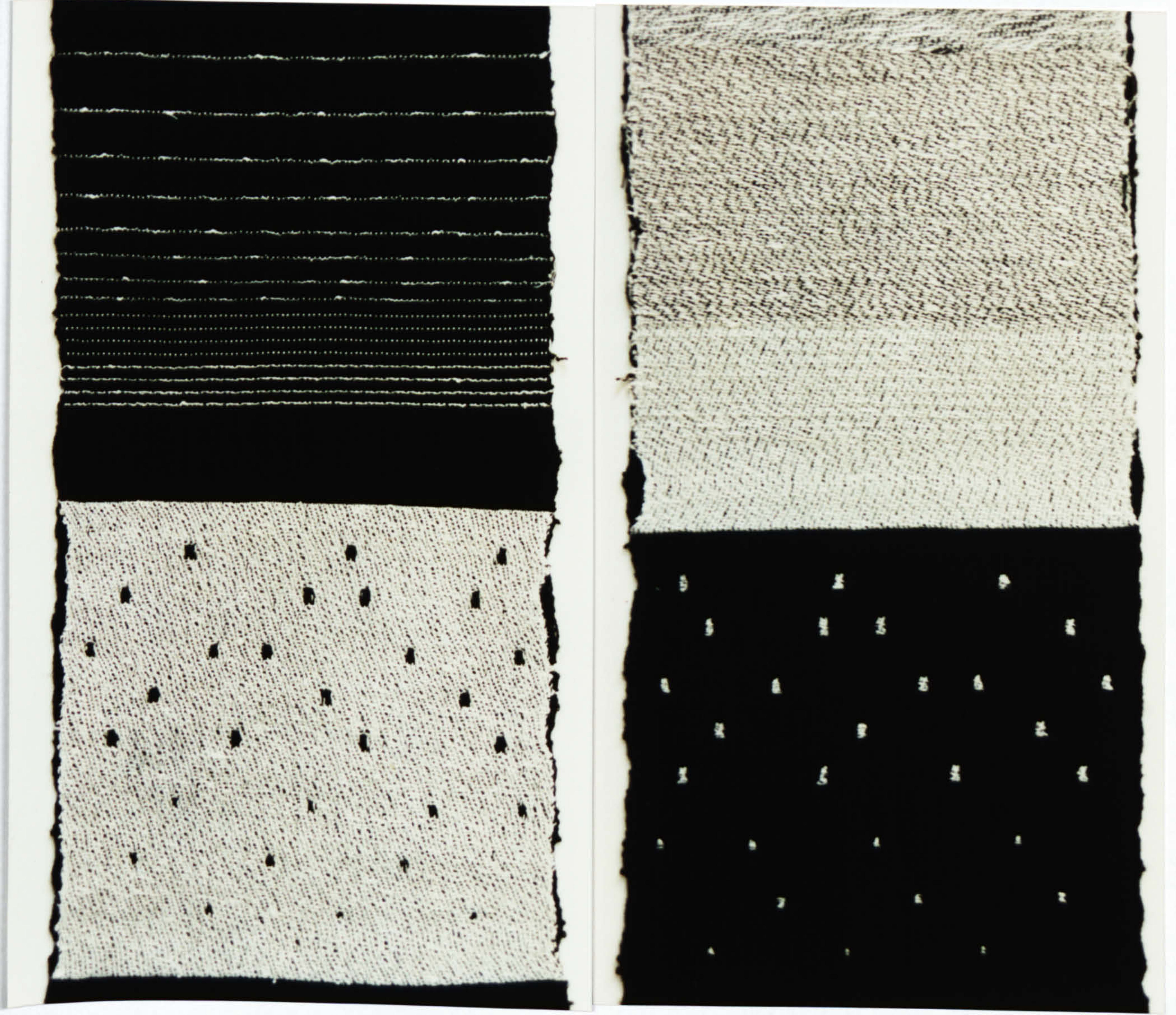




## **Sample Twelve. Pick-up Doublecloth or Täkänä.**

This sample uses self stitching controlled by the loom as in the previous samples but it also introduces the use of pick-up doublecloth or Täkänä. The top sample has a black plain weave face and a 7/1 twill silk reverse face with the cloths stitched together by what appear to be interchanges with the reverse face. These interchanges are in fact secret self stitchings from the silk face. This can be appreciated from the reverse side where the sequence of weaving the twill is unbroken.

The lower sample uses Täkänä, a hand controlled doublecloth technique used in pre-Columbian Peru, Persia and Scandinavia. While Täkänä provides great flexibility to the experienced weaver it is time consuming to weave even the smallest samples. This sample uses a large random spot of the back layer rising to the surface and would require refinement to be suitable for use. This experiment led to the next series of samples and an appreciation of the complex pre-Columbian doublecloth fabrics.



## **Series Three.Täkänä.**

### **Samples Thirteen and Fourteen.**

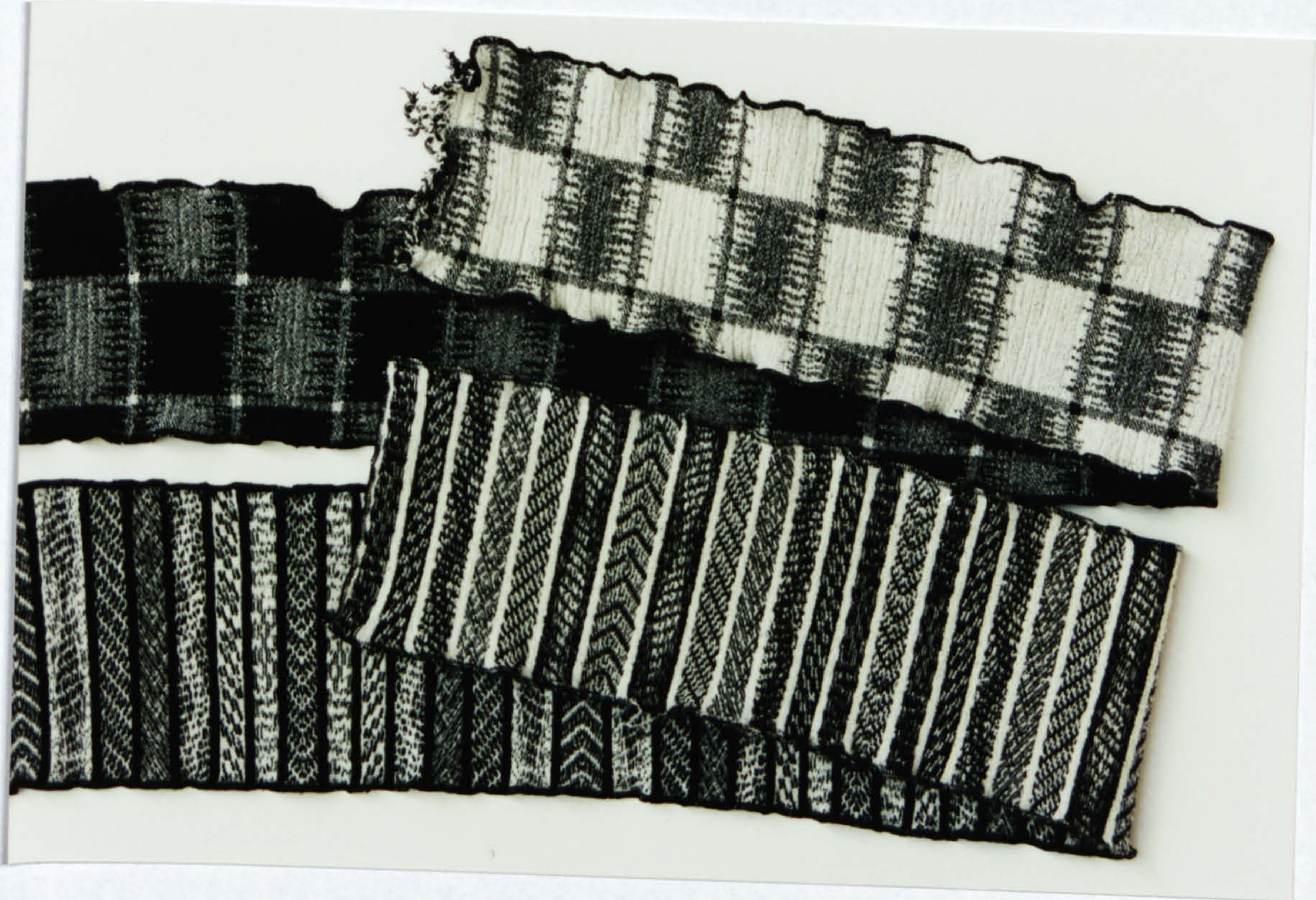
These two samples use the pick up doublecloth technique or Täkänä where the interchange of the two warps to produce a pattern is manipulated entirely by hand. While I had seen examples of this during my research and had read the instructions I was totally unprepared for the amount of time necessary to weave Täkänä, which in this case was ten hours for each sample illustrated. Täkänä offers great flexibility for patterning and with experience and practise complex figures and patterns can be woven on very basic looms.

The directions appear simple:

- 1      Raise all the black warp and pick up the black pattern on a stick.  
         Lower the black warp.
- 2      Raise alternate threads of the white warp. Push the stick back.  
         Weave white weft, remove stick and beat.
- 3      Raise all the white warp and pick up the white pattern on a stick.  
         Lower the white warp.
- 4      Raise alternate threads of the black warp. Push the stick back.  
         Weave black weft, remove stick and beat.

This sequence weaves only two wefts-one black and one white-and is repeated as the pattern requires perhaps thirty times for each inch of fabric produced. A slightly quicker method of pick up dc is the Mexican method where pairs of threads are woven on each layer of fabric instead of interlacing each layer as in Täkänä. This method was used in the lower sample and close inspection reveals the two threads interchanging at the edges of the blocks of colour.





# **Doublecloth: History, Technique, Possibilities.**

## **SECTION TWO**

### **The Bauhaus and Its Weavers.**

## **SECTION TWO: The Bauhaus and the Weaving Workshops.**

The 1920s were to prove critical to the changing status and forms of doublecloth. Prompted by the ideological agenda of the Weimar Bauhaus it will be useful to speculate on whether the changes were somewhat accidental, or even incidental to the main thrust of the work of the Bauhaus, or whether the lessons learnt from the introduction of doublecloth were more significant than hitherto perceived. The continuing debate on the technical and creative interface of art, design and architecture was central to the structuring and purposes of the school that Gropius set up in 1919. Despite the substantial influence of the Arts and Crafts movement, the professional standing of the crafts was still questionable and the divisions between technical and art education remained strong. What becomes increasingly apparent is the way in which attitudes were affected by issues of gender, the value judgements of craftwork, in particular hand weaving, and the categorisation of it as a female activity.

### **Part One. The Bauhaus.**

#### **[i] Weimar Bauhaus. April 1919-March 1925**

The *Program der Staatliche Bauhaus in Weimar* published by Gropius in 1919 discussed the teaching programme where all students would contribute through craftsmanship towards his principle: "The ultimate aim of all creative activity is the building .....Artists, Sculptors, painters, we must all return to the crafts! There is no essential difference between the artist and craftsman. Let us then create a new guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsman and artist." In the section which deals with the aims of the Bauhaus Gropius states

"The Bauhaus wants to educate architects, painters, and sculptors of all levels, according to their capabilities, to become competent craftsmen or independent creative artists and to form a working community of leading and future artist-craftsmen. These men, of kindred spirit, will know how to design buildings harmoniously in their entirety-structure, ornamentation and furnishing." <sup>1</sup>

It is clear from the manifesto that there were to be "no teachers or pupils at

the Bauhaus but Masters, journeymen and apprentices." However, the architects and designers of the future would need to acquire aesthetic and technical skills from a system capable of teaching both. During the Weimar period the workshops trained students under the dual tutelage of a *Formmeister* responsible for theory and creativity and a *Werkmeister* who taught the craft. Later, in Dessau, the ideal concept of combining these roles was realised as Josef Albers, Marcel Breuer and Guntha Stölzl became Jungmeister and put their own Bauhaus training into practice.

The first speech by Gropius to the Bauhaus students stressed "absolute equality of status" with "no special regard for the ladies, all craftsmen in work". The 1919 manifesto had stated that 'any person of good repute, without regard to age or sex, whose previous education is deemed adequate by the Council of Masters, will be admitted, as far as space permits.'<sup>2</sup> In practice the gender issues were raised immediately with restrictions placed on the entry of women students and with those students being directed almost exclusively to the weaving workshop during the fourteen years that the Bauhaus existed.

In his initial cost estimate for the Bauhaus, Gropius had reckoned with "fifty ladies and one hundred gentlemen" with the women students paying 180 DM per semester, men students paying 150 DM, and foreign students paying double.<sup>3</sup> This premium did not deter the ladies as the enrolment figures show an equal gender balance for the Winter semester of 1919 with 106 males and 101 females. The new Weimar constitution had given women the freedom to study and many had seized this opportunity but Gropius had underestimated their numbers. It is obvious that these students presented a problem with the Council of Masters suggesting in 1920 a "tough separation, at the time of acceptance, most of all for the female sex, whose numbers are strongly represented".<sup>4</sup> Further, the Council of Masters records in September 1922 that the selection of students "should be more vigorous from the start, particularly in the case of the female sex, already over represented in numbers".<sup>5</sup>

At this meeting a recommendation was made that women should be sent



direct from Itten's newly established *Vorkurs* [preliminary course] to the weaving workshop with pottery and bookbinding as possible alternatives. This proved impossible due to the closure of bookbinding in 1922 and the statement from Marcks, head of the pottery workshop, to admit "no women at all if possible into the workshop, both for their sakes and for the sake of the workshop".<sup>6</sup> It appears that this statement was unchallenged by Gropius.

Almost all the female students came to the Bauhaus with previous art and design education, mainly in the Schools of applied Arts and Crafts, trade institutions and individual workshops. They had been barred from the traditional Art Academies and were now attracted to the Bauhaus by the manifesto and the painters who headed the workshops. In her later writings Anni Albers remembers: "Weaving? Weaving I thought was too sissy. I was looking for a real job: I went into weaving unenthusiastically, as merely the least objectionable choice."<sup>7</sup> Some women were accomplished artists and teachers by the time they arrived, indeed Ida Kerkovius had been Itten's teacher in 1913<sup>8</sup>.

The obstacles to the admission of women and the forcible channelling into the workshop for 'weavers, embroiderers, fabric printers' prevented women from experiencing the multi-disciplinary approach which was fundamental to the Bauhaus goals. When the *Vorkurs* was established each student was admitted for a trial period of six months to study form, drawing and to work with a range of materials. Guntha Stölzl discussed the difficulty that the *Bauhausmädchen* experienced during the *Vorkurs* when confronted with unfamiliar materials and techniques in the 3D workshops: "the heavy planes, hard metals and the physical strain of mural painting inhibited their work".<sup>9</sup> It is apparent that no encouragement was given for the female students to experiment in these traditional areas of male expertise. The *Formmeister*s were dismissive of the 'feminine handicrafts' and were afraid that a craft tendency would endanger the Bauhaus goal.

While there were no doublecloth fabrics woven at the Weimar Bauhaus it is important to look at the development of the weaving workshop in some detail. From a tentative beginning the women students worked together to alter the

status of weaving within the Bauhaus, thereby creating the climate which enabled the integration of fine art theories and practice with the woven form. Without this altered status of weaving I believe that it would have been impossible for Anni Albers to produce the geometric doublecloth fabrics of 1926 and to establish weaving as part of an art and design philosophy. The issues are many: forcible channelling into the workshop, lack of instruction in the craft, lack of materials, prejudice and derisory comments from the men. Oskar Schlemmer had a rhyme: "Where there's wool, you'll women find, Weaving just to pass the time." <sup>10</sup>

The women who enrolled at the Bauhaus were talented and determined; these issues strengthened their commitment. If they were not allowed to study architecture or cabinetmaking they would channel their energy and creativity elsewhere. Weaving offered ideal preconditions for the Bauhaus principle "all creativity is the building" which was so ably demonstrated by them in the workshop's furnishings produced for the Haus am Horn in 1923. Perhaps the textiles were marginalised because they worked so well in the domestic environment by softening the stark cubist interior of the Haus am Horn?

The textile workshop was the first to start production because it was able to use the equipment from Van de Velde's Art School in Weimar which was the personal property of Helene Börner.[fig 34] Wingler notes her to be an "experienced teacher of Handicrafts" who trained at the Pauline Foundation for Commercial Domestic Work.<sup>11</sup> The technical training provided by this school remains unclear but it is probable that Börner trained as an *Handarbeitslehrin* [handwork teacher] in the skills of embroidery, applique and basic weaving. Correspondence in 1915 between Gropius and Mackenson discussing the Weimar School of Arts and Crafts where Börner was teaching is prophetic: "Only trivial things were made in the workshops: batik, bookbinding, pottery ,etc, almost nothing that fits into the framework of architecture.The students were, for the most part, ladies." <sup>12</sup>

Börner was appointed as Werkmeister in September 1919 with her contract granting her free accommodation for her looms, free heating and lighting and a

salary of 4400 DM per year. From this small sum she had to pay her assistants and to teach drawing "until a new drawing teacher is found".<sup>13</sup>

Throughout the winter period of 1919 to 1920 Gropius corresponds with Margarete Naumann in Dresden proposing that she comes to the Bauhaus to lead the weaving workshop. In an impassioned letter of 28 January Gropius pleads with her:

"Unfortunately the textile department is down, there are good technical beginnings but the artistic leadership is missing. After looking at it for many months the development is necessary in the artistic driving force. Are you ready to do it?...We belong together. We are still at the beginnings. Please tell me whether, when and under what conditions you can accept my offer. The economic position is difficult but maybe we can find a way out." <sup>14</sup>

Naumann had developed a new technique of thread interlacing, apparently similar to lace, which she named *Margaretenspitze*. An account of the technique appears in *Kunst und Industrie* in February 1920 but unfortunately there is no illustration. "A number of parallel threads are kept together by one special thread, a transverse diagonal, giving a new thread binding system for lace and pearl work. You can use wool, silk, metal and the like for semi-sculptural body coverings " It is interesting to speculate on the products of the Bauhaus textile workshop if Gropius had persuaded Naumann to become *Formmeister* in Weimar.

The question to consider is what the students were producing at this time under the direction of Börner with little technical instruction and few raw materials available to them.<sup>15</sup> It appears that they collected beads, buttons and lace cloth from donations of cast off clothing and household furnishings.<sup>16</sup> They experimented to make patchworks, cushion covers and small soft toys but unfortunately no detailed visual record survives.[fig 35]

To earn some money for themselves someone had an idea of opening a Dada-Bude [Dada stall. fig36] at the 1919 traditional Christmas market in Weimar. seen as a humorous appearance before the public.<sup>17</sup> The soft toys in particular were a great success. "We were very successful, especially with the children, to whom we gave our berets in the end, having nothing left for sale." <sup>18</sup> Does this imply that the *Bauhausmädchen* had recognised a ready popular market for their

artefacts which would earn them some much needed money rather than aiming at an intellectual elite? Perhaps the toys were radical, even subversive, and attacked the female culture identified by women making soft toys for children? <sup>19</sup> Further evidence of playthings, perhaps a development of these first toys, can be seen in the watercolour by Guntha Stölzl and later in the wooden toys produced by Alma Buschler in 1924, [figs 37- 38] and surprisingly in some small wooden puppets attributed to Albers' Vorkurs as late as 1926.<sup>20</sup>

Guntha Stölzl was a student during this time and recalls "we wanted to make living things of contemporary relevance" and while there was some frustration at the lack of technical instruction it also gave the students the freedom to experiment, to learn through trial and error and eventually to question established practice. Anni Albers wrote in retrospect

"They began amatuerishly and playfully, but gradually something grew out of their play which looked like a new and independent trend. Technique was acquired as it was needed and as a foundation for future attempts. Unburdened by any practical considerations, this play with materials produced amazing results, textiles striking in their novelty, their fullness of colour and texture, and possessing often a quite barbaric beauty." <sup>21</sup> [fig 39-40]

Georg Muche was appointed as *Formmeister* in October 1920 although he appears to have little empathy with textiles. Muche made it clear from the start that "the art of handiwork is not my thing.....I wanted to remain a painter". It is interesting to speculate why Gropius made this appointment which lasted until 1927. <sup>22</sup> Did he believe that he could dissolve the workshop by placing an unwilling *Formmeister* in charge and by doing so rid the Bauhaus of the women students? Perhaps this hostile attitude by the men challenged the women into their ultimate success. Muche publicly stated in *Blickpunkt*:

"I promised myself that I would never in my life with my own hand weave a single thread, tie a single knot, make a single textile design. I have kept my word. I wanted to be ready for painting because I knew that one day I would return to it." <sup>23</sup>

It is hardly surprising that the students felt a lack of direction from both *Formmeister* and *Werkmeister* at this stage. The timetable "of handicraft training in textile techniques" produced by Börner in July 1921 hardly reflected the principles of the Bauhaus manifesto with an uninspired list of "embroidery,

decorative edging, crochet ,sewing, macramé and weaving." The driving force came from Guntha Stölzl who began to explore the technical problems of weaving and to share her findings with the other students. Anni Albers,who joined the workshop as a student in 1922 remembers:

"There was no real teacher in textiles. We had no formal classes. Now people say to me: "You learned it all at the Bauhaus"! We did not learn a thing in the beginning. I learned from Guntha, who was a great teacher. We sat down and tried to do it. Sometimes we sat together and tried to solve problems of construction." <sup>24</sup>

Examples of the textiles produced from 1920 to 1922, now in the Bauhausbildarchiv in Weimar, show folklore motifs of stylised animals and landscapes, closely following the European hand tradition. The samples are in plain weave and tapestry technique and display tension and weaving faults often seen in the work of beginners. These early pieces have never been reproduced or discussed in the established history of Bauhaus textiles.[See Appendix Two]

Weltge comments on the textiles of the early Weimar period:

"Their execution is often amateurish. Selvages are wavy, the fabrics buckle, they are too tight...The Weimar textiles have to be examined from a completely different point of view, not a technical one but a visual one, for most of their creators already had a background in the arts." <sup>25</sup>

It is clear that these references by Weltge relate solely to the textiles published in *Neue Arbeiten der Bauhaus Werkstätten* the seventh book in the Bauhausbücher series.<sup>26</sup>

The hitherto undocumented pieces in the Bauhausbildarchiv in Weimar. must be placed on record to fully appreciate the changes in concept and technique which occurs over such a short period.between 1920 and 1922. These early woven and applique pieces use traditional folklore motifs, muted colours and imagery of everyday life.<sup>27</sup> The Kinderzimmerwandbehang [child's room wallhanging] by Ruth Vallentin is an appliqué, obviously using remnants of materials for the horses and birds shown in a cityscape with railway, gardens and buildings, the detail being embroidered with large stitching. [fig 41] The two examples of gobelin tapestry in the archive are by Guntha Stölzl [fig 42] and Ida Kerkovius, which are technically well woven but which continue to use the imagery

of birds, animals and fields. The loom weavings are generally weft faced stripes woven on fine plain warps of cotton which are completely hidden except for the fringes seen at top and bottom, a common starting point for those learning to weave. Lore Leudesdorff used these weft stripes for a series of three shawls woven in 1921.[fig 43] A change of direction can be seen in the wallhanging of Benita Otte [unfortunately undated but from the period between 1920-22], where she uses blocks of colour with the weft interrupted and returned at intervals to give a controlled yet random pattern of stripes and squares. [fig 44]. This same type of patterning can be seen in the later work of Anni Albers when she begins to use the doublecloth technique.

The question of how the students learnt to improve their weaving technique from these early examples remains. It is probable that the students referred to books and museum collections where they could study historical textiles although no formal record exists of any visits. Important textile collections were housed in Berlin and Leipzig and these may have provided inspiration for the students both in the early years and as their technical competence developed. In particular the doublecloth examples from South America, Sweden, Norway and Germany may have been studied for their patterning potential and the possibility of combining blocks of pure colour and texture. The craft based books in print at the time relied heavily on the weaving of practical household goods using traditional patterns and woven motifs. Edward Worst's book *Foot-Power Loom Weaving*, discussed earlier, was first published in America in 1918 and available in Europe by 1920, and provided a comprehensive course for hand loom weavers. In his introduction Worst acknowledges that "few lines of occupation furnish more excellent opportunity for colour combination and design than does the craft of weaving." He includes a complete chapter on double weaving as it "is such a mystery to the home weavers of today".<sup>28</sup>

While these books and examples may have served as "recipe" books for particular weaves and patterns there was a great deal to learn about making warps to the correct tension, the workings of the loom and how to correct the

technical weaving problems such as uneven selvages.

"Everything technical-how the loom works,the different styles of weaving,how to thread-we had to learn by trial and error. For us poor self-taught students there was a lot of guesswork and not a few tears shed." <sup>29</sup>

In March 1922, however, money was made available to send two students to the textile school at Krefeld which was an established school for textile technology. Stölzl attended the dye course and Benita Otte attended a cloth construction course. These short technical courses were to have far reaching effects on the weaving workshop by increasing the range of coloured yarns available and rapidly improving the standards of technical production. As women Otte and Stölzl would not have been able to enroll on a full time course at Krefeld, the centre of German textile production.

Alongside these developments the growing influence of Klee, Kandinsky and Itten led the students to original design work based on stripes and geometric forms. Without doubt the painters established an environment of abstraction which the women translated into woven form. Kandinsky's colour classes and the advice that they should discard old ways of looking was reinforced by Klee's concept of visual thinking. There are similarities of imagery to be found between the woven work of Hedwig Jungnik and Georg Muche's paintings, between Otti Berger's rugs and Paul Klee's oil paintings. There is now a distinct shift from the derivative, poorly executed early pieces to individual textiles which display an understanding of colour, rhythm and proportion.[figs 45-48]

Two untitled wall hangings by Anni Albers from 1922 and 1924 exemplify this shift by the different manipulation of stripes and blocks of colour. The 1922 hanging has stripes across the entire fabric with a slight check variation in the centre.[fig 49] However, the 1924 hanging, while using the same woven construction, has bands of random discontinued weft stripes which visually create dark open areas across the surface of the hanging. While the weaving is still loom controlled the weaver is controlling the weft stripes, finishing them at a predetermined point and returning the weft to the same selvedge. The woven

geometric pattern has been considered by Albers as crucial to the visual balance of the hanging. [fig 50].

The transition from traditional motifs to a new woven language is fully established by the 1923 Bauhaus exhibition in Weimar where the rugs, hangings and curtains produced for Gropius's office [fig 51] and the experimental Haus am Horn were favourably received by the critics. Siegfried Giedeon writes in *das werk* about the Haus am Horn

"a one storey house of reinforced concrete with a flat roof and a long row of windows almost has the appearance of a double decker: tall lamps of iron and glass tubing which seem pitiful without ribbon and lace; chairs resemble a loom; only the future can tell to what extent this radical clean-up of our romantic residues will prove itself creatively fruitful." <sup>30</sup>  
[fig 52]

It is apparent that a critical language in relation to textiles has yet to be developed. Walter Passarge in *Das Kunstblatt* reviews the exhibition using straightforward language for the crafts, although he does place more emphasis on the quality of the textiles.

"The abstract relief by Joost Schmidt in the entrance hall is an attempt to achieve sculptural values through complex stereometric forms....Among the products of the workshops there are some very beautiful woven fabrics, examples of ceramics and metal work." <sup>31</sup>

Osborn in *Vossische Zeitung* is more specific. He acknowledges the relationship between Fine Art and Craft practice but stresses the feminine attributes of the pieces and focuses on their function:

"The handwork activity now has become more decisive, purer. Above all in the textile art. That is the pride of the Bauhaus. ...The Orient has taught us how the fantasy of the eye, in the case of textiles, operates most appropriately, but these experiences are applied here from quite a different point of view. We are delighted by Agnes Roghe's rugs for the mistress's room -lovely, graceful textile compositions- and the one for the children's room by Benita Otte who, with unusual sensitivity and a naive approach, has created an article of use which charms one like a Klee rendered in fabric." [fig 53] <sup>32</sup>

Osborn may have felt alienated by the stark appearance of the Haus am Horn where the walls were purposefully left bare, [fig 54] the textiles providing a focus which he is unwilling to assess critically. He continues to marginalise the textiles- "Forgotten peasant techniques are here applied in original ways. "Designs" play



no role but, rather ,the reality of the studio work." <sup>32</sup>

It was intended that all the Bauhaus workshops should produce articles for sale to complement and finance the teaching. The weaving workshop produced more revenue than any other and, ironically, subsidised those workshops from which the female students had been excluded. It would appear that Muche took some interest in this commercial production and made "proposals for the economic organisation of the weaving workshop" detailing payment to the weavers for each specific cloth and a 25% reduction for any mistakes. <sup>33</sup> Work was difficult to organise on a production scale due to shortages of materials and the students' opposition to contract work. <sup>34</sup> Inflation during this period added to the difficulties.

The fabrics were sold at trade and craft fairs in Leipzig, [fig 55] Aachen, Düsseldorf and Frankfurt, but the technical problems with the construction prompted long correspondences between Börner and Gropius.<sup>35</sup> Complaints had been received about a fabric, *Fleischeman Stoffe* , which had been made into a dress that frayed excessively in the making-up process. The Firnau Company purchased this same fabric to make into suits and were unable to use it because of the stretching. The fabric was woven by Annelise Fleischeman, later to marry Josef Albers and to become known in less than three years for her technically perfect fine silk doublecloths.

Herr Lange was a garment manufacturer who bought a quantity of the *Fleischeman Stoffe* at the Leipzig fair and sold it onto his own customers. His letter of 25 April 1924 is specific:

"I have taken a number of fabrics woven by the Bauhaus and found the following. The warp threads are very thin and widely spaced. The wefts are mostly very strong, woollen and woven double from the shuttle so no proper binding comes into existence. The warp does not go properly around the weft and that is why when they are cut it is sliding out easily."<sup>36</sup>

It is interesting to note that the Workshop Hablik Lindemann is contacted by the Bauhaus to clarify the matter: in reply Lisbet Hablik-Lindemann states:

"The sample is woven in Swedish Rosengang technique and there are not technical mistakes. One cannot expect too

much as far as sturdiness is concerned. Before the war I used this technique on the loom in many variations but then I tried to bring out the basic fabric quite solidly-but you can stretch this quite easily. And to prove this I am sending you some of my samples." <sup>36</sup>

Börner stoutly defends the situation stating that the fabric was made for decoration purposes.

"Quite decidedly I am defending myself against the technical reproach. Before the Bauhaus I sold hundreds of metres for dresses and upholstery and solidity was never complained of. We need not test the strength of material by asking a specialist. I myself am the Herr Gropius of the weaving workshop." <sup>36</sup>

If this statement was true why did the students complain of no technical instruction in the workshop and why these basic weaving faults? The answer may be that Börner had only a limited knowledge of traditional patterns and technical problems. The atmosphere in the workshop must have been tense. She continues:

"The weavers make my fabric and are subordinate to my experience. The richness of my workshop, my readiness to meet every wish of the students when they want to do fantasy bindings-how can I express it?-the peculiarity of the Bauhaus people. Bauhaus people are creative and find it unbearable to be exposed to any force outside. But I have no power against this phenomenon." <sup>36</sup>

Börner's contract was not renewed in 1924 at the end of the Weimar period when Anni Albers, writes in a supplement to *Neue Frauenkleidung und Frauenkultur* [New Womens' Fashion and Culture] that

"The traditional style of living is an exhausted machine which enslaves the woman to the house. The bad arrangement of rooms and their furnishings [padded chairs, curtains] rob her of freedom, restrict her development and make her uneasy. It is not enough to improve old forms. that is merely to give an old dress a new hem.....Compare our dress: it meets the demands of modern rail travel, hygiene and economics [you cannot travel by rail in a crinoline]. The optimal form demands mass production. Mechanization also means economy." <sup>37</sup>

This philosophy was to be crucial to the development of the weaving workshop during the following six years.

## [ii] Dessau Bauhaus. 1925 - 1932

The transfer to Dessau enabled Gropius to appoint *Jungmeister* who were trained in Bauhaus ideals to the various workshops. The weaving workshop was now under the direction of Guntha Stölzl with Muche continuing as Formmeister. Muche had published an article in the first edition of the Bauhaus journal in 1923 entitled *Fine Art and Industrial Form*.

"After an extraordinarily significant period of creative interchange between two fields that are intellectually at opposite poles, it appears that the close contact between modern art-especially painting-and the technological development of the twentieth century must lead inevitably and with surprising consequence to mutual rejection."<sup>38</sup>

This completely undermines the achievements of the weaving workshop which was then producing textiles which brought contemporary art and industrial form together.

Relationships with the students further deteriorated when Muche purchased inappropriate looms; "Muche returned Saturday evening from Berlin in a truck with seven looms which he had bought at an outrageous price, to the horror of poor Guntha." <sup>39</sup> The students found him to be "dispensable for the workshop" finally causing his resignation in 1927. <sup>40</sup>

The workshop under Stölzl now had an established order and greater discipline in the move away from the "garden pictures" of the Weimar period to the "models for industry". <sup>41</sup> The wider range of looms was used for experimenting, designing and production.[fig 56] Students now learned every stage of the production process from dyeing, yarn construction, weave theory and design. Contacts with industry began to be established and the Workshop was set to become one of the most important Bauhaus industrial enterprises.

It is interesting to analyse the range of fabrics produced at Dessau and compare the proportions and rhythms of the designs with the new Bauhaus building completed in 1926. The weaving workshop was on the second floor of the glass-faced workshop block and must surely have influenced the students working there. If you are to design a product based on proportions and grid structures and

then move into a new building in black and white then surely this will influence your work? [fig 57] A large proportion of the textiles reflected this theme not only in the work of Albers but Stölzl, Grete Reichardt, [fig 58] Lis Beyer and Otti Berger. The textiles from this period developed a clarity of expression and fitness for purpose. Perhaps Gropius, in designing the new Bauhaus building, had inadvertently inspired the women by providing such an environment. Wall-hangings, carpets, covers and yardage were now composed of linear designs and geometric shapes in the spirit of abstract art with an interplay of colour and texture. There was no need for decorative additions or trimmings. The textiles were designed to enhance the structural qualities of the yarns and the newly available materials such as rayon.

Running in parallel to the production side was an experimental workshop where students could still make "fantasy bindings".<sup>41</sup> Most importantly the classes by Klee continued to be a catalyst in this change from the narrative tapestry tradition to contemporary designs for industrial production. Stölzl's influence must not be underestimated; "Woven fabric constitutes an aesthetic entity, a composition of form, colour and material as a whole. Today in all fields of design there is a quest for law and order."<sup>42</sup>

Klee's aim was for the students to explore proportion, pattern and colour theory. In the third semester "Black and White Colour Scales" was followed by "Formal Expression with light and dark." The students had to translate these ideas into woven designs with Klee himself criticising the fabrics. "There was some criticism of the weaving materials; an eminent number of new ideas were introduced, some particularly good. Women can be extraordinarily hard working."<sup>43</sup>

The implicit devaluing of their achievements is surprising as Klee was supportive of the work, indeed he purchased several items to furnish his home.[fig. 45] Perhaps this was his ulterior motive? Wingler reinforces this male superiority when he discussed Klee's "profound lectures on the principles of artistic design" and "despite the substantial ideas contributed by him, the

development of the weaving workshop was primarily based on the work of Guntha Stölzl and her co-workers among the students." 44 I consider the work by Stölzl and Klee to be mutually supportive and would reject further references by Wingler that the women could not benefit from Klee's "profound lectures" as they did not possess the required intellect.

Unfortunately Stölzl herself confirms the prevailing prejudices against women by stating "Weaving is primarily a woman's field of work" 45 and Helene Nonné-Schmidt, married to sculpture Formmeister Joost Schmidt, places women's creative activities firmly in the two dimensional field:

"The artistically active woman applies herself most often and most successfully to work on a two dimensional plane. This observation can be explained by her lack of the spatial imagination characteristic of men".

Nonné-Schmidt studied with Klee and in the weaving workshop she had an ideological vision of "entirely new materials that correspond to woven fabrics- being capable of being dyed, and produced in any size, being elastic, easily divisible, being soft and, most of all, economically advantageous." 46 Why do these visionary, creative women undervalue their achievements in relation to their male peers? Did they not consider that their intellectual capacity in the concept of designing and then making a fabric was equal to that of a male painter? Did they never compare the techniques of painting with those of weaving and determine which was the harder? Even as late as 1930 Hannes Meyer the retiring director stated "As carpets on the floors lay the psychological complexes of young girls".47

In 1926 Stölzl and Albers begin to use the jacquard loom and the doublecloth construction to develop wallhangings assisted by the newly appointed technical assistant, Kurt Wanke.[fig 59] The appointment of this technician, familiar with all types of loom and fabric construction, provided the technical expertise crucial to the development of doublecloth at the Bauhaus. Wanke would have been familiar with Jacquards Gobelins, machine woven doublecloths imitating traditional Gobelins, produced in great numbers around the turn of the century, and scorned by hand weavers. The revival of this type of work in prototype form at the Bauhaus indicates clearly the difference between the

Bauhaus and textile departments in other art schools which refused to accept automation of the weaving process keeping to the hand-spun, hand-woven tradition.

A change in weaving procedure occurred with the arrival of Wanke with the making of longer warps be put onto the loom. Dressing the loom with a long warp is an established industrial practice allowing several variations of a fabric to be woven on the same loom or to enable the weaving of long pieces of identical fabric. Handweavers tend to dress the loom with shorter individual warps allowing more flexibility and variety of design as the warp can be frequently changed. It is certain that Wanke introduced the practice of long warps to the workshop and it raises the issues of who designs the warp and as a consequence influences the output? - workshop or student?

During 1926 Albers begins to weave the series of silk doublecloth hangings which were to establish her reputation, the first completed in October 1926.[fig 63-66] Two other students, Ruth Hollos and Gertrud Arndt-Hantschk, later wove variations on the same warp.[fig 61-62] This appears to have caused a slight problem at the time but only causes real concern in 1961 when the Bauhaus museum is to be established by Grote. Albers' letter to Stölzl explains this concern:

"To my surprise now Grote in Nurnberg showed me a piece that Ruth Hollos once made after me: on my special warp, the same principal of doublecloth, also the same pattern on the machine, same width, nearly the same length, also silk, only slightly different colours in the weft somewhat slightly moved rectangles but still very much the same, even at that point to my designs. Grote's team was astonished as I told them the story of this little piece. You will certainly remember the situation. I was strongly disturbed about the invasion of my language of forms that I built up slowly through many variations in many different designs. {By the way there are reproductions from this time, in fact two, in the publication of Sonia Delauney: *Tapis et Tissus*, with my two pieces.} That these works are Anni Albers' rightful known works, I have to clear this now so there will be no doubt afterwards, in order that they are not doubted some time later and I appear to be the one following on. Would you please write a letter that clears the matter in a form I could show to other people, for instance Grote?"

In a rather cool reply Stölzl provides the required documentation:

I would like to explain here, as the former Master of the Bauhaus, Dessau, that the wallhangings of Frau Anni Albers "Doubleweave" spun silk materials were developed in the years 1926-1928 only by Frau Anni Albers, and also made by her. Similar doubleweaves of this kind which have also been developed in the textile class of the Bauhaus, are following on.<sup>48</sup>

Research has established that Albers was the first to use the doublecloth technique for wallhangings, and her doublecloth *Untitled Wall Hanging 1926* remains the first documented hanging.[fig 63] However, it is certain that others did use the structure at the same period, amongst them Stölzl, Hollos, Berger and Reichardt, although in her subsequent writings Albers neglects to acknowledge this.

The potential for patterning and colour inherent in the doublecloth technique must have been a catalyst for all the students to produce geometric hangings with clear cut boundaries between one section and another. Was Albers the first to generate this idea or was it her position as faculty wife that enabled her to use the loom first, with the other students "following on"? It has become well known that Albers was a proud woman and had few friends at the Bauhaus, perhaps she also alienated herself from her colleagues in the weaving workshop by her marriage to Josef Albers with its attendant privileges?

Stölzl had already designed the brown and white doublecloth bedcovers for the students' accommodation in the new Dessau building with 28 being woven in the workshop in 1926.[fig 67-68] The design and samples for the blankets may have been produced in 1925 as the Dessau building and interior were planned and it is probable that Stölzl was the first person to sample weave the structure in the workshop. This large woven production of 28 blankets would have involved all the students in the weaving, consequently learning the technique together. The Stölzl blanket design relies on horizontal and vertical asymmetrical stripes: the doublecloth structure itself would have been chosen for the weight of two layers and for its thermal qualities.<sup>49</sup>

The doublecloth technique requires a high degree of technical competence to weave correctly and will produce a crisp clear surface with pure colours,

particularly if silk is used in both warp and weft, quite unlike the texture and colour of a Gobelin tapestry. This structure gave Albers the perfect woven medium to produce the stark black and white hangings, indeed the geometric images of squares and rectangles created were influenced by the technique itself. In addition to the patterning potential in a doublecloth fabric the contrasts of the tactile surface suggests new possibilities: a fine silk doublecloth fabric is supple and hangs better than a traditional wool Gobelin tapestry: it is also much quicker to weave and can be woven in any number on an industrial power loom if required.

The Albers' hangings are all woven on the same warp threaded into twelve separate blocks of about ten centimetres wide, which cannot be changed during the weaving process. If woven in plain weave this warp would give ten centimetre stripes along the entire fabric. In double weave the stripes will still be apparent but the underneath fabric layer can be brought to the top to break the stripes up into blocks of colour. The consideration of the weft pattern is important here as it can be varied at will to produce short or tall rectangular units in any desired number or repeat. Albers elongates the units as the series develops. The first hanging *Untitled 1926* [fig 63] has nine blocks measuring twenty centimetres high, *Black-White-Yellow 1926* [fig 64] has seven blocks twenty three centimetres high and *Black-White-Red 1927* [fig 65] has six blocks each twenty seven centimetres. The rectangular units are either solid colours or stripes with the weft stripes sometimes extended over the next block. The apparent simplicity of the designs is soon dismissed as the observer tries to analyse the pattern and establish an order to the blocks.

*Black-White-Grey 1927* [fig 66] uses square blocks of colour rather than rectangular units of striped pattern, with an occasional thin graphic line woven through the centre. There is no apparent focal point to the hangings: the rectangles and lines lead the eye across the entire surface to observe the subtle nuances of colour by weaving first one colour on white, then on black, with a second colour repeating the process. The design is based on repetition: repetition of form and colour but with a shifting of the pattern so that it becomes difficult to



follow the paths of the threads. The three pattern units are threaded in the sequence A, B, C, A, C, A, B, C, B, A, C, B, which allows blocks in the weft to be woven 1, 2, 3, or 4 units wide. An immense variety of blocks are now possible in the weaving, as further variations can occur in the weft as the fabric is woven. Analysis of this hanging shows it to be complex in conception and execution:

The doublecloth hangings woven by Arndt and Hollos on the same striped warp that Albers used must also be considered as they use the identical warp. The hanging by Arndt [fig 62] uses squares of five colours- black, white, orange, peach and yellow. The squares of colour appear to be random, almost floating in space, yet to be woven they must conform to a system which is not immediately apparent. The Hollos weaving [fig 61] does appear to be similar to the striped units which Albers uses [hence Albers' concern] but Hollos uses more colour- red, white, yellow, a little black and shades of blue and grey. The effect is complex and vibrant with horizontal bands of strong colour crossing the hanging making the striped vertical units appear to hover in the background.

These doublecloth hangings are radical as they are woven within the laws of the twelve harness loom but appear to use the labour intensive tapestry technique and the costly Jacquard system to produce the complex pattern areas. There would appear to be two important factors here: one, that in the accelerated pace of an industrial age the time factor is an essential element of the design process; two, that there are underlying mysteries in traditional equipment which can still be explored. The realisation of these factors develops a woven art form with each student manipulating the warp on the loom in their own style.

There is no reference to Albers as an individual in the Bauhaus archives apart from her enrolment in 1922, the problematic Fleischmann Stoffe and thirteen woven articles in the inventory of 1925, mainly cushion covers and scarfs.<sup>50</sup> It would appear that she was no more talented than any of the other students and definitely not a leading force until around 1926. This does lead one to consider the possibility that her marriage to Josef Albers in 1925 not only gave her the privilege and status of faculty wife, but the opportunity to develop her creative work

alongside the *Vorkurs Meister*. Her designs from 1925 rely on black and white colour changes, blocks of tone and stripes-similar to the compositions of her husband. Perhaps they both worked together or were both influenced by the teaching of Klee? Would it be fair to say that Josef Albers influenced his partner or did Anni Albers use the principles and proportions of weaving, thereby influencing her partner? Neither has publicly acknowledged the influences upon each other at this stage of their life together. It is of interest to compare the composition of Josef Albers' *Lattice Picture*, 1921 with Anni Albers' *Black, White, Grey* doublecloth of 1927. Both artists use square blocks of tone with thin lines of colour or texture crossing the squares to lead the eye across the composition.[fig. 70]

In black and white reproductions the works in fibre and stained glass by these two artists between 1925 and 1927 appear identical. Later critics have mentioned the *similarity* between the works but have chosen not to explore their identical nature. Perhaps the two artists were working on the same project at this time? It is known that in 1927 Anni, along with other students in the workshop, was working on designs for hangings in the Dessau Theatre-cafe and for a theatre curtain in Oppeln <sup>51</sup> which strongly resemble the frosted glass panel *Fuge* made earlier by Josef in 1925.[figs 71-72] It is hard to determine the destination of this glass panel but it may well be intended for one of the theatres, complemented by the hangings and curtains. This lack of documentary evidence suggests the glass panel was to be judged an art work, [after all it did have a title] whereas the woven hangings, as craft, were to be judged in relation to their environment.

The almost identical nature of the work of Anni and Josef Albers between 1925 and 1927 can be clearly seen in the Smyrna [tufted] rug design of 1925 [fig 73] and the glass picture of 1926 [fig 74]. The blocks of striped pattern are balanced into light and dark areas, the main difference being the squarer proportion of the rug. In *Untitled wall hanging 1925* [fig 75] and *Upward 1927*, [fig 76] a sandblasted glass piece the similarities are even more striking as the proportions of the works are similar. There is a second *Untitled wall hanging 1925* [fig 77] which marks the step between Albers using the gobelin tapestry technique

and doublecloth to produce these woven blocks of colour. The Josef Albers *Overlapping 1929* reflects this interplay of long stripes which appear to hover on a dark ground [fig 78].

The lack of specific titles for the woven hangings of the Bauhaus is an interesting issue. Anni Albers' weavings are called by either the function or the technique as in *Untitled wall hanging 1922*, *Woven rug 1927*, *Double woven wall hanging, silk, 1927*, *Tapestry in black and white and different tones of grey, 1927*. In contrast the early glass panels by Josef Albers are identified with specific titles conveying the status of art rather than craft objects with *Lattice Picture 1921*, [fig 70] *Glass Picture 1926*, moving towards the titles of *Upward, 1927*, *Under Water, 1928* and *Overlapping, 1929* [fig 78]. It is only later in America that Anni Albers begins to shift the status of her work into "pictorial weavings" and to identify them by name, for example *Play of Squares* a doublecloth of 1955.[fig 88]

It is difficult to ascertain the exact number of doublecloth hangings produced by Albers in the period between 1926-29, mainly because the titles differ in each catalogue, museum index or publication. In reproductions the hangings appear visually similar; in addition the term "Untitled" followed by a date is hard to catalogue for research purposes. Are we referring to the same untitled piece or is this a different untitled piece? The problem is exacerbated by reproductions in catalogues and books which are often printed upside down or sideways, sometimes heavily cropped, and credited with different dates.<sup>52</sup> After careful analysis it comes as a surprise to identify the exact number of doublecloth hangings produced by Albers as just four, with two stated as being woven in different colourways.

The doublecloth hangings woven by Anni Albers between 1925 and 1927 at the Bauhaus were undoubtedly intended as masterpieces in the guild sense to demonstrate technical competence, craft skills and aesthetic considerations. However these were not the pieces for which she was eventually to receive her Bauhaus diploma in 1930. The doublecloth hangings were most probably examined for Albers' journeyman's diploma in 1927 which was taken before the

Weavers' guild in Glauenhau, as the Bauhaus staff were unable to examine the students for this examination.

The colours that Albers used in the hangings were mainly black white, grey and neutral tones with the occasional graphic line of primary red. Despite the new workshop facilities in Dessau there was a continuing problem with lack of materials which directly affected " the style of the textiles, in particular their colours." The dye workshop, supervised by Lis Beyer, dyed yarns in large batches so that many weavers had to use the same colours. Albers found it difficult to work with "what was there, without a personal choice. I wanted sometimes just a skein or two but that was not possible, and often the available colours were not very subtle." <sup>53</sup> This limited palette of yarns and colours would have made the designing process more difficult. It is interesting to speculate whether Georg Muche was deprived of a wide range of paints.

Doublecloth was never a central activity in the weaving workshop but now that the earlier problems in Weimar were overcome and a technician appointed, students were able to use this complex woven structure. The Bauhaus provided the ideological environment for a conceptual change in weaving: the women of the weaving workshop used their skills and intellect to confront the boundaries between craft, art and design ideologies by using the doublecloth structure.

It has been suggested elsewhere <sup>54</sup> that new weaving structures were invented in the workshop but this was clearly not the case, the students evaluated and developed known textile techniques by creating an interest in the appearance, colour and structure of the fabric itself.[fig.79] It should be identified here that not all varieties of the doublecloth technique were fully exploited at the Bauhaus although their full potential in industrial production must have been fully understood by Wanke.

The weavers at the Bauhaus used doublecloth for its visual effect, as a medium to translate their abstract designs into textiles, as part of a broader experimentation with woven structure. As their concerns changed towards experimenting with new fibres they simplified the weaves to allow the qualities of

these new fibres to become apparent. The introduction of unorthodox materials such as cellophane and lurex were to develop new fabrics with specific properties and establish a new concept of the role of textiles in interiors. At times it was appropriate to use a stitched doublecloth structure to combine two woven surfaces but in general the simpler weave structures were preferred.

The Albers doublecloth hangings now in the Bauhaus Archiv Berlin are not original pieces, they were re-woven in 1964 due to the renewed interest in hand weaving in Germany. I admit to feeling disappointed when I learnt that the pieces were not original. The gallery labels give the name, title and date of the work in an identical way to the paintings: one could reasonably expect the work to have been produced by the person identified at the date stated. It is clear to me that the paintings by Klee, Kandinsky and Josef Albers would be considered to be fakes if someone had later copied them.

The issue of re-weaving textiles raises the ambiguities of definition concerning original work by an artist or maker. Is the work original only when it is a one-off piece, when does it become a copy or a fake? <sup>55</sup> For example when the Bauhaus left Weimar in 1925 the Weimar Kunstsammlungen [Weimar Art Museum] claimed ownership of several of the Bauhaus weavings. Gropius asked Helen Börner to weave exact copies of the pieces in question and both sides were then satisfied. If this was established and accepted practice in textiles why should it not be accepted in painting or in the products of the ceramics and metals workshops? This stresses the hierarchy of practice between Fine Art and Craft, and, within Craft itself the hierarchy of the Craft disciplines.

Droste explained that Albers was approached by the Bauhaus Archiv to re-weave the silk doublecloth hangings but she declined to do so.<sup>56</sup> According to Albers the only original hanging she knows of is *Untitled Wall Hanging 1926*, [in black, grey and green], complete with the gouache study, now in the Busch-Reisinger Museum at Harvard University purchased by the Germanic Museum Association Fund. Two doublecloth hangings from the *Black White Red 1927* and *Black White Grey* series were sold to German collectors and are now lost. They

were originally woven by the artist in duplicate, thus forming an identified 'series' as Albers had stated on the gouache studies now in MOMA, New York.

Albers discusses the reweavings of 1964 in an interview with Mary Jane Jacob, curator of the Museum of Contemporary Art, Chicago. Jacob makes no comment about the work being remade. "An edition of five weavings based on the *Black-White Grey* composition was reissued with her approval in 1964 at the workshop of Guntha Stölzl in Switzerland using 50% cotton and 50% silk thread. At the same time *Black-White-Red* and *Black-White-Yellow* [neither of which today exist in original form] were also produced by the Stölzl workshop, apparently in editions of five each." This has led me to renewed speculation about the original weaver -"she may have sat at the loom to weave but not planned the piece [i.e.technical planning of the loom],as the Bauhaus had technical assistance in this period." <sup>56</sup>

As Magdalena Droste suggested Anni Albers was probably more concerned with "the aesthetics of the problem. Doublecloth gave her the opportunity for clear sharp colours much better than the Gobelin technique." This must mark an important change in the use of doublecloth where a hand-crafted textile is intended by the maker to be seen as an art artefact. Albers made doublecloth her particular concern between the years 1926-1928 yet surprisingly there are no technical notes or drafts, nor a range of samples. <sup>57</sup> . Albers may have discarded the technical notes as unimportant although most weavers consider the keeping of records crucial to the design process. The gouache paintings are visual not technical designs and it may be that Albers worked directly from these paintings with the help of the technical assistant. The Bauhaus Archiv, Berlin knows of only one original example surviving in Germany in a private house near Aachen. <sup>58</sup>

Whether Albers did the entire planning of the piece, the winding of the warp, the threading of the jacquard loom, and the punching of the cards is immaterial. What matters is the concept and ideological standpoint behind these doublecloth fabrics. "The Gobelin and wall decorations are not functional objects. Other standards apply to them; they exist in the area of free artistic expression which is

nevertheless determined by the weaving process." <sup>59</sup> This is exactly why Albers chose doublecloth, using blocks of pure colour and a clear flat texture to make the weaving lose its textile identity and appear similar to a painted surface.

In 1928 when Gropius left the Bauhaus to concentrate on his architectural practice Meyer became the second director of the Bauhaus. Meyer redefined the goals of the workshops: now the design activity was oriented to mass production related directly to architecture. The individual "artistic" pieces of work in the weaving workshop became marginalised with students now collaborating on samples for furnishing fabrics, wall coverings and curtains for the new interior spaces and large windows. The students developed and exploited the possibilities of new yarns and textural weaves. These experimental fabrics used aluminium, metal alloys, glass fibre and the recently developed synthetic cellophane. The way that work was presented for sale changed in line with the new philosophy.[fig.80] Small fabric samples were numbered and mounted onto boards showing the options within the pattern, the price and the availability.<sup>60</sup>

The status of women and their artistic output was discussed in *Die Frau als Künstlerin* [Woman as Artist] 1928 by the art historian Hans Hildebrandt, the estranged husband of Lilly Hildebrandt who had lived with Gropius while still married. Hildebrandt obviously knew the women of the Bauhaus circle and this book did little to further the cause of equality of women in education, the workplace or marriage.

"The characteristic of female creativity is already evident in childhood: the delight in colour.....the sense for surface decoration, orderliness in smallness, the inferior talent for spatial representation,.....the tendency for the superfluous."<sup>61</sup>

This trivialising of the seriousness of the women's involvement raises questions as to the underlying prejudice at the Bauhaus. At this time the weaving workshop was designing the structural textiles which were to become justly famous as excellent examples of industrial design.

Did these views reflect the group thinking at the Bauhaus in which the status of women was seen as secondary? Were the women disturbed by these chauvinistic views, did they treat them with contempt or laughter? Hildebrandt

continues: "the language of form itself is the invention of man- the female understands to chatter in it charmingly." <sup>61</sup> Albers was later to write:

"in ancient myths from many parts of the world it was a goddess, a female deity, who brought the invention of weaving to mankind. When we realise that weaving is primarily a process of structural organization this thought is startling, for today thinking in terms of structure seems closer to the inclination of men than women." <sup>62</sup>

It may be that these attitudes towards women were generally accepted at the time which makes the success of the women in the weaving workshop even more exceptional.

In 1930 Albers received the Bauhaus diploma not, as already mentioned, for her doublecloth hangings but for a sound absorbing wall covering designed for the auditorium of the Trade Union Headquarters in Bernau.[fig 81] Hans Meyer was the architect and when the auditorium was built it had an unforeseen echo which needed a thick textile wallcovering to absorb the sound. The wallcovering that Albers designed had a cellophane front for increased light reflection and a chenille back for sound absorption, woven in a stitched doublecloth. The exact structure is difficult to establish as no weaving draft remains, although data exists from Zeiss-Ikon who tested the physical properties of the fabric.

This fabric represented a change for Albers into structural fabrics and even fifty years later she speaks of it as 'something I am really happy to sign with my name, for that was a completely new approach.' <sup>63</sup> That she chose the doublecloth structure is significant- it represented the only woven technique which could effectively combine two different surfaces into one fabric, thus providing two separate functional qualities in one cloth.

While the weaving workshop was designing industrial prototypes in line with Meyer's aspirations, there was friction within the workshop. This centred on some students condemning the 'decorative' fabrics of both Weimar and Dessau, where the visual emphasis lay in stripes and geometric patterns, and their belief in the new 'structural' fabrics where the texture of the yarns was displayed in the structure of the weave. This friction, by debating the role of weaving, was to establish a new textile critique within the Bauhaus itself. Albers' work at the



Bauhaus was in both the 'decorative' [doublecloth hangings] and the 'functional' [Bernau fabric] category; she was later to debate this dichotomy of weaving- free artistic expression versus fitness for purpose- in her influential written work between 1950 and 1965.

Weaving at the Dessau Bauhaus was an intellectual undertaking which combined technique with a thorough understanding of the contemporary design aesthetic. Initially work with textiles was strongly directed towards arts and crafts and traditional motifs but this was abandoned in favour of a new industry-oriented approach to the design process. Droste summarises the situation:

"These were achievements brought about by women; developed on the basis of the innovative concept of the Bauhaus. History therefore proved the male fear of 'feminine' art to be unfounded. This fear seems to be invented in order to restrain women and to ensure they never outnumbered the men." <sup>64</sup>

That weaving was always listed last on the curriculum underlines the position assigned to it by men at the Bauhaus. That the products of the weaving workshop were undervalued artistically and considered marginal to the products of other workshops can be clearly identified in the established history of the Bauhaus.<sup>65</sup> Bauhaus textiles were enriched by incorporating the pure colours and abstract forms of painting: the doublecloth structure allowed technical and design strategies to become integrated into an automated process, thus providing a new visual language for woven textiles.<sup>66</sup> Against this background Albers used doublecloth as a means to shift the focus of weaving from a Craft activity to both a Fine Art and an industrial design activity, thereby establishing a new forum for the role of textiles .

## **Part Two. Beyond Bauhaus Experience.**

### **[i] Anni Albers: A Philosophy of Weaving.**

"My beginnings were far from what I had hoped for: fate had put into my hands limp threads! Threads to build a future? But distrust turned into belief and I was on my way." <sup>1</sup> The catalogue foreword to Anni Albers' retrospective exhibition at the Renwick Gallery of the Smithsonian Institute in 1985 reveals her underlying philosophy.

"My interest was caught in various ways- experimenting with yarns newly developed; working on architectural projects; concentrating on practical use with my main focus on construction; making samples for machine production; suggesting new uses of textiles in interiors, such as space dividers and wall coverings; treading new ground with light reflecting and sound absorbing fabrics. In fact, experimenting all along".

This statement, however, relates only to her last year at the Bauhaus curiously making no reference to the doublecloth hangings.

"I have always headed in the direction of art. All art is form in some material, and work with material, the making of art, will make us happier, because to comprehend art is to confide in a constant."<sup>2</sup>

Can we understand from this that in retrospect Albers did not see her textile work at the Bauhaus as art but as a pathway towards the art of the pictorial weavings of 1940 and the Graphic art of the 1960s "in which I could leave behind me the limitations inherent in any craft."? Why is Albers apparently dismissive of the doublecloth hangings?

Indeed when the retrospective exhibition was proposed Albers had no interest in being remembered for her early woven work. In his introduction the Director of the Renwick Gallery states that "only reluctantly did she agree to let staff pursue preliminary research to propose exhibition content" and acknowledges that her "artistic production in fiber has been small". This statement is true: yet it is also true that "Anni Albers was among the handful of artists in this country to demonstrate that modern art could be made on a loom" <sup>3</sup>.

Anni Albers emigrated to America with her husband Josef in November 1933 after the Berlin Bauhaus closed due to the pressure from the Nazis.

Accounts vary concerning the emigration details and the offer of teaching positions at Black Mountain College. From Anni's account the American architect Philip Johnson, who admired her textiles, met her one day in a street in Berlin and suggested that she and Josef should go to America. Later in New York he heard that Black Mountain College was looking for art teachers and subsequently posts was offered to both Anni and Josef, although Josef spoke no English. Johnson later commented that her industrial textiles were their passports to America.<sup>4</sup>

Their arrival in New York was documented by photographers- "The wife. Let's get the wife, too"- and by an article in the *New York Sun* of 4 December: "Frau Albers Likes to Play with Warps and Woofs, and She Can Weave a Lovely Fabric Out of Straws." This was a reference to a straw hat which Albers had bought on her honeymoon in Italy in 1925 and which she later unravelled to provide thread for an experimental Bauhaus sample.

"She was attracted to its aesthetic appeal, Simplicity, and luster; to its practical application, since it was light reflective and could be cleaned by brushing; and to its open texture, which would be undamaged by nail holes, making it suitable as a wall covering." <sup>5</sup>

Whether this trivialising media attention prompted Albers to establish her woven work within the Fine Art arena is hard to determine but the first weaving she produced in 1934 was *Untitled Pictorial Weaving* .[fig 82] What remains certain is the hierarchy of the 'art' world and the lesser value bestowed on 'craft'; Albers mounted and framed her works to identify them clearly as art. Although geometric in style with Bauhaus overtones this first pictorial weaving has a homespun, rough textured quality quite unlike the previous crisp structured surfaces. While some critics have suggested that the work from this period "is serene and soothing, its slightly rough texture warmer and earthier than the smooth finish of the Bauhaus pieces. ....The edges are softer, more yielding, even organic",<sup>6</sup> it could be argued that without the help of a technical assistant Albers was unable to weave fabrics to the same technical standard as before.

The uneven selvages are reminiscent of the technical problems from the early Weimar pieces, the sizes are small, 53 by 65 cm and 40 by 48cm, often

sewn onto a backing cloth before framing. While it could be argued that small handlooms and the limited availability of raw material in some way limits the freedom of the weaver, I feel that this is not the case. Here we have a Bauhaus trained weaver, part of the institution for ten years, capable of complex answers to technical weaving problems but quite unable to weave them without the support of the Bauhaus infrastructure. Lenor Larsen, trained at Cranbrook Academy of Art, comments on this change in the nature of Albers' work:

"The accelerated sense of time, the limited size and complexity of looms, the absence of apprentices or artisan assistants, the isolation and the lack of support of patronage all served to make her Art fabrics smaller and less formal." <sup>7</sup>

The interesting point here is that Albers chooses to call the work 'pictorial weavings' at precisely the moment when they cease to be so. The fabrics are small static samples instead of large hangings; they have lost the balanced abstract shapes and instead focus on the "vigorous texture " and "subtle shading of colour" of the weaving itself.<sup>8</sup> This raises an important issue-as *framed art* held taught behind glass these very qualities of surface texture and colour become harder to distinguish, drawing the viewer away from the inherent qualities of the textile medium. Albers explains:

"The usefulness of woven materials have made us see in them first something to be woven,walked on,sat upon,to be cut up,sewn together again,in short,largely something no longer in itself fulfilled. To let threads be articulate again and find a form for themselves to no other end than their own orchestration, not to be sat on, walked on, only to be looked at, is the raison d'etre of my pictorial weavings." <sup>9</sup>

If Albers has now lost the technical support she needed in her practical work she is set to establish a critical debate on the interface between the practice of Fine Art and the practice of Craft,and later between Art and Industry.

In *The Weaver* of 1941 Albers discusses the parallel arguments of weaving for industry and weaving as Art which sparked a lively debate amongst the members of the Handweavers Guild. A reply was printed : "It's Pretty- But Is It Art?" by Mary M. Atwater ,a well known writer and weaver of traditional doublecloth coverlet designs, who was unable to connect weaving to industry, architecture or to art. "Essentially we weave because we like to do it, and in a

secondary way, because we like to have our own beautiful textiles, made with our own hands, for the greater comfort and seamliness of our own lives."<sup>10</sup> Albers was not to become a role model for the Handweavers' Guild: her ideological standpoint was to inspire successive generations of students who became critically involved in the design concepts of weaving.

At Black Mountain College Albers established a weaving workshop similar to that of the Bauhaus where students wove and sold products to become self supporting, as well as allowing free expressive weaving. "One of the areas that was stressed was not to be a craftsman but to be a person who would influence the larger scope of design, and primarily in industry. Anni Albers was an exceptional teacher in that she had a totally intellectual approach and she was very articulate." <sup>11</sup> Students at Black Mountain used doublecloth in their work producing hangings similar in effect to those woven by Albers in 1926. [fig 83]

Albers' replacement in 1948 was Trude Guermonprez who had studied at the School of Textile Engineering in Berlin and worked as a production handweaver in the Netherlands and was fully conversant with the doublecloth technique. From the accounts of the students who knew both Albers and Guermonprez it is clear that the latter could explain weave constructions, including doublecloth, in a clear and precise manner, enabling students to develop the techniques, whereas " Albers' concern was with the development of ideas, not with small details."<sup>12</sup> Guermonprez wove a reversible stitched doublecloth as a prototype for industrial production in the 1950's. [fig 84]. In 1971 she uses the technique for a self portrait hanging *We are but two shadows* which has a stencilled warp showing two profiles of an old and young woman.[fig. 85]

Albers' essay on Bauhaus weaving in the book published to coincide with the 1938 Bauhaus exhibition at the Museum of Modern Art became a standard work in America and England, establishing herself as the most important member of the weaving workshop. In the book twelve out of the seventeen textiles illustrated were her own <sup>13</sup> presumably as Albers had assisted Bayer and Gropius to assemble the exhibits and few other Bauhaus textiles were available in

America. The influence of these textiles has been considerable and remain the most critically acclaimed fabrics that Albers produced. One reason for this is that the doublecloth fabrics reproduce extremely well in black and white losing none of their definition: they are instantly recognisable as Bauhaus, and became instantly recognisable as Albers. The other textiles in the book, mainly the textural industrial samples, did not have the same visual impact. Until the English translation of Wingler's *Bauhaus* in 1969 there was no other publication which dealt with the textiles of the Bauhaus, this catalogue from the 1938 exhibition remaining the sole source.

Albers' essay in the catalogue discusses the early years of the Bauhaus where

"those starting to work in weaving or in any other craft were fortunate to have had no traditional training. It is no easy task to discard conventions, however useless..... This freedom of approach seems worth retaining for every novice. Courage is an important factor in every creation; it can be most active when knowledge does not impede it at too early a stage."<sup>14</sup>

She compares these beginnings with the later samples for industry where "concentration on a definite purpose now had a disciplinary effect. The physical qualities of materials became a subject of interest. Light reflecting and sound absorbing materials were developed. The desire to reach a larger group of consumers brought about a transition from handwork to machine-work: work by hand was for the laboratory only; work by machine was for mass production."<sup>14</sup> It is worthwhile considering here Wingler's comments on this period

"the weavers' readiness to assume responsibilities grew, as did their willingness to conduct experiments of lesser artistic challenge, such as designing prototype textiles for industry."<sup>15</sup>

Albers, however, makes it perfectly clear that these new textiles required an intellectual involvement with materials and technique which informed the process of design. Wingler chooses to record this as a "*lesser* artistic challenge".

Other essays by Albers followed in the *Magazine of Art*, *Design Magazine*, *Craft Horizons*, and *Perspecta*, the *Yale Architectural Journal* where she debated the relationship between art, craft and civilisation. These critical writings were later collected into *Anni Albers: On Designing*, published in 1959 which was read all

over the world and retains its topicality to the present day. In the essay *Work with Material* [written in 1938] she explains

"We use materials to satisfy our practical needs and our spiritual ones as well. We have useful things and beautiful things-equipment and works of art. In earlier civilisations there was no clear separation of this sort. The useful thing could be made beautiful in the hands of the artisan, who was also the manufacturer."<sup>16</sup>

She makes no explicit reference to textiles but this was clearly understood by her readers.

During this time Anni and Josef Albers had travelled to Mexico and Peru and begun their collection of pre-Columbian miniatures. Albers studied the multi-layered fabrics of Peru at source and would have known these doublecloths from the ethnographic collections in Berlin: "practically all known methods of weaving had been employed in ancient Peru, and also some types now discontinued. Early Peruvian weaving must be recognised as surpassing in inventiveness of weave structure, formal treatment, and use of colour, other great textile periods."<sup>17</sup> Her later volume of 1965 *Anni Albers: On Weaving* is "Dedicated to my great teachers the weavers of ancient Peru" [fig. 86].

*Anni Albers: On Weaving* expresses the Bauhaus philosophy on the specific characteristics of the construction of cloth and its tactile nature. While *On Weaving* deals directly with textiles it is not to be seen as a mere guide for weavers: the author guides the reader elsewhere for

"weaving in general and specifically for hand weaving techniques. Though I am dealing in this book with long-established facts and processes, still, in exploring them, I feel on new ground. And just as it is possible to go from any place to any other, so also starting from a defined and specialised field, can one arrive at a realisation of ever-extending relationships. Thus tangential subjects come into view."<sup>18</sup>

In this volume of 1965, after thirty years of critical textile essays, we have the first published reference to doublecloth by Albers where she suggests the possibilities:

"Of course, there are also gains outside of the scope of the basic, original weave, for instance in double weaves based on either the plain weave, the twill or satin. Here we have instead of one plain weave, two, the layers lying on top of

each other. The same holds for twill or satin double weaves, of course.<sup>19</sup> The added feature here, besides doubled strength and warmth, is that a doubled use of colour is possible, an interchange from layer to layer, an interpenetration of color areas."<sup>20</sup>

This interchanged doublecloth structure was used in her Bauhaus hangings to give the pure colours and textures necessary for the abstract composition.

Albers continues:

"Double weaves have a special nimbus about them for some reasons not clear to me. They are thought to be intricate, hard to grasp, open only to advanced students. To my mind they are simple to understand and can be handled by anyone with just common sense-which I admit sometimes seems rare".<sup>20</sup>

The accompanying weave notations [drafts] and the description which follows deals purely with interchanged doublecloth not with any other doublecloth variation.

"Double weaves are fabrics that have two separate layers which can be locked at both sides, at one side, or, within the fabric, at any number of places where the design asks for an exchange of top and bottom layers, usually of different colours. In ancient Peru double weaves of complicated designs were made, and triple weaves have been found, as well as a small quadruple piece. If a highly intelligent people with no written language, no graph paper, and no pencils could manage such inventions, we should be able- easily I hope- to repeat these structures."<sup>20</sup>

Does this suggest that Albers had difficulty explaining the structure to her students in the practical sessions? <sup>21</sup> Research has failed to identify any doublecloth drafts by Albers for the fabrics she wove and the drafts in *On Weaving* are for the layered fabrics only, not for the interchanged doublecloths discussed in the text. This leads to increased speculation that Albers was not wholly clear on the technical process: her ideological standpoint of textile construction has now become the focus for discussion. Albers has purposefully distanced herself from the technical considerations of weaving, she has deliberately played down technique to stress the artistic concepts behind weaving, considering the issues of form and colour.

*On Weaving* has a chapter on composite weaves and reference is made to "back filling weaves" to produce heavier thicker fabrics and by the description that Albers gives these are stitched doublecloths.



"As a by-product such a fabric could have also different weave structures on the front and back, as well as, of course, different colours. A back-filling fabric could have a plain weave face and a twill backing or many other combinations, as long as the balance between the front and back weave is preserved; that is, as long as no problem of different tension between them occurs."<sup>22</sup>

Albers has acknowledged the potential of these doublecloth fabrics and is directing others to look at them, it is interesting to speculate why she herself never exploited them for her pictorial weavings where this interplay of texture and tension would have created intriguing surfaces.

A further question arises-why did she invent a new name for the stitched doublecloths, a term that remains peculiar to herself? While it is acknowledged that Albers was writing in her second language and, it must be said, writing clear and succinct prose with a thorough understanding of syntax, there can be no doubt that she was confused over doublecloth terminology if we refer to standard textile technology books of the period in Germany and in America.

It is important to consider why Albers was reticent to disclose a possible lack of understanding of practical woven technique. The process of weaving gives an understanding of technique which in turn informs the design process. It is immaterial whether the mechanics of the loom and the drafts are fully understood or not. Are we to understand that the American craft establishment of the time was over-concerned with excellence of technique and the ability to 'make' and would ridicule a weaver unable to repeat her earlier work without the support of a trained technician? That Albers was an excellent teacher and theoretician there is no doubt. The critical writings on textiles are inspirational and address broader issues: the problem remains -why not be forthright about any technical shortcoming?

The doublecloth technique was central to Albers' visual culture-from the traditional German bedlinen which would have been familiar to her; the doublecloth weavings of Peru in German museum collections and later in Peru itself; the North American hand woven doublecloth coverlet tradition; and of course the doublecloth hangings from the Bauhaus. The question remains why did

she not develop the technique to its full potential in a variety of forms as she continued to weave and teach in America? By the early 1960's Albers was receiving important architectural commissions and exhibiting more widely, while continuing to design for industrial production, but doublecloth was never central to this work.

In 1944 Albers directed a seminar on textile design at the Museum of Modern Art, New York and in 1949 was the first weaver to have a one person show there. The show included wall hangings, pictorial weavings and fabric samples for mass production. Albers made several open slat blinds for the exhibition using a leno technique woven in Peru that have both a visual and physical lightness while still displaying the textural contrasts so important to her. [fig 87]] This exhibition began to change the status of American hand weaving from one of an amateur female pastime, exemplified by the American Handweavers' Guilds, to an intellectual and professional occupation.

During the next six years Albers advised Kaufmann on the "Good Design" exhibitions sponsored by MOMA, the first opening in Chicago in 1950, which contributed to a growing awareness of design aesthetics in America. Kaufmann stated that modern design "should express the spirit of our times" and "develop the forms, textures and colours that spring from the direct fulfilment of requirements in appropriate materials and techniques" -sentiments reflecting those of Albers.<sup>23</sup> The "Good Design" exhibitions generated significant interest in hand woven textiles: a column in the *Handweaver and Craftsman* called "Covering the Exhibition Circuit" detailed the many events which took place across the country, in other publications reviews of textile shows were included in the fine art pages.

While Albers' contribution to these exhibitions was important by raising the profile of hand weaving, the presence in America of other European trained weavers was significant. These weavers had an influence through their own work as well as training generations of students, later to become influential themselves. The infrastructure of post war design education in America was based on the work

of teachers and graduates from the Chicago Institute of Design, Cranbrook Academy of Art, and Black Mountain College. In Chicago Marli Erhmann, a former student at the Bauhaus, was head of the textile workshop and at Cranbrook Marianne Strengell, a Finnish born weaver, exerted an enormous influence on American woven fabrics. Strengell's commitment to design for mass production led to the installation of a power loom in 1945, the first in an American art college.

Albers does return to the doublecloth technique in 1955 to produce the pictorial weaving *Play of Squares* [fig 88] which returns to the palette of black, white and grey and geometric interplay but relies on the uneven surface texture of the weave rather than the crisp definition of silk seen in the early doublecloths. A series of pictorial weavings follow which all appear to be woven on the same warp as *Play of Squares*, but diversify into textural compositions with rough, tactile surfaces. *Thickly Settled* of 1957 [fig. 89] shows this rough textured surface with the threads forced beyond the plane of the fabric by the leno technique. *Tikal* of 1958 [fig 90] uses the same textured double weave but Albers uses yellow and blue wefts on the black and white warp giving a shimmer of colour to the surface. The warp in this series is equally divided into three sections and threaded alternately with black and white threads on the outside sections while the centre section is reversed using white and black. This threading sequence causes a shift, an almost imperceptible stripe, in the weaving itself. Each of the three sections is then subdivided into five giving a total of fifteen blocks across the width of the weaving which can all be treated in different ways.

The doublecloth weavings are heavily textured across the entire width by twisting warp threads around each other in a gauze or leno weave the technique used by the pre-Columbian weavers of Peru, producing an almost sculptural effect within the weave. The pictorial weavings now have titles although the titles relate to the domestic sphere: *Northwesterly* and *In Orbit* of 1957 [fig 90], *Open Letter*, *Memo*, *Sheep May Safely Graze*, *Variations on a Theme* [all 1958], *Jotting* [1959].

In 1950 Josef Albers, now Chairman of Design at Yale University, began to

produce his series *Homage to the Square* which dealt with the interaction of painted and screen printed colour. "Anni tells the story that when Albers did his first *Homage* in 1950, she complained to him that now they would never have enough to eat, that she felt that he had begun to paint Easter eggs." <sup>24</sup> At this time Albers deals with only black and white in her weavings, perhaps as a natural reaction against the obsession with colour theory in her personal environment.

A suggestion presents itself-what would have happened if these two artists had collaborated on *Homage to the Square* with Josef producing maquettes for Anni to weave as the interaction of woven colour? The doublecloth technique would have been a perfect medium. Albers has her own views on colour:

"Colour comes only third in importance among the elements of composition within the weaver's dimensions[after structure and texture]. By giving different colors to the differently functioning threads, the structural character of the weaving will be intensified. In addition color conveys emotional values but if it is introduced as a too-independent agent, it may carry the weaving outside of its own territory into the painterly province."<sup>25</sup>

Albers takes examples of pictorial tapestries woven from painters' designs "Raphael's, Picasso's, Roualt's, etc. Many of these works lacking in textural and structural interest have moved to the very edge of the weaver's realm; and although impressive as pictorial compositions, they are often of little consequence as pictures or as weavings." <sup>26</sup> Colour in doublecloth is a different matter- "weavings of two or more plies are designed in order to enlarge the color exchange of solid color areas in a fabric- a red crossing a red warp thread, a blue with a blue- instead of having mixed areas where, for instance in plain weave, red crosses blue." <sup>27</sup>

In 1963 while she was "just the wife hanging around" <sup>28</sup> at the Tamarind Lithography Workshop where Josef had a fellowship she was invited to try printmaking which was to prove the catalyst for abandoning weaving altogether in 1965. "On having discovered this new freedom I was never able to let go." The initial portfolio of prints used thread like forms which broke away from the horizontal and vertical construction of weaving, but later the triangle was to figure largely in the printmaking. [fig.91] In an interview in 1977, coinciding with her

exhibition at the Brooklyn Museum, Albers discusses the differences between weaving and printmaking:

"In weaving, one deals with the surface quality of the threads-rough, smooth, glossy, shiny. You have only a single result if you deal with pictorial weavings. This limits the opportunity for exhibition. Also weaving is not generally recognised as an art but as a craft. I find that, when the work is made with threads, it's considered a craft; when its on paper, it's considered art." <sup>29</sup>

The Brooklyn exhibition in 1977 was the first to focus on Albers as a printmaker although constant references are made to her earlier woven work, particularly at the Bauhaus. Albers' reminiscences of the Bauhaus days appear muddled. "For sixteen years at the Bauhaus I worked with a weaver's concern with threads as an artistic vehicle, and I was interested greatly in the technique and discipline of the craft." However the Bauhaus was in existence for a total of fourteen years and Albers was only connected with the institution for ten of them. She also makes references to her choice of workshop at the Bauhaus "of which there was a number available-woodwork, metal, wallpainting and weaving". The reality, as already discussed, meant that female students had no choice. Albers makes a passing reference to the "art side" of her Bauhaus weaving, presumably the doublecloths, and the "laboratory work for industry" to conclude "So much for my involvement with threads." <sup>30</sup>

Later in the same interview the differences between making work in a craft medium and in an art medium are discussed, not only from the maker's viewpoint but from the view of the public audience.

"The multiplication an exactness of the process of printmaking allow for broader exhibition and ownership of work. As a result, recognition comes more easily and happily- the result of a longed for pat on the shoulder." <sup>31</sup>

Her work was now to be seen unequivocally as art -framed and titled, exhibited, discussed, collected and commercially viable.

By the late 1960's when Albers herself was turning away from weaving the students of Bauhaus trained weavers began to define their careers as industrial designers, fibre artists, fabric engineers, or educators. This new generation of designers liberated textiles from preconceived conventions. Fibre Art had begun in

the 1950's with artists using a variety of traditional techniques, sometimes simultaneously, or interpreting traditional forms with unorthodox materials. The emphasis was on the aesthetic over the utilitarian and liberated textiles from functional considerations. This can be clearly seen in the tubular doublecloth hangings of Kay Sekimachi, a student from Black Mountain College, who used a clear monofilament to weave complex see-through works which hang and turn in space.[fig 92]

The publication of *beyond craft :the art fabric* by Lenor Larsen and Mildred Constantin in 1973 was to confirm the place of textiles in the context of twentieth century art. In his introduction Larsen defines that "the Art Fabric is a construction, individually created by an artist on the loom or free of the loom. Although the development of Art Fabrics is so recent and so varied that they defy classification into the accepted disciplines, it can be claimed with assurance that these are works of art." Here we are not concerned with fabric for industrial production but the making of individual textiles with a strong sculptural vocabulary.

Larsen continues the argument concerning the relationship between craft and art: "Is Claes Oldenberg a craftsman or sculptor? Robert Morris and the late Eva Hesse worked with twine, fiber glass and rubber- are they sculptors or artists? Like the artists working in fiber they all are able with their mingled components to generate a power that has changed our concepts of art." <sup>32</sup>

This demonstrates a change of attitude from the exhibition "Textiles U.S.A." shown at MOMA in 1956 which, as the catalogue preface stated, included hand woven work because "individual craftsmen still excel in the attention to detail that provides one kind of quality in textiles". By 1960; however, the travelling exhibition "Fabrics International", directed by Larsen, explored the potential of new technology and looked forward to the results of the next industrial revolution:

"the imagination and agility of the craftsman is invaluable not just in the peripheral areas of aesthetics and taste but in conceptualising direct solutions to basic needs. Because of his unclouded mind and the immediacy of being able to work directly from idea to realisation, the artist-craftsman has advantages over even the super-organisations of post-industrial research." <sup>33</sup>

The Museum of Modern Art, New York recognised the fibre art movement with the 1969 exhibition *Wall Hangings* which included stacked textile units and sculptural forms hung in space. The catalogue stated in the introduction that:

"During the last ten years, developments in weaving have caused us to revise our concepts of this craft and to view the work within the context of twentieth century art. The weavers represented here have extended the formal possibilities of fabric, frequently using complex and unusual techniques."

Doublecloth fabrics were to have a surprising significance in the following decades of art fabrics. The structure was useful to weave tubular fabrics which could be free hanging and explore three dimensional space as in the work of Sekimachi, or become a canvas to explore colour and texture as seen in the work of Guermontprez.

Guermontprez used the stitched doublecloth technique for industrial upholstery fabrics of the early 1950's and used a variety of doublecloth structures for her later hangings between 1971 and 1975. The last hanging *Mandy's Motto* was woven in 1975 when she was terminally ill. [fig 93] Here the traditional yarn wefts are replaced by strips of printed cloth, strips of flag, and stencilled letters on fabric. Most other weavers of art fabrics, however, did not fully understand the technique- they used it for the structure it would give and then moved on to the next appropriate technique or medium. Albers had perhaps foreseen this: "Where the functional aspect of the structure is moderated, aesthetic qualities frequently move to the foreground: in fact, they often are the very reason for the structural change." <sup>34</sup>

Albers' feelings about fibre art were mixed, possibly because so much of it displayed a dearth of vision and poverty of craftsmanship. After participating on the jury of a textile exhibition she observed;

"2,500 objects were submitted, and I confess I have still not recovered from the shock that 2,450 senseless, useless things gave me. Being no longer a vital factor, their standards seem to have become obscured. They belong to a twilight zone, not quite art, not really useful." <sup>35</sup>

## **[ii] Stölzl and other Bauhaus weavers.**

During the Dessau period the increased success with industrial production, in particular Polytextil who wove a complete range of Bauhaus fabrics in 1930, meant that graduates of the workshop were offered positions which acknowledged their capabilities as industrial designers. Whether they entered industry or chose teaching as a profession they were uniquely equipped with both artistic and technical expertise. They were determined women with strong characters capable of meeting conflict and challenge. While some chose career options in industry and education, others preferred to continue with the established craft tradition weaving one-off lengths and wall hangings. Others chose options completely outside textiles.

Gertrud Arndt-Hanschke, for example, had wanted to study architecture but being unable to do so had disciplined herself in weaving in order to be part of the Bauhaus and its social life. She was small and found it difficult to beat back the reed on the large looms but persevered, producing textiles of great technical skill with a sensitivity to the material. Of particular note is a doublecloth of 1927, woven on the same warp which Albers and Hollos had used, and a 1930 light reflecting fabric made from cellophane. When Arndt left the Bauhaus she never wove again: she married the Bauhaus photographer Alfred Arndt, had three children and helped her partner in his photography business.<sup>36</sup>

It is hardly surprising that many of the women found partners during their time at the Bauhaus, nor is it surprising that they gave such unstinting support to the careers of their husbands, after all there were few independent women as role models in 1930's Germany. This intellectual support and practical help given to a partner is often overlooked. Gropius had a four year affair with Lily Hildebrandt:

"During the founding years of the Bauhaus she was Gropius's bedrock, physically, intellectually and spiritually. She helped prepare and install his architectural exhibitions. She solicited new members for the Circle of the Friends of the Bauhaus, a fund raising group. When the relationship ended her place was taken by Ise Frank, whom Gropius married in 1923, and who embraced the Bauhaus with great enthusiasm."<sup>37</sup>



The devotion of the Bauhaus women was to the career of her partner rather than to her own.

It has been suggested elsewhere that only Anni Albers maintained a separate identity from her husband but this is not entirely true. Albers has stated that she supported her partner in his work. The media continued the tradition of identifying women within accepted social roles which would be unthinkable today. In a 1956 exhibition catalogue Albers is referred to as "Mrs Albers", her co-exhibitors are a "Miss Fuller" and a "Mrs Gallery", the sculptor. Even as late as 1979 the *New York Times* heads an article "The Other Albers" <sup>38</sup>.

Guntha Stölzl was the only married weaver to retain her career in textile design in the years after the Bauhaus, perhaps for the very reason that her marriage to Arie Sharon had failed after the birth of their daughter. The city of Dessau renewed Stölzl's contract adding a child's allowance but no pension. However, her resignation was forced in 1931 due to three right wing student, one of them Grete Reichardt, accusing her of personal impropriety. Stölzl had lost her German citizenship by her marriage and it was now difficult to obtain a passport and residence permit-her only option was Switzerland.

In Switzerland Stölzl established a hand weaving studio with two other Bauhausler, Gertrud Preiswerk and Henrich-Otto Hurlimann.<sup>39</sup> Stölzl's output was immensely varied between 1932 and 1950 ranging from tablecloths, wall coverings, rugs, upholstery and prototypes for industry, including doublecloth and Jacquard fabrics. Stölzl had all the technical knowledge necessary to continue and develop the fabrics that she wove at the Bauhaus.<sup>40</sup> The designs for the textiles have comprehensive weaving drafts attached to them which confirm her technical skill. However, the critical writings are few, perhaps seven in total ,with three written during the Bauhaus years. From 1950 Stölzl concentrated on Bildteppich [wall tapestries] being represented at the *Wall Hanging* exhibition at MOMA, New York in 1969. Stölzl is regarded by many as the greatest weaver this century; she pioneered new materials and developed techniques, she was an encouraging teacher, freely sharing ideas with students and in turn recognising

their talents.

One such student was Otti Berger who had produced work "executed with great intensity and perseverance as the best that has been produced in the workshop."<sup>41</sup> Berger became recognised internationally as a textile designer, lecturing in Stockholm and Switzerland with articles about her appearing in *Domus*, *International Textiles* and *Red*, a Czech magazine. In Germany, Berger, despite her great artistic talent, as a Jew was unable to join the Reichskammer der Bildenden Künste [Reichs Chamber of Fine Art] in 1933 which had been recently established by Goebbels. The reason given was her "non-Aryan" background.

The Reichskammer enforced the new law which controlled all branches of art and design in Germany. Artists, designers and craftspeople were unable to exhibit or obtain work in their field unless they were granted membership. Although Berger was granted a residence permit in 1935 she was told a year later "you do not have the required abilities and trustworthiness and since you do not meet the requirements of the Reichskammer I herewith deny your application and forbid you to practise your profession."<sup>42</sup> In her Berlin studio Berger had developed prototypes for industrial fabrics for car, train and aeroplane upholstery. In 1932 she had patented a doublecloth fabric woven with layers of artificial horsehair and artificial silk but no visual record remains. When Berger was forced to close her Berlin studio she moved to London designing for Helios, later returning to Yugoslavia to visit her sick mother. Here Berger was denied a visa for America: she was deported to Auschwitz with her family and killed there as part of Hitler's extermination of Eastern European Jews.

### **[iii] Grete Reichardt: Weaving in the German Democratic Republic.**

When Germany was divided into West and East, the sites of the Bauhaus in Weimar and Dessau and their archive material was placed within the communist Soviet zone. This presented obvious problems to scholars with restricted access to archive material. In 1960 the art historian Ludwig Grote, who had

recommended that the Bauhaus transfer to Dessau, began to establish a Bauhaus archive in Nurnberg, West Germany, later to move to Darmstadt with Hans Wingler as curator. Wingler's large volume, *Bauhaus*, published in Germany in 1962, provided much information supplied by the Bauhaüslers who had emigrated to America. The travelling exhibition *50 Years Bauhaus* between 1968 and 1971 could only include artefacts from the West, and therefore presented a rather biased view.<sup>43</sup>

While most Bauhaus material in the West has been published,<sup>44</sup> exhibited and analysed what now remains unclear is the extent of material located in the former GDR. Since the re-unification of Germany in 1989 there is easier access to archive material but no-one can estimate what has been lost or destroyed. The Staatarchivs in Weimar are catalogued by number only, containing 216 archive folders, some large, some small. Unless each archive folder is systematically read it is difficult to arrive at a comprehensive analysis of the data held. It is highly probable that some material may have been destroyed: the archives at the Dessau Bauhaus have little reference to Stölzl and have no reference whatsoever to Albers, who, along with other Bauhaus emigrés may have been purposefully deleted from the records.

Against this background it is difficult to establish the subsequent careers in the GDR of members of the Bauhaus weaving workshops. Some may have chosen or been forced into other employment within East Germany. Exhibitions were only occasionally catalogued due to shortage of paper, rarely including black and white photographs and never in colour. Grete Reichardt was the only student of the Bauhaus weaving workshop who is officially recorded as having continued her work in East Germany after the division of the country.

Reichardt's work now in the archive of the Dessau Bauhaus clearly demonstrates that she was a versatile weaver, able to understand and develop weave construction. The fragmentary details available of her career within the GDR emphasises the political position of the artist in the Communist zone: the work of Art is the focus of attention, the cult of the artist is not possible.

Reichardt's work is also represented in the Bauhaus Archiv Berlin. There is no reference to her at all in Wingler.

It is possible to trace the early training and career of Reichardt. In 1923 she visited the Bauhaus exhibition in Weimar with her fellow students from the Kunstgewerbeschule in Erfurt. Reichardt was so enthusiastic about the textile work that she saw in Weimar she determined to join the school when her preliminary training was finished, becoming one of the first students to join the Dessau Bauhaus in 1926. The Mayor of Dessau had asked Gropius to close one workshop during the move to the new building because of financial restrictions, suggesting the weaving workshop. Gropius had fought to keep it as he knew the economic support provided by the weaving workshop was crucial to the whole institution: there were still a number of unfulfilled orders taken at the Leipzig and Stuttgart fairs. Whether his motives were purely economic is immaterial but Gropius had recognised as early as 1924 that industry had "an active interest in the products of the weaving workshop which was stated to be the best equipped in Germany." <sup>45</sup>

However, the feelings of Gropius towards the weaving workshop remained ambivalent: in 1926 he was demanding that the workshop should produce samples and a swatch book to distribute to architects the way "any textile mill does" although this does happen late when Meyer is Director. This was the environment that Reichardt was to study in after completion of the *Vorkurs*. Straight away there was tension between the newcomers to Dessau and the "Weimarians". The two groups of students had distinct points of view regarding weaving which often led to lively debate, particularly concerning handweaving versus industrial production.

Although her journeyman's examination and Bauhaus diploma were to be in textiles, Reichardt was active in Schlemmer's theatre department, and to some extent in the carpentry workshop. GR designed individual samples and prototypes for industry and participated in many commissions along with her colleagues. In 1929 she experimented with fabric collages which she named *Gretelstoffe* [Gretel

fabric], no-one else at the Bauhaus appears to have produced similar work.[fig.94] At first these collages have small swatches or samples of fabric appliqued or overlaid onto a backing fabric, but a later piece of 1931 has a series of figures cut from different fabrics standing on a piece of hand woven twill appliqued onto a white background.[fig.95] These *Gretelstoffe* appliqués were made while Reichardt was working as an independent weaver in the weaving workshop from 1929-1931, after receiving her Bauhaus diploma.

During this period she was involved in the personal attack on Stölzl, later being asked to explain her conduct. Whether this stemmed from political ideology or basic differences between the two groups of students, it is hard to determine. On leaving the Bauhaus Reichardt spent two years at an independent studio in the Netherlands, returning to Germany in 1933 to establish a hand weaving studio where she continued to weave throughout the war years.

Reichardt claimed that she was the only Bauhaus weaver to have used cellophane- although this is clearly not the case as documents and samples in the West show that Albers, Arnck and Hollos also used them- but little experimentation with unorthodox materials would be possible now. Two doublecloth fabrics made in 1934 are documented in the catalogue for the Kunsthandwerks Exhibition in Leipzig in 1967 which use squares similar to the Bauhaus fabrics of 1927. Unfortunately the only photographs are in black and white so no analysis can be made on the use of colour in these weavings.[fig.96]

In 1939 Reichardt received a gold medal at the Milan Triennale, the Italian World Fair which focussed on design products. In the same year the "Kunstlerehepaar Wagner-Reichardt" [artist couple Wagner-Reichardt] bought a combined house and studio in Erfurt, near Weimar.<sup>46</sup> The house was to be a cultural centre for the next fifty years as a home and studio for Wagner and Reichardt. In 1942 Reichardt passed her Master's examination with the Handelskammer in Erfurt which enabled her to train young weavers and a building extension was begun at the house to accommodate the training workshop.<sup>47</sup> The house in Erfurt was restored in 1992 to become a museum and study centre for

Reichardt's work.

The training schedule of Reichardt's workshop appears to be modelled on the Bauhaus with students visiting exhibitions and concerts and having parties in the garden but there is nothing to determine whether the studio training itself followed Bauhaus philosophy. This, of course, could not have been officially acknowledged. There may well have been two types of weaving production- one the tapestries which were widely exhibited and secondly the production weaving, probably with students weaving to Reichardt's designs.

In 1986 the exhibition *La Tessitura del Bauhaus* in Pesaro, Italy from the collection of the GDR, included much of Reichardt's work previously unseen in the West, confirming her fresh and vigorous approach. The catalogue names eighteen other weavers showing thirty two of their textiles. [Stölzl is represented by six pieces with Reichardt having thirty eight textiles in the show.] There are thirty four "Anonimo" [anonymous] textiles but none of these appear to be the work of Albers. This suggests that the anonymous work is exhibited because of its significance but the name of the artist was purposefully deleted. Wingler, by contrast, has extensive lists of Bauhaus weaving all clearly identified. <sup>44</sup>

In the GDR it was impossible to buy products made at the Bauhaus until a series of exhibitions were held at Galerie am Sachsenplatz, Leipzig.[See Appendix Two] The first was in 1976, continuing in 1977, 1978, 1980, 1983 and 1991. The exhibition catalogues show room settings furnished with Bauhaus furniture, rugs at an angle, pictures on the wall, complete with vases of flowers. These "arrangements" show the Bauhaus products in a new light- transformed into homely comfort. Many of the textiles are "später nachgewebt" [woven later]; the photographs for sale appear original but the small wooden pieces are "restored". In the third catalogue of 1978 there are some wooden puppets made by Grete Reichardt in Albers' Vorkurs, now restored and mounted on wood. <sup>48</sup> This leads one to consider that the GDR was reproducing Bauhaus products as the market became lucrative. The Dessau Bauhaus Archiv augmented its collection from these sales, but foreign buyers with hard currency pushed the prices beyond

their reach.

The question concerning industrial textile design in a communist environment now arises where the state controls both output and consumption leaving no choice for the consumer. How much design activity is needed beyond the production of utilitarian woven fabrics for mass consumption? The textiles available in a communist state are strictly limited in style, colour and availability making the role of the designer defunct. State policy can determine and control all textile production, with a technician responsible for the production .

Where does this place Reichardt, trained at the Bauhaus, acknowledged to be a versatile and proficient production hand weaver? During the Bauhaus *Vorkurs* Reichardt's concerns along with other students were with abstraction, later taken into the textile medium, but in the GDR abstract art was seen to be degenerate. As Whitford has suggested "In the German Democratic Republic after the war the name of the Bauhaus was anathema. This was because the school's curriculum was designed for a capitalist economy and taught by artists whose work was 'formalist'." <sup>49</sup> Analysis of Reichardt's textile work must be made with reference to the political, cultural and economic situation in which she now worked

Textile designs for hand or machine woven cloth could rely on pattern, texture and colour exactly as those designed in the West, presenting no problem with political imagery. However, lack of fibres and yarns from outside the soviet bloc and limited dyestuffs would pose restrictions to the style of these textiles. That Reichardt was able to obtain weaving materials at all is extraordinary and suggests her political correctness within the GDR. It is not possible to establish her political ideology: why did she chose to stay in Germany when many other Bauhausler emigrated ? Perhaps the links with her birthplace and family in Erfurt were the deciding factors.

Having established that Reichardt was allowed the freedom to concentrate her activities in the production of one-off woven pieces and was provided with the necessary raw materials it is important to analysis the work. The tapestry work reverts to the European folklore tradition evident in the Bauhaus textiles of the

early Weimar period which, incidentally Reichardt would have seen on her first visit in 1923, and can be seen in *Schwarzenberg*, a Gobelin of 1947 [fig.97]. It is possible that these new tapestries were conceived as artistic statements and that Reichardt no longer wished to deal with abstract concepts of colour, shape and texture, a decision taken independently of the state. However, if it was not possible to design for industry, if the materials for experimental use were restricted, then she may have had no choice in the product; these pictorial gobelin tapestries would provide her only opportunity for creative activity.

The wall hangings are woven in the traditional Gobelin technique depicting colourful landscapes with images of villages and factories nestled in valleys. Later works are woven still lifes of musical instruments and flowers, as in *Quartett*, [fig. 98] fish and sea shells, followed by an intriguing self portrait of 1954 showing herself weaving at the loom. [fig 99] This, perhaps, reflects the concern of artists' self portraits which depict themselves working at easels. Does this imagery of landscape, the still life and the self portrait present a clue to Reichardt's weaving? Did she transpose these traditional images of fine art into the woven form because she was denied the use of abstraction? Was she, perhaps, trying to establish the equal status of art and craft in the same way that Anni Albers tried with her pictorial weavings?

Reichardt became a prominent presence in the GDR where she received many commissions and honours for her hand weaving. It is documented that she became a member of the German Union of Fine Artists,<sup>50</sup> suggesting that woven tapestry in the GDR was seen as art and not as craft, and exhibited widely in East Germany and the Soviet Bloc. Between 1967 and 1986 there was a marathon travelling exhibition visiting ten communist countries showing the work of Reichardt [Weaver] ,Walter Gebauer [Ceramics] and Gunther Lauer [Blacksmith]. In 1953 she was offered a Professorship in Hamburg but declined the position, a leaflet published in the GDR suggesting she would prefer to stay in Erfurt.<sup>50</sup>

The production hand weaving of Reichardt is illustrated in the catalogue for the Leipzig exhibition *Kunsthandwerks* [Art-handworks] of 1967 and shows dress



fabrics with European folk motifs, reminiscent of national dress, but woven in silk.<sup>51</sup> [fig.100] The fact that she was able to obtain silk, a luxury fibre bought with hard currency, within the Soviet Zone continues to suggest her political correctness and the importance placed on her work by the authorities.

Reichardt does continue to use the doublecloth technique. One example is a geometric furnishing fabric with a constructivist design woven in 1953 and similar in appearance to her Bauhaus fabrics of the late 1920's [fig.101]. There may have been further examples of furnishing fabrics but none are recorded. Between 1960 and 1966 the textiles are mainly Gobelins and tufted hangings with organic images of flowers and leaves. In 1970 a new direction occurs with free-standing sculptural structures, woven on frames [fig. 102] or in the round which use doublecloth.[fig.103] What lay behind this shift from flat Gobelins to three dimensional sculptural structures? Was this an independent development or was Reichardt aware of the fibre art revolution happening in the West? These are questions worth pondering even if they ultimately remain unanswered.

In 1978, aged 71, Reichardt completed a state commission for nine woven Gobelin and tufted panels for the Deutsches Nationaltheater in Weimar titled *Das Faustische im Menschen* [*The Initiative of Mankind*. fig 104] These panels, each a different theme and size, are abstract images hung onto a curved wall in the foyer and visible from the street. Her last known weaving of 1979 was titled *Bauhausreflexion 111*, an abstract composition in shades of red, black and grey. This title with an explicit reference to the Bauhaus would have been impossible a decade earlier.[fig. 105]

This choice of title and the shift to abstraction coincides with the change of official attitudes to the Bauhaus at the end of the 1960's in East Germany. The new interpretation stated that the socialist ideals of the Bauhaus had been impossible to realise because of its situation within a capitalist society. This change of attitude resulted in permitting official scholarship and developing the Bauhaus museum collection in Weimar. The restoration of the Dessau Bauhaus itself and the Haus am Horn in Weimar followed in 1976. Reichardt was invited to

assist in these restorations but no new furnishings were woven.

Although she was an artistic and cultural heroine Reichardt was not allowed to travel outside the GDR and this restriction made it impossible for her to evaluate her own work within contemporary artistic and textile movements. Research has failed to locate any written work by Reichardt which could enlighten us, nor is there any critical debate concerning weaving published in the East German press. In fact it has been impossible to discover any other named weaver within the GDR. It must be assumed that Reichardt would have little knowledge of the career of Anni Albers nor the influence of her writings in America and Europe, indeed references to Albers are scarce even in West Germany. It is extremely unlikely that any publications would have reached the GDR which openly discussed the work of Bauhaus emigrés. Similarly Albers would know nothing of Reichardt's subsequent career .

It is interesting to consider why these two weavers, working within totally different cultures, should both choose to change the emphasis of their work from mass production to "one-off" artistic pieces, albeit with different imagery. Were they driven by the cultural and political pressures of their countries or driven by similar artistic forces? Was their determination to see weaving as an art form a reaction against the industrial bias at the Dessau Bauhaus? In order to answer these questions it is worth considering the production of other weaving workshops in Germany during the period 1930-1950 unconnected with the Bauhaus.

The Workshop Hablik-Lindemann, for example, continues to exhibit at the main craft fairs and continues to train weavers. One of these was Johanna Schutz-Wolff who had completed her studies at the Kunstgewerbeschule [Arts and Crafts School] Burg Giebichenstein. Schutz-Wolff became a proficient production weaver but wished to specialise in weaving pictorial gobelins.<sup>52</sup> Her 1922 *Bildweberei, Mädchen mit Katze* [Picture Weaving, Girls with Cats] woven during her time at the Kunstgewerbeschule is followed four years later by *Mädchen mit Rind* [Girls with Cow. fig106]. The later weaving, although similar in its domestic imagery, shows an increased consideration of composition and is much larger;

being 240 by 200 cm. Schutz-Wolff designed and wove pictorial gobelins although after her marriage to the theologian Paul Schutz, the imagery becomes religious as in *Betende* [Prayer, fig 107] of 1932. This particular weaving deals with shape, tone and texture establishing a new imagery for the traditional Gobelin technique.

This underlying concern with pictorial Gobelins and tapestry is a strong tradition in European weaving dating from the middle ages, a concern that continued with the majority of Bauhaus trained weavers despite the influence of abstraction at the Bauhaus. Against this strong tradition of tapestry with its related imagery the doublecloth technique becomes less significant. Great technical expertise is required to weave figurative imagery in pick-up doublecloth while it is easier to become proficient in the Gobelin technique.

Ida Kerkovius, Else Mogelin and Benita Koch-Otte, all trained as painters before studying at the Bauhaus weaving workshop. All three were later to be appointed professors in German Arts and Crafts schools stressing that they were painters first and weavers second. The imagery of Ida Kerkovius changes little from her first Bauhaus tapestry *Tierteppich* [Animal Carpet, fig 108] of 1920 to her *Decke mit Tieren* [Rug with Animals, fig 109] of 1942, despite her use of abstraction during her years at the Bauhaus. Else Mogelin wove images of birds and fishes. It is, however, difficult to assess to what extent the imagery was determined by artistic freedom, the cultural climate and by the expectations of the market. Benita Koch-Otte, for example, uses a ship motif for a church altar cloth *Schiff der Kirche*<sup>53</sup> woven in 1963. This image, surely would have been requested by the Church authorities. Koch-Otte may have had to compromise her artistic ideals in order to sell her woven work.

It is only Albers who does not return to this pictorial representation in weaving.<sup>54</sup> With Albers it could be argued that her partner Josef was concerned with abstraction and this continued to be their common concern. Conversely, this could have driven her in the opposite direction to weave imagery of birds, fish and animals, similar to those in Peruvian weaving which she so admired. It is most probable that the American culture and the emergence of Abstract Expressionism

and Pop Art established a non-pictorial tradition for painting that weaving followed, although we have seen that Albers was not considered an artist until her concern with printmaking. A further factor could be that Albers had a partner to support her financially thus enabling her the freedom to take an ideological standpoint with no compromise in the woven product.

Albers demonstrated by her writing and weaving that the status of crafts could be considered as both a professional activity and an art form. At the Bauhaus Albers had used interchanged doublecloth as a vehicle for exploring the juxtaposition of colour and texture, exposing the woven structure of vertical warp and horizontal weft threads. Although Albers did not weave three dimensional shapes she established a new framework which encouraged artists and designers of the Fibre Art movement to consider and explore the spatial aspects of doublecloth as an art activity.

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- Fig. 39 Lore Leudesdorff. Slit gobelin tapestry 1922-23.
- Fig. 40 Appliqué. Ida Kerkovious. Early 1920's.
- Fig. 41 Ruth Valentin Appliqué. Kinderzimmerwandbehang 1920
- Fig. 42 Stölzl, untitled gobelin 1921
- Fig. 43 Leudesdorff. Three Striped Shawls 1921?
- Fig. 44 Benite Otte untitled hanging 1920-22?
- Fig. 45 Ida kerkovious. Knotted carpet woven for Paul Klee, 1923.
- Fig. 46 Unknown, early 1920's. Wallhanging.
- Fig. 47 Stölzl. Gobelin 1923, copy by Börner 1925.
- Fig. 48 Marta Erps-Breuer. Shaft woven gobelin technique, 1924
- Fig. 49 Anni Albers. Untitled Wall Hanging. Smithsonian Catalogue. 1922
- Fig. 50 Anni Albers. Untitled Wall Hanging. Smithsonian Catalogue. 1924
- Fig. 51 Weimar Exhibition 1923. Gropius' Office
- Fig. 52 Haus am Horn 1923
- Fig. 53 Haus am Horn 1923
- Fig. 54 Haus am Horn 1923
- Fig. 55 Leipzig fair 1930
- Fig. 56 Dessau Bauhaus Weaving Workshop. 1927
- Fig. 57 a,b,c Dessau Bauhaus Windows
- Fig. 58 a,b,c Dessau Bauhaus woven fabrics
- Fig. 59 Students with Wanke
- Fig. 60 Dessau Bauhaus Weaving Workshop Aluminium Tag
- Fig. 61 a,b,c Hollos Doublecloth 1926
- Fig. 62 Arndt Doublecloth 1926
- Fig. 63 a,b Albers .Untitled Wall Hanging. Doublecloth October 1926
- Fig. 64 Albers .Black, White, Yellow. Doublecloth October 1926
- Fig. 65 Albers .Black, White, Red. Doublecloth . 1927
- Fig. 66 Albers .Black, White, Grey. Doublecloth . 1927
- Fig. 67 Stölzl Doublecloth Bedcover. Workshop production 1926
- Fig. 68 a,b Bedcover in place in student bedroom, Dessau Bauhaus
- Fig. 69 a,b Bedcover changed.
- Fig. 70 a,b Josef Albers. *Lattice Picture*. 1921. Anni Albers. *Black, White, Grey Doublecloth*. 1927. [As in fig. 66]
- Fig. 71 Josef Albers. *Fuge*, Sandblasted glass panel.
- Fig. 72 Anni Albers. Dessau theatre cafe: design and fabric sample.
- Fig. 73 Anni Albers. Design for Smyrna rug 1924
- Fig. 74 Josef Albers *Glass Picture* 1926
- Fig. 75 Anni Albers. Untitled wallhanging 1925.
- Fig. 76 Josef Albers. *Upward* 1927
- Fig. 77 Anni Albers. Second Untitled wallhanging 1925.
- Fig. 78 Josef Albers. *Overlapping* ,1929. Sandblasted, laminated glass.
- Fig. 79 a,b Dessau fabric structures.
- Fig. 80 Samples swatched for sale
- Fig. 81 Anni Albers. Bernau fabric. Stitched doublecloth. 1930.
- Fig. 82 Anni Albers. *Untitled Pictorial Weaving*, 1934
- Fig. 83 Don Page, Black Mountain College. Doublecloth

- Fig. 84 Trude Guermonprez. Stitched double weave, 1950's  
 Fig. 85 Trude Guermonprez. *We Are But Two Shadows*, 1971  
 Fig. 86 Doublecloth, pre-Columbian Peru. Berlin Museum.  
 Fig. 87 Anni Albers. MOMA exhibition. 1949.  
 Fig. 88` Anni Albers. *Play of Squares*. Doublecloth. 1955  
 Fig. 89 Anni Albers. *Thickly Settled*. Doublecloth. 1957  
 Fig. 90 a Anni Albers. *Tikal*. Doublecloth with leno weave, 1958  
 Fig. 90 b Anni Albers. *In Orbit*. Doublecloth with leno weave, 1957  
 Fig. 91 Anni Albers. *Enmeshed*. Lithographic Print 1963  
 Fig. 92 Sekimachi, Amiyose. Monofilament, tubular and quadruple weave.  
 Fig. 93 Guermonprez. *Mandy's Motto*. Doublecloth 1975  
 Fig. 94 a,b,c Reichardt. *Gretelstoffe*. Fabric Collage. 1929  
 Fig. 95 Reichardt. *Gretelstoffe*. Fabric Collage. 1931  
 Fig. 96 a,b Reichardt. Doublecloths. 1934  
 Fig. 97 Reichardt. *Schwarzenberg*. Gobelin 1941  
 Fig. 98 Reichardt. *Quartett*. Gobelin 1947. Angermuseum Erfurt  
 Fig. 99 Reichardt. *Weberin*. Self Portrait. Gobelin 1954. Leipzig.  
 Fig. 100 Reichardt. *Kleiderstoffe* 1962  
 Fig. 101 Reichardt. Wool Furnishing. Doublecloth 1952  
 Fig. 102 Reichardt. *Spitze* 1965  
 Fig. 103 Reichardt. *Stellenensemble* 1971  
 Fig. 104 Reichardt. Deutsches Nationaltheater Weimar, 1978  
 Fig. 105 Reichardt. *Buahauserflexion 111*. 1979  
 Fig. 106 Schutz-Wolff. *Madchen mit Rind*, 1926  
 Fig. 107 Schutz-Wolff. *Betende*, 1932  
 Fig. 108 Kerkovius. *Tierteppich.*, 1920. Weimar Bauhaus.  
 Fig. 109 Kerkovius. *Decke mit Tieren*, 1942.

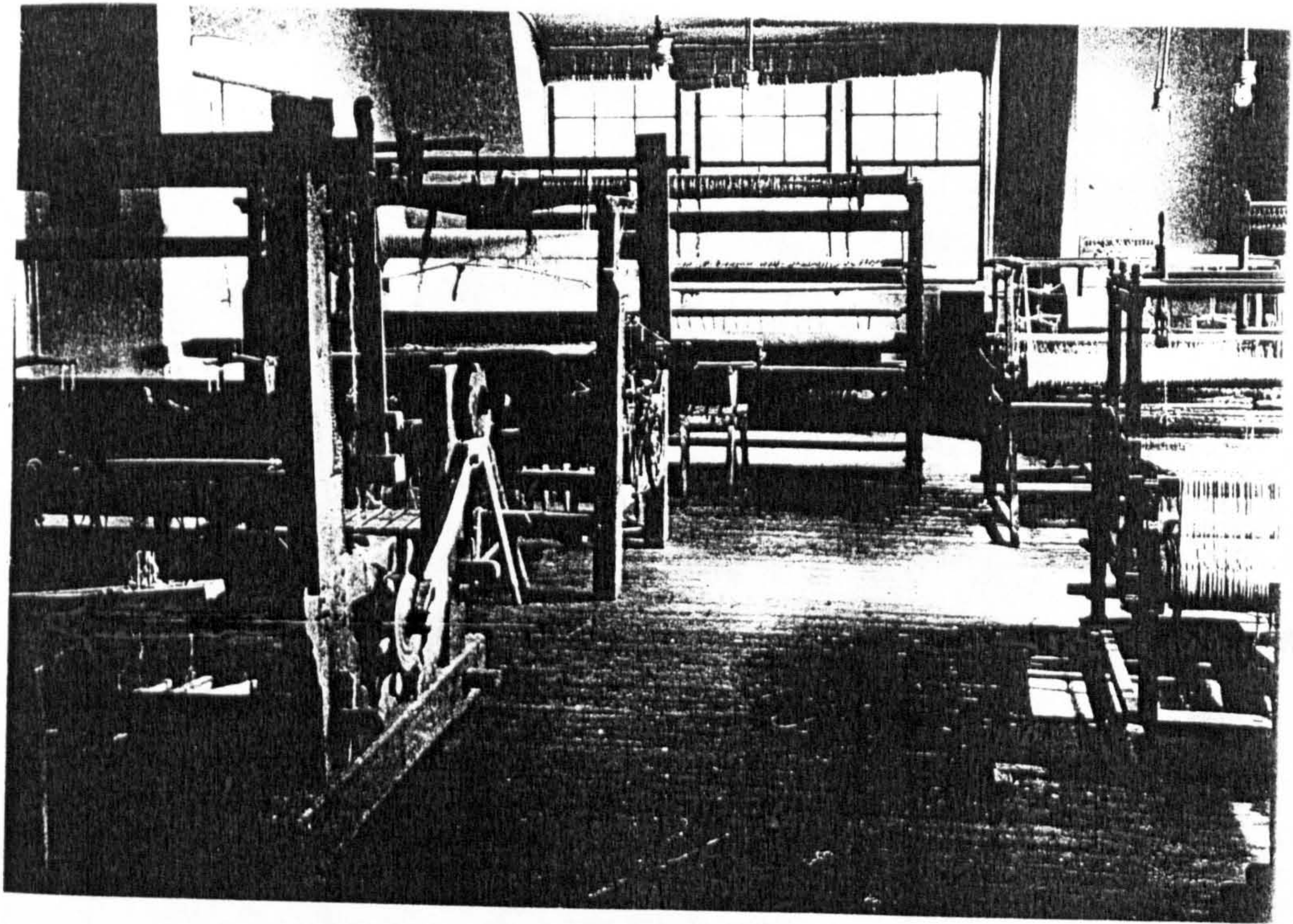


Fig. 34 Weimar Bauhaus. Weaving workshop

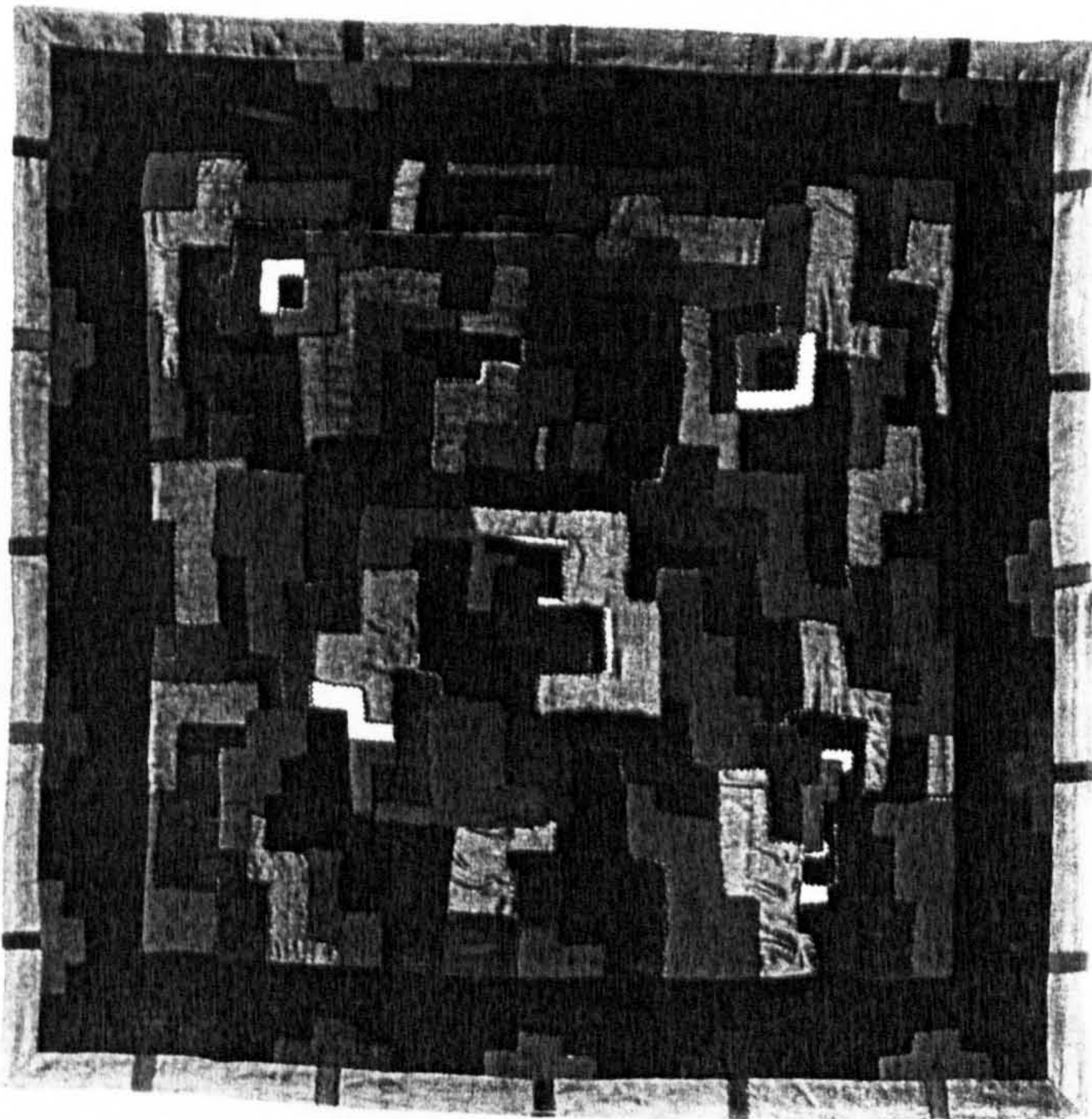


Fig. 35 Weimar Bauhaus. Silk Appliqué. 1920

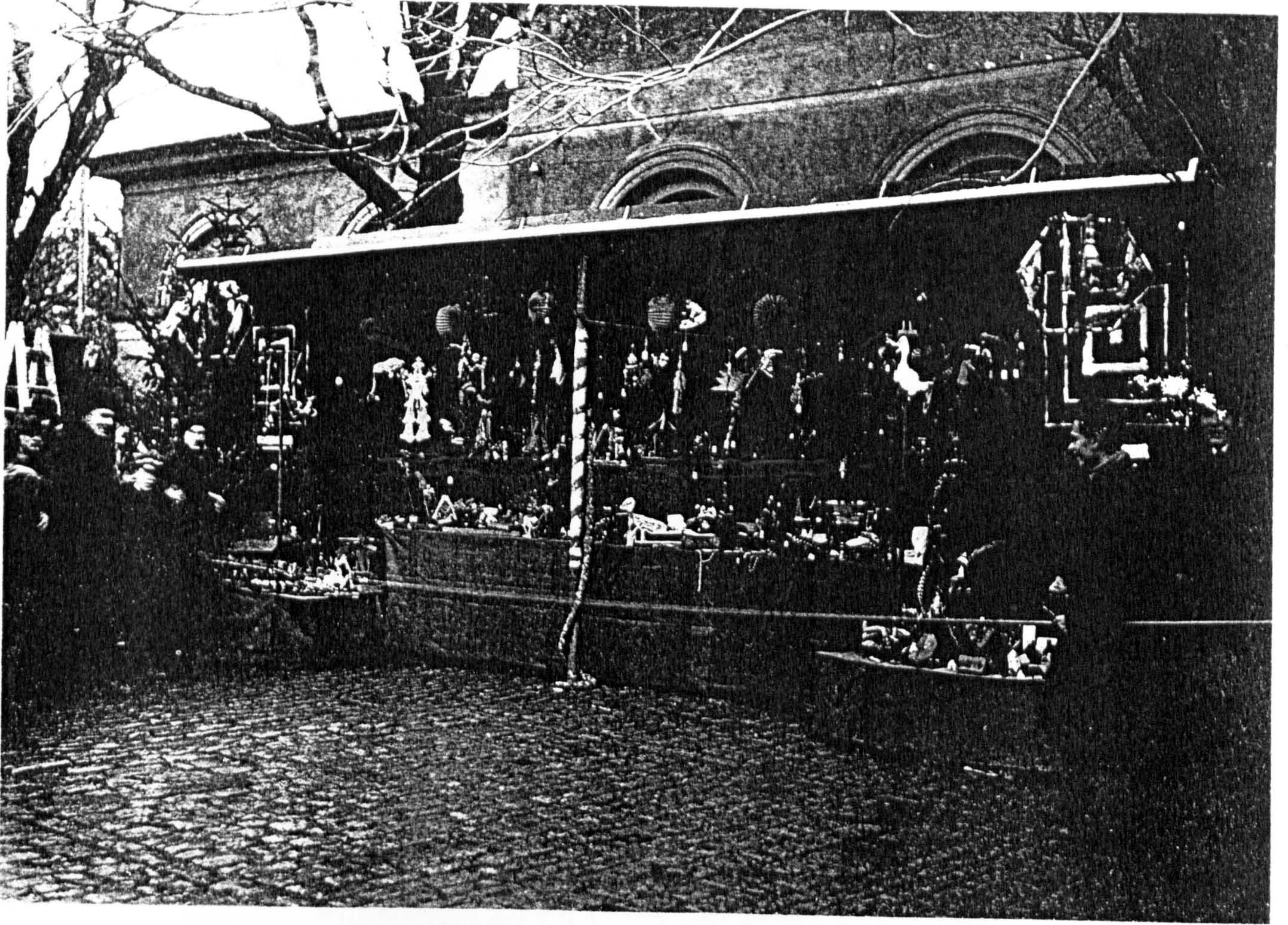


Fig. 36 Weimar Bauhaus. Dada stall. Christmas 1919.



Fig. 37 Stolzl toy .1919,watercolour



Fig. 38 Buschler toy, doll for throwing 1924



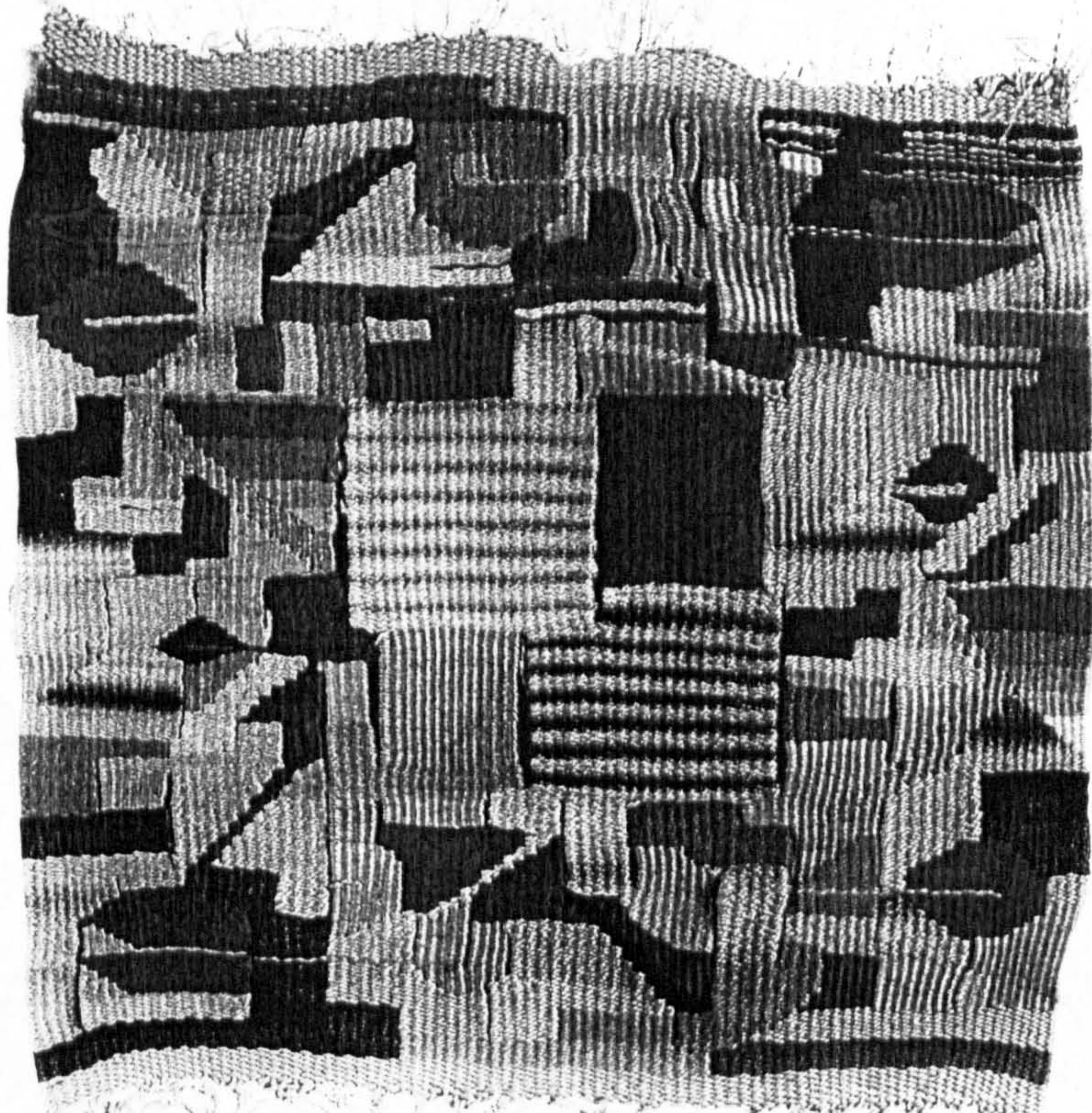


Fig. 39

Lore Leudesdorff. Slit gobelin tapestry 1922-23.



Fig. 40

Appliqué. Ida Kerkovious. Early 1920's.

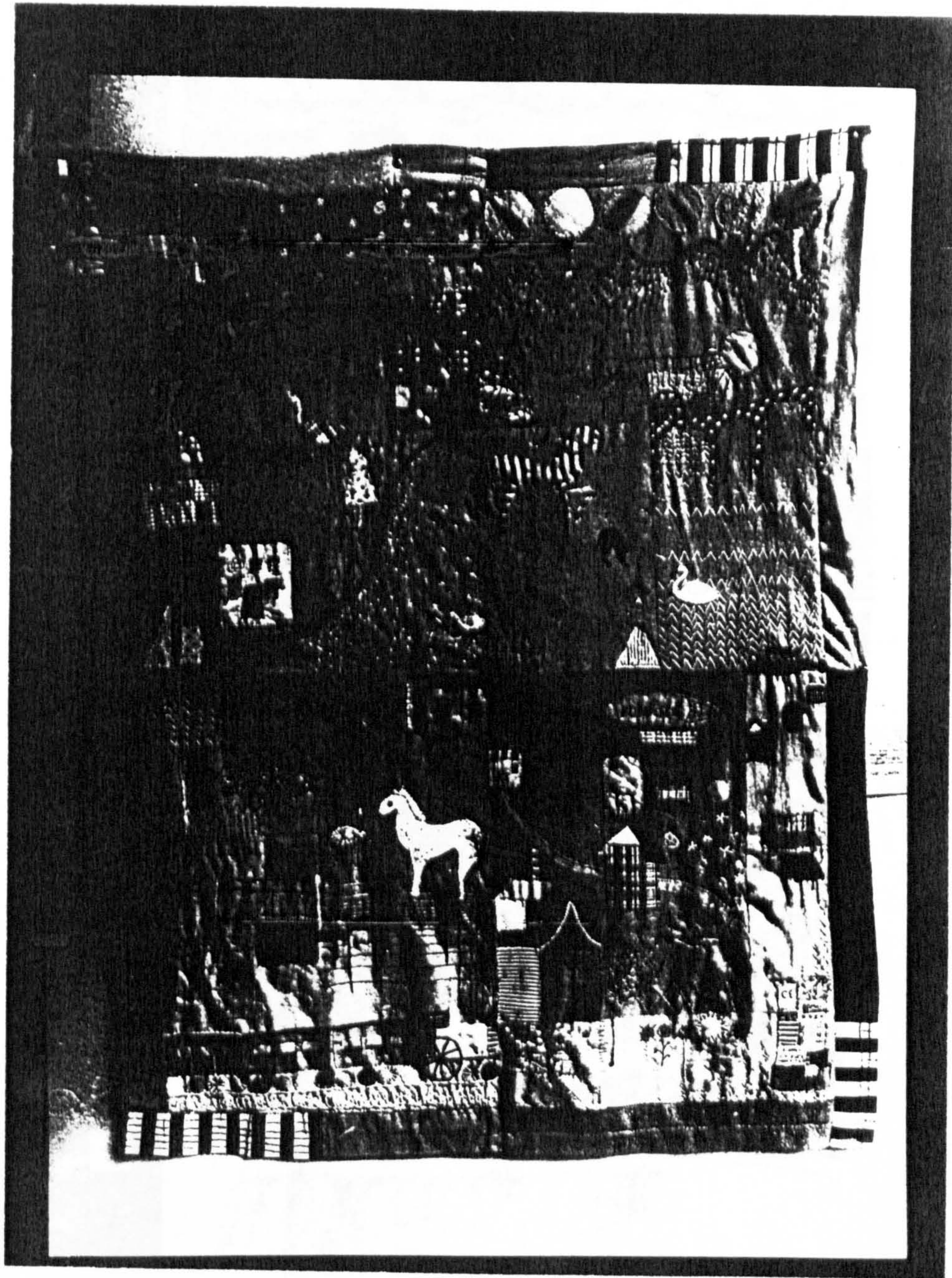
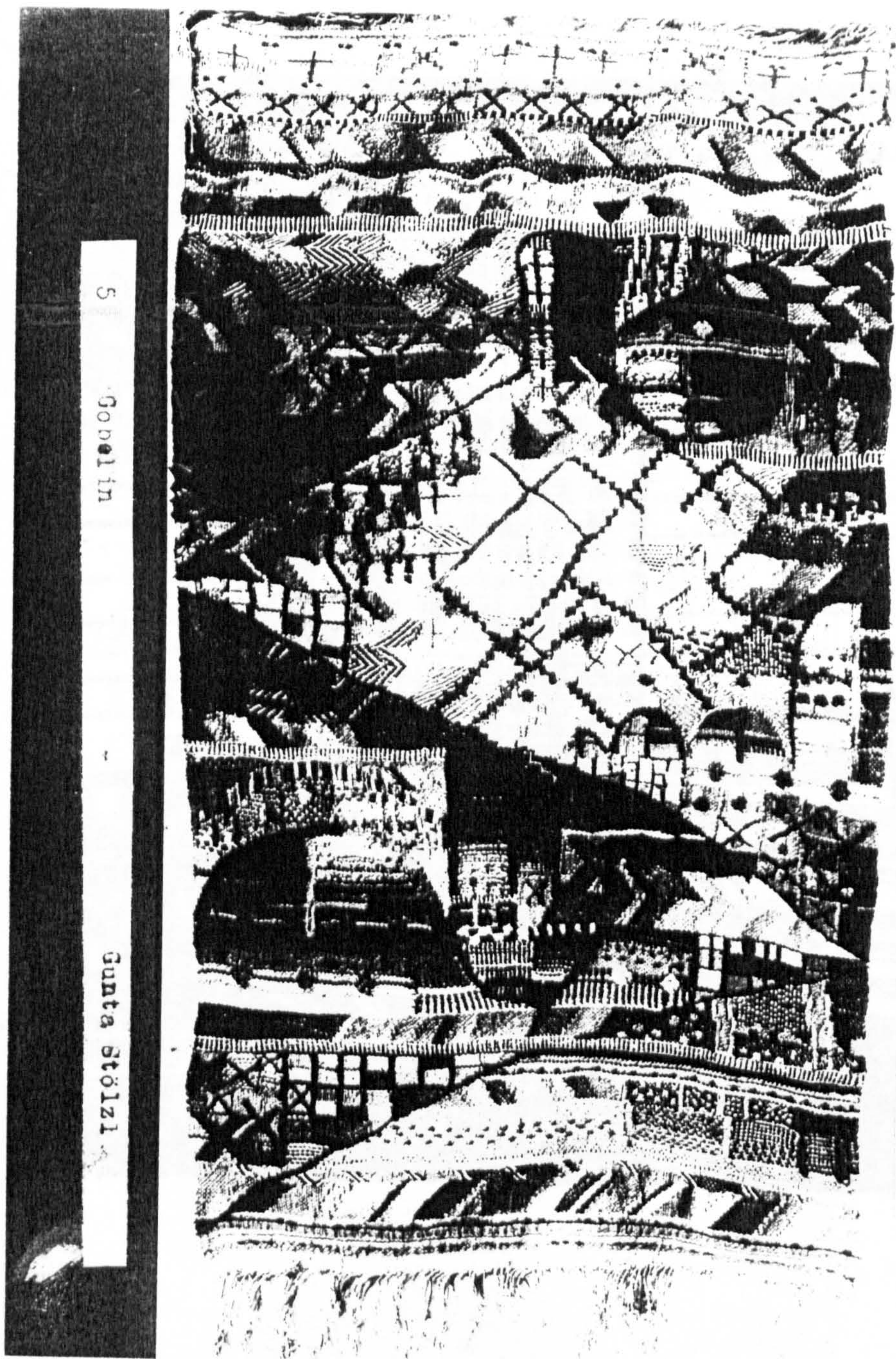


Fig. 41

Ruth Valentin Appliqué. Kinderzimmerwandbehang 1920



5 Gobelins

Gunta Stölzl

Fig. 42 Stolzl, untitled gobelin 1921

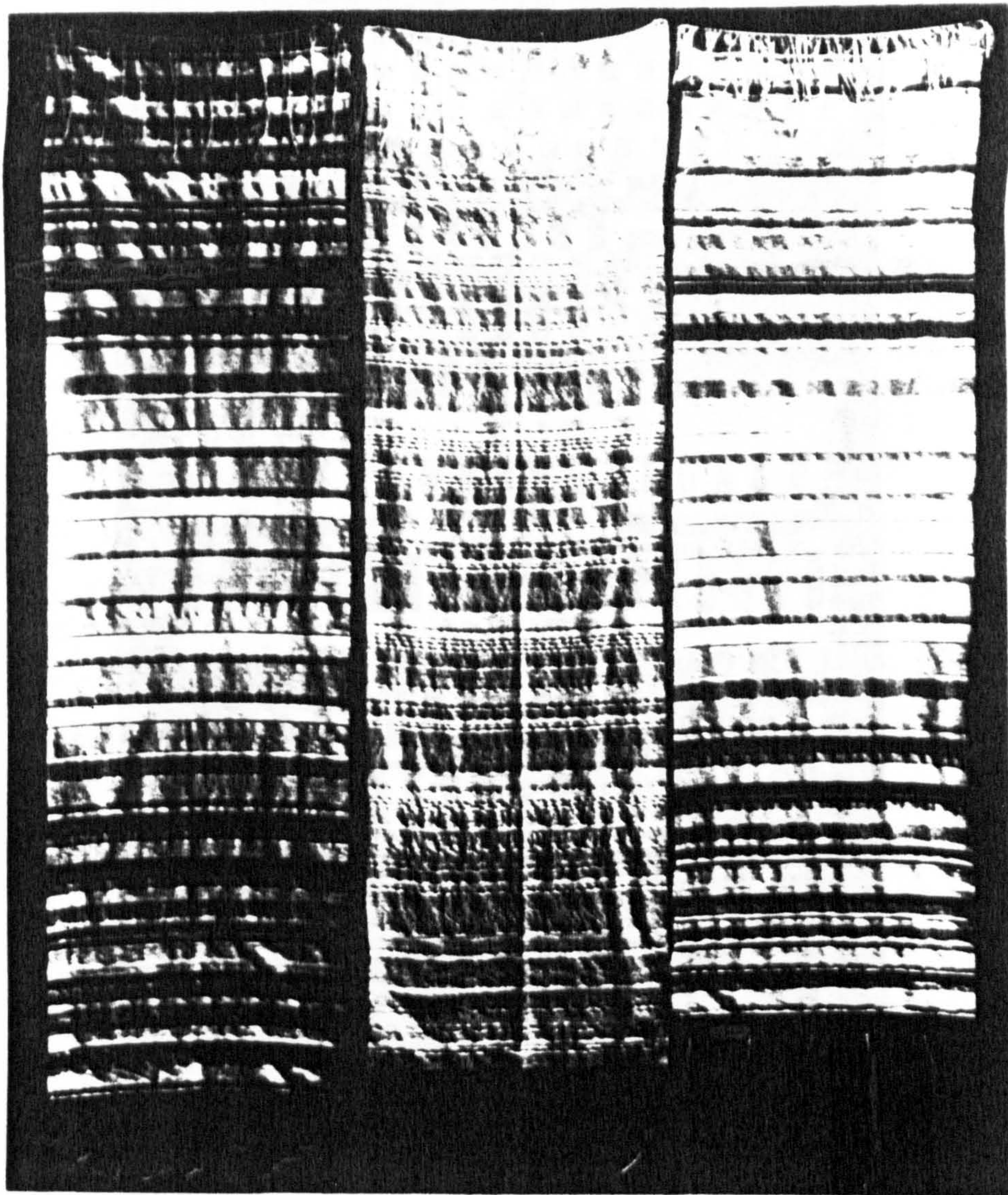


Fig. 43 Leudesdorff. Three Striped Shawls 1921?

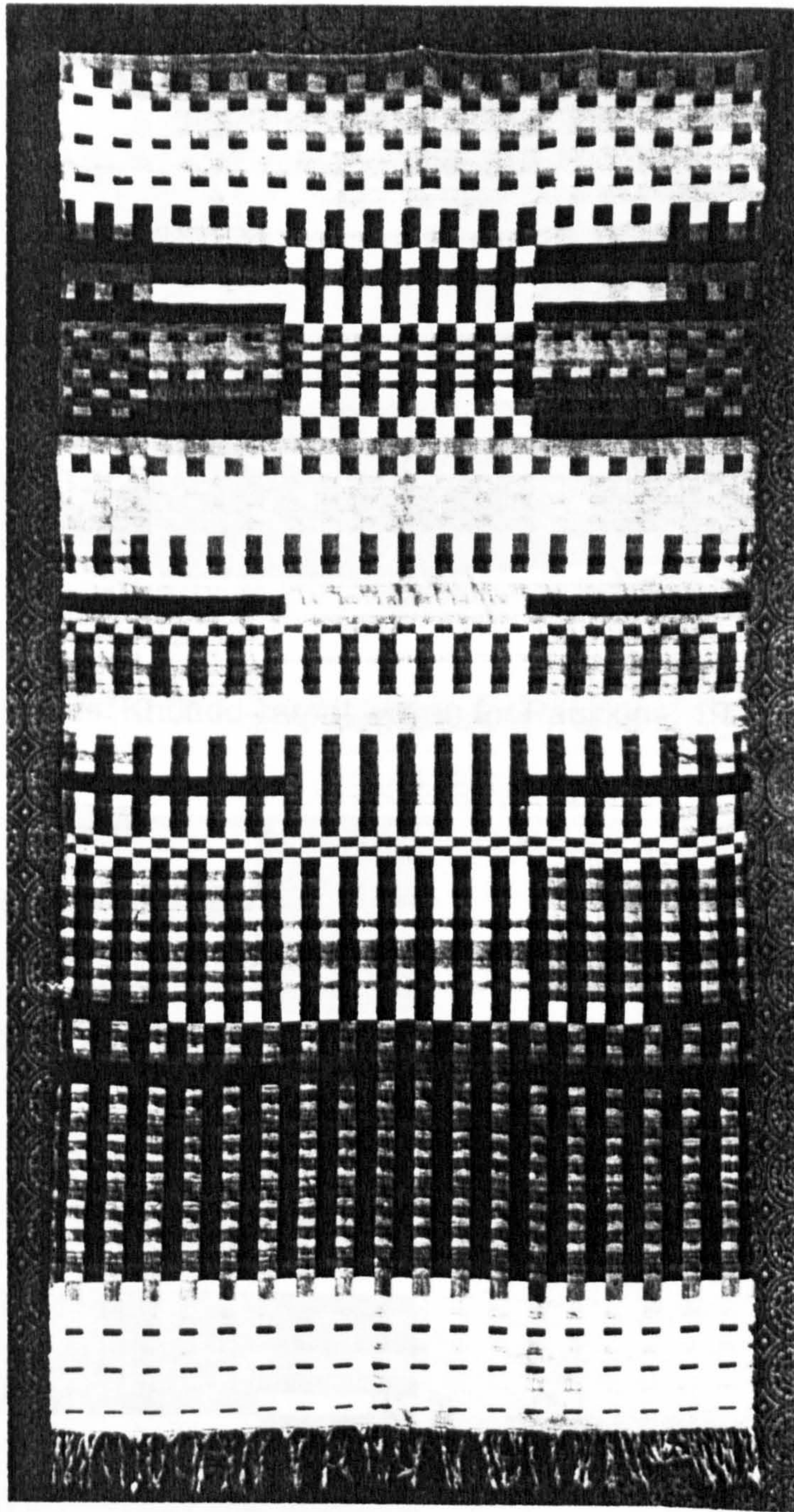


Fig. 44 Benite Otte. Untitled hanging 1920-22.

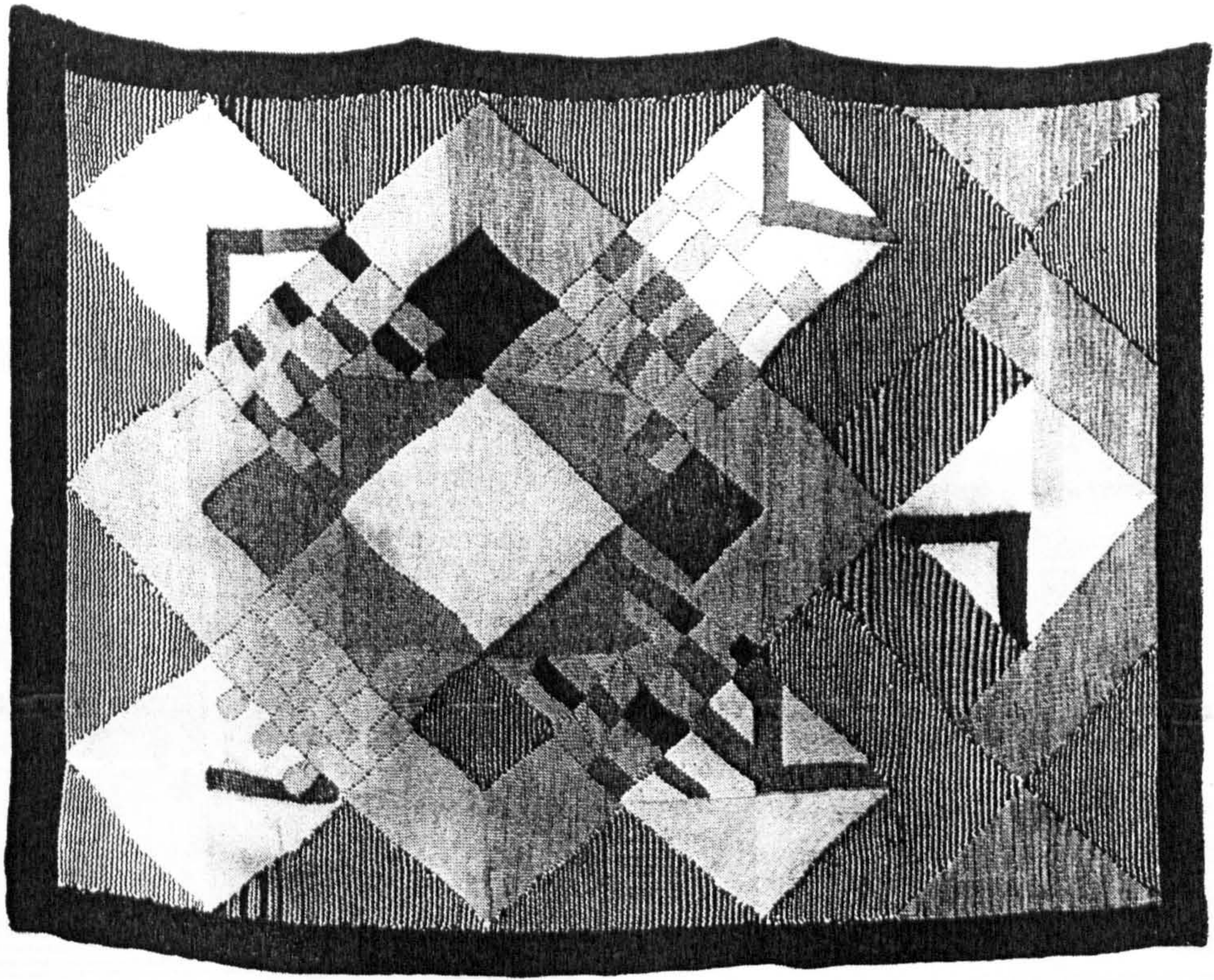


Fig. 45 Ida kerkovious. Knotted carpet woven for Paul klee, 1923

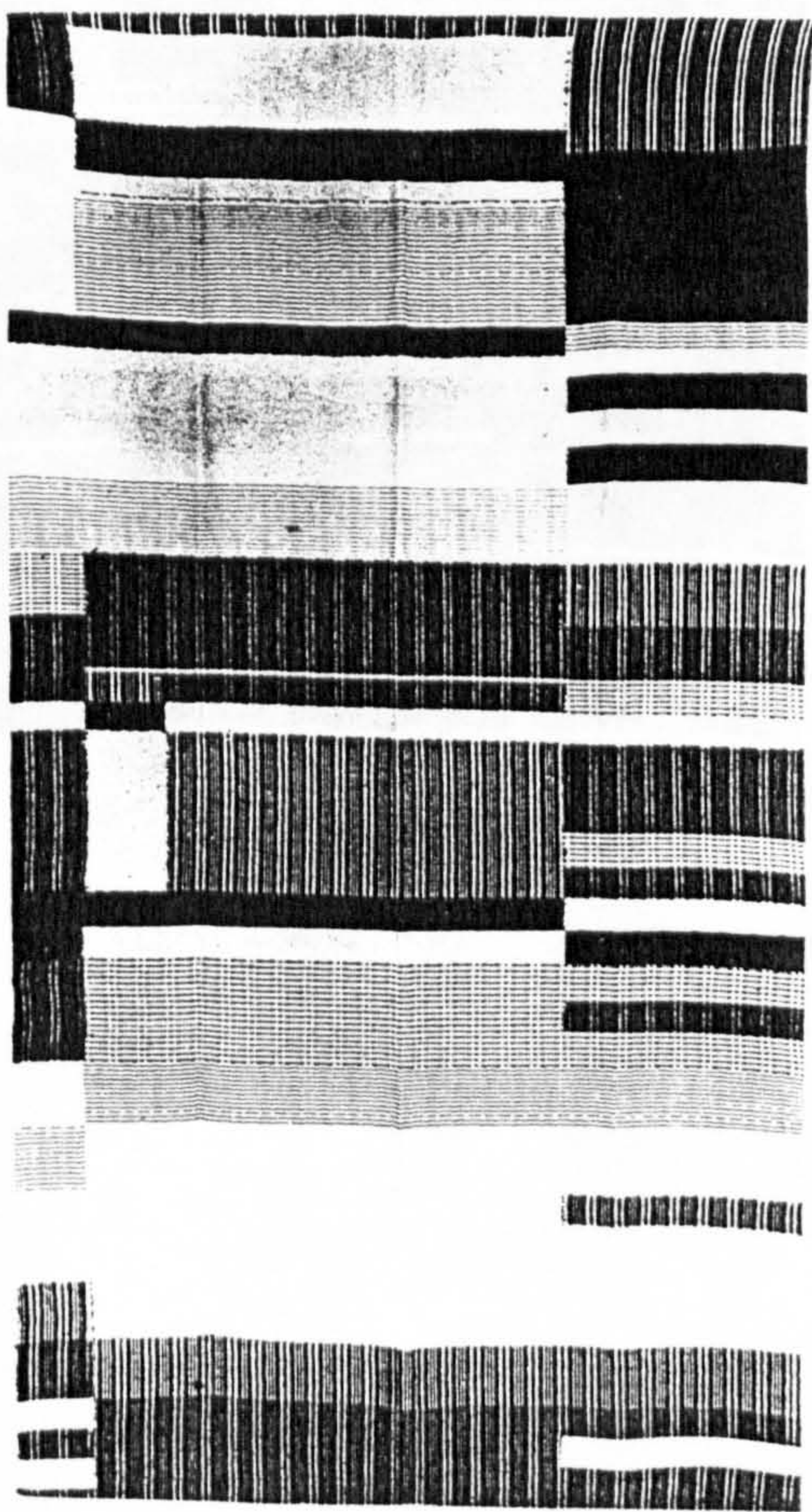
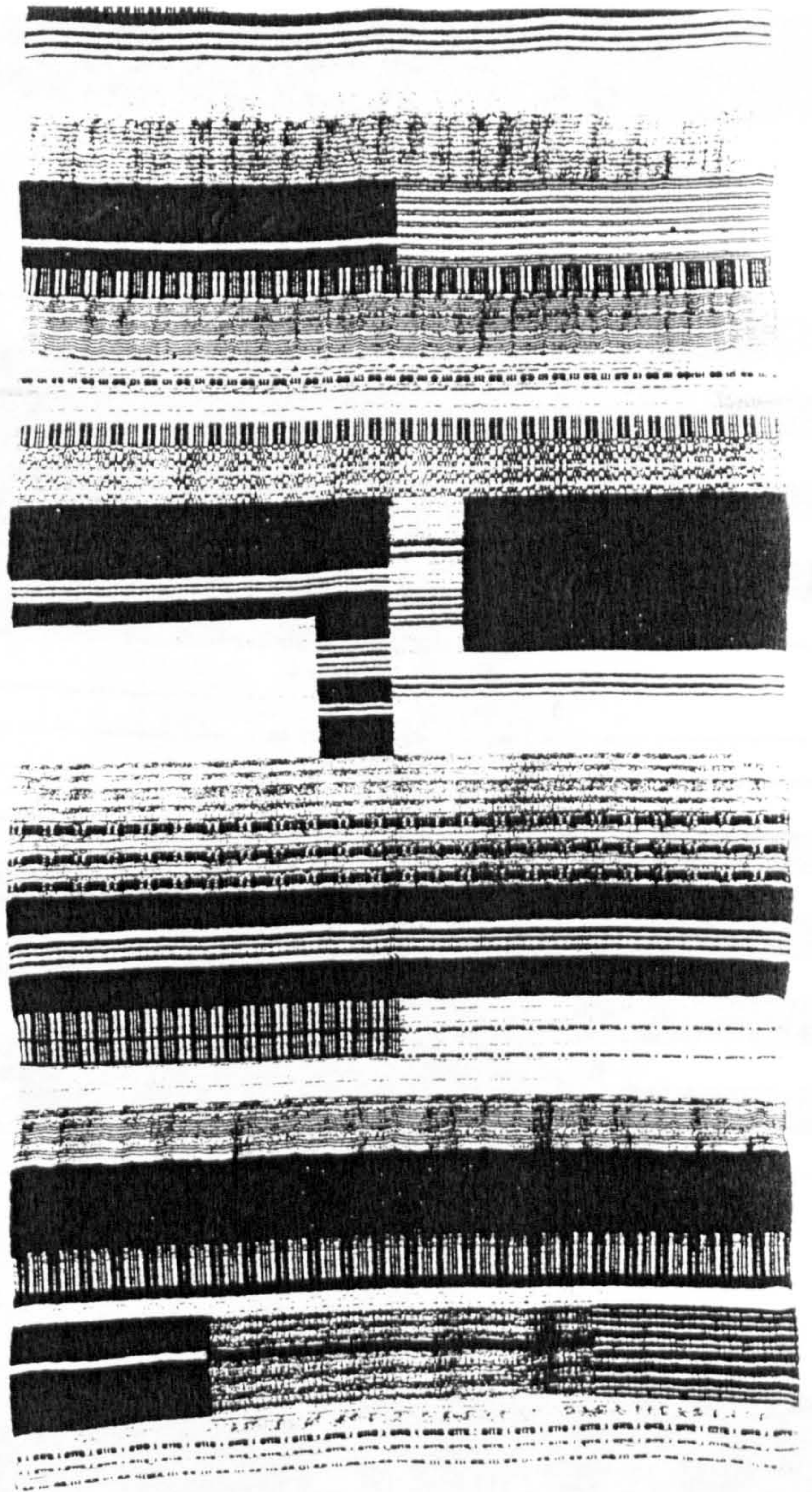
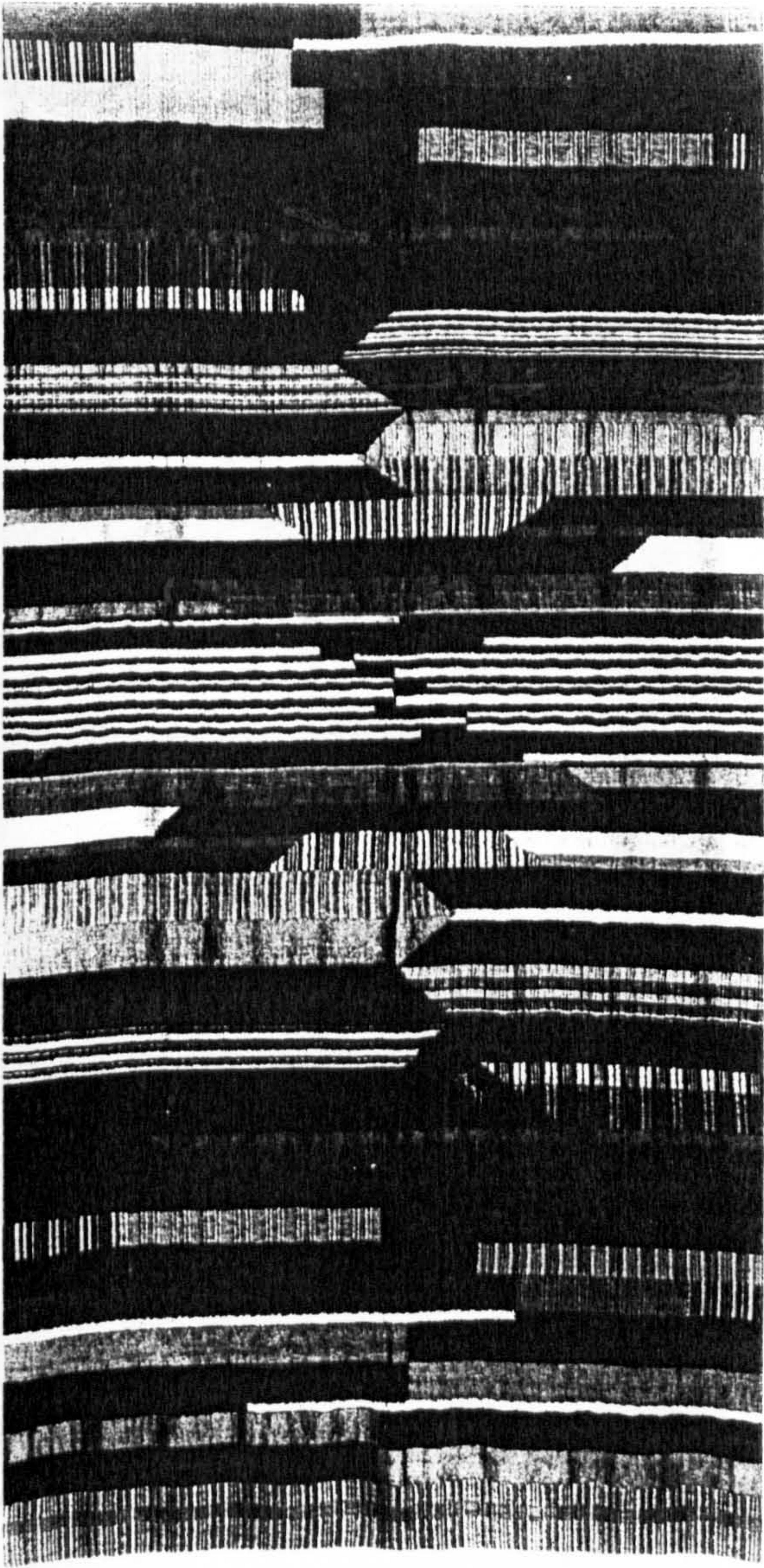


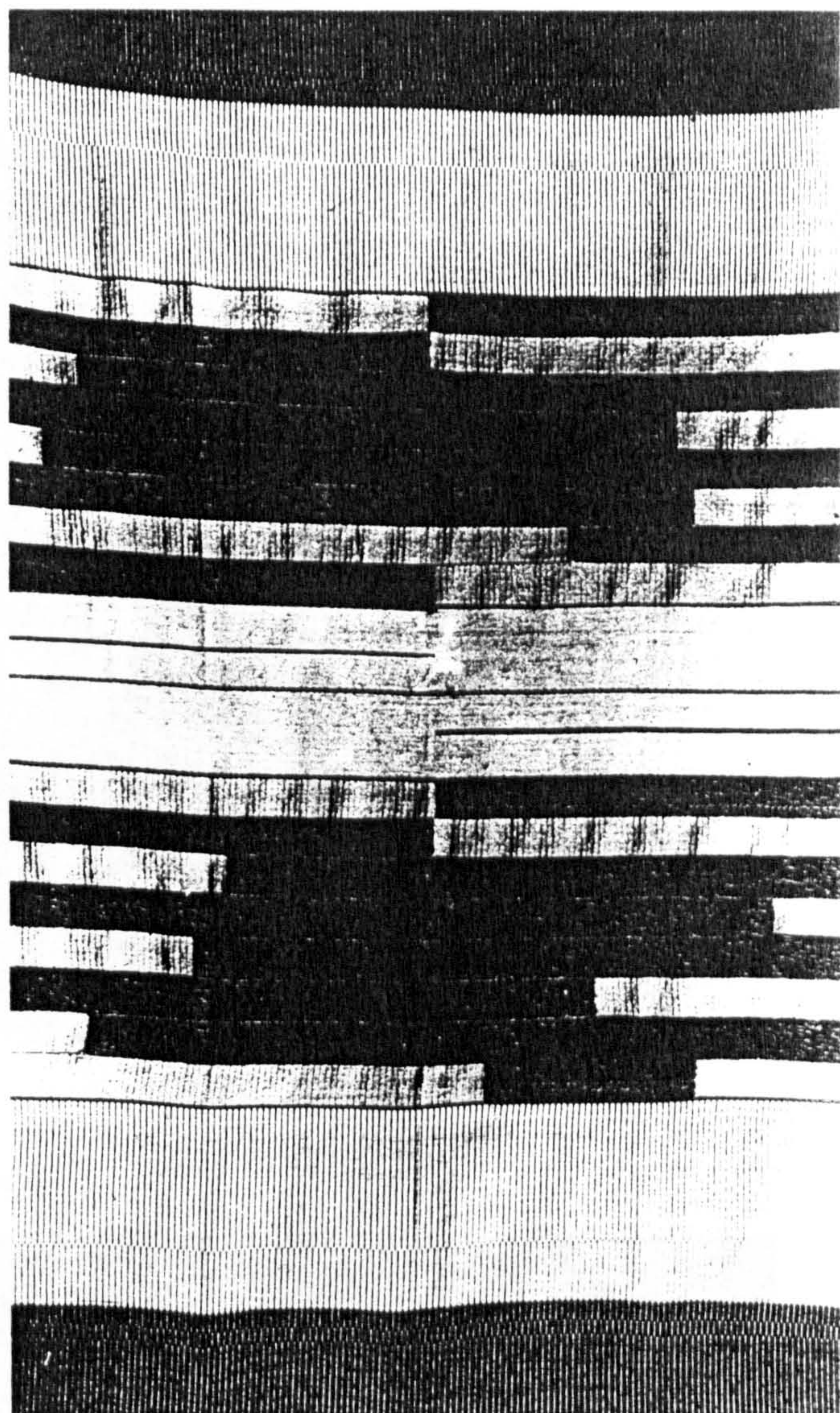
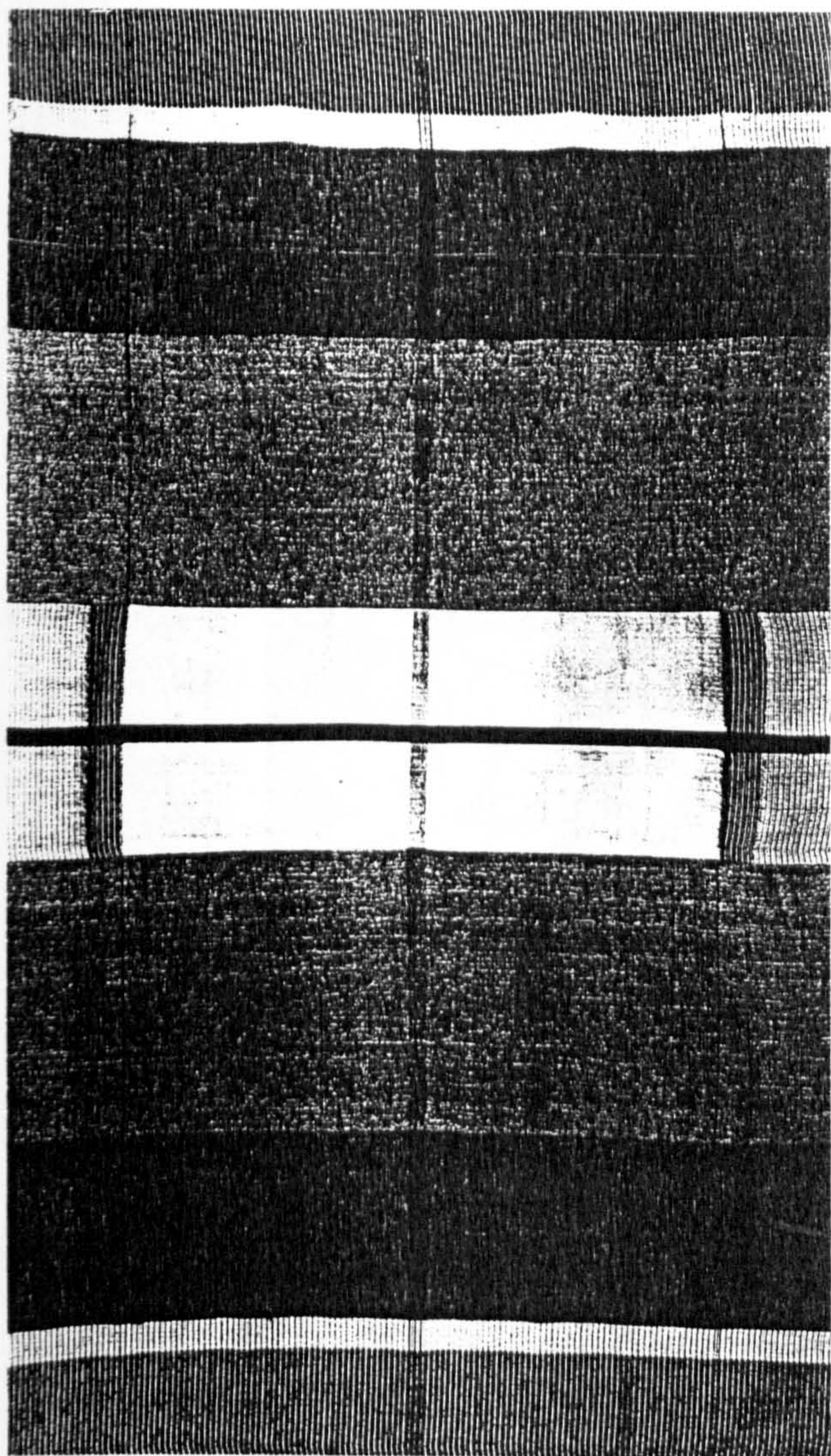
Fig. 46 Unknown, early 1920's. Wallhanging.



Left: Fig. 47  
Right Fig. 48

Stolzl. Gobelin 1923, copy by Börner 1925.  
Marta Erps-Breuer. Shaft woven gobelin technique, 1924





Left: Fig. 49  
Right: Fig. 50

Anni Albers. Untitled Wall Hanging. Smithsonian Catalogue. 1922  
Anni Albers. Untitled Wall Hanging. Smithsonian Catalogue. 1924

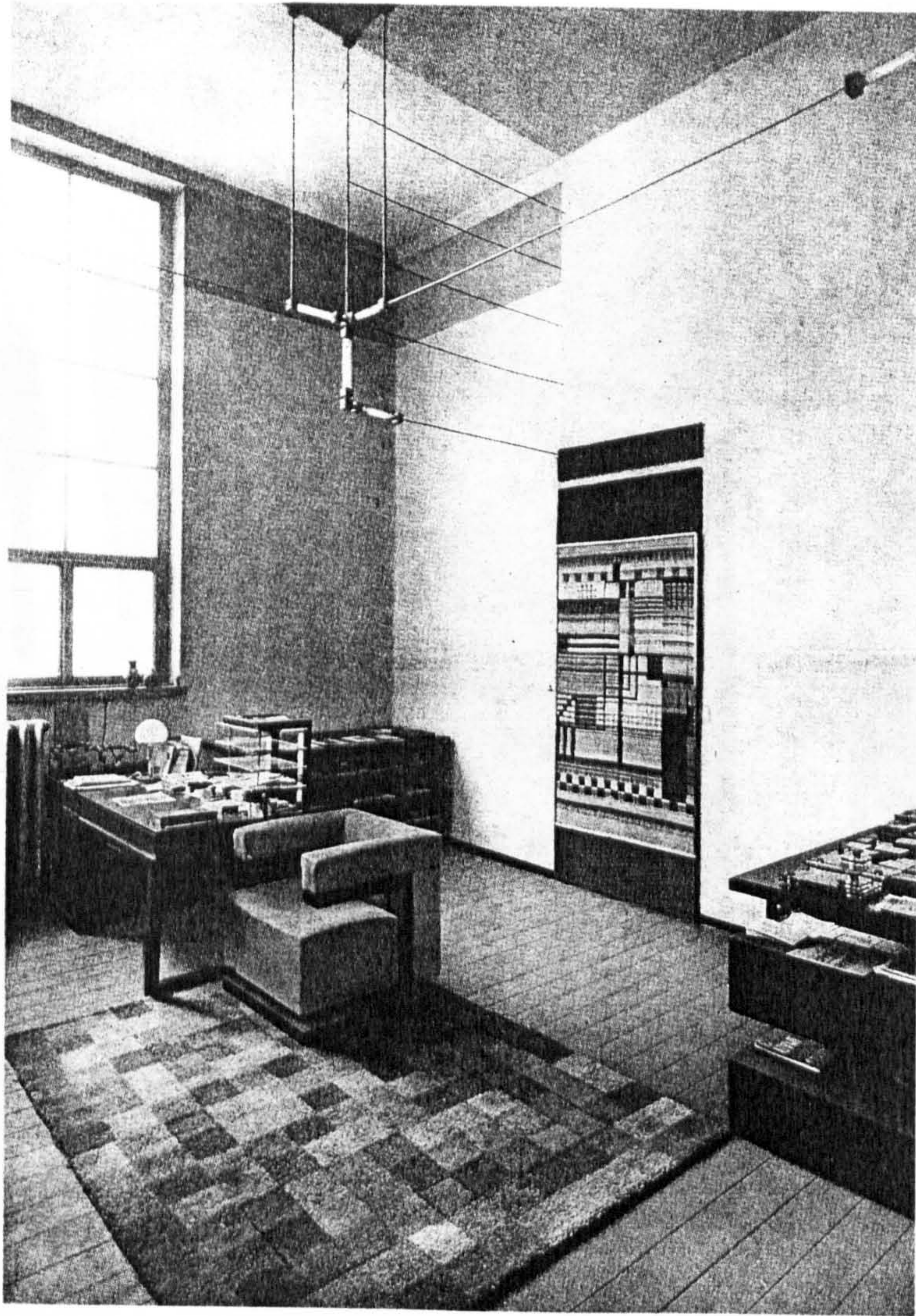


Fig. 51 Weimar Exhibition 1923. Gropius' Office

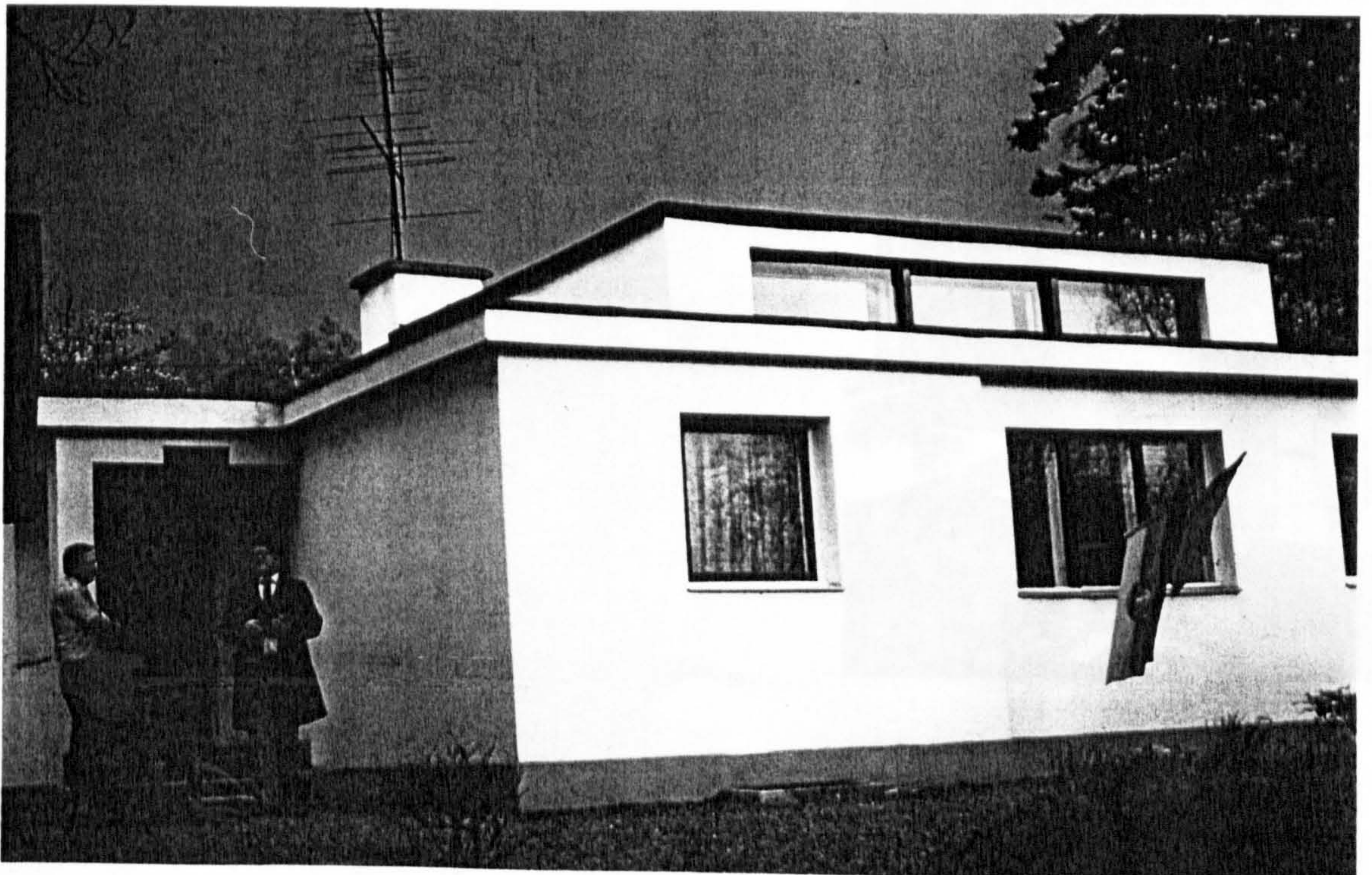


Fig. 52 Haus am Horn 1923. The porch on the left is a later addition. Photographed May 2, 1985 on the celebration of Mucche's 90th birthday.

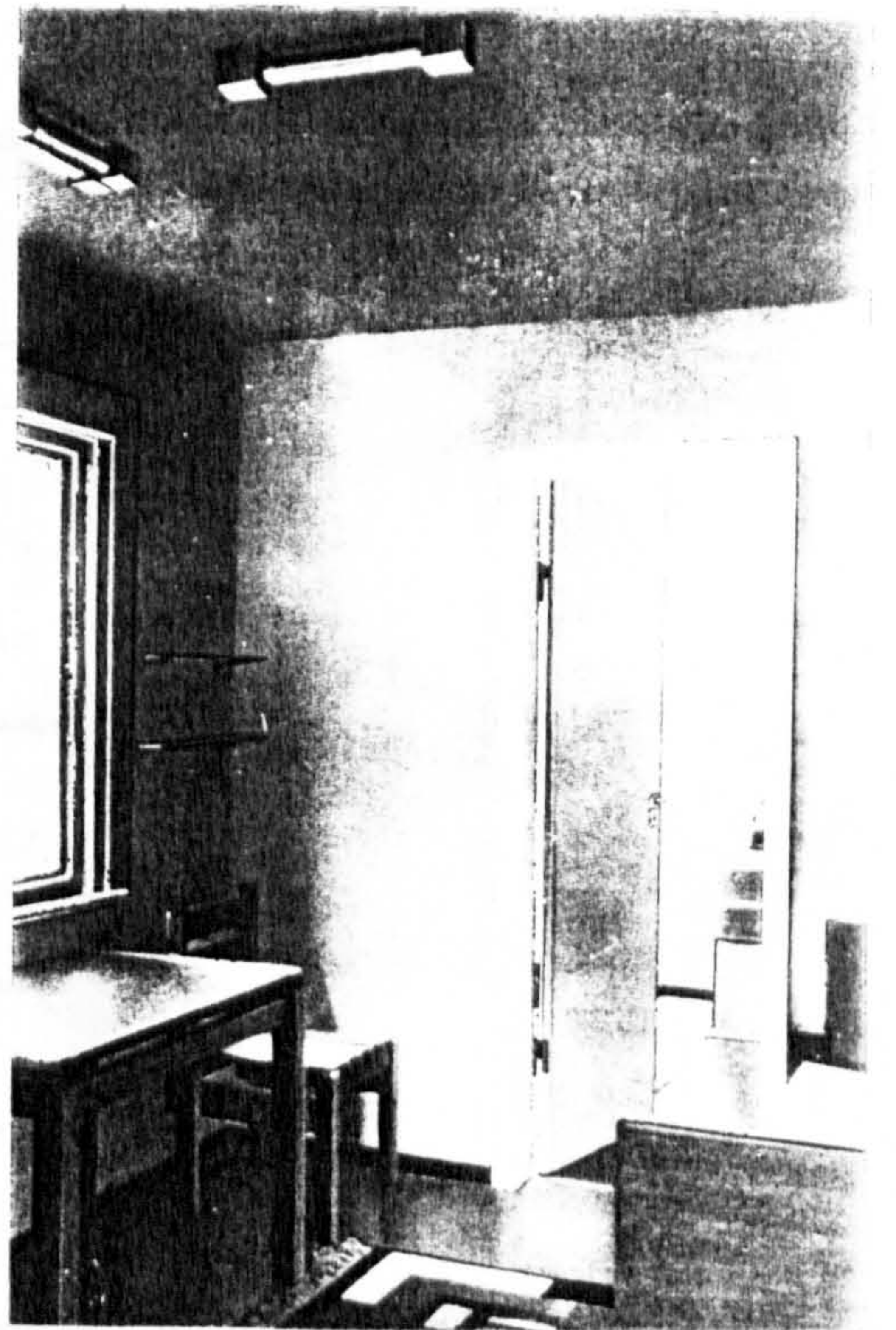
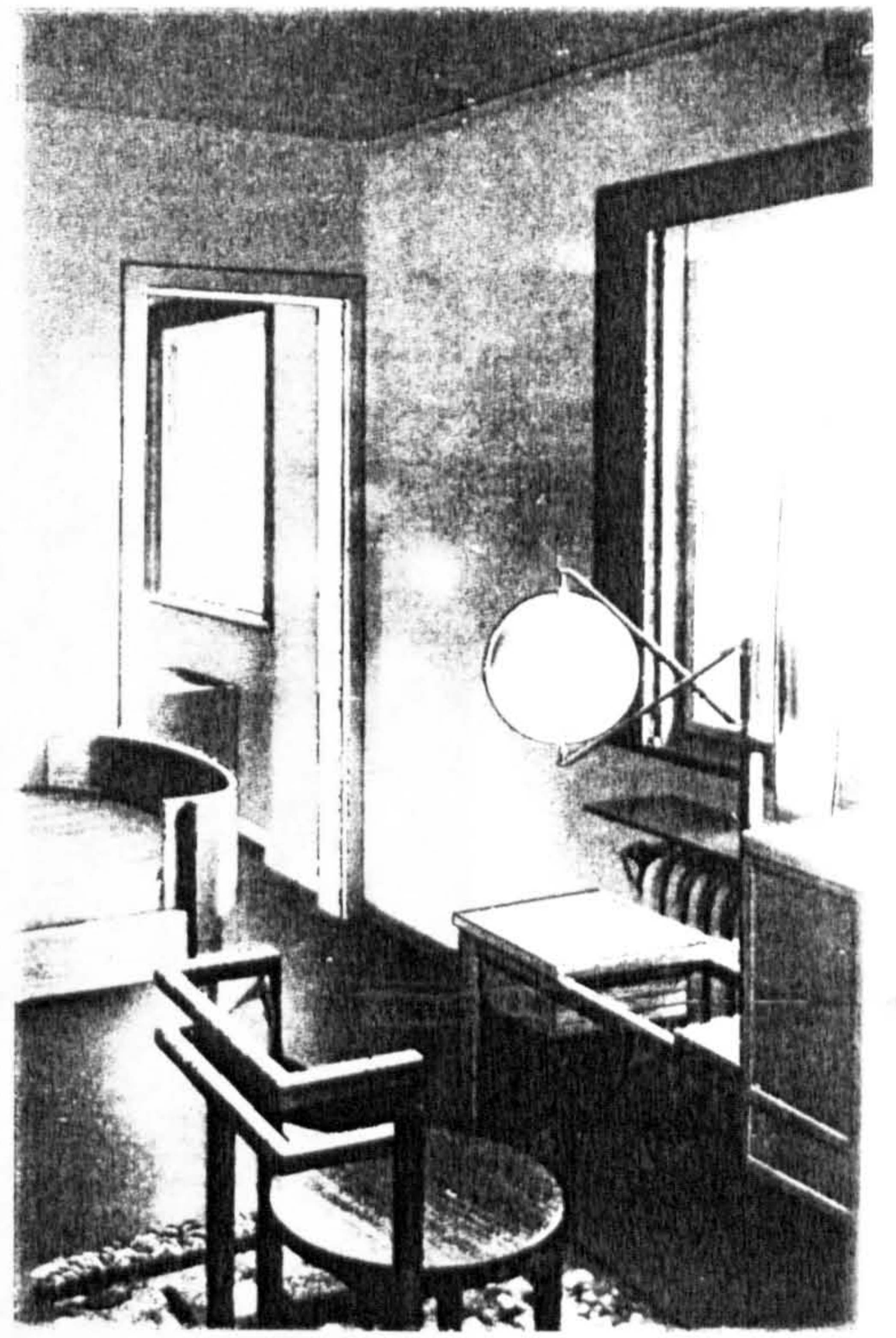


Fig. 53 Haus am Horn 1923 Left: Mistress's room.  
Top right: Master's room.  
Bottom right: Children's room.

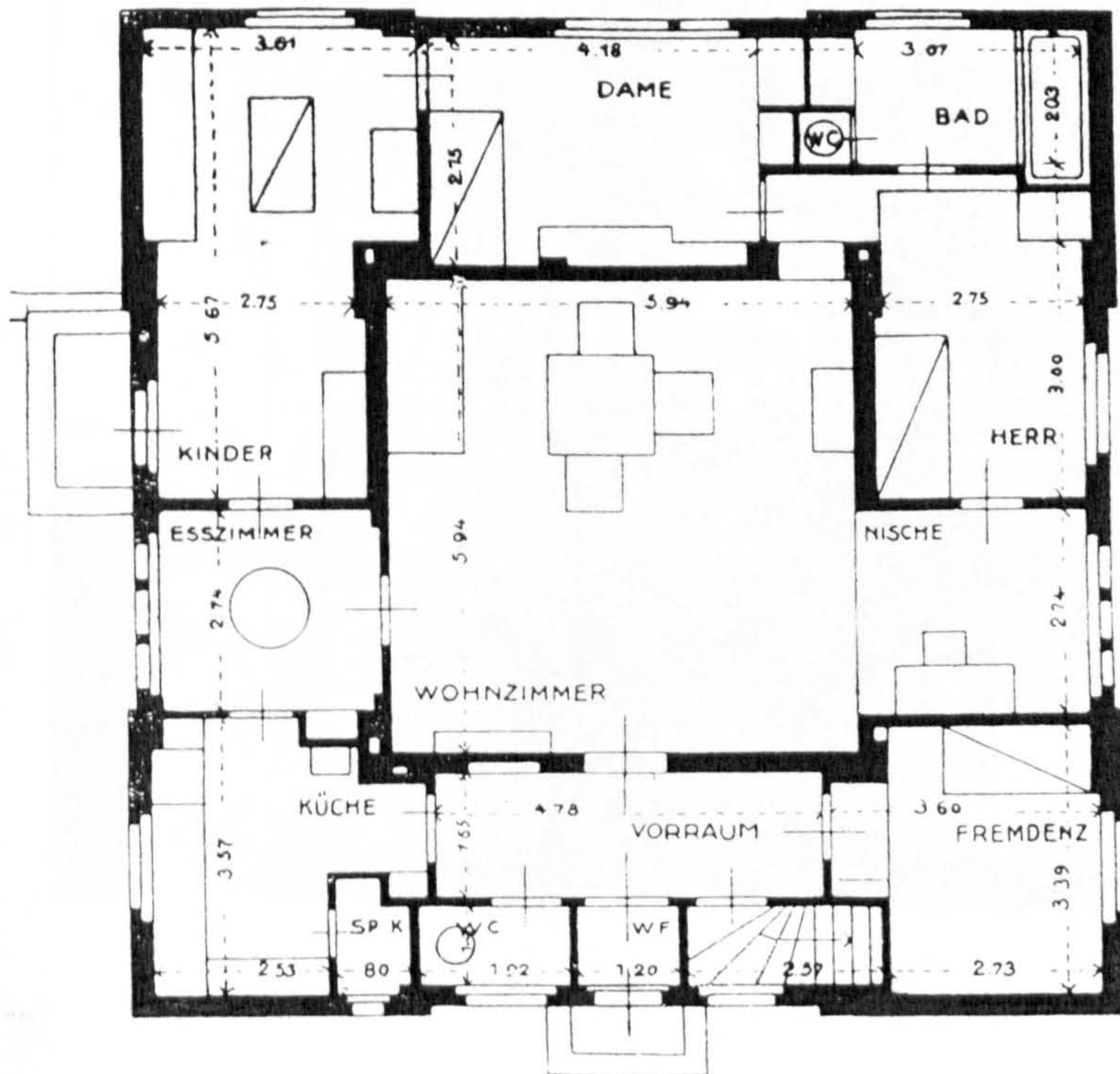
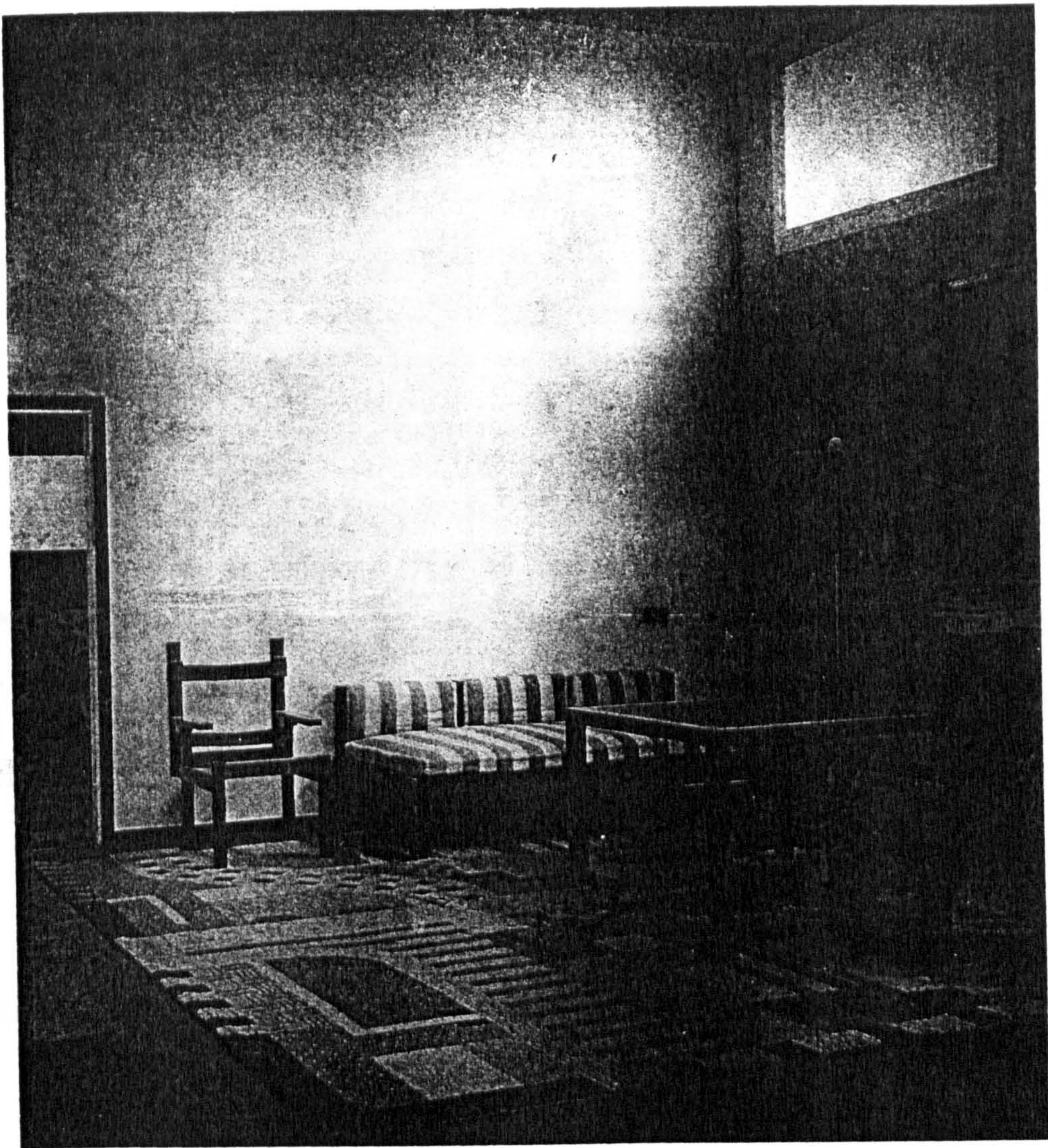


Fig. 54

Haus am Horn 1923. Living room with radically simple forms and bare pictureless walls. Furniture by Marcel Breuer, Carpet by Martha Erps-Breuer, 1923

Lower:

Groundplan of Haus am Horn.



Fig. 55 Leipzig fair 1930. Alen Müller-Hellwig's stand at the Spring Fair showing pictorial gobelin hangings and geometric abstract hangings.

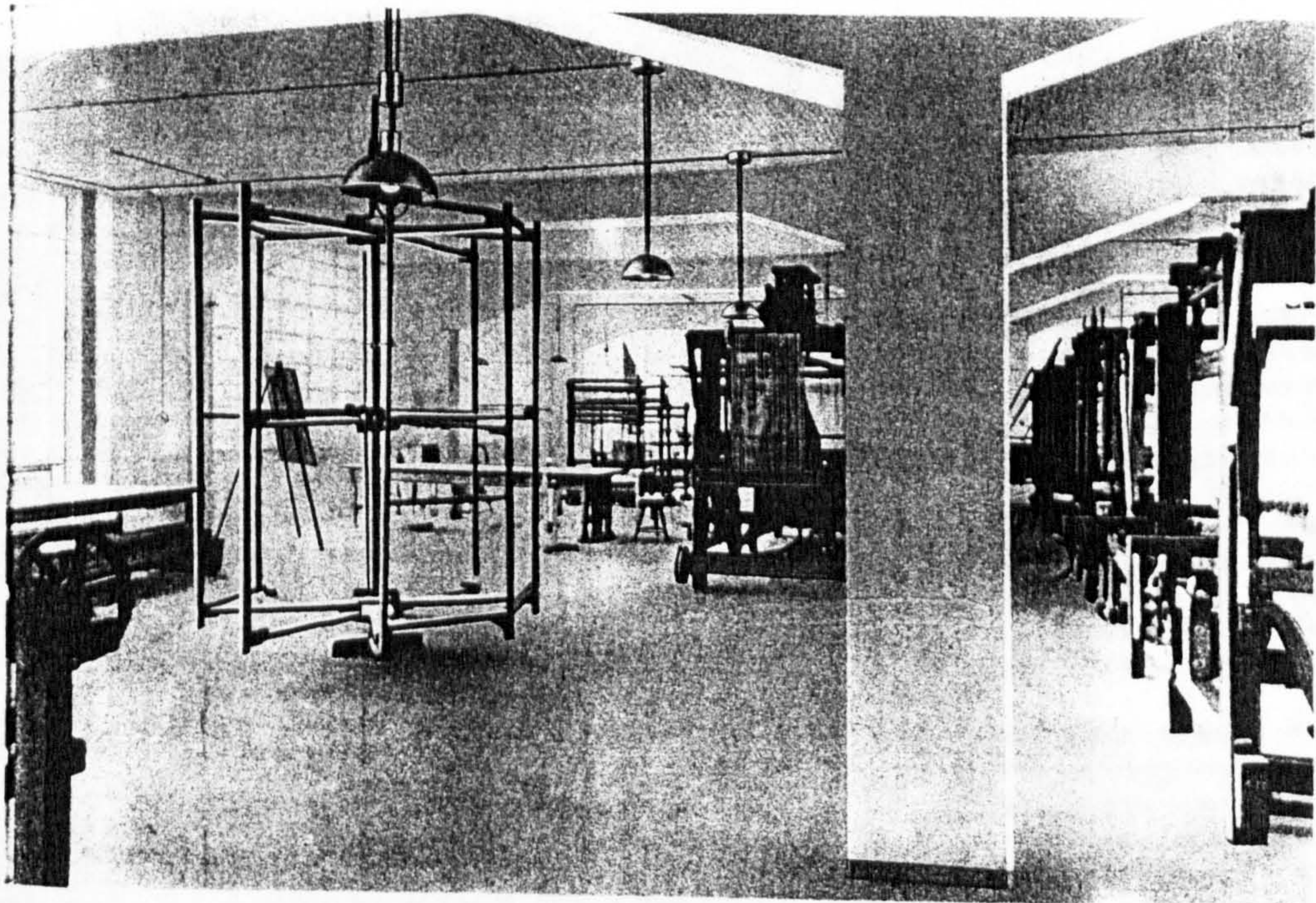


Fig. 56 Dessau Bauhaus Weaving Workshop. 1927

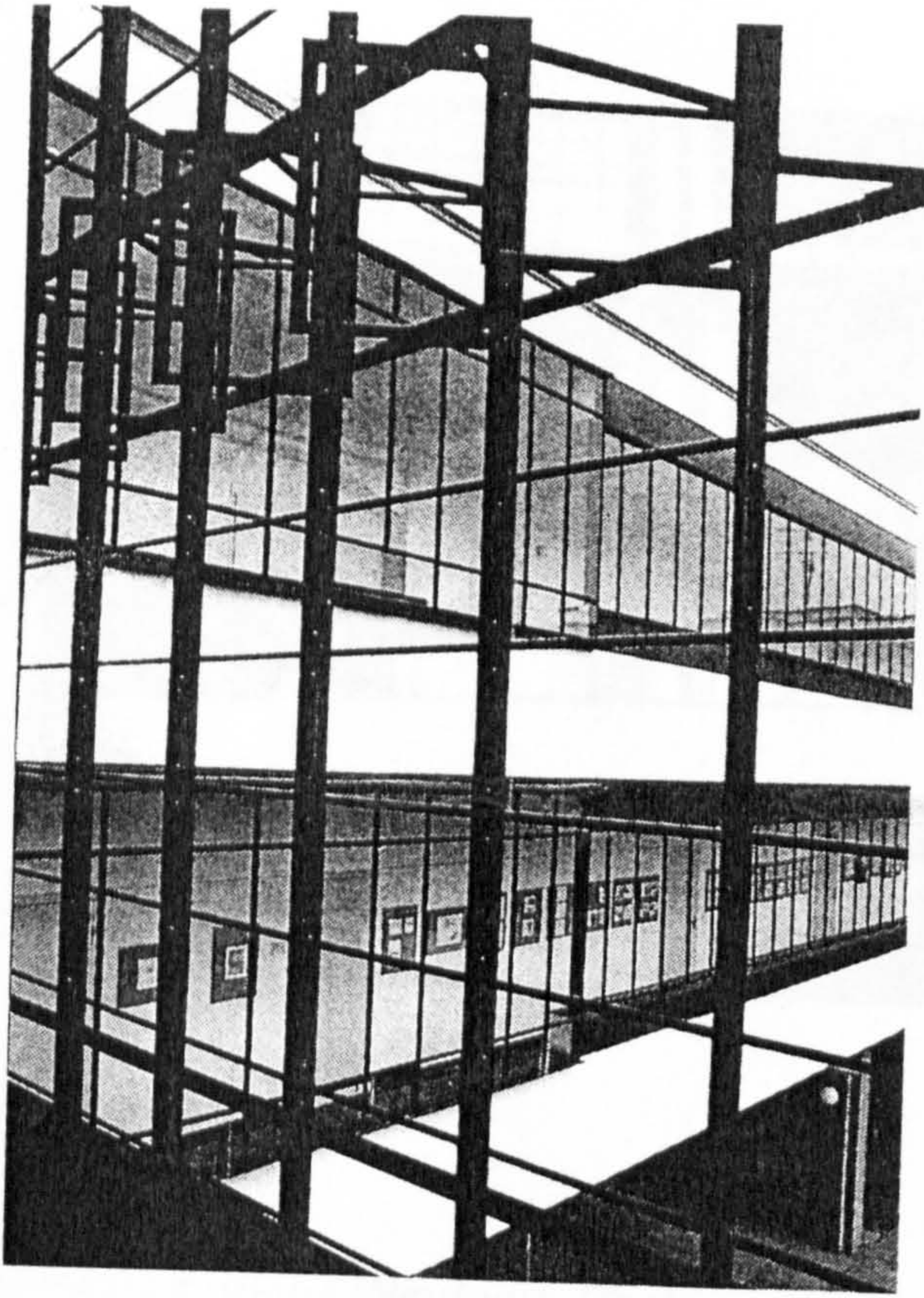


Fig. 57 a, Dessau Bauhaus Windows

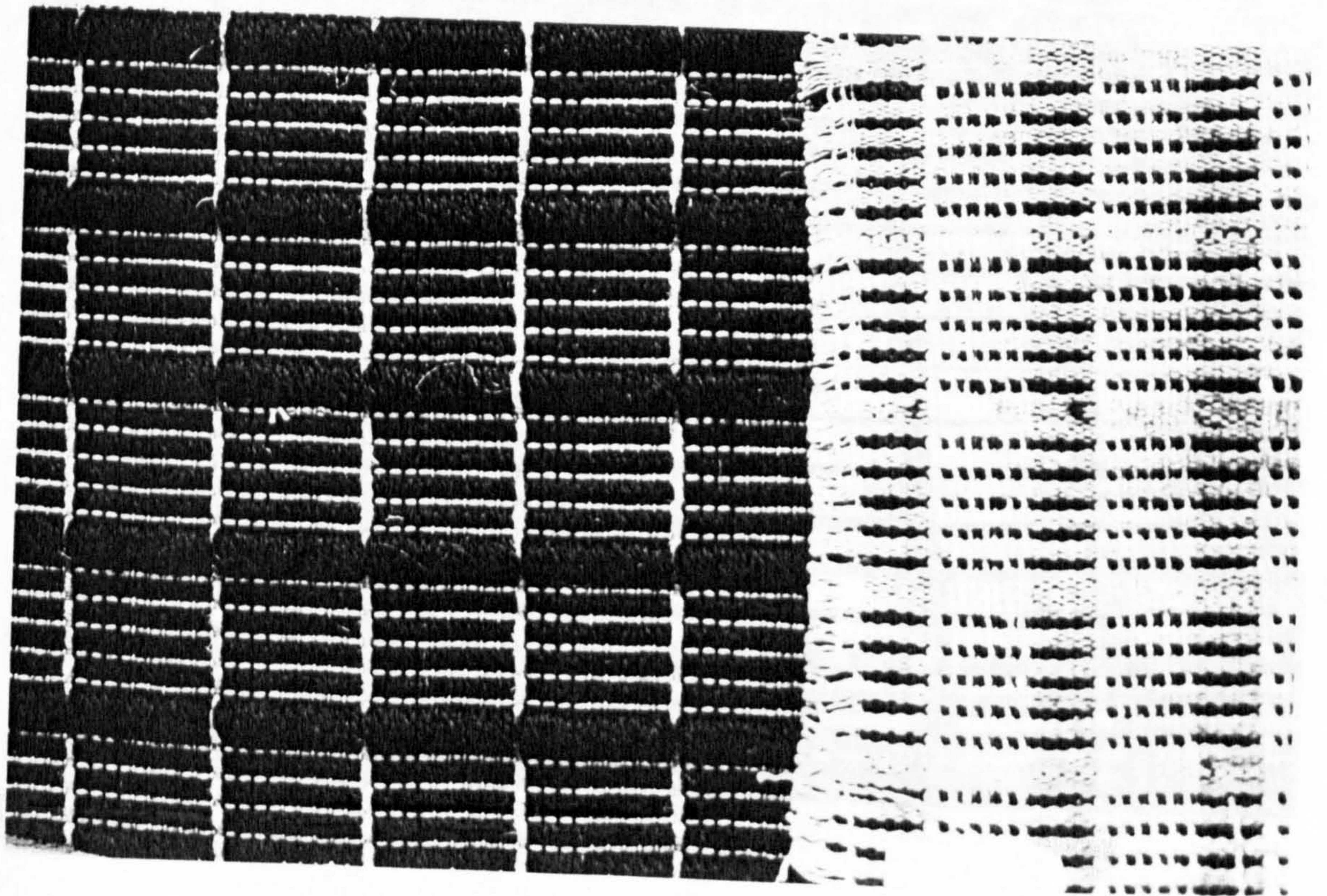


Fig. 58 a, Dessau Bauhaus woven fabric. Grete Reichardt

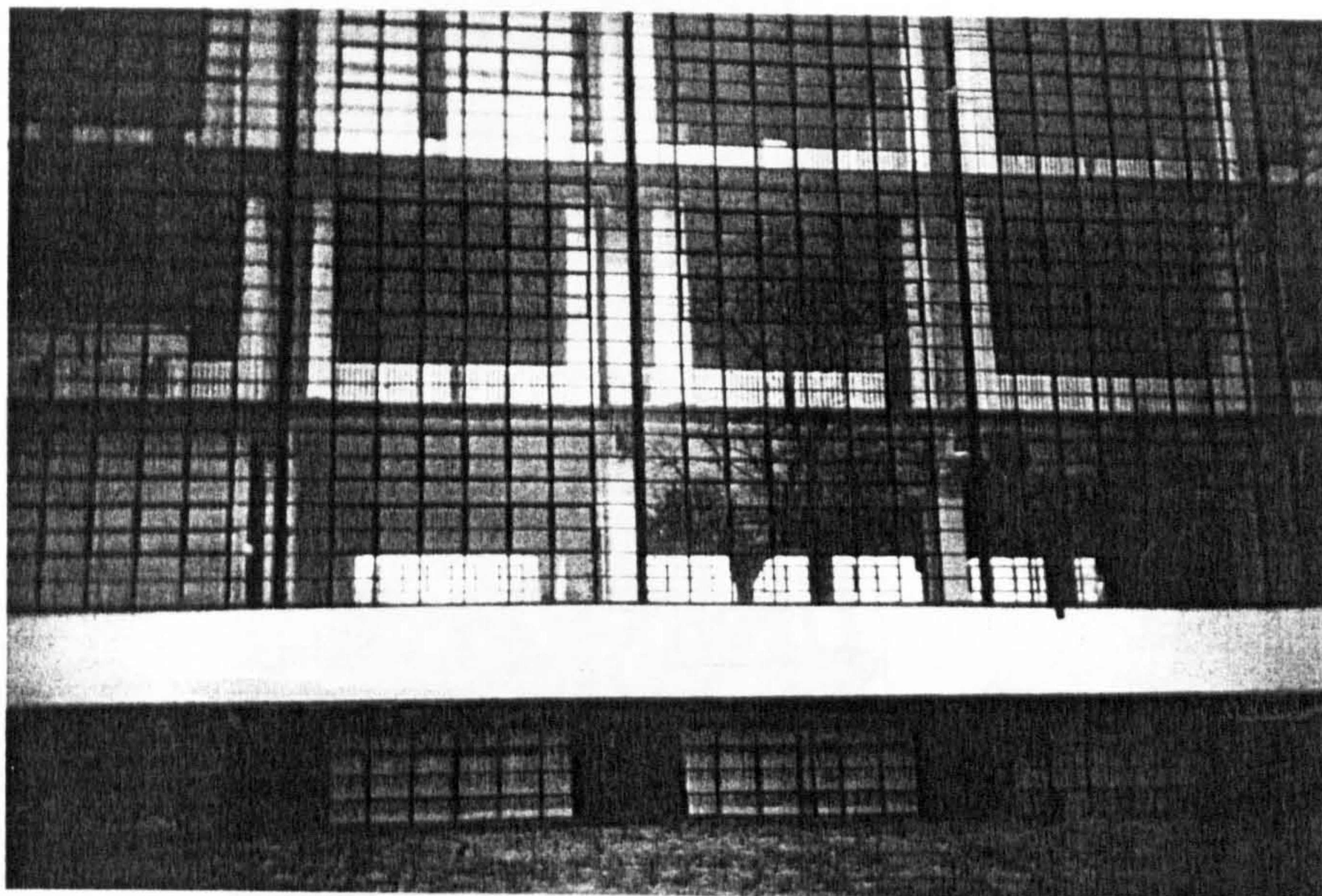


Fig. 57 ,b Dessau Bauhaus Windows. Photographs by Diane Bell.



Fig. 58 ,b Dessau Bauhaus woven fabric. Weaver unknown.

Overleaf:  
Fig. 57 c and 58 c, Dessau Bauhaus windows and woven fabric. Weaver unknown.

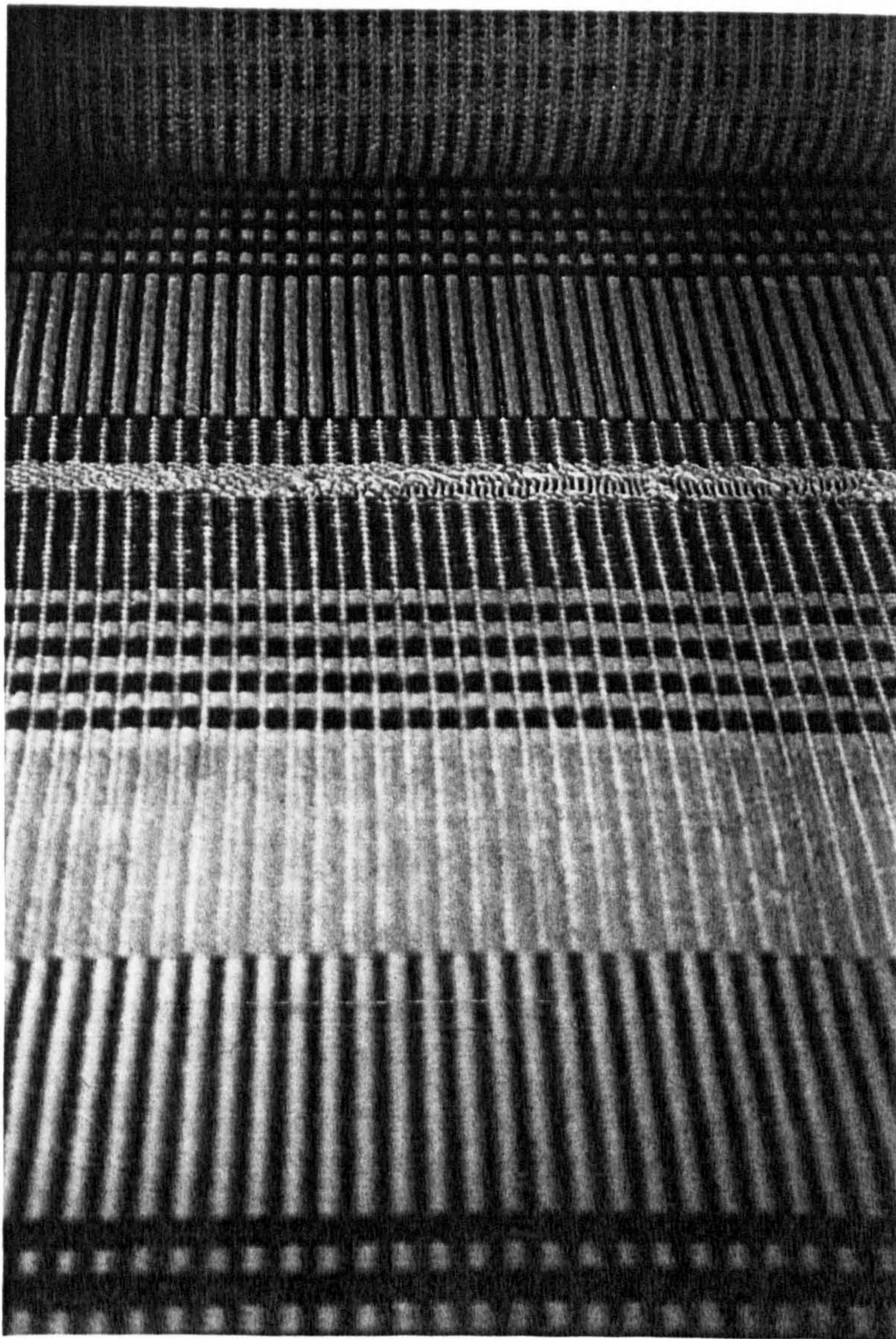






Fig. 59 Students with Wanke standing on left, Anni Albers on right. Guntha Stolzl at left on top row, Grete Reichardt, centre of bottom row .

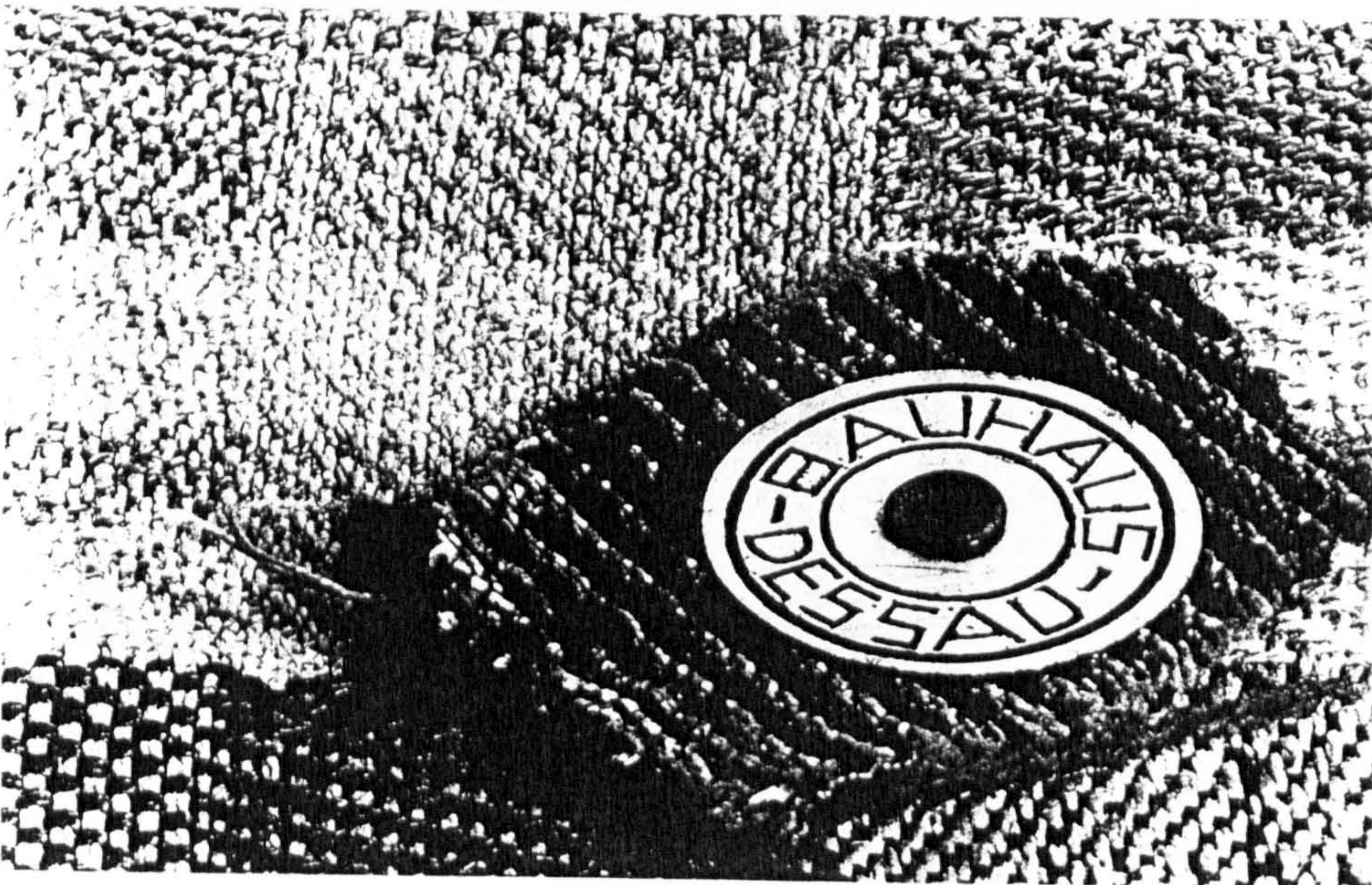


Fig. 60 Dessau Bauhaus Weaving Workshop Aluminium Tag. All woven production was marked with an aluminium grommet:- the *bauhausmarke*

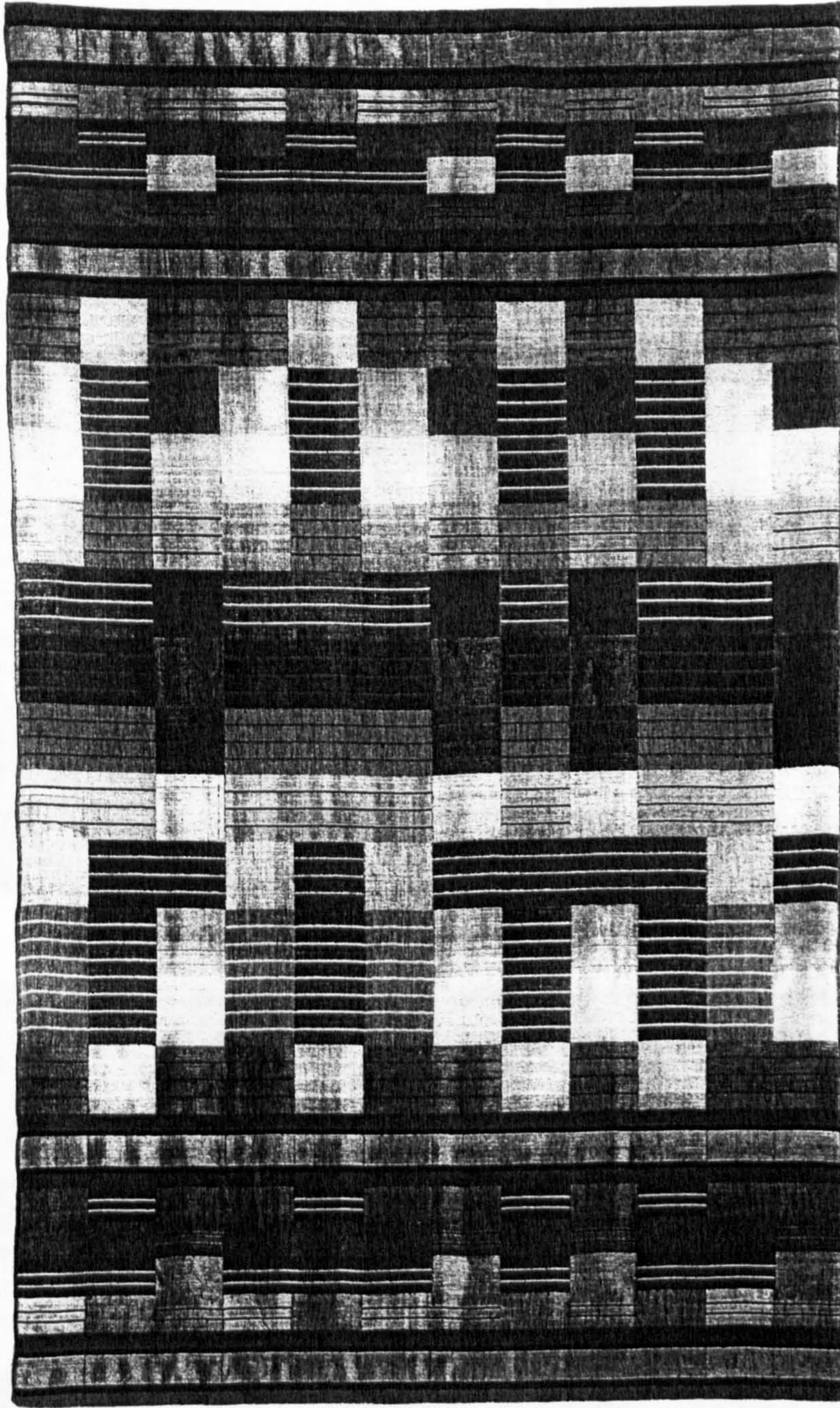


Fig. 61 a      Hollos Doublecloth 1926

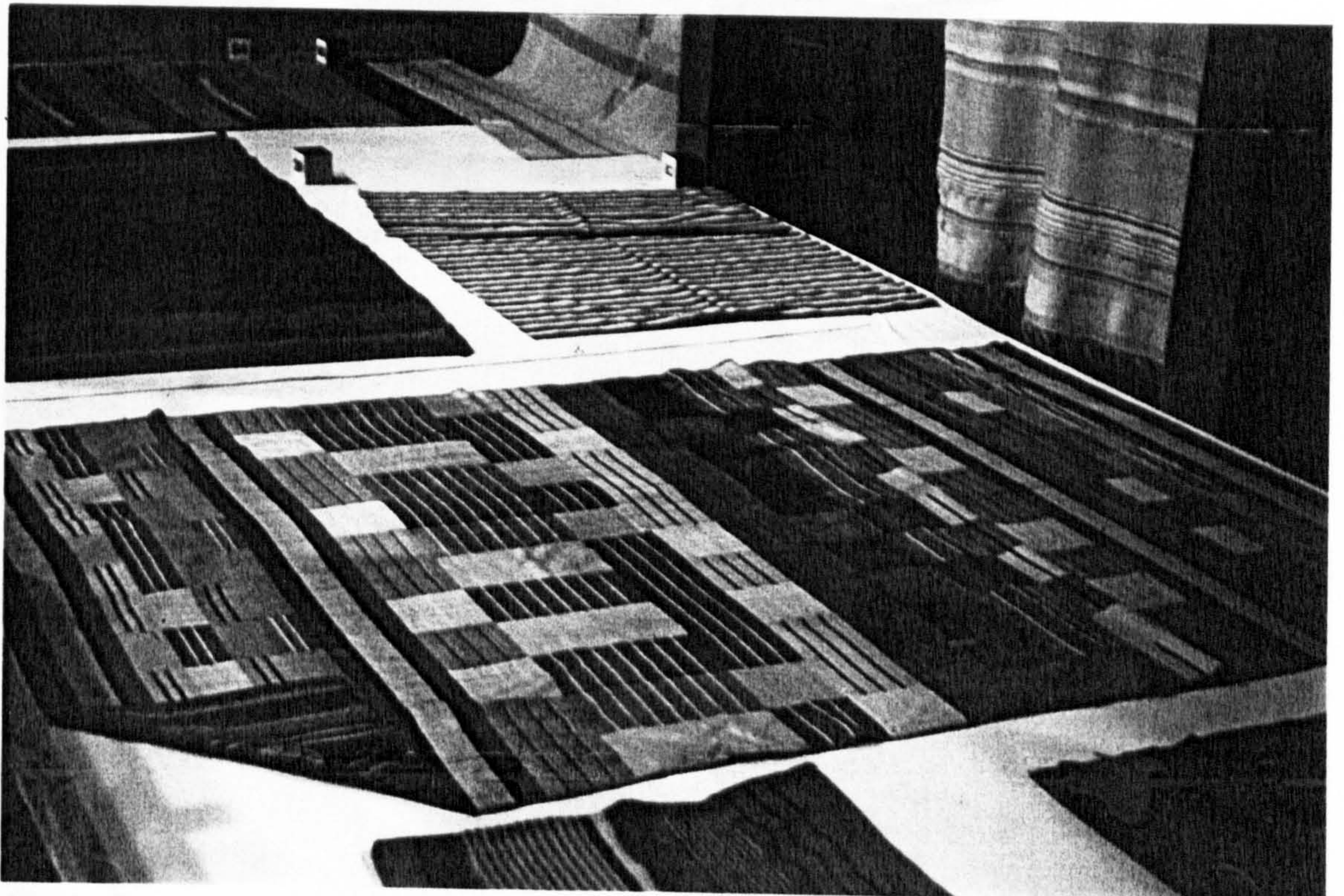
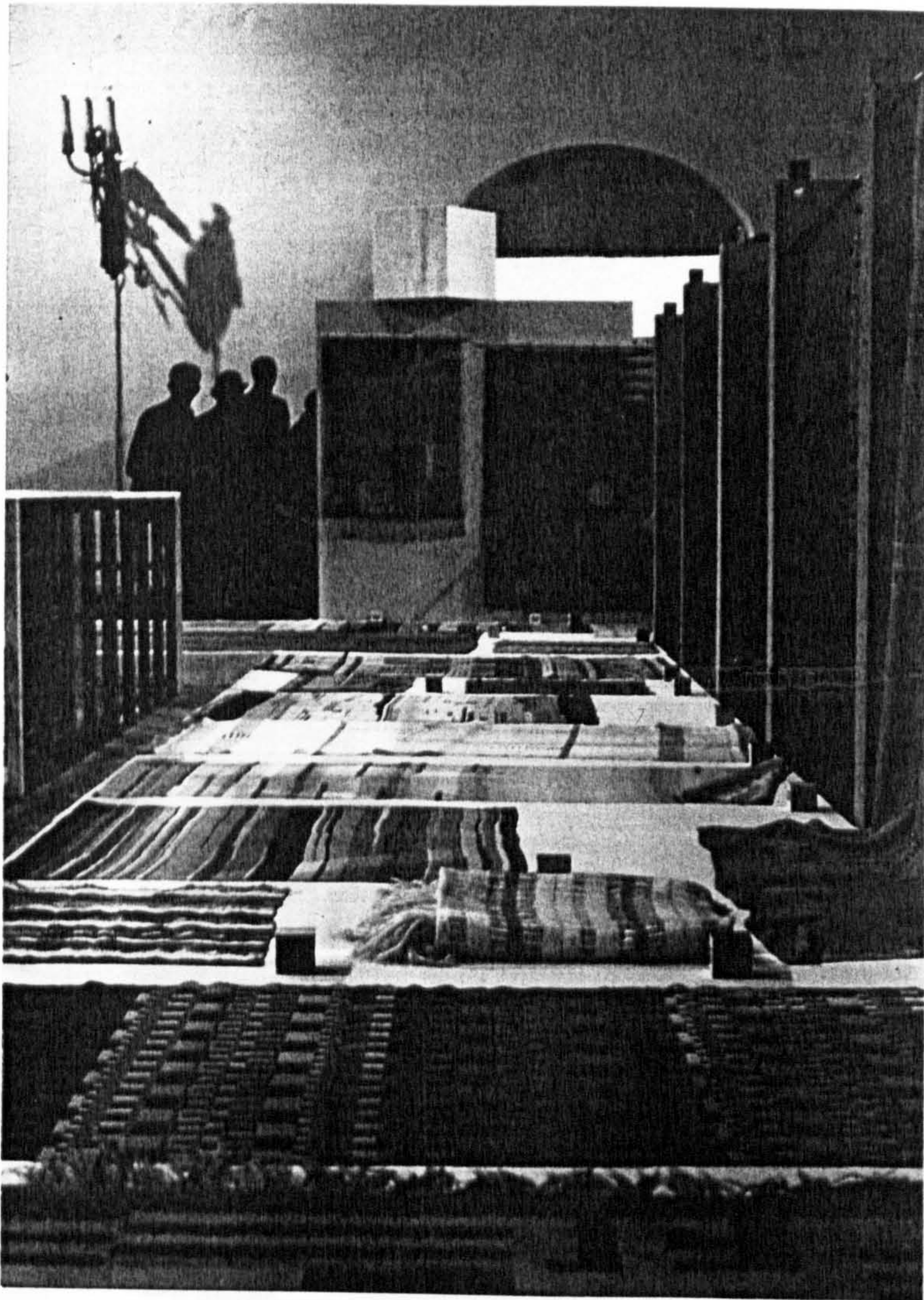


Fig. 61 b,c, Hollos Doublecloth 1926 exhibited at *la tessitura del bauhaus* in Pesaro ,1985. Photographs by Diane Bell.

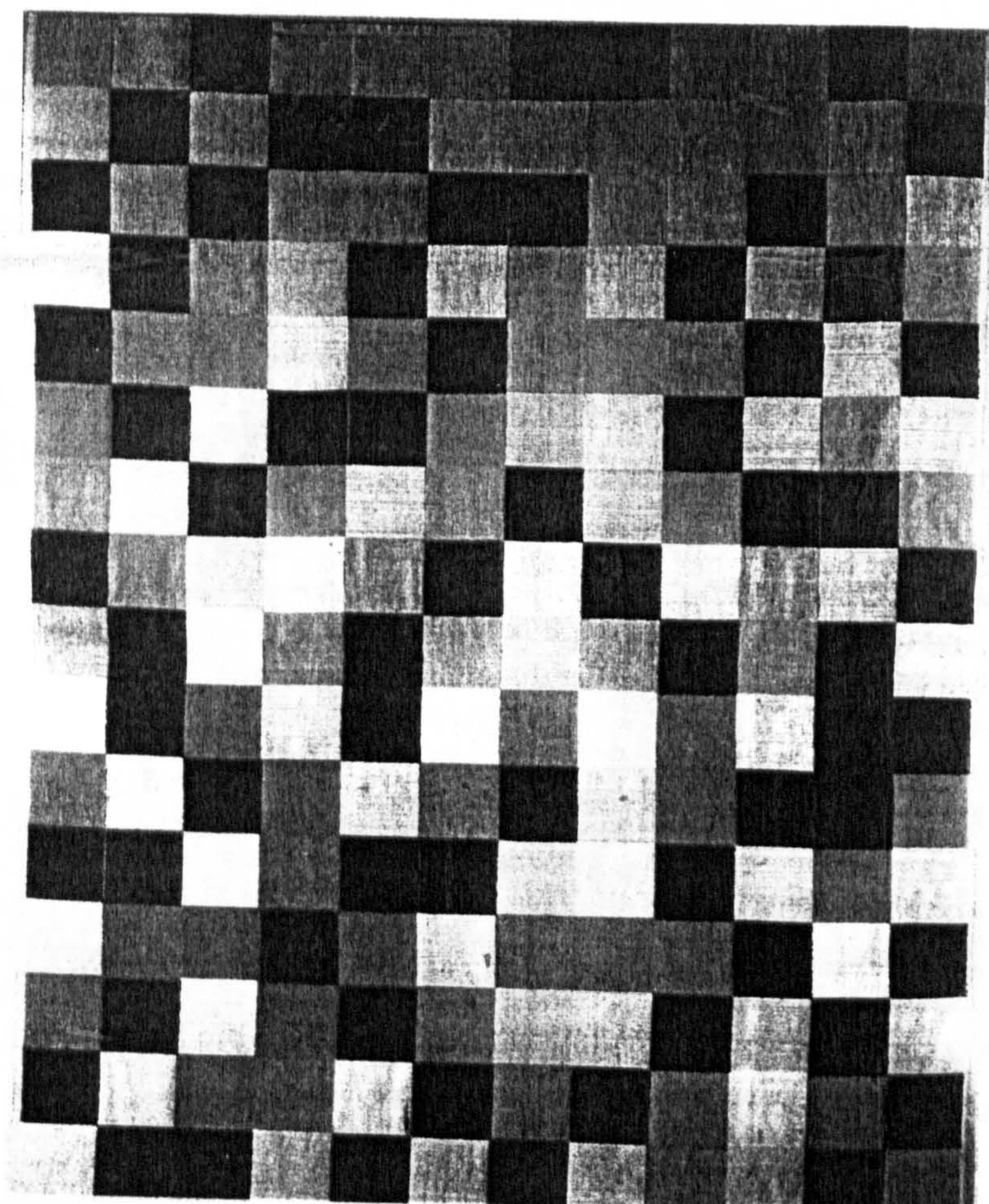


Fig. 62 Arndt Doublecloth 1926

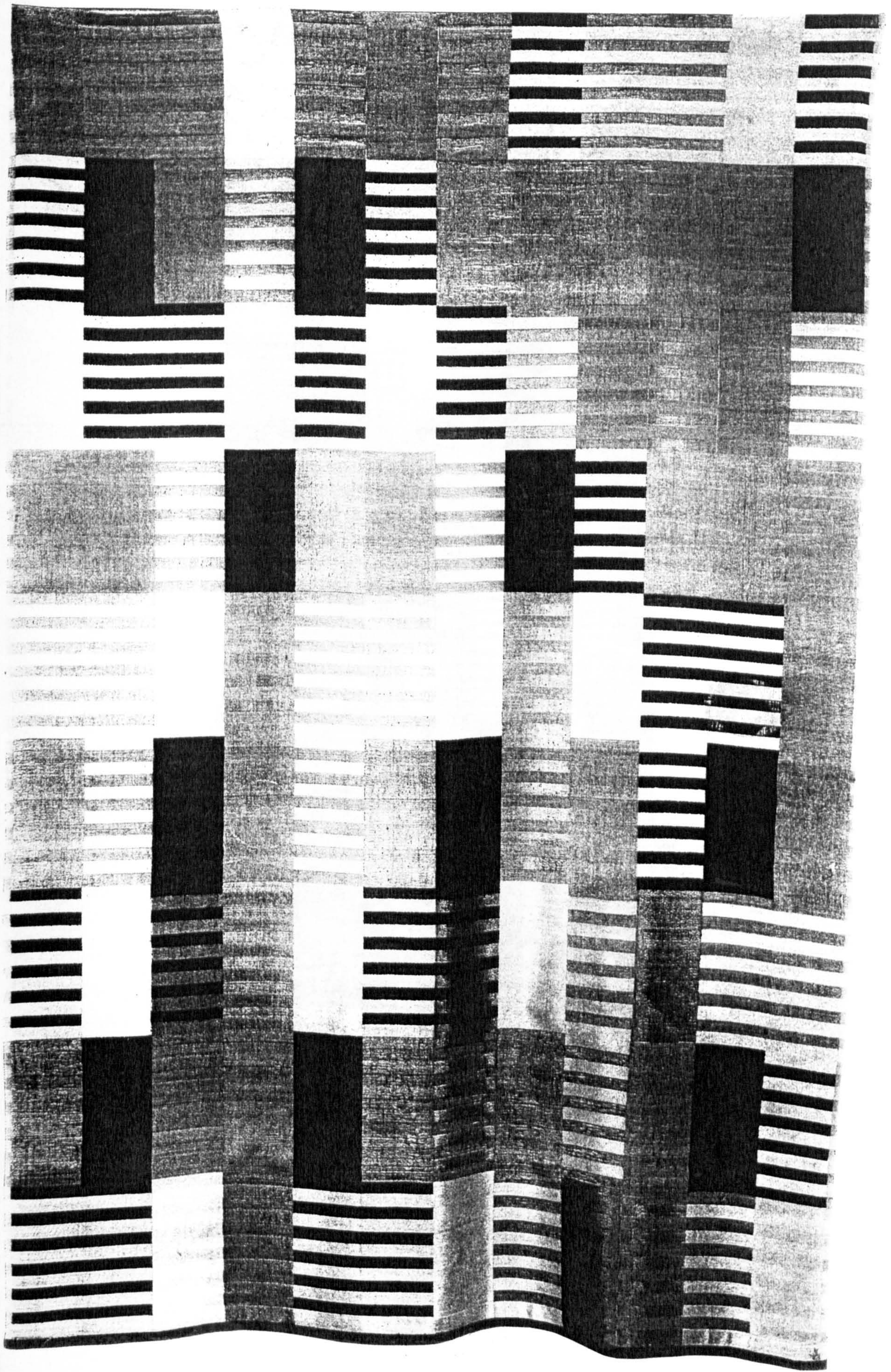


Fig. 63 a Albers .*Untitled Wall Hanging. Doublecloth* October 1926. 72" by 48".  
Busch-Reisinger Museum, Harvard University, Massachusetts.

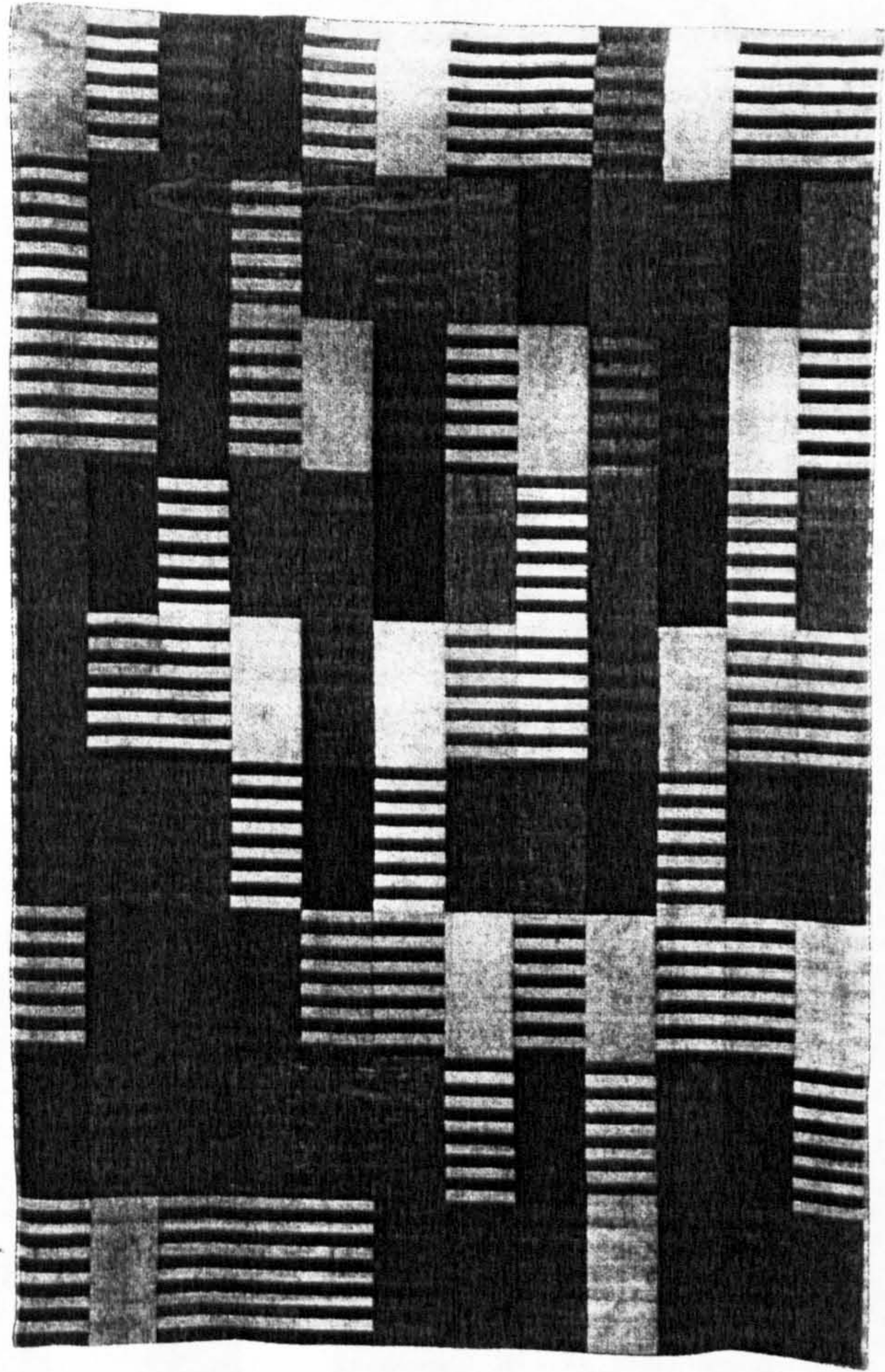


Fig. 63 ,b

Albers .*Untitled Wall Hanging*.Doublecloth October 1926  
In the Smithsonian Catalogue this is printed upside down and in this colour variation, it is identical to Figure 63 a.

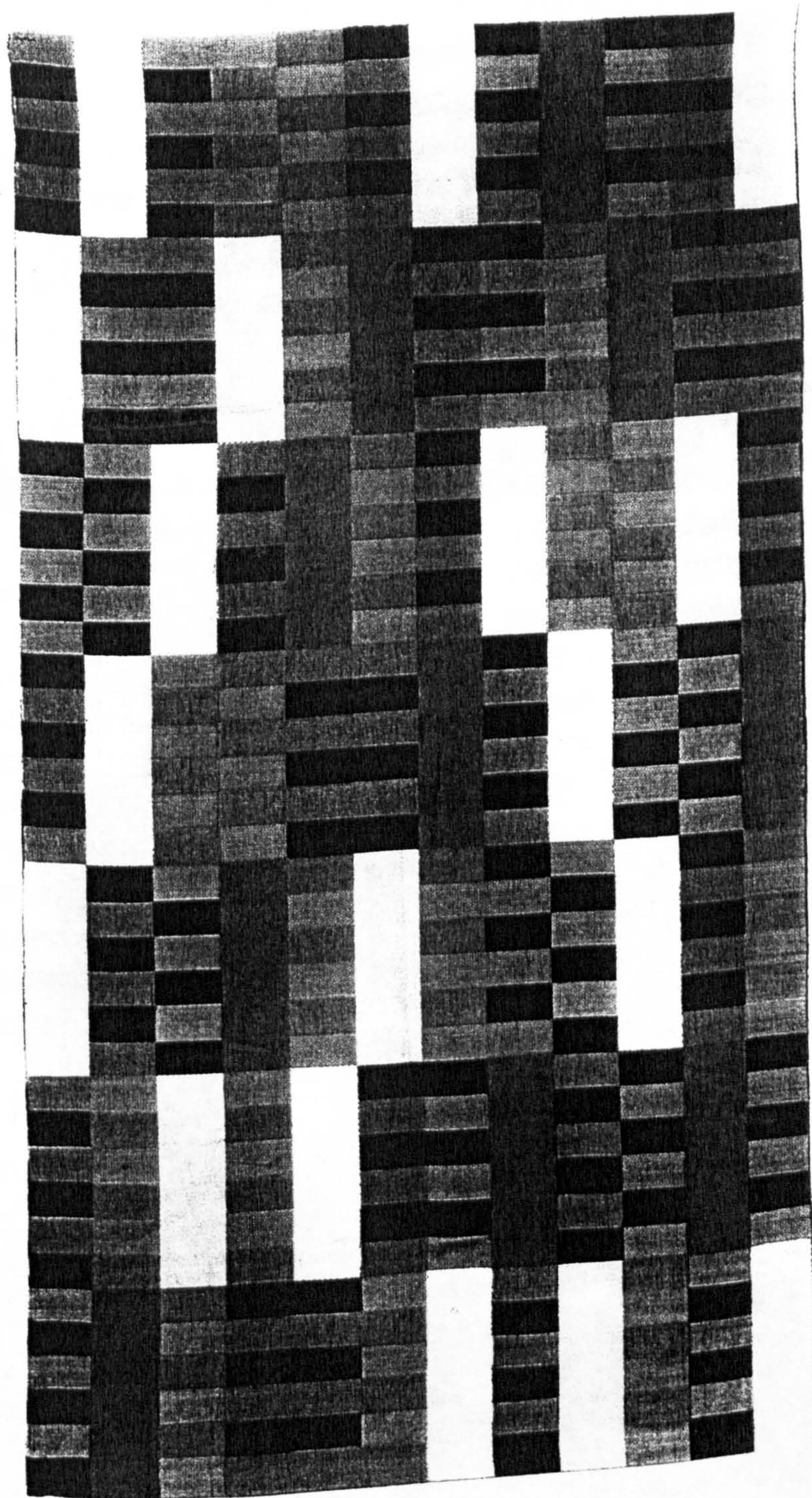


Fig. 64 Albers .Black,White,Yellow. Doublecloth October 1926. 63" by 48"  
Bauhaus Archiv, Museum für Gestaltung, Berlin.

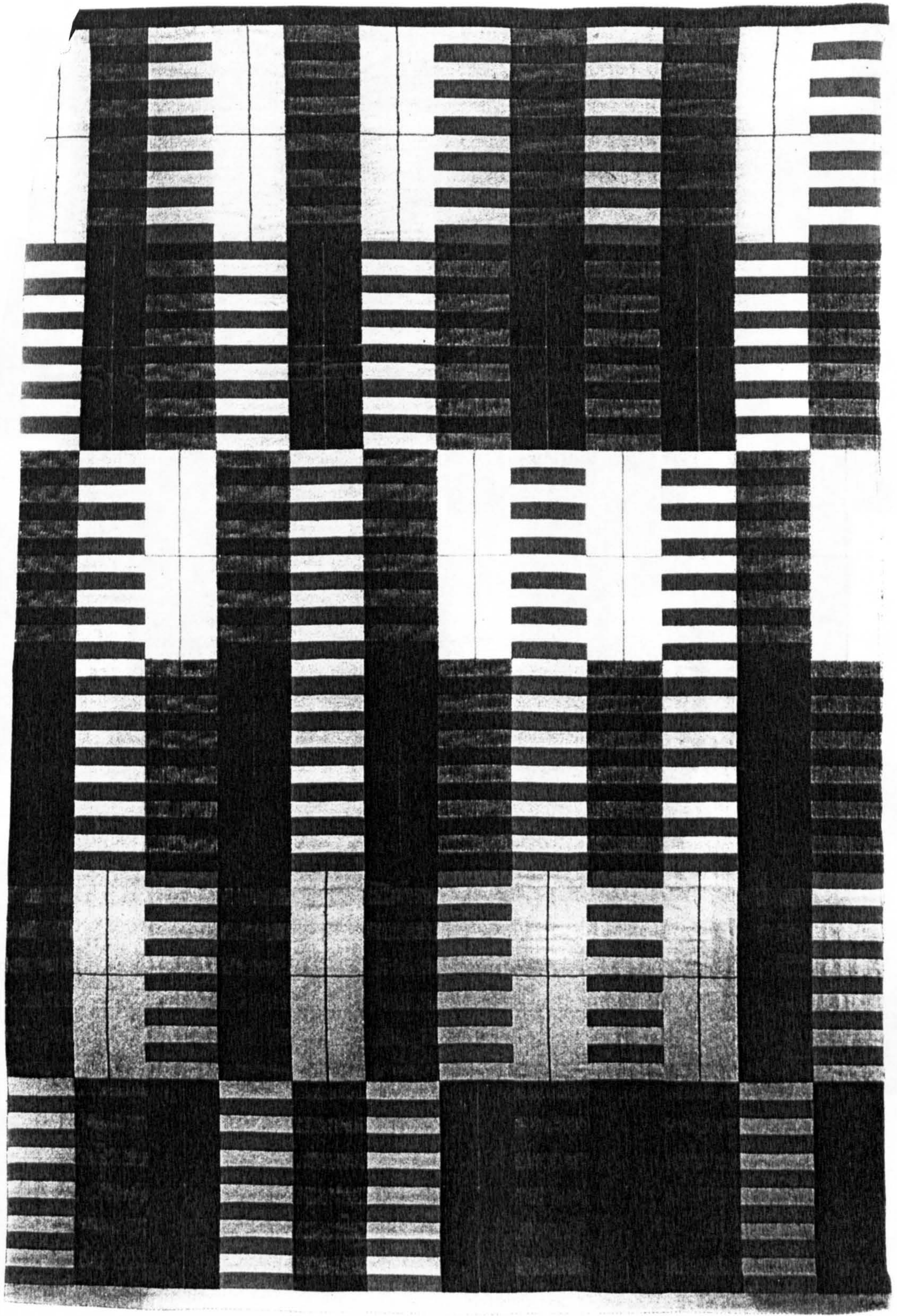


Fig. 65

Albers .*Black, White, Red. Doublecloth* . 1927. 70" by 48".  
Bauhaus Archiv, Museum für Gestaltung, Berlin.



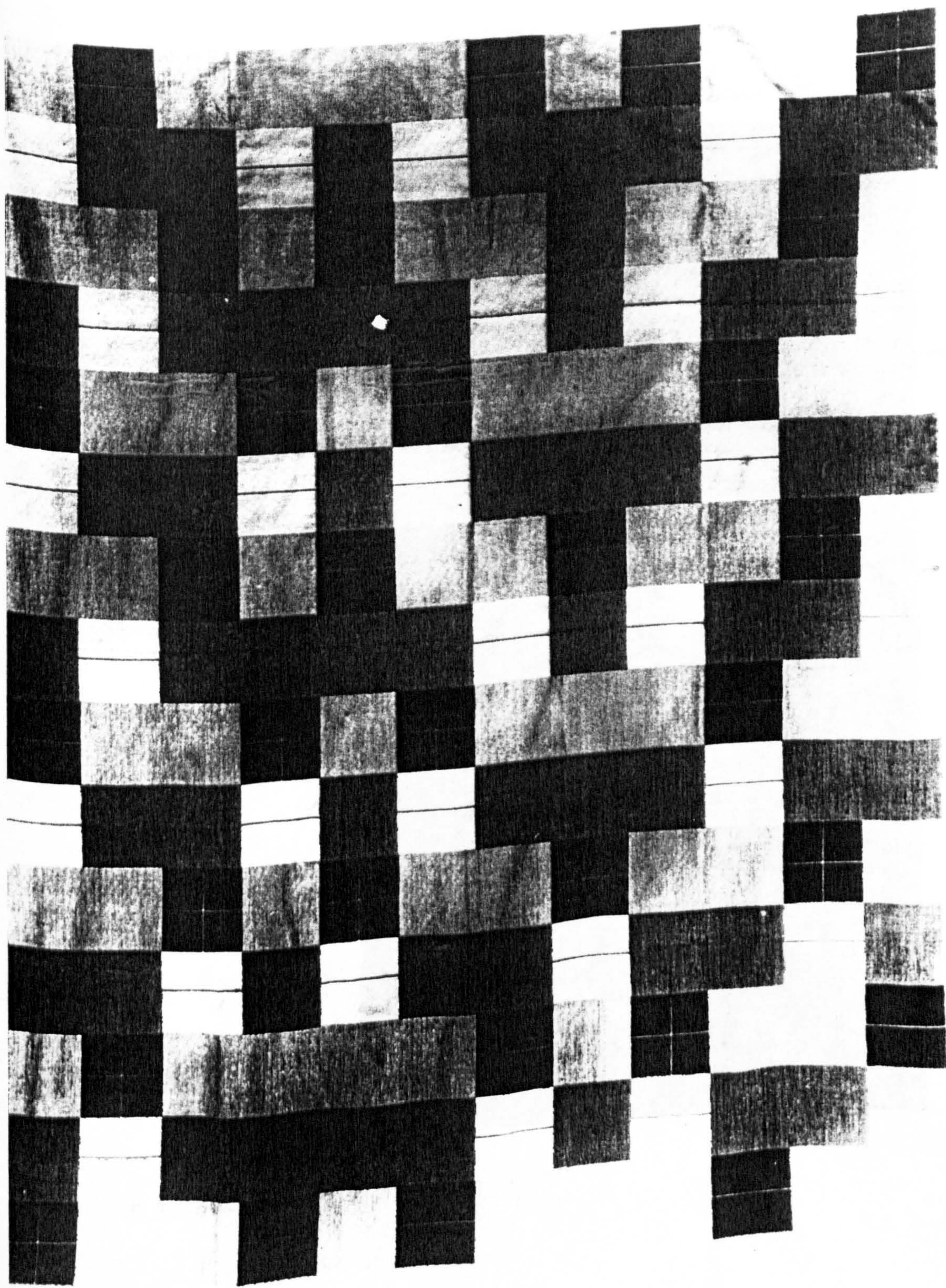


Fig. 66

Albers .*Black, White, Grey*. Silk Doublecloth . 1927. 60" by 47"  
Bauhaus Archiv, Museum für Gestaltung, Berlin.

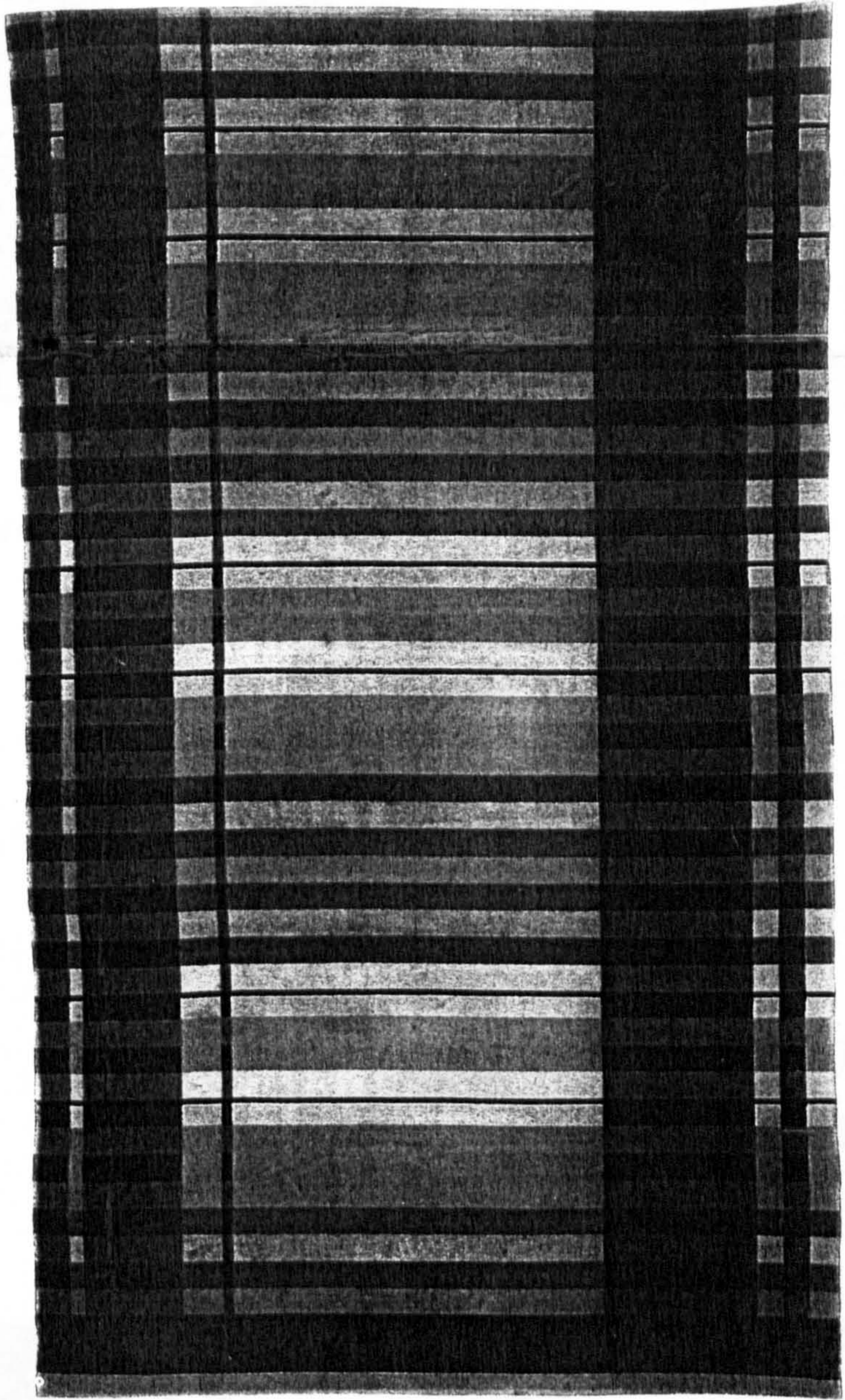


Fig. 67

Stolzl Doublecloth Bedcover for the sleeping alcove of the Dessau student apartments. Workshop production 1926, affixed with aluminium grommet. Whereabouts unknown.



Fig.68 a Bedcover in place in student bedroom, Dessau Bauhaus

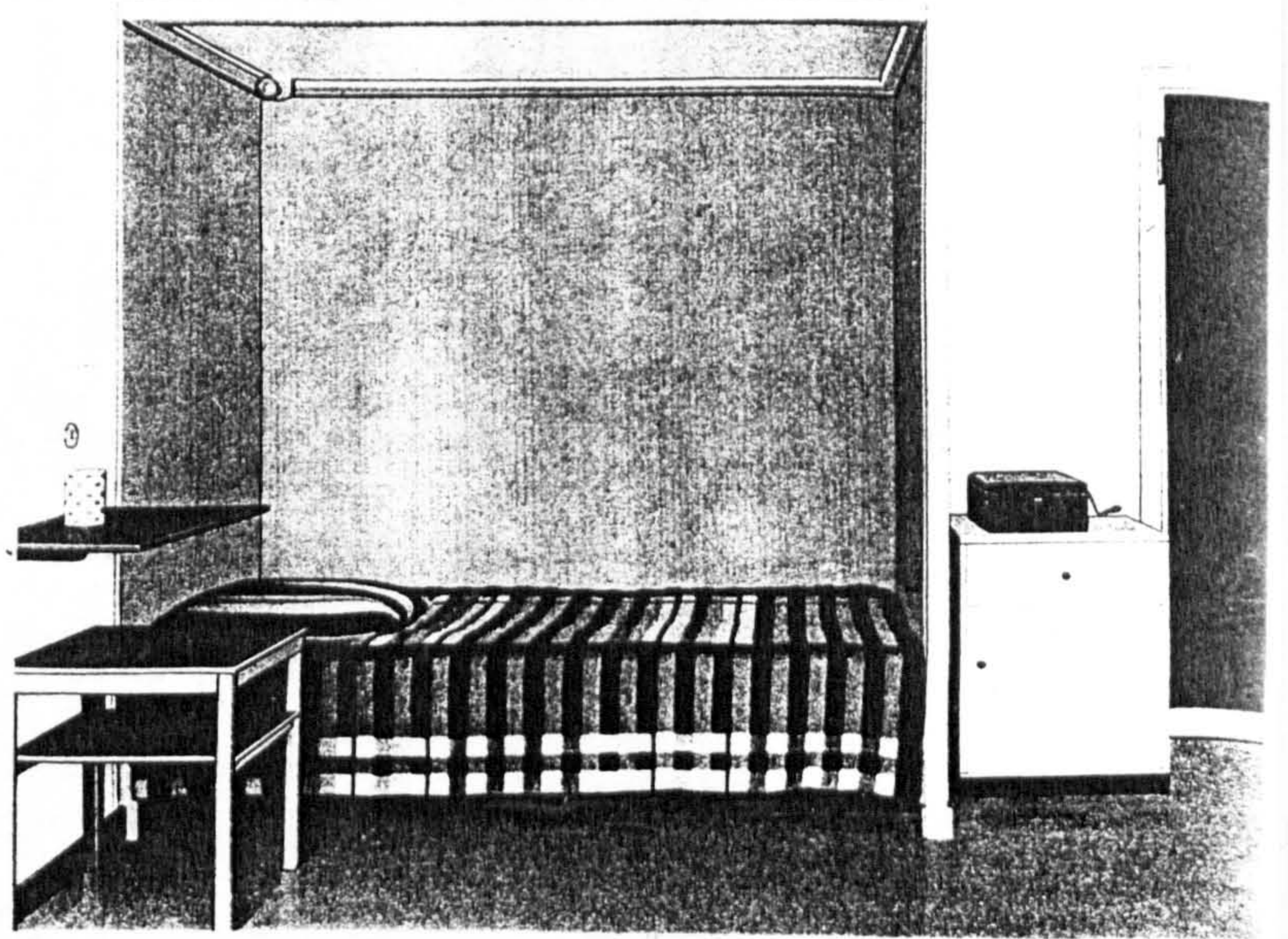


Fig. 68,b Bedcover in place in student bedroom, Dessau Bauhaus



Fig. 69 b Bedcover changed

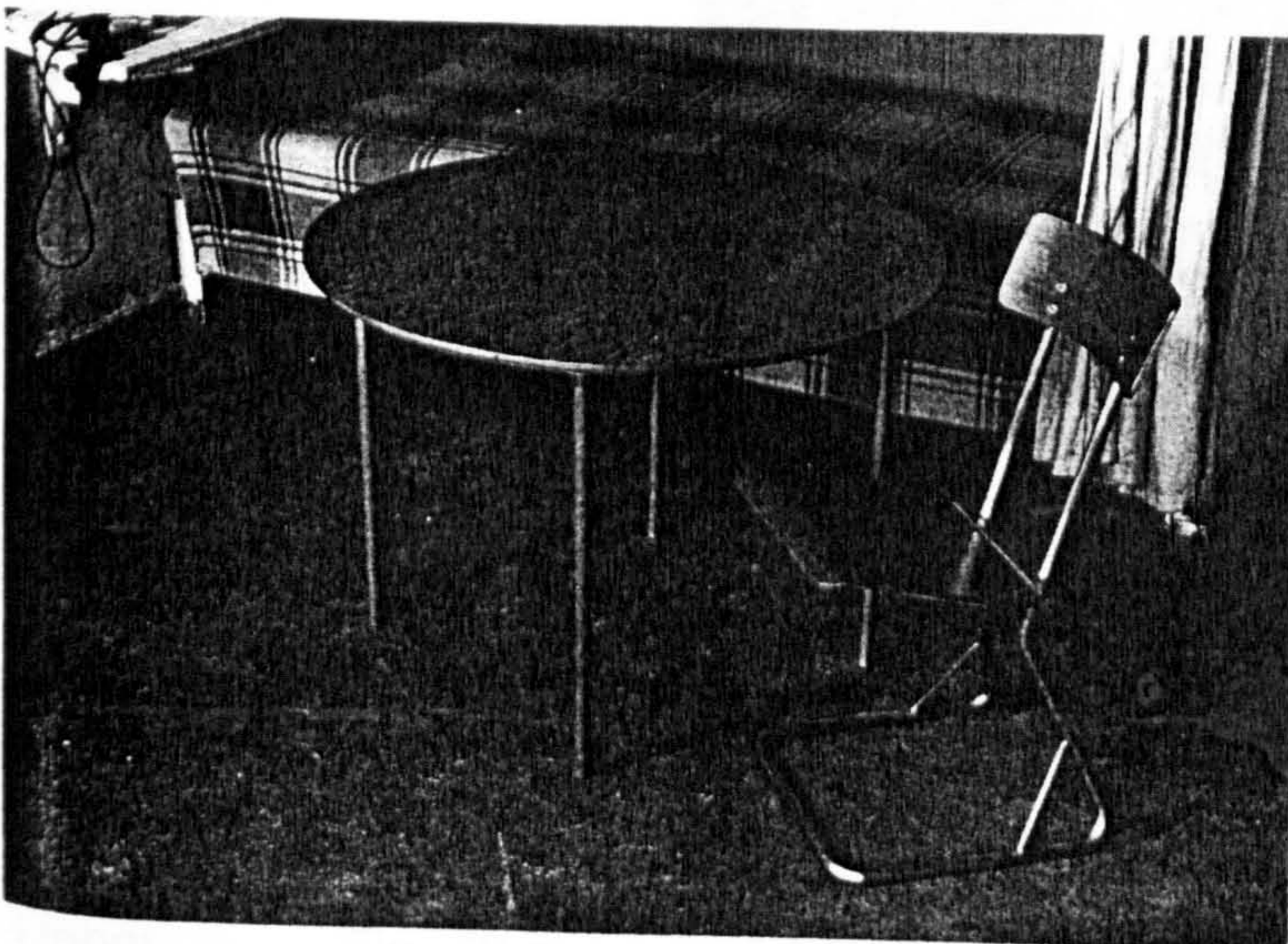
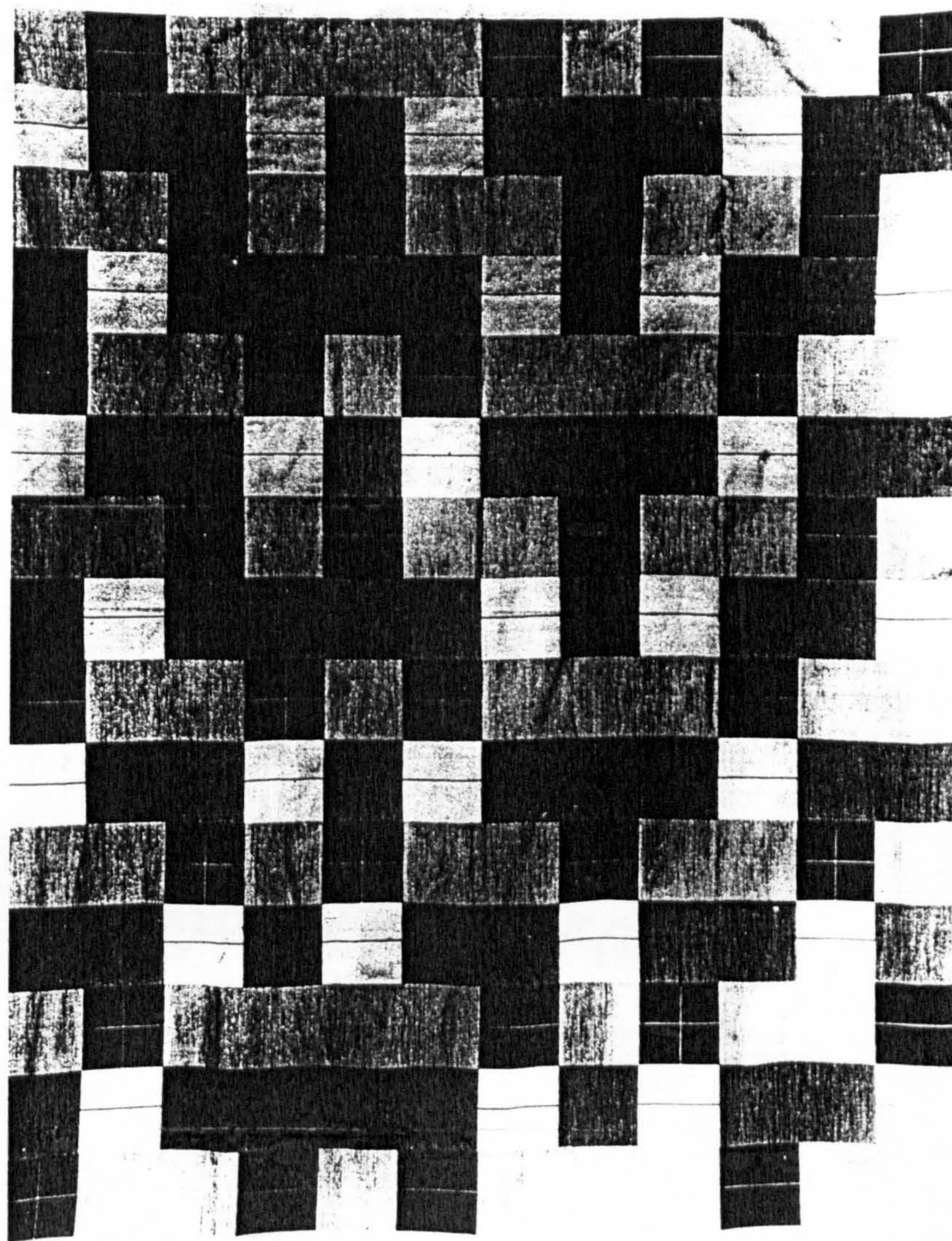
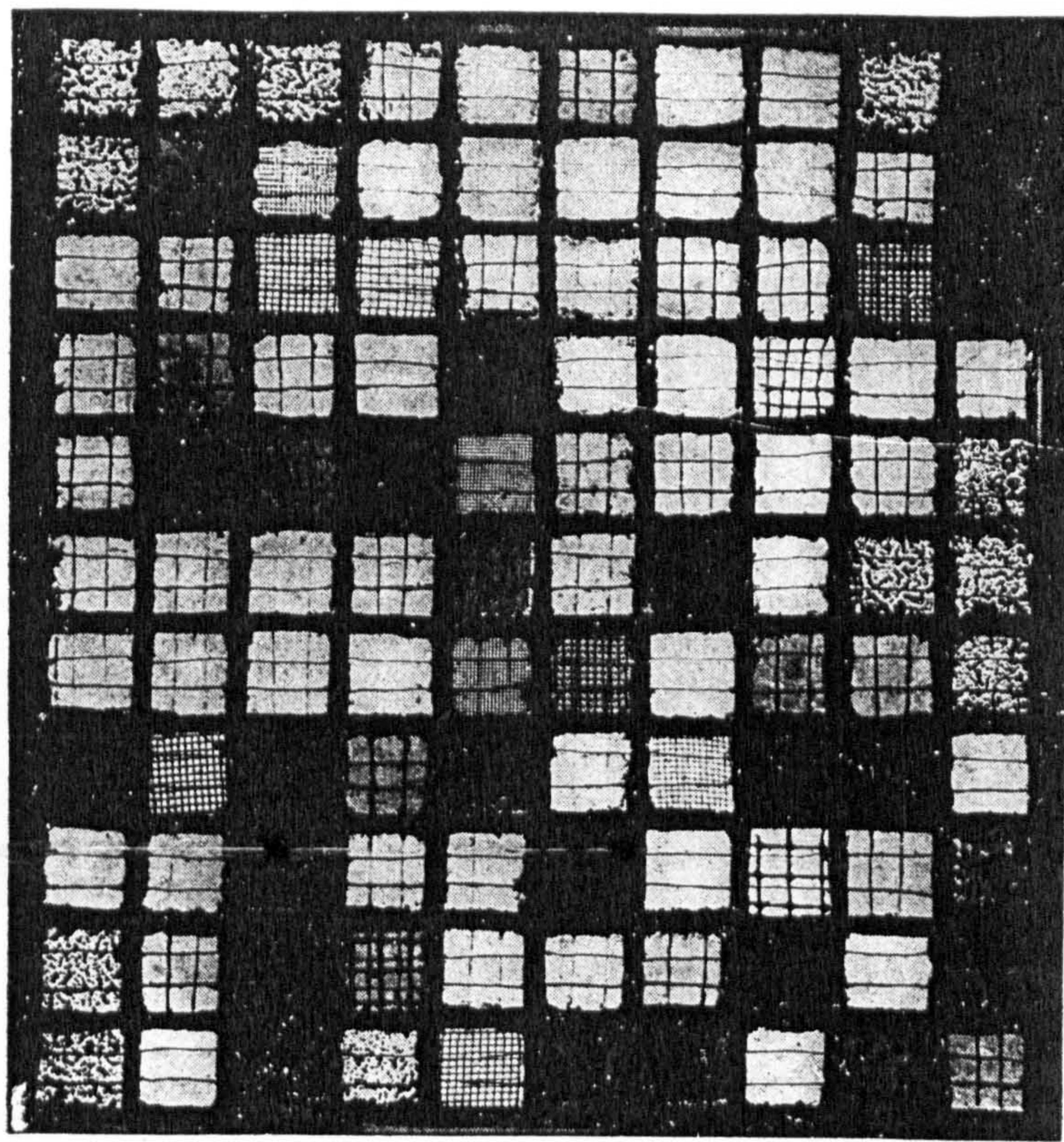


Fig. 69 a Bedcover changed



Upper: Fig. 70 a  
Lower: Fig. 70 b

Josef Albers. *Lattice Picture*. 1921.  
Anni Albers. *Black, White, Grey Doublecloth*. 1927. [As in fig. 66]

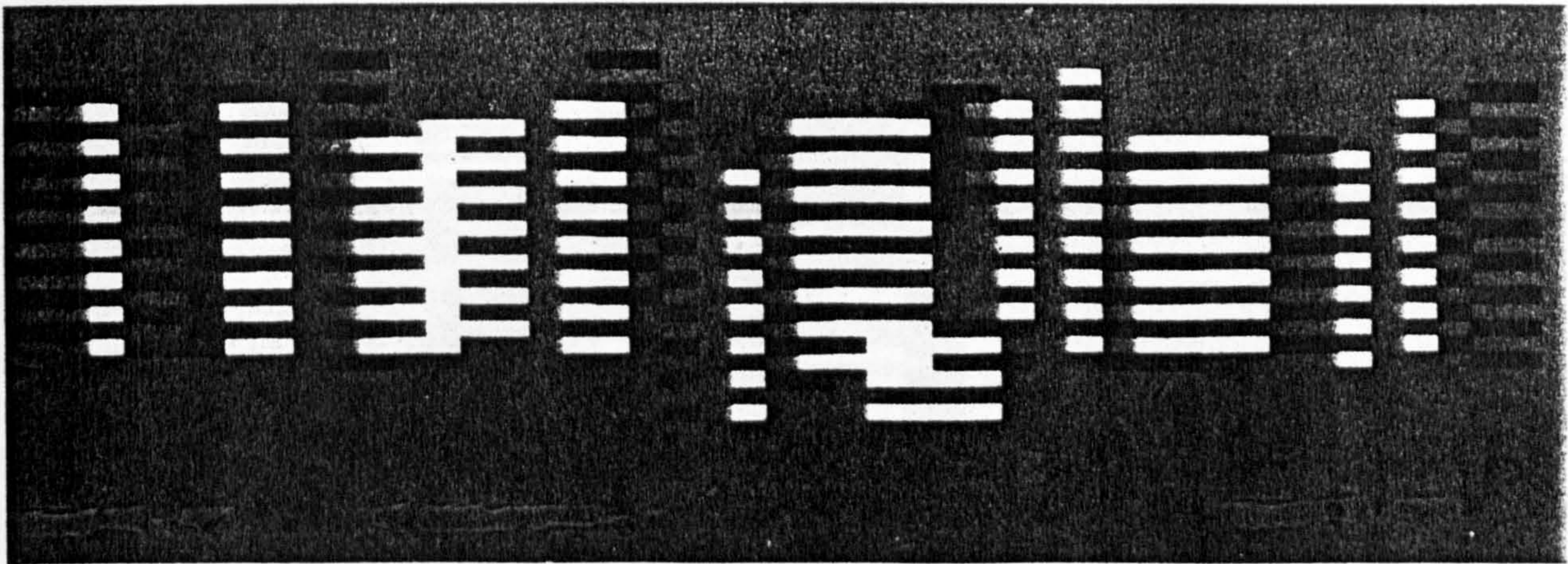


Fig. 71 Josef Albers. *Fuge*, Sandblasted glass panel. 1925  
Josef Albers Foundation.

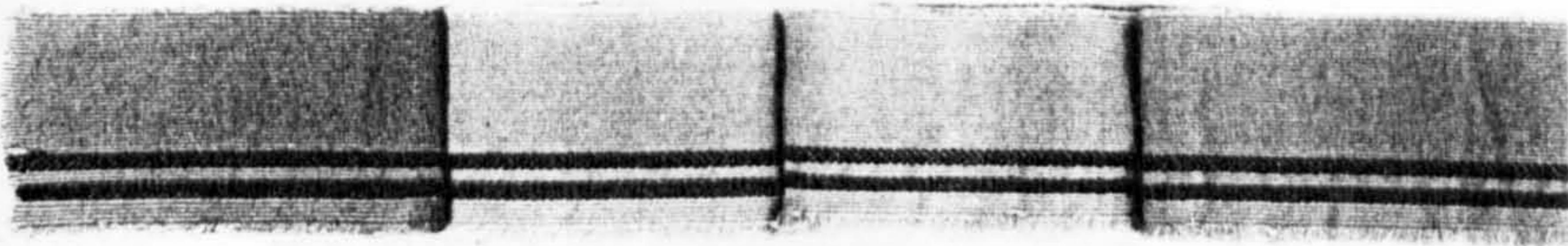
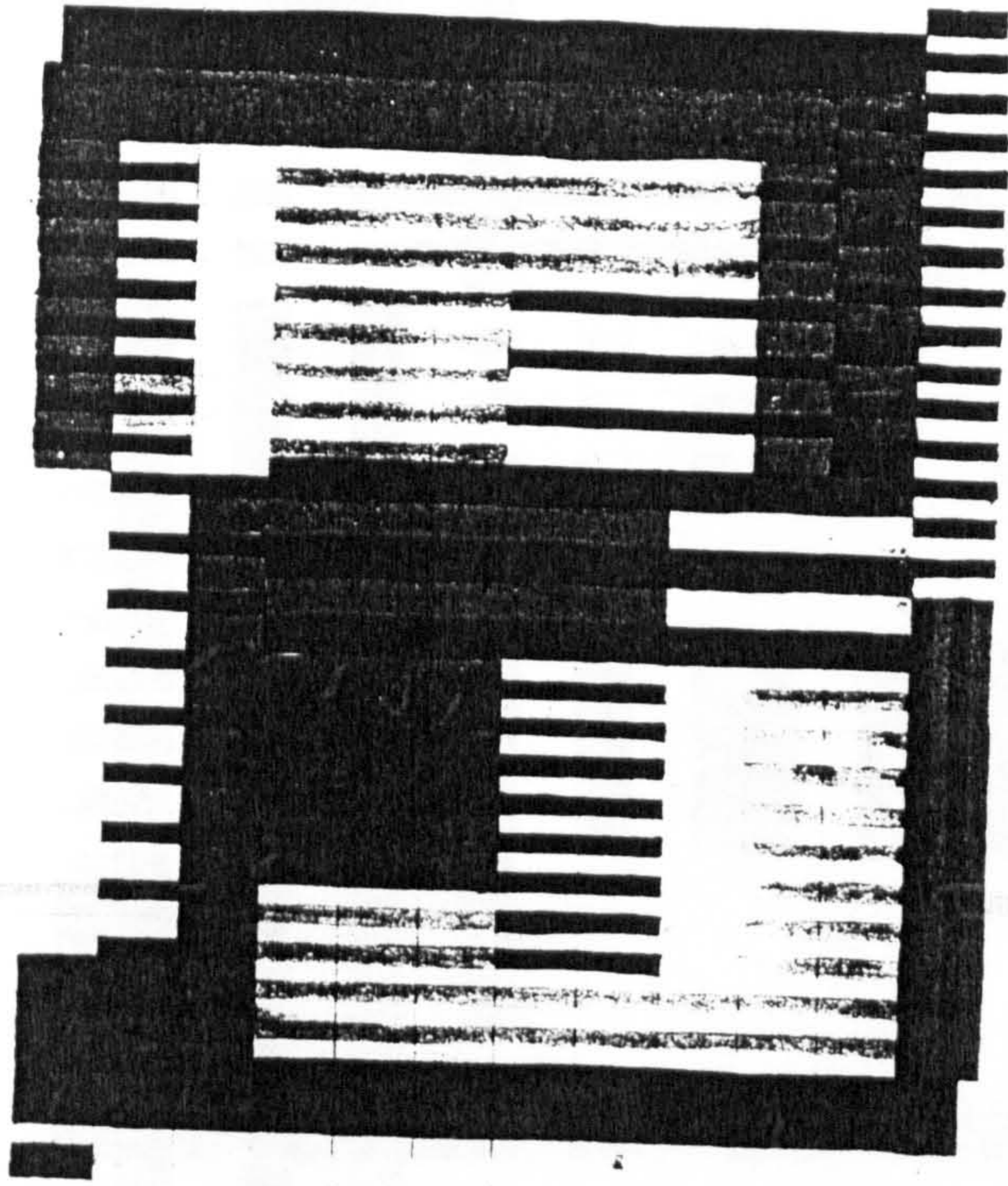


Fig. 72 Anni Albers. Dessau theatre cafe: design and fabric sample. 1927



*Design for Smyrna rug*

Fig. 73 Anni Albers. Design for Smyrna rug 1924

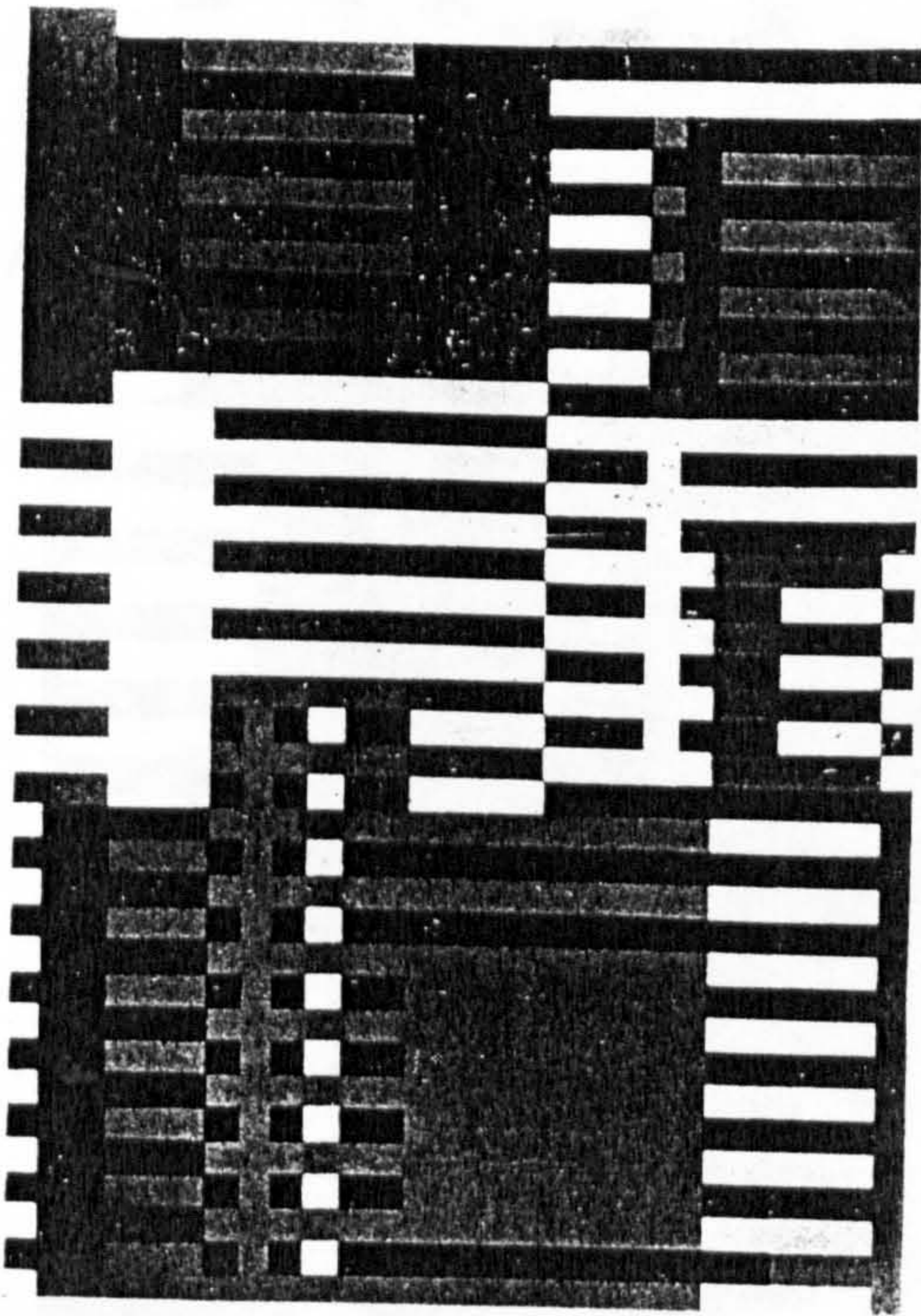


Fig 74 Josef Albers *Glass Picture*. 1926

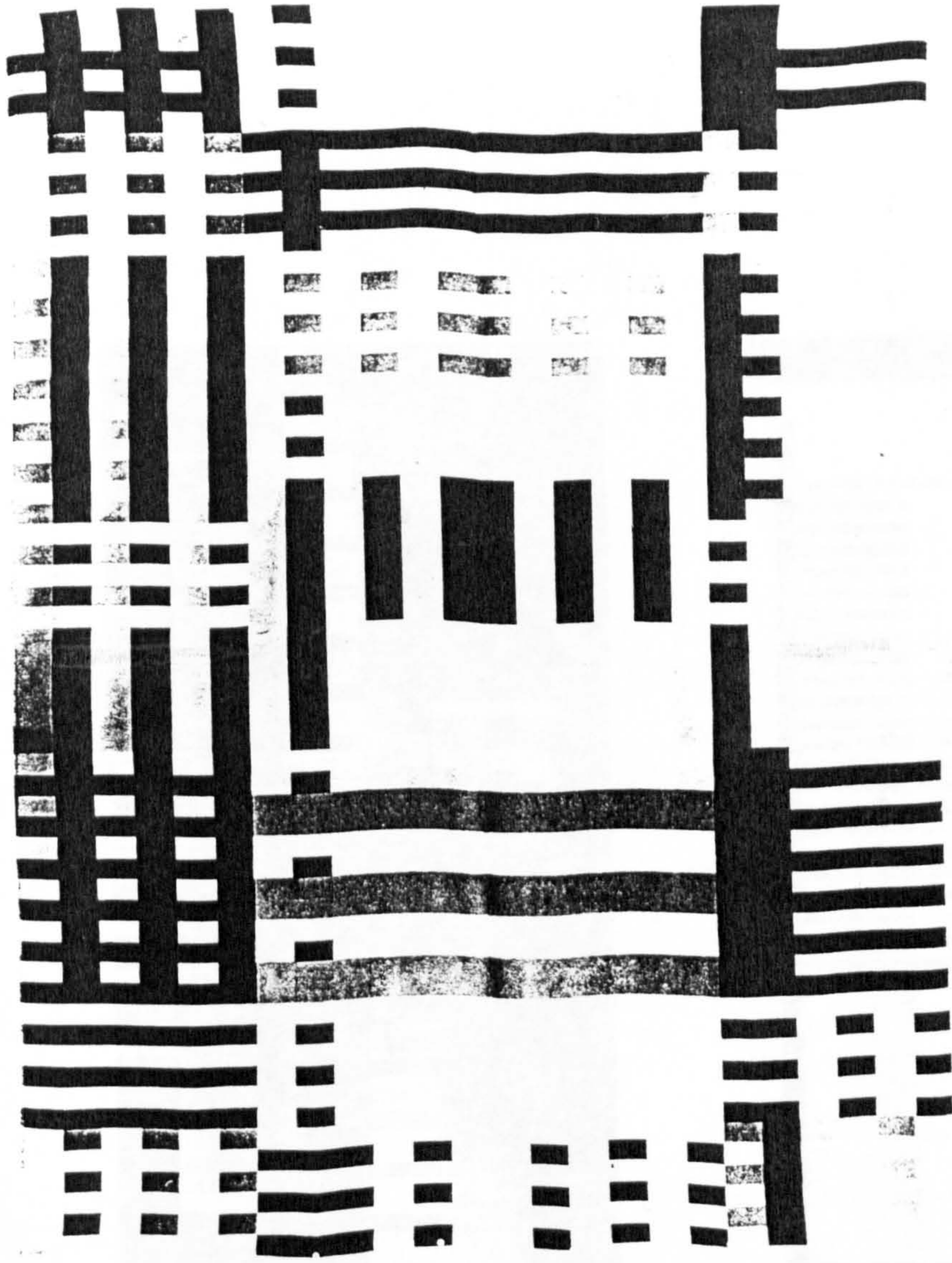


Fig 75 Anni Albers. Untitled wallhanging 1925. 83" by 61". Location Unknown.

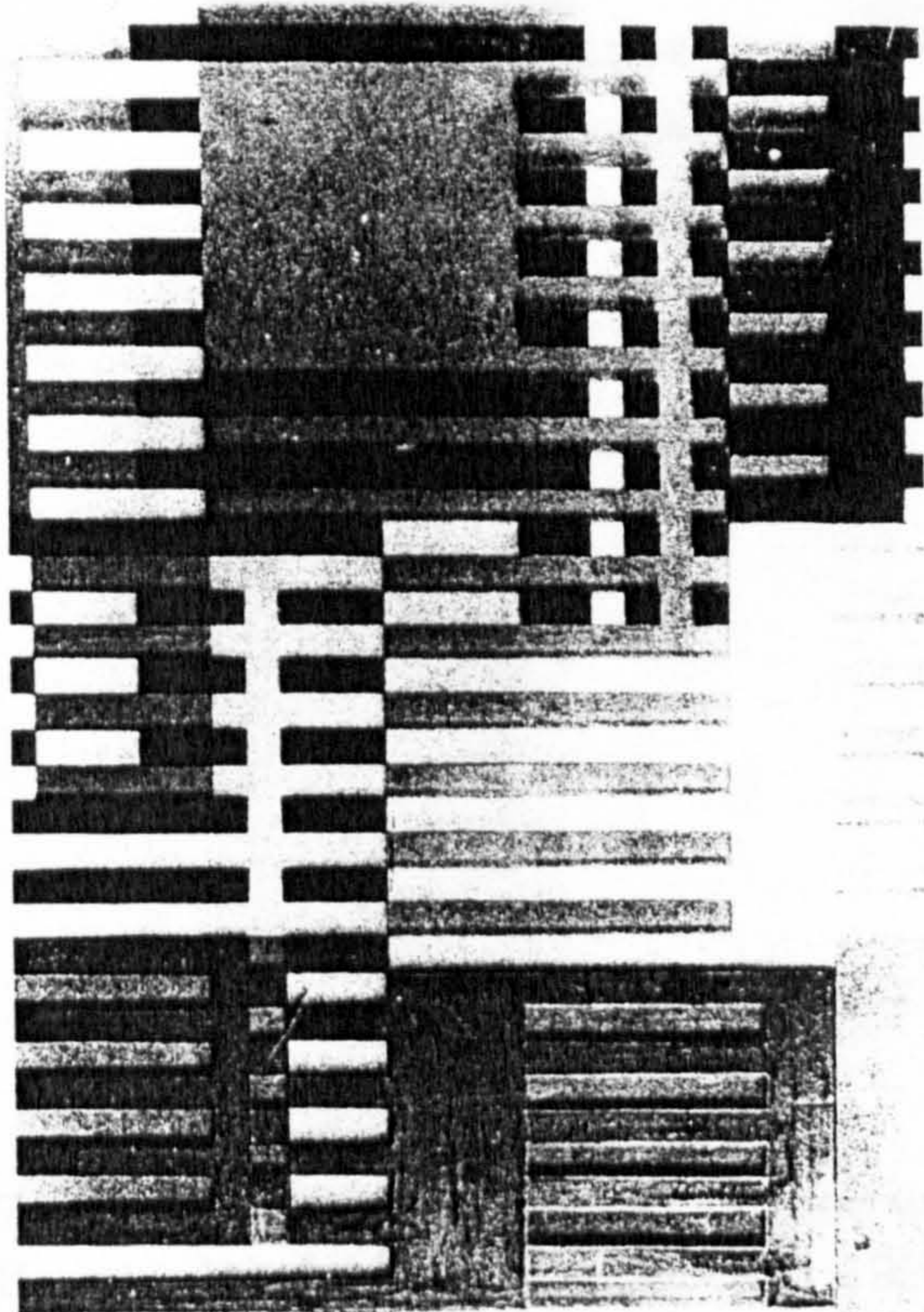
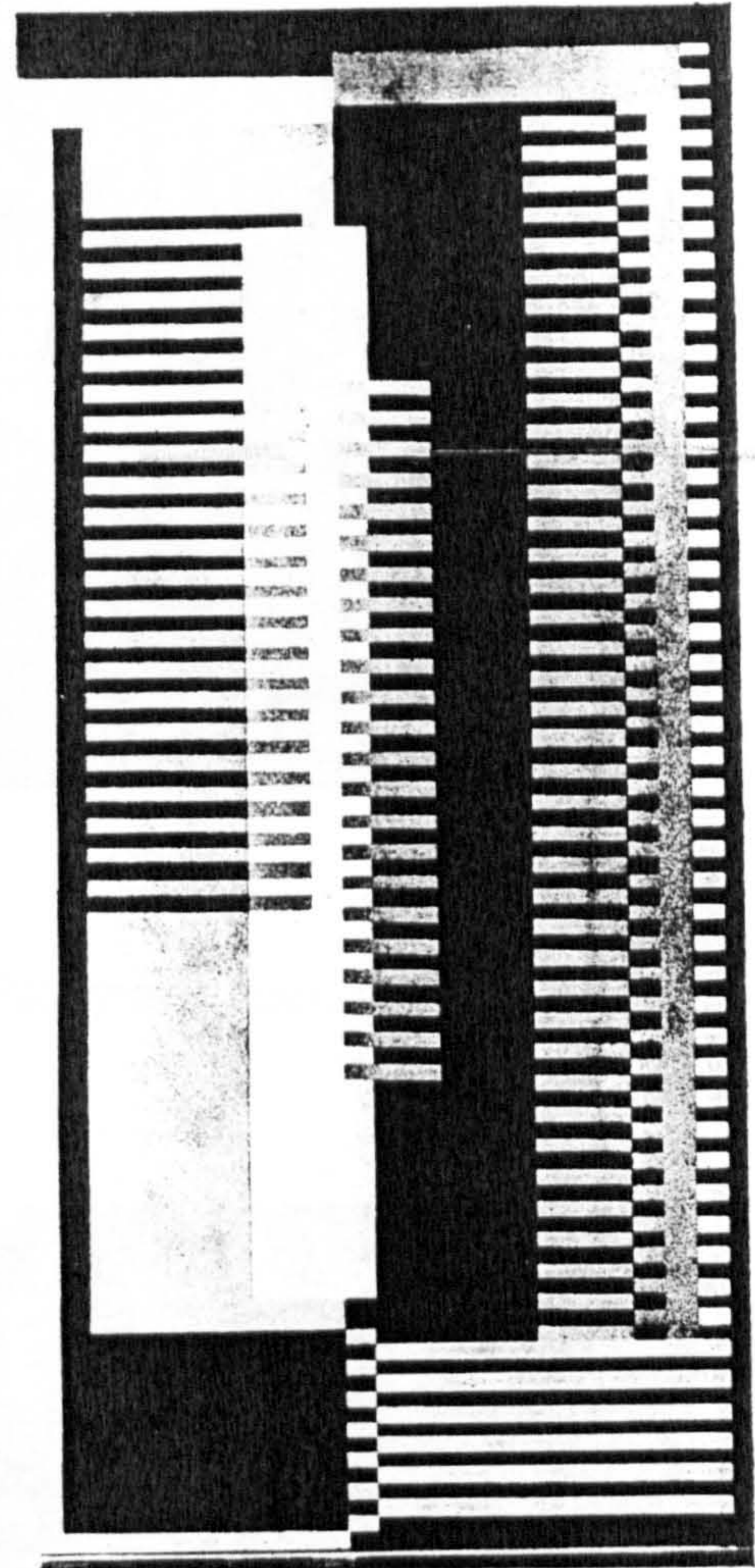
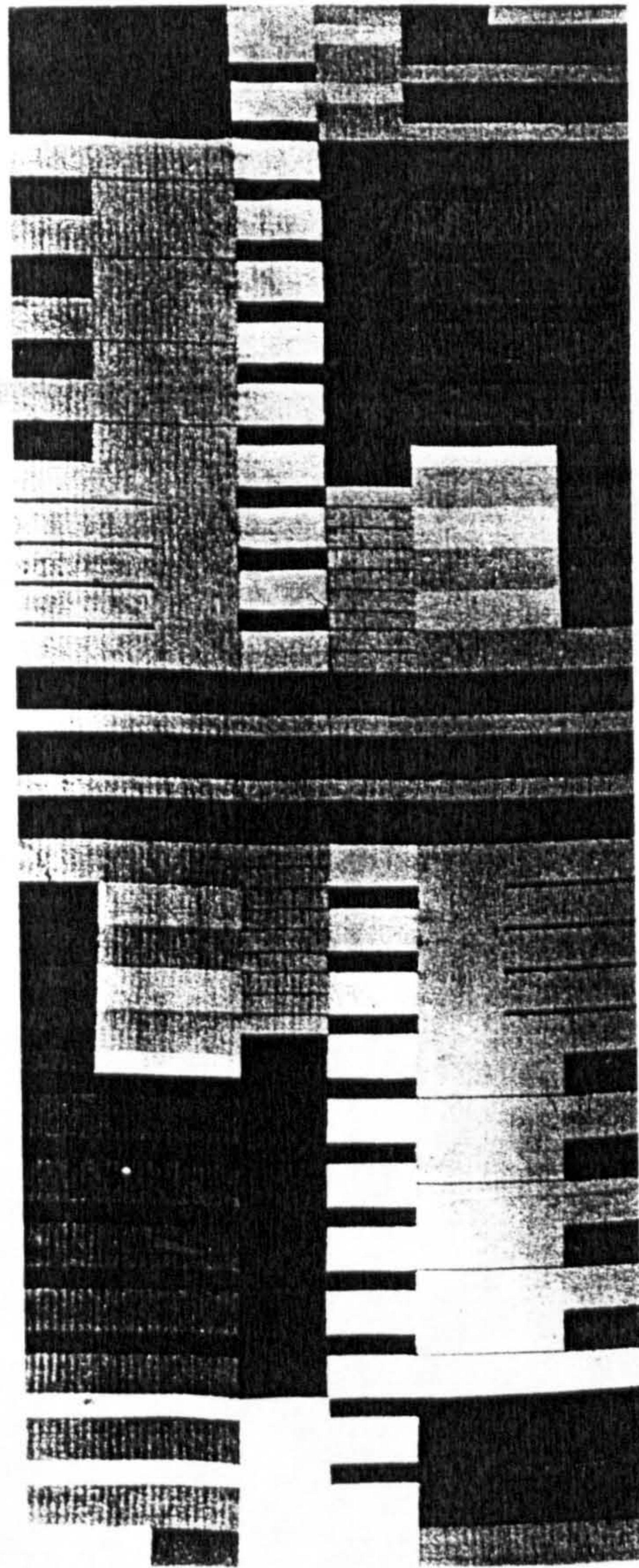


Fig. 76 Josef Albers. *Upward* 1927. 18" by 13". The Josef Albers Foundation, Connecticut



Left: Fig. 77  
Right: Fig. 78

Anni Albers. Second Untitled wallhanging 1925. Location Unknown.  
Josef Albers. *Overlapping*, 1929. Sandblasted, laminated glass.



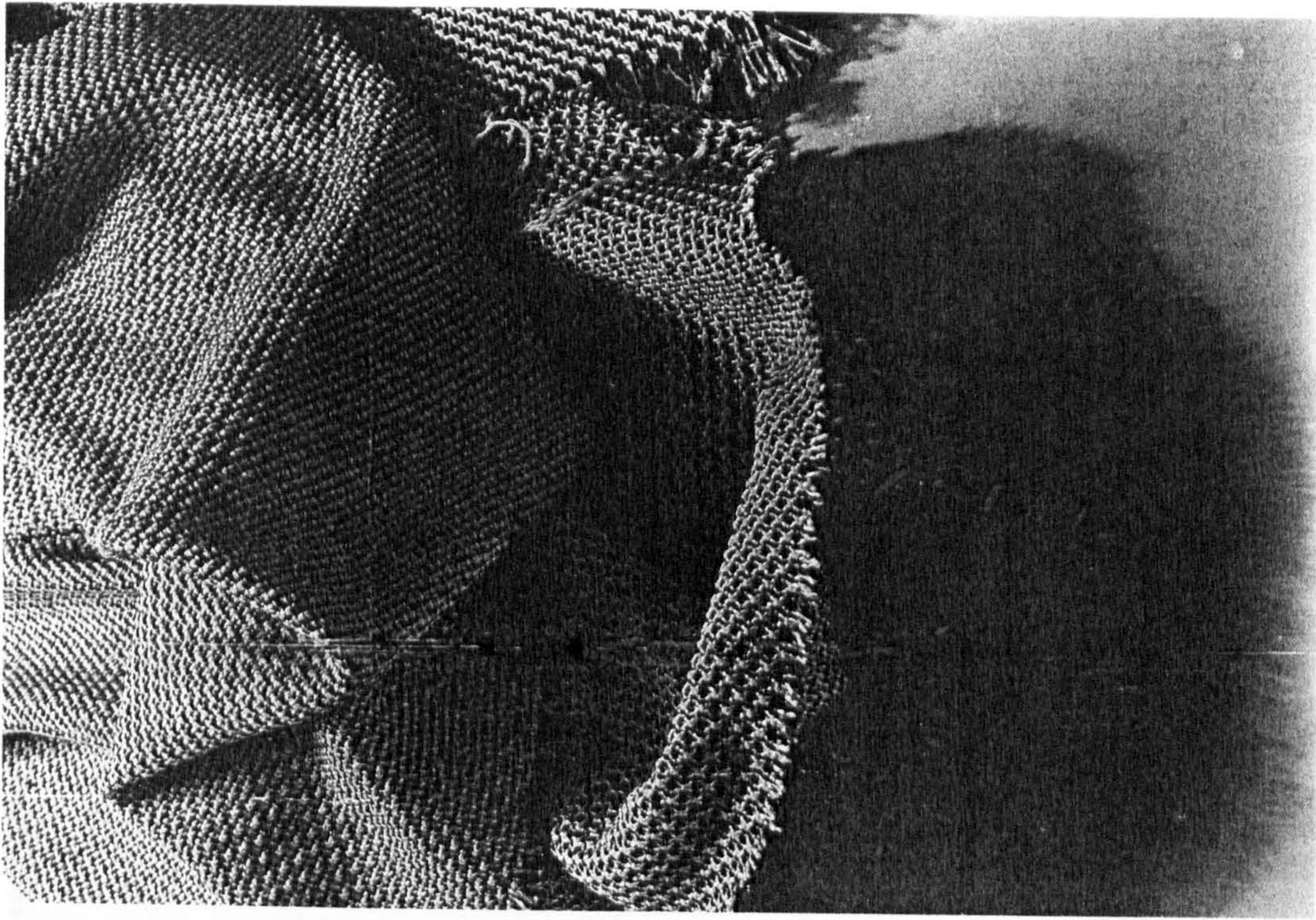


Fig. 79 a Dessau fabric structures. Photograph from the Peterhans course.

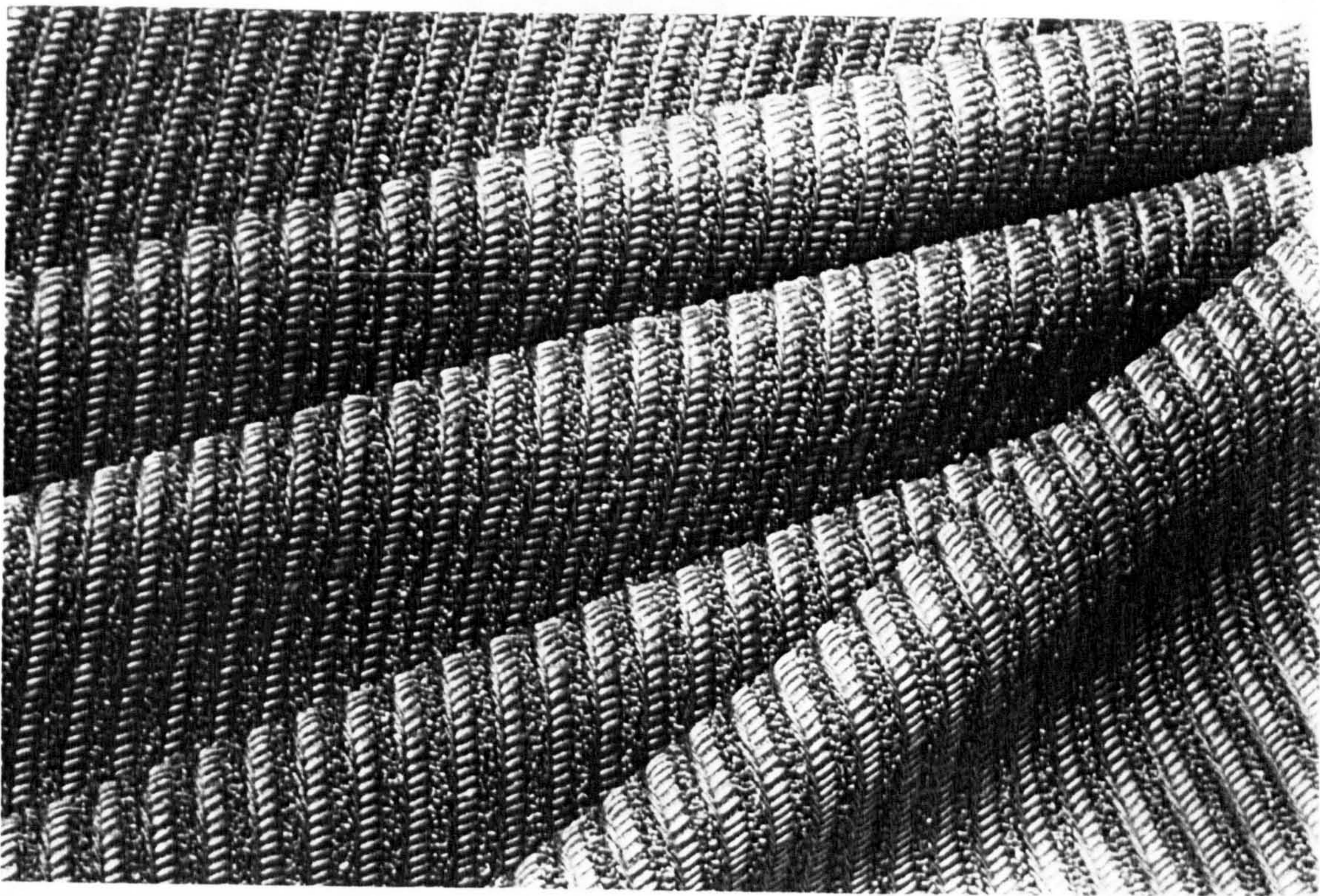


Fig. 79 b Dessau fabric structures. 1928 Dessau Archiv  
Photograph: Diane Bell

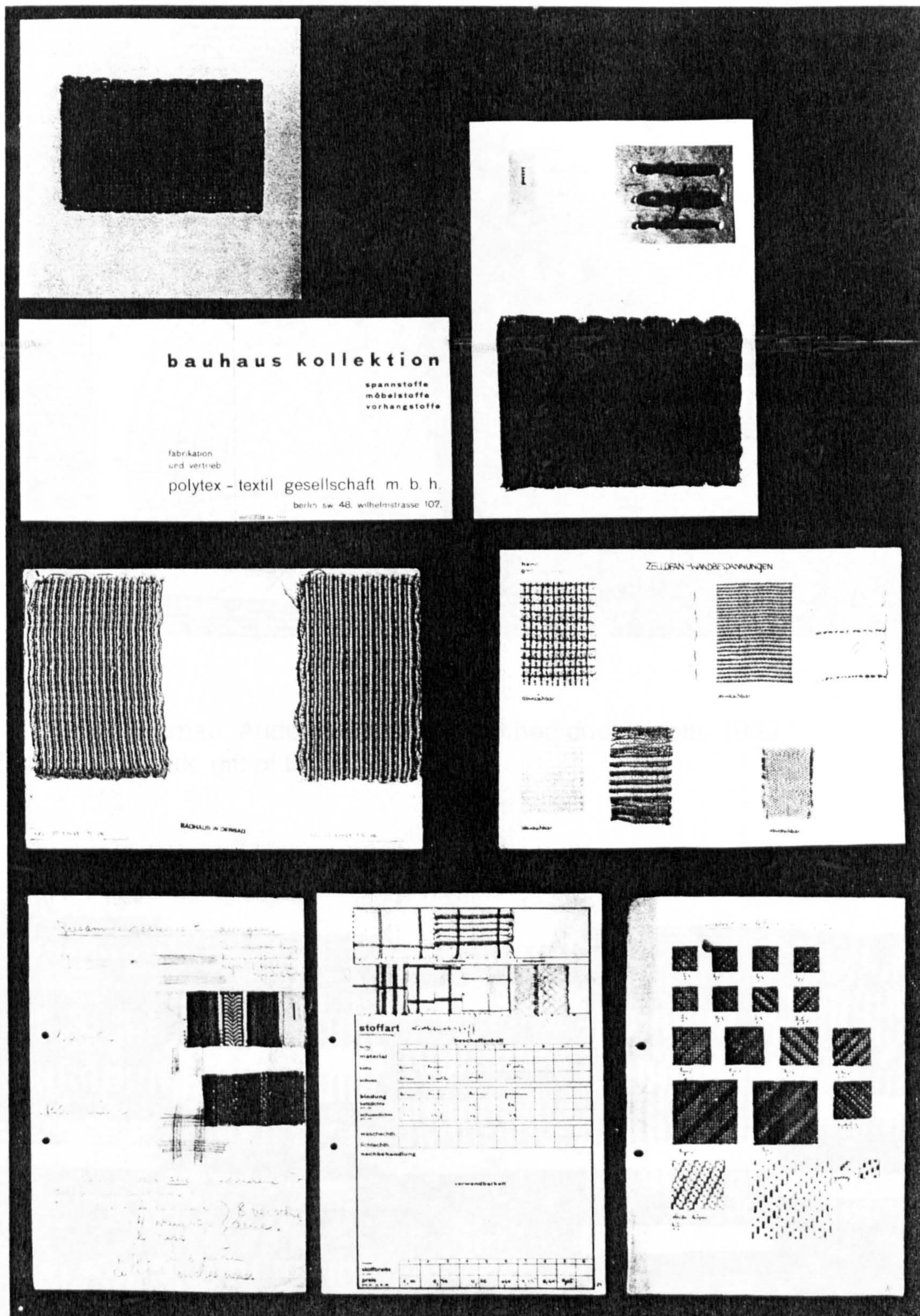


Fig. 80

Samples swatched for sale. Bauhaus Kollektion for *polytex-textil gmbh.*  
 Centre and below: Production samples by Reichardt, Berger and Stolz.

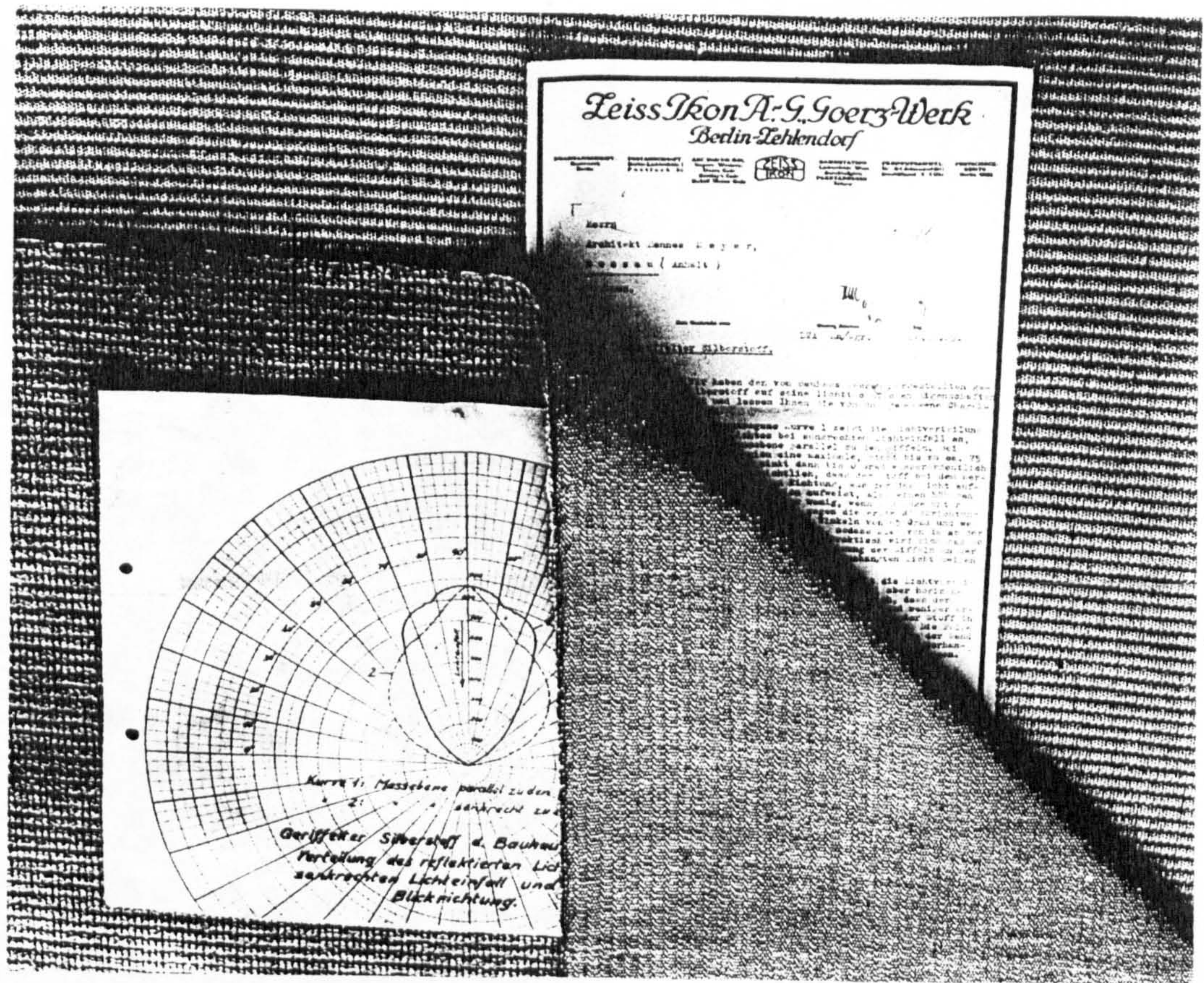


Fig. 81 Anni Albers. Bernau Auditorium Fabric. Stitched doublecloth. 1930  
MOMA, New York, gift of the artist.

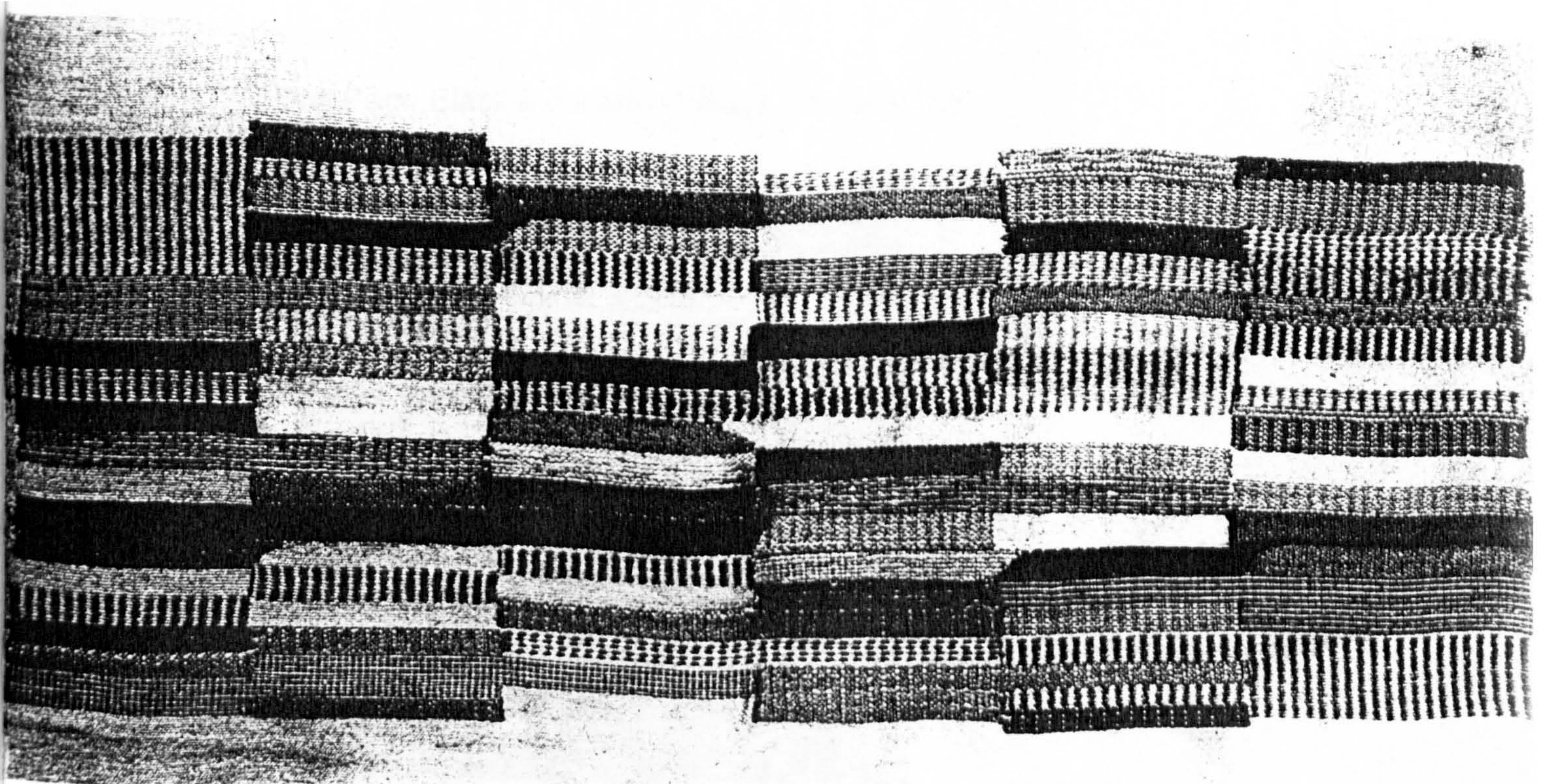


Fig. 82 Anni Albers. *Untitled Pictorial Weaving*, 1934. 21" by 46"  
Collection of Mrs John Wilkie.

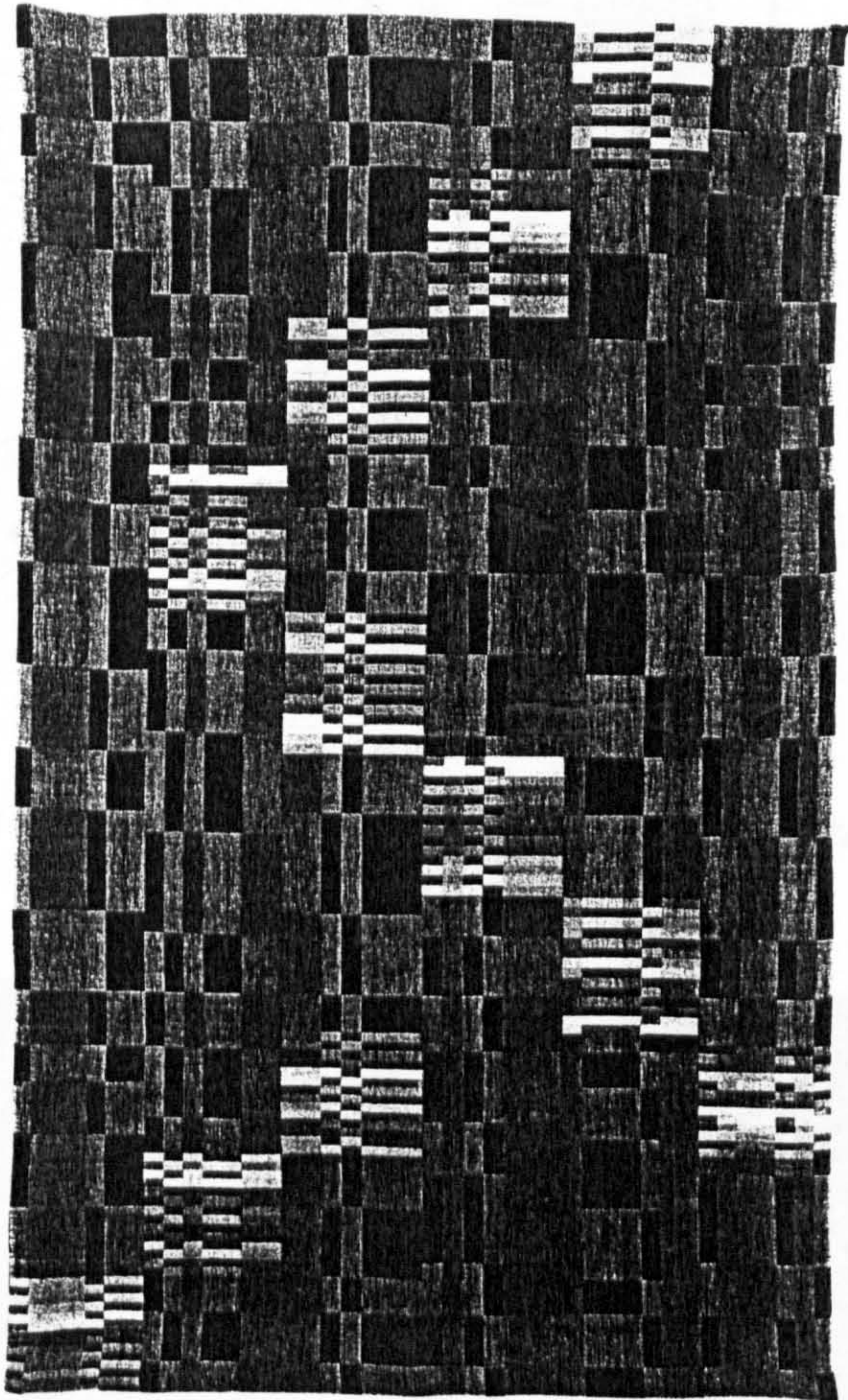


Fig. 83 Don Page, Black Mountain College. Doublecloth

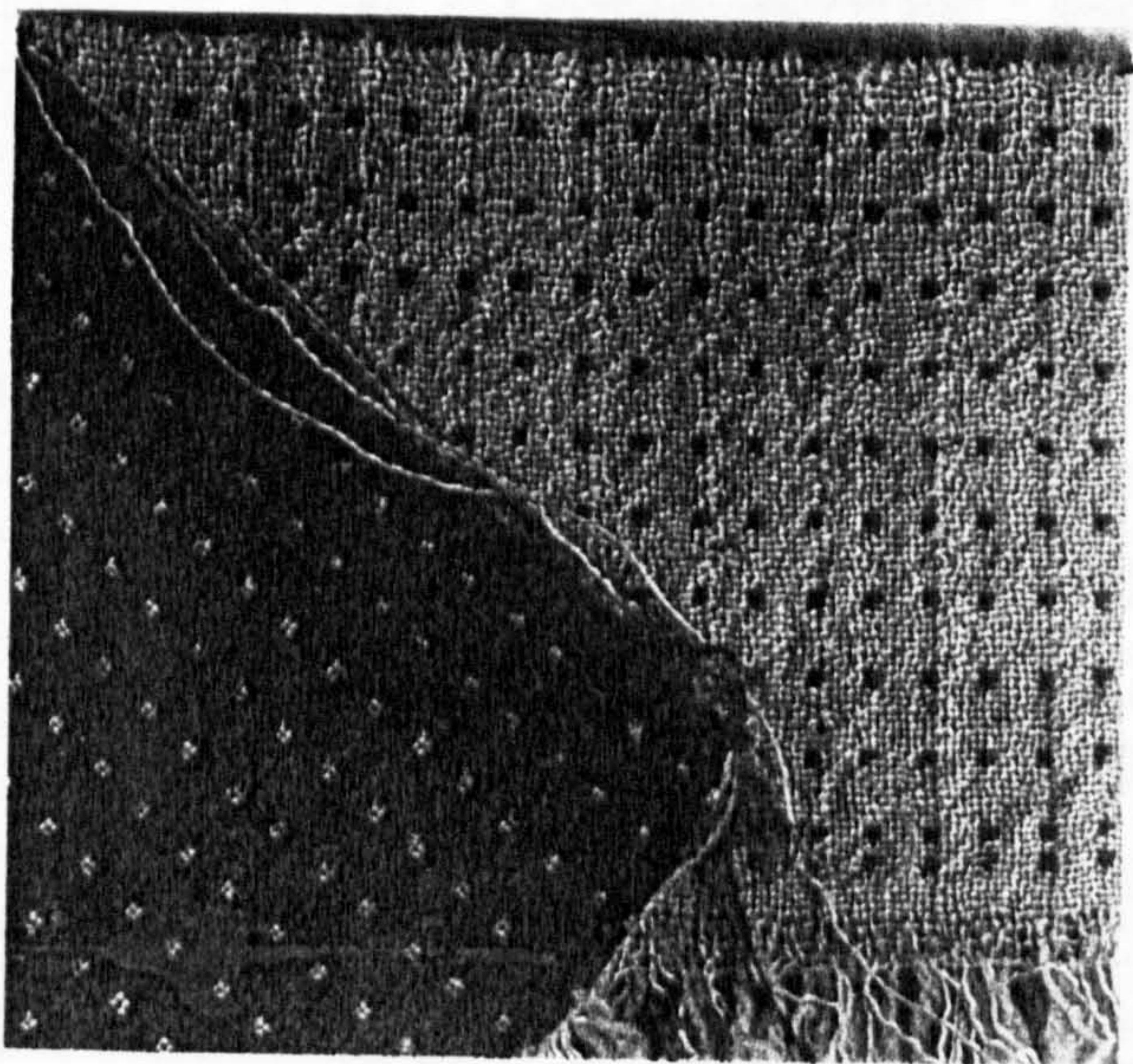


Fig. 84 Guermonprez. Stitched double weave, upholstery sample. 1950's



Fig. 85 Trude Guermonprez. *We Are But Two Shadows*, 1971



Fig. 86 Doublecloth, pre-Columbian Peru. Berlin Museum.

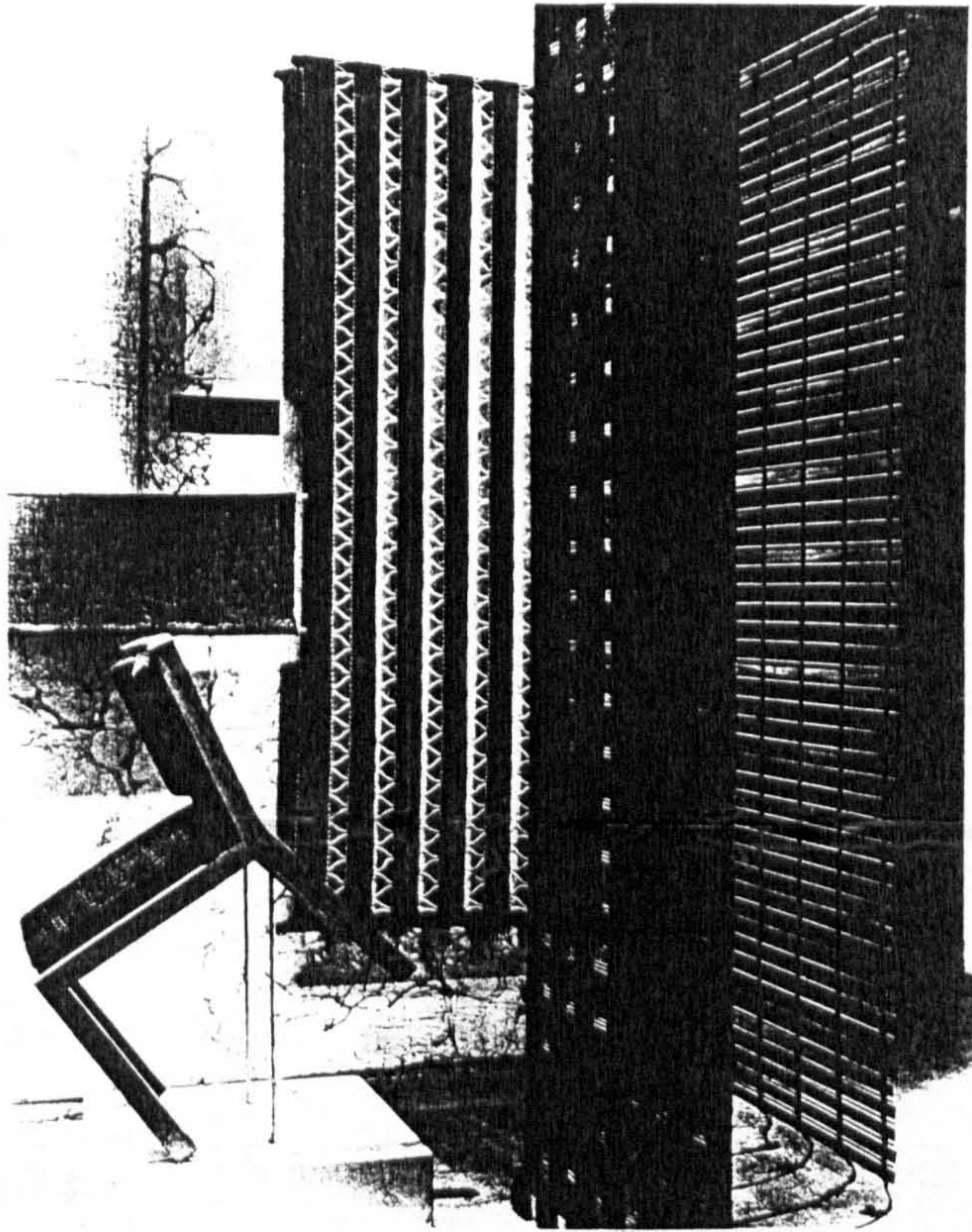


Fig. 87 Anni Albers. MOMA exhibition. 1949.

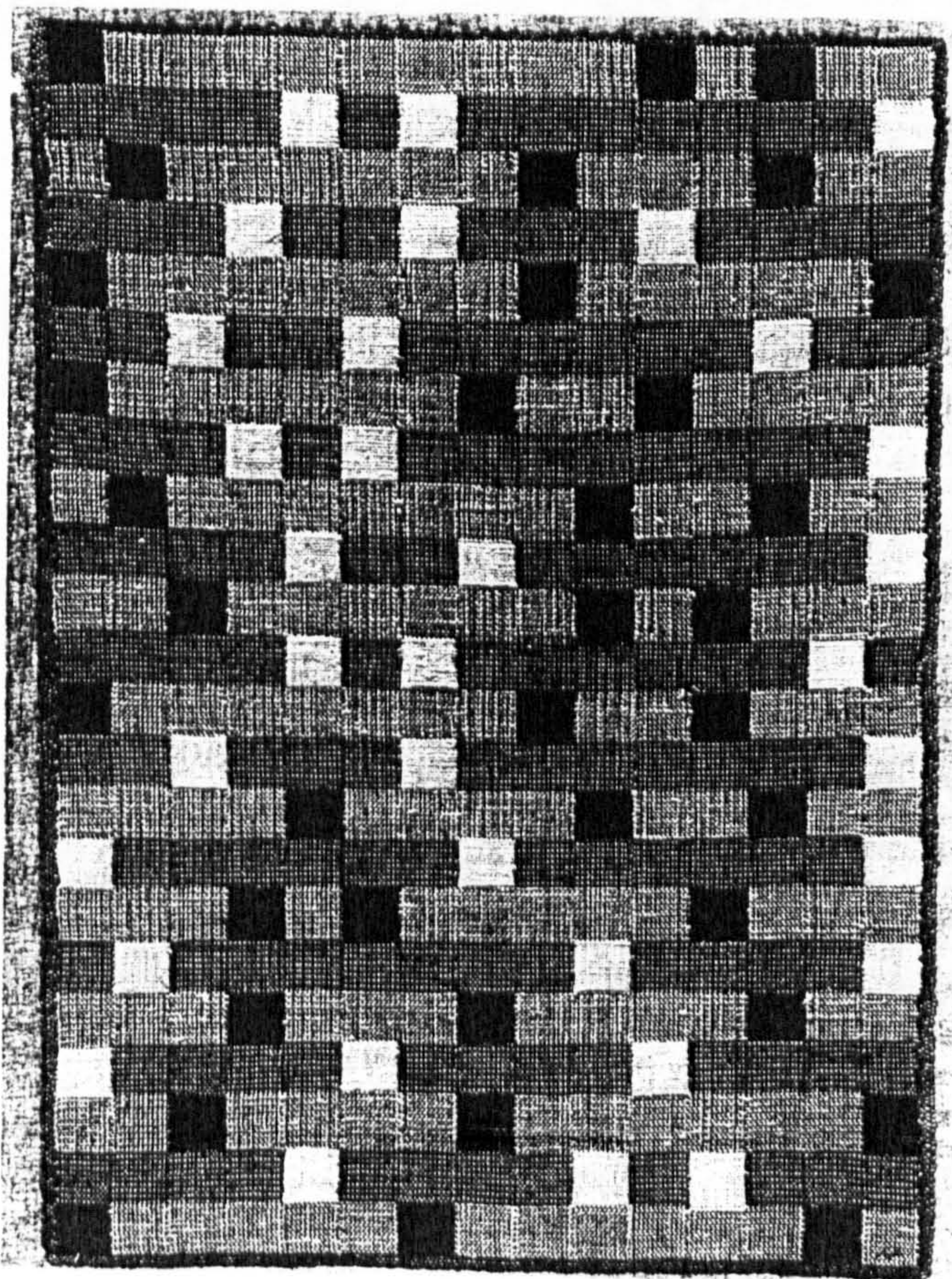


Fig. 88 Anni Albers. *Pictorial Weaving. Play of Squares*. Doublecloth. 1955  
The Currier Gallery of Art, New Hampshire.

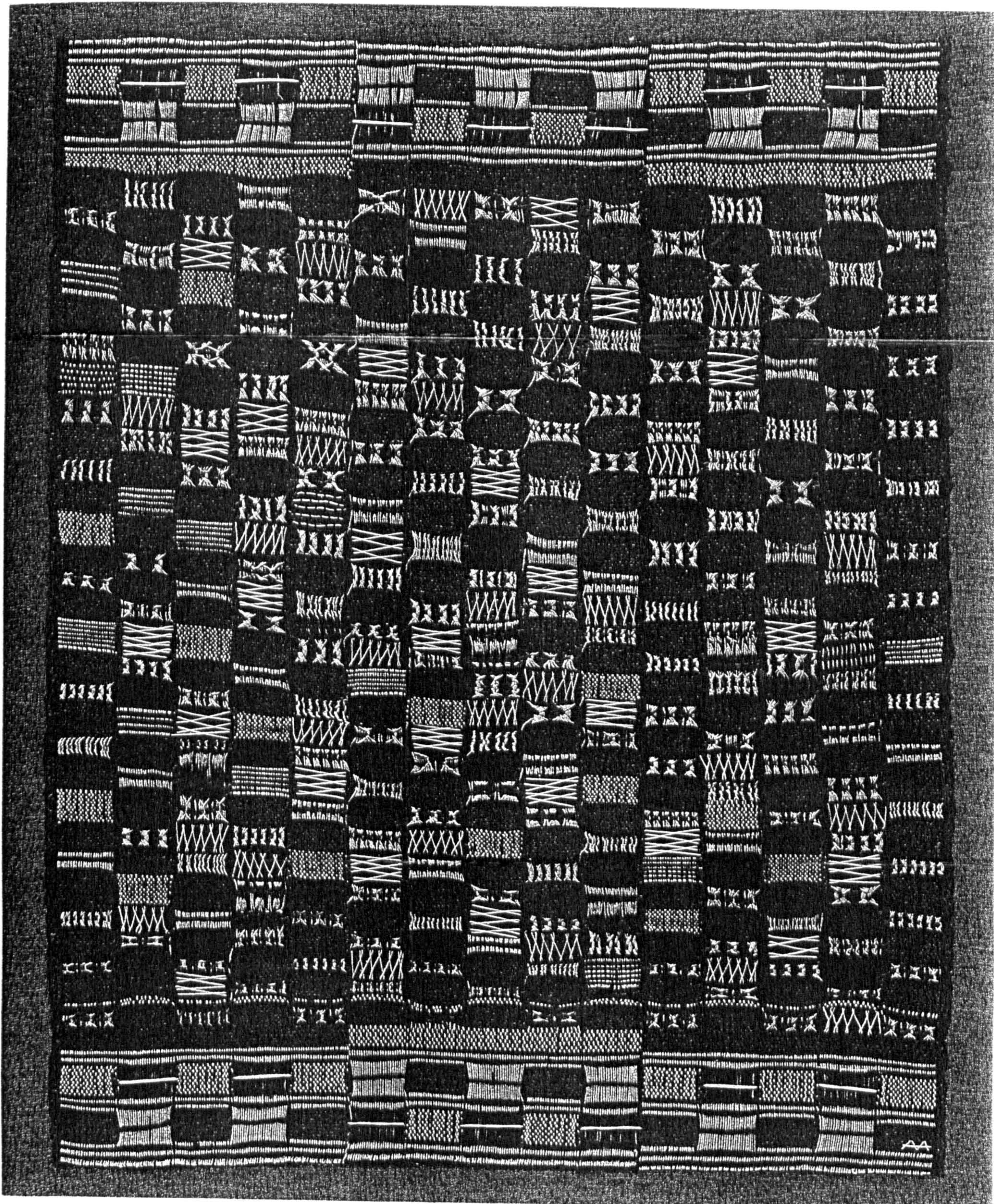


Fig. 89 Anni Albers. *Thickly Settled*. Doublecloth. 1957. 31" by 25"  
Yale University Art Gallery, Connecticut.

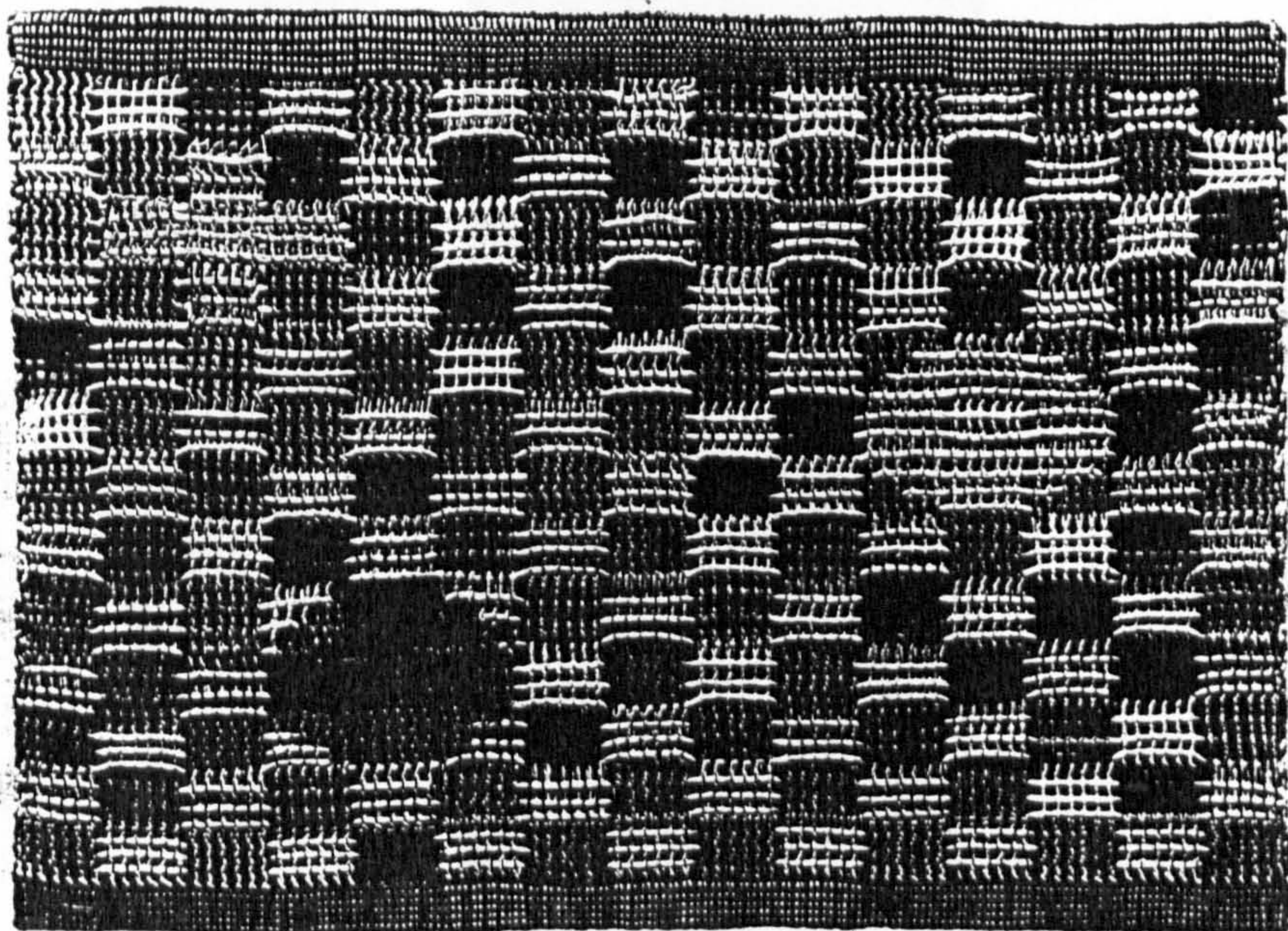
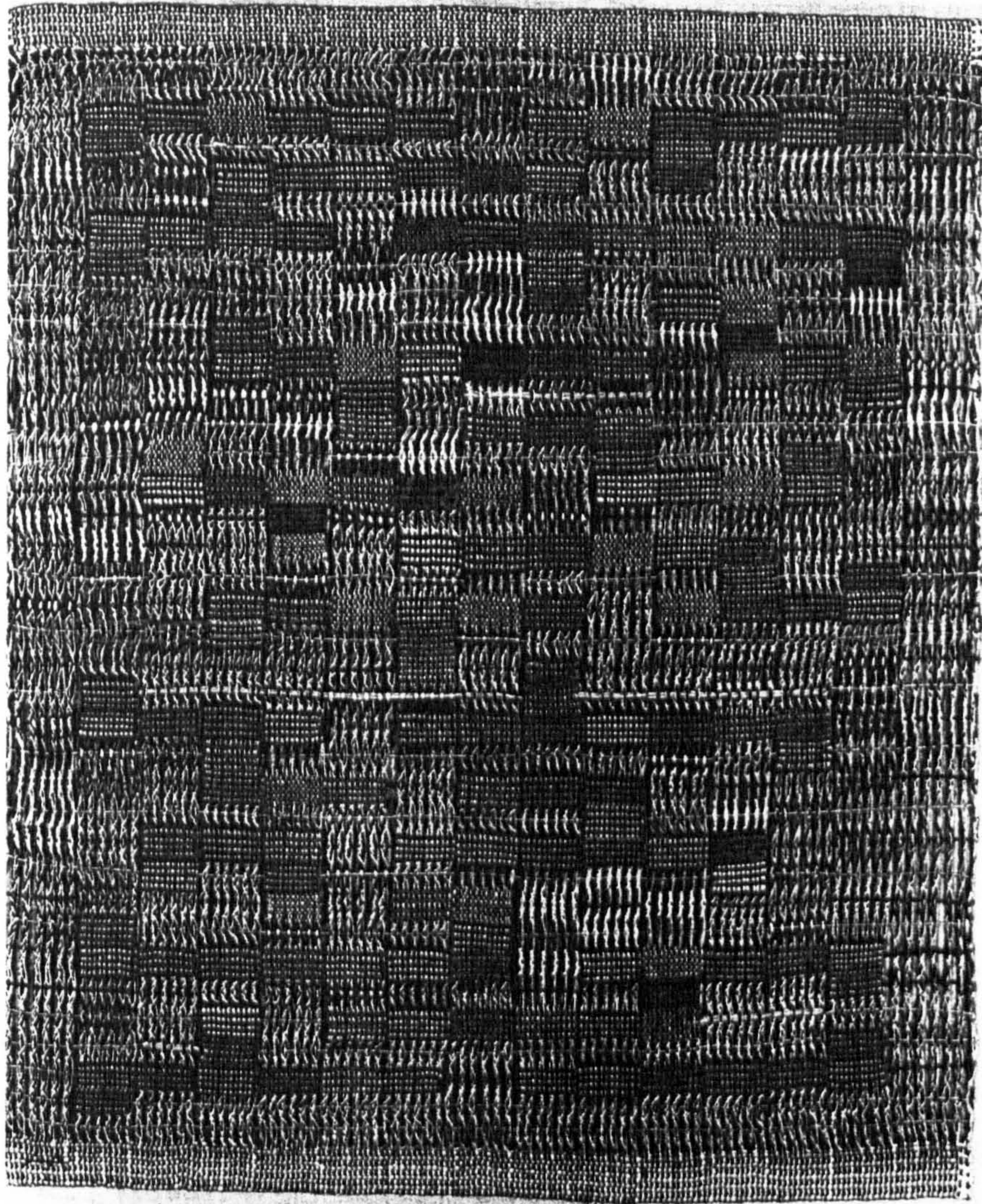


Fig. 90 a Anni Albers. *Tikal*. Doublecloth with leno weave. 1958  
American Craft Museum, New York City.

Fig. 90 b *In Orbit*, 1957 woven on the same warp as *Tikal*





Fig. 91

Anni Albers. *Enmeshed*. Lithographic Print 1963

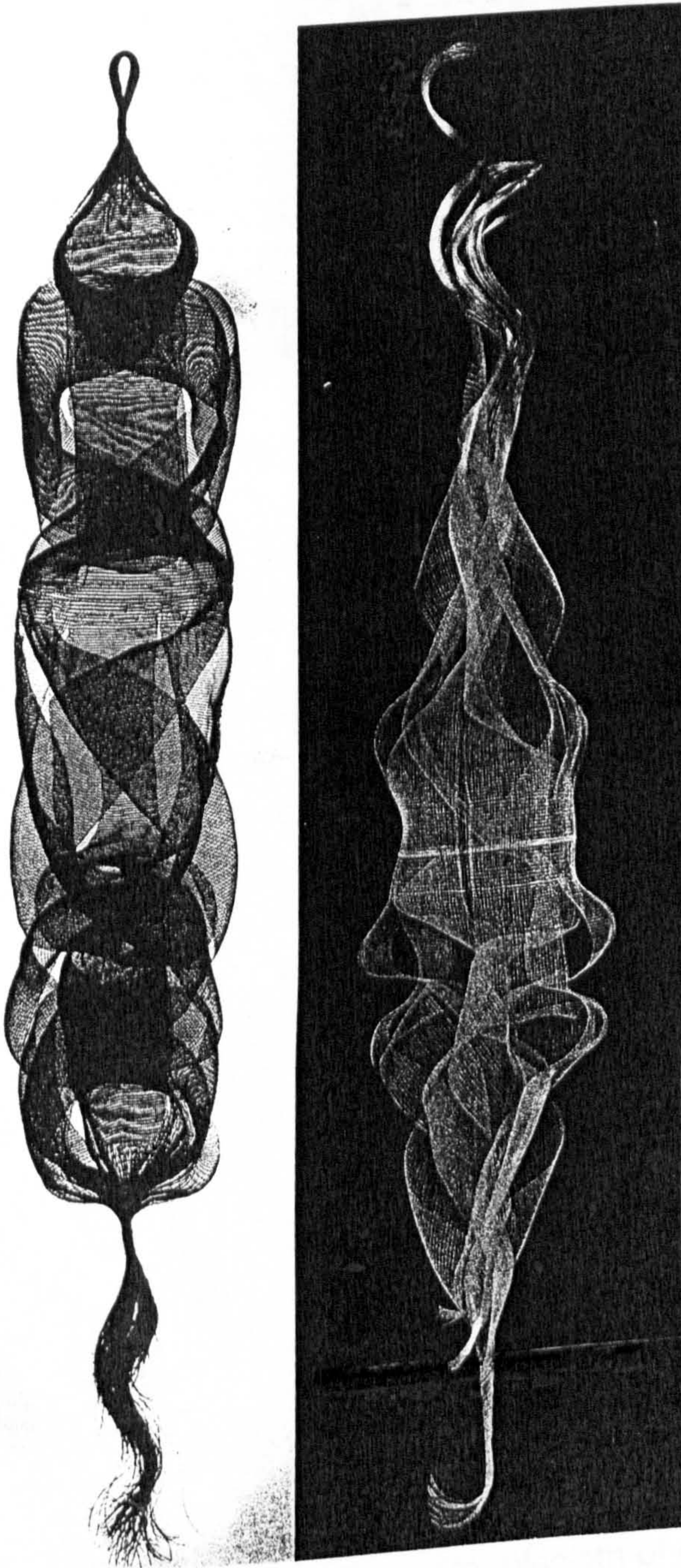
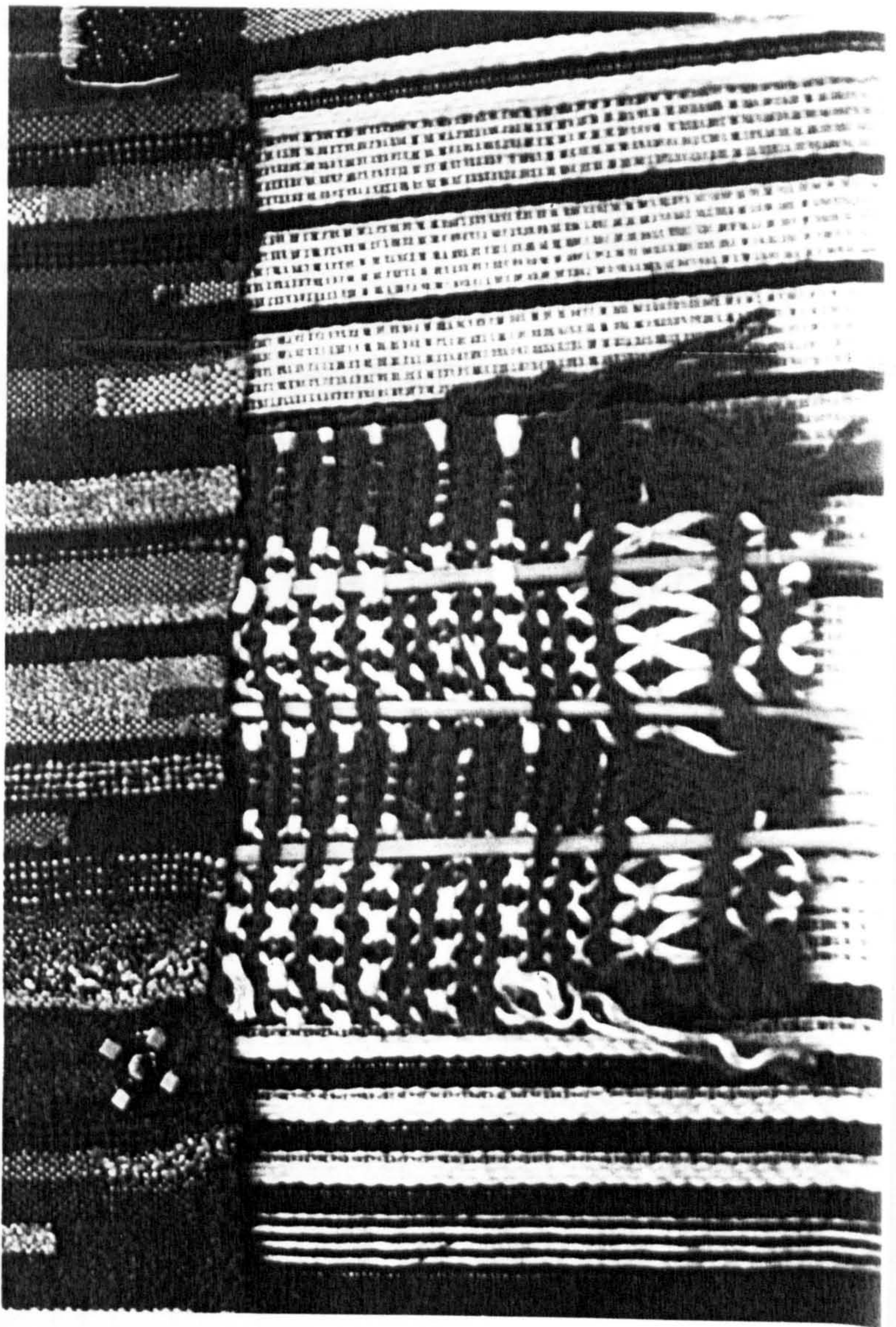
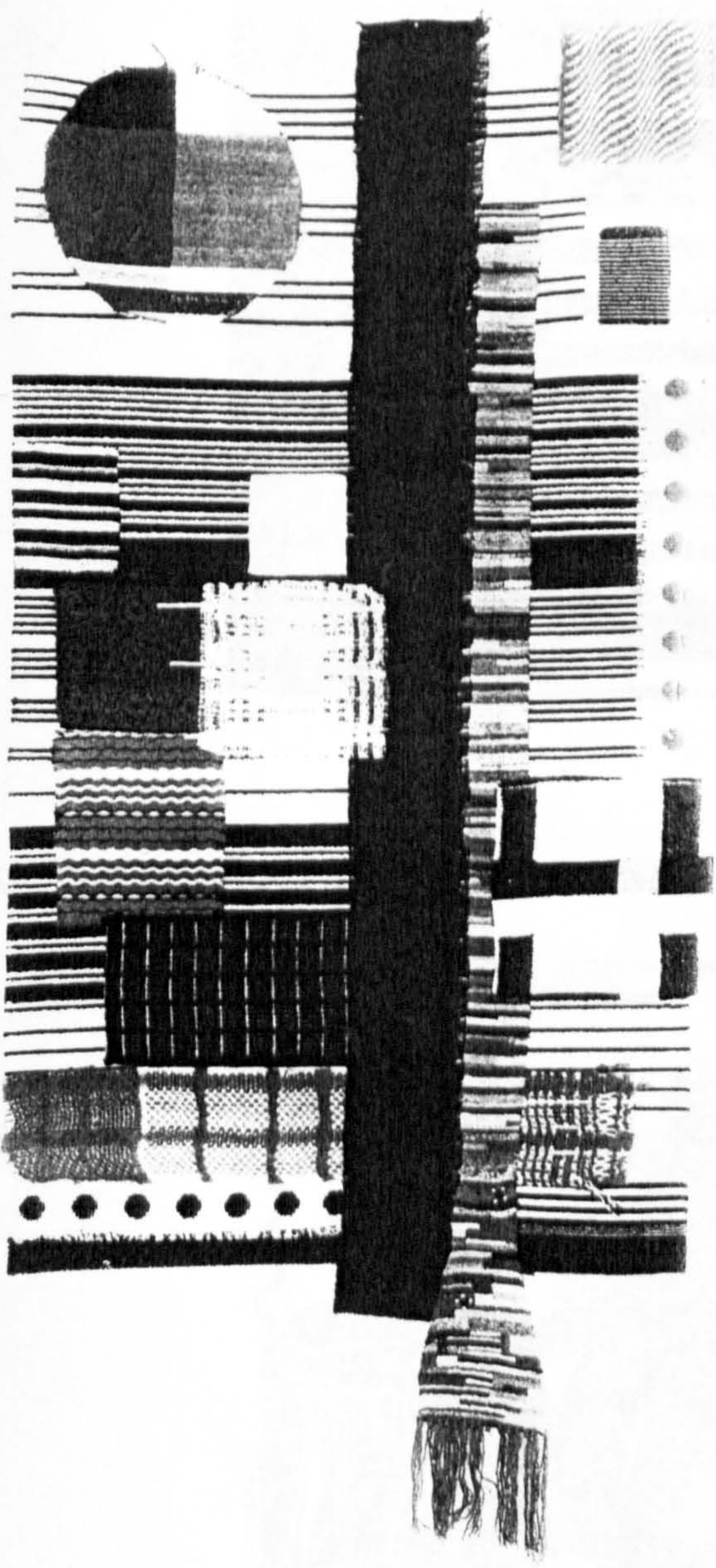


Fig. 92

Kay Sekimachi. *Amiyose*. Clear monofilament, tubular and quadruple weave. 1965.



Fig. 93 Guermonprez. *Mandy's Motto*. Doublecloth of printed fabrics, torn flag strips 1975



Left: Fig. 94 a  
Right: Fig. 94 b

Reichardt. *Gretelstoffe*. Fabric Collage. 1929  
Reichardt. *Gretelstoffe*. Fabric Collage Detail. 1929

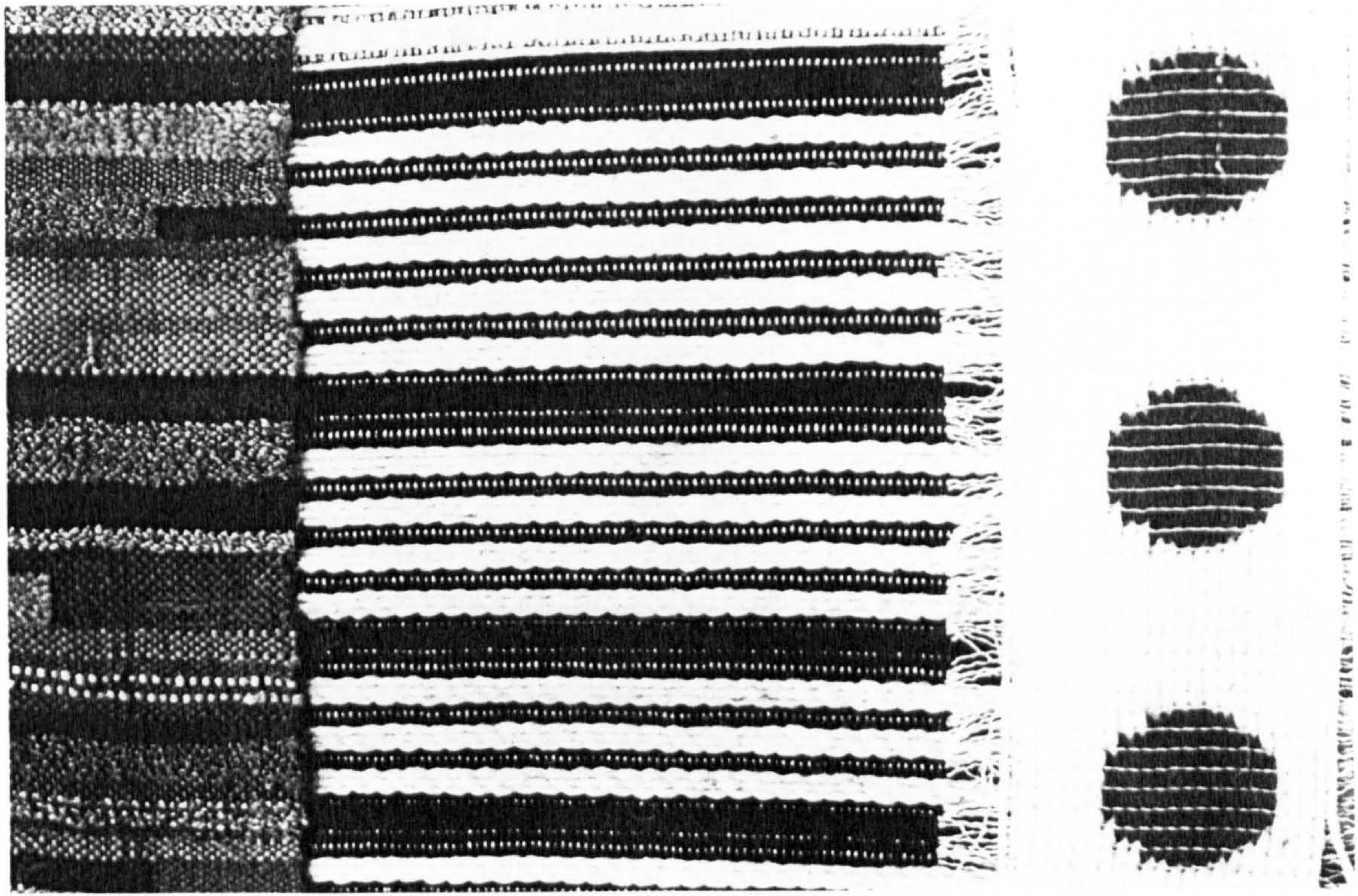


Fig. 94 c Reichardt. *Gretelstoffe*. Fabric Collage Detail. 1929



Fig. 95 Reichardt. *Gretelstoffe*. Fabric Collage. 1931

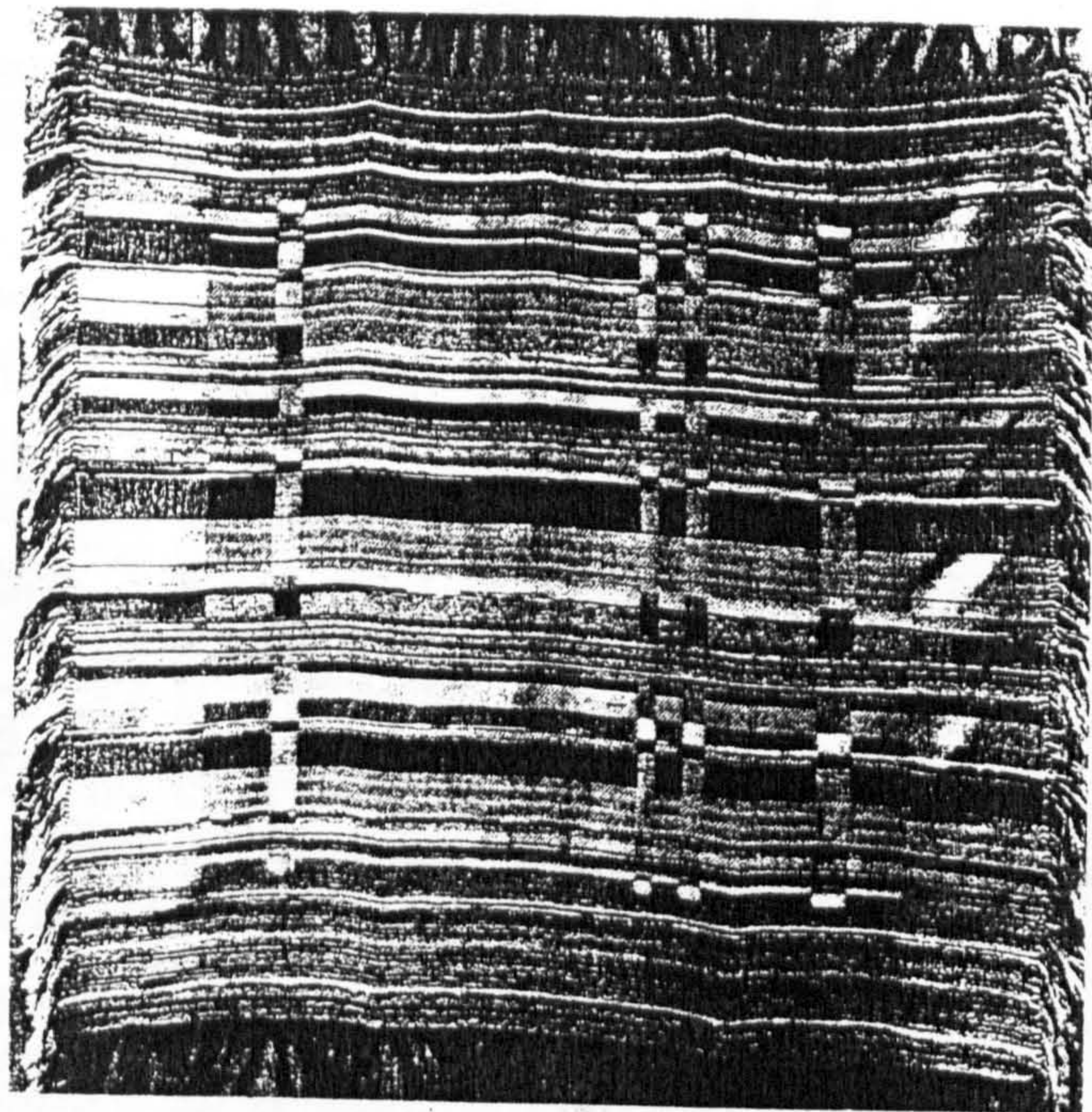


Fig. 96 a Reichardt. Doublecloth Tablecloth 1934

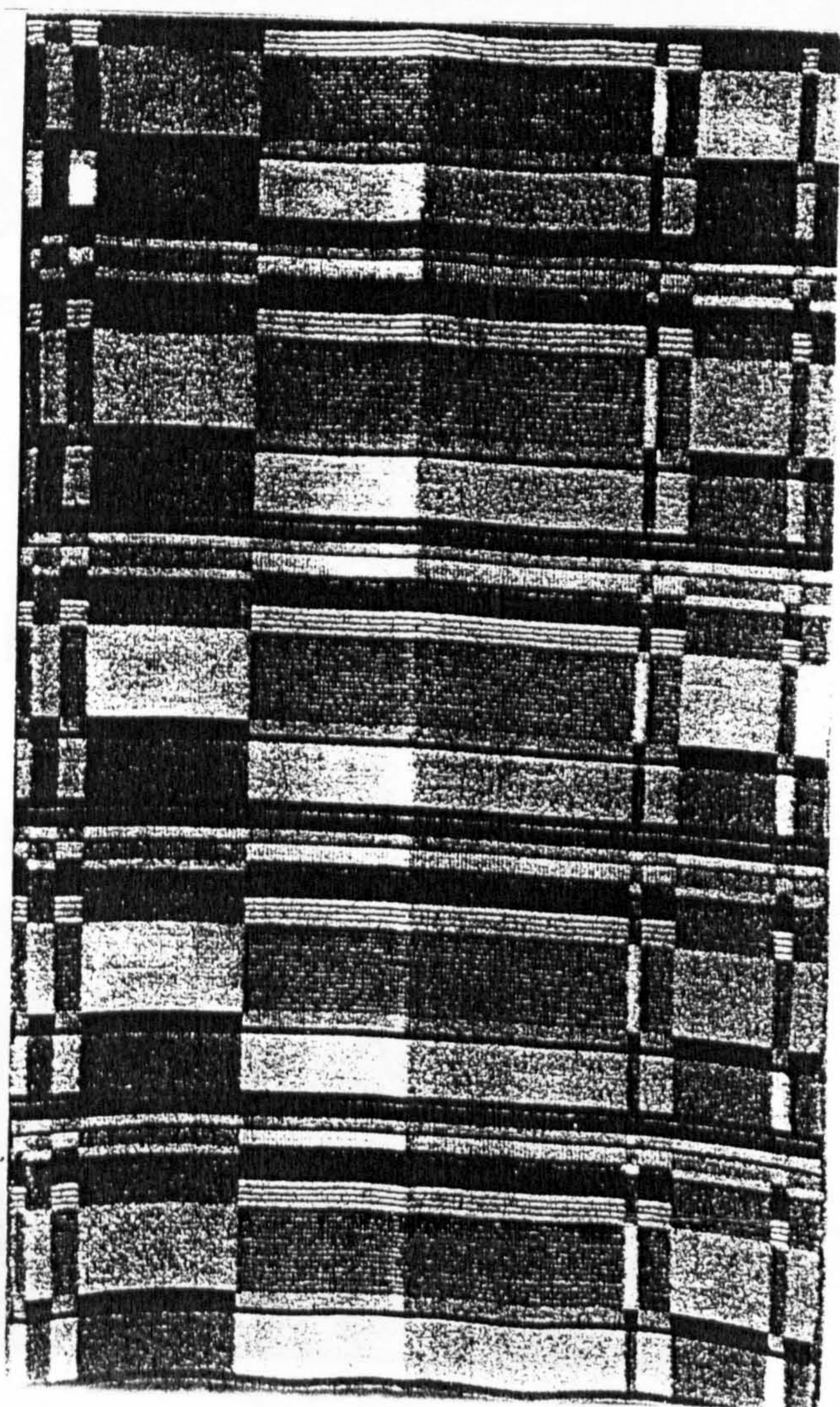


Fig. 96 b Reichardt. Doublecloth Bedcover. 1934

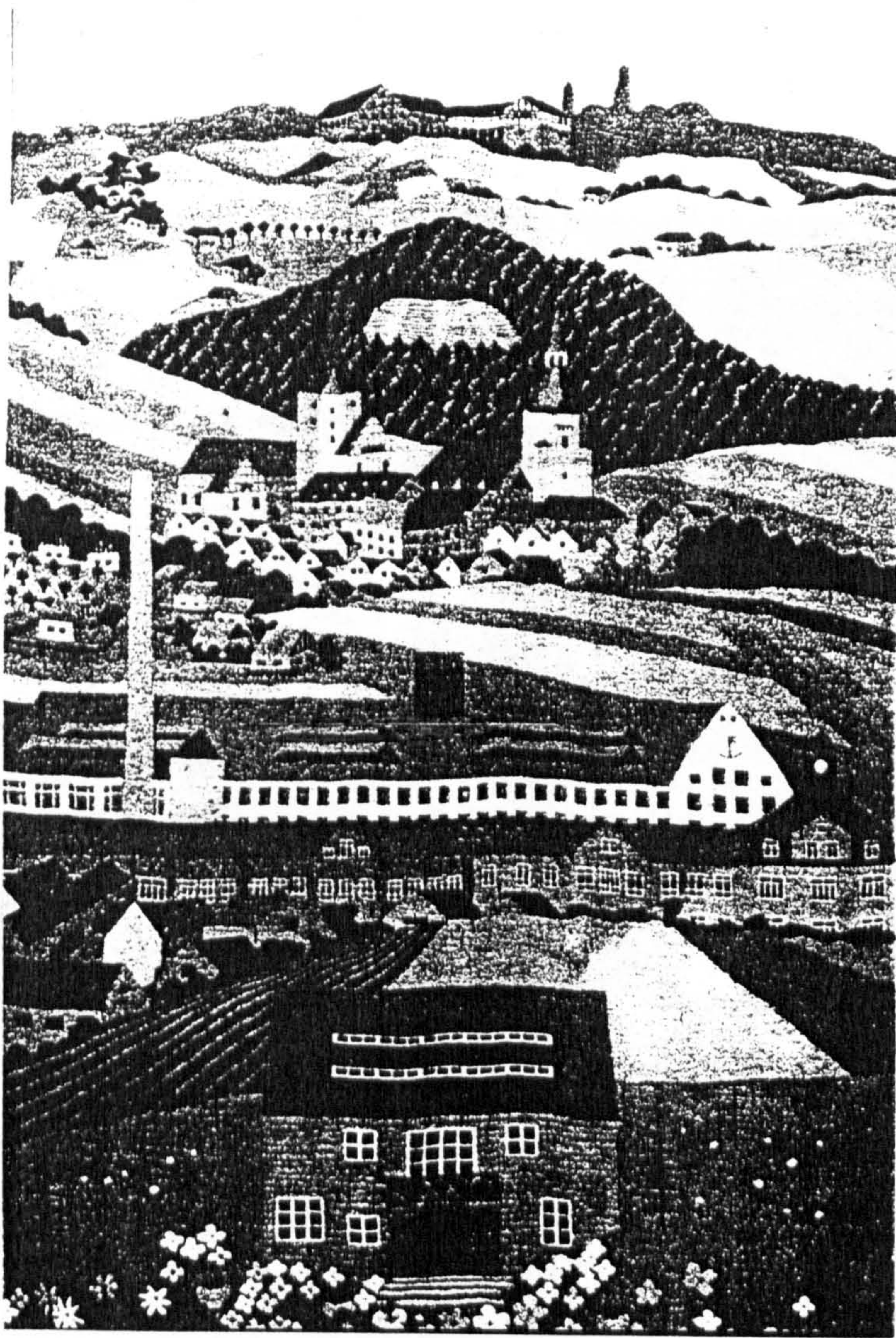


Fig. 97 Reichardt. *Swarzenberg*. Gobelin 1941

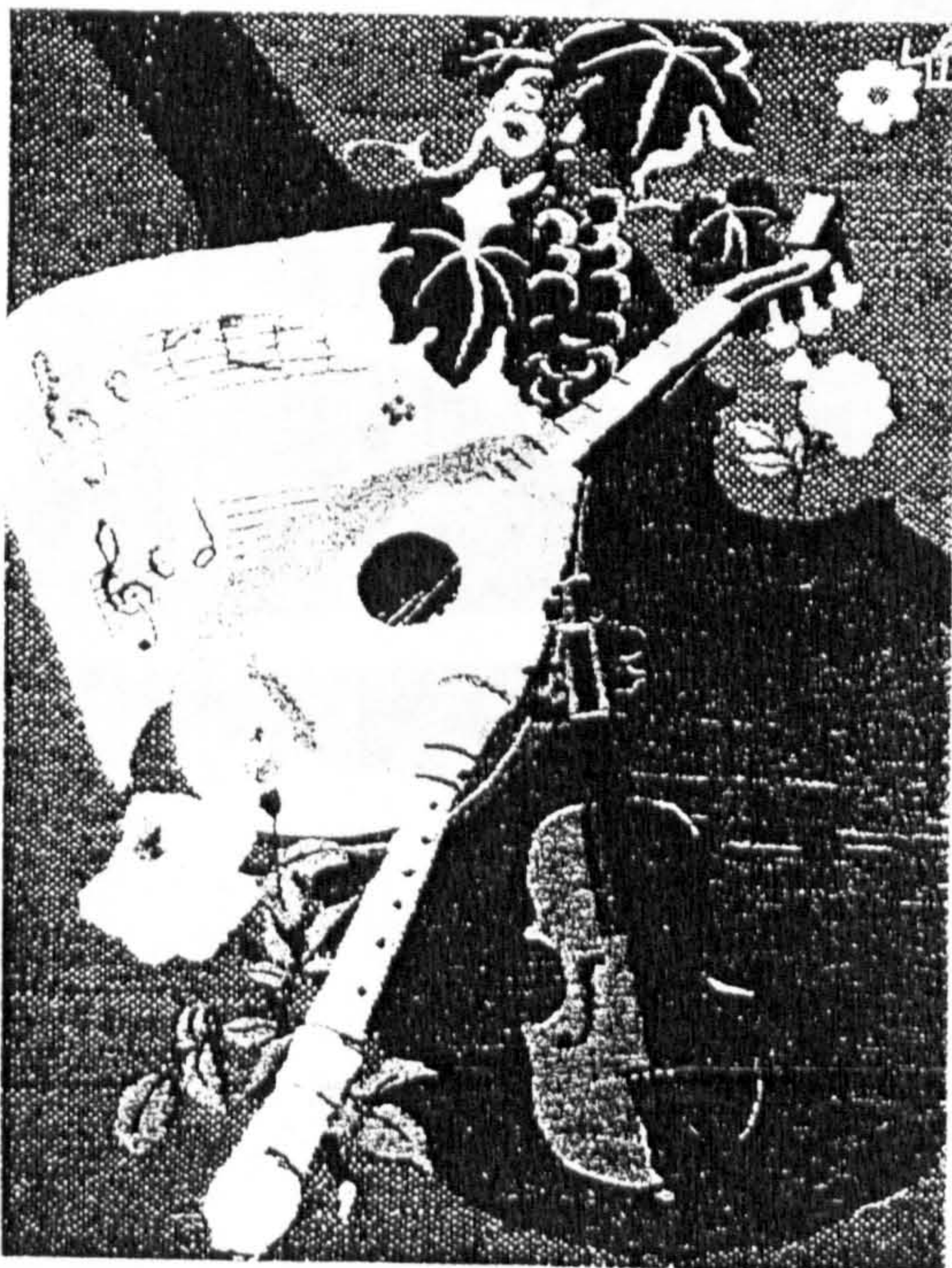


Fig. 98 Reichardt. *Quartett*. Gobelin 1947. Angermuseum Erfurt



Fig. 99 Reichardt. *Weberin*. Self Portrait. Gobelintapestry 1954. Leipzig, Grassi museum.

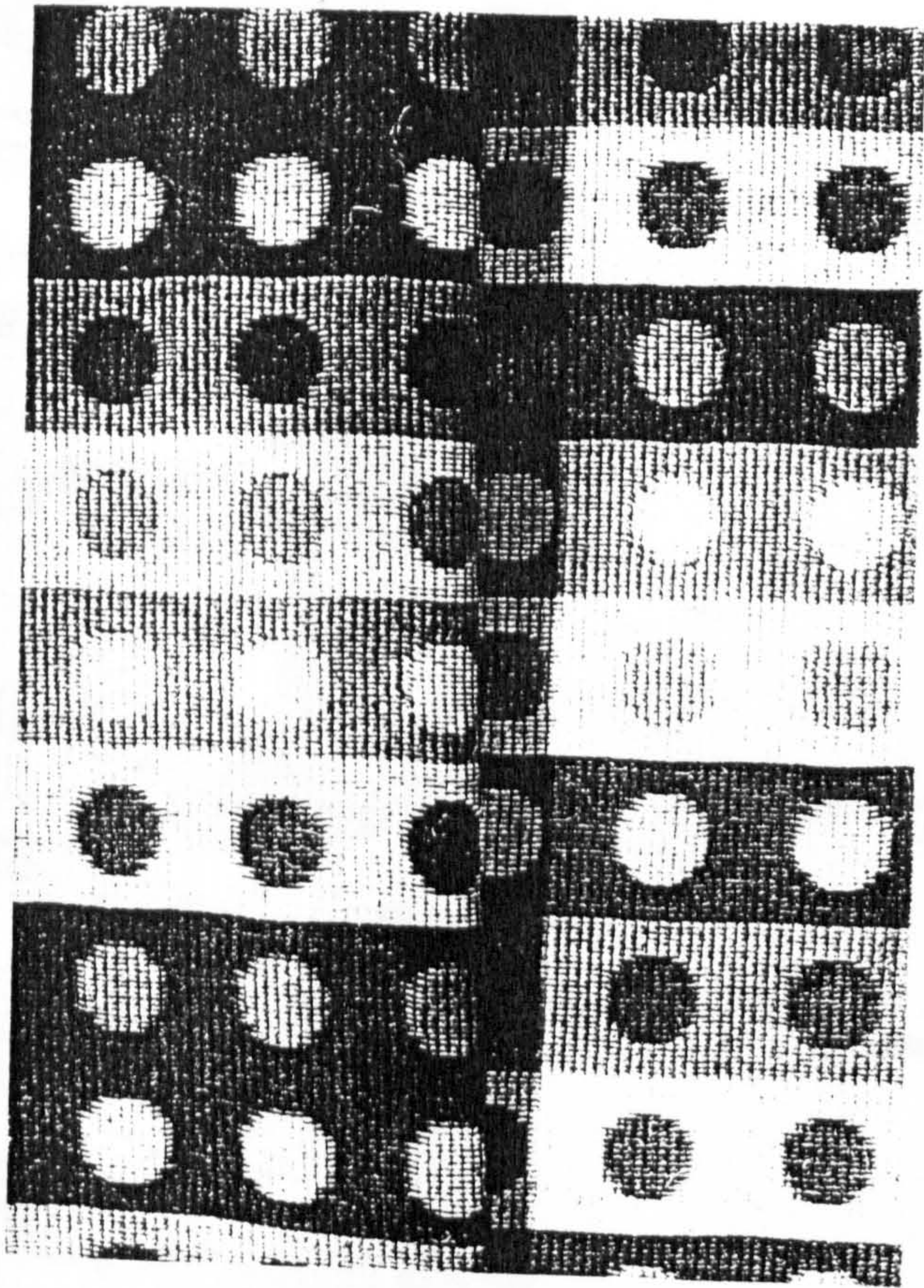


Fig. 100 Reichardt. Kleiderstoffe 1962

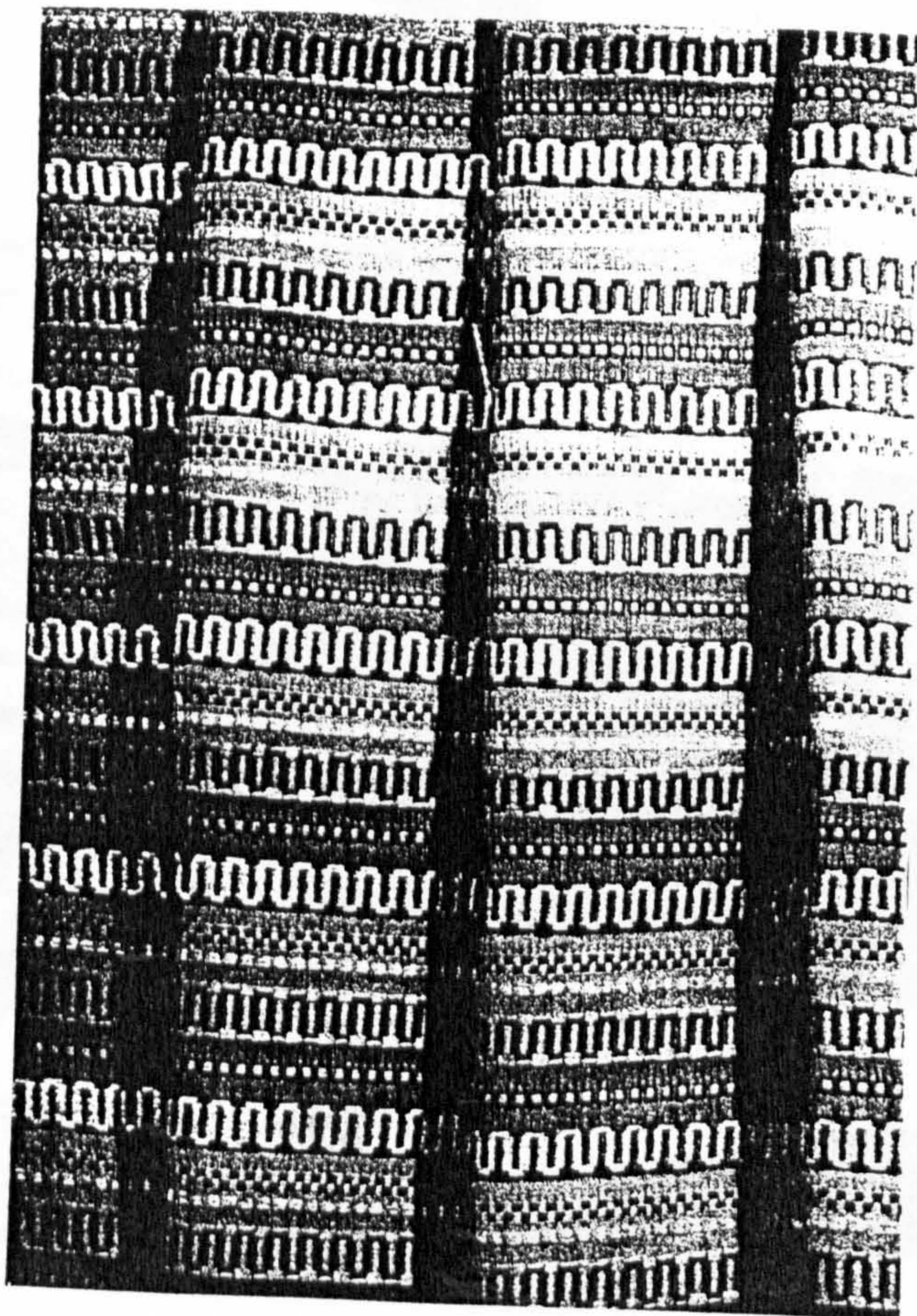


Fig. 101 Reichardt. Wool Furnishing. Dr





Fig. 102 Reichardt. *Spitze* 1965



Fig. 103 Reichardt. *Stellenensemble* 1971

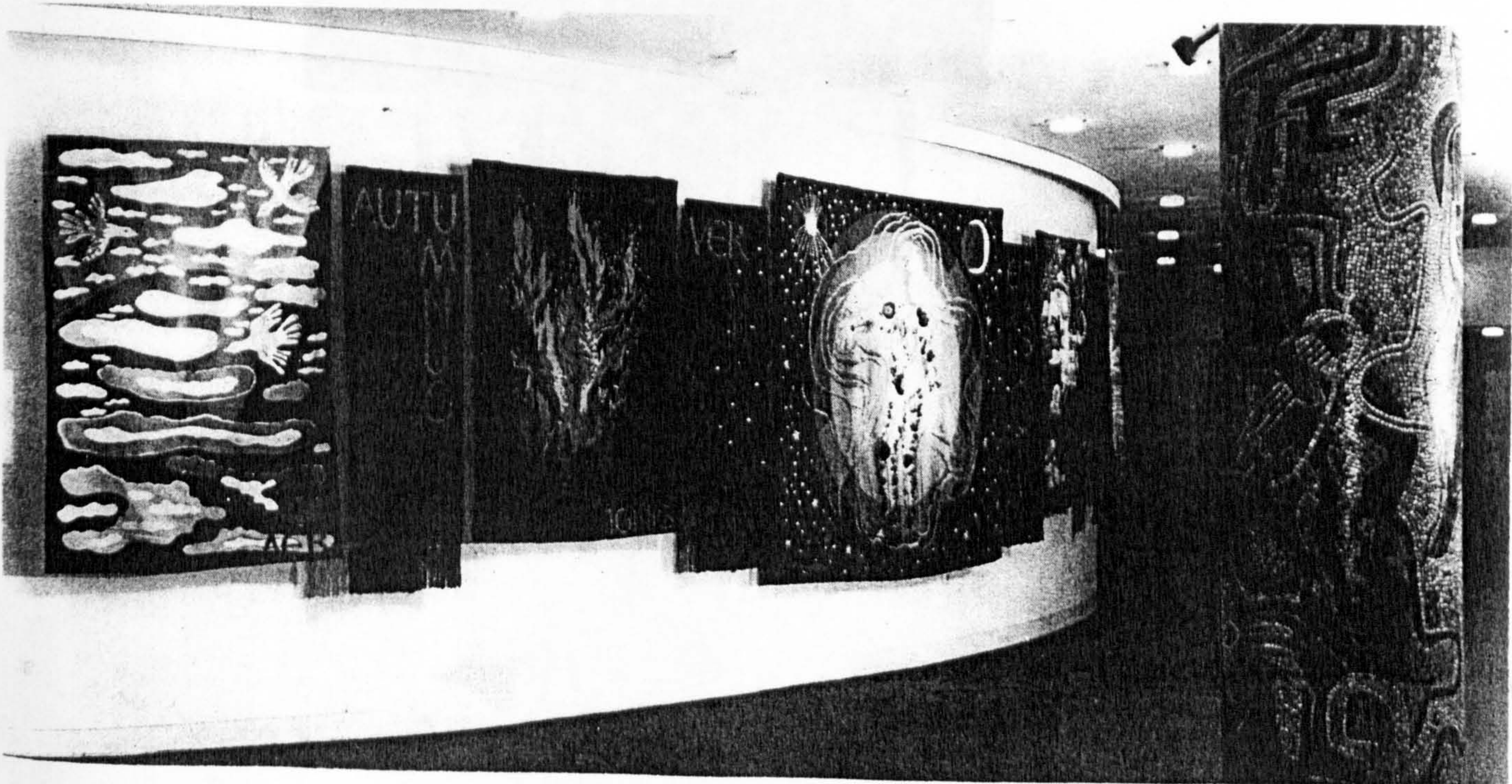


Fig. 104 Reichardt. Hangings for Deutsches Nationaltheater Weimar, 1978  
*Das Faustische im Menschen.*

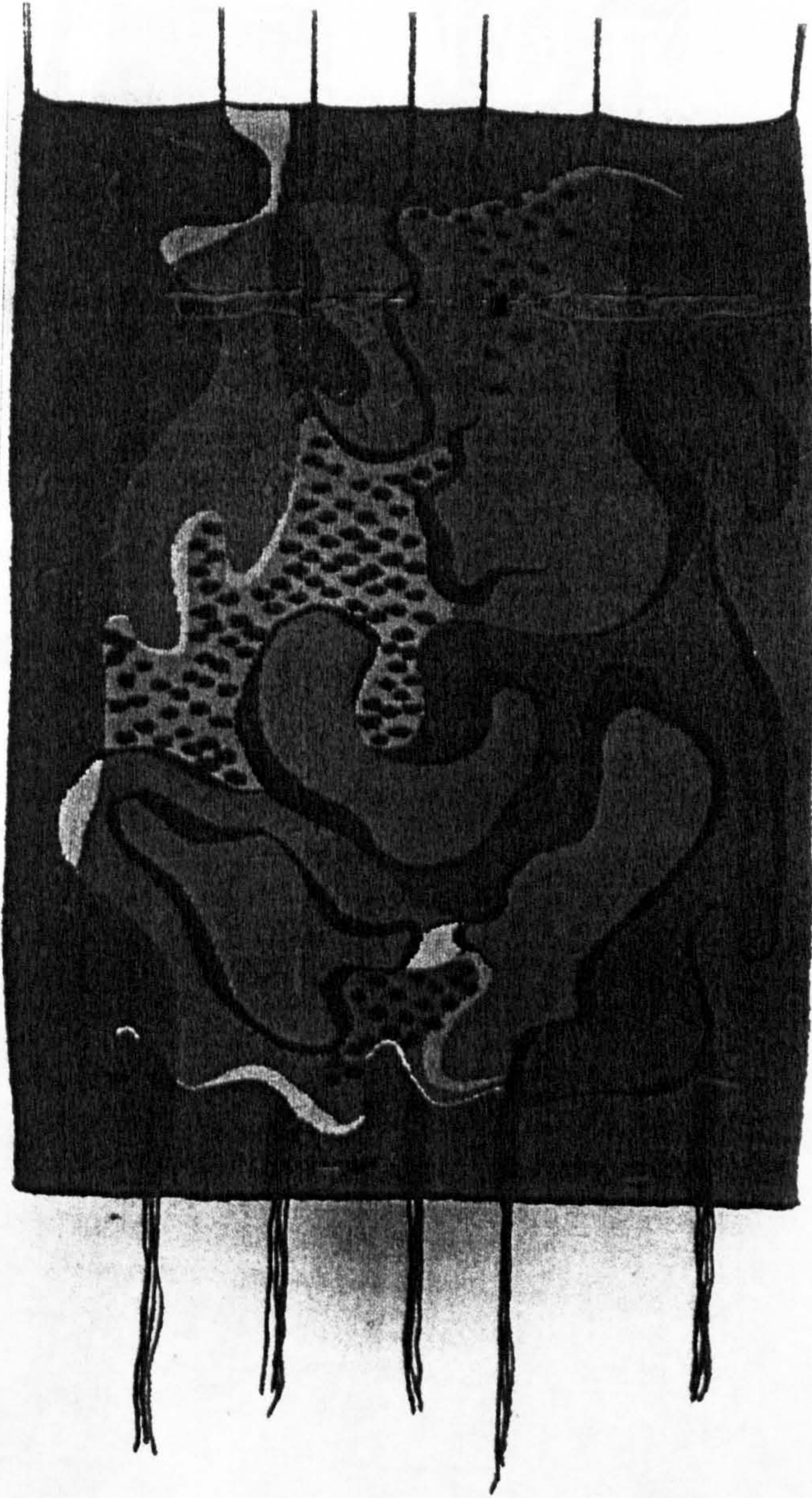


Fig. 105 Reichardt. *Buahausreflexion 111* .1979. 118 by 88 cm

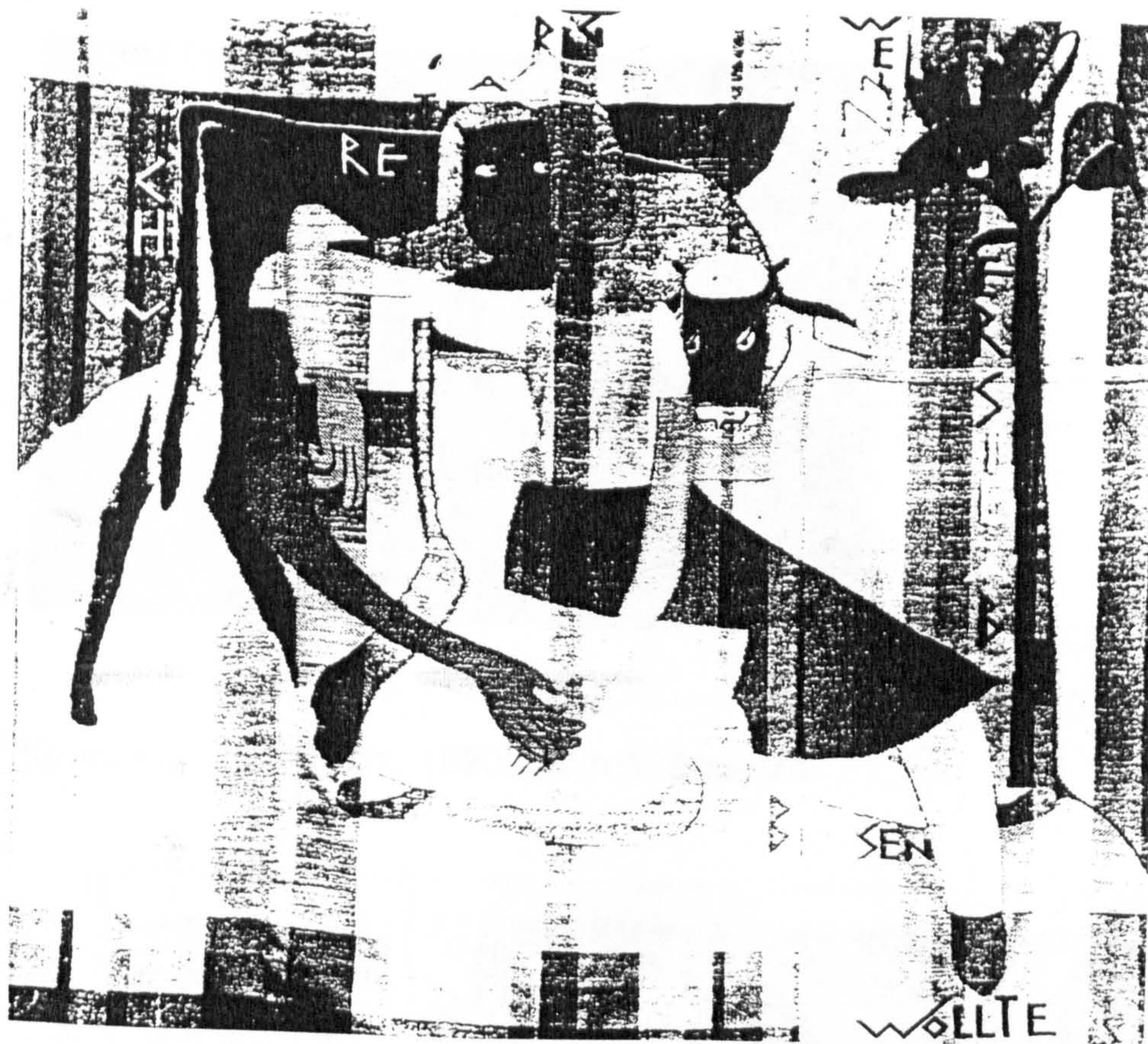


Fig. 106 Schutz-Wolff. *Madchen mit Rind*, 1926

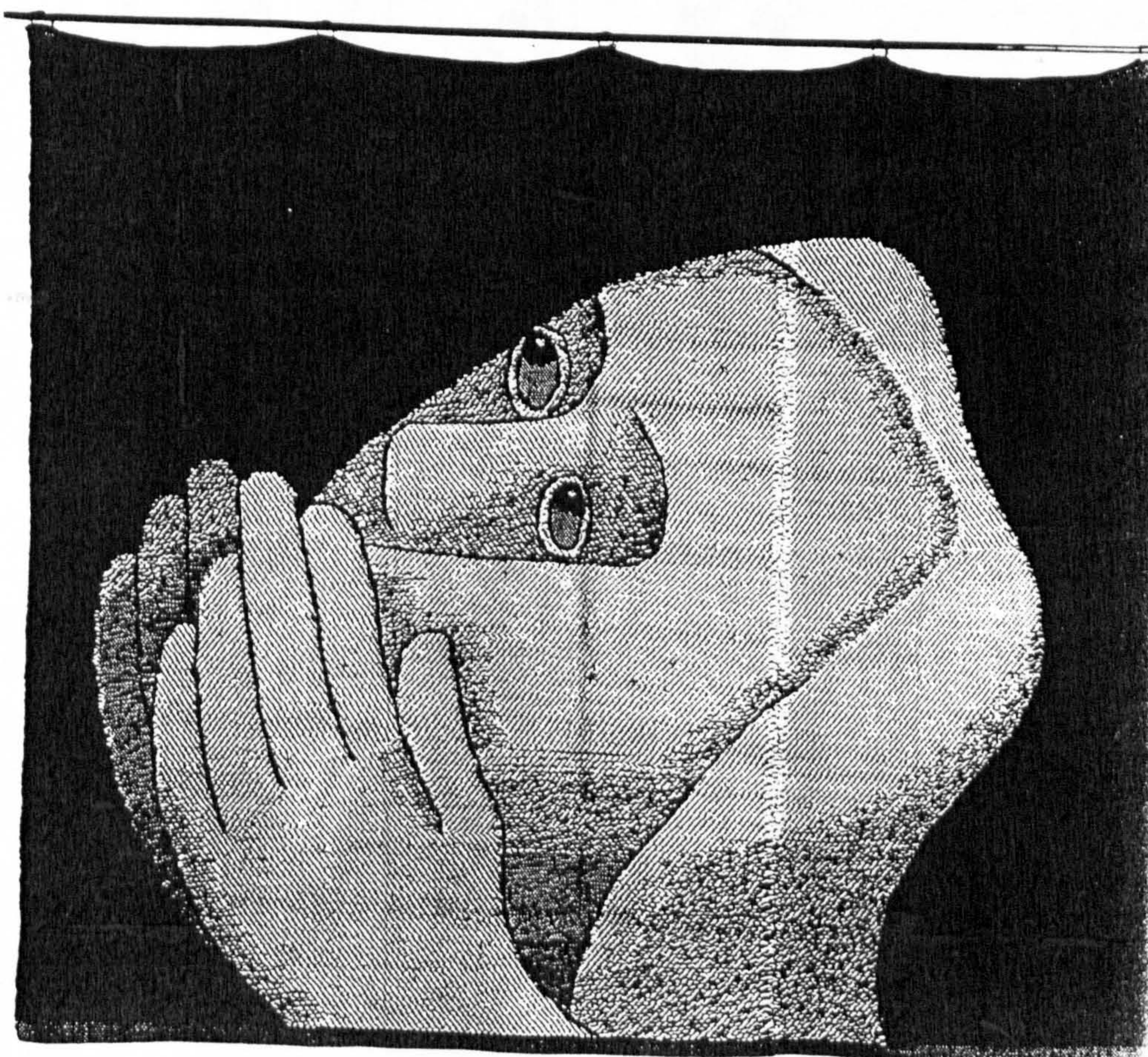


Fig. 107 Schutz-Wolff. *Betende*, 1932

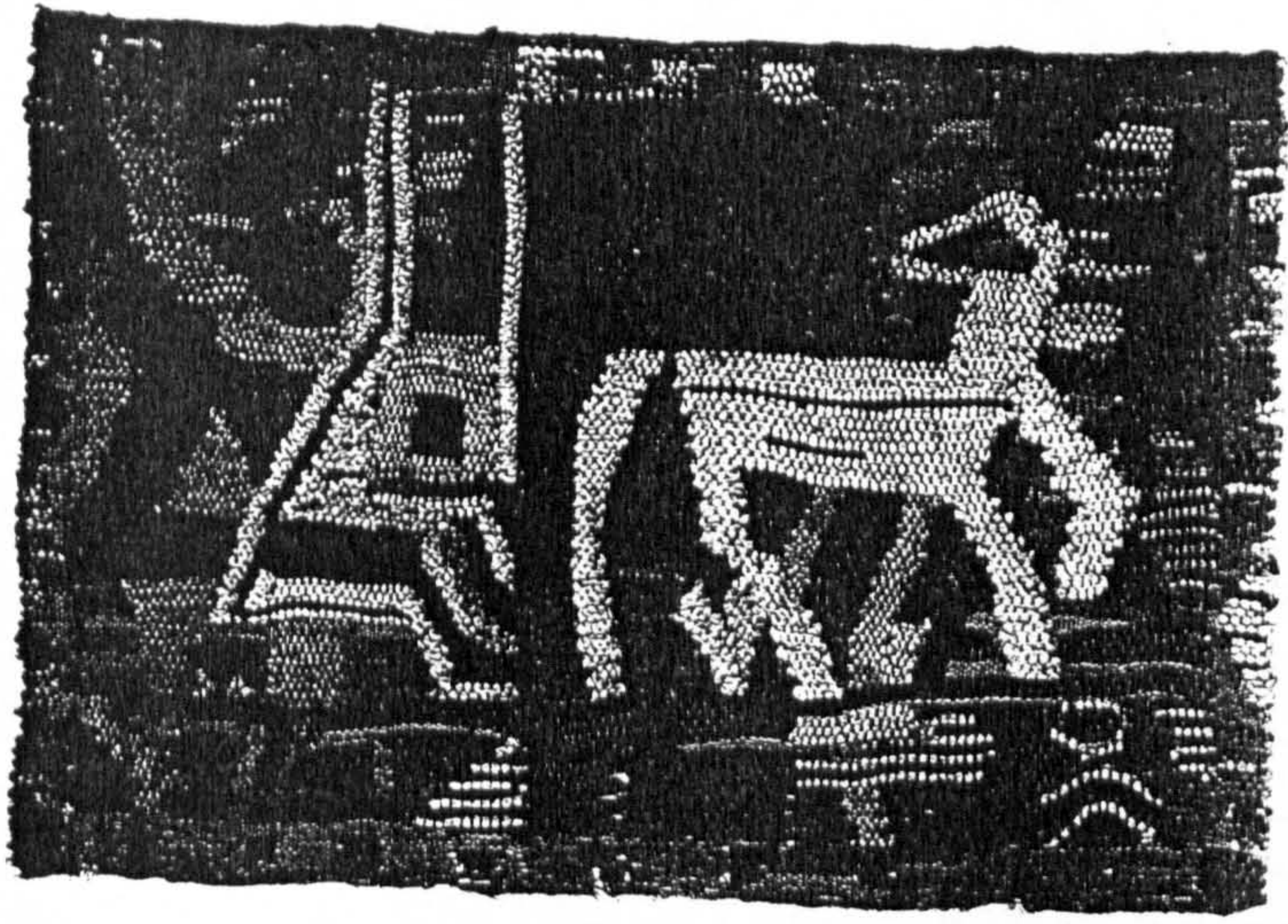


Fig. 108 Kerkovius. *Tierteppich.*, 1920. Weimar Bauhaus.

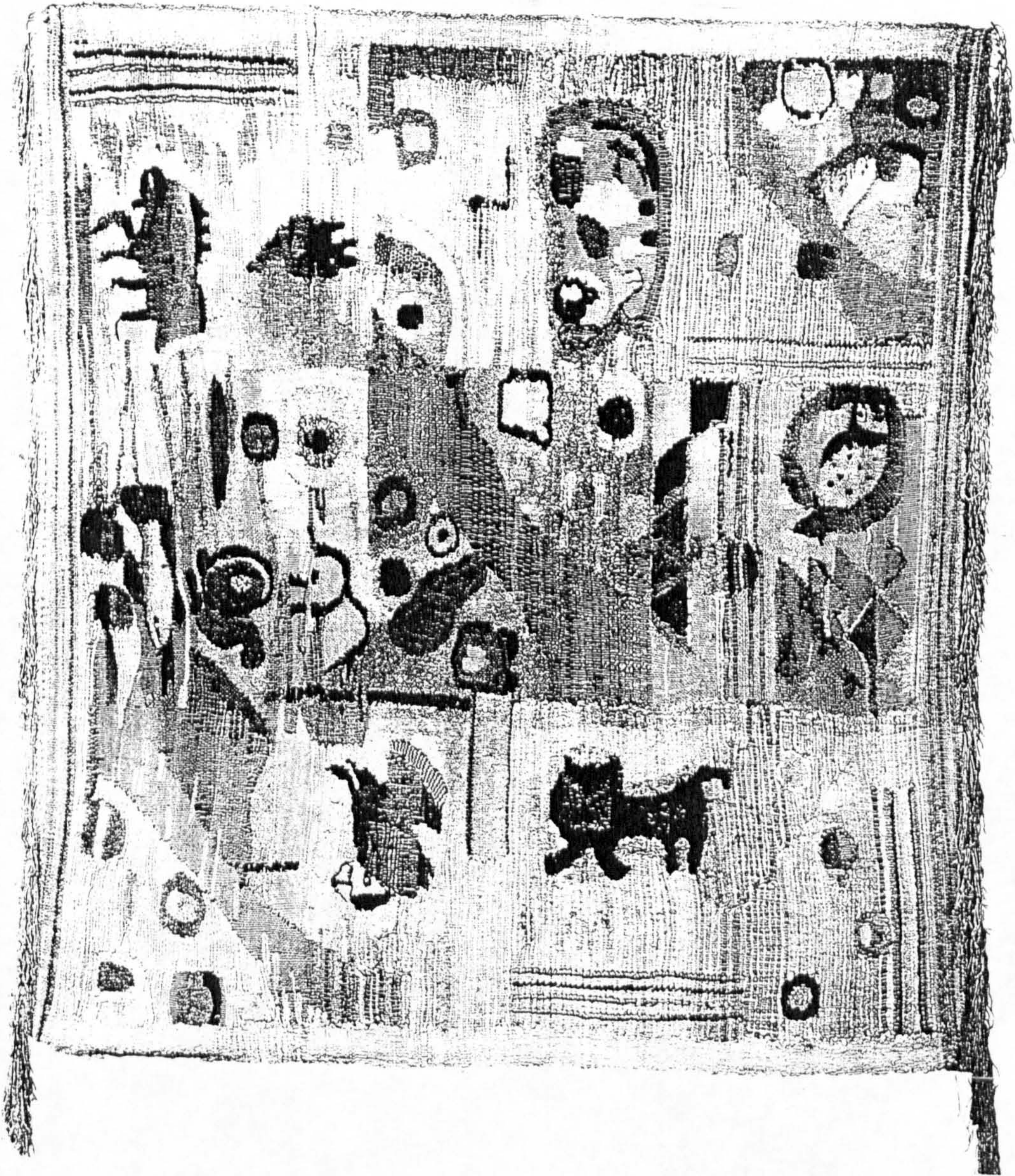


Fig. 109 Kerkovius. *Decke mit Tieren*, 1942.

**Doublecloth: History, Technique, Possibilities.**

**SECTION THREE**

**Towards a Contemporary Practice in Britain.**

## **SECTION THREE. Towards a Contemporary Practice In Britain.**

### **Part One. Impediments and Possibilities in Current Doublecloth Practice**

#### **[i] The Educational Agenda**

"The Bauhaus has been closed for five years," wrote Stölzl in 1938 "but even so the method of education taught there is still regarded as the best that has been done in this generation, in artistic and practical education. The aim was to educate young people through the discipline of handwork, to the development of a flexible artistic and technical expression."<sup>1</sup> In 1995 the continuing influence of Bauhaus ideas and philosophy can still be seen in art schools in Europe and America. The forced closure and the subsequent emigration of many former staff and students ensured the spread of Bauhaus ideals and philosophy-Anni and Josef Albers at Black Mountain College, Gropius at Harvard and the new Bauhaus founded by Moholy-Nagy in Chicago in 1937. This early influence of the Bauhaus on the American and European Art School culture has been well documented.

Graduates from the Bauhaus weaving workshop were influential in the education of successive generations of textile students, whether in established colleges, through their own workshops, or as designers for industry. Albers at Black Mountain College, Hurlimann in Zurich, Erps in Chicago, and Margaret Leischner who was appointed Head of Weaving at the Royal College of Art in London in 1956. Bauhaus textiles offered a model for a systematic design process, the use of unorthodox materials to develop new fabrics with specific properties: they also demonstrated how to create an interest through the structure of a fabric, rather than superficial pattern.

In Britain the conflict between the teaching of textiles in art schools and technical schools remained divisive. In *Industrial Arts in England* [1937] Pevsner considered the problems which faced the woven textile designer:

"To invent new effects in weaves is impossible without a live knowledge of weaving. Whether this should include personal experience of all the processes of machine production, or whether some basic facts which any hand loom can convey

are all the designer should be acquainted with, I do not feel entitled to decide. Two manufacturers whom I met stressed emphatically the similarity of hand loom and jacquard loom. English art schools seem to be of the same opinion; otherwise their weaving equipment would not be so poor. Power looms are as a rule only to be found in technical colleges. Thus, while designers for printed materials may come from art schools, designers for woven fabrics usually acquire the bulk of their knowledge in the drawing office of a mill and take some evening courses at a technical school. Many manufacturers regard this as the best working education and speak of art schools in a rather disparaging way.<sup>2</sup>

This continuing division between the craft and industrial aspects of textiles was hardly helped by the aesthetic arguments presented by the Bauhaus in general, and Anni Albers in particular.

The written work of Anni Albers was crucial in establishing textiles as both an academic and aesthetic occupation and until the end of the 1960's there was little else published to extend the debate. During the 1950's and 1960's Albers became

"the figure head of the avant-garde. Her influence was philosophical, hard edged, pure. Although she had been involved with the rediscovery of texture, her work tended to be in the area of architectonic pattern. She was the writer and academician insistent upon clear thinking. She also helped to focus our attention on pre-Columbian weaving." <sup>3</sup>

The doublecloth fabrics by Albers were regarded as icons by many generations of textile students and for some acted as an impetus to learn the technique. This interchanged doublecloth structure continues to be a fascinating medium to explore colour and texture relationships, and is generally taught as the first stage of doublecloth, with students unwilling or perhaps unable to explore further stages. The other types of doublecloth construction, such as stitched doublecloth, are more subtle in effect and tend initially to be ignored by the hand weaver because they lack the visual excitement of changing blocks of pure colour. Secondly, the concept is more difficult to understand in written draft form with expert help required to thread the loom and prepare for weaving thus limiting the designing process. When the subtleties and nuances are understood the advanced student or expert hand weaver can weave the whole range of doublecloth structures as an intellectual challenge.

It was to test out this analysis that I ran a doublecloth studio project to

second year BA. woven textile students at West Surrey College of Art and Design. As a student at the college between 1970 and 1973 I had learnt to weave doublecloth and as the practical and theoretical training in weaving continues to be good, it offered me an opportunity to reflect on the extent to which ideas and strategies had continued or changed.

It was my intention that the first stage of the project would focus on interchanged double plain weave with notes and draft details given for other doublecloth structures. A discussion of the work of Albers and other Bauhaus weavers was central to the briefing session to stimulate discussion but other historical references and cultures were purposefully avoided including the Nuno doublecloths.<sup>4</sup> Each student brought a different level of weaving expertise and comprehension to the brief, each designing and weaving at least one sample warp during the four week project.

What was interesting was the similarity of the samples with horizontal and vertical stripes predominant even in the work of the more able and motivated students, and the similarity to the samples which we wove as students twenty years ago.[figs 110-113] This would suggest that the patterns in interchanged doublecloth are at first governed by the shafts on the loom giving vertical stripes of colour with the weft interchanges giving the opportunity for horizontal blocks. These geometric patterns are, of course, easy to convert from geometric drawings into cloth and can be woven on looms of four shafts for stripes and eight shafts for squares.

A previous discussion with Marianne Straub had highlighted this problem of weaving interchanged double plain- an interchanged doublecloth with plain weave on both sides- which tends to dictate a geometric block pattern. Straub stressed that

“doubleplain is only one small part of a large area which is still not done in depth. Anni Albers leads you straight into a trap with the use of doubleplain as upholstery, hanging or room divider.”<sup>5</sup>

For my own woven research into doublecloth Straub suggested exploiting ways of holding the two cloths together and exploring texture rather than colour in



the samples by experimenting with highly twisted yarns.[figs 114-117] These stages, however, can only be undertaken when the basic technique is understood. The question arises- should the beginner start with a stitched rather than an interchanged doublecloth with colour considered as a secondary factor?

This issue was discussed at the assessment critique at Farnham where the students saw the weaving of blocks of pure colour as a fascinating concept, initially more fascinating than other aspects of the technique. The debate was widened to include analysis of doublecloth practice in Fibre Art, and developed into a discussion between the division of technical and artistic training in textiles. My own training, perhaps in true Ethel Mairet tradition rather than Bauhaus, taught me to spin and weave using only natural fibres and to dye with natural and synthetic dyes, my own introduction to doublecloth being the interchanged doubleplain. As a student I was aware of the uniqueness [perhaps quaintness] of this approach to textiles, and realised that a job in industry would require additional technical training elsewhere. The current students had similar thoughts on training: none would opt for technical training first as they considered the aesthetic issues of colour, form and proportion were best investigated within an art school culture.

In textiles education the balance between craft, art and industry has been difficult to maintain: Gropius stated in 1926

"The Bauhaus workshops are essentially laboratories in which prototypes for mass production and typical of their time are developed with care and constantly improved. In these laboratories the Bauhaus intends to train an entirely new kind of collaborator for industry and the crafts who has an equal command of technology and design."<sup>6</sup>

This "equal command of technology and design" is the key to the future development of doublecloth. Unfortunately the modular structure of courses may work against this objective as there will never be enough time available to investigate, develop and pursue lines of enquiry which need determination and concentrated effort. The complex techniques will suffer most and fall into decline.- when using doublecloth students will find difficulty weaving beyond the basic interchanged structure. Therefore the role of specialist technical staff, as seen

earlier at the Dessau Bauhaus, continues to be crucial in art and design education.<sup>7</sup> During the project at Farnham students did not use the pick up doublecloth technique as it was considered to be too time consuming and in a competitive environment the students felt that they could be disadvantaged at assessment as others could produce more samples more quickly using loom controlled weaving.

Alongside the production and design debate is the recurrent gender based issues in textile education, with female applicants into art college textile departments outnumbering male applicants by approximately 15 to 1.<sup>8</sup> Research has failed to establish the gender balance in technical training but it would appear that the students are mostly male. Is this unwitting or deliberate? Is it to be understood that textiles are naturally the domain of women or have women been channelled into this area? In *The New Textiles* Chloe Colchester remarks that the importance world wide of the textile industry

"has meant that fabric has been taken seriously by the male-dominated world of commerce as a major merchandising commodity. But within this industry there is a core of aesthetic concerns which have failed to receive their due regard for the reason that textiles are still so strongly associated with the home, homemaking and women."<sup>9</sup>

It could be that only with the movement away from the craft made production of doublecloth that this division will be challenged.

### **[ii] Some Commercial Problems.**

Through the Rural Industries Bureau in 1934 Marianne Straub became consultant designer to a group of Welsh textile mills where she initially developed their traditional flannels and tweed fabrics for contemporary use. Doublecloth bedspreads had been in production in the mills since the early 1920's based on the traditional damask patterns and Straub developed these into a range of woollen upholstery fabrics later used by Gordon Russell and Heal's.[fig.118 a,b] By 1937 when Marianne Straub moved on to her next position with 'Helios' the Welsh woollen industry had established well designed tweeds and doublecloths as part of the vocabulary of avant-garde design. During the second world war the

Welsh mills produced Admiralty cloth for the War Office and after the war, unfortunately without the benefit of a consultant designer, began to produce doublecloth fabric for civilian clothing in multi-coloured wools <sup>10</sup>

All British fleeces were now sent to the wool marketing board in Bradford for sale, thus Wales lost its own particular soft wool which had been suitable to be double woven. The resulting fabrics were marketed as Welsh Tapestry intended for jackets, skirts and accessories. The fabric was stiff and had no draping qualities but nevertheless had some success for a particular market.[fig 119 a,b]

In the 1960's the Rural Industries Bureau commissioned a textile designer to produce designs for the Welsh industry but unfortunately the mills abandoned their own designs in favour of these, severing any links with their local economy. This standardisation led to overproduction sold too cheaply in the late 1960's and many mills went out of business.

Thomas and Sons of Annanford, who were established in 1871 as hand weavers of doublecloth fabric from machine spun local yarn, are perhaps the only company who have parted with tradition and invested in new ideas.[fig 120] In 1976 they were weaving eighteen pieces (fifty yards in each piece) of doublecloth tapestry per week but ten years later there was no demand and the mill was contracted to weave black twill single layer fabric for Laura Ashley. The output for single cloth was 484 yards per day compared to 80 yards per day for doublecloth due to its complex structure and the loom having to weave at a slower speed. However in the winter season of 1986 the London fashion company Crolla commissioned them to weave a Welsh tapestry fabric for their collection of avant-garde gent's clothing. The waistcoats and jackets did not sell well perhaps because the memory of matronly ladies in the same fabric was too recent.<sup>11</sup>

Today most of the small family run mills in South Wales have closed down and those still in production, snarled by tradition, continue to produce cheaper versions of Welsh tapestry doublecloth which they cannot successfully market. An attempt was made by the Welsh Crafts Council in 1987 to produce a range of traditional Welsh flannels and doublecloth fabrics for the north American

market. Anne Sutton was paid a design fee for the collection which was marketed in Los Angeles as *The Welsh Touch*. Unfortunately no one had considered that wool flannel was too hot a fabric for this climate and all the remaining mills lost a great deal of money, some being forced to close as they had invested heavily in producing the collection. The mill owners were understandable bitter and no longer wished to be associated with the project, nor with any more designers. The only success story is from Holywell Mill which employs a resident designer and around thirty staff. All their production, some of it doublecloth, is for export to the United States, Japan and Europe. The products are mainly furnishings, bedcovers, throws and upholstery fabric.

During a lecture at the Holborne of Menstrie Museum in Bath in 1984 Marianne Straub discussed the present output of the Welsh woollen mills and stated that the fabrics were "real rubbish, even though it hurts me to say it". She now felt unable to look at these fabrics and certainly unable to touch them as they had lost all the subtle qualities which they had before the war. In the 1930's each mill teased and dyed the fleece before spinning which meant that an enormous palette of colours could be produced by mixing the coloured fibres before spinning. Marianne Straub remembered: "the fleeces were laid out on the grass to dry and they looked wonderful, even on a grey day, in fact it was inspirational to see the potential of all those beautiful colours laid on the hillside." The second world war destroyed the system and only two mills were still spinning in 1984. Marianne Straub continually stressed that the difference between the fibre and yarn dyed today [1984] and in the 1930's were "two worlds apart" and that the "cloth was entirely dependant on the yarn".<sup>12</sup>

In a later conversation she explained her feelings on the decline of the Welsh industry. Her appointment as Textile Advisor for the Welsh mills was her first industrial design job at £3 per week, based at Holywell Mill in North Wales, from where she visited the other seventy two Welsh mills as she was needed. In spite of the enormous work load she could clearly remember the individual cloths woven at each mill and the character they possessed due to the quality of the

yarn. "The whole thing depends on yarn and when the Welsh spinners were called up in the war, the mill owners did not look to the future and never started spinning again so their yarns lost the special character and vitality and so did the fabrics."<sup>13</sup>

Her views on the weaving of the fabric itself were concise: "Hand weaving or machine weaving it makes no difference unless the tension on the machine is too high but the whole cloth depends on the yarn." This lesson concerning the quality of the spun yarn was something Straub had learned at Gospels: if Straub had not closely worked [and later travelled ] with Mairet then her sensitivity to yarn construction would not have been so acute. In her subsequent career Marianne Straub worked for many leading textile companies to great critical acclaim, yet she looked back to Wales as the place where she felt she had contributed most and consequently felt tremendously saddened by the current double cloth production: "because the surviving Welsh Mills have debased the quality and colours of their blankets I can not look at it any more." <sup>14</sup>

Advances in textile technology since 1945 have enabled the production of lightweight flexible fabrics which can outperform heavy doublecloth overcoatings, thus presenting further commercial problems. There is little demand for an expensive two layer woven fabric when a stitch bonded synthetic can provide the thermal protection required.<sup>15</sup> However, the vogue for ladies' fancy coatings in the twenty years after the war established a small, yet constant, market for doublecloth fabrics. Examples from the pattern book of Hoyles, Huddersfield, show a range of these fancy coatings in small patterns.[fig 121]

The *Ambassador*, established in 1946 as the British textile trade export magazine, contained editorial features and articles combined with a high proportion of colour advertising by fabric manufacturers. An editorial in the Autumn 1950 issue is devoted to doublecloth reversible fabrics, accompanied by advertising from companies producing doublecloth reversibles including Jacqmar Limited, Arthur Bell, Scotland, and Joshua Ellis, Dewsbury.

"Reversibles are a challenge to cloth and clothes designers alike. Their two faced fascination must be exploited, not obviously ,but still clearly by their creators and their weavers. Every kind of nuance is available;in material, in texture and

in colour. Rayons in dress weights with patterns in which only the colour plan is reversed; and in which nothing is reversed save that either side of the fabric may be regarded as the 'right' face. Heavy 'double texture' cloths—two fabrics in one—some with common colour scheme, some with no apparent relation except the designers' idea of backing one colour with another. Plaid and plain, brushed wool backed by busy checks, tartan transposed to tranquil blue, and many suitings of intricate and subtle opposites. Brocades too, for the evening of a challenging day, woven to shine in one light, to rest in another, to be seen afresh on each viewing. There is no end to their variations: reversibles are an end in themselves."

There are frequent examples of doublecloth within the manufacturers' ranges, some are small patterns with checks, squares or stripes of pure colour on a darker ground, some are reversible with pure colour one side and a pattern on the other. The ladies' fashion market was seen as fickle and seasonal, consequently companies who wove doublecloth tended to produce very fine doublecloth for gentlemen's suitings, perceived as a more stable market. A worsted suiting is usually a single weave but the doublecloth structure is used to add strength, durability and added drape to the fabric and is much valued in high quality bespoke tailoring. The suiting looks identical to a single woven but is vastly superior in performance.<sup>15</sup>

Travel rugs and steamer rugs, both doublewoven, appear regularly in the *Ambassador* magazine. These rugs were in great demand in the 1920's and 1930's, but heated motor cars and air travel lessened the demand and in the post-war period a large export market was established. In 1986 Joshua Ellis were still producing doublecloth travel rugs woven in cashmere with a solid colour on one side and a checked reverse finished with a hand twisted fringe. The materials and labour costs of weaving and finishing these goods firmly placed them in the luxury export market to Japan where they are a long standing favourite.[fig. 122]

It was not only in Britain that the problems of markets and costs had an effect on doublecloth production. In 1980 *Cassina*, the Italian furniture company, launched an interchanged doublecloth upholstery fabric based on Bauhaus textile designs.[fig. 123] The range was adapted to contemporary taste and this was perhaps unfortunate as it used small light coloured squares rather than black and

white and primary colours. Two years later the range was withdrawn as the cost in producing the fabric was prohibitive and the market was too small.<sup>16</sup> There are, however, many cheaper variations of checked doublecloths available using synthetic yarns and wider spacing in the weaving. [fig 124]

Regrettably the British manufacture of doublecloth has now been marginalised with the mass market for clothing being for evening wear, mainly in synthetic fibres, imported from Italy, Austria and Switzerland. These fabrics are woven, in general, from two light, gauzy layers using metallic effect threads and Lurex with woven stitching from one layer to another forming patterns or quilted effects.

### **[iii]The New Technology.**

During the last decade textile design has been influenced by major industrial research projects into new fibre technology, dyes and finishes, by the development of highly automated production systems, and by the revival of elaborate textiles with rich colour, surface texture and patina. Manufactured and art or craft textiles have been influenced by a new generation of synthetic fibres which are lighter, non-corrosive, heat reactive and stronger than metal. The new ranges of intelligent performance fibres with special qualities can be woven into fabrics which can withstand bullets and extremes of heat and cold; they can be used in the construction of spacecraft, bridges and earthworks.

In 1990 the Nuno Corporation of Japan <sup>17</sup> launched a range of doublecloth fabrics which used new fibre and spinning technology in the weaving and computer technology in the designing.[fig.125] The new range of yarns were developed from polyester threads which have been splattered with powdered chrome, nickel and iron alloys, from audio tape spliced into threads and wound around stainless steel cores and a new "springy" wool which is wound around a synthetic core. These yarns have revolutionised the appearance of doublecloth fabrics in much the same way that synthetic dyes revolutionised those of Alexander Morton at the end of the nineteenth century: computer loom technology

has enabled faster weaving of complex patterns.

The consideration of synthetic fibre engineering has led yarn spinners and designers back to traditional natural fibres to re-consider and exploit their inherent qualities: natural fibres are, after all, more comfortable to wear next to the skin. This is convincingly stated by Junichi Arai, a founder member of Nuno.

"Even though we have developed synthetic materials, human beings are still the same. I like using natural materials because I think the human spirit needs connection to the natural." <sup>18</sup>

It has been shown previously that the Jacquard patterning system had a tremendous influence on the design and production of doublecloths in the latter part of the nineteenth century. The Jacquard system was based on a series of punched cards controlled by a yes/no binary system which was the forerunner of the first electronic computer. This same binary system has in the latter part of the twentieth century been developed into a computer technology which has revolutionised the production of doublecloth. It was not until 1987 that a fully automated computer Jacquard system was developed and perfected by the British company Bonas.

This computerised weaving system allowed irregular complex patterns, with large repeats if desired, to be translated to the loom and produced at great speed, but most importantly it allowed for experimental design work and flexibility of sampling to be undertaken. Previously the time and costs involved in setting up a jacquard loom, the stamping out and lacing together of jacquard cards, meant the designer was restrained by economic pressures and could not sample extensively before a production run was decided. Despite this pioneering work it was the Japanese and not the British who were to be at the leading edge of contemporary textiles produced by this method, in particular the complex doublecloth fabrics of Nuno.

The textiles by the Nuno Corporation are an illustration of designing textiles which combine this new digital technology with a traditional aesthetic. The national respect for all Japanese craftwork ensures that craftworkers or "national living treasures" are held in great esteem, perhaps even greater than their fine art



peers. Since 1945 Japan has established a sophisticated technological base for textile manufacture, co-existing with the traditional textile crafts, where textile makers were encouraged to promote industrial, craft and fibre art textiles. This overlap of interest embracing and valuing both technology and tradition has been crucial in establishing Japan as world leader in contemporary textiles. Arai has asked:

What use is high technology if we do not know the soul of the craft? The warp and weft of a fabric gives it structure, but, at the same time, fluidity. It can be folded, stretched, shrunk- with a puff of wind it flutters, showing a multitude of new facets and the more dependant the elements of the fabric are on high technology, the more its inherent uncertainty increases. <sup>19</sup>

There is little historical precedent for furnishing textiles in Japan and it was the fashion industry, in particular the designers Issey Miyake and Yoji Yamamoto, who began to use dramatic fabrics draped around the body thus creating a demand for a luxury textile market. Part of Miyake's philosophy was "The price is part of the design" establishing expensive fabrics as integral to his clothing concept.<sup>20</sup> In the 1980's Miyake's in house textile designer simulated hand woven fabrics by using random generators on state-of-the-art computer looms to weave built in random flaws. In 1986 an article in *Le Monde* described the process of loosening tension screws on sophisticated equipment used by Japanese knitwear designers to knit tension faults into the fabric in imitation of the hand made. The resulting fabrics were extraordinary, expensive and highly desirable.

Junichi Arai supplied most of the woven fabrics to Miyake, contributing to his phenomenal success. Miyake is said to have prompted Arai to make fabrics evocative of substances or emotional states: "Make me a fabric like poison" or like "the clouds".<sup>21</sup> What makes Arai outstanding is that his designing is integral to the manufacturing process: technologies are assessed and selected from the aesthetic view and in terms of their potential for development, not only for the conventional values of efficiency and productivity. Designing thus remains in control over technology.

Nuno fabrics have been influenced by disciplines other than fashion, for

example the Japanese car industry, which inspired the use of spattering the three powdered metals used in stainless steel, chrome, nickel and iron, over polyester taffeta. The resulting fabric *Stainless Steel Emboss, 1992*, [fig. 126] designed by Sudo, is embossed during the finishing process to give a rippled flowing texture to the delicate, shiny fabric. Another Sudo fabric is *Agitfab, 1992*, [fig. 127] a two layer polyester organdie fabric with newspaper clippings from around the world overlaid and sealed by heat bonding with vinylchloride. *Agitfab*, although not technically a woven doublecloth, is heat bonded to form two layers in imitation of woven doublecloth pockets.

Nuno has become famous for extraordinary doublecloth fabrics which have been exhibited in Japan, the United States, Canada and England. A selection was included in the exhibition *Textiles and New Technology* at the Crafts Council gallery in London in 1994. Although these exclusive fabrics, the average cost being £100 per metre, had been promoted in the *Liberty Festival of Japan* in 1991 the Crafts Council exhibition was an opportunity for the fabrics to reach a wider audience in England and receive critical acclaim as art fabrics. For woven textile specialists the work of Arai serves as the model for the philosophical, intellectual and technological synthesis that is now possible in woven cloth. For non specialists the fabrics are intriguing and witty with an edge of industrial chic. Nuno now has showrooms in New York and Los Angeles and sells through Liberty in London: they have exerted an enormous influence on the style and patterning of contemporary doublecloth fabric, whether for the luxury market or the mass market.

Arai works directly with the textile manufacturers in Kiryu, an old kimono textile centre famous for its Jacquard weaving. He began using the computer in 1979 as a tool to produce fluid unpredictable fabric and since then has gained 35 patents for developments incorporating new technology. Arai regards all weaving as a three dimensional structure, akin to engineering and never draws his designs first on paper. This is only possible by using a high technology computer loom with a scanning device available in a high-tech weaving mill. The computer scans a

photograph or other image, translates this to digital information on a floppy disc and produces a woven fabric from the information. The warp on the loom will be pre-determined and ready for weaving but the designer in charge of the process can change the imagery and pattern on the fabric with little effort.

In 1983 this process was used to produce a cotton doublecloth, *Woven Structure Pattern*. A traditional African woven fabric was photocopied and digitally scanned into the computer programme and woven using highly twisted S and Z threads, spun clockwise and anti-clockwise, to give an elastic quality and overall crinkled surface. S and Z threads are normally closely sett in small stripes to give a firm crepe fabric or to give a shaded appearance similar to a mown lawn: Arai has used them in this fabric in an original way to exploit their physical characteristics. The same design process was used to weave *Deckle Edge* in 1992. Here the deckle edges of an antique book of hand made paper samples were scanned and enhanced by the computer to weave a cotton fabric of rich textural qualities and a complex deckle edge pattern.

Nuno fabrics use computer technology to allow changes of scale and proportion within a machine woven fabric that were not possible before. The doublecloth *Basket Weave Big Pockets* of 1990,[fig. 128] was inspired by the geometric patterns on bamboo basketry used on Kosede kimonos and is woven using fine cotton threads and bulky threads made from knitted tubes. The computer allows a pattern of textured doublecloth pockets to be created seemingly at random across the cloth combined with single woven areas creating a fabric that is different on both sides. This technique now called "combination jacquard", combining yarns of disparate thickness, was pioneered by Arai and is now used by designers all over the world.

Consideration of computer technology is not the only design consideration for the doublecloth fabrics designed by Arai. The doublecloths are almost entirely in black and white with variety found in the structure of the yarn itself and the resultant structure of the cloth.[fig. 129] Arai exploits the characteristics of yarns by weaving loose structured cloths made from high twist yarns which buckle and

shrink when taken from the tension of the loom - the fabric will look completely different tensioned on the loom and relaxed off the loom. In the mid 1980's Arai had a range of around 150 synthetic and natural yarns distinguished by characteristics such as high or low twist, S or Z twist [clockwise or anti clockwise], count [size], stability, sheen and shrinkage. The qualities and behaviour of these yarns are explored and exploited in the sampling of fabric until the required effect is achieved.[fig. 130]

Traditional rules of textile design and finishing are constantly broken: combination fabrics of wool and cotton are heated and felted to distort into sculptural boiled wool reliefs.<sup>22</sup> The industrial finishing process will further distort and change the visual and tactile quality of the fabric, which the designer must try and predict during the sampling stages. Normally the tension in weaving and finishing is controlled and stable but these doublecloth fabrics exploit the distortion and rely on a haphazard shrinkage giving a special quality which makes them so visually stunning.[fig. 131]

In 1992 the *Hand and Technology* exhibition in Tokyo featured cloth designed by Arai using split film yarns <sup>23</sup> in single layer fabrics, and although no doublecloth fabrics are represented this exhibition was important in establishing the design work of Arai as an art product. The impetus for the exhibition had come from Ryohei Nomura, an art critic who had first introduced the work of Christo to Japan. Nomura had been fascinated by seeing some of Arai's works fluttering in the sky and after seeing them closer and touching them considered them to be "works of art". The *Hand and Technology* catalogue, printed in Japanese and English, presented the opportunity for debating the future of textiles and establishing a new critical language which combined art, craft and industry. <sup>24</sup>

In the catalogue Lenor Larsen's describes Arai thus: "Having transcended mere fabric design he now poetically navigates the uncharted strataspheres between ancient and third millenium technologies." Larsen makes reference to Arai weaving a complete garment on the power loom, reminiscent of the Scottish seamless shirts handwoven in the 19th century, but there is no visual

documentation.

"Handweavers have, on occasion, attempted to form complete garments on the loom- without cutting or sewing, or to create woven pattern parts of garments complete without cutting. Arai has succeeded in forming shirts and drawstring bags in this manner -on the power loom. No mean feat!"

Arai has defined the problem for the contemporary textile maker as choosing from and then blending the myriad of materials, tools and technologies available today. In the foreword to *Ideas in Weaving* Arai had stressed the need for making truly contemporary fabric by understanding

"both the advantages and the pitfalls of new technology. ....Newly conceived fabrics change our consciousness, change our spirit and so can change future society. This, therefore is the mission of the weaver today: to pose the challenge of a new human revolution. Weaver! You are carrying the responsibility of beauty!"<sup>25</sup>

While the technology is not yet available to all weavers and certainly not to students in this country, the textiles of Arai serve as inspiration and icons in the 1980's as did the work of Albers in the 1960's and 70's.

From the experience of the art student and the demise of the industry it appears that the future of doublecloth lies in the exploitation of the new technology,<sup>26</sup> and the closer collaboration between the weave designers and the fashion and interior designers. In a sense this collaboration was at the core of the Arts and Crafts movement and the Bauhaus where the stylistic imagery of doublecloth was generated from a stated design philosophy. Considering the continuing influences of these philosophies it is evident that the designs generated by the application of the new technology in Japan not only raises the potential of a new aesthetic but challenges the established perception of the technique and uses of doublecloth.

### SECTION THREE: Illustrations.

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- Fig. 130 Nuno Scarf, 1992.
- Fig. 131 Nuno doublecloth Scarf, 1992.

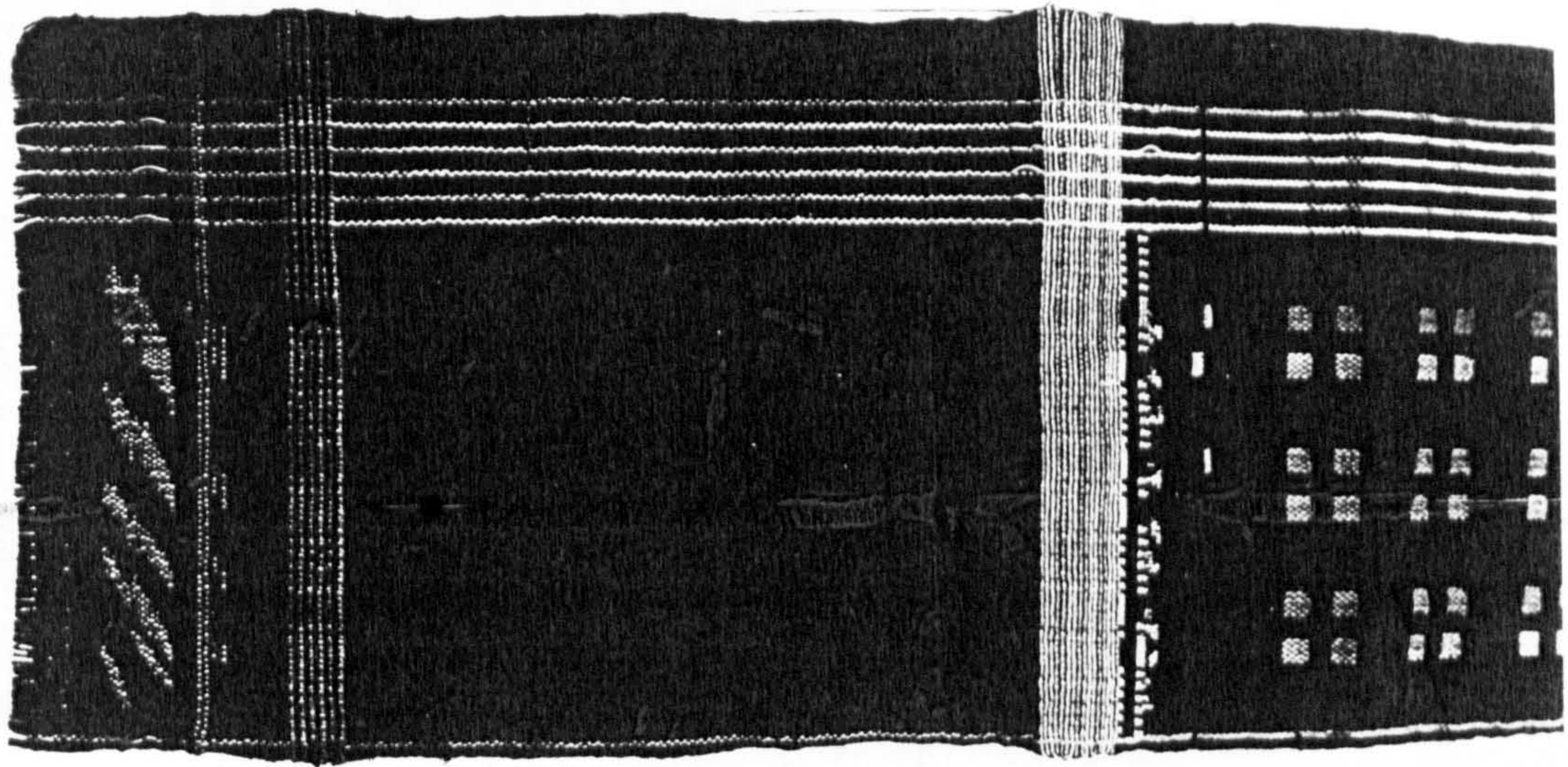


Fig. 110 West Surrey Doublecloth Project

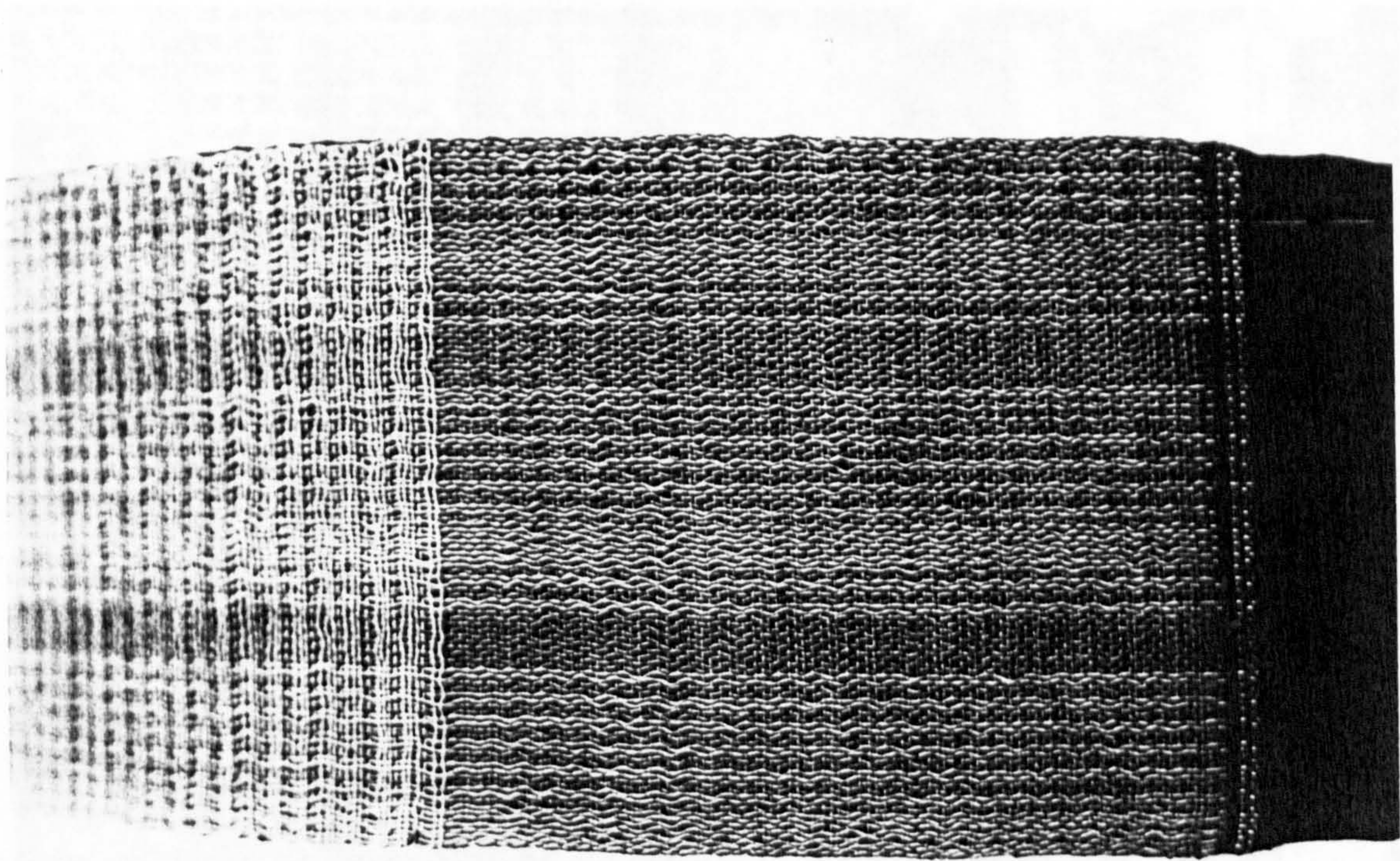


Fig. 111 West Surrey Doublecloth Project

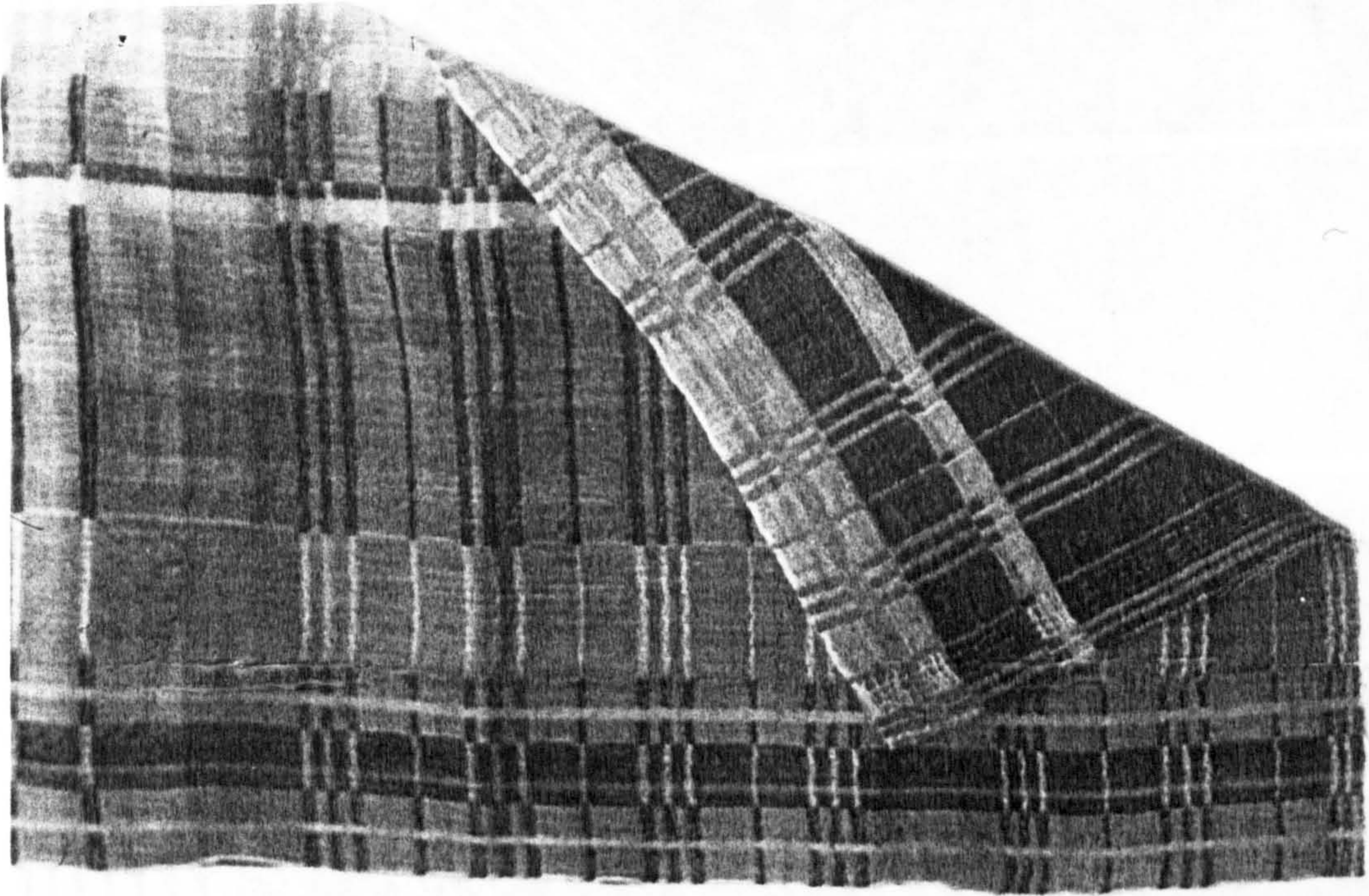


Fig. 112 West Surrey Doublecloth Project

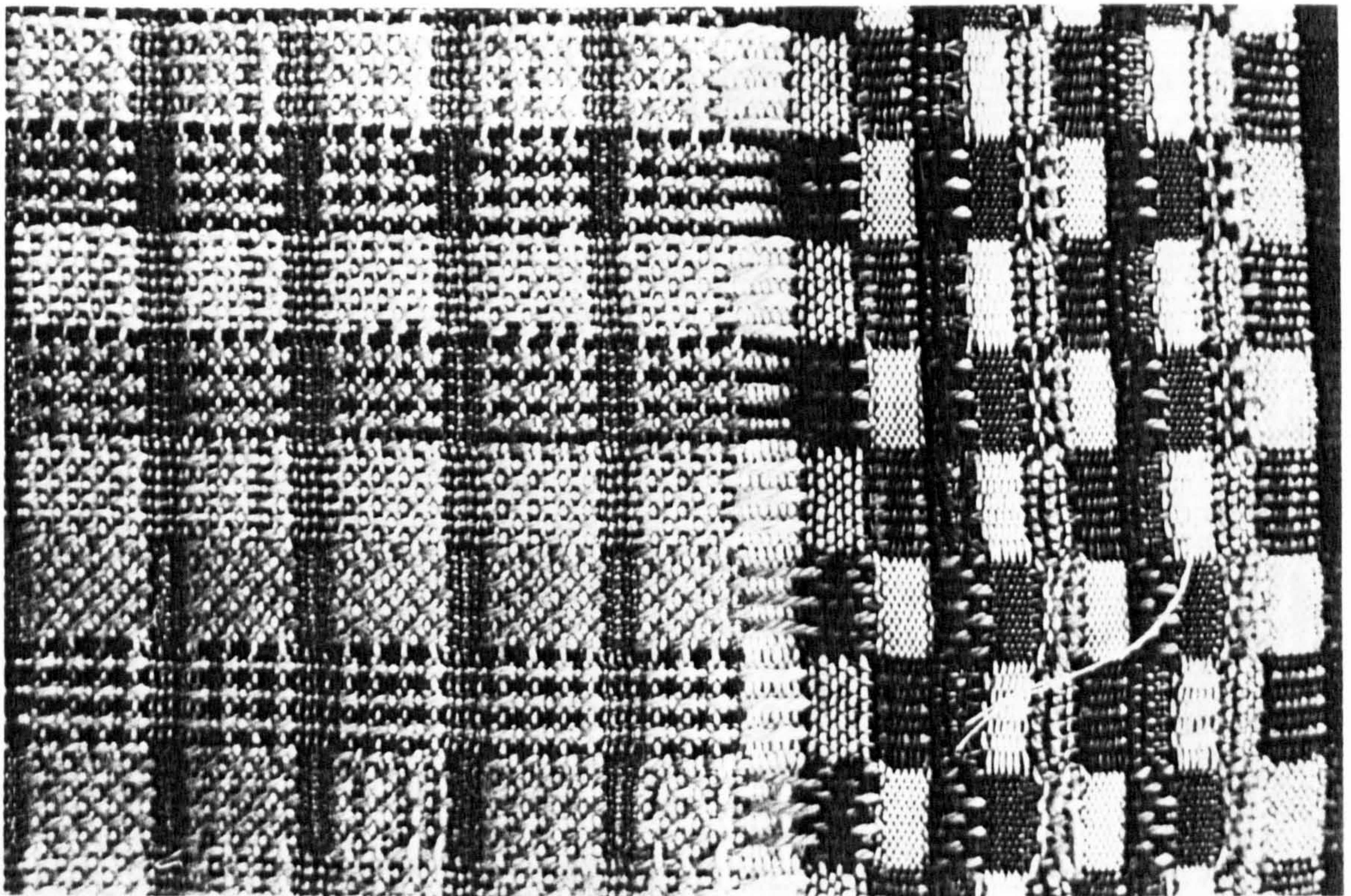


Fig. 113 West Surrey Doublecloth Project



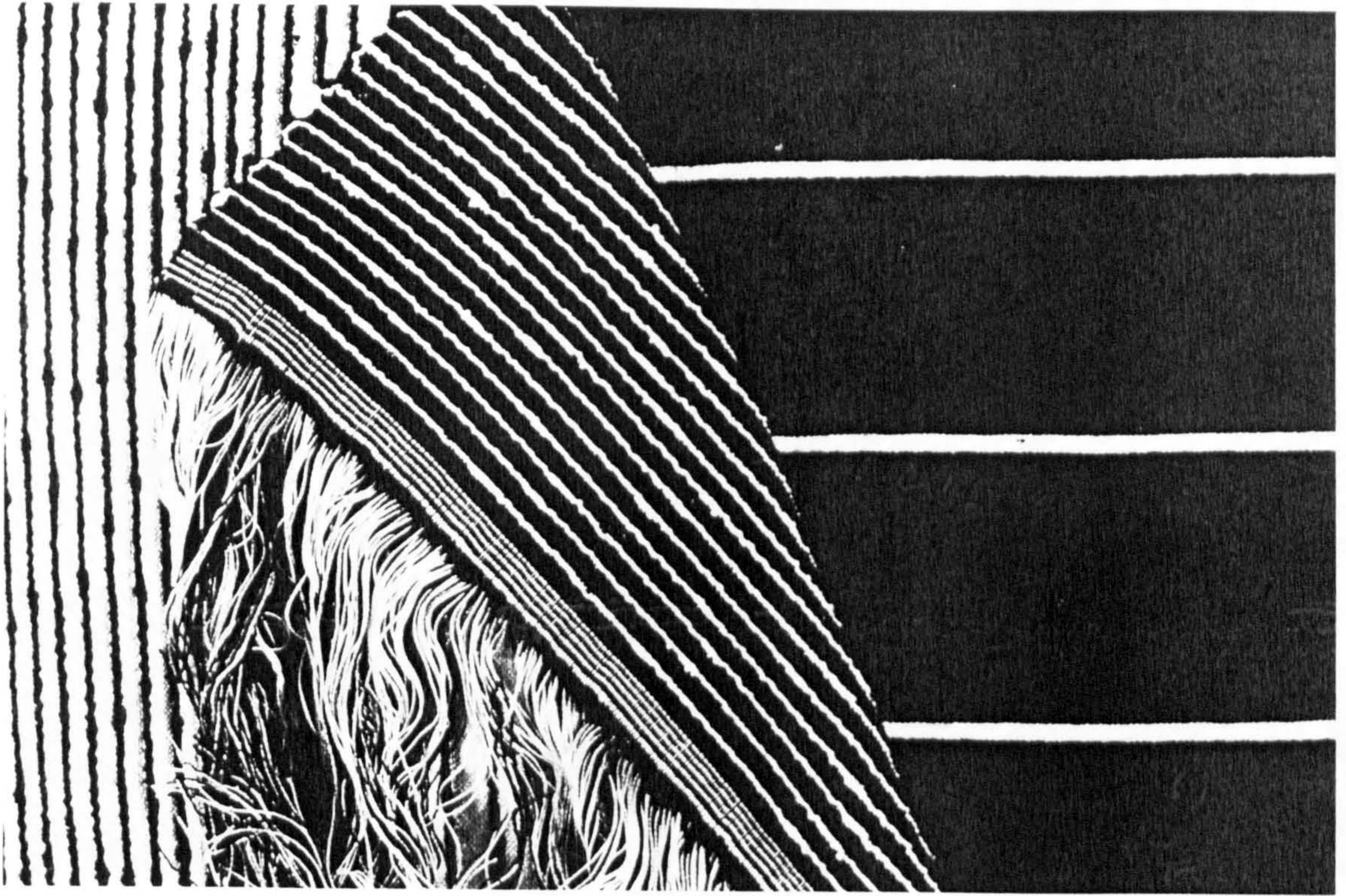


Fig. 114 Doublecloth Samples. Diane Bell

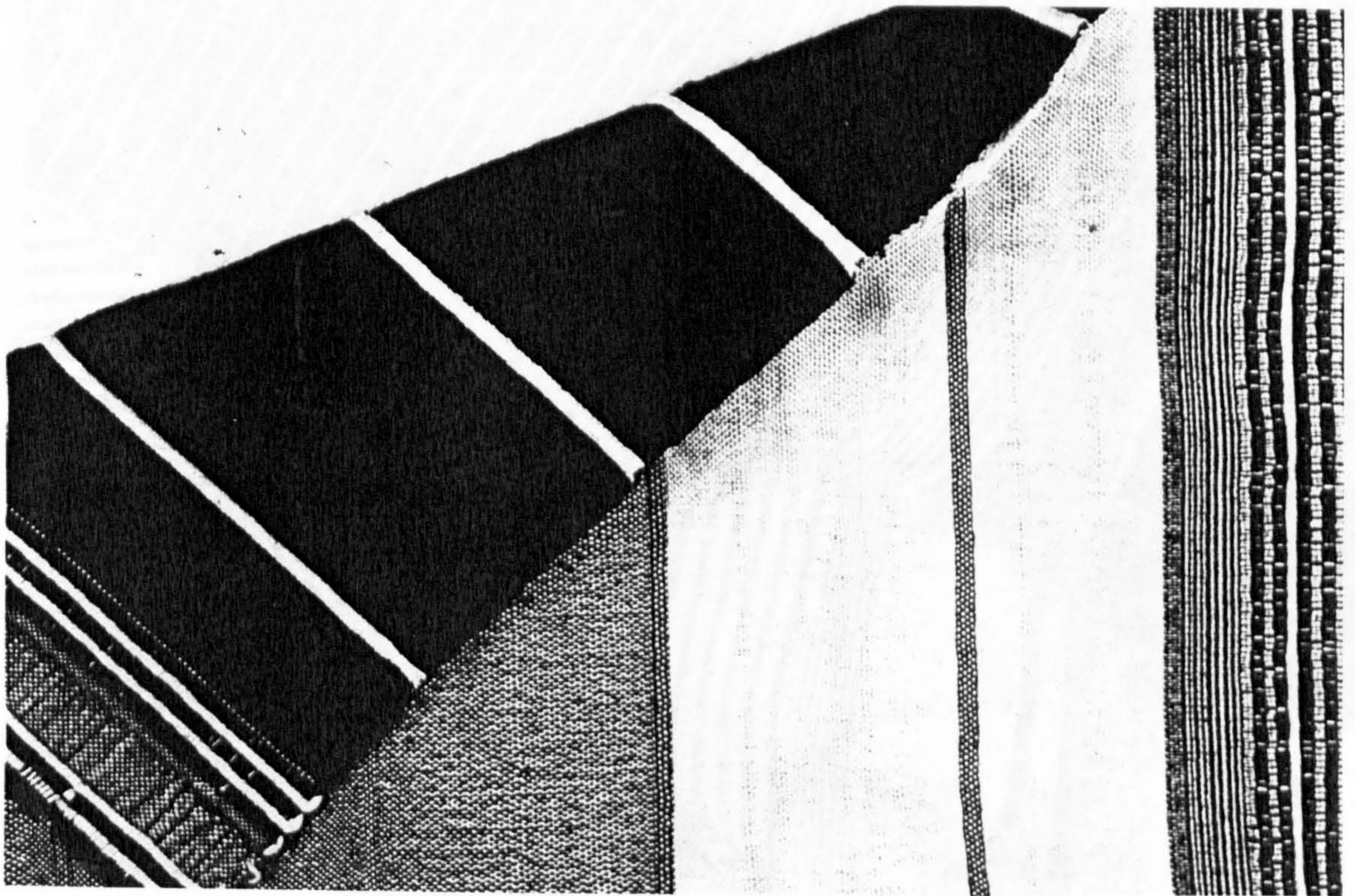


Fig. 115 Doublecloth Samples. Diane Bell

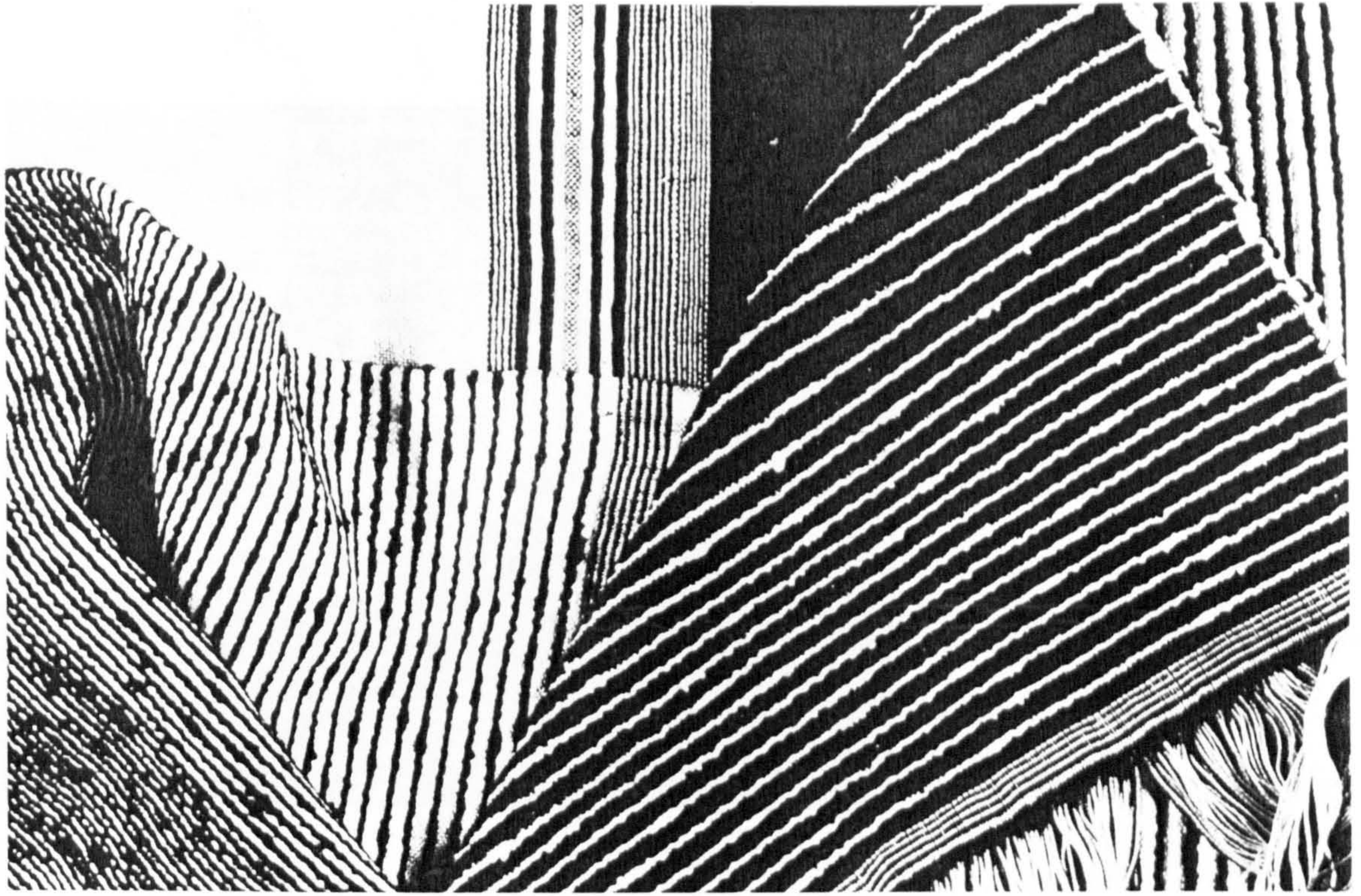


Fig. 116 Doublecloth Samples. Diane Bell



Fig. 117 Doublecloth Samples. Diane Bell

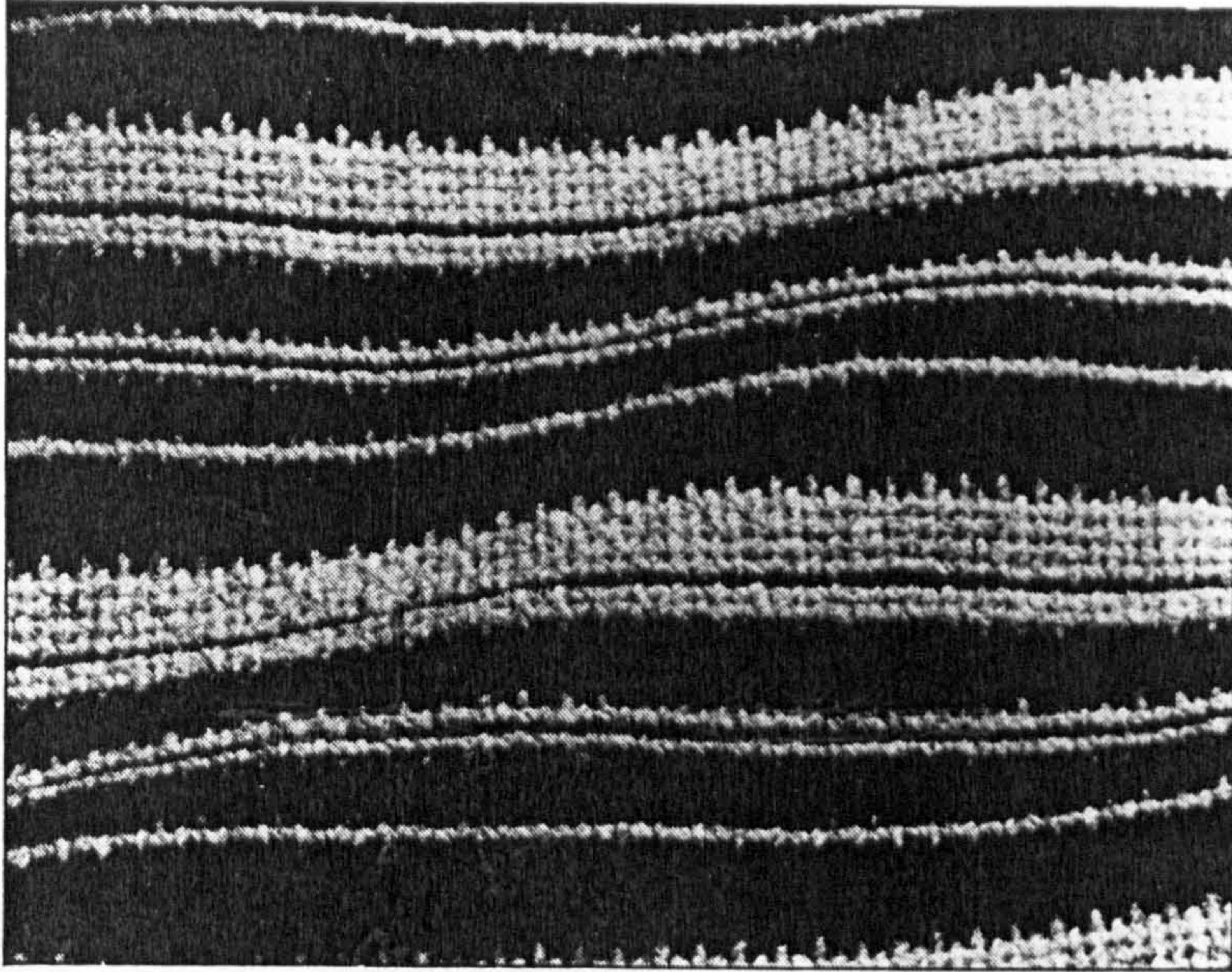


Fig. 118 a Straub Doublecloth upholstery fabric, Welsh Mills. 1935. This was still in production twelve years later and was selected for the SIA's first volume of *Designers in Britain*.

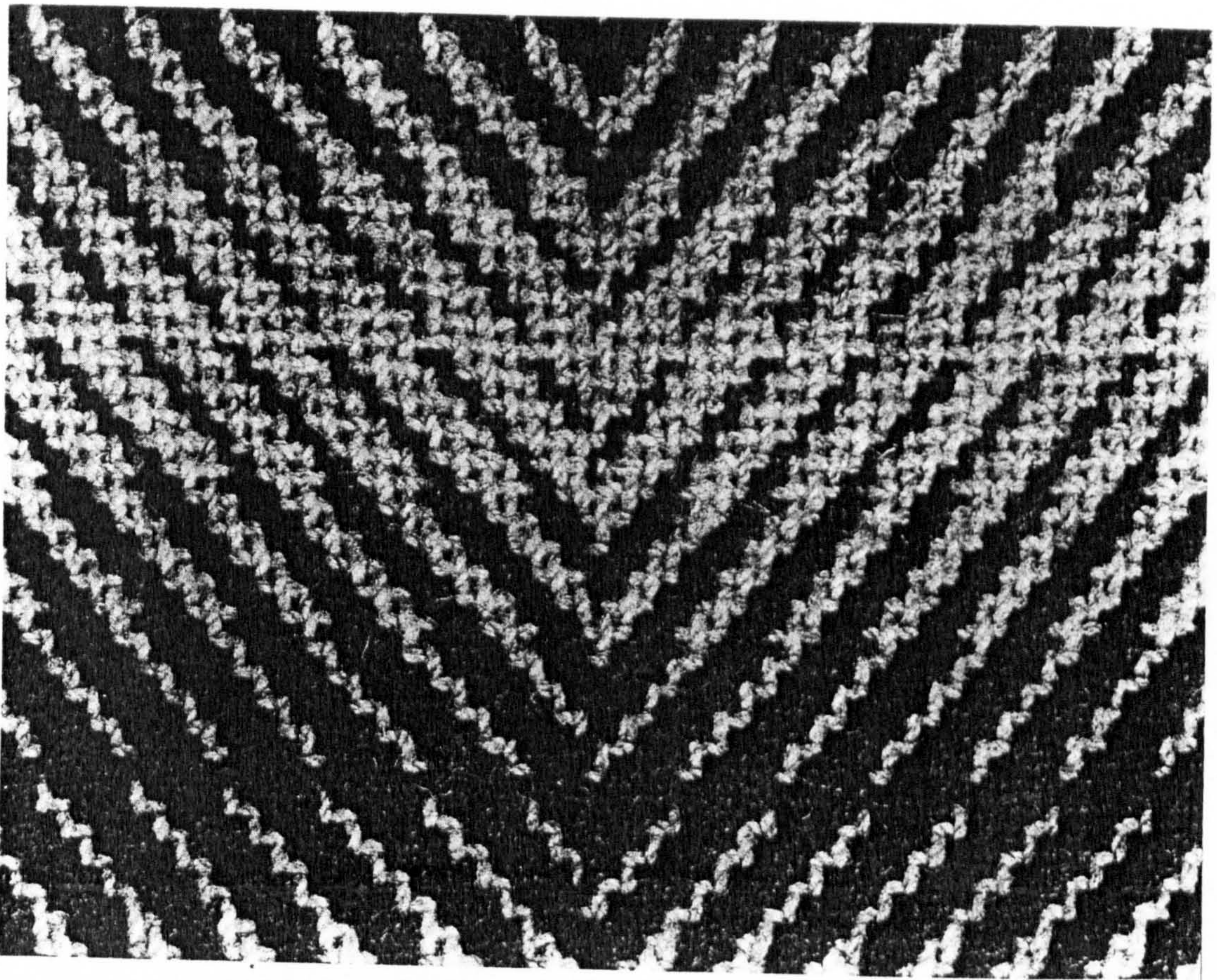


Fig. 118 a Straub Doublecloth upholstery fabric, Welsh Mills. 1937-8. Used for recovering furniture at Dolcis in 1938.

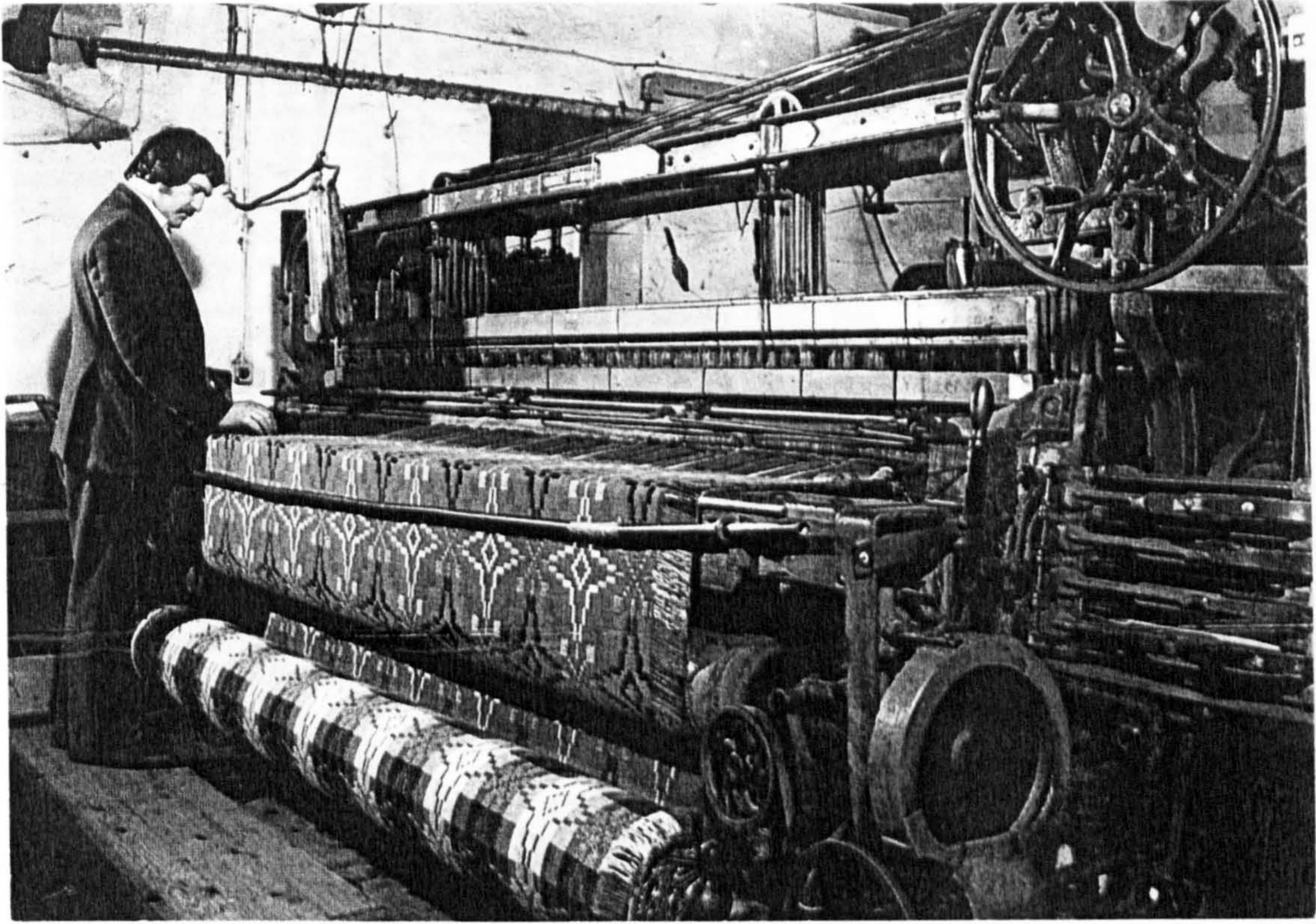


Fig. 119 a Welsh Mills. Welsh Tapestry Doublecloth, 1960's. Dobcross power loom still in use in 1986. Tregwynt Woollen Mill, Dyfed.



Fig. 119 b Welsh Mills. Welsh Tapestry Doublecloth. An advertisement from the *Ambassador* magazine in the 1960's. The fabrics on the left were still in production by Thomas and Sons, Annanford in 1986

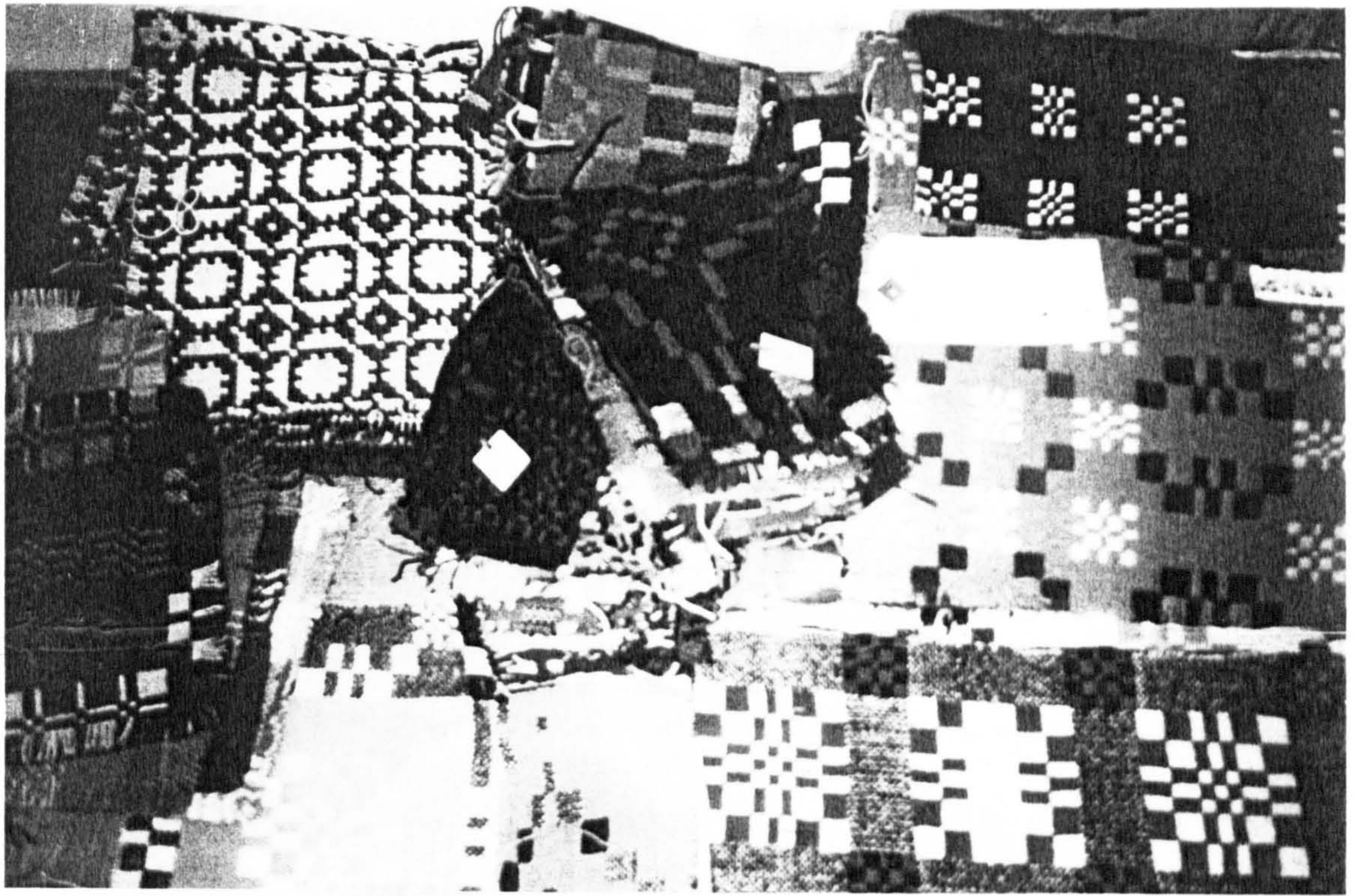


Fig. 120 a Welsh Mills. Doublecloth, 1980's. Thomas and Sons, Annanford. A selection from the ranges available to order in 1986. Photo: Diane Bell.



Fig. 120 b Welsh Mills. Doublecloth, 1980's. Range of yarns and small products for sale in the mill shop, Thomas and Sons, Annanford, 1986. Photo: Diane Bell.

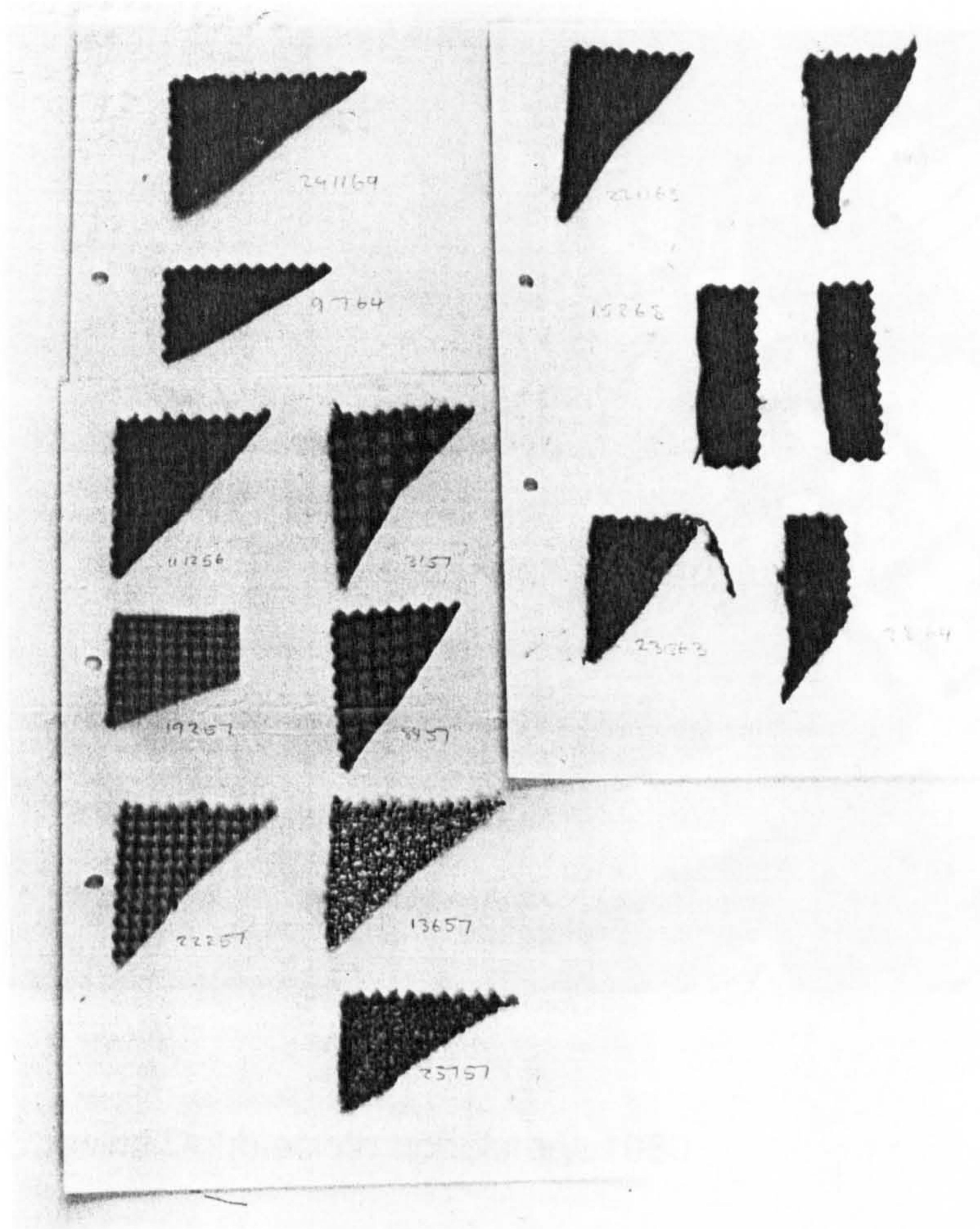


Fig. 121 Hoyles, Huddersfield. Samples from 1960's pattern book.

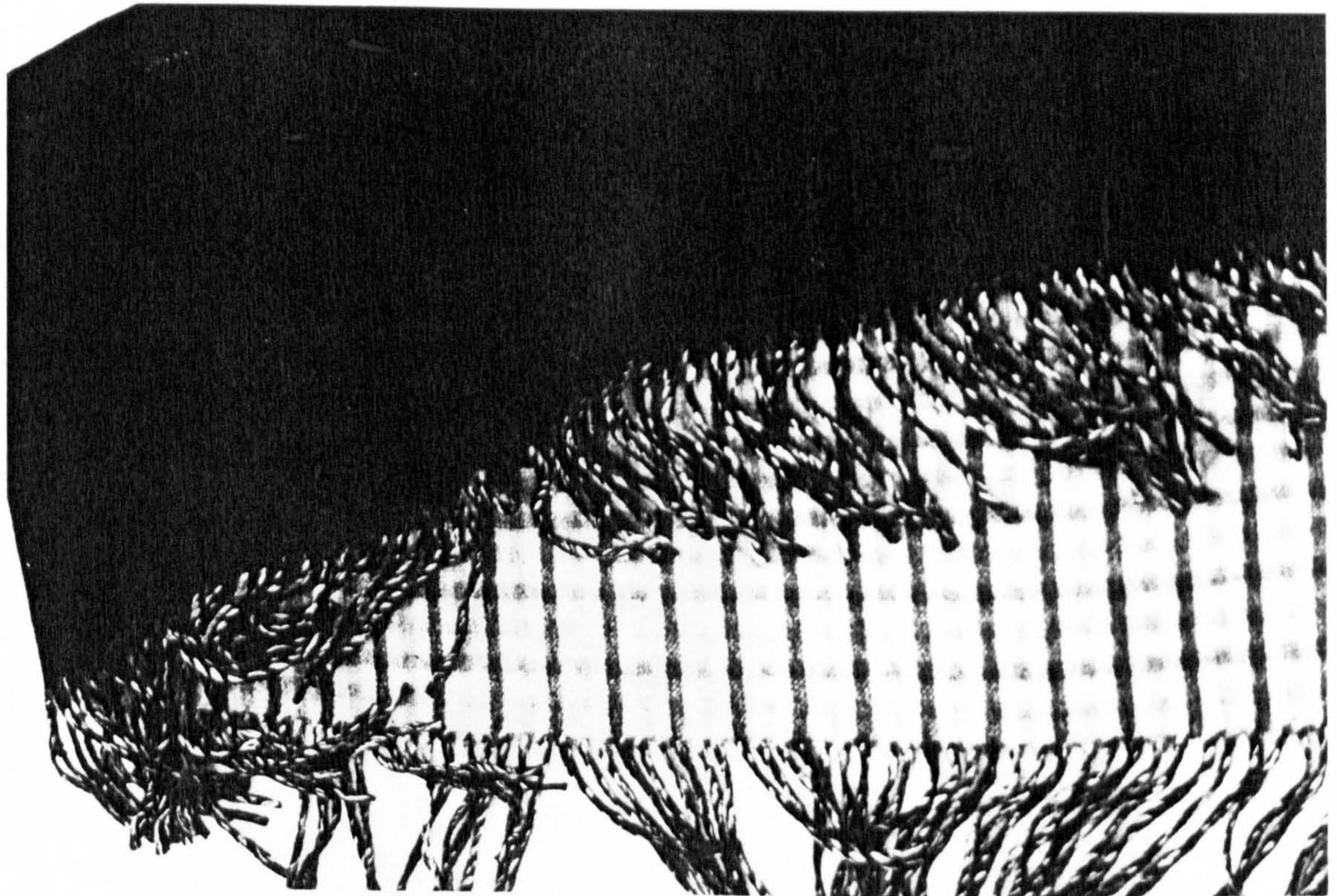


Fig. 122 Joshua Ellis, Dewsbury. Double faced travel rug.

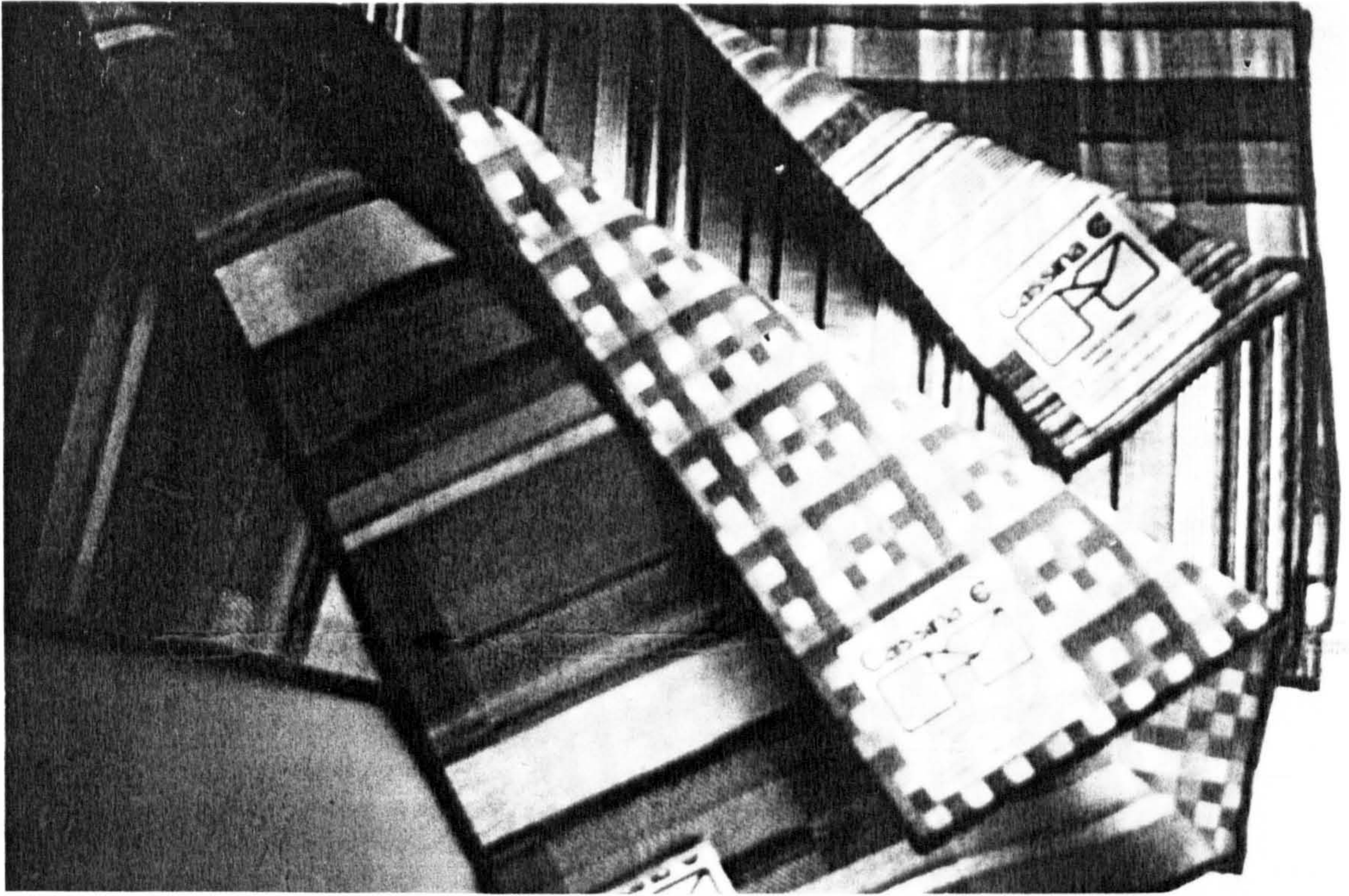


Fig. 123 *Cassina Doublecloth upholstery, 1980*

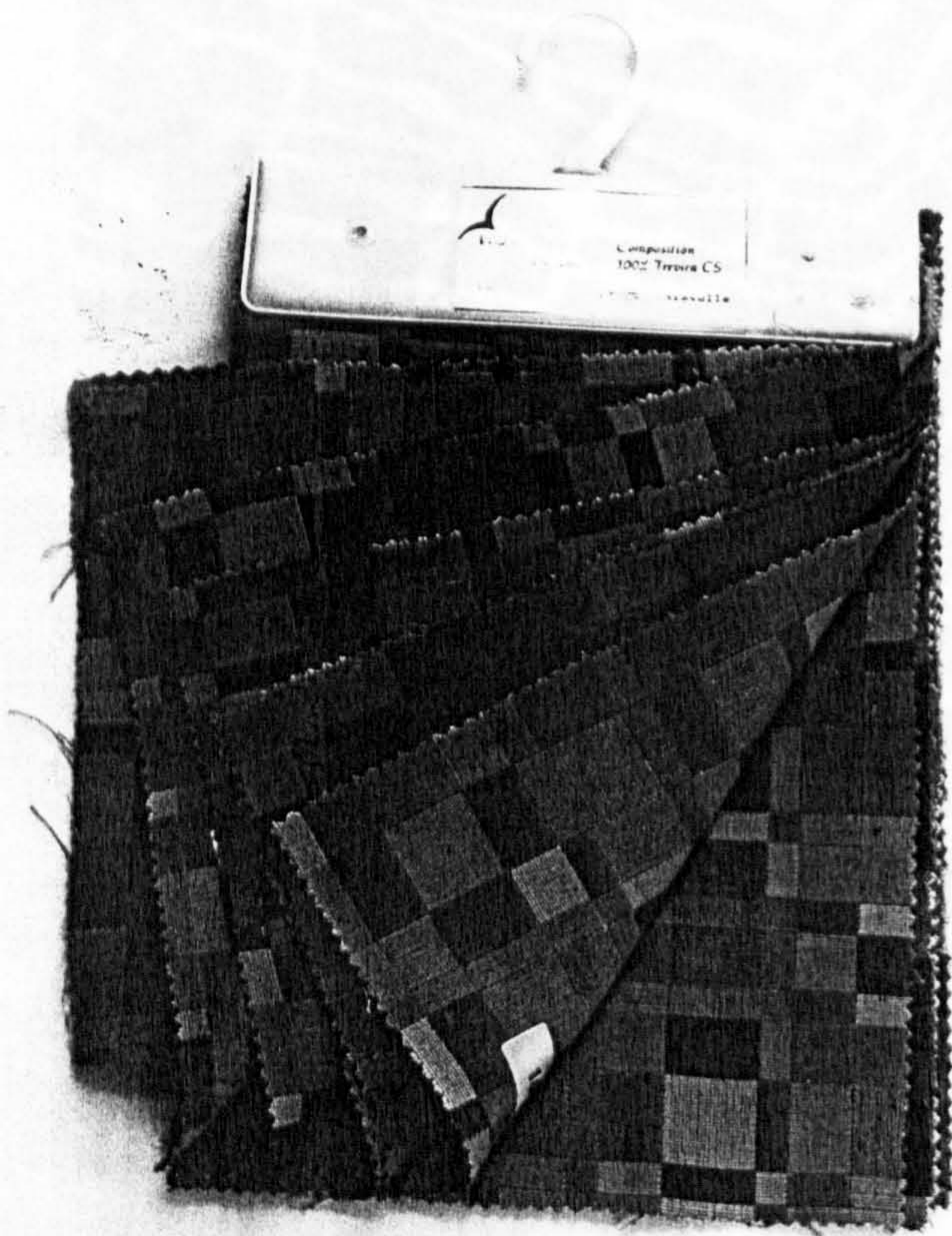


Fig. 124 *Seagull Textiles, Doublecloth Upholstery, 1987*

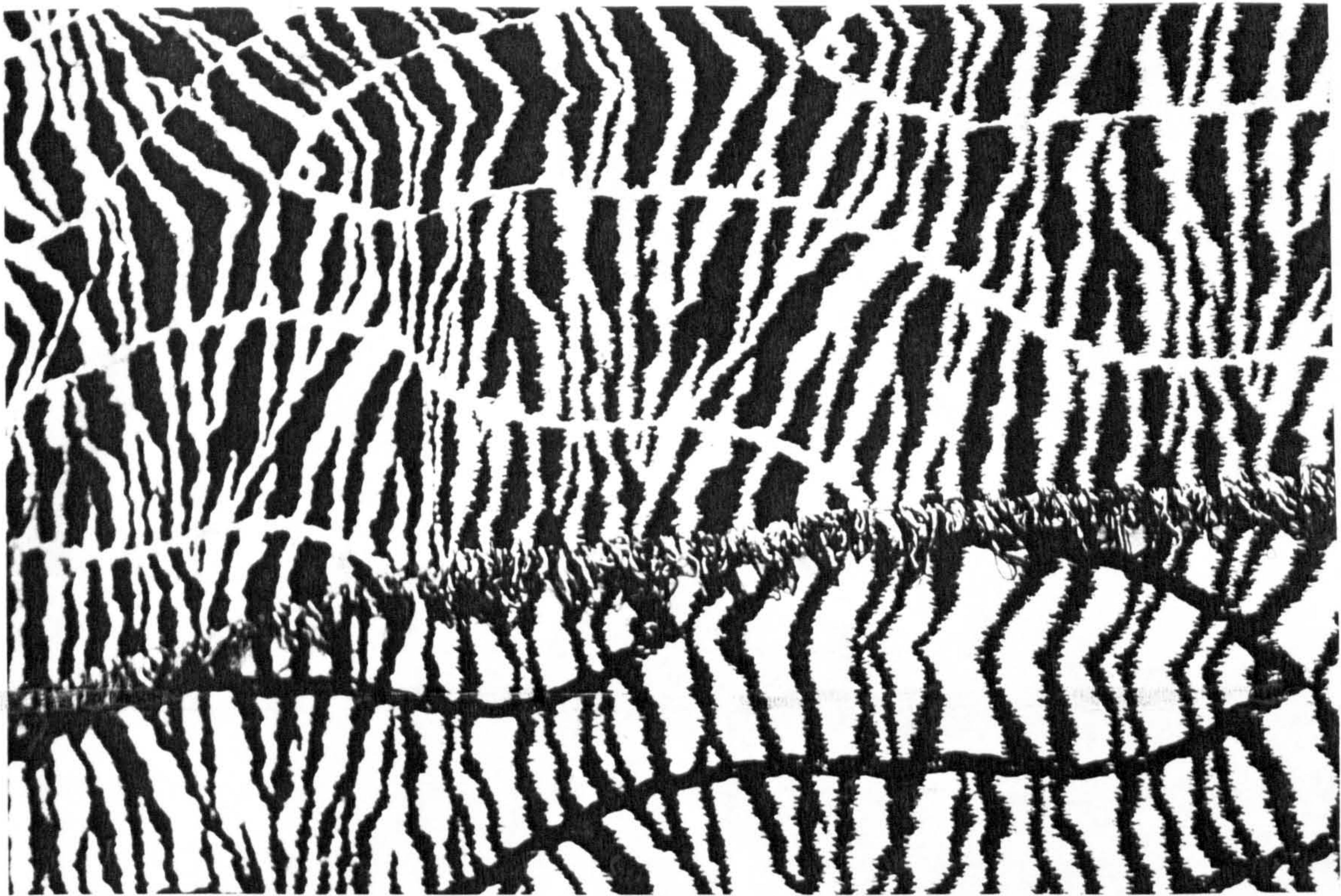


Fig. 125

Nuno doublecloth Scarf, *Zebra Stripe*, 1991. Photo: Diane Bell.



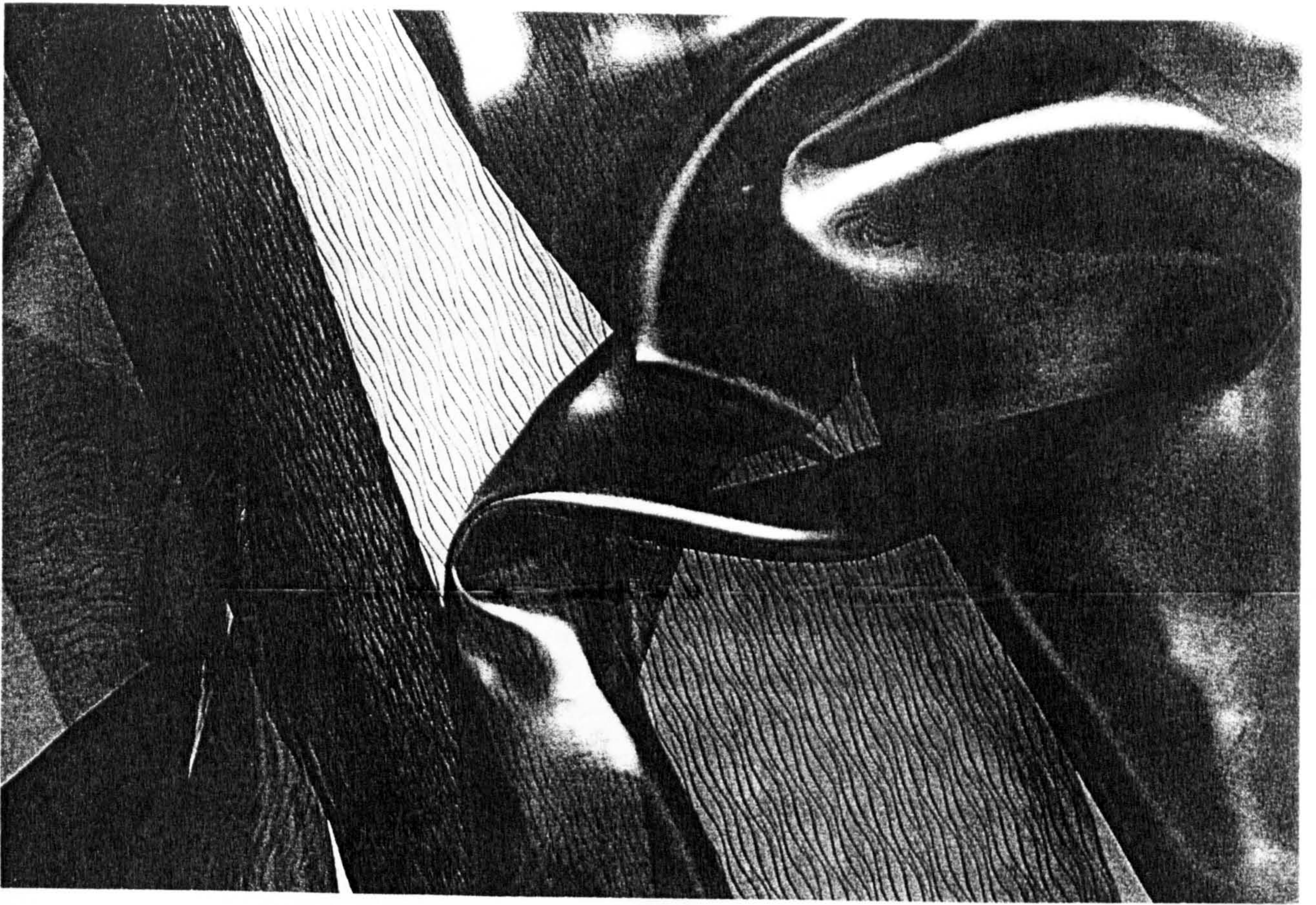
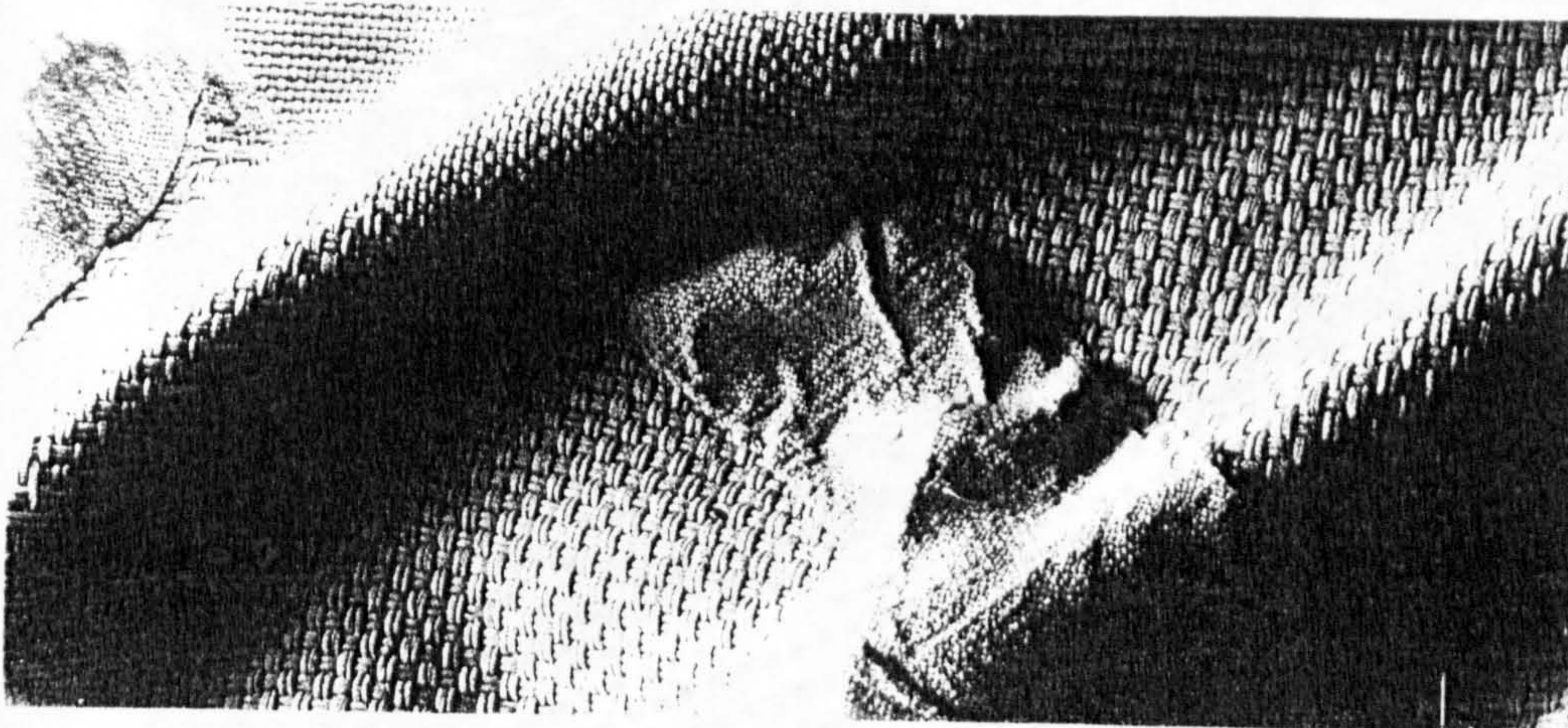
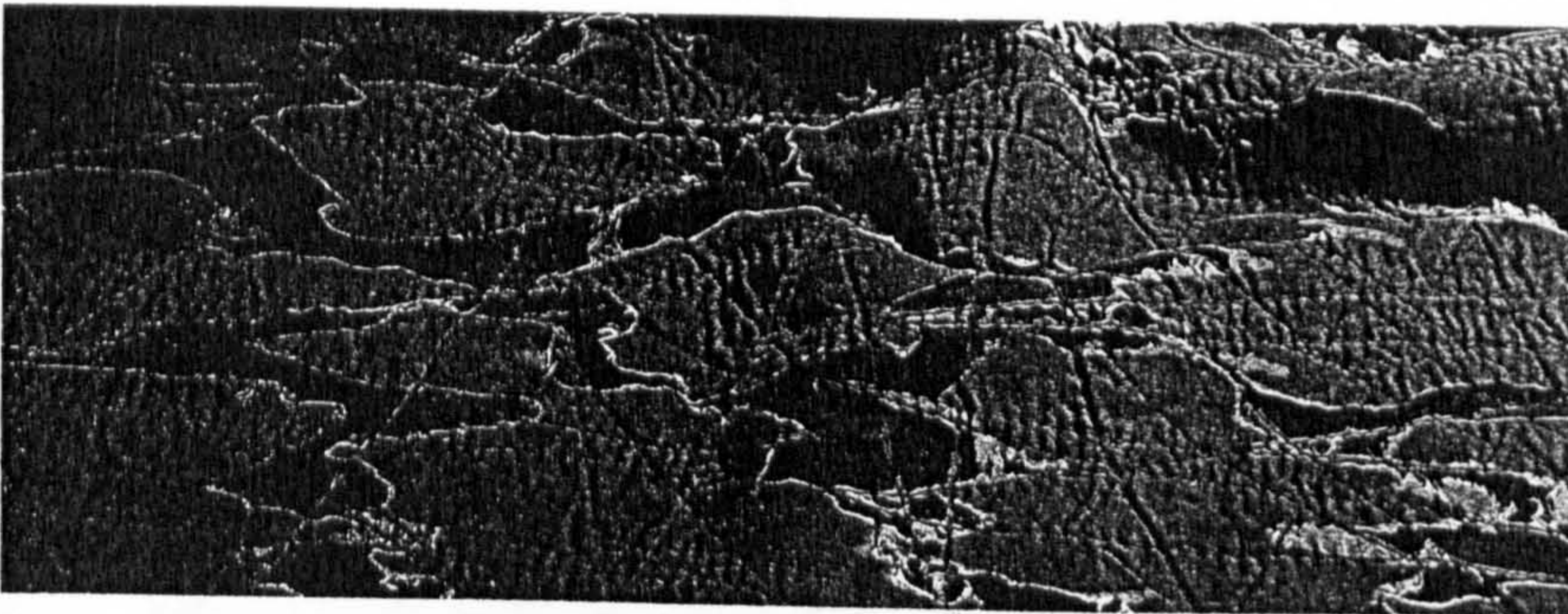


Fig. 126 Nuno. *Stainless Steel Emboss*, 1992.. Woven and splatter plated polyester.  
Designed by Reiko Sudo.



Upper: Fig. 127 Nuno. *Agitfab*, 1992.  
Lower: Fig. 128 Nuno. *Basket Weave Big Pockets*, 1990.



Fig. 129 Nuno samples, Liberty Festival of Japan, 1991

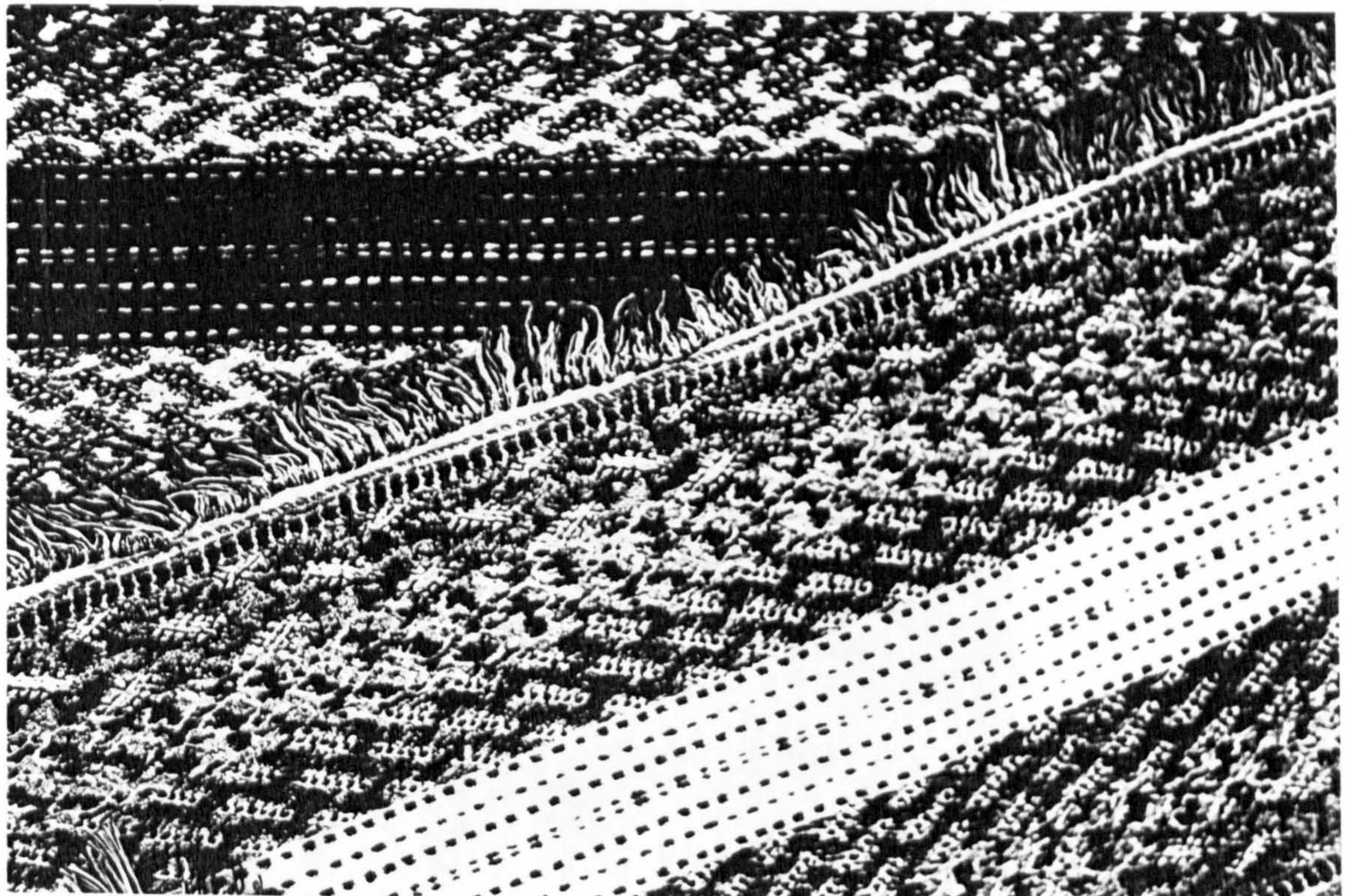


Fig. 130 Nuno Scarf, 1992. The scarf will stretch to double the size when pulled ; when released it returns to the crinkled, shrunken state.

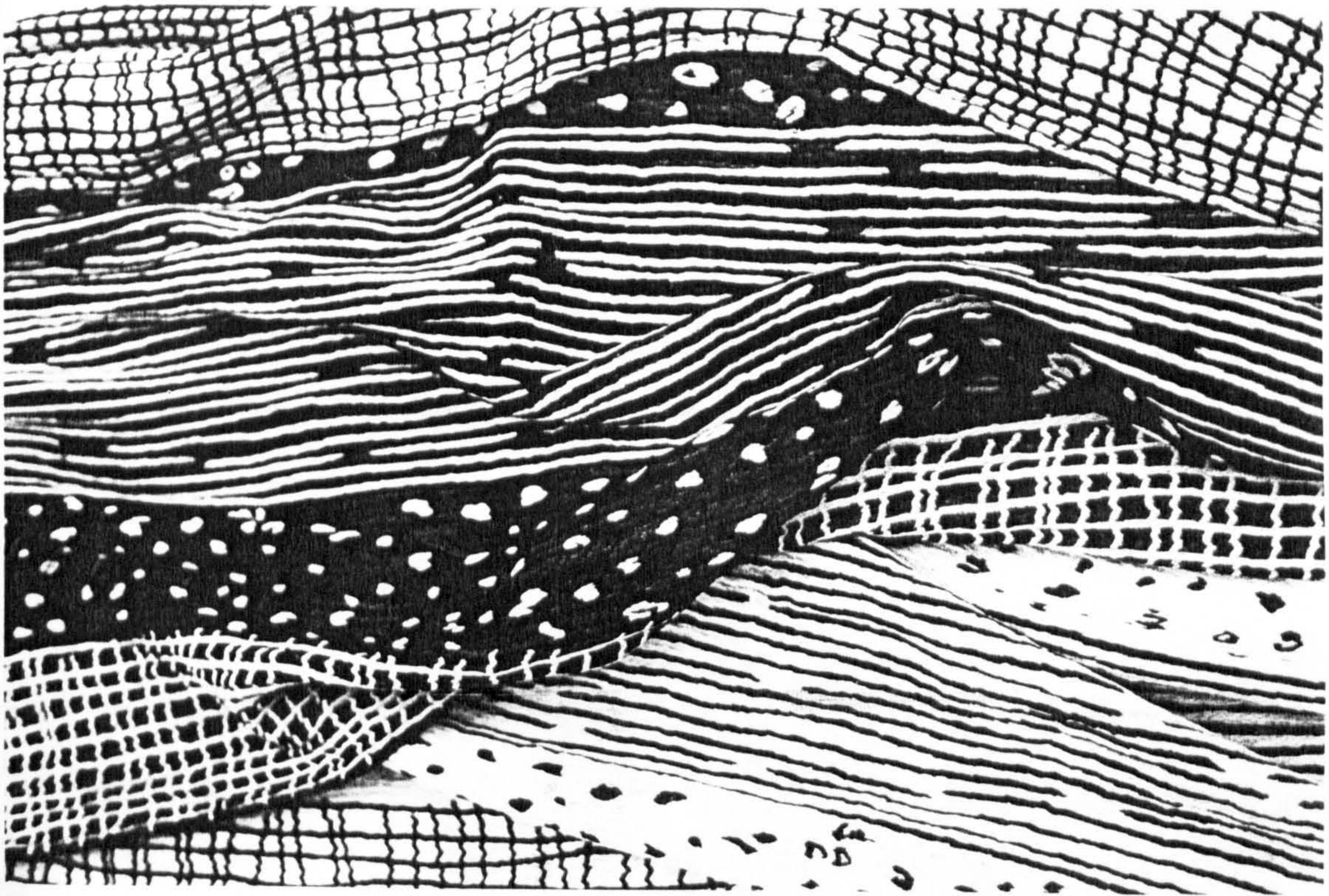


Fig. 131 Nuno doublecloth Scarf, 1992. Photo: Diane Bell.

## **Doublecloth Fabric Portfolio.**

### **Introduction to Section Three.**

The second series of woven samples were woven between 1987 and 1989 after an investigation into the doublecloth fabrics of Anni Albers had taken place at archives in Weimar, Dessau and Berlin. As discussed in Section Two this research established that Albers had used only the interchanged doublecloths producing square pattern repeats while other weavers had explored the technique more fully than was at first realised. My own practical investigations were now to continue with the use of texture in yarn, weave and finish becoming an important consideration within the doublecloth structures.

Continuing discussions with Marianne Straub suggested the need for spinning and tightly plying a range of individual hand spun yarns to incorporate into the woven samples. These yarns would give the exact qualities required for visual and tactile purposes and were not available commercially. The yarns could be light and airy with little twist or crepe yarns, tightly spun and plied, for the shrinkage and cockling possible in the fabric finish when the cloth was taken from the loom.

In 1990 the Nuno doublecloths were coming onto the market in Europe just as Marianne Straub returned to live in Switzerland. She was excited by the obvious potential, speed and flexibility of the computer aided loom and the beauty of the doublecloths produced, commenting that the weaver obviously understood the bridge between technology and art. The Nuno fabrics have certainly prompted a wider awareness of doublecloth and future technology may even develop a programme to weave three dimensional doublecloth garments directly on the loom.

## **Series Five.**

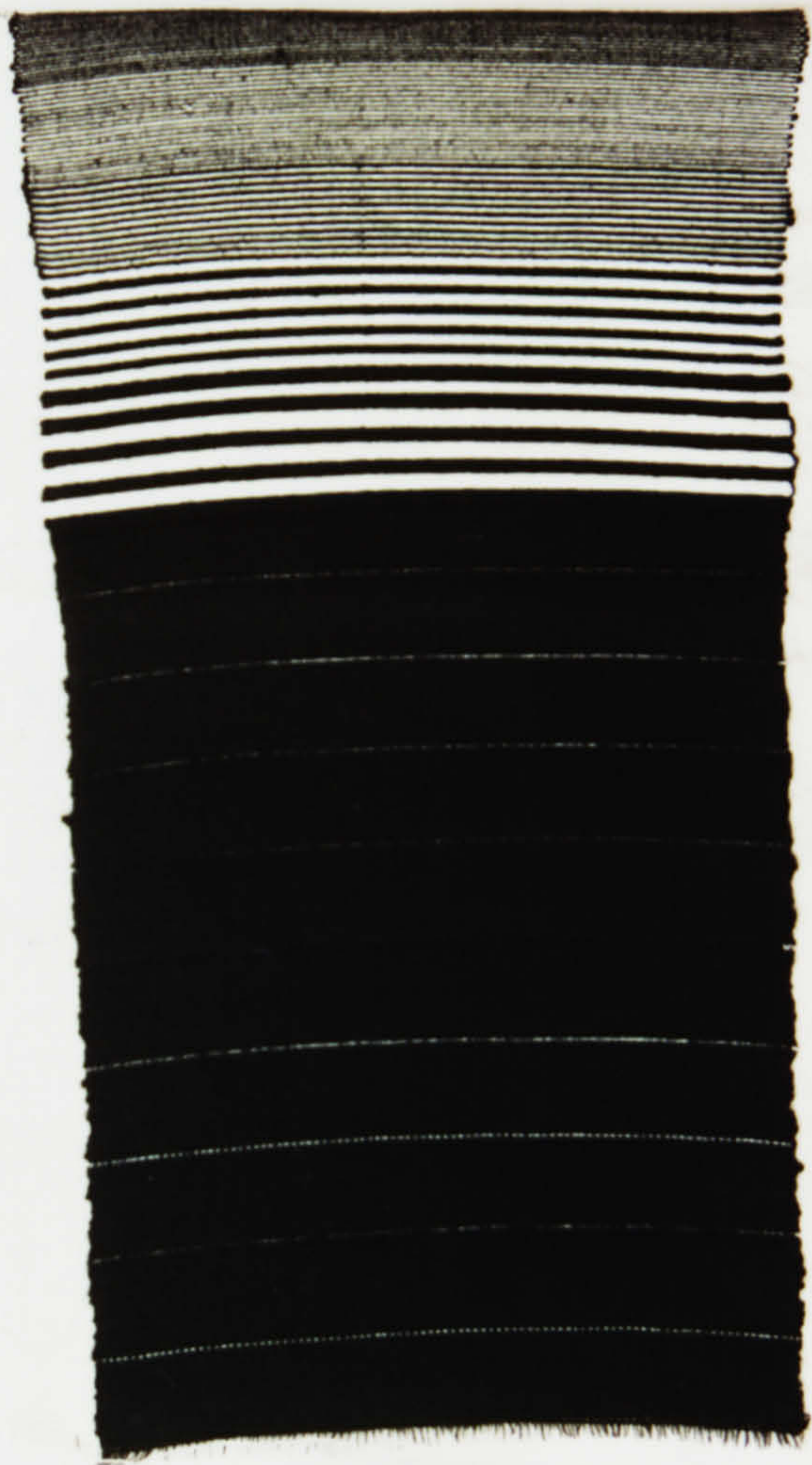
The sett of the fabrics was to be reduced from around 40 ends per inch down to 20 or 30 so that there was more space between each thread, and a looser more fluid textile could result. These samples were all intended for apparel wear.

Experiments with the types of fabric finish were essential so that the different rates of shrinkage could be exploited. "Crabbing" is a process used mainly for wet finishing worsted cloths where the cloth is stretched and set with the use of steam and heat. "Milling" is used mainly for woollen fabrics where the cloth is subjected to heat and pressure to alter the surface of the cloth in order to felt the fibres together in a controlled manner. A warm or hot soap wash can also be used for handwoven textiles with the textile usually dried under tension. Combinations of heat, pressure and tension were tried on this series of samples to integrate the finishing method into the design process.

### **Sample 15.**

This was woven as a three layer fabric or triple cloth, black on the two outer sides with a white fabric woven in the centre. This splitting of the black warp into two separate cloths suggests the possibility of two flimsy outer fabrics being laid onto and weaving out of a central core warp. This fabric is completely reversible with fluid flaps of fabric each side. These flaps can be woven into the central fabric and into each other as desired.

Wet finishing:            Milled for 10 minutes. Dried under tension.



## Sample 16

This extends the idea of laying a top fabric layer [in this case a black warp ] onto a wider background cloth [in this case white]. Textured threads have been hand spun to create areas of texture which bulge beyond the straight lines of the cloth interchanges, leading the eye into and out of the background cloth. The tactile qualities of this sample are of prime importance.

Wet finishing: Milled for 10 minutes. Dried under tension.



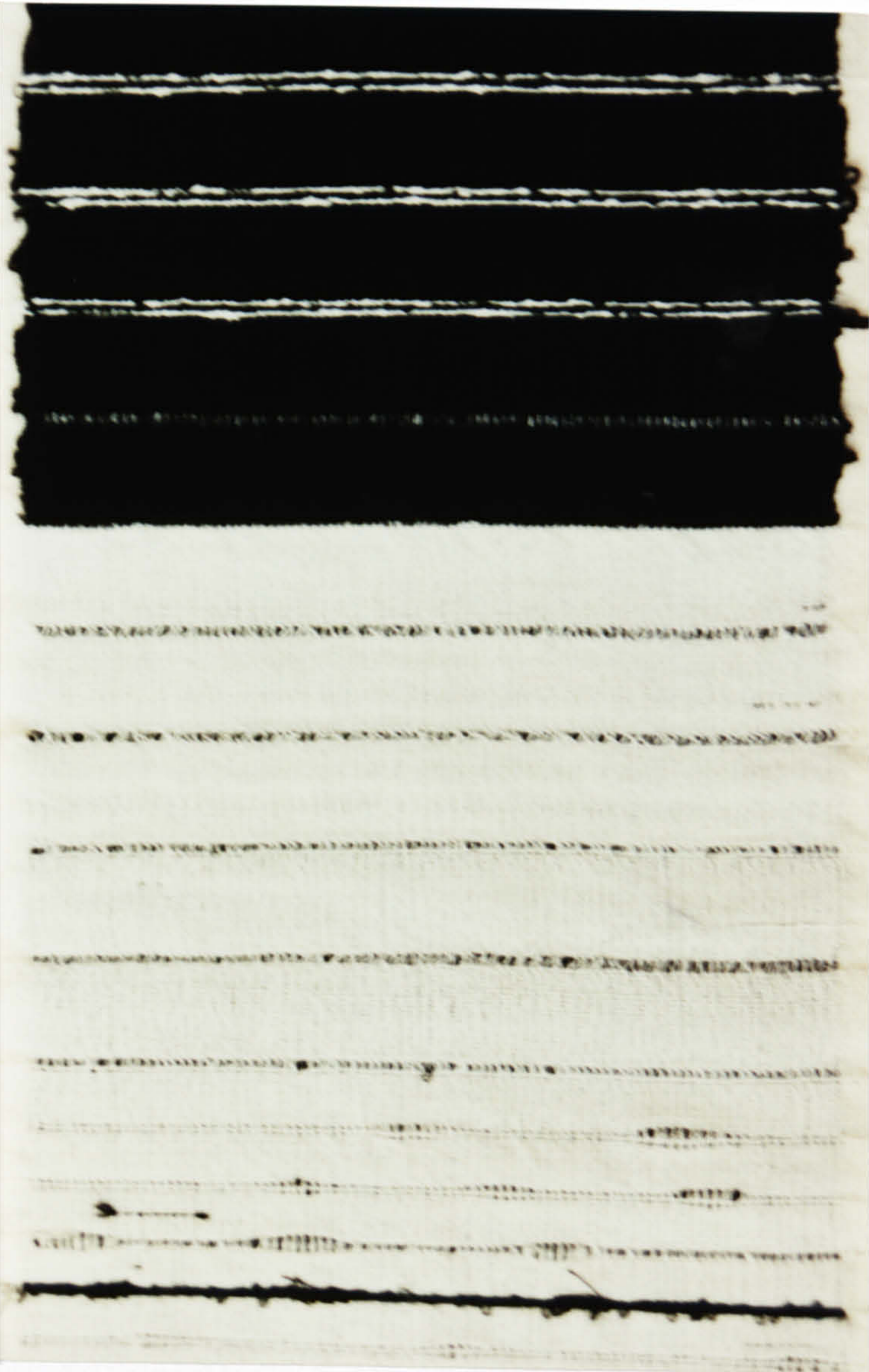
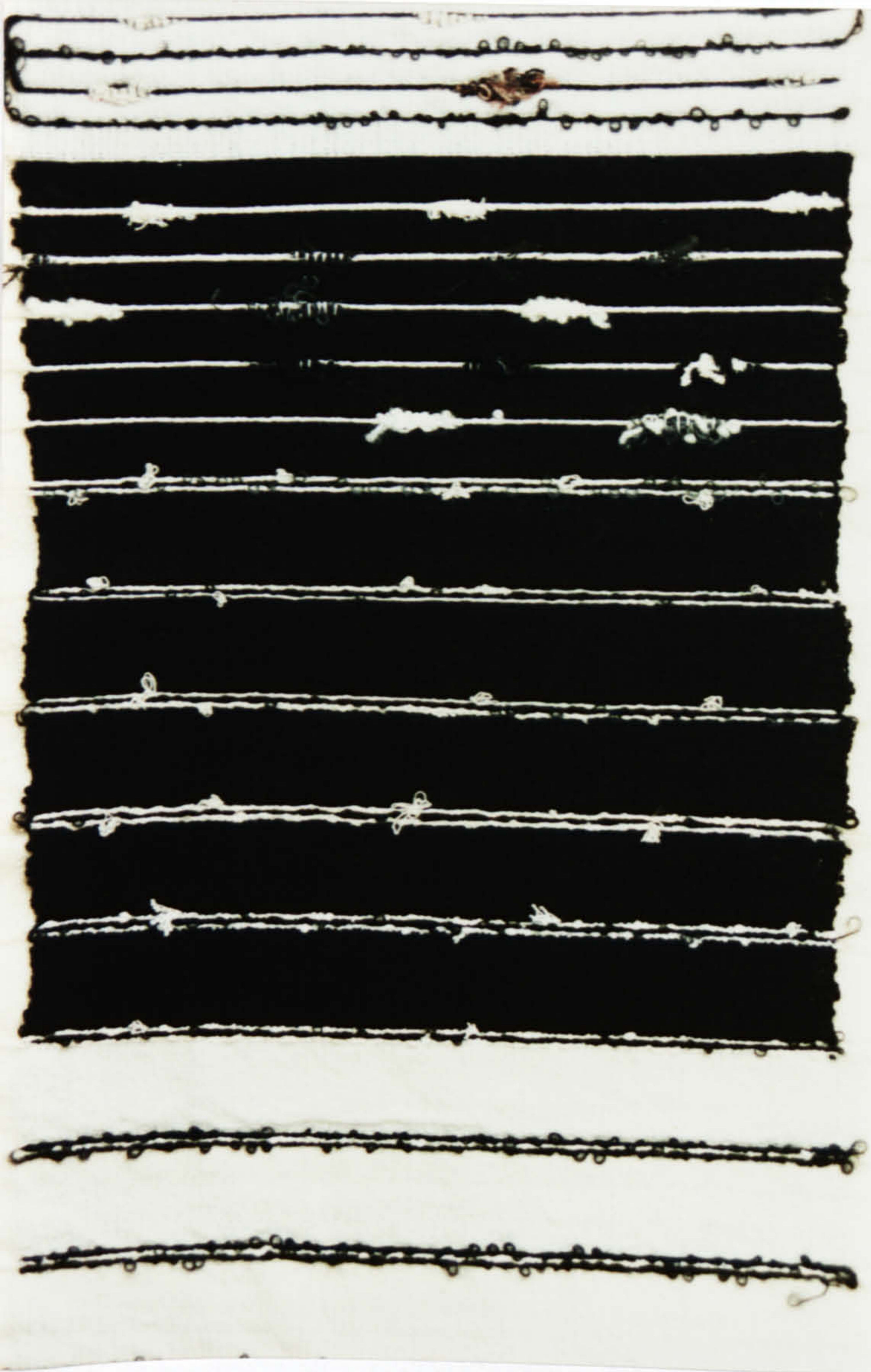


## **Sample 17**

This sample uses intermittent weft of thick yarn which was hand plied to give large areas of texture along the thread at random intervals. The black bouclé yarn was machine spun.

The reverse of the fabric has stripes where a thick weft has been omitted in order to see through to the other side. The warp threads thus assume an importance as they are intended to be seen rather than covered by the weft.

Wet finishing:            Milled for 5 minutes. Dried under tension.

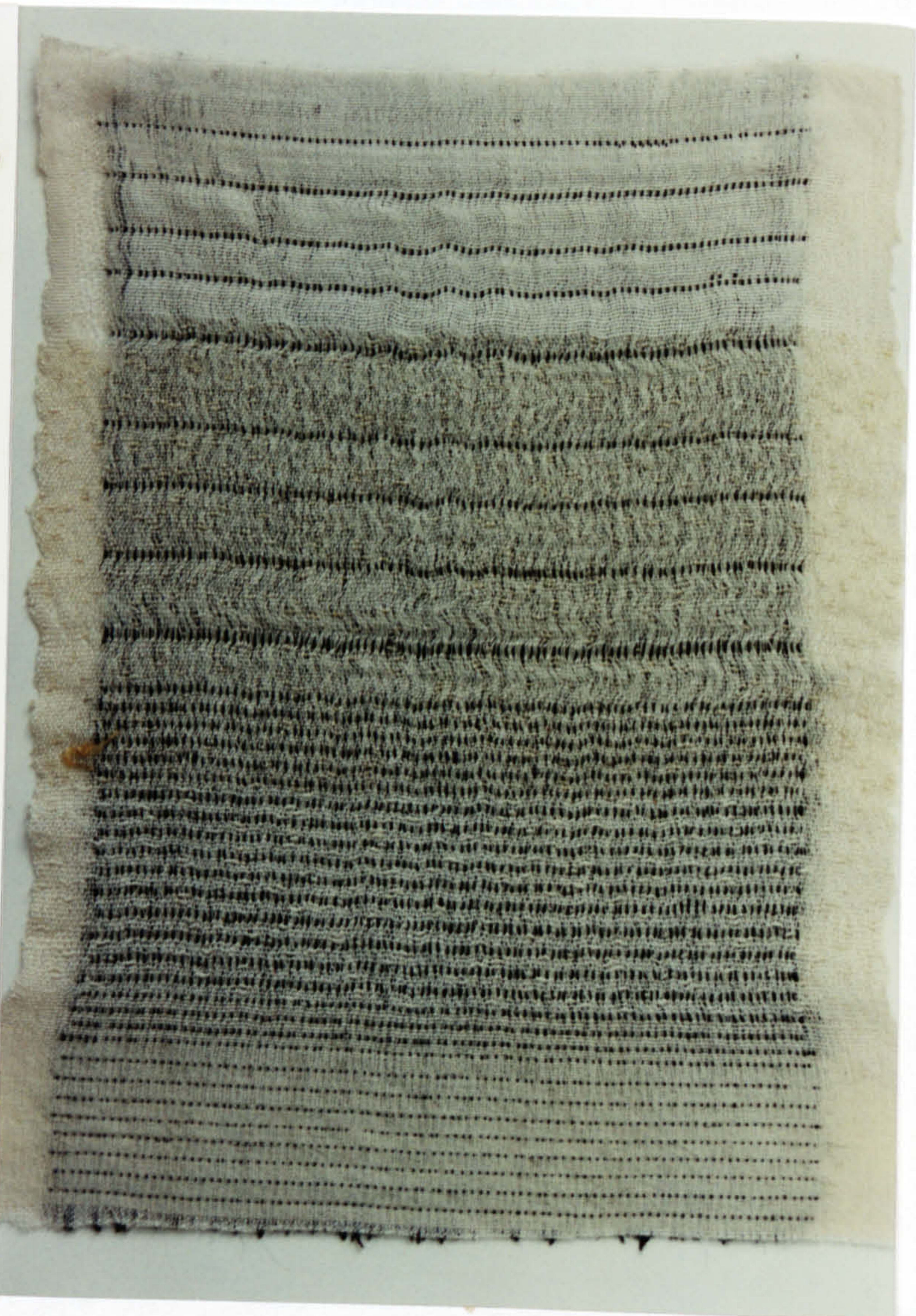


## Sample 18

This was the result of a series of experiments to weave a net fabric stitched down onto a firm base without the stitching becoming an obvious element of the design. In concept this appeared to be a simple task but many variations were woven before the desired result was achieved. The top sample uses a plain yarn in the weft, the lower sample uses a machine spun bouclé.

The effects on the reverse side of this sample were critical in deciding the next stages of experimentation. The bulges and the cockling occurred due to the different warp tensions, relaxing when removed from the loom after weaving. The extent of relaxation is hard to predict and the final result can only be seen after finishing. Hence small samples were woven, cut from the loom, wet finished, dried and analysed. Only then could the next sample be woven by building on this experience.

Wet finishing:            Soap Wash. Dried flat with no tension.



## **Series Six.**

The following samples were woven on warps of linen and wool which would shrink at different rates and behave very differently when wet finished. Normally these two yarns would not be considered together in one cloth because of production difficulties with the two tensions. For small hand woven warps the problem is not too great, although some difficulty was experienced with dividing the sheds cleanly. The principal effect here was to exploit the different properties of the yarns. The linen cloth would remain stable and the wool cloth would shrink if treated at a high heat, causing the linen to pucker.

### **Sample 19**

This was woven using interchanged stripes in the top sample and pleats in the lower sample. While the pleats waved and puckered after finishing, the reverse side of this section had no particular interest for development. However, the reverse of the top sample showed a pronounced shrinking of the wool with a consequent puckering of the linen particularly where the weft was loosely woven. This became the starting point for the next sample.

Wet finishing:            Milled for 10 minutes. Dried flat with no tension.



## **Sample 20.**

This cloth was woven to exploit the puckering observed in the previous sample. The two layers of cloth were interchanged by the Täkänä technique which was time consuming to weave. This may have led to less interchanging being undertaken during the weaving. In retrospect more interchanges of the two disparate layers would have created more shrinkage.

Where the two side edges are closely woven together the effect is more satisfactory. Again this effect can only be seen after wet finishing.

Wet finishing: Milled for 10 minutes. Dried flat with no tension.





## Sample 21

This sample binds together the two different warps more closely producing a large seersucker bubble on the linen fabric. The shrinkage of the wool and the close binding at the edges has pushed the linen fabric forward. This cloth has an interesting visual quality with an all wool fabric, an all linen fabric complemented by thin stripes of wool and linen. However the tactile quality is rather harsh, linen and wool together are perhaps not the best combination to be worn next to the skin.

The interchanged areas of the cloth are quite stiff. This may be an advantage in certain circumstances for apparel wear.

Wet finishing: Milled for 10 minutes. Dried flat with no tension.



## **Series Seven.**

This series of seersucker doublecloths has brought together the qualities of texture, touch and manipulation which had become increasingly important as the practical project developed. The warp is set more loosely than previous samples at 15 ends to the inch. The fabric shrinks considerably when taken from the loom. The width of the fabric in the reed was 22 cm shrinking to 17 cm after finishing

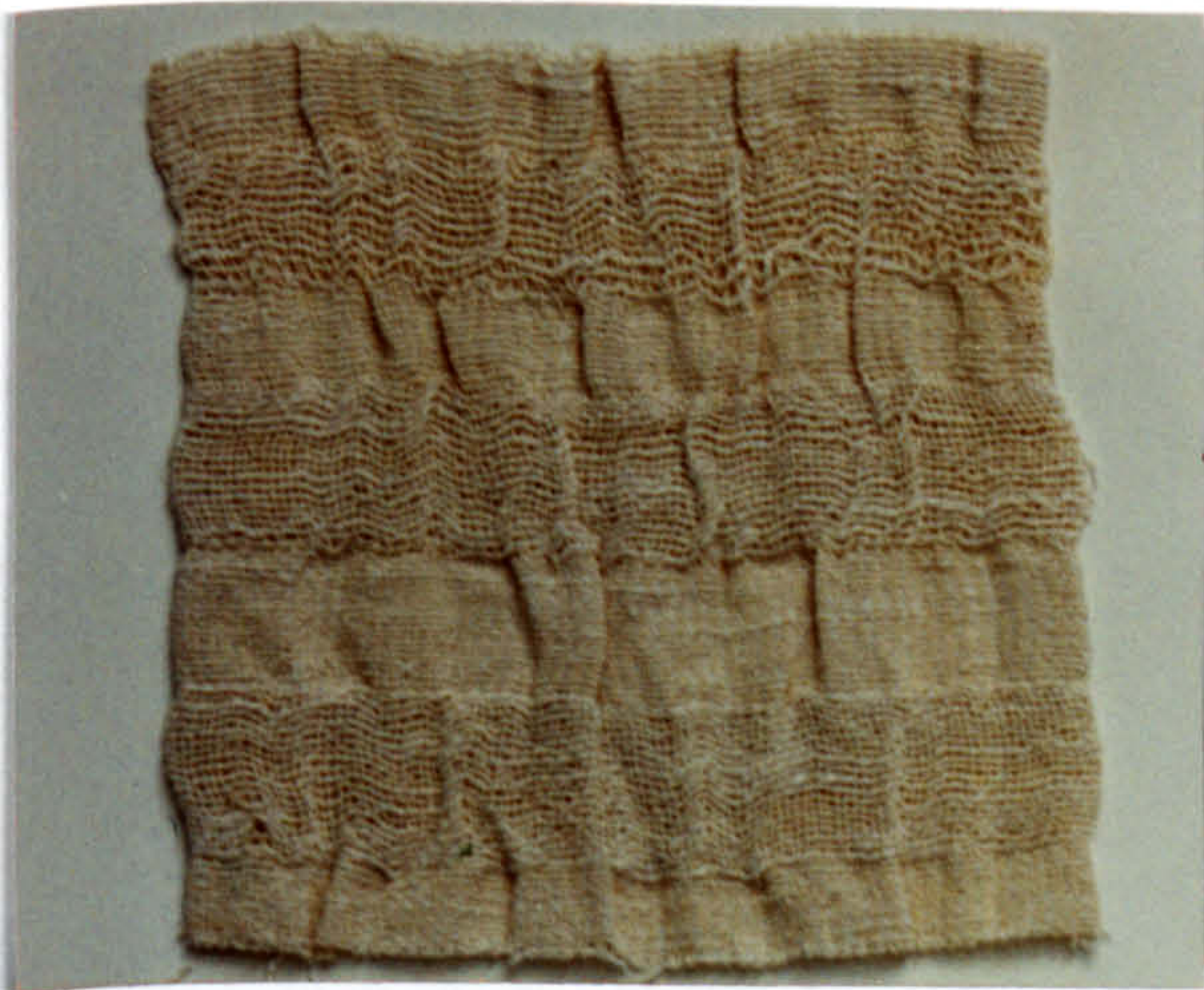
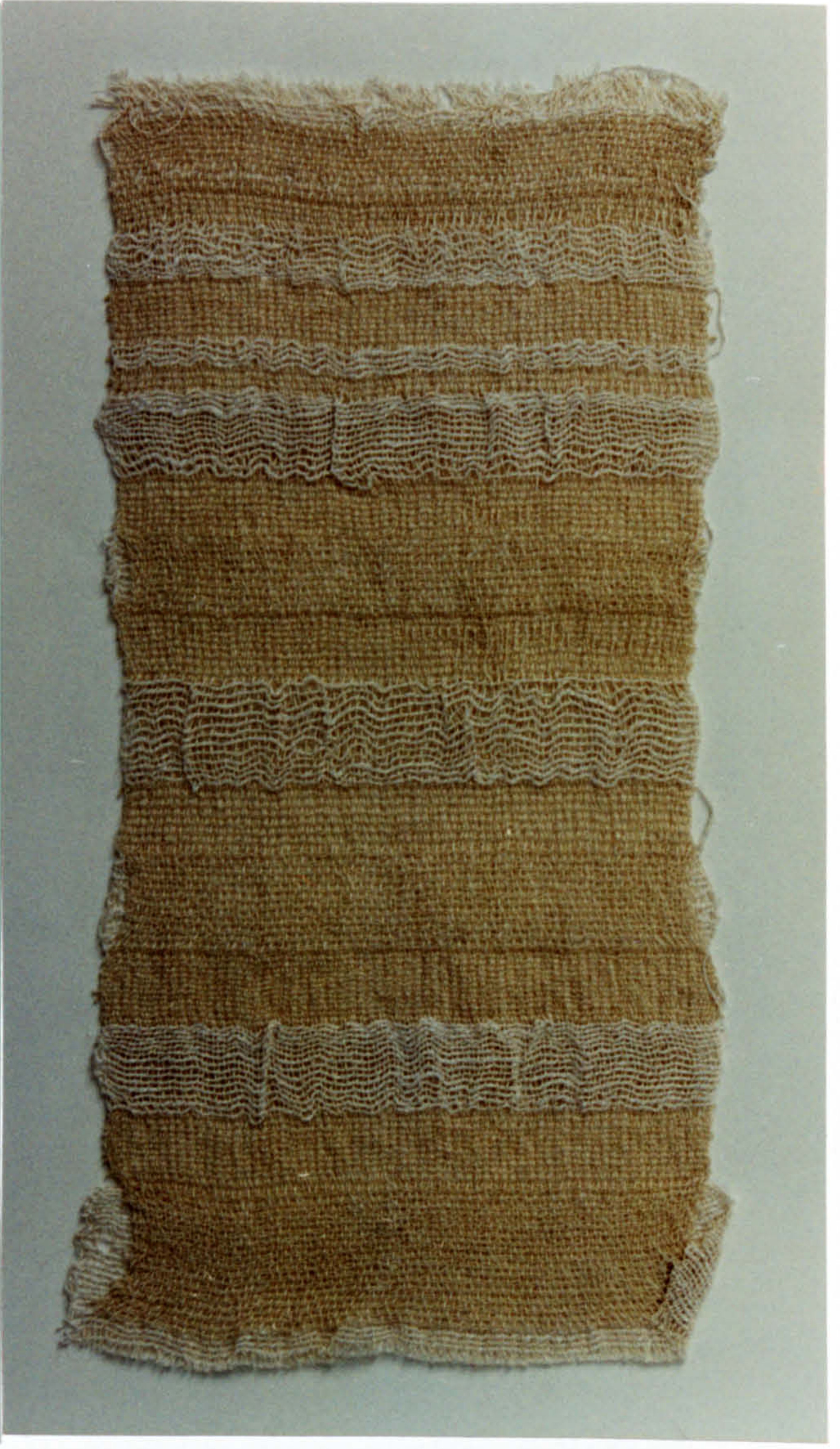
### **Sample 22.**

Here white linen and wool are used in both warp and weft, giving textured stripes in natural colours. The effect of the seersucker happens in a boiled wash, the fabric then being left to dry naturally with no tension.

### **Sample 23.**

The right hand sample combines stripes of single cloth and stripes of doublecloth, woven with a linen weft loosely crossing on the surface. The back face of the doublecloth stripe is woven with a wool weft on the wool warp. This causes the back stripe to contract after wet finishing puckering the single woven layer into large ripples and undulations, large enough to cast shadows in the fabric.

Wet finishing:            Warm soap wash. Dried flat with no tension.



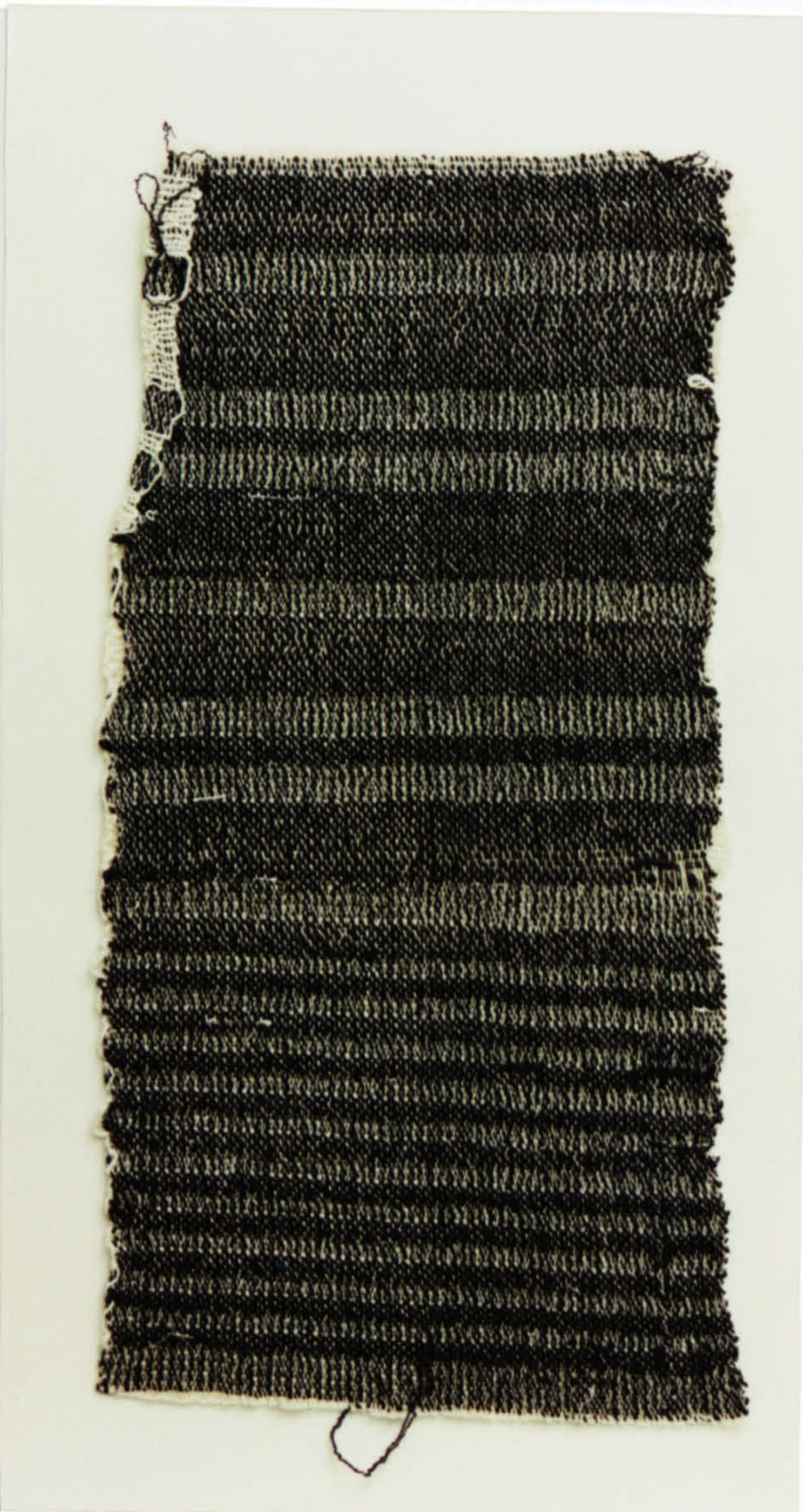
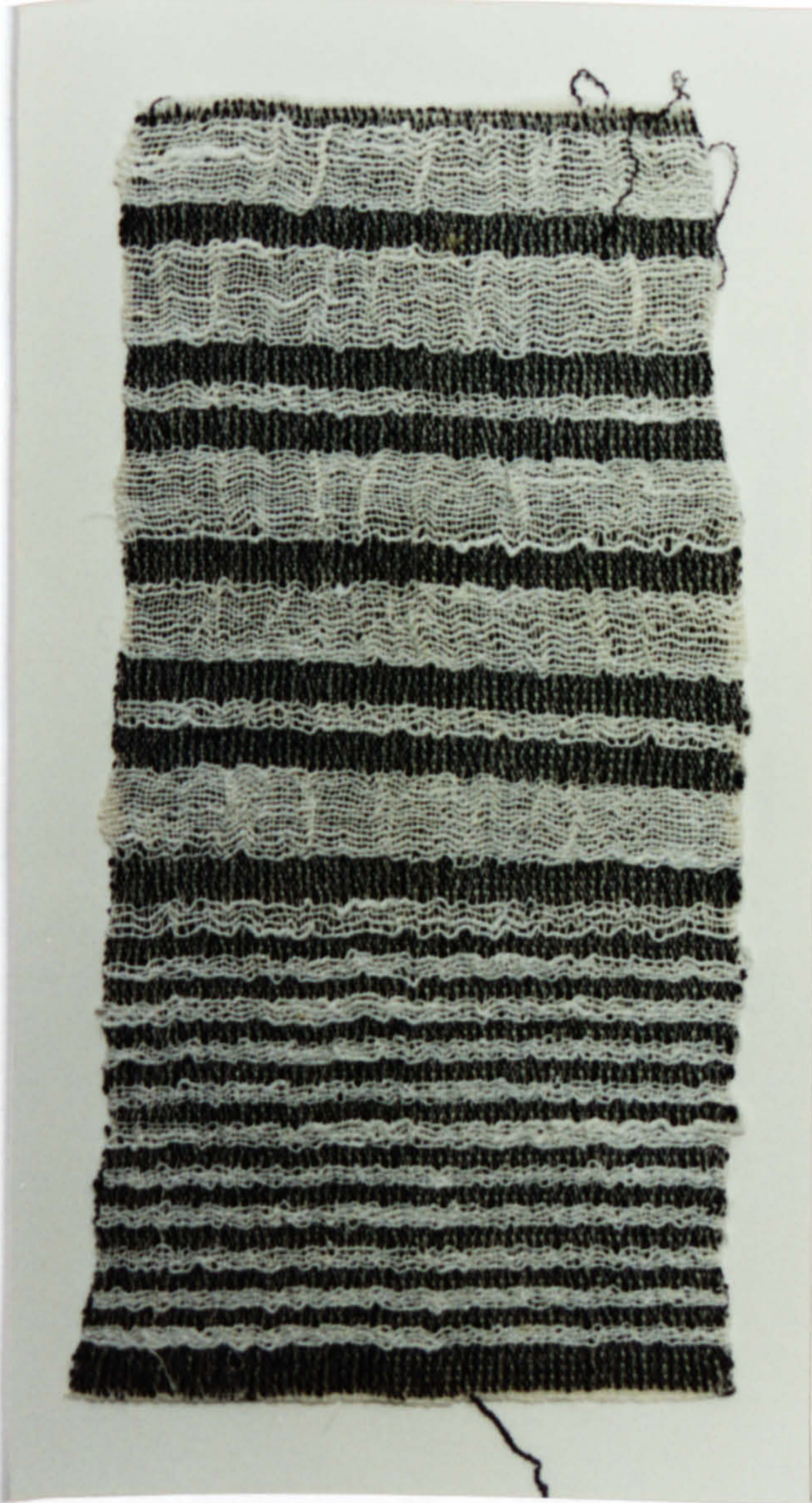
### **Sample 24.**

The left hand sample continues the theme of single cloth and doublecloth combined, building on the effects achieved. In this case the weft for the single cloth is wool and for the back face of the doublecloth stripes, while a linen weft is used for the face of the doublecloth stripes. This gives less puckering and undulations than the previous sample with a pleasing visual effect of the cream wool and white linen. Both of these samples were woven after extensive trials combining various wefts and finishes.

### **Sample 25.**

The introduction of colour was considered appropriate to exploit the textured stripes of the previous sample, the blue wool weft now replacing the cream wool weft. The stripes of single cloth between the stripes of doublecloth now appear to recede causing the linen to appear further forward. The eye can now discern the linen weft in what appears to be uncontrolled zig zags of thread. This sample combines both a pleasing visual and tactile quality.

Wet finishing:            Warm soap wash. Dried flat with no tension.

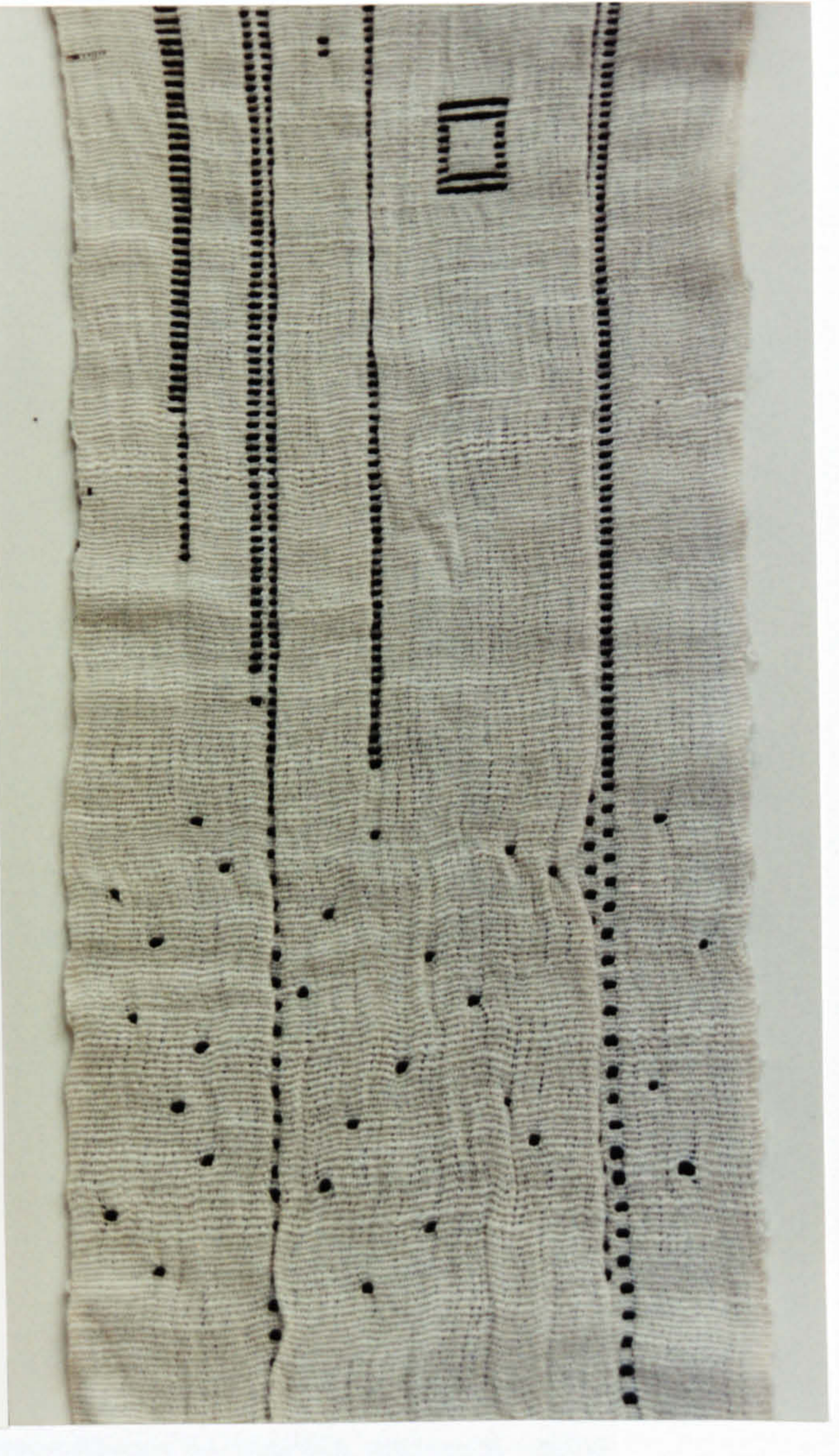
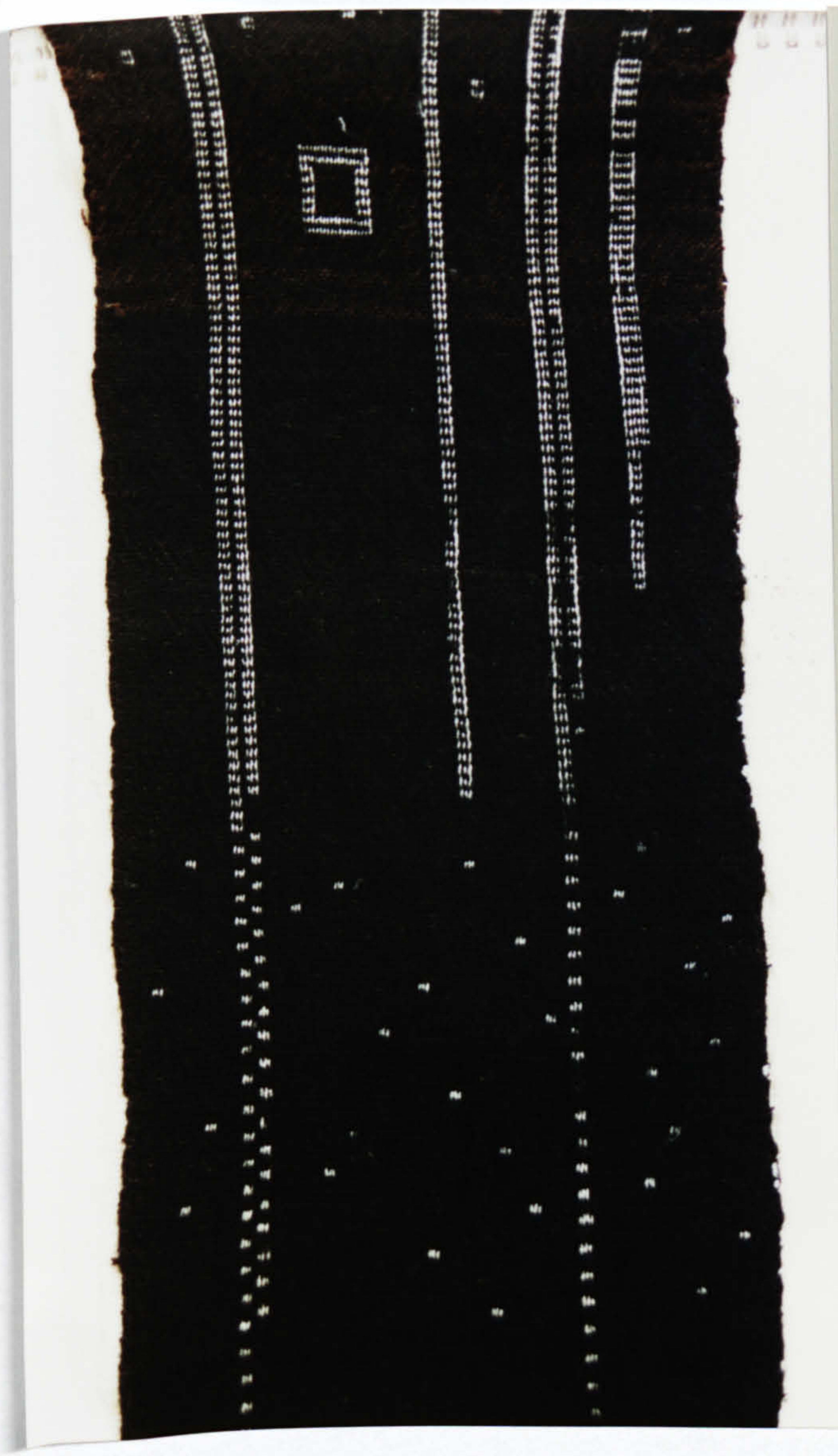


## Series Eight.

### Sample 26.

This sample uses white linen and black wool warps which produce the desired puckering effect but the interchanging of the two cloths uses Täkänä in order to produce more random motifs. The long thin stripes proved to be unsuitable as the buckling effect tended to cover them. Small random spots of the wool brought to the surface as in the lower part of the sample were effective. However for hand weaving the Täkänä technique is extremely time consuming as the weaving of this sample took eight hours to complete. If it was possible to use a computer aided loom to weave the interchanged doublecloths more experimentation would be possible much more quickly, and indeed the process would become much easier to consider. As it is not possible for hand weavers to move into the new technology, loom controlled doublecloth is locked into a particular form of imagery of stripes and squares. However, this should not be seen as inhibiting since the variations of weave, texture and colour offer infinite possibilities.

Wet finishing: Warm soap wash. Dried flat with no tension.





## Sample 27.

The weaving together of a linen cloth and a wool cloth are not considered to be suitable in terms of abrasion in wear. The linen surface is harder and will eventually abrade the wool surface unless the fabric is used for purely decorative purposes. For the two last samples one warp of black soft worsted spun wool and one of tightly plied cream woollen spun yarn was used. The method of spinning a yarn determines its qualities in the woven state: a worsted yarn tends to be made from longer better quality fibres and can be spun more softly, whereas a woollen spun yarn is made from shorter fibres which are spun together more tightly. It was hoped that the tightly plied yarn would shrink causing the softer worsted areas to blister as the previous linen samples had done.

The warps were threaded into blocks of colour 4 cms and 6 cms wide which shrank after wet finishing to 2.5 cms and 4.5 cms. The stripes or blocks of colour were controlled by manipulating the loom and interchanging when desired. Further experiments with wet finishing were undertaken from soap washing to boiling. While the boiling shrank the wool beautifully the visual effect of the fabric was matted and felted and therefore unsuitable.

The top section shows small stripes of the two yarns increasing to large squares. The lower sample displays an excellent seersucker effect with the black worsted ground fabric bulging over the white squares. It is interesting to note here that the white squares appear to recede and sink down into the black cloth. The reverse of the fabric has equal importance as the soft black squares become prominent on a receding white ground.

Wet finishing: Warm soap wash. Dried flat with no tension.

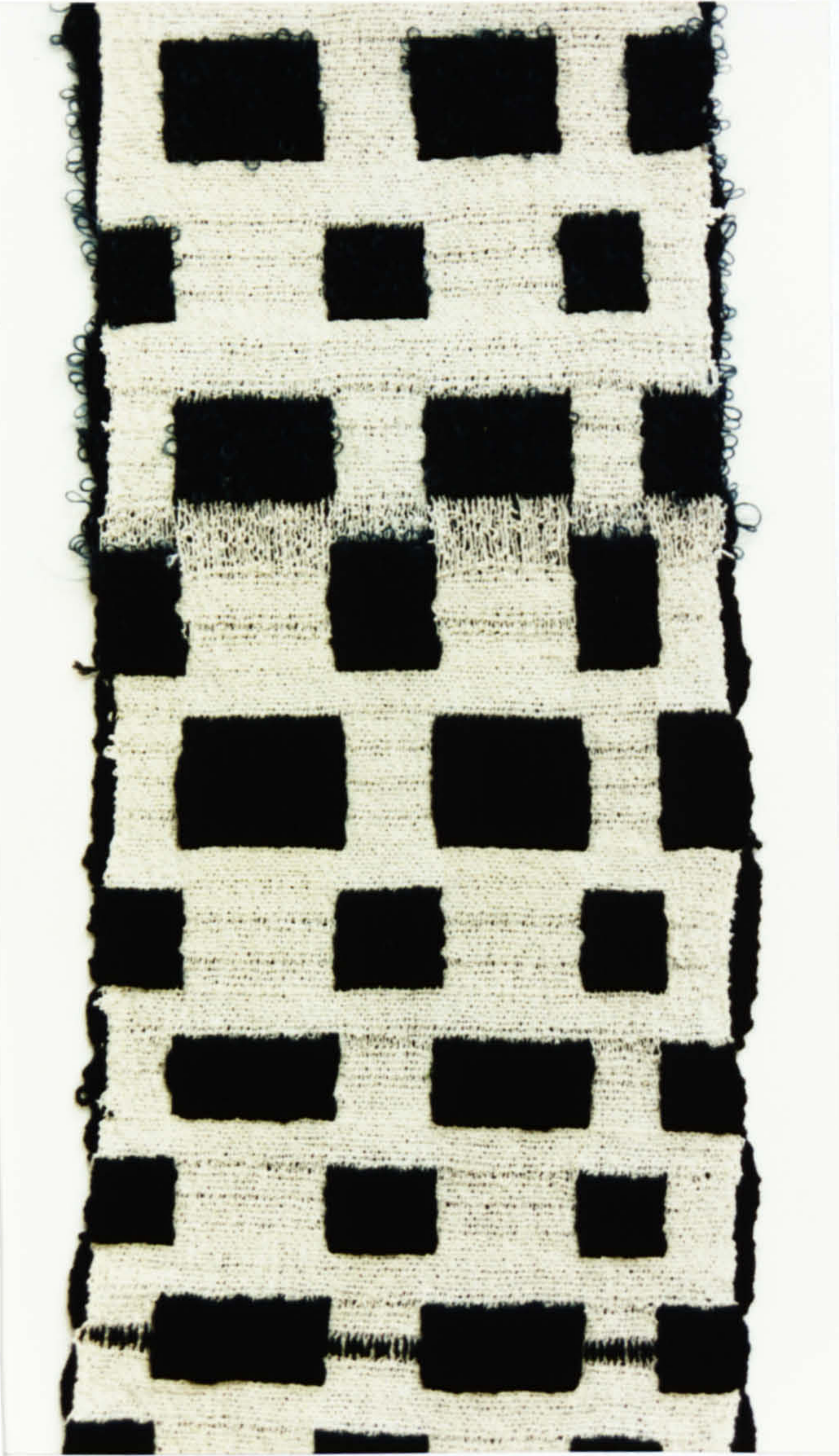


## **Sample 28.**

In this final sample more cockling has been achieved by weaving the same two warps at a looser sett than previously.[ 12 ends per inch] This change of sett leaves more spaces at the intersections of each thread allowing the maximum of shrinkage. When weaving this sample four threads of the white cloth were woven and two threads of the black one before the interchange took place in imitation of the Mexican pick up technique. This slight change in structure allows more space at the point of interchange for the shrinkage and puckering of the two cloths being woven together.

The top section is woven with a loop yarn which surprisingly destroys the seer-sucker effect of the black fabric, although the loops themselves are pushed forward out of the cloth. The lower section brings together weave, sett, tension, yarn structure and finish to make an exciting doublecloth fabric with a strong visual and tactile presence.

It is acknowledged that without the use of a computer aided loom the doublecloth technique does not have image flexibility: the mechanics of the hand loom limit the imagery to the horizontal and the vertical. This final sample reverts to the use of squares, perhaps reminiscent of the fabrics woven by Anni Albers at the Bauhaus, but the sample is not retrospective - it looks to the future aesthetics, roles and markets of the doublecloth fabric.



**Doublecloth: History, Technique, Possibilities.**

**SECTION FOUR**

**Documentation.  
Footnotes and Appendices.**

## Footnotes

### Section One.Part One.

- 1 Geijer, Agnes *A History of Textile Art*. Sotheby-Parke-Bennet 1979
- 2 Later published as the *Textiles of Ancient Peru and their Techniques*. 1934 by d'Harcourt. English Edition. 1962. University of Washington Press, Seattle.
- 3 *Journal of the Guilds of Handweavers, Spinners and Dyers*. 1965
- 4 Murphy William. *The Textile Industries*. London 1910
- 5 *Costume. The Journal of the Costume Society*. No 10. 1976. Scottish Seamless Shirts. Norgate and Bennet.
- 6 Warden, E.J. *The Linen Trade Ancient And Modern*. London 1867 p568.
- 7 Hooper, Luther *Hand Loom Weaving*. 1949 reprint, p.252
- 8 Parry, Linda *Textiles of the Arts and Crafts Movement*. p25
- 9 Teaching Art and Artistic Crafts in London, LCC 1923. Cited in Anthea Callen *Women in the Arts and Craft Movement 1870-1914*, Pantheon books, New York, 1970 p.86. See also the essay *Art Education for Women in the 1860's* by Sara Dodd, published in *Women in the Victorian Art World*, edited by Campbell Orr, Manchester University Press, 1995.
- 10 In 1875 William Morris established his second firm Morris and Company. There are ten doublecloth fabrics by the Company recorded at the William Morris Gallery, Walthamstow.
  - 1] Daisy 1870
  - 2] Artichoke 1875-1880
  - 3] Tulip and Rose 1876
  - 4] Honeycomb 1876
  - 5] Vine and Pomegranate 1877
  - 6] Tulip and Lily 1877
  - 7] Campion 1883
  - 8] Bluebell 1895
  - 9] Wreath Unknown date
  - 10] Unidentified F.29 Unknown date
- 11 Parry, Linda *William Morris Textiles* Weiderfield and Nicholson London. 1983 p.64. *Daisy* was produced in various colourways, usually with blue or green backgrounds- the pattern was also produced in Brussels and Wilton pile.
- 12 Kidderminster Carpets were made by weaving together 2 or 3 fabric layers together to form one single hard wearing structure. The 2 ply versions retailed at 4s 6d per square yard and the 3 ply at 5s 6d .William Morris Gallery, Walthamstow.
- 13 William Morris Gallery, Walthamstow. *Bird* 1878. This doublecloth fabric was designed for the drawing room at Kelmscott House, Hammersmith.
- 14 *Dove and Rose*, Whitworth Art Gallery, 1879.
- 15 *Textiles*. Arts and Crafts Lecture by William Morris, 1888.
- 16 In addition to Morton and Company, other manufacturers used the double cloth technique. In *British Textiles in the Victoria and Albert Museum* by Parry and Mendes, London 1980, there are 17 illustrated examples:
  - Plate 9 Silk and wool by Samuel Rowe for AH Lee 1895-1900
  - Plate 70 Kidderminster Carpet. Dove and Co. Leeds. Mid 19th Century.
  - Plate 75 Silk and wool by BJ Talbert for JW and C Ward, Halifax. Circa 1880
  - Plate 81 *Lily and Tulip* .Kidderminster Carpet by Morris and Co. 1878
  - Plate 83 *Peacock and Dragon*. Woven by Morris and Co at Merton Abbey. 1879
  - Plate 89 *Dove and Rose* by Morris. Woven by Morton and Co. 1879
  - Plate 114 *Fairyland* by Voysey. 1897. Woven for Liberty by Morton and Co
  - Plate 115 *Purple Bird*. by Voysey for Morton and Co. 1899.
  - Plate 116 *Pan Pipes*. by Voysey for Morton and Co. 1890's
  - Plate 119 Sample strip by Voysey. 1895-1900
  - Plate 123 *Daisy* silk and wool by Voysey for Morton and Co. 1898
  - Plate 124 Four samples by Voysey for Morton and Co. 1896
  - Plate 130 *Omar* wool by C Harrison Townsend for Morton and Co.
  - Plate 149 Silver Studio silk and wool woven by JW and C Ward 1895-1900
  - Plate 157 Silver Studio silk by Arthur Silver for Liberty. 1895

- Plate 214 Morton Sundour Fabrics, Carlisle 1922-24. Jacquard  
 17 Whitworth Art Gallery. Untitled, Accession no. 11831  
 18 Morton, Jocelyn. *Three Generations in a Family Textile Firm*. 1971. p116.  
 19 V & A Accession no. 884-1967. Doublecloth in cotton/artificial silk.  
 20 In comparison Pugin's interest in textiles did not extend beyond their use  
 as one element of his decorative schemes: Jones' greatest influence on  
 textile design was the publication of the *Grammar of Ornament* in 1856, the  
 patterns from which were widely copied by textile manufacturers.  
 21 In *Pioneers of Modern Design* Nikolaus Pevsner wrote: "In 1907, Hermann  
 Muthesius, Superintendent of the Prussian Board of Trade for the schools  
 of Arts and Crafts, delivered a public lecture in which he warned of German  
 crafts and industries continuing with the imitation of the hackneyed forms of  
 bygone times....before the end of the year, a number of adventurous manu  
 facturers, artists and writers had founded a new association called  
 Werkbund, with the aim of combining all efforts towards high quality in  
 industrial work, and of forming a rallying point for all those who were able  
 and willing to work for high quality." Henry van de Velde, the Belgian archit  
 ect and designer insisted that crafts were the great creative reservoir for  
 the future, an idea he carried with him to the Weimar School of Applied  
 Art. Pevsner continued: "Morris had started the movement by reviving hand  
 icraft as an art worthy of the best men's effort; the pioneers at the turn of  
 the century had gone farther by discovering the immense untried possibili  
 ties of machine art. The synthesis, in creation as well as theory, is the work  
 of Walter Gropius....At the end of 1914 he began his plans for the reorgan  
 isation of the Weimar Art School ...combining an academy of art and a  
 school of arts and crafts. Its name was Staatliches Bauhaus and was to  
 become the paramount centre of creative energy in Europe."  
 22 Worst, Edward. *Foot Power Loom Weaving*, 1924 edition. p 4, 191, 201  
 23 Elizabeth Peacock joined Ethel Mairet in 1917 at her first workshop in  
 Stratford-on-Avon. Peacock established her own handweaving studio at  
 Clayton, Sussex where she lived and worked until her death in 1969. She  
 was a founder member of the Guild of Weavers, Spinners and Dyers in  
 1931; she wove the banners for Dartington Hall between 1930 and 1938  
 and taught at Reigate School of Art between 1940 and 1957. Peacock was  
 renowned for her fine handspinning and supple cloths: she wove stoles and  
 dress lengths for Schiaparelli, the Paris couturier.  
 24 Oelsner. *Handbook of Weaves*. Faber and Faber, 1967. p68, 78.  
*Pitman Textile Educator*, p125  
 25 1890 overcoat Platt Hall Accession Number: 1970-20  
 1935 overcoat Platt Hall Accession Number: 1968-36  
 26 Platt Hall Accession Number: 1947-3932  
 27 Borval fabrics. Commission Weavers, Huddersfield. Suppliers of Wetherall  
 Fabrics.  
 28 Catalogue *Exposition des Arts Décoratifs, Paris 1925*  
 29 Lovat-Fraser. *Textiles by Britain*. Allen and Unwin 1948  
 30 Mairet, Ethel. *Hand Weaving Today*. p 49  
 31 It is interesting to note the non-sexist, non specific terminology used here  
 by Mairet, pre-dating the debate of the 1980's relating to designer-maker,  
 craftsperson, etc..  
 32 Mairet, Ethel *Hand Weaving Today*, p12  
 33 Coatts, Margot *A Weaver's Life. Ethel Mairet 1872-1952*. Crafts Council  
 1983  
 34 Schoeser, Mary. *Marianne Straub*. Design Council 1984  
 35 Conversations with Marianne Straub between 1984 and 1988 at her home  
 in Cambridge and at the Royal Society of Arts, London.  
 36 Morton was the grandson of Alexander Morton who had woven the double  
 cloth fabrics at the turn of the century, the family firm now being called  
 Edinburgh Weavers. Although Marianne Straub was at Gospels for only  
 nine months in 1933-34 she continued to visit on a regular weekend basis  
 while working at Holywell Mill in North Wales, until Mairet died in 1952.

## Section Two. The Bauhaus and the Weaving Workshops.

### Part One.

- 1 Wingler, Hans. *Bauhaus*. Mit press 1979, p31
- 2 Weimar Staatsarchiv. File 149
- 3 Weimar Staatsarchiv. Proposed budget. Un-numbered file, Gropius papers.
- 4 Minutes: 20-9-1920. Bauhaus Archiv , Berlin
- 5 Minutes: September 1922. Bauhaus Archiv , Berlin
- 6 Weimar Staatsarchiv. File 136
- 7 Anni Albers, 1977. Brooklyn Museum Catalogue. p22
- 8 Weltge. *Bauhaus Textiles*, Thames and Hudson, 1993. p47
- 9 Die Entwicklung der Bauhausweberei. *Bauhaus Journal* 5. 1931. Reprinted in Form und Zweck Issue 3 1979.
- 10 Bauhaus Archiv, Berlin. Typed manuscript, not numbered.
- 11 *Frauen im Design. Berufsbilder und Lebenswege seit 1900* Design Centre, Stuttgart, 1989. A male University Professor officially asked whether it might not be better to alter the title to *Design for Women* not *Women in Design. Careers and Life Histories since 1900*. The remark caused a great furore in the German Design Press. In 1986/87 49.5% of students in West German schools of Design were female, only 11% of the Association of German Industrial Designers were female.
- 12 Bauhaus Archiv, Berlin. Gropius Collection.
- 13 Weimar Staatsarchiv. File 114
- 14 Weimar Staatsarchiv. File 172
- 15 In the monthly workshop reports [Weimar Staatsarchiv.178] Borner increasingly complains of the lack of materials for the students to use.
- 16 Conversation with Marianne Straub . 20-6-1986
- 17 Stölzl. *Das Werk*. 11/1968. In *der Textilwerkstatt des Bauhauses 1919 bis 1931*. Das Werk was the journal of the Swiss Werkbund.
- 18 Alfred Arndt. *Bauhaus Life and its Festivals*. quoted in *Bauhaus 50 years*. Royal Academy Exhibition. p.86
- 19 The evidence we have is one dark photograph of the stall of 1919 and another attributed to 1921, although both appear similar. *Verkaufsausstellung, Galerie am Sachsenplatz. Leipzig. Katalog 2. 29-10-1977 bis 29-11-1977*. These exhibitions in Leipzig between 1976 and 1991 brought together Bauhaus products, photographs and drawings for sale.
- 20 *Verkaufsausstellung, Galerie am Sachsenplatz. Leipzig. Katalog 3*. items
- 21 *Bauhaus. 1919-1928*. Gropius. Secker and Warburg. p141
- 22 Mucbe's farewell lecture was in Architecture.
- 23 Cited in: Dearstyne, Howard. *Inside the Bauhaus*, New York, 1986. p278
- 24 Weltge. *Bauhaus Textiles*. Thames and Hudson, 1993. p46
- 25 Weltge. *Bauhaus Textiles*. Thames and Hudson, 1993. p47
- 26 *Bauhaus Werkstätten* the seventh book in the Bauhausbücher series. Albert Langen Vorlag, Munich. 1925. One could ask why this was the seventh book, considering the economic importance of the workshops.
  - 1] International Architektur von Walter Gropius.
  - 2] Pedagogisches Skizzenbuch von Paul Klee.
  - 3] Ein Versuchhaus im Bauhaus. [Haus am Horn]
  - 4] Die Bühne am Bauhaus [Stage]
  - 5] Neue Gestaltung von Piet Mondrian
  - 6] Grundbegriffe der Neuen Kunst von Theo van Doesburg
  - 7] Neue Arbeiten der Bauhauswerkstätten {Furniture 35 pages, Metal 26 pages, Weaving 19 pages, Ceramics 18 pages
  - 8] Malerie ,Photographie, Film von Moholy-Nagy
- 27 There are only two examples of printed geometric patterns which is surprising considering that the technical demands for printing are less than those for constructed textiles. In addition printed textiles would have related more easily to fine art practice. At the Berlin Bauhaus printed textiles are produced under the direction of Lilly Reich.
- 28 Worst. *Foot Power Loom Weaving*. Fifth Edition. Chapter IX
- 29 *Das Werk*, 11/1968. p745
- 30 Royal Academy of Art. *50 Years Bauhaus* . 1969. p317



- 31 *Das Kunstblatt*, 1923. Cited in Whitford. *The Bauhaus: Masters and Students by Themselves*. Conran Octopus, 1992. p151
- 32 *Vossische Zeitung*, Sep 20, 1923. "Eindrücke von der Weimarer Ausstellung". Bauhaus Archiv, Berlin
- 33 Weimar Staatsarchiv. File 58.
- 34 Weimar Staatsarchiv. Helen Börner Correspondance to Gropius. File 114.
- 35 Weimar Staatsarchiv. Files 114,41
- 36 Weimar Staatsarchiv. File 114
- 37 Cited in Whitford, *Bauhaus*, Thames and Hudson, 1984 ,page 209
- 38 Bauhaus journal. Volume One, number one, 1926. Bauhaus Archiv Berlin
- 39 Naylor, Gillian. *Bauhaus Reassessed* Herbert Press 1985 .p153
- 40 Mucbe became a Direktor at the Krefeld Technical School. "Alone of those in Germany, Georg Mucbe, who since 1938 has been director of a master class at the Textile Engineering School in Krefeld, has succeeded in continuing the practical and pedagogical work of the Bauhaus. He was now the leading artist of the international textile industry in Krefeld and nevertheless, through his great fresco works, he also carried an architecture problem of the Bauhaus, the decorated wall, to an independent solution." Quote by Mucbe's friend Schreyer in Dearstyne.p127.
- 41 Bauhaus Archiv, Berlin .Stölzl, *Bauhaus Journal* . July 1931
- 42 Bauhaus Archiv, Berlin. *Offset, Buch und Werbekunst. Journal 7*. Leipzig 1926
- 43 Klee. Weimar Staatsarchiv. File 46
- 44 Wingler, *Bauhaus*. MIT Press. p461
- 45 *Offset, Buch und Werbekunst*. 1926
- 46 *Vivos Voco. Journal 5* .Leipzig. 1926
- 47 Bauhaus Archiv , Berlin. Meyer's letter of resignation.
- 48 Bauhaus Archiv, Berlin. Un-numbered letter filed by Droste.
49. The bedcovers were in an unidentified synthetic fibre and there is one extant example in a private American collection. Ex.Cat. *The Bauhaus Weaving Workshop: Source and Influence for American Textiles*. Philadelphia College of Textiles, 1988. It is interesting to see photographs of the student accommodation where these doublecloth covers have been replaced with 'Peasant style' covers. Were they unsuitable? Did they wear out, become burnt by cigarettes or were they sold? [*Bauhaus Photography* .Marzona] See figures 69 and 70.
- 50 Weimar Staatsarchiv. File 117
- 51 Bauhaus Archiv, Berlin. Anni Albers woven samples. It is interesting to note here that Albers selected her own fabric samples for inclusion in the archive. According to Magdalena Droste Albers rejected some which Grote and his team had assembled.
- 52 This also occurs with Josef Albers work from the same period. For this investigation the sources for the dates and titles of work by Anni and Josef Albers are the Smithsonian Institute, the Josef Albers Foundation, and the Bauhaus Archiv, Berlin.
- 53 Weltge. *Bauhaus Textiles*, Thames and Hudson. 1993. p 94.
- 54 Most books which deal with Bauhaus textile design emphasise the originality of woven structure. The structures themselves were not original: it was the use of new materials and fitness for purpose which made the textiles appear as new woven structures.
- 55 There are two points to consider here. One that these textiles are seen as one-off art objects compared to the industrial production weaving. Secondly that the concept of ready made and multiples becomes a concern for artists in the 20th century.
- 56 Conversation with Droste 26-5-1994. Bauhaus Archiv, Berlin
- 57 See Albers letter to Stölzl- "many variations"
- 58 The products of the workshop were sold either to the general public or occasionally to the students. Albers' parents in Berlin bought some of her weavings. Weltge p95. There seems to be no record of these.
- 59 Stölzl. *Offset, Buch und Werbekunst*. 1926.
- 60 During this period a fabric incorporating Eisengarn, a shiny patent thread developed for military belts and bootlaces, was developed to upholster

Breuer's tubular steel seating. While there had been many attempts to weave strips for Breuer's' chair the right amount of elasticity to support the body and provide comfort had never been possible. In 1923 ,when Breuer and Stölzl were students, Stölzl had woven strips directly onto the frame but the take up in the weaving made this unsatisfactory. The successful solution was to use woven braids of horsehair in different widths and then attach them to the frame. This successful collaboration is little documented, Stölzl rarely being credited with her contribution.

- 61 Hildebrandt. *Die Frau als Künstlerin* . 1928. p25.,42  
 62 Anni Albers. *On Designing*. p 31  
 63 *New York Times*, August 25, 1985  
 64 *Frauen in Design* . p192. Essay by Magdalena Droste.  
 65 Winger's *Bauhaus* has a total of 658 pages. The pages devoted specifically to all the workshops in Weimar, Dessau and Berlin number 423. The weaving workshop in Weimar has 8 pages, one complete page is given to Guntha Stölzl and 8 pages for the Dessau weaving workshop . The majority of remaining space is dedicated to the preliminary course, typography, theatre and the work of the painters. Even the bookbinding workshop which ran for around one year has more space devoted to it than the weaving workshop.  
 66 In comparison the Gobelin technique, which can incorporate abstract imagery and colours, remains a hand technique which cannot yet be machine woven.

### Part Two. Beyond Bauhaus Experience.

- 1 *The Woven and Graphic Art of Anni Albers*. Smithsonian Institute, Washington D.C. 1985. p13  
 2 *The Woven and Graphic Art of Anni Albers*. p108  
 3 *The Woven and Graphic Art of Anni Albers*. p6  
 4 *The Woven and Graphic Art of Anni Albers*. p8. Philip Johnson was the Curator of Architecture at MOMA, New York, and became a juror for the textile exhibitions held there.  
 5 Smithsonian Cat. p104. Other titles of newspaper articles followed- *It's Art Baby*. Philadelphia Evening Bulletin. Sep,27,1946, *Anni Albers: Power Behind the Loom*. Interiors. Oct 1949 *Anni Albers; Her Woven Pictures Hang By A Thread*. Houston Chronicle. Feb 7 1960 *Off the Loom, Onto the Press* . New York Times. Sep 30 1977  
 6 *The Woven and Graphic Art of Anni Albers*. p 87  
 7 Larsen. *beyond craft: the art fabric*. Van Nostrand Reinhold.1973. p24  
 8 Lloyd. Director of Renwick Gallery, quoted in *The Woven and Graphic Art of Anni Albers*. p12  
 9 *Anni Albers:Pictorial Weavings*. New Gallery, Cambridge, Mass.1959. p57  
 10 *The Weaver*. Volume6, July 1941.  
 11 Weltge. *Bauhaus Textiles*. p165.Author's conversation with Lindenfeld.  
 12 Weltge. *Bauhaus Textiles*. p172.Author's conversation with Lindenfeld.  
 13 *Bauhaus 1919-1928*, Herbert Bayer, Walter Gropius and Ise Gropius, Charles Branford Co., Boston.1952 edition. The seventeen textiles illustrated are as follows:-  
 Anni Albers.1] Double woven wall hanging, silk,1925 .[This piece, however, appears to be the gobelin *Untitled wall hanging,1925*. fig. 77. The double cloths were not woven until 1926 onwards.Was this a misprint?- incidentally, still uncorrected in the 1984 edition.]2] Tapestry Red and yellow silk, 1927. 3] Woven rug 1927. 4] Knotted Smyrna rug, 1925.  
 5-12] Samples of drapery material.  
 Otti Berger: Two Knotted rugs and one cellophane and cotton sample.  
 Guntha Stölzl: One coat material and one curtain material.  
 14 *Bauhaus 1919-1928*, . p 141  
 15 Winger. *Bauhaus*. MIT Press.1969 p465  
 16 *Anni Albers:On Designing*, Wesleyan University Press, Connecticut,

1962. p50
- 17 *Anni Albers:On Weaving*. Wesleyan University Press, Connecticut, 1965 p21
- 18 *Anni Albers:On Weaving*. p19
- 19 Albers never used these herself.
- 20 *Anni Albers:On Designing*,. p47-48
- 21 Weave notation for doublecloth can be difficult to understand and as a student one would normally start with a plain weave interchanged doublecloth with equal fabric on the face and back, exactly the structure that Albers used.
- 22 *Anni Albers:On Weaving*. p47-52
- 23 Kaufmann. *What is Modern Design?* New York. 1950.
- 24 *The Woven and Graphic Art of Anni Albers*. . p25
- 25 *Anni Albers:On Weaving*. Designing as Visual Organization. p76
- 26 *Anni Albers:On Weaving*. Designing as Visual Organization. p77
- 27 *Anni Albers:On Weaving*. p51
- 28 *The Woven and Graphic Art of Anni Albers*. p 26
- 29 *Anni Albers.Drawings and Prints*. The Brooklyn Museum.Ex. Cat. p 67
- 30 *Anni Albers.Drawings and Prints*. p 7
- 31 *Anni Albers.Drawings and Prints*. p 8
- 32 *beyond craft:the art fabric*. p74
- 33 *Fabrics International 1960*. Catalogue for the travelling exhibition. p5
- 34 *Anni Albers:On Weaving*. p47
- 35 *Anni Albers:On Designing*,. p 64
- 36 Conversation with Magdalena Droste, Berlin . May 1994.
- 37 Isaacs 1991. p94 Cited in Weltge p99. :Bauhäusler marriages:
- |                 |                  |                        |
|-----------------|------------------|------------------------|
| Helene Nonné    | Jost Schmidt     | Helene Nonné-Schmidt   |
| Guntha Stölzl   | Arieh Sharon     | Guntha Sharon-Stölzl   |
| Anni Fleischman | Josef Albers     | Anni Albers            |
| Ruth Hollos     | Erich Consmüller | Ruth Hollos-Consmüller |
| Martha Erbs     | Marcel Breuer    | Martha Erbs-Breuer     |
| Benito Otte     | Heinrich Koch    | Benito Koch-Otte       |
| Gertrud Hanschk | Alfred Arndt     | Gertrud Arndt          |
| Katje Schmidt   | Hajo Rose        | Katje Rose             |
| Lena Bergner    | Hannes Meyer     |                        |
- Bauhausler Relationships: Lilly Reich Mies van der Rohe
- 38 *Tapestries, Sculptures, String Compositions*.Exhibition Catalogue. Manchester, New Hampshire, 1956
- 39 Hurlimann was later to join the teaching staff of the Zurich Textile School where Marianne Straub was a pupil
- 40 *Stölzl:Weberei am Bauhaus und am eigener Werkstatt*. Bauhaus Archiv, Berlin. 1988 .This catalogue affirms Stölzl's reputation as one of the great est weavers this century. The designs for textiles are at times complex and varied, at other times constrained and severe.
- 41 Bauhaus Archiv, Berlin. Letter of reccomendation 9 Sep,1930.
- 42 Bauhaus Archiv, Berlin. Un-numbered document.
- 43 *50 Years Bauhaus* has two illustrations of Albers double cloth hangings. One is titled *Black-white* with no date,[cat.no 405] the second a wall hang ing *Black, white, grey and yellow*, with no date.[cat.no 408]. In the cata logue descriptions, unfortunately not illustrated, there are two double weave hangings by Arndt [cat.no 409 and 410], two curtains in doublecloth by Kadow [cat.no 460 and 468],a curtain by Stölzl [cat.no 448] and five upholstery doublr cloths dated 1926-1927 [cat.nos 428, 429, 430, 437, 454].
- 44 Wingler. *Bauhaus*. Pages 98-101 give a detailed account of the property rights of the metal workshop, weaving workshop, cabinetmaking workshop, and Ceramic department in 1925. No such documentation appears to have existed in the GDR.
- 45 *Stölzl:Weberei am Bauhaus und aus eigener Werkstatt*. Bauhaus Archiv, Berlin, 1987. p93
- 46 *Weimar Kultur-journal*. June 1992. Hans Wagner, her partner, had been a student at the Bauhaus, but no evidence of his career exists.
- 47 *Bildende Kunst*. Issue 11 1986

- 48 Galerie am Sachsenplatz, Leipzig. *Bauhaus 3*. p 72,73,81,83  
 49 Whitford. *Bauhaus* . 1985 p199  
 50 Grete Reichardt leaflet issued by Erfurt Museum, 1994  
 51 Kleiderstoff, Seide and Kleiderstoff Seidenbrokat, both 1962  
 52 *Von Hand Gewebt*. Ursula Kircher. Hitzeroth, 1986. p267  
 53 Ship/Nave of the Church. Schiff meaning both ship and nave  
 54 Stölzl dissolves her handweaving business in 1967, aged 70. In her retirement she devotes herself to weaving only tapestries.

### Section Three. Towards a Contemporary Practice in Britain.

- 1 *Hand Weaving Today*. p112  
 2 Pevsner. *Industrial Arts in England* .1937. pages 46-47  
 3 *Design Since 1945* . Catalogue published by Philadelphia Museum of Art, 1983. Editors Hiesinger and Marcus..p175  
 4 Most of the students were already aware of the doublecloth hangings of Albers, but not her later work and surprisingly only a few students from the group followed up the reading list to explore the background further. This was later explained by the students to be due to lack of time as the task of understanding doublecloth, then designing and making samples was a greater workload than most projects.  
 5 Conversation with Straub, 4-12-1985.  
 6 *Dessau Bauhaus-principles of Bauhaus production* published by the Bauhaus in March 1926. Dessau Stadt Archiv  
 7 The role of specialist technical staff is crucial in practical art and design education. The technicians are generally available for most of the workshop time to support the students in their practical activities, In particular, where a textile technician has been trained in industry the help can be extremely informative and supportive to the design process, allowing the student to consider options and alternatives beyond aesthetic considerations.  
 8. Art and Design Admissions Registry.[ADAR].Application statistics for BA textiles:  
     1992:386 males, 5518 females. Accepted 871.  
     1993:455 males ,6407 females. Accepted 1039.  
     1994:416 males, 5979 females. Accepted 1161.  
 In Fine Art an almost equal balance indicating that opportunities for women have changed in this area:  
     1992:6779 males, 6759 females. Accepted: 2115.  
     1993:6674 males, 6835 females. Accepted: 2250.  
     1994:6639 males, 6207 females. Accepted: 2195.  
 No gender breakdown of acceptances available for any ADAR course.  
 9 *the new textiles* Chloe Colchester Thames and Hudson, 1991  
 10 The second World War had a direct bearing on the production of heavy overcoatings in post war civilian life. The duffle coat was invented by the Royal Navy using heavily felted single fabric allowing the wearer more mobility. The leather coat and kapok stuffed jacket were used by the Royal Air Force instead of overcoats. Sweaters of all kinds were increasingly worn by both sexes to conform with a more casual informal fashion style.[Laver,James *A Concise History of Costume* Thames and Hudson 1977 p258-259] Police capes had always been made from a doublecloth fabric but again new uniform styles and the introduction of the Panda car in the 1960's made the concept of a warm waterproof garment redundant.  
 11 Crolla, Dover Street. Black and white tapestry waistcoats reduced in sale from £38 to £25; blue and green tapestry jackets reduced from £150 to £80. January 1987.  
 12 Marianne Straub lecture "50 Years a Weaver" at Holburne Museum, Bath. 16 November 1984.  
 13 Conversation with author. July 1985  
 14 Straub letter to author 6-9-1986  
 15 Conversation with William Morrell, Head of Textile Department, Manchester Polytechnic, 27 Feb 1986

- 16 Bauhaus Archiv, Berlin has sample swatches of the Cassina fabrics.  
17 In 1982 Arai had met the freelance designer, Reiko Sudo a trained weaver, and they established the Nuno Corporation in Tokyo, which aimed to incorporate Japanese weaving techniques with the latest technology and new ways of working.
- 18 Coren, Leonard *New Fashion in Japan*. p70  
19 Hand and Technology Exhibition Catalogue, Tokyo, 1992. p34. Arai was born in Kiryu, a traditional craft weaving area of Japan, which specialises in high twist yarns. His father was a weaver and his grandfather a spinner which accounts for his knowledge and understanding of the craft: Arai acknowledges that he is much inspired by Peruvian textile masterpieces as he is by new textile manufacturing technologies.
- 20 *New Fashion in Japan*. p 21 Lecture given by Arai. Bradford International Textile Festival. 7 April 1990.
- 22 By breaking rules in weaving Arai has succeeded in something that had been deemed impossible: weaving wool textiles by Water Jet, an automatic loom which normally weaves polyester filaments at a super-high speed.
- 23 A split film yarn is made from cutting a sheet of vinyl or plastic into one continuous strip, thus forming a 'yarn' which is not spun in the traditional manner. This cutting up of sheet material, usually paper or gold and silver leaf, is a traditional Japanese way of forming a long strip to weave into a fabric.
- 24 The catalogue forward by Akira Yokoe, president of the Arai Creation System, summarises Arai's contribution to weaving: "Arai played and experimented with the industrial properties of metallic fibres, eventually shaping a new vocabulary in weaving which continues to defy the imagination; the slit-yarn and the computer aided jacquard cloth. The resulting creations are the fruit of a harmonious combination of creativity and bold experimentation with materials, and for Arai, the stuff dreams are woven of."
- 25 Sutton and Sheehan *Ideas in Weaving*. Batsford. 1989. p8.j128  
26 For women the opportunity to combine new technology and design is harder: the new technology is seen to be controlled and operated by males. Computer programmes may be user-friendly but are "friendlier" to men. Quark Express, for example, uses cycling and football images in the practice document and photo bank. While it could be argued that these are not specifically male themes they can be irritating. The computer programmers responsible for writing Quark Express and Photoshop being used for this dissertation are all male.

## **Appendix One**

**Doublecloth:Definitons, Weave Notation.**

**Industrial Applications.**

## **DOUBLECLOTH DEFINITION.**

The technique of weaving doublecloth has changed little since the turn of the century but the terminology changes from decade to decade. It is perhaps this diversity of names which prevented the technique from acquiring the same coherence and credibility as other textile techniques as, for example, tapestry. Considering all known published sources on doublecloth it is my view, for the purposes of this research, that doublecloth is two separate layers of cloth woven simultaneously on the loom bound together by different binding systems.

The interpretation associates with the following authors:-

**EMERY, IRENE. *THE PRIMARY STRUCTURE OF FABRICS.* Textile Museum, Washington, 1966**

p155 tubular weave ,tubular doublecloth

double width weave [the construction is double, not the finished fabric]

p156 **DOUBLECLOTH WEAVE**

If one set of warps is interlaced by one set of wefts to form one fabric structure while separate sets of warp and weft are being interlaced to form another, two distinct layers of fabric are produced simultaneously. The two are not physically discrete but may [although they seldom do] have different weave structures; and inasmuch as each has its own separate sets of warp and weft, the layers can also differ from each other in color and/or texture. Interchanging the two by bringing the elements from the back of the fabric to the face and interlacing them there, while interlacing those from the face on the back effects an interchange of colours [or textures] and provides the means whereby two-color patterning of almost any degree of complexity can be produced. The movement of the correlated warp and weft sets from one face to the other also serves to bind the two simple structures into one compound fabric, making it incontrovertibly double cloth.....

Plain weave is much more commonly used for doublecloth than any other weave and it is sometimes assumed to be characteristic of the doublecloth structure,

although twill is occasionally used.....

In still another variety of double woven fabric-sometimes described as "stitched"-the two separate cloths are interconnected at intervals either by a fifth set of elements or by the weaving of certain warp [or weft] elements from one fabric to another, rather than by complete interchange of the two. It is to these varieties that the term doublecloth as used in the textile industry often refers.

NOTE: that triple cloth is a more complex weave based on the same principles as doublecloth. It has a third matching combination of warp and weft sets and a third woven cloth lying between those which form the two faces of the fabric. However the use of three sets of weft does not necessarily produce a complete triple-cloth. In many instances, although each warp set is interlaced only by its own weft set, it is only the face and reverse cloths that are complete [in some, just the face]; and warp and weft sets not in use on either face are carried unwoven between the two layers of fabric.

**GEIJER,AGNES. *A HISTORY OF TEXTILE ART.***

**Sotheby- Parke -Bernet, 1979**

According to current international practice [CIETA:ChapterXVII] the term "double weave" denotes various types of fabrics consisting of two separately woven layers which can be of different binding systems and may be linked together by stitching ties.

In Scandinavian tradition the term "dubbelvav" has a more specialised meaning,exactly equivalent to the English term "pick-up doublecloth" and the French "taffetas double-etoiffe faconne".

Scandinavian 13C wool and linen 1400-1600. Folk Art in Sweden,Norway, Finland.

Also Ancient Peruvian, Persian silks from c.1600

p254 There are two varieties of medieval doublecloth, the main difference between which concerns the technical execution of the colour change. The oldest type is composed of a layer of white linen forming an irregular design against the



The repertoire of patterns includes knots and interlace motifs together with swastikas and geometricized animals.....The blue and white hanging from Grodinge introduces a newer type of doublecloth, which was to be long lived. The decorative pattern of fabulous beasts on chequerboard squares is a stylistically skillful simplification of the well known Persian-Byzantine kind of silk designs consisting of various animal motifs, generally in frames, circular or angular.

.....court inventories for the Vasa period, which in detail account for many two-coloured weaves, mostly identifiable with our double cloth and termed "Russian" or "Finnish" weaves.

**WILLIAMS, MURPHY. *THE TEXTILE INDUSTRIES***

**1910 London. Volumes 6 and 7 of 8 Volumes**

p130: four main classes of doublecloth

- 1 two cloths: identical in pattern and quality
- 2 cloths different in pattern, equal in quality
- 3 cloths different in quality, identical in pattern
- 4 cloths differing in quality and pattern

p17 Doublecloth carpets"Kidderminster, Scotch, Kilmarnock, Ingrain Art Square, brought to Kidderminster during the latter half of the 17th century by French refugees, a coarse doublecloth, woollen weft on worsted warp.

**WILLIAMS, MURPHY, *MODERN DRAPERY AND ALLIED TRADES,***

**London, 1914**

p43 Doublecloth with the same counts of yarn on the face and back, besides doublecloth with thicker counts of yarn on the back than the face. In compound cloths carrying two qualities of yarn, the best yarn is always thrown to the face, leaving the inferior yarn to form the binding agent and to appear only on the back. This improves the appearance and handle of the cloth, and at the same time effects a very important economy.

p216-217. Doublecloth. Technically all cloths which are woven with more than one warp or more than one weft are doublecloths, and the classification is correct,

because the faults to which backed, faced and true doublecloths are subject come from the same source. Either the yarns combine badly or the patterns of face and back do not coincide. In true doublecloths the cloth buyer has to take note both of the harmony of the patterns and of the stitchings which join the cloths. These are problems which primarily concern the cloth designer, and we do not enter minutely into details; but it is wholly in the interest of the cloth buyer that he should be aware of the possible defects and the factors which cause them. Doublecloths ought to lie so compactly as to seem only single cloths, and any slackness or puckering visible should be checked at once. It may be accidental, but there is every probability that it is inherent in the structure of the fabric.

**BARKER, A. F. *TEXTILES*. Constable and Co. 1920**

p178. Doublecloths or treble cloths for figuring or adding weight or both. Kidderminster, Scotch or double structure carpets.

p257. A special form of Jacquard loom to facilitate the figuring of these goods was also a natural outcome.

**BEAUMONT, ROBERT. *DRESS, BLOUSE AND COSTUME CLOTHS***

**Constable and Co 1921**

p431 Compound structures;- double-plain, double-prunelle, double cassimere, double-sateen

p435 The author points out the difference between the heavier descriptions of doublecloth and that "in the dress trade it is adapted to the production of light and even flimsy textures by using the correct yarns and sett." He also recommends the double-plain weave for "clearness in the design features" and explains why this is used in the "production of reversibles in cotton, worsted and silk goods". These reversibles were two sided and for making up into garments offered certain advantages as both sides were equally usable. This led to an increased use of doublecloth fabric in the fashion trade, where the "trimmings of the dress as in collar, cuffs, etc showed the different, yet toning, reverse side of the fabric used

for the dress.

**PITMANS TEXTILE EDUCATOR. LONDON 1927**

p1132 The doublecloth structure is largely used for fabrics in which the face and back are widely different in colour and style; they may be different in weave, structure, sett quality, type of yarn and finish. Typical fabrics are reversible overcoatings and reversible rugs, both generally made with styles differing considerably on face and back.....Double plain weaves are a common type of structure used in woollen and worsted goods. Instead of the usual stitching of doublecloth structure, these fabrics are stitched by interchanging, that is, some or all of the threads in one direction work alternately on the face and then the back. Figured doublecloth has a pattern effect produced by interchanging the backing weft and causing it to float on the face to form a figured spot. Alternatively the back warp and weft can be interchanged to produce a spot or small pattern on the face.....a tubular class of doublecloth for hose pipes, bags and pillow slips which account for a large production and lastly 'Marseilles' cloth also known as Manchester Piece Goods.

**P1336 MARSEILLES [MANCHESTER PIECE GOODS]**

An expensive fabric to produce, in imitation of fabrics made in India and the Near East, where the natives placed one perfect piece of cloth over another with a layer of wadding between, and then stitched the whole together by hand. This produced a heavy material, the stitching was done to some form of design such as a diamond; where the cloths were not stitched together a bulge appeared. The Marseilles cloth made in Manchester is woven on a special loom fitted with jacquards and healds. The principal is that two equal plain cloths are woven together, with a padding weft between, and a jacquard stitches the cloths together in an arranged design. Where no stitching appears, the face cloth will bulge owing to the padding weft pushing it up.

p1204 The tubular class is a large class as far as production goes for hose pipes,

bags, pillow-slips etc. These fabrics are woven on the loom as two distinct cloths, each having its own warp and weft and an equal number of ends and picks, being united only at the edges, where the weft turns back. Bags and hose pipe fabrics are specialities and are usually woven by firms that deal in this class only. Pillow slip cloth is another speciality. It is not a fabric that invites demand because of the difficulty that arises in correcting faults. Should any fault occur in the bottom fabric it may damage much cloth before it is discovered.

**WRIGHT, R.H. MODERN TEXTILE PRODUCTION, London 1949**

p62 The resulting extra weight from a compound structure such as doublecloth is a direct asset to give draping qualities.

**BURNHAM, DOROTHY K. WARP AND WEFT. A TEXTILE TECHNOLOGY.**

**Watson Guptill 1962**

**DOUBLE WEAVE**

French	double-étouffé
German	Doppelgewebe
Italian	tubico
Portugese	tecido dupo
Spanish	doble tela
Swedish	dubbelväv

**OELSNER, G.H. HANDBOOK OF WEAVES. Dover Publications. 1952**

p267 regular double fabric, double plain, plaid backcloths, army tricot and army diagonal, heavy overcoating known as double satin, president and Eskimo cloth, beaver cloth, double cloths with stuffing threads

p283 three or more ply cloths, cloaking fabrics

**REGENSTEINER, ELSE. THE ART OF WEAVING. Van Nostrand Rheinhold. 1970**

Chapter 6. Double weaves. Tubular double weave. 2,3,4 layered fabric  
 Double weave with pick-up design, double weave twills  
 stitched twill-shawls called "Ruanas" from South America

**KORNREICH.E . *AN INTRODUCTION TO FIBRES AND FABRICS*.1952**

p75 Carpets.”....some which are merely woven on the doublecloth principle [Kidderminster, Scotch or Ingrain, the latter however being of little importance.”

**KIRBY,MARY. *DESIGNING ON THE LOOM*,**

**Studio Publications, London and New York.1955**

Doublecloths are an important group of basic cloth structures with three main types: double weft ,double warp and true doublecloth. They are used in building up a thick woollen fabric for travel rugs or overcoats.

**MILLER. EDWARD. *TEXTILES-PROPERTIES AND BEHAVIOUR*.1966**

p102 The cost of producing complex fabric structures has already been mentioned as a stimulant to development of cheaper and quicker processes....The production of double cloth structures is difficult and expensive, based on the erroneous idea that fabric warmth is entirely a matter of weight. One of the important warmth factors of a textile material is the amount of air which can be trapped in the texture of the material, and this would seem to be more important than sheer weight...

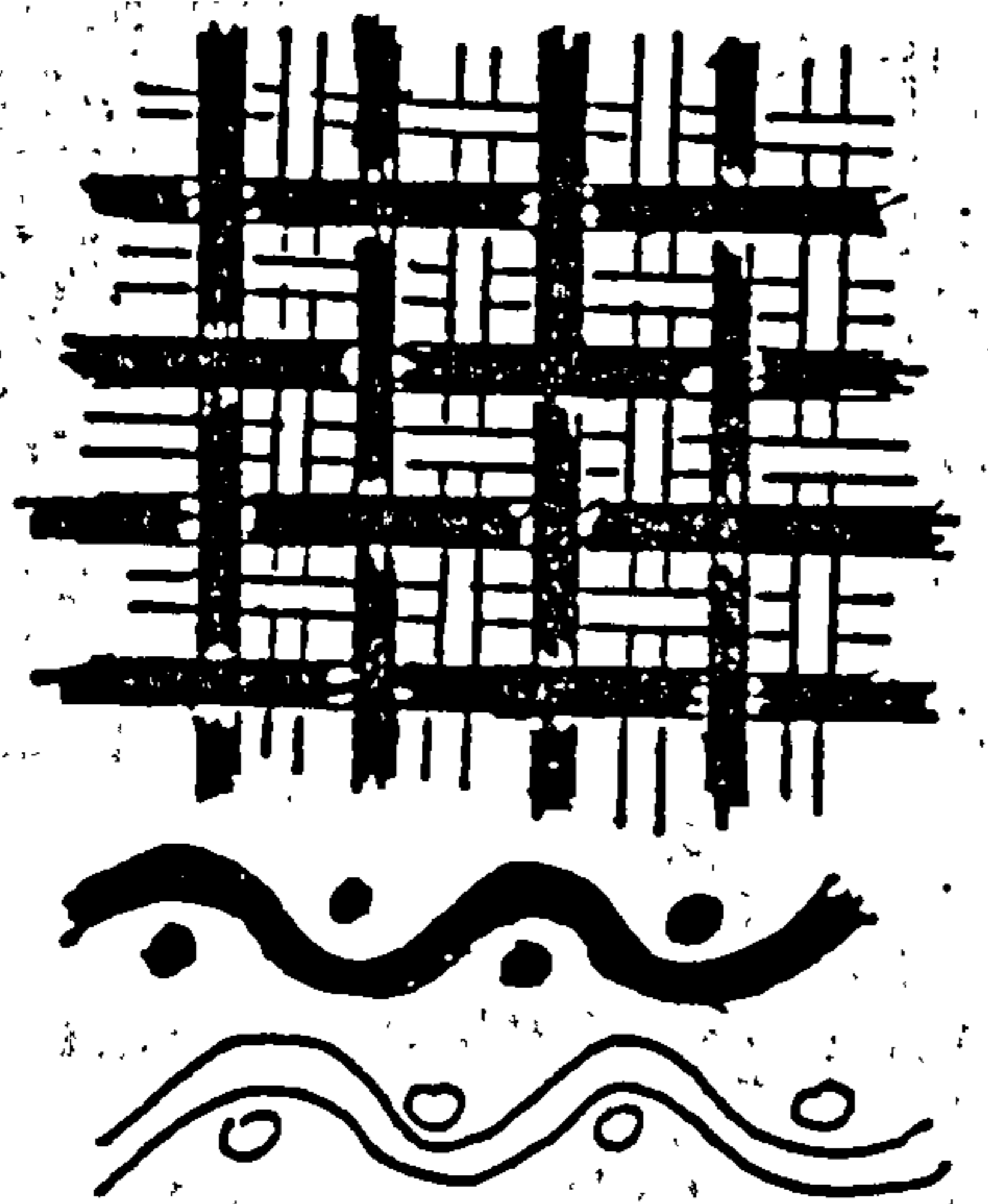
The practice of foam backing increased rapidly as a low priced method of adding warmth and thickness and unfortunately some early methods of foam attachment left much to be desired in the way of durability and dry cleaning resistance. Making-up techniques had to be modified to cope with the extra thickness and loss of draping qualities, neat seams being extremely difficult to produce and the rounded bell-tent outline of a garment difficult to avoid. However, methods of adhesion have improved and thinner sheets of foam are now used so that the major making-up and durability difficulties have been overcome. The addition of foam to a fabric also increases the stability of a fabric, and it was found that knitted fabrics in particular were easier to handle after foam-backing.

It was then found that a thin layer of foam could be used to bond two fabrics together, by the use of heat, forming a triple laminate with the foam inside or, by

using a very thin sheet of foam which virtually disappeared, being used entirely as an adhesive to fix the fabrics together. Fabric laminates are not in themselves new- Mackintosh produced his now famous rubber and fabric laminate in 1823- but until fairly recently they were only of limited clothing use because the method of lamination detracted from the handle and drape of the fabrics concerned. Special adhesives have now been developed which enable fabrics to be durably bonded without any noticeable effect on handle and drape, and these are used perhaps more than the foam method mentioned above. Bonding of fabrics now offers a cheap and easy method of improving the stability of fabrics such as single jersey by bonding two together. Loose open weave novelty fabrics can be stabilised by bonding them to a light warp-knitted or plain woven fabric. Lace fabrics can be attractively backed and stabilised by bonding; rough, prickly materials can be bonded to a soft comfortable lining. Linings and backings of various types can be bonded to face fabrics, simplifying making-up and enabling reversible styles to be produced. It is not claimed that bonding will solve every fabric problem but it is without doubt that it has simplified and made cheaper many problems of fabric use and combination. It is certainly cheaper to bond two fabrics together than to knit or weave a double structure, and where previously an unstable fabric was difficult and costly to make up and questionably durable in wear, bonding would seem to offer an effective solution.

### **DOUBLECLOTH: Weave Notation.**

The simplest type of doublecloth is composed of two sets of warp threads and two sets of weft threads, woven one above the other in plain weave. One warp and weft forms an upper or face fabric and the second warp and weft forms an under or back fabric.



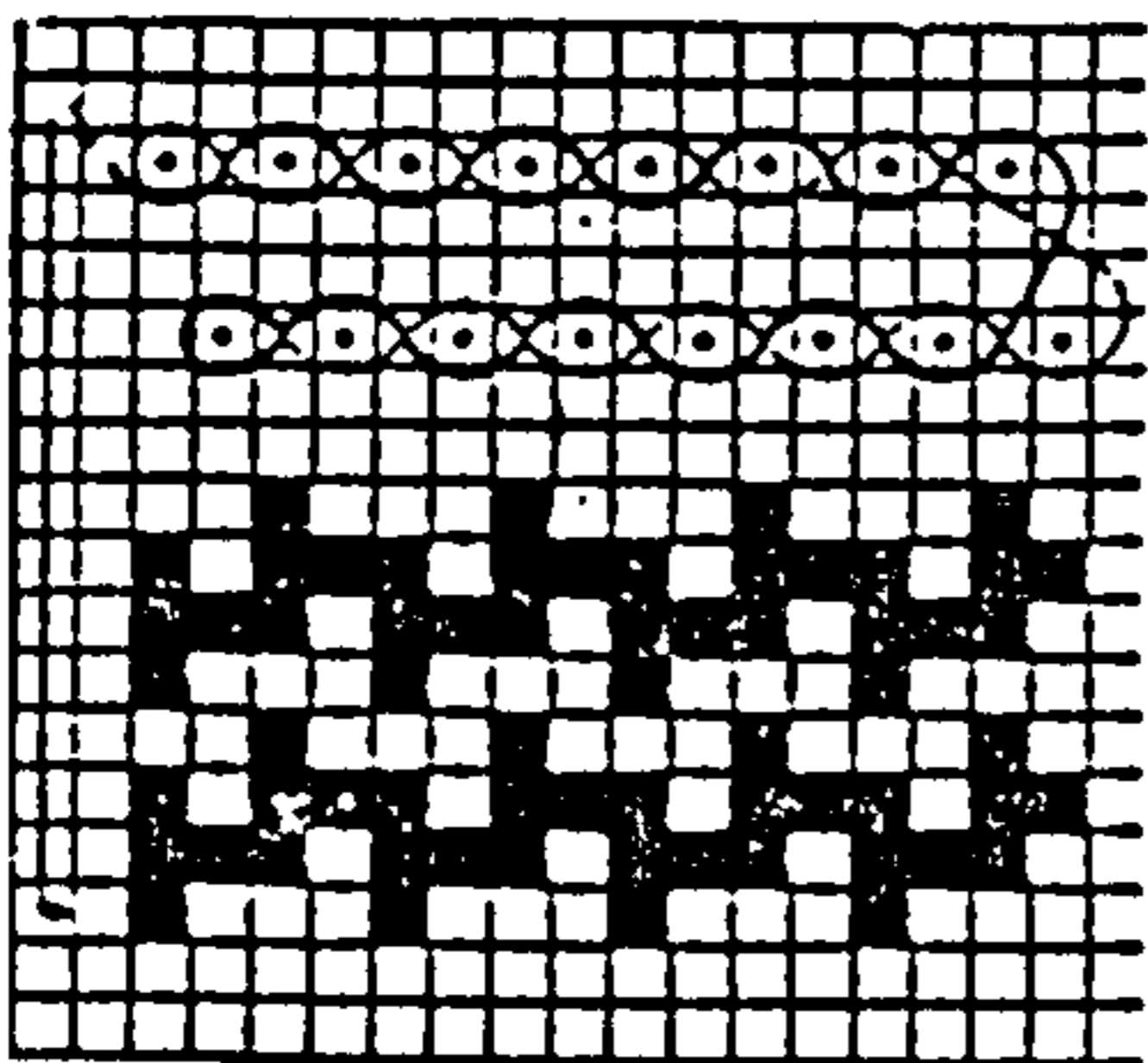
*Double plain fabric. Threads arranged one face and one back in warp and weft.*

The construction is used for several reasons, often in order to make a bulkier, stronger or warmer cloth; to make a reversible fabric; or where a fine face fabric is necessary with a stronger, cheaper backing fabric. Decorative possibilities occur particularly in interchanged doublecloth where the two sets of threads can produce intricate effects by contrasting solid colour or texture.

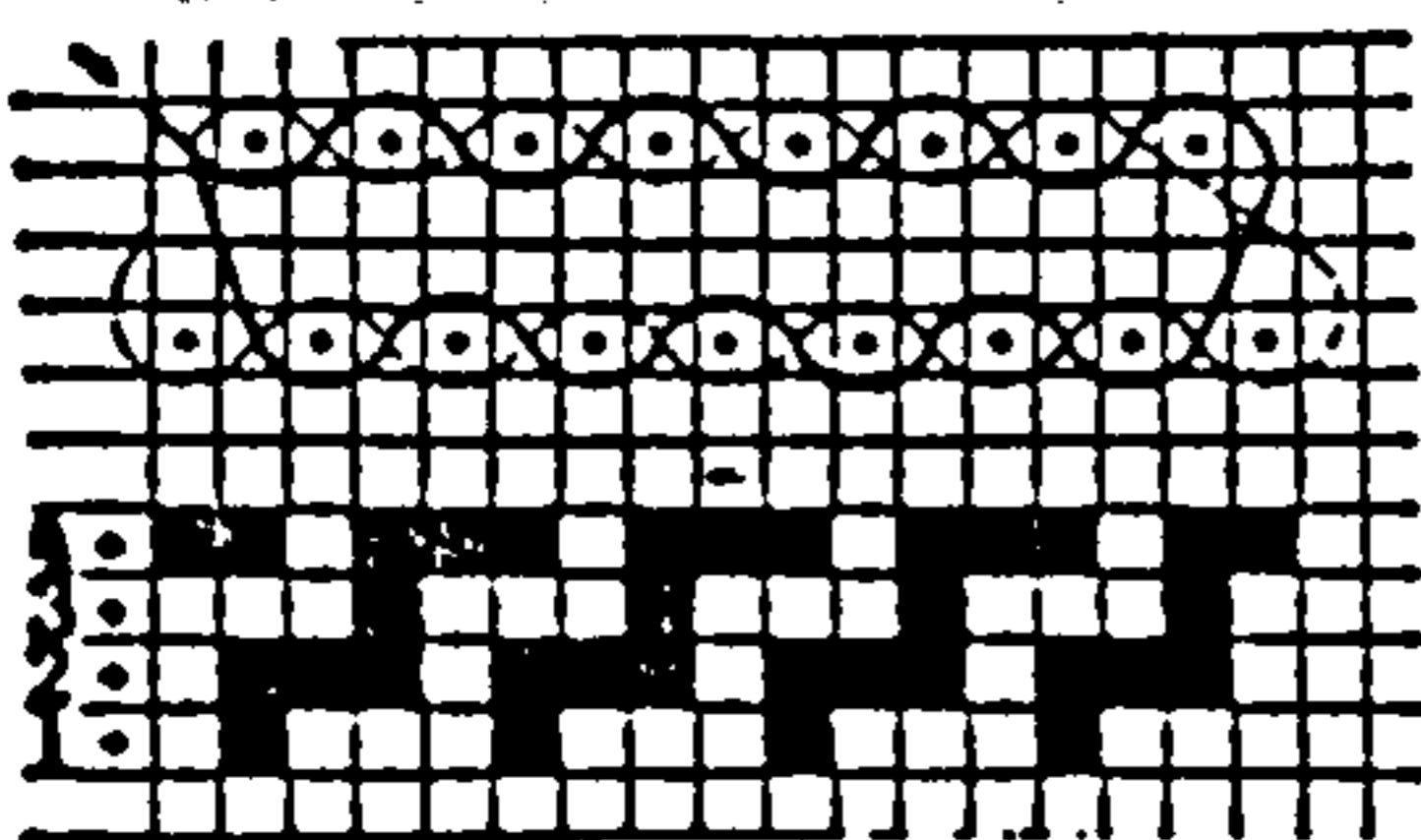
### Joining the Fabrics Together.

Doublecloth fabrics can be woven so that they remain separate on the loom and would fall away from each other completely. This technique may prove useful if two identical weft striped cloths were needed.

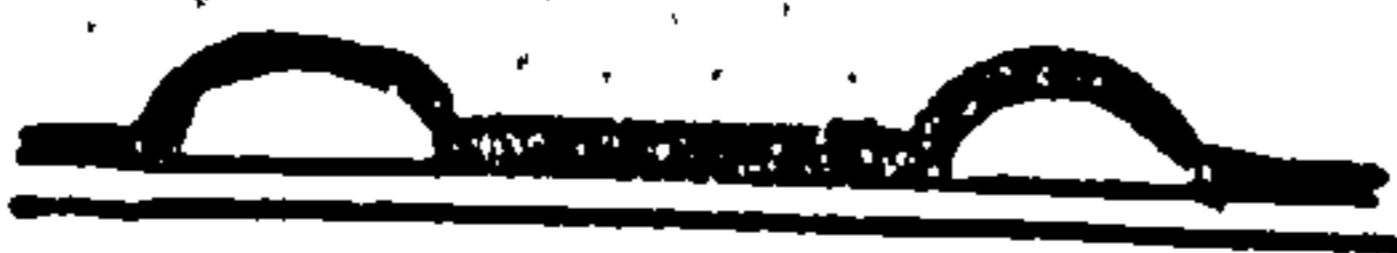
A double width fabric can be woven by joining the weaving on one side with a single weft crossing from the upper warp to the lower warp. (Note: two separate wefts can be used if they are twisted around each other at the one selvedge.



For a tubular cloth the two layers are joined at both sides by the weft or wefts] which pass alternately through the top and bottom warps making a continuous circle.

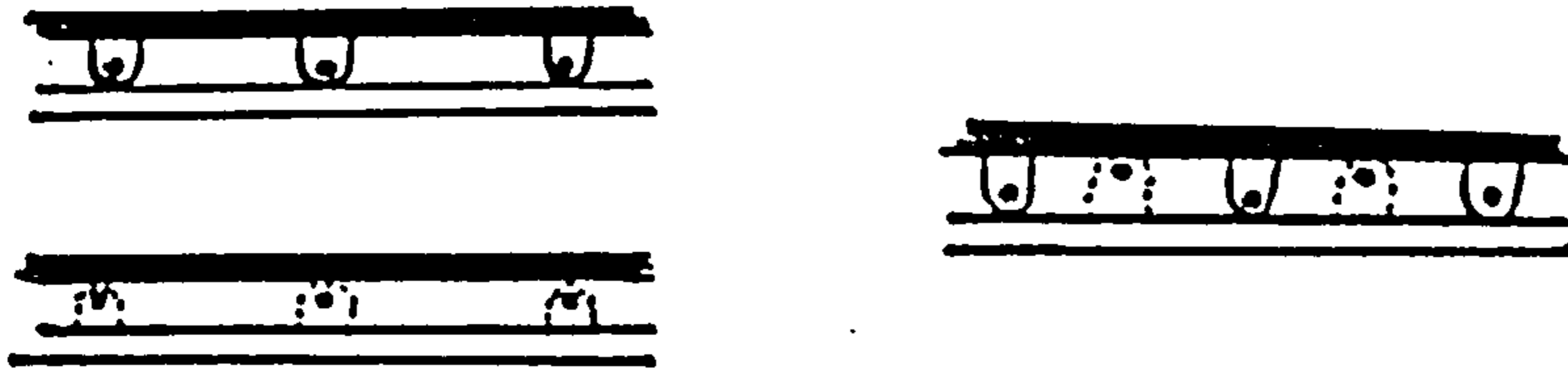


Doublecloth and single cloth can be combined to form areas of doublecloth on a firm single cloth ground. The two cloths are occasionally merged together into a heavily set single cloth. Usually the effect depends on distortion as the crammed single cloth strains outward to the looser doublecloth areas.

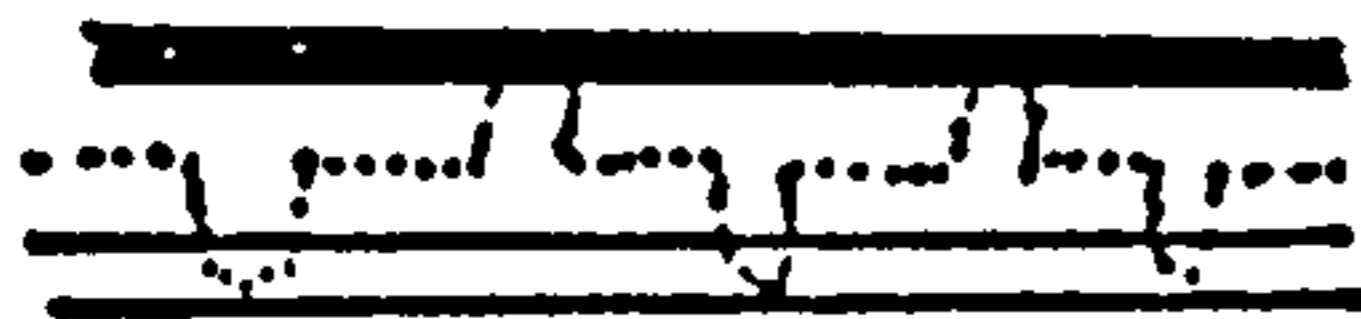




In a **self-stitched doublecloth** a face warp end is dropped under a back pick or a back warp end is lifted over a face pick. For a very firm construction both these can be used in the same cloth.



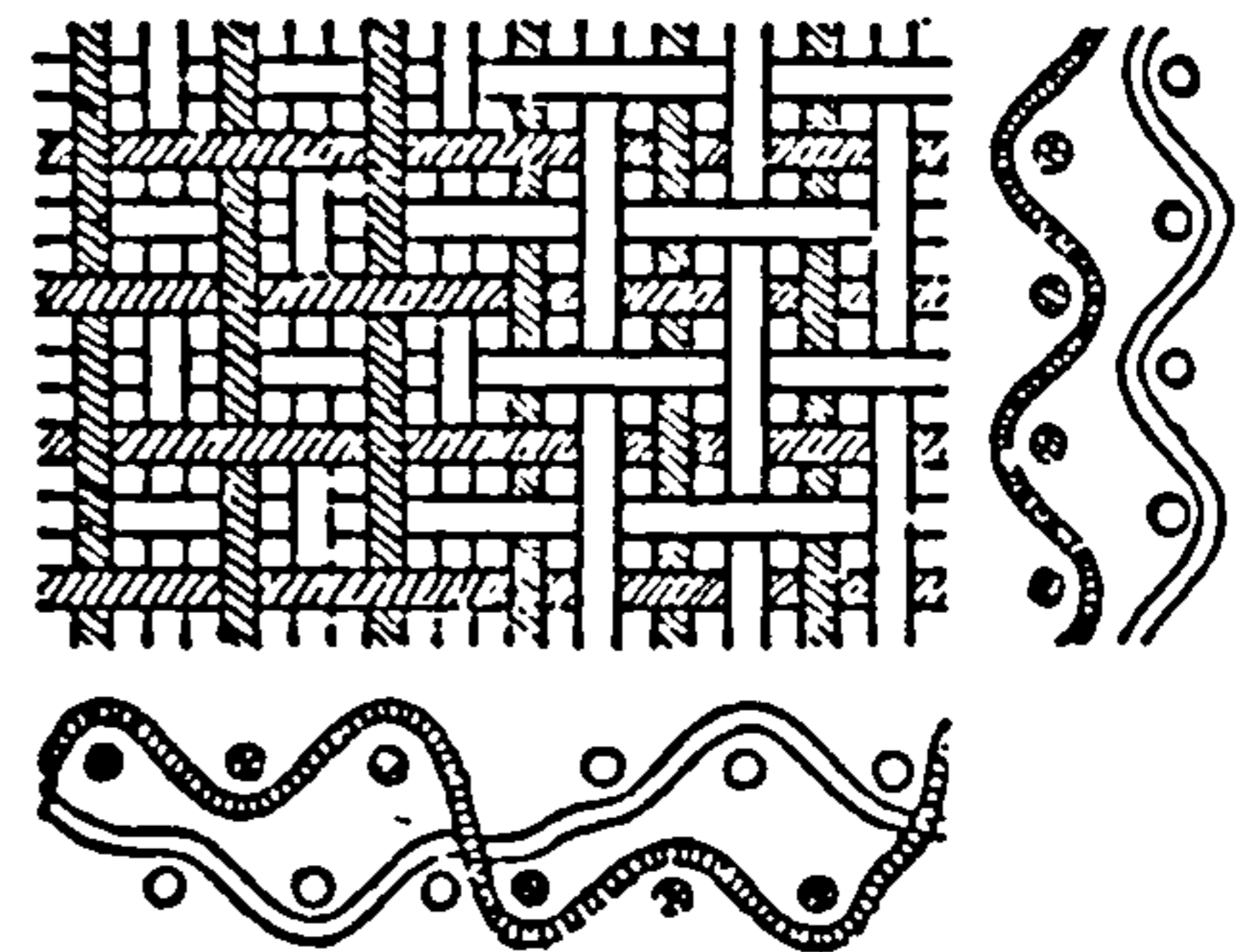
A **centre-stitched doublecloth** has a third series of threads introduced in either the warp or weft solely to stitch the layers of cloth together. These threads lie between the face and back cloth and are raised over a face pick and dropped under a back pick. These threads are usually fine and if used in the warp will require a separate beam and one or more extra shafts on the loom.



**Thread Interchanging.** Some doublecloth fabrics are produced without additional stitching threads. The stitching can be done by frequent and continuous interchange of some threads between the cloth layers



**Interchanged doublecloth.**In this case complete layers of cloth are made to change places.This construction has a marked effect on the appearance as the face and back fabrics are interchanged at intervals forming stripes or squares.Blocks of colour can be used in the warp and weft to give a large number of colour changes.



**Pick-up doublecloth or Tākānā** is said to have originated in Scandinavia but is also found in many pre-Columbian Peruvian fabrics. Tākānā allows freedom and complexity of pattern as the cloth areas are selected by hand at each weft crossing.The design can extend across the full warp and the length is unlimited.Great weaving skill and manual dexterity are needed. Looms with a rising shed are best suited to this technique.

**The advantages of doublecloth are:-**

Two separate warps and wefts can be used. These can be different colours, textures, setts and weaves woven together in a wide variety of patterns.

To give added weight and warmth to a fine face fabric, or to improve draping qualities.

To support a flimsy open face weave with a firmer backing weave.

To make a thick, firm, two layer fabric.

To make reversible fabrics which can be identical or have face and back cloths which are widely different in colour and style [weave, colour, yarn, sett, quality and finish].

To weave a tubular fabric.

To weave double width fabric.

Specialised weaving equipment is not necessary.

**The Disadvantages of doublecloth are:-**

Expensive to produce as two sets of threads are required needing extra time in threading and weaving. This can be reduced by setting threads wider apart for decorative techniques.

More pattern chains are needed, also more complex threading.

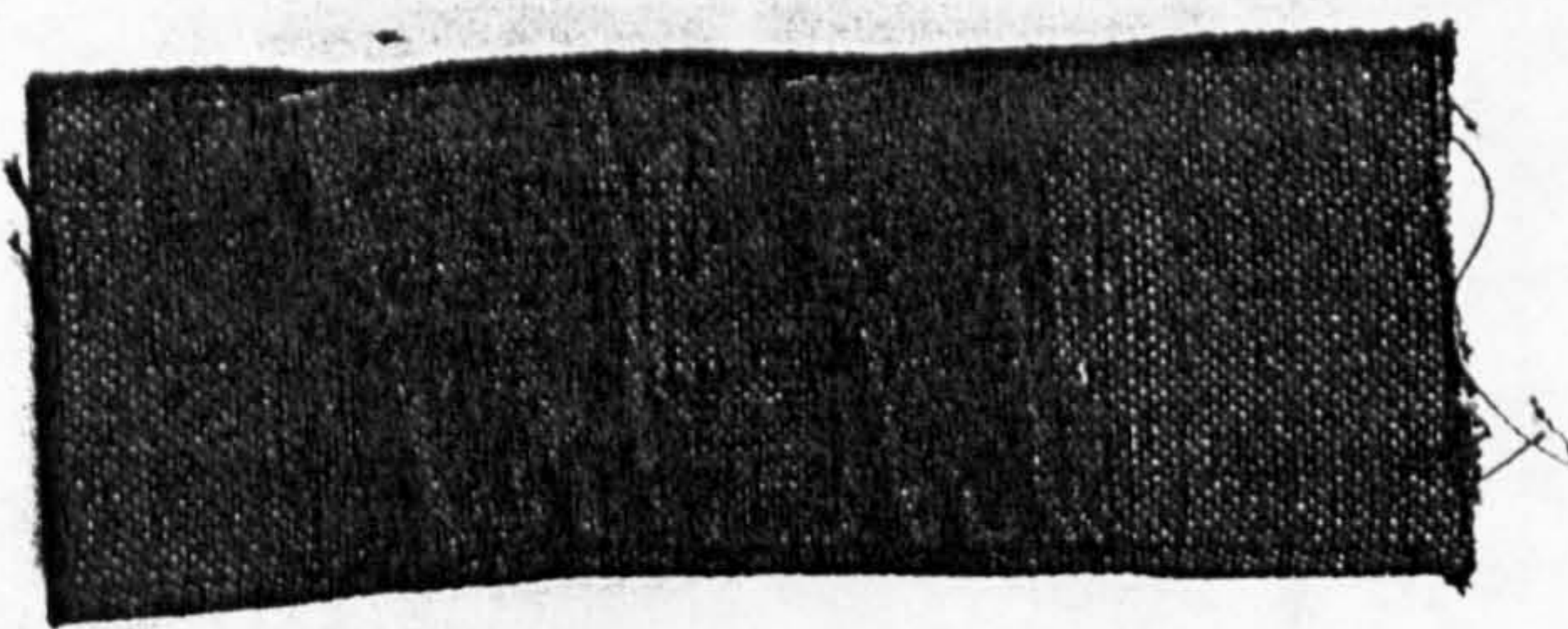
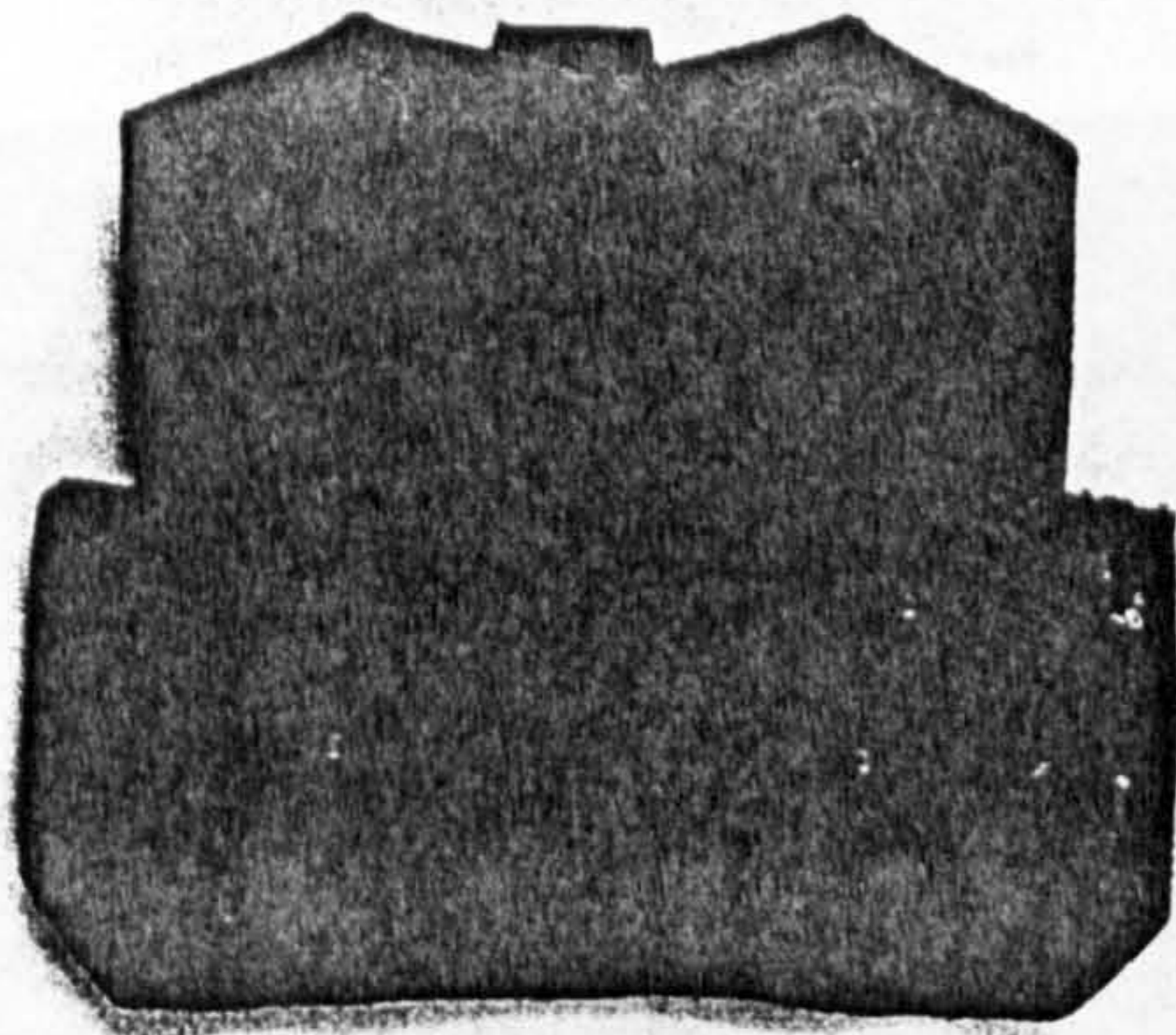
Weaving mistakes are more difficult to see and correct. Faulty fabric reduces profit margins.

Weaving operatives are paid a premium for the work, more skill and experience necessary.

## INDUSTRIAL APPLICATIONS

The weaving and binding of two fabrics into one can be exploited into very heavy duty fabrics. Conveyor belts for coal mines are made from a fabric with two warps and wefts heavily intersected. Car seat belts and other strong webbings may also use the doublecloth technique, as do some fine ribbons.

Earlier this century sheeting was woven double on the loom and opened out to a double width after weaving. The invention of looms to weave a greater width of fabric has superseded this use of the technique. Pillows and bolster cases were woven as tubular fabric which involved less waste and a minimum of sewing. Wicks for oil lamps, sleeves for industrial rollers, pockets, sandbags and bullet belts for the army were all double woven at one time.

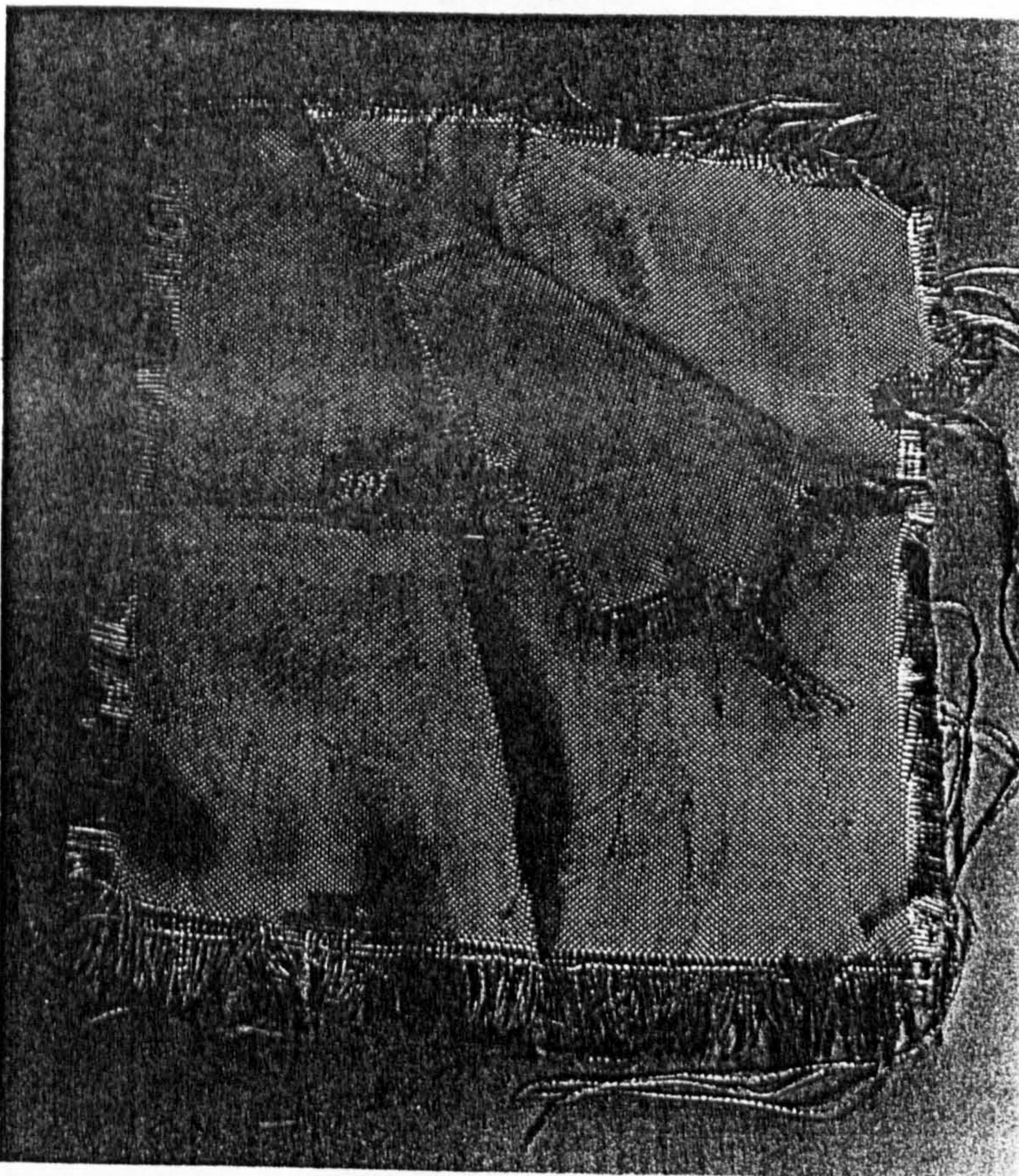


*Bullet belts woven for the army for World War Two, 1939-1945.*

The tradition continues at Crewkerne Textiles where they weave tubular fabric for offset litho rollers. However new technology in printing means that the demand for this has decreased drastically. Of the one hundred looms in production in 1989 ten were making tubular fabric and this in 1994 is down to one. The company produce

a wide range of belting and webbing but less is double woven as synthetic fibres are stronger only needing single layer webs of cloth for the required strength In their records they have samples and details of double woven donkey straps in linen made in 1874. This specialised product is no longer in demand.

John Heathcoat's industrial division in Tiverton produce a pocket cloth doublecloth which is used to prevent soil erosion on river beds. The cloth was developed to provide a quilted tube which is filled with concrete on site and laid on the river bed to stop erosion. The weaving of the two cloths together to form the most effective shape to receive the concrete and perform on the river bed took many months to develop. The company produce circular woven nylon bases in the doublecloth technique which are later inserted into a mould as a base for rubber timing belts. These have world wide distribution.



*Pocket cloth doublecloth to be filled with cement to prevent erosion on river beds.*

Firth's furnishings of Heckmondwike weave a doublecloth wool fabric for aircraft seating which is fireproof with a high comfort factor, and is used by British Airways and KLM. The doublecloth has no pockets as this would wear out too easily. The market is highly lucrative as seats are upholstered every two years but they are loosing business to the American industry which is producing a cloth which weighs less with equal abrasion and wear qualities. The weight factor is crucial as less fuel is needed to power the aircraft. Firth's have woven doublecloth for many years, in particular a cloth known as "Belgian Trade Cloth" which had a solid coloured background and areas of colour in the foreground. the woven fabric business is struggling [1986] in spite of concerted efforts by the design team.



*Doublecloth upholstery samples. Monkwell Fabrics, 1989.*

## **Appendix Two**

### **Bauhaus Archive Material.**

**Bauhausbild Archiv, Weimar Hochschule für Architektur**  
Professor Shädlich, Direktor

**Weimar Staatarchiv and Weimar Schloss Museum**  
Michel-Triller

**Wissenschaftlich- Kulturelles Zentrum Bauhuas Dessau**  
Lutz Schobe, Kunstwissenschaftler  
Dr. Opetz, Direktor

**Bauhaus Archiv, Museum für Gestaltung, Berlin**  
Dr. Magdalena Droste, Direktor

## **Appendix Two. List of Contents.**

### **Bauhausbild Archiv, Weimar Hochschule für Architectur Page 133**

Photographs of the textiles in the collection

Students and Staff in the Weimar Workshops, 1923-24.

Photograph of Bauhaus Exhibition, 1923.

### **Weimar Staatarchiv Page 155**

Helene Börner monthly report to Gropius, 16-10-1922

Correspondance between Dr Otte and Gropius

Photographs of Dr Otte's apartment, Berlin.

### **Wissenschaftlich- Kulturelles Zentrum Bauhuas Dessau Page 160**

Grete Reichardt textiles from the collection.

Unknown textiles from the collection.

Copy of back cover of Bauhaus journal, 2/3, 1928.

Copy of complete Bauhaus journal 2, 1931 dedicated to the weaving workshop.

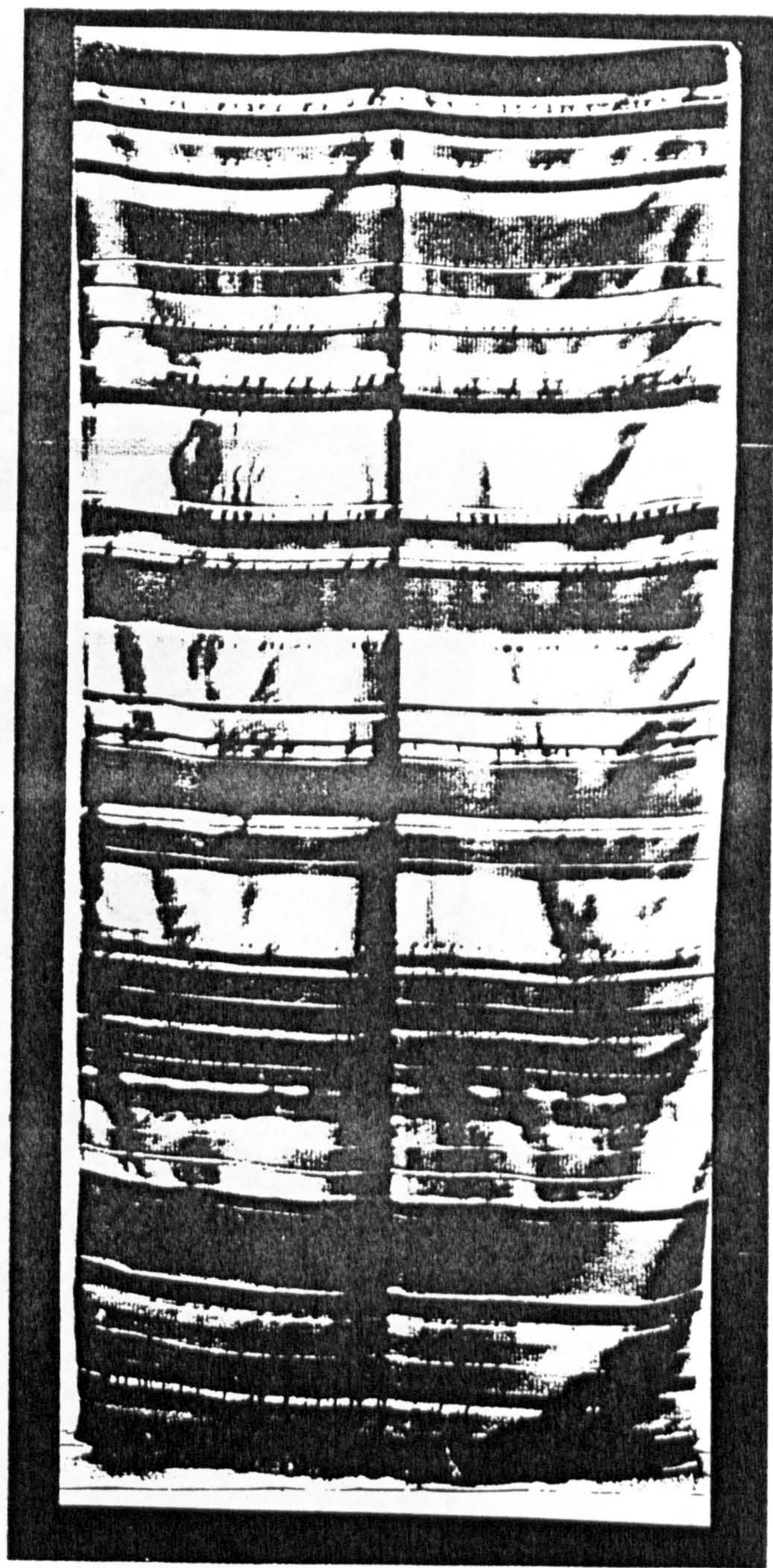
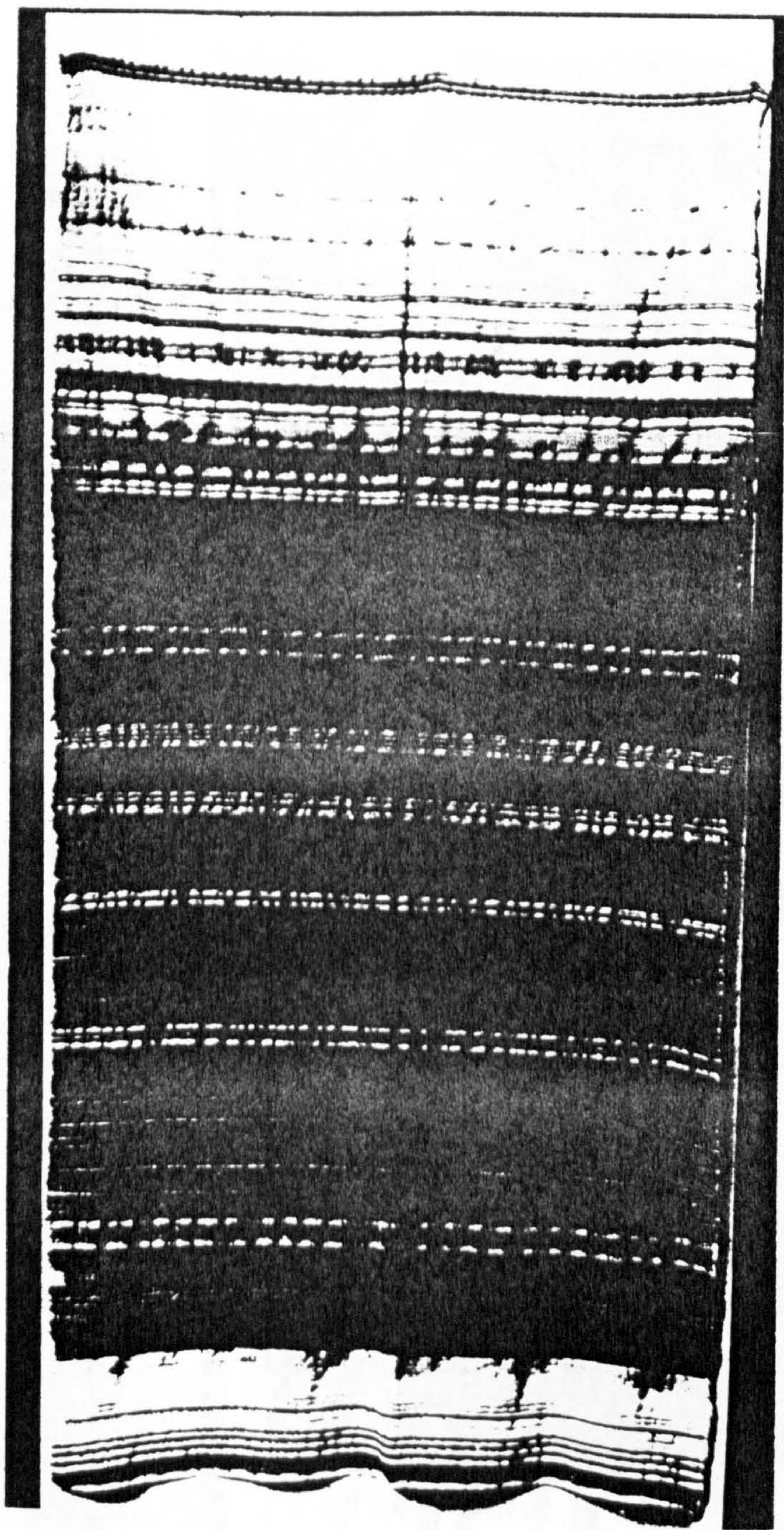
### **Bauhaus Archiv, Museum für Gestaltung, Berlin Page 163**

Copies from Galerie am Sachsenplatz, Leipzig, exhibition catalogues

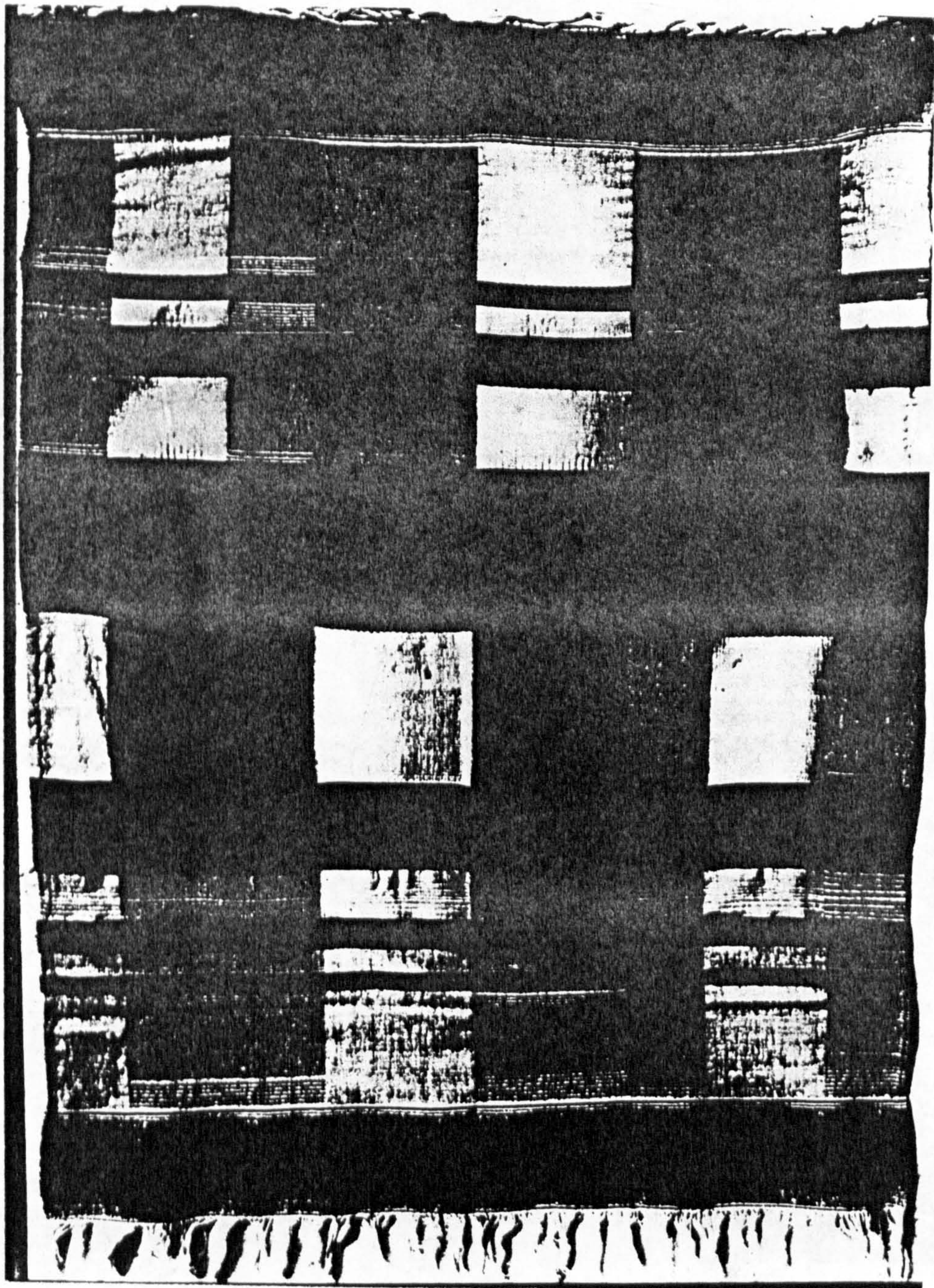
Anni Albers' Bauhaus Diploma, 1931

Anni Albers' letter to Guntha Stölzl, Jan.10, 1962

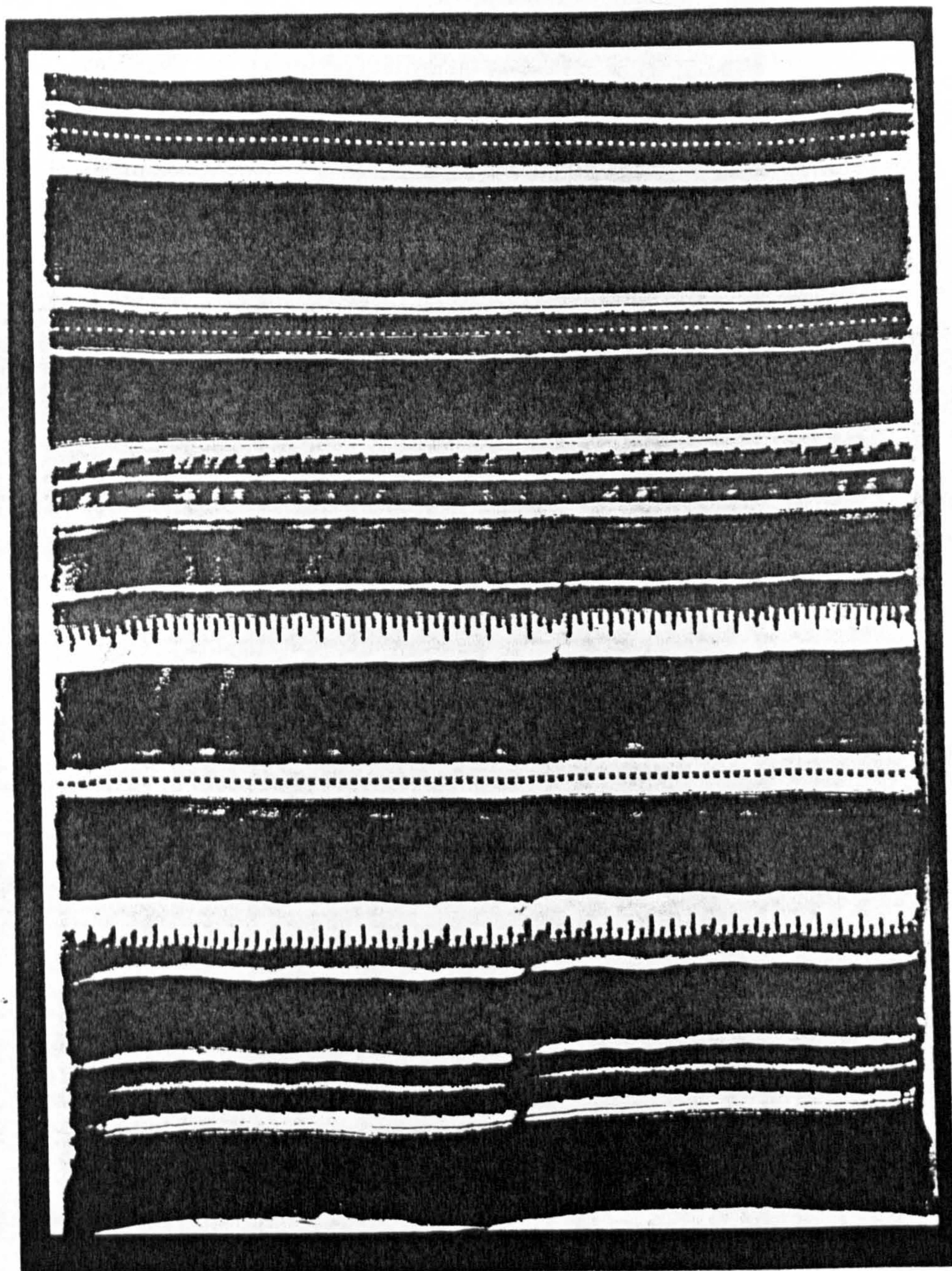




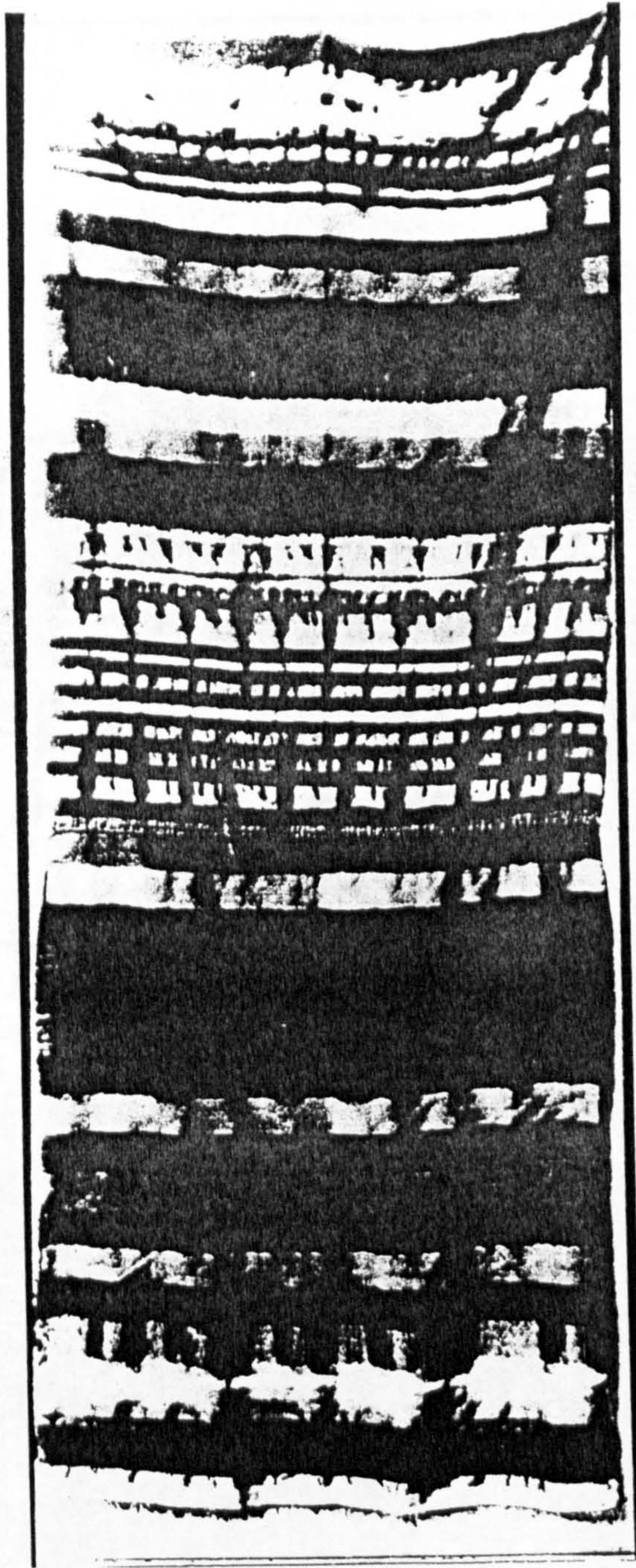
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Left            Cat. No 17 Ida Kerkovius  
Right          Cat. No. 15. Unknown



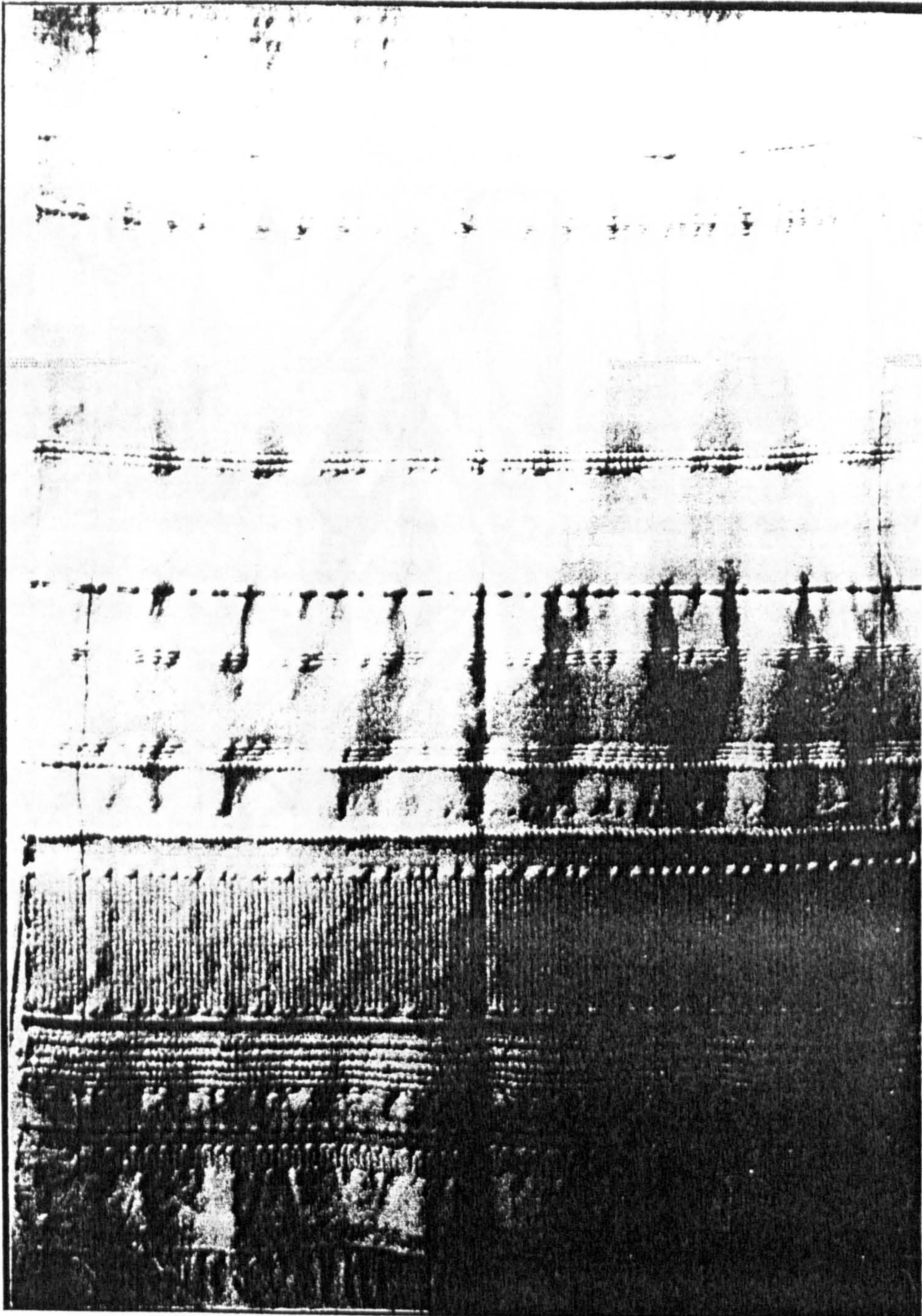
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. 10 Frau Dr. Köhler. 1920?



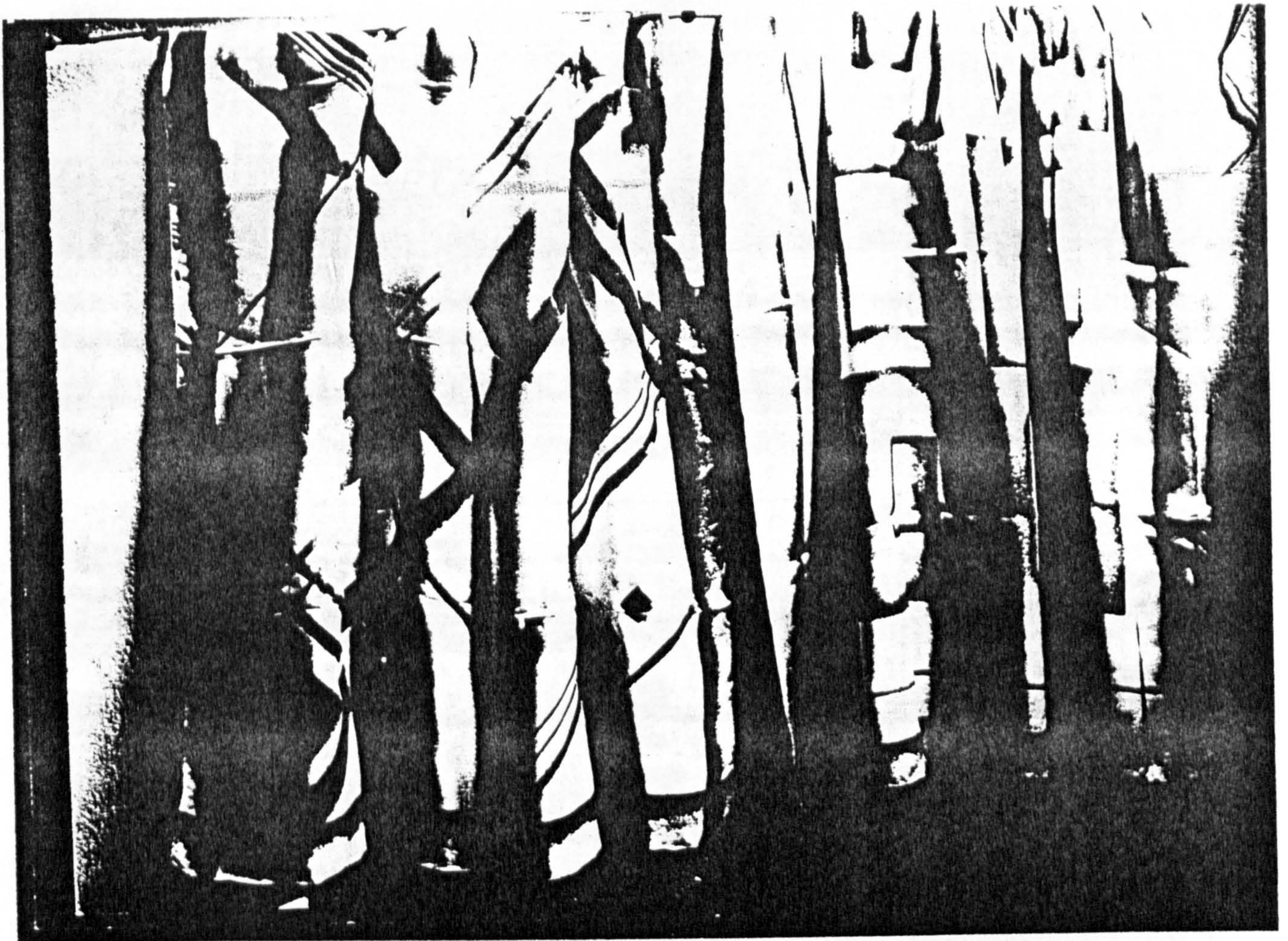
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. 14. Ruth Vallentin.



Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. 17.[repeated number] Margarete Willers

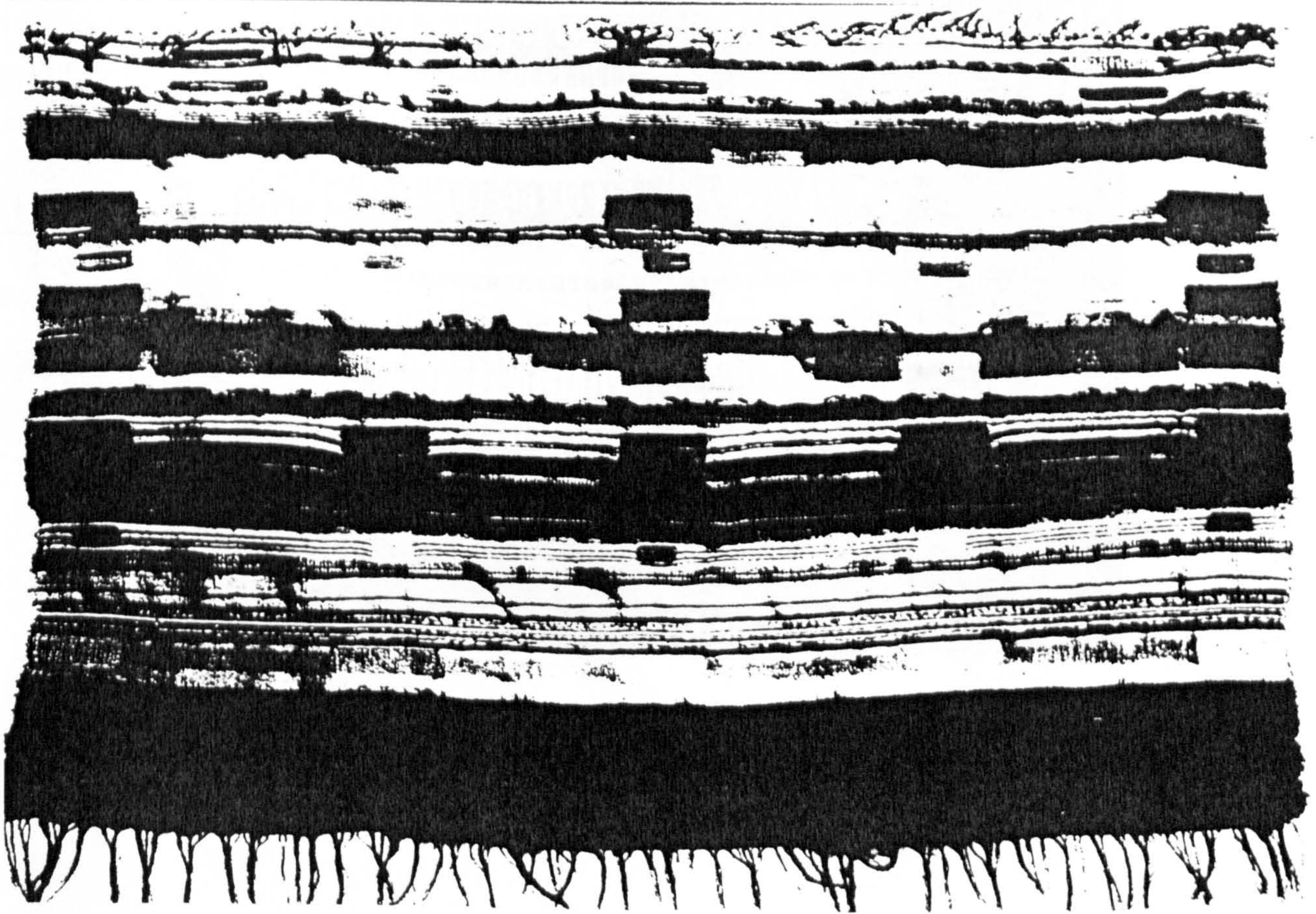
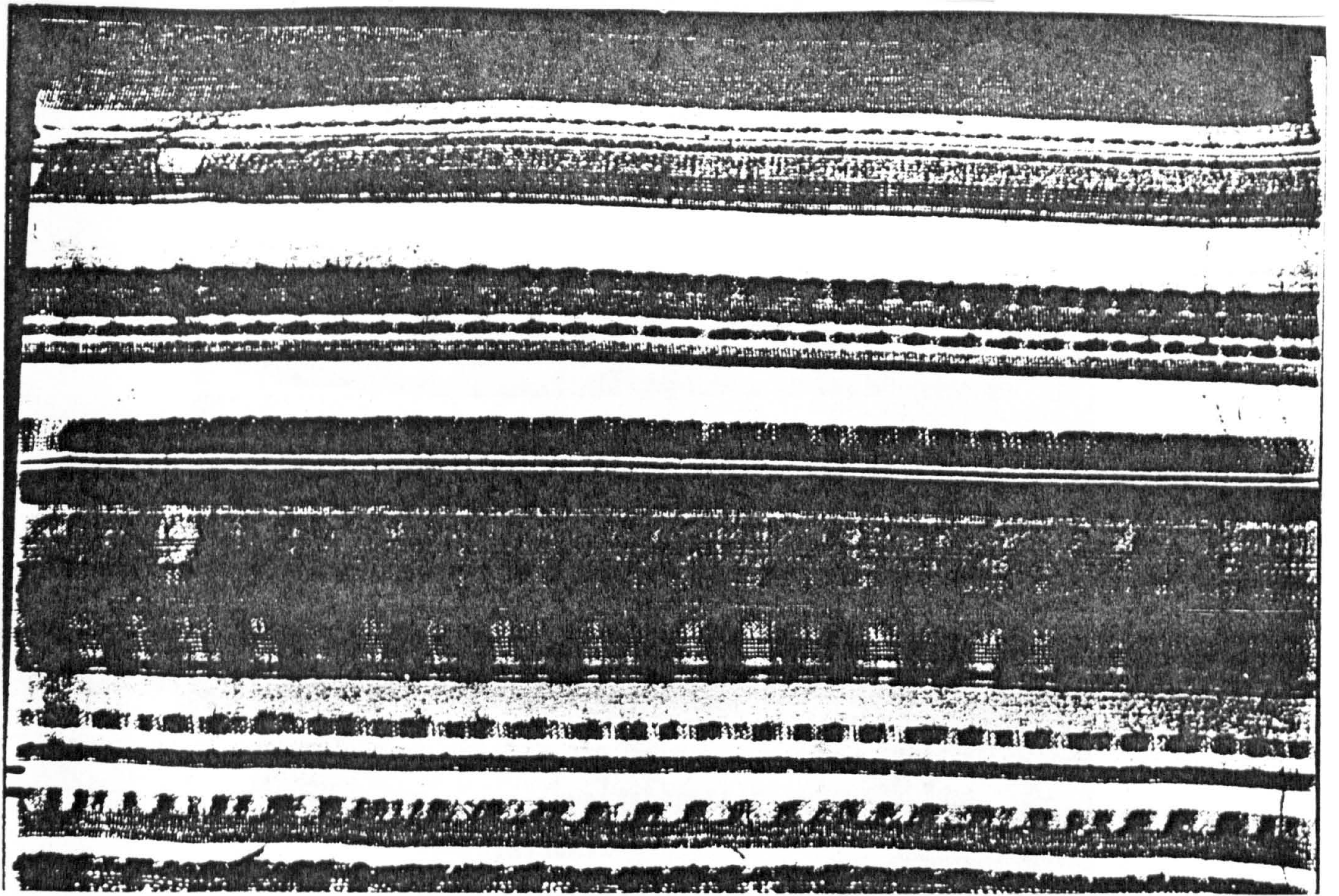


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat No. 21 Jungnik

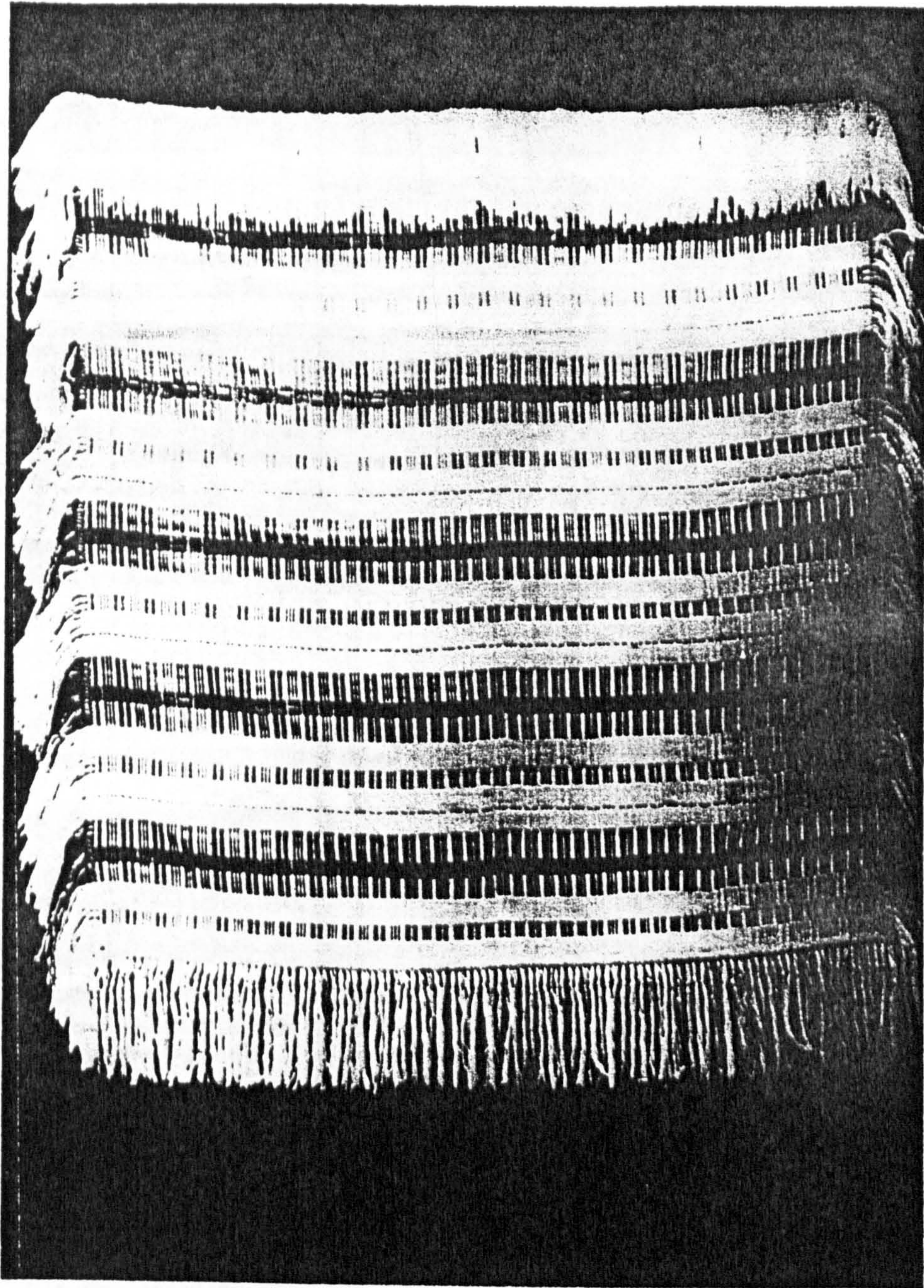


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. 43 H. Beberniss.

The only known examples of printed fabric from the Weimar Bauhaus.

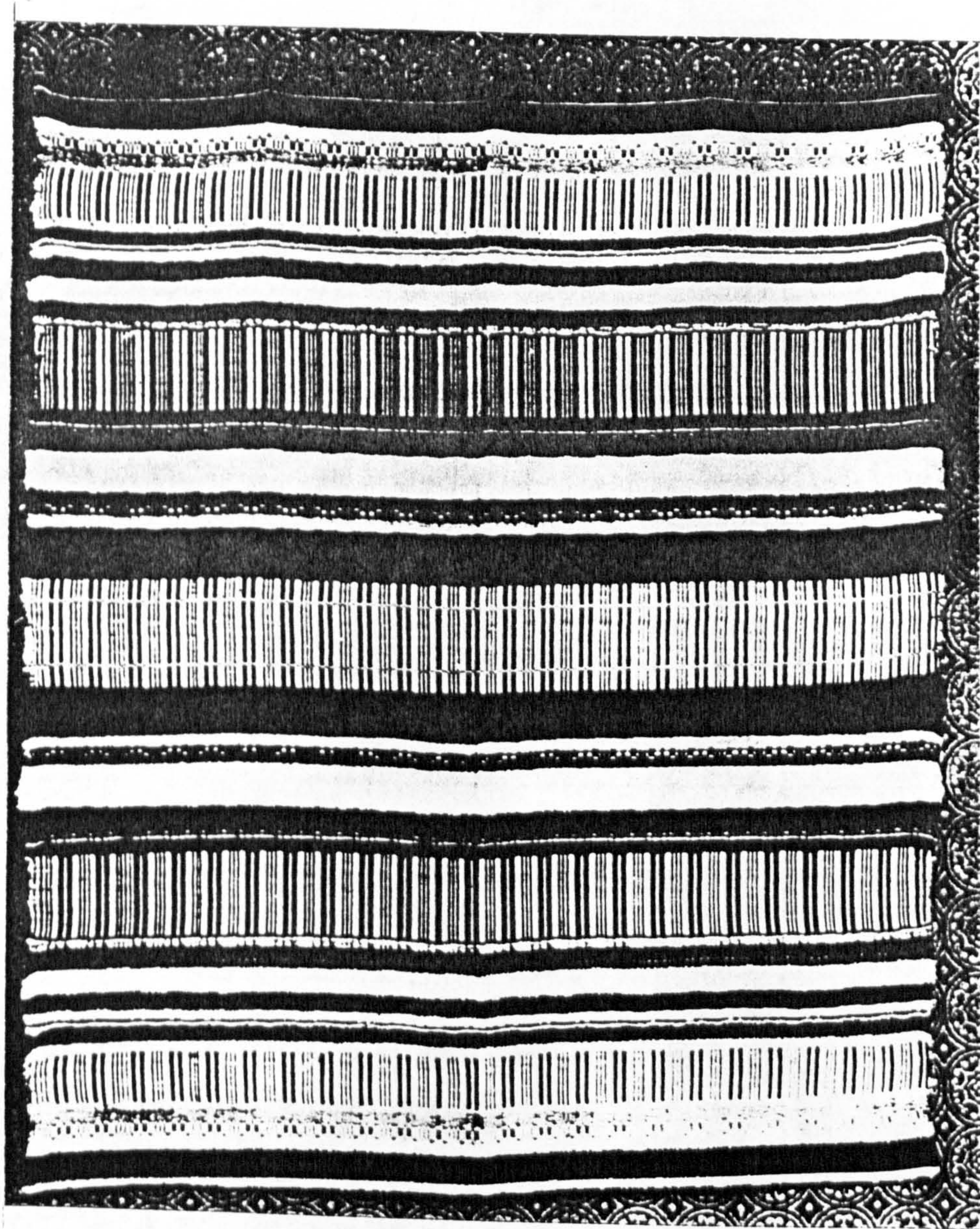


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Top            Cat. No.12. Guntha Stölzl.  
Lower        Cat. No.13. Guntha Stölzl

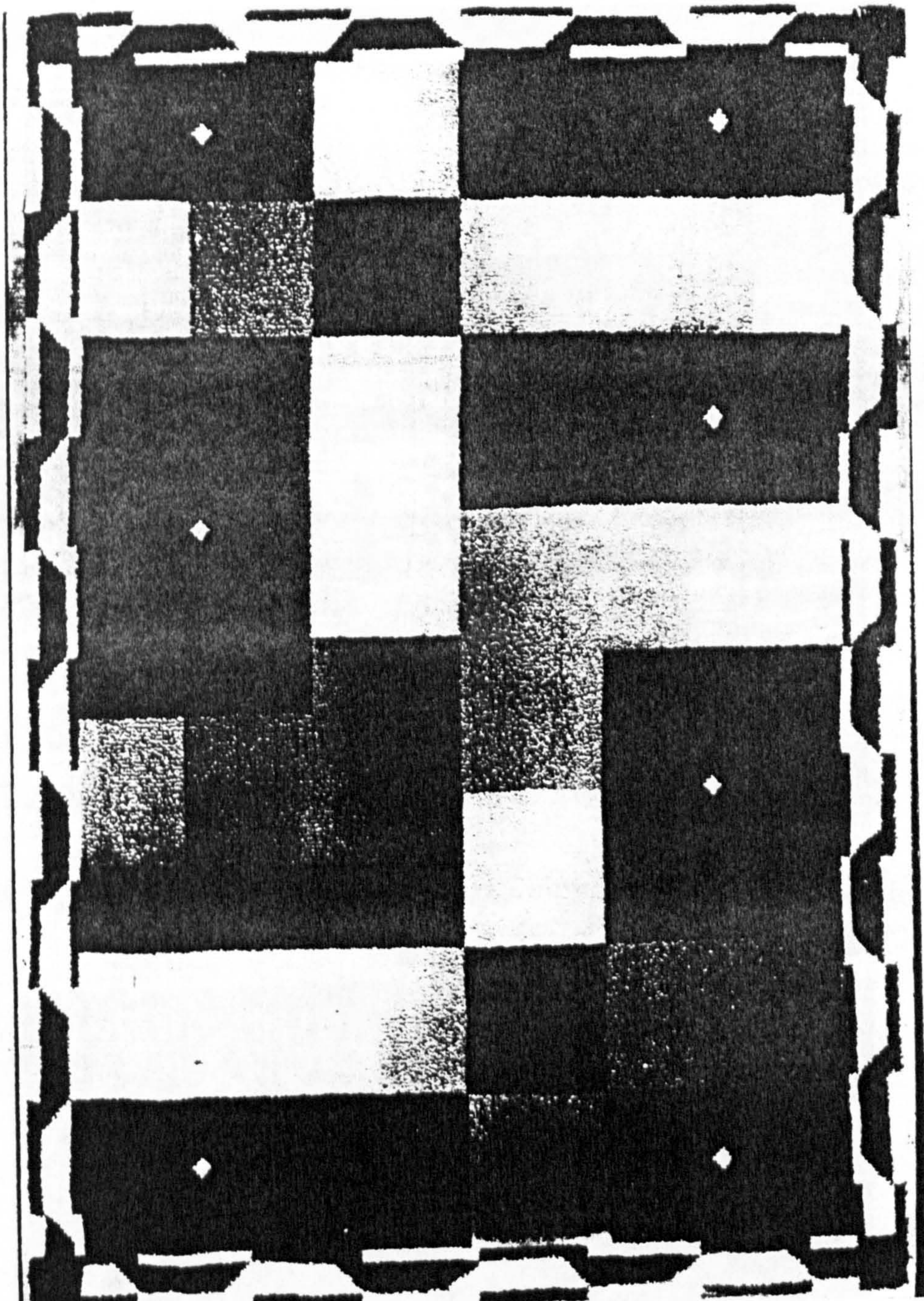


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.44. Guntha Stölzl. tablecloth

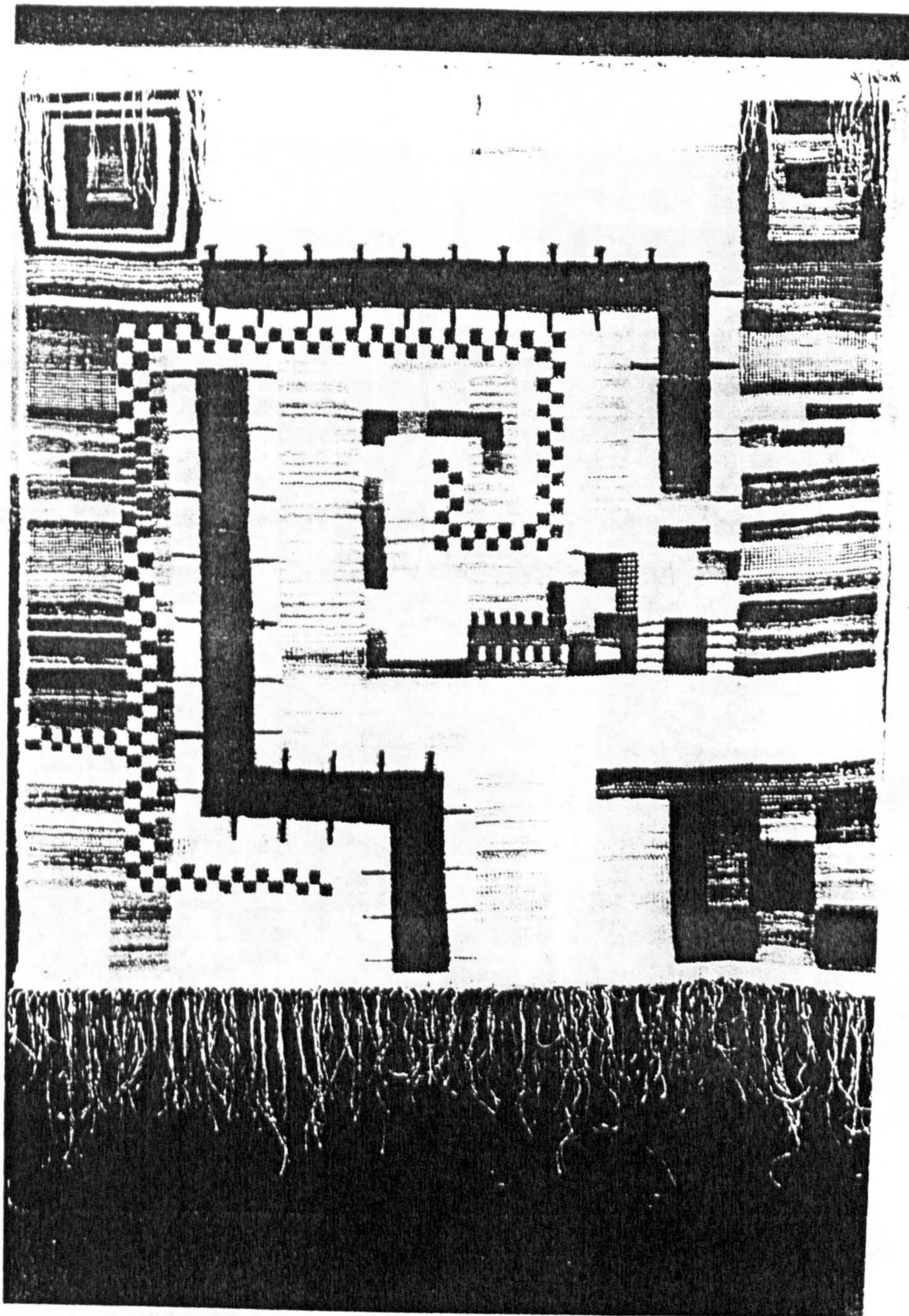




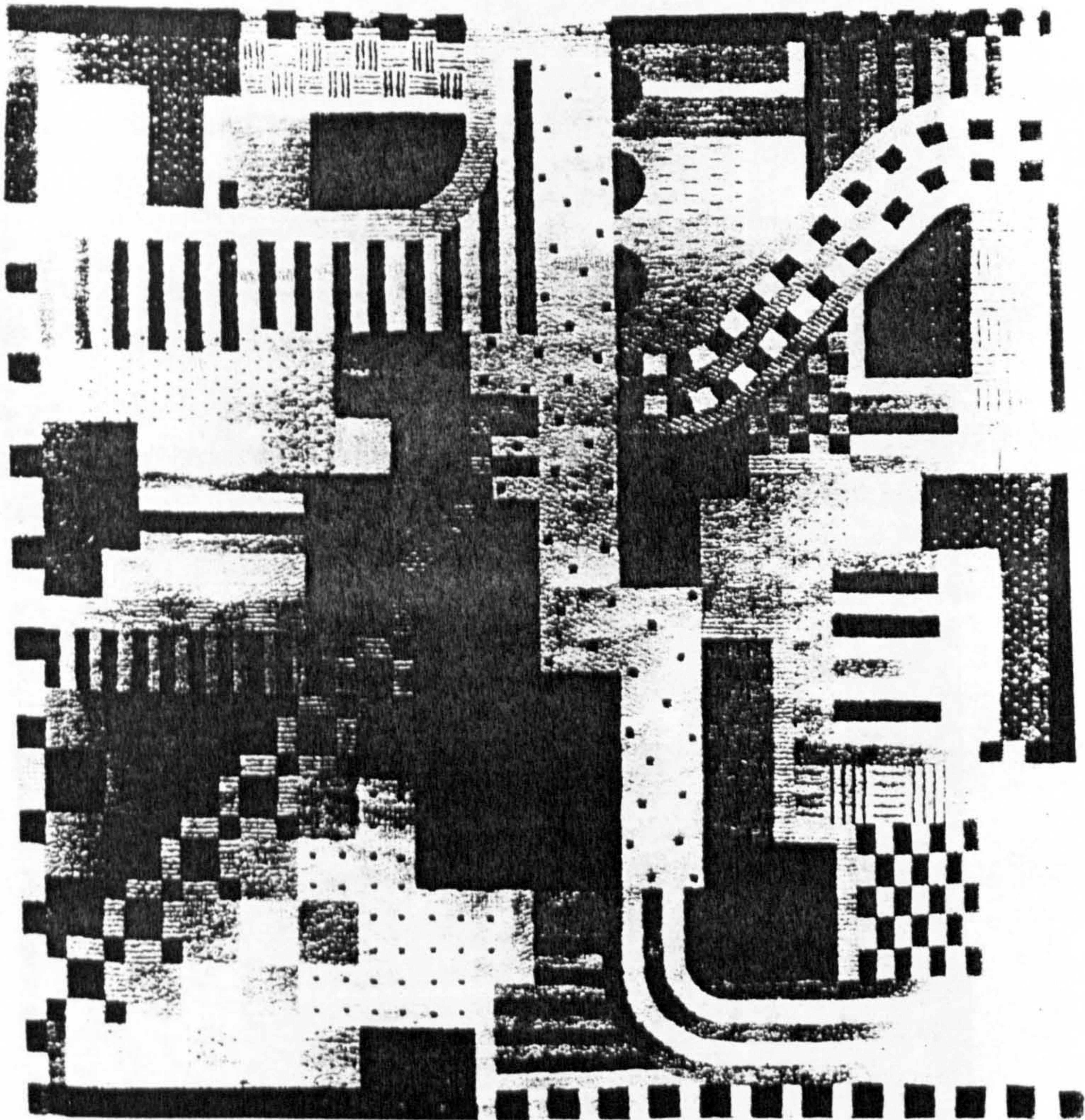
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.55. Ruth Hollos. Wall hanging



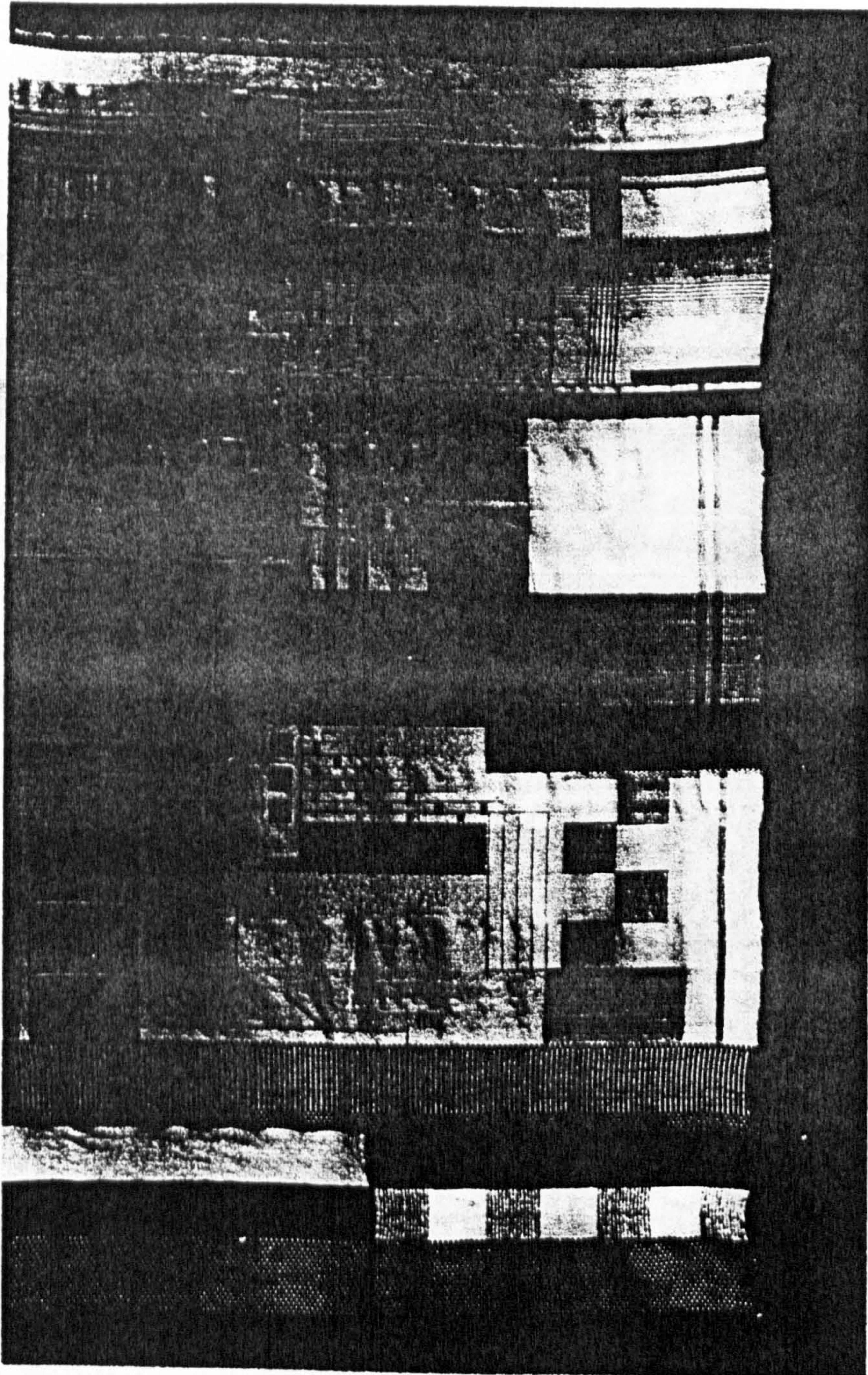
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No..26. Ida Kerkovius.  
Carpet woven for the 1923 exhibition at the Weimar Bauhaus..



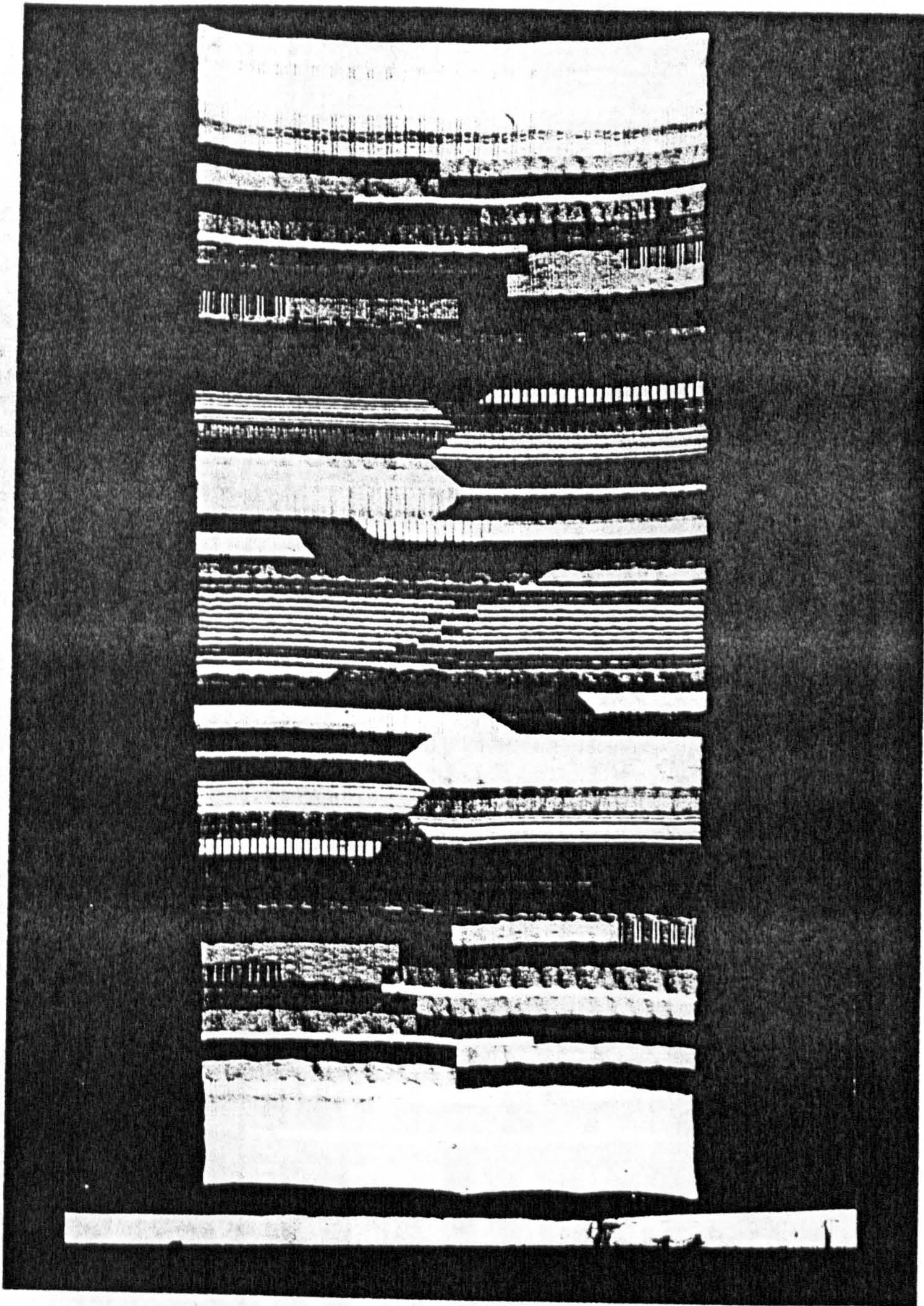
Bauhausbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. 6. Ida Kerkovius. Carpet



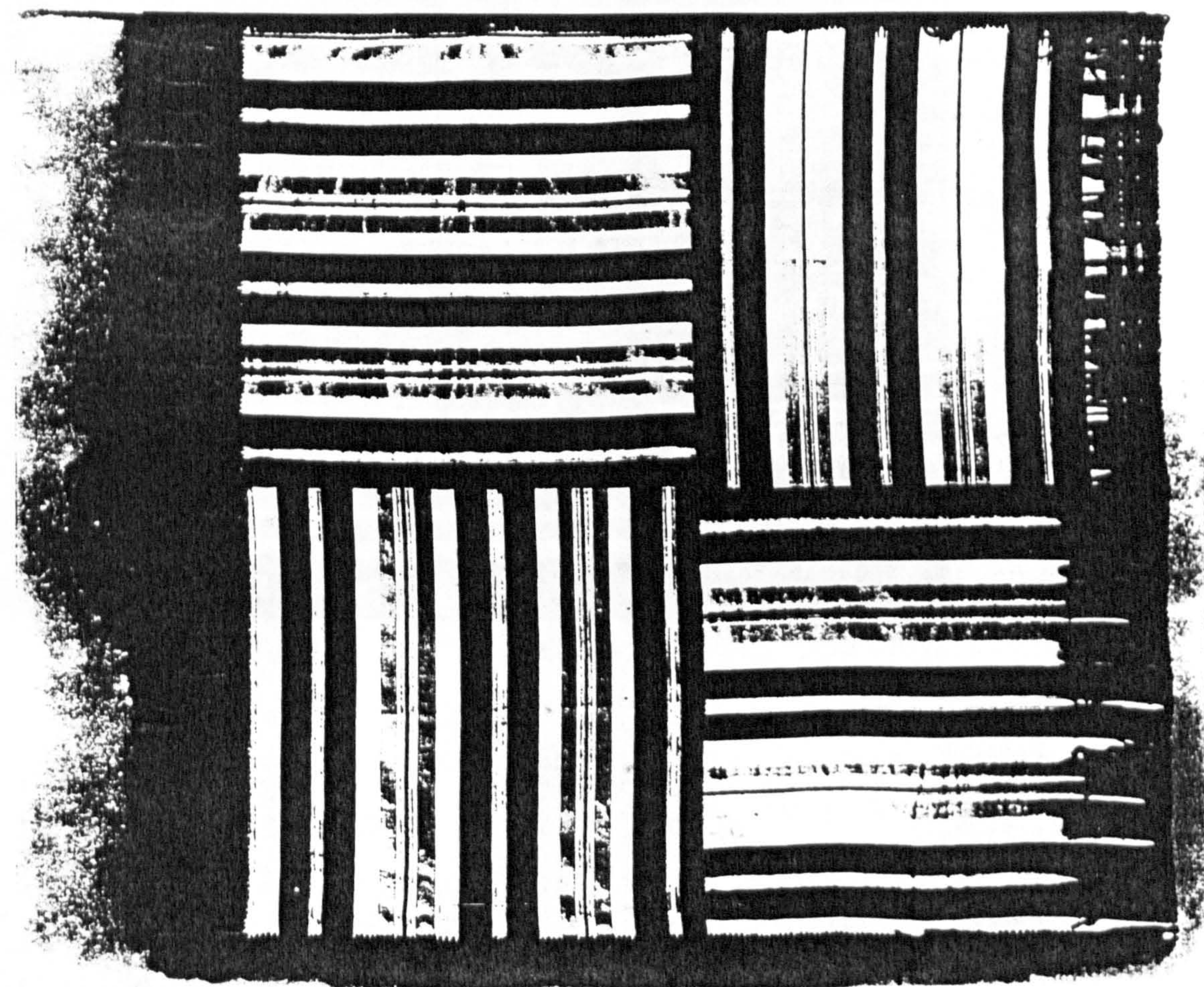
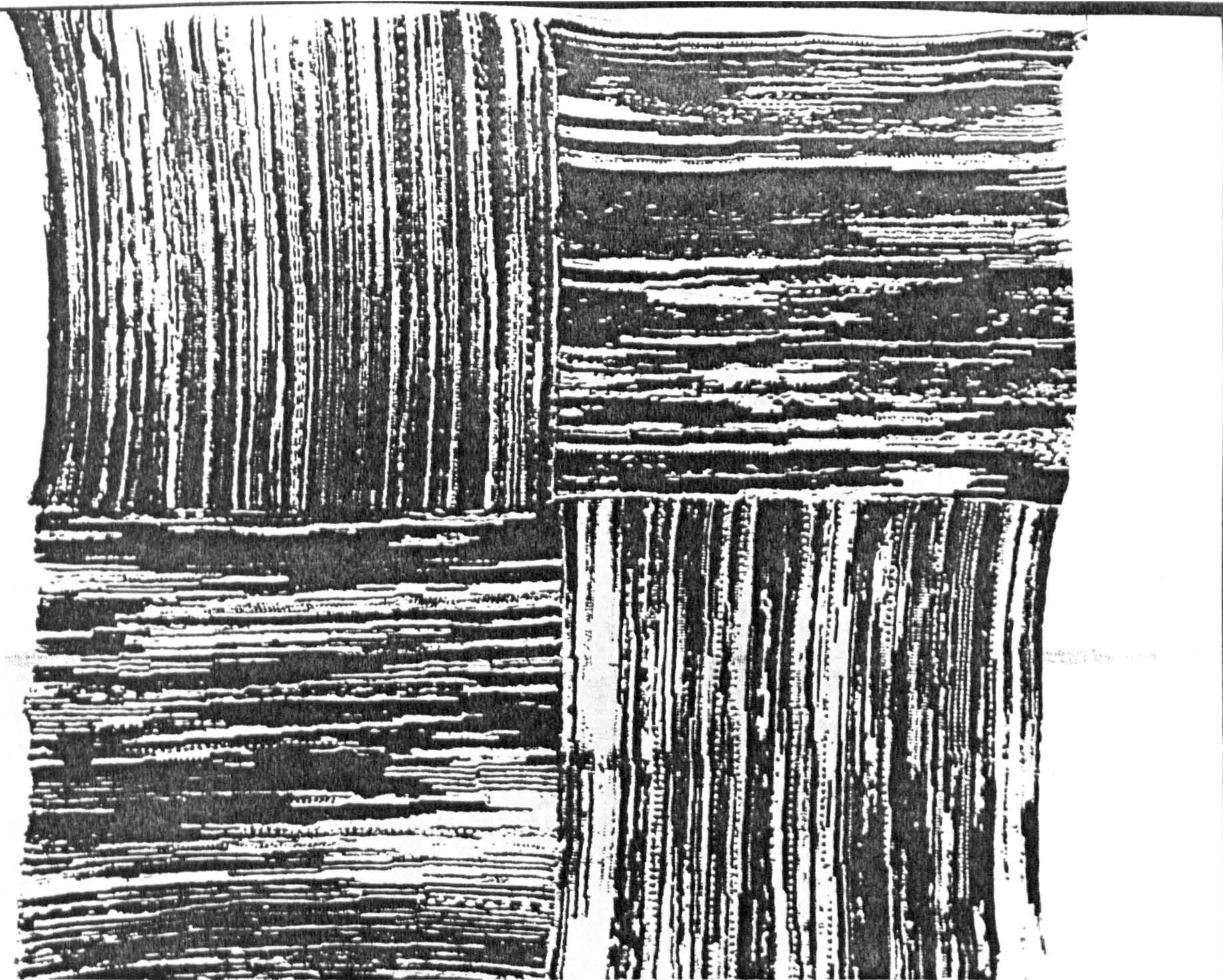
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No..Martha Erps.  
Carpet woven for the Haus am Horn.



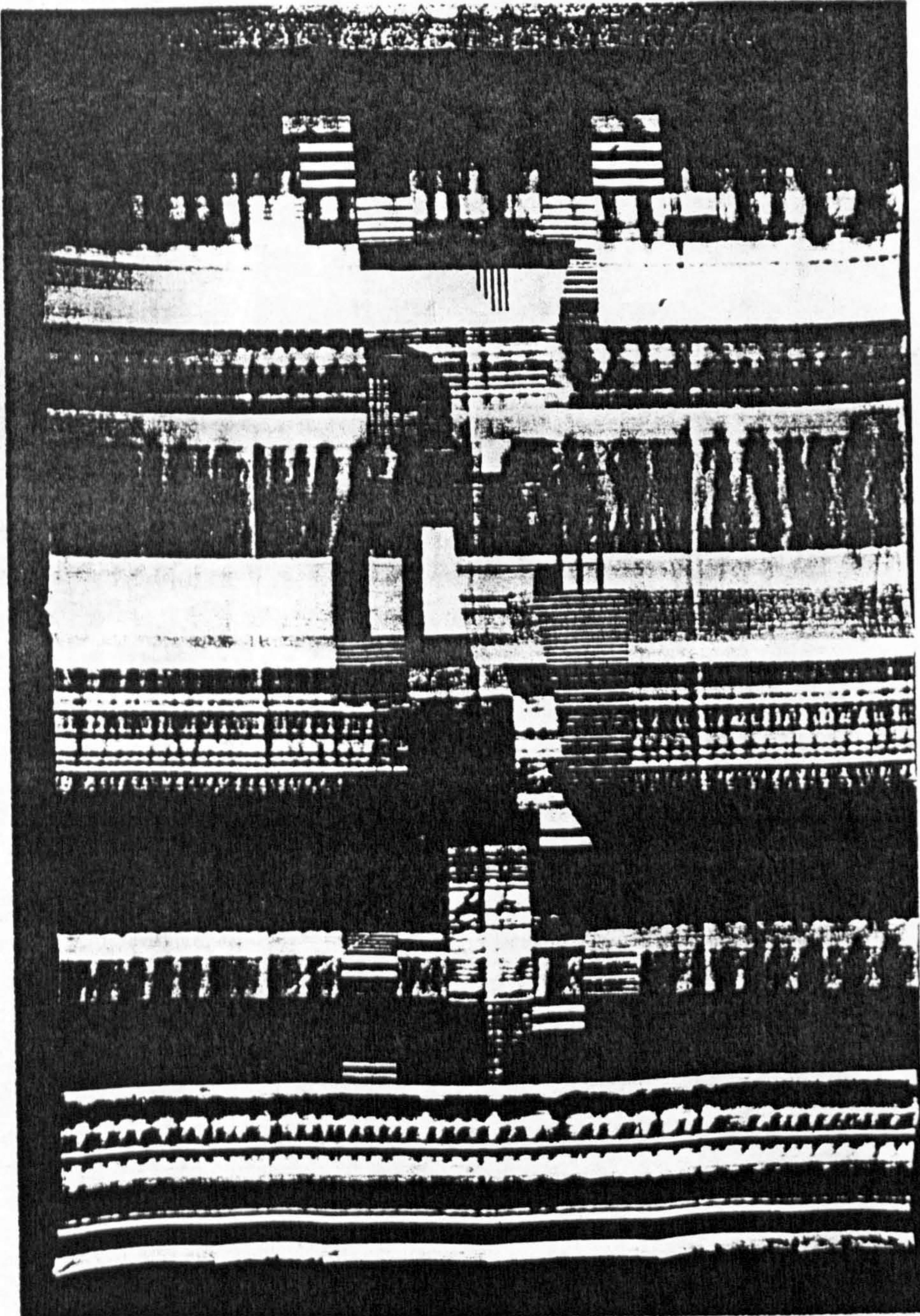
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.53 Guntha Stölzl Wallhanging..



Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.42 Martha Erps. Wallhanging.

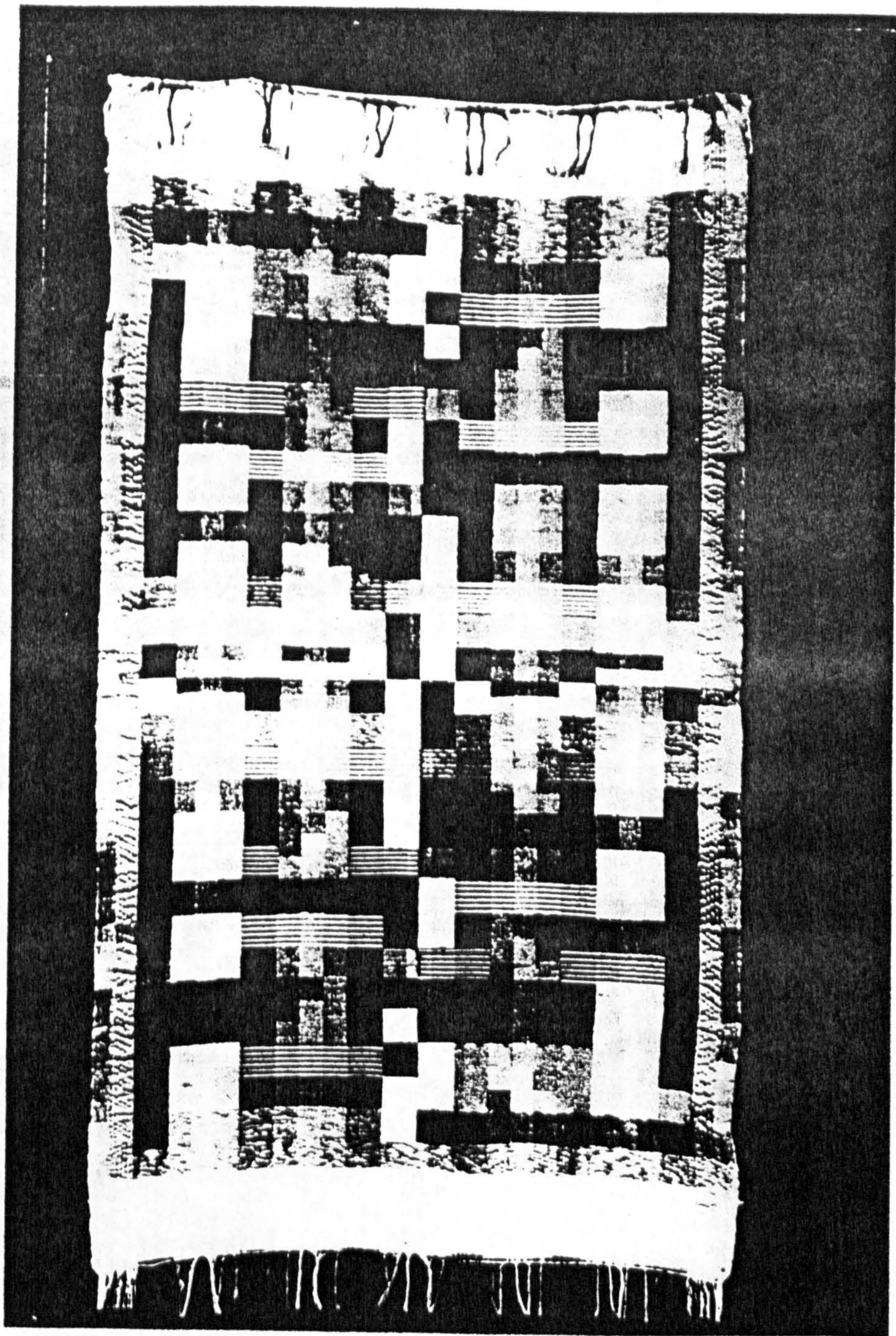


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Top           Cat. No.9 Ida Kerkovius  
Lower        Cat. No. 46 Leudesdorff

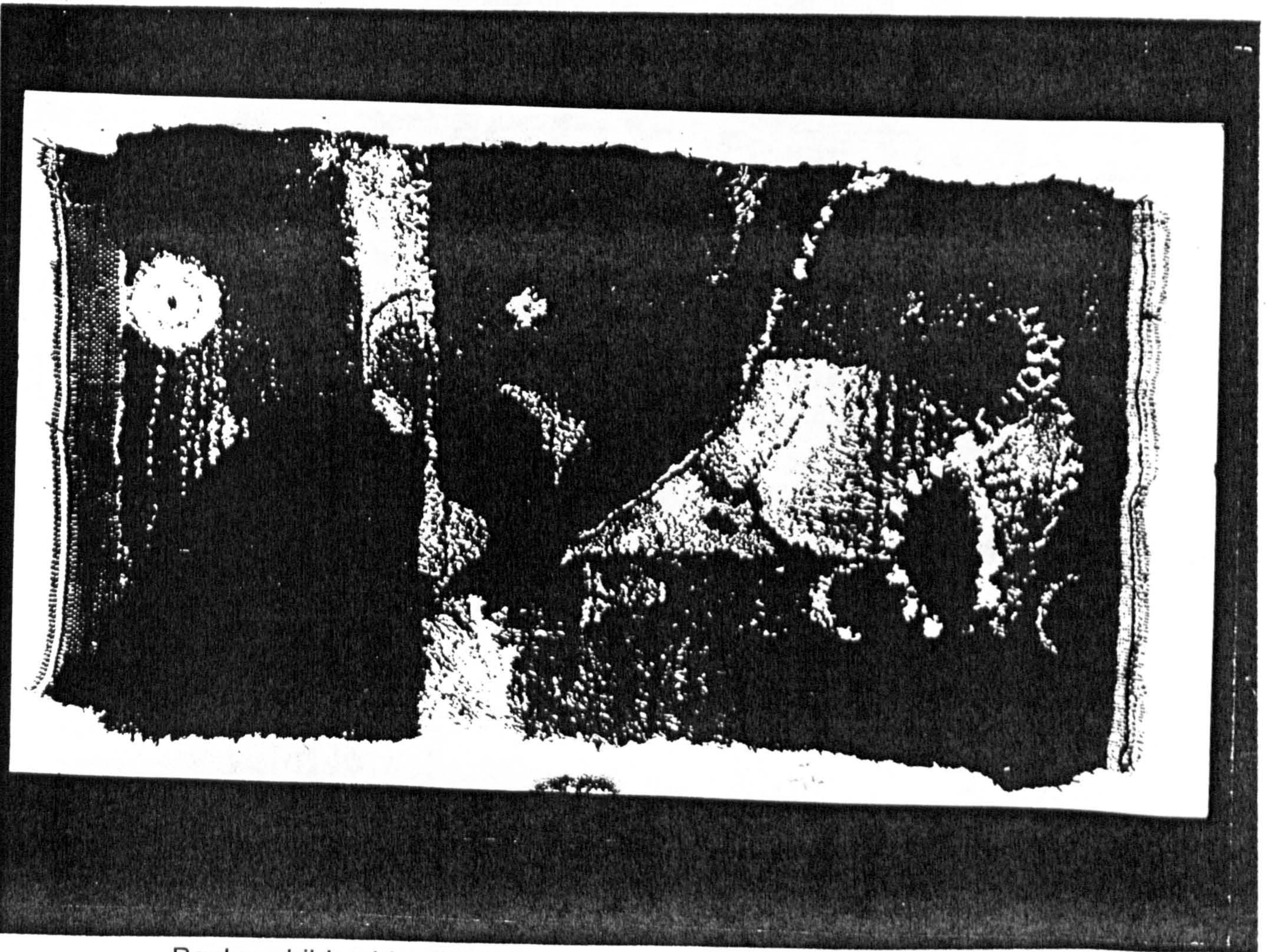
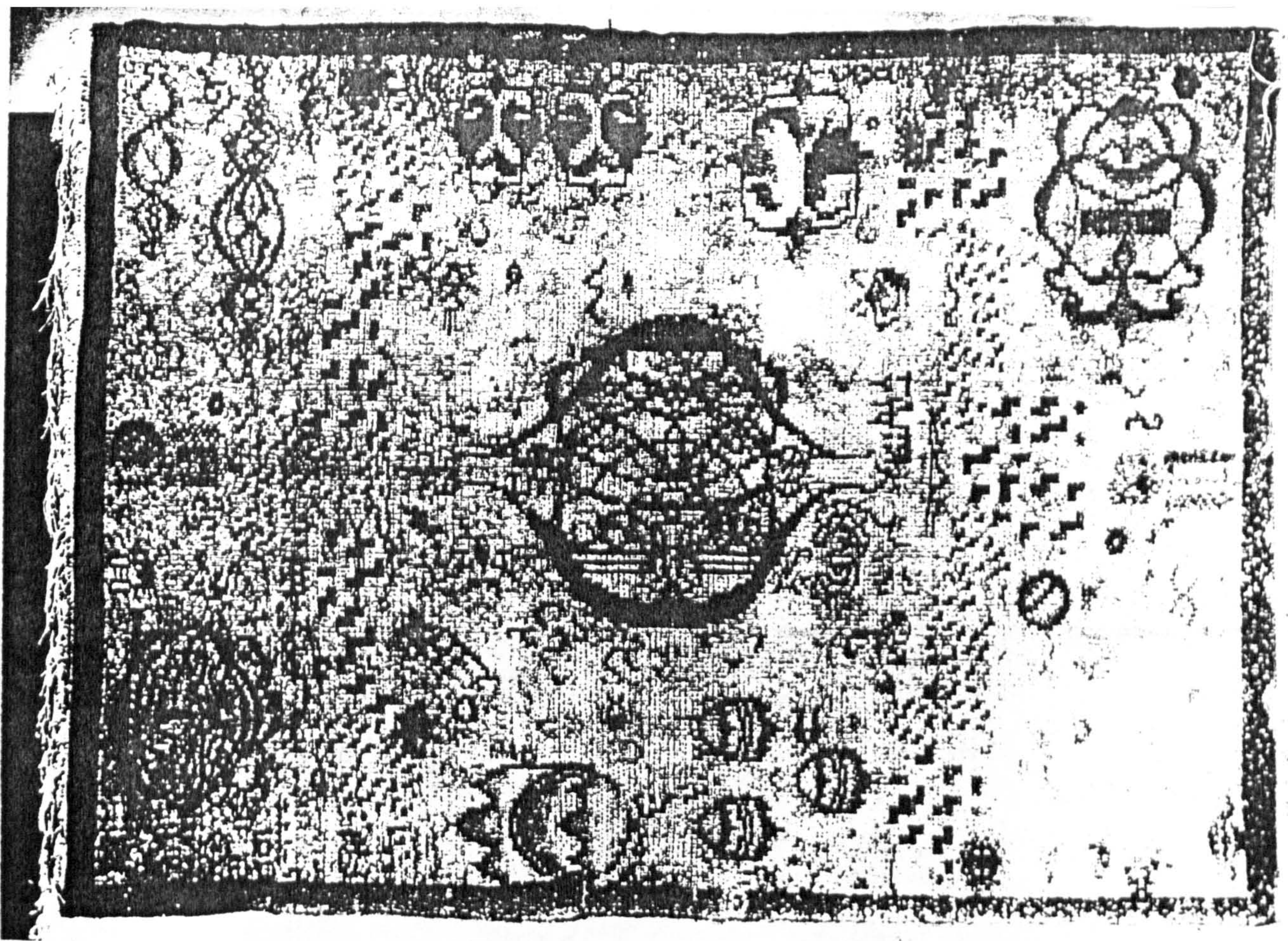


Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.54. Guntha Stölzl. Wallhanging.





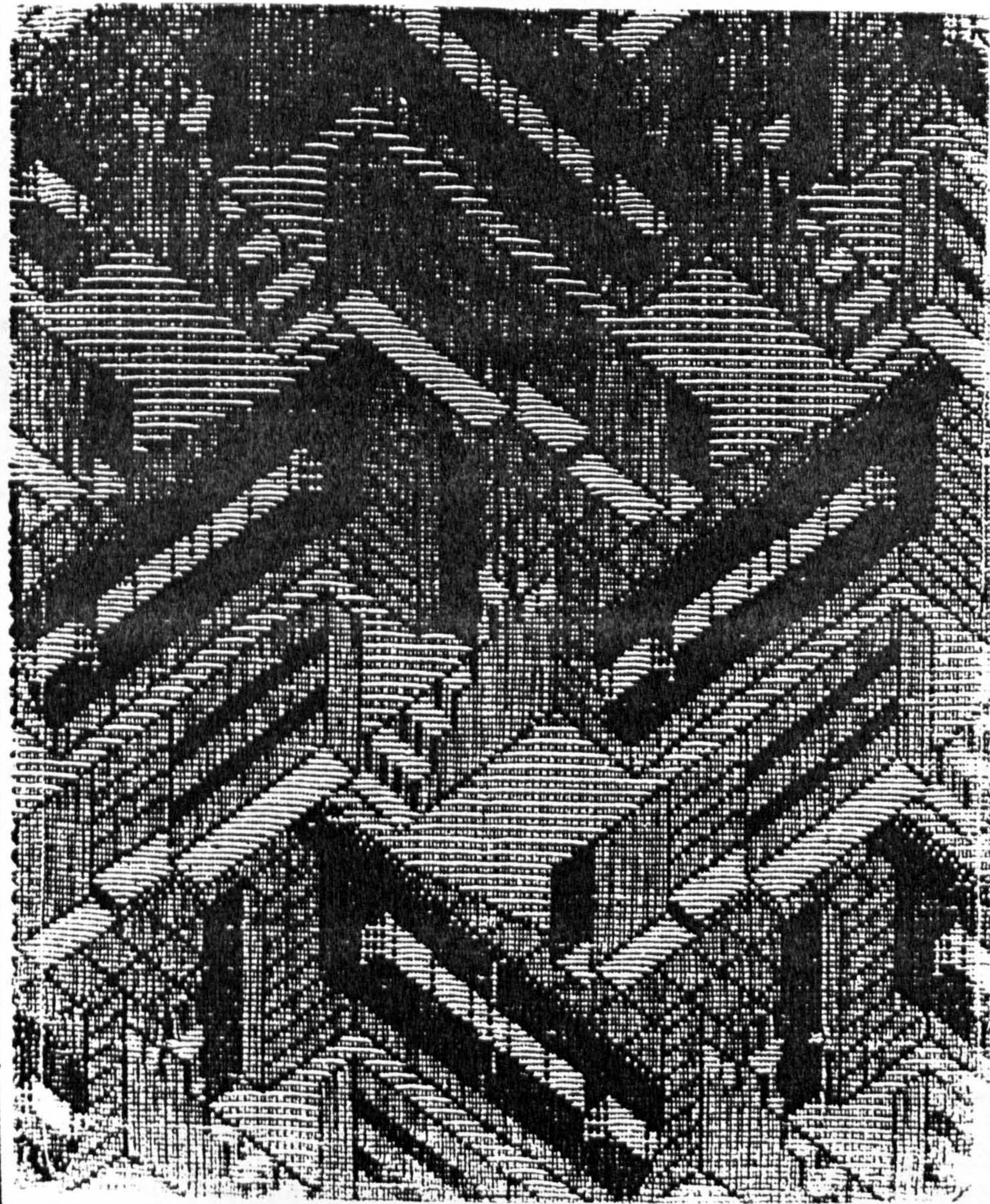
Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.41. Benita Otte. Wallhanging.



Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Top            Cat. No. 32. Agnes Rohé Carpet.  
Lower        Cat. No. 1. Dicker. Carpet



Bauhuasbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No.7. Dicker. Gobelin.

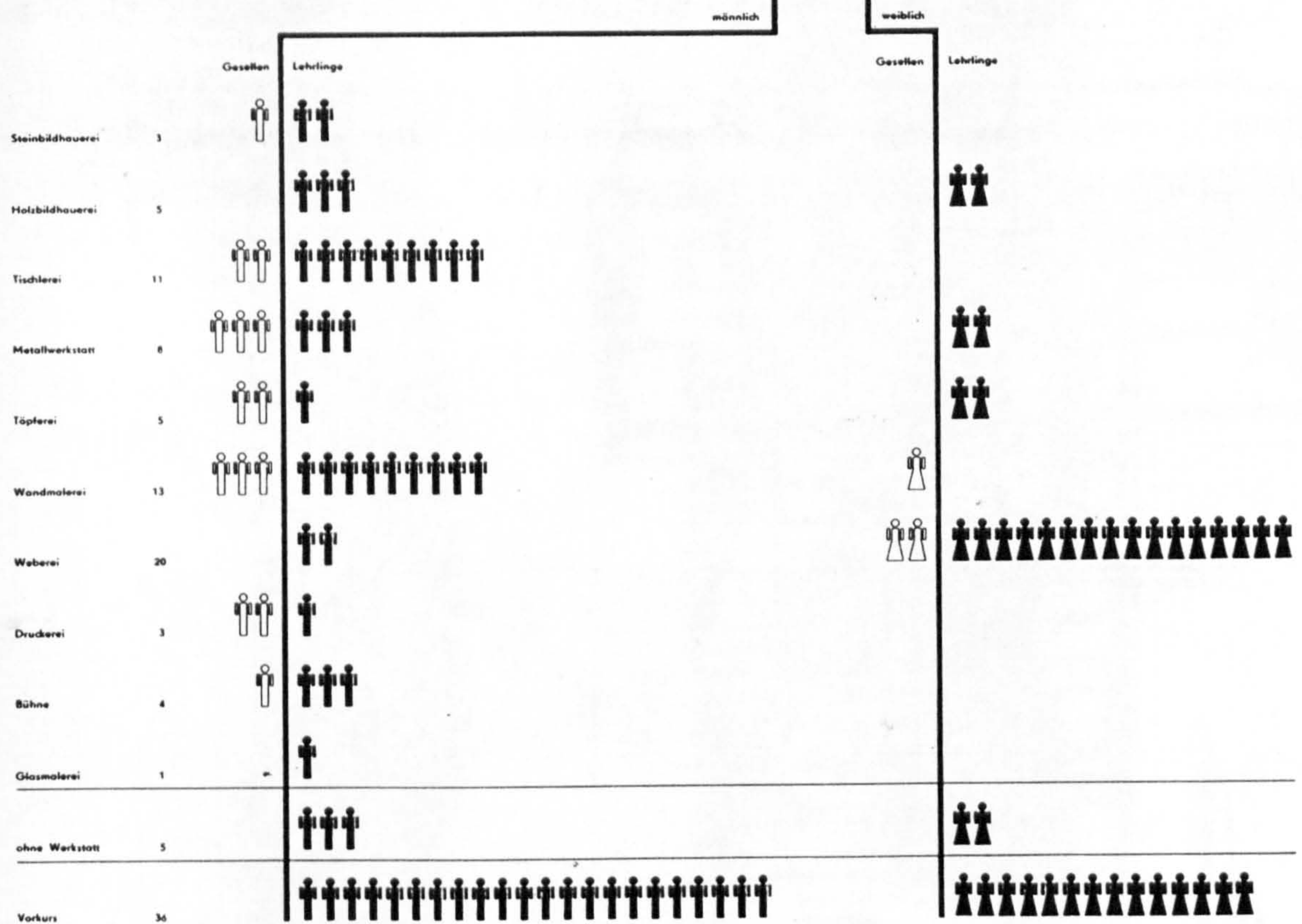


Bauhausbildarchiv. Bauhausalbum Weberei, Number VII  
Cat. No. Unknown. This piece is most unusual as it appears to be a Jacquard woven fabric, although there is nothing to suggest students had access to Jacquard looms in the Weimar period.

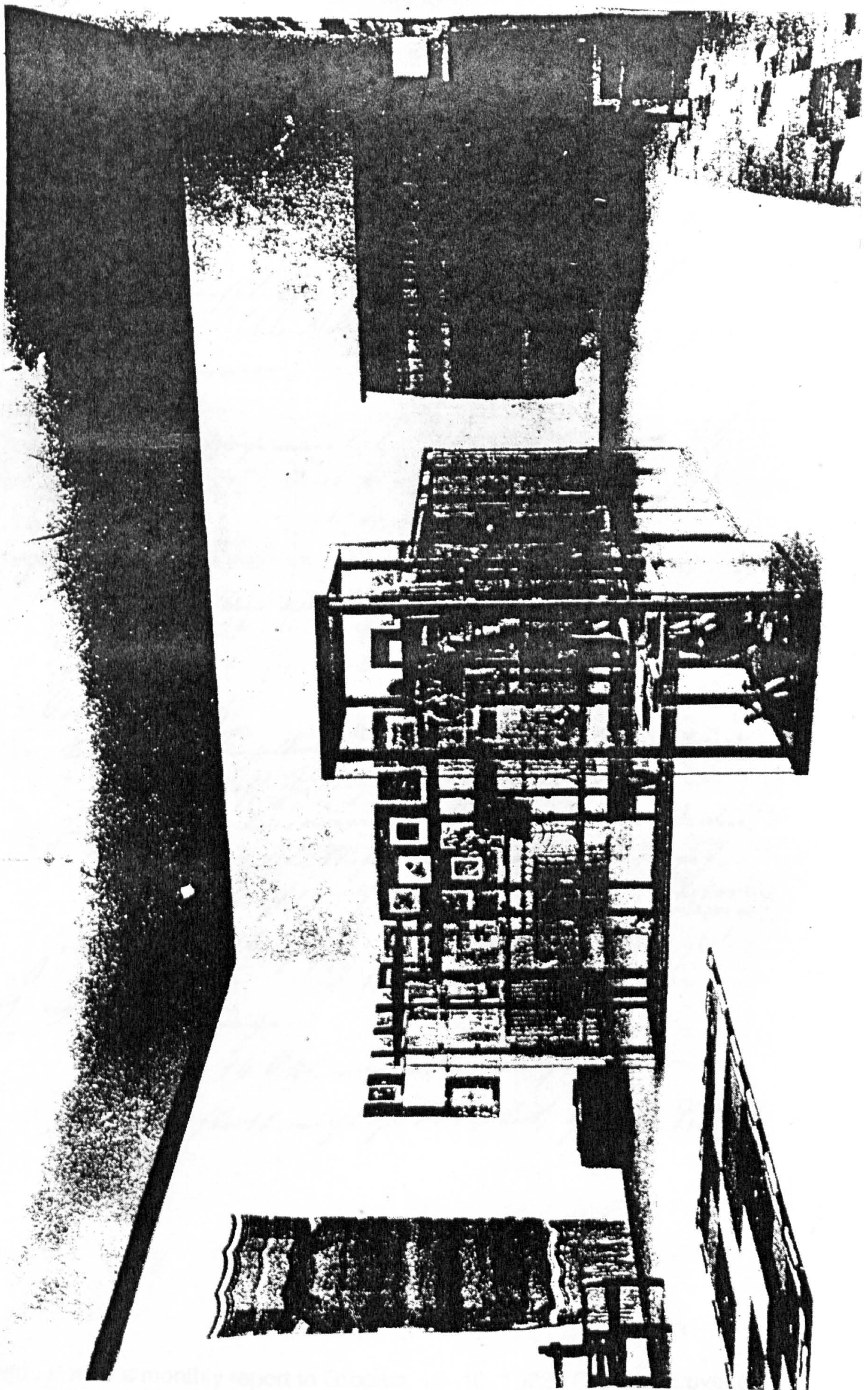
Anzahl der Studierenden und Verteilung auf die Werkstätten

1919 20		1920 21		1921 22		1922 23		1923 24		1924 25	
207		143		108		119		114		127	
106	101	61	62	64	44	71	48	73	41	82	45

Wintersemester  
Gesamtzahl der Studierenden



Plan drawn by Professor Shädlich showing the number and gender of students and staff at the Weimar Bauhaus 1923-24. While the majority of women are in the *Weberei* [weaving] workshop, the plan does show women in the woodwork, metalwork and wallpainting workshops.



Photograph of the 1923 Bauhaus Exhibition.  
*Bauhaus- Ausstellung 1923, Blick in den Oberlichtsaal.*

Webererei

WEIMAR, den 16. 10.  
 Fernruf 1135

000004

Betrifft Umlauf vom 15. d. M.  
 Umlaufrechnung

1. Tarifarbeiten:

a. Arbeitsstunden:

Kommen (Wage vom 1.-6)	46.	Wage vom 7.-14.	44.
fest ( " " 1.-6)	46.	" " 7.-14.	38.
gebührend ( " " 1.-6)	46.	" " 7.-14.	38.

b. Löhne

Kommen (Wage vom 1.-6 M. 914, 810 Mill. vom 7.-14. M. 2, 159,000 000)	
fest ( " " 1.-6 " 914, 810 Mill. " 7.-14. " 2, 159,000 000)	
gebührend ( " " 1.-6 " 914, 810 Mill. " 7.-14. " 2, 527, 390 000)	

c. Arbeitsleistung:

Kommen: Ringelstabe, Möbelstoff Grozint, Wiederselung  
 Hoff gefertigt 1 mal.

fest: Hüfla Vorraum und dazw. Mitter Weiden.  
 je bestellte Hüfla / festsitzen am Tag.  
 nachhül.

gebührend: dazw. festsitzen am Tag.  
 je bestellte Hüfla / festsitzen am Tag.  
 nachhül.

2. Für Löhne:

Vom 1-14 Okt. wurde von folgenden in  
 der Werkstoff nicht gearbeitet, für die Holz

Helene Börner's monthly report to Gropius, 16- 10- 1922. [Continued overleaf.]  
 Photograph from file no. 178.  
 Details of hours worked and wages paid.

Urkunde  
WEIMAR, den 000005  
Fernruf 1135

erster beim Aufstellungsbüro abberufen beauftragt.

3 Baupflichtgefallen:

a Arbeitsstunden:

Bausenator (som 1-6) 18. (s. 7-14, 18. nicht  
gerichtet auf diesen 3

b Lohn:

(som 1-6) 1,052,000.000 (s. 7-14) 2,304,000.000

c Arbeitsleistung:

Leistungsfähigkeit, Proben.  
Im mit 2. 2. 2.  
mitten Wert gut im 1. 1. 1.  
2 m. 2. 2. 2. 2.

4

Von nicht beim letzten Leseingen passan  
nach dem 15.

H. Wimmerer, F. Vlassing.

Büro



Dr. Otte

37

Rechtsanwalt bei den Landgerichten I, II und III Berlin

Fernruf: Amt Nollendorf, Nr. 4300, 4312  
Sprechzeit nur nach Übereinkunft

Berlin W 35, den 1. Dezember 1923.  
Potsdamerstr. 30

Dr. O/Zr.

Herrn Professor Walter Gropius,  
Staatliches Bauhaus  
Weimar

Sehr geehrter Herr Gropius!

Joh gehe mit dem Gedanken um, für das Schlafzimmer meiner Frau, und zwar für den Platz zwischen Bett und Fenster vor dem grossen Spiegel, einen Teppich aus der Weberei des Bauhauses zu erwerben, wenn der Preis mir nicht zu unerschwinglich ist. Wenn ein besonders schönes Exemplar - etwa ähnlich dem von Stoeckle's erworbenen Stück - in einer Grösse von etwa 1 m Breite und  $1\frac{1}{2}$  m Länge vorhanden wäre, möchte ich Sie höflichst bitten, mir hiervon Mitteilung zu machen und den Preis anzugeben.

Freicouvert liegt bei.

Die Antwort erbitte ich an die Adresse meines Büros: Berlin W. 35, Potsdamerstrasse 30.

Mit vorzüglicher Hochachtung

*Dr. Otto*

*Dr. Otto*

10 13 = 1829/11  
1. 11. 1923 = 1829/11

Letter from Dr. Otte in Berlin asking for a carpet for his wife's bedroom to go between the bed and thw window, if the price is right.

Gr/Bo.

Weimar, den 11. Dezbr. 1923

Pr

Herrn

Rechtsanwalt Dr. O t t e,

B e r l i n. W. 35.

Potsdamerstr. 30.

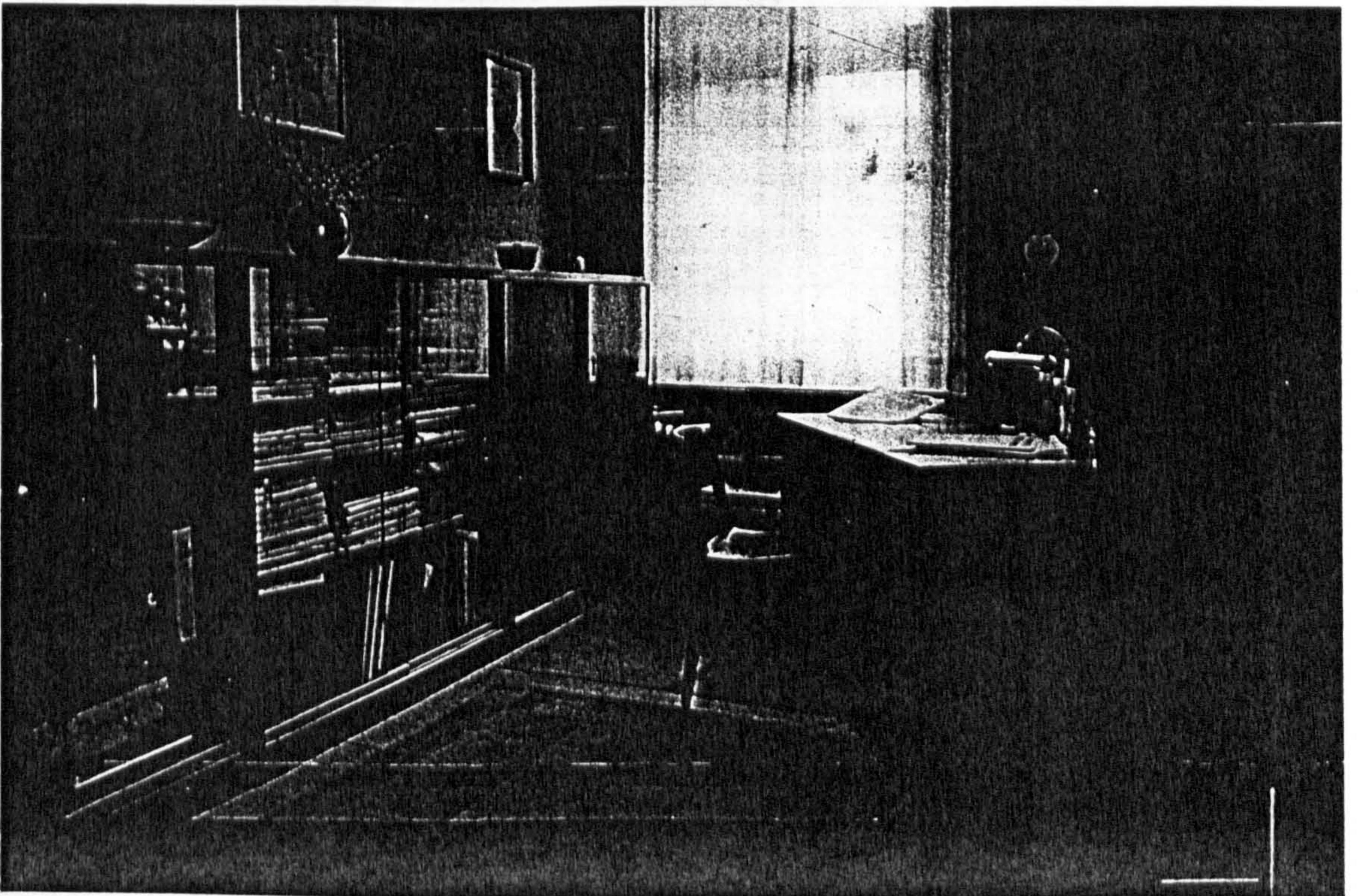
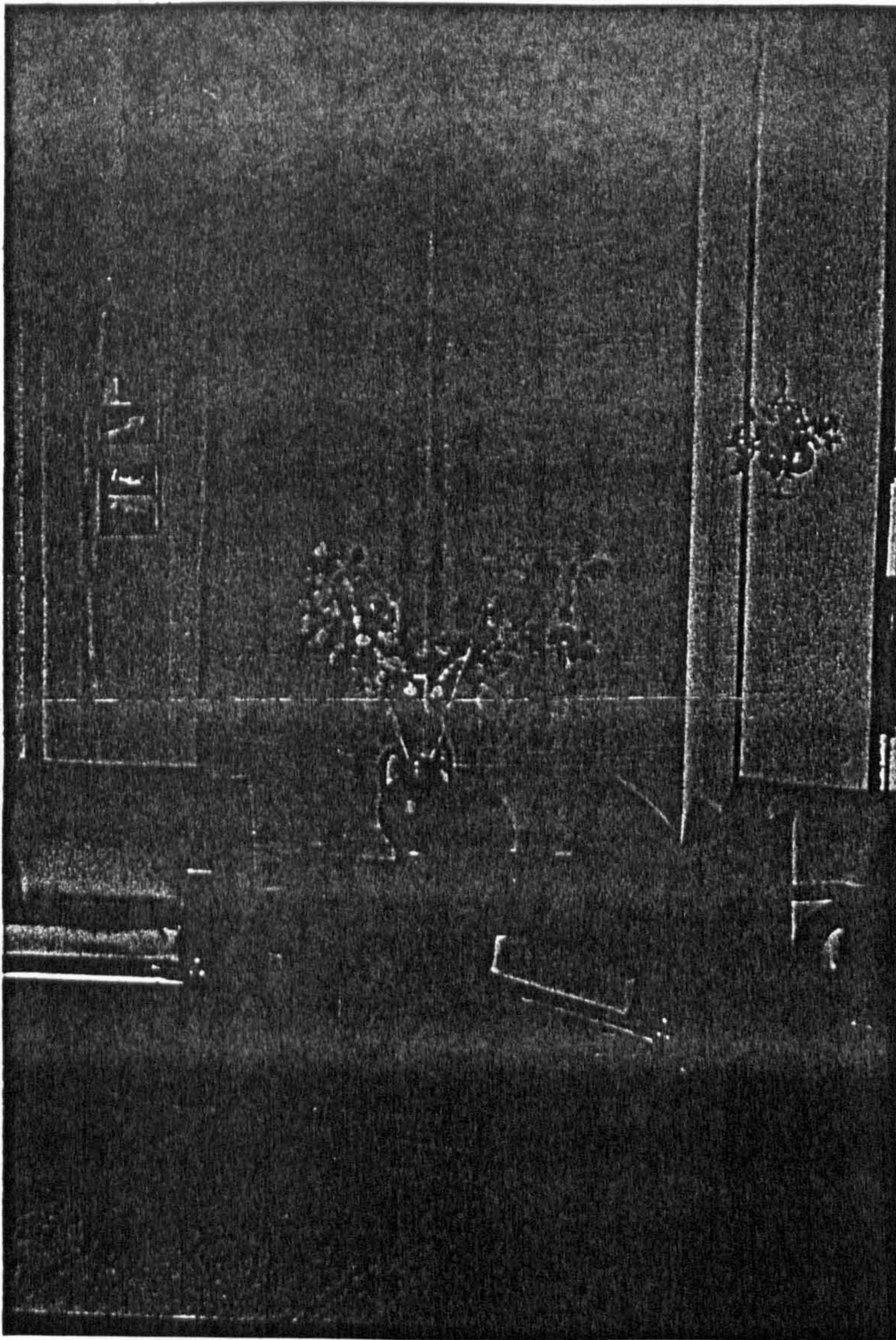
Sehr geehrter Herr Dr. O t t e !

In Beantwortung Ihres Schreibens vom 1. cr. teile ich Ihnen mit, daß gerade ein sehr schöner Teppich im Maße von 1 m ~~1,30 m~~ fertig geworden ist, der sicherlich in den Raum Ihrer Frau Gemahlin passen würde. Wir können ihn für 150.-Goldmark abgeben. Bitte teilen Sie mir mit, ob ich ihn Ihnen zuschicken soll. Falls Sie ihn nicht behalten wollen, könnte er in Berlin in der "Hausrat" Gemeinnützige Ges.-m.-b.-H., Berlin-Schöneberg, Sachsendamm 44, wo wir eine Weihnachts-Ausstellung machen, mit aufgenommen werden.

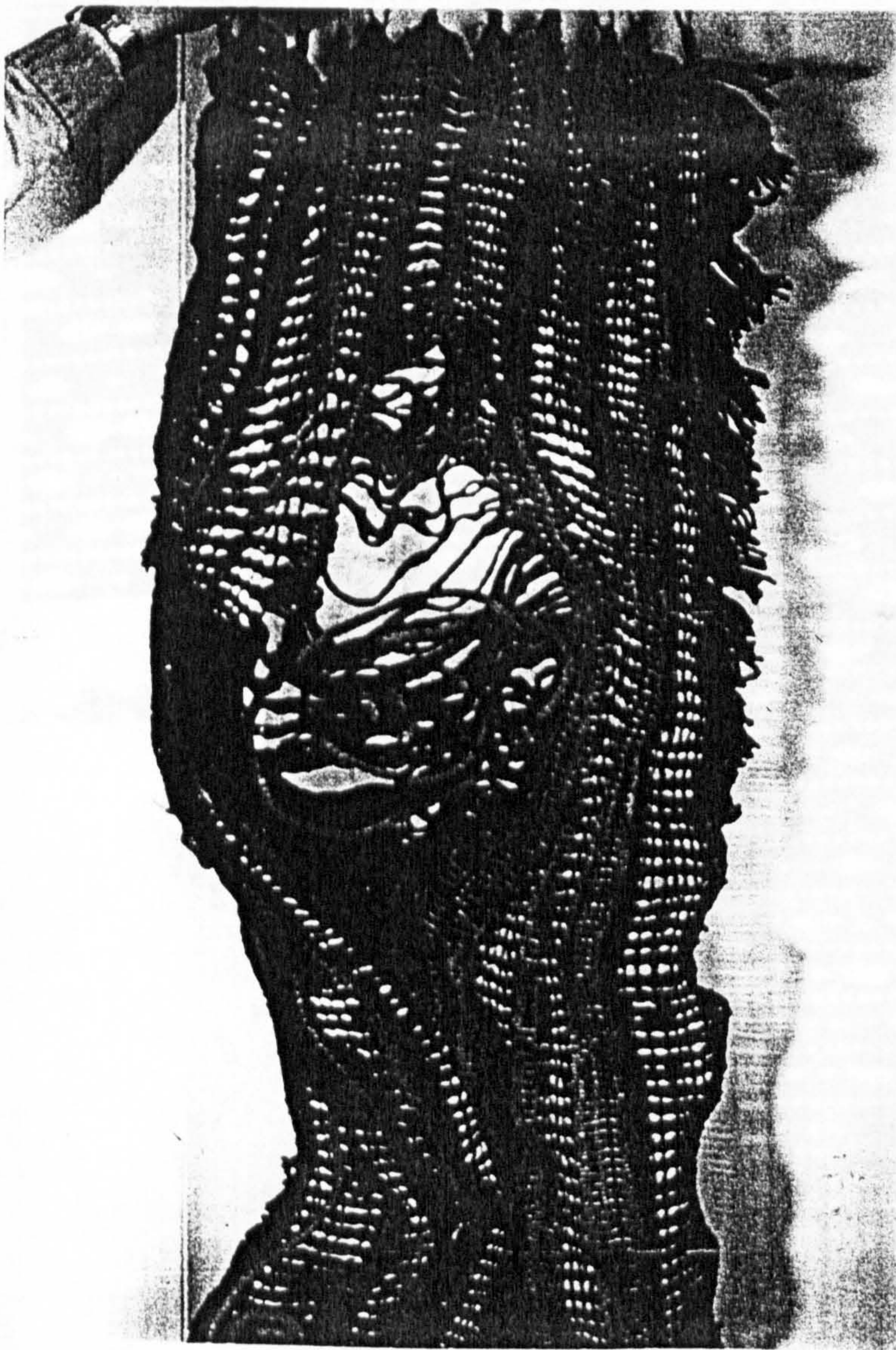
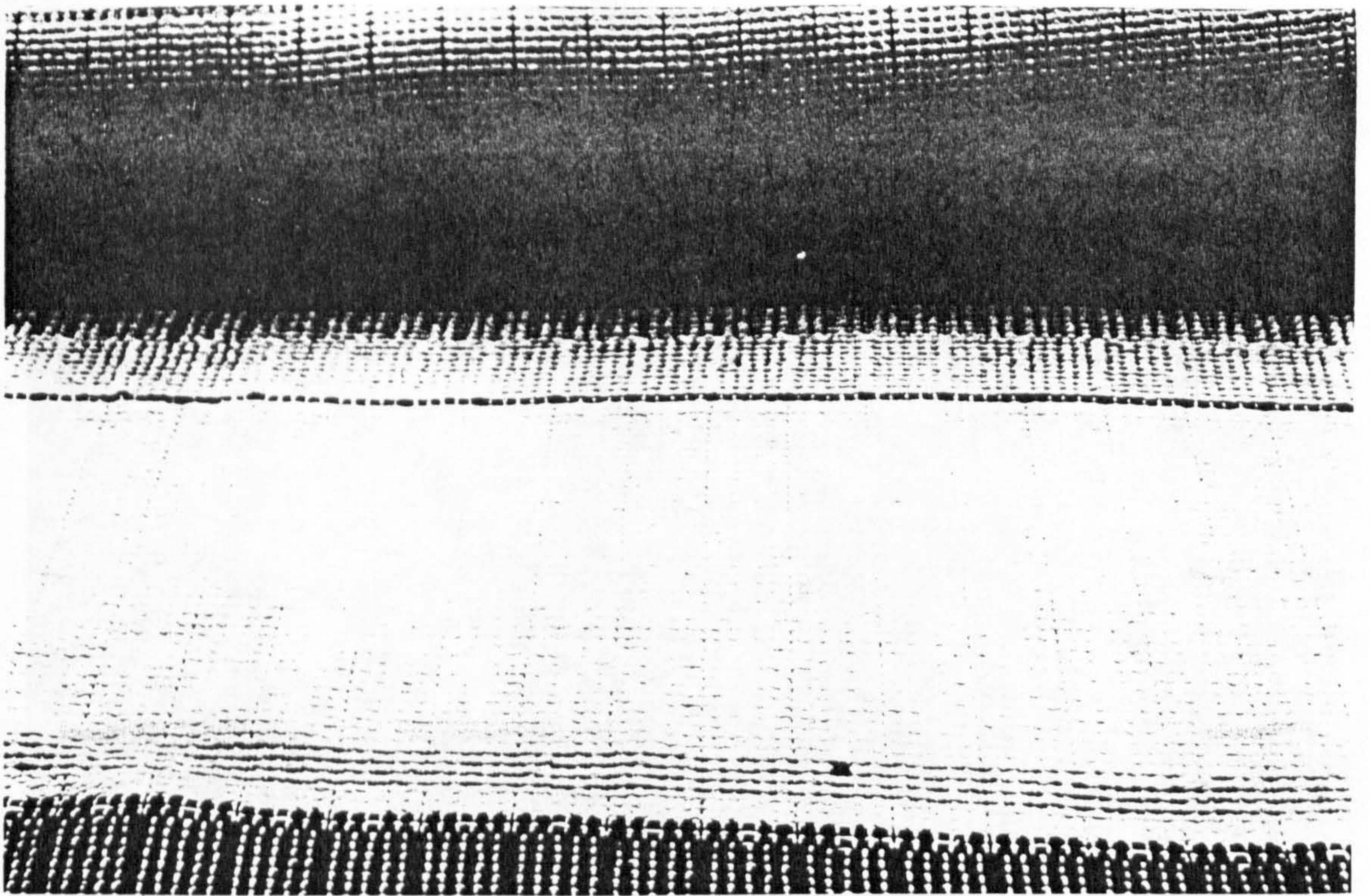
Gestern traf auch Ihr freundlicher Brief und 5 Dollar Goldanleihe für unsere Kantine ein. Ich danke Ihnen dafür sehr herzlich im Namen unserer Bauhändler. An Ihren Herrn Schwager werde ich meine Bau-Publikation mit gleicher Post senden.

Es ist sehr ärgerlich, daß die Durchfeuchtung des Vordaches noch immer nicht zum Schluß gekommen ist. Es steht außer Zweifel, daß bei einer sorgfältigen Deckung mit englischen Schiefeln und genügendem Untergreifen der Zinkstreifen und der Pappe ein Durchregnen nicht vorkommen könnte. Es muß also nicht mit der genügenden Sorgfalt vorgegangen worden sein. - Mir selbst ist die ganze Sache sicherlich ebenso peinlich, wie Ihnen, aber Sie haben natürlich die direkt

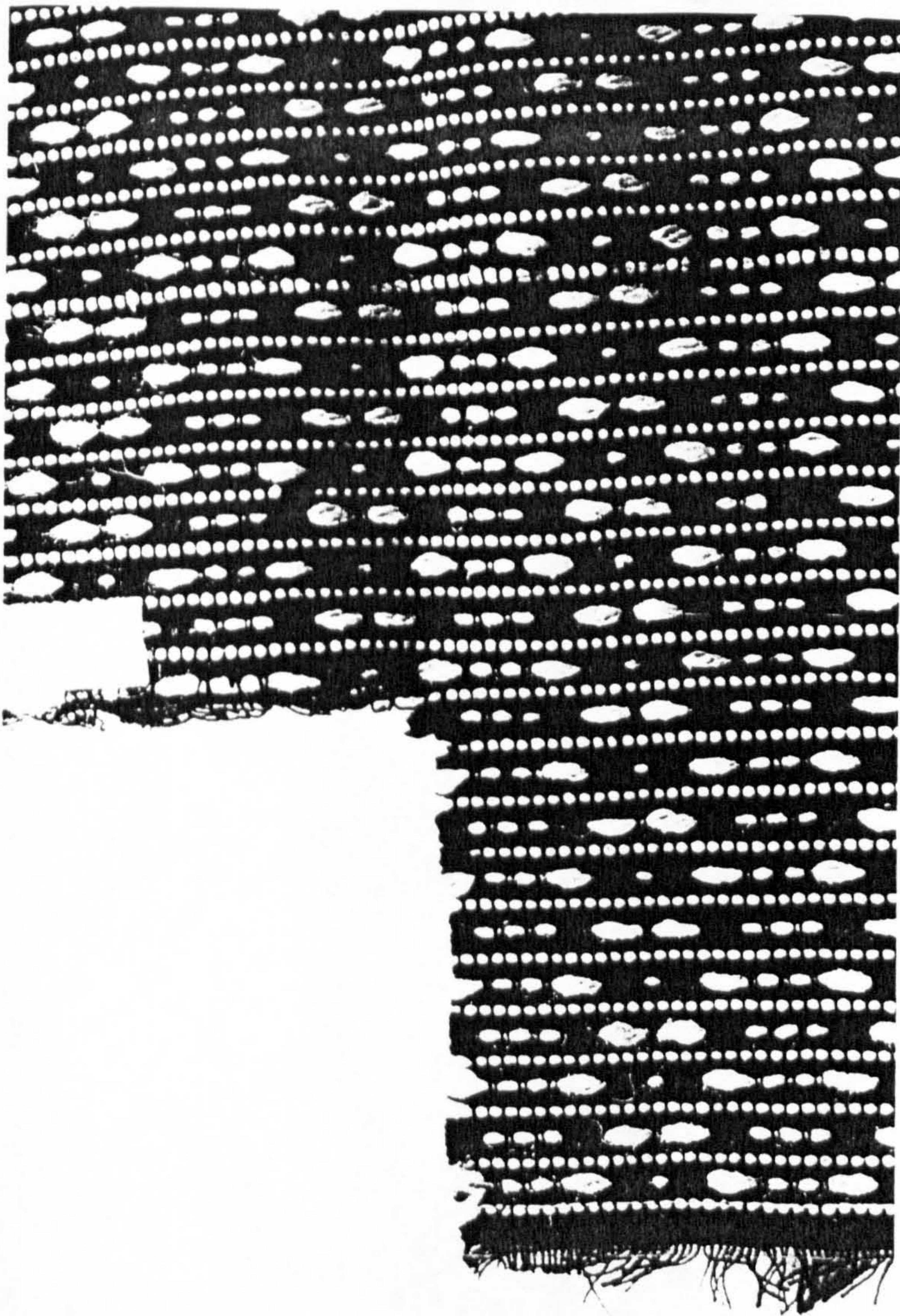
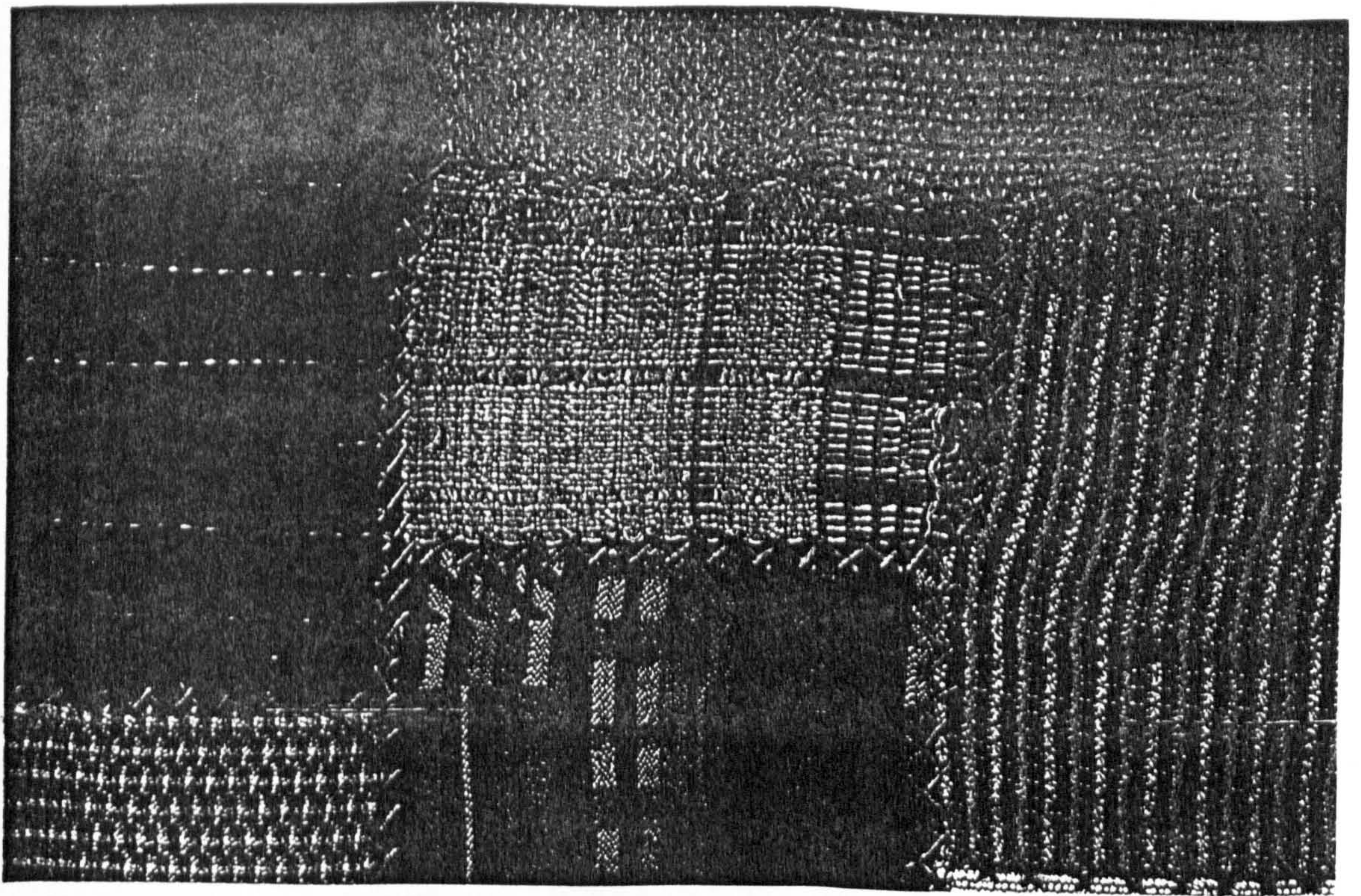
Reply form Gropius saying there is a lovely carpet that has just been finished, for which they want 150 gold marks.



Photographs of Dr. Otte's apartment in Berlin furnished with some of his purchases from the Bauhaus. Date unknown.



Wissenschaftlich- Kulturelles Zentrum Bauhuas Dessau  
Grete Reichardt textiles from the collection.



Wissenschaftlich- Kulturelles Zentrum Bauhuas Dessau  
Unknown textiles from the collection.

# s i e b r a u c h e n

moderne qualitätsarbeit

# d a s b a u h a u s

übernimmt aufträge

für die bauabteilung      beratung, entwurf und leitung v. bauten jeder art in allen ländern

für die tischlerei      entwurf und herstellung von einzeilmöbeln und ganzen inneneinrichtungen. zeichnungen und angebote für typisierte einheitsmöbel stehen auf wunsch zur verfügung.

für die metallwerkstatt      herstellung sachgemäßer beleuchtungskörper evtl. nach den anregungen des auftraggebers. modelle für gebrauchsgegenstände in metall, ausführung in der eigenen werkstatt oder durch fremde fabriken. abbildungen und angebote kostenlos.

für die weberei      stoffe für den neuen wohnraum:  
a) möbelstoffe, polsterstoffe in halbseide oder damast, divandecken in wolle u. wolle mit seide, webbreite 130-140 cm preis rm. 10.- bis 28.-  
divandecken, doppelware, abgep., 160-280 cm preis rm. 75.- bis 100.-  
b) spannstoffe, breite 100-200 cm      preis rm. 10.- bis 20.-  
c) vorhangstoffe, leicht waschbar, halbschwere oder schwere doppelware, schalldämpfend      preis rm. 10.- bis 30.-  
d) vorleger- und läuferstoffe, gewebe und geknüpftte teppiche.  
muster auf besond. wunsch auch neu angefertigt stehen zur verfügung.  
beratung durch unsere mitarbeiter bei grösseren aufträgen.  
rabatte bei nennenswerter bestellung.  
jede gewünschte webbreite bis zu 2 metern bei aufträgen über 10 metern.

für die wandmalerei      beratung der farbigen ausgestaltung von häusern und innenräumen.  
überwachung der entsprechenden durchführung.  
ausführung in eigener regie.

für die druckerei  
und werbewerkstatt      druckaufträge (buchdruck) drucksachen in moderner typografie.  
beratung in neuer werbegestaltung.  
entwurf u. ausführung (bezw. ausführungsüberwachung) von werbewirksachen, katalogen, firmen- und warenzeichen, flugplättern, inseraten, plakaten usw.  
schaufenstern u. ausstellungen usw.

für die bühne      ausstattung und spielleitung v. festspielen und propagandaspielen von der figurine bis zur gesamten bühnengestaltung.

schreiben sie noch heute an das

# b a u h a u s d e s s a u

Wissenschaftlich- Kulturelles Zentrum Bauhaus Dessau

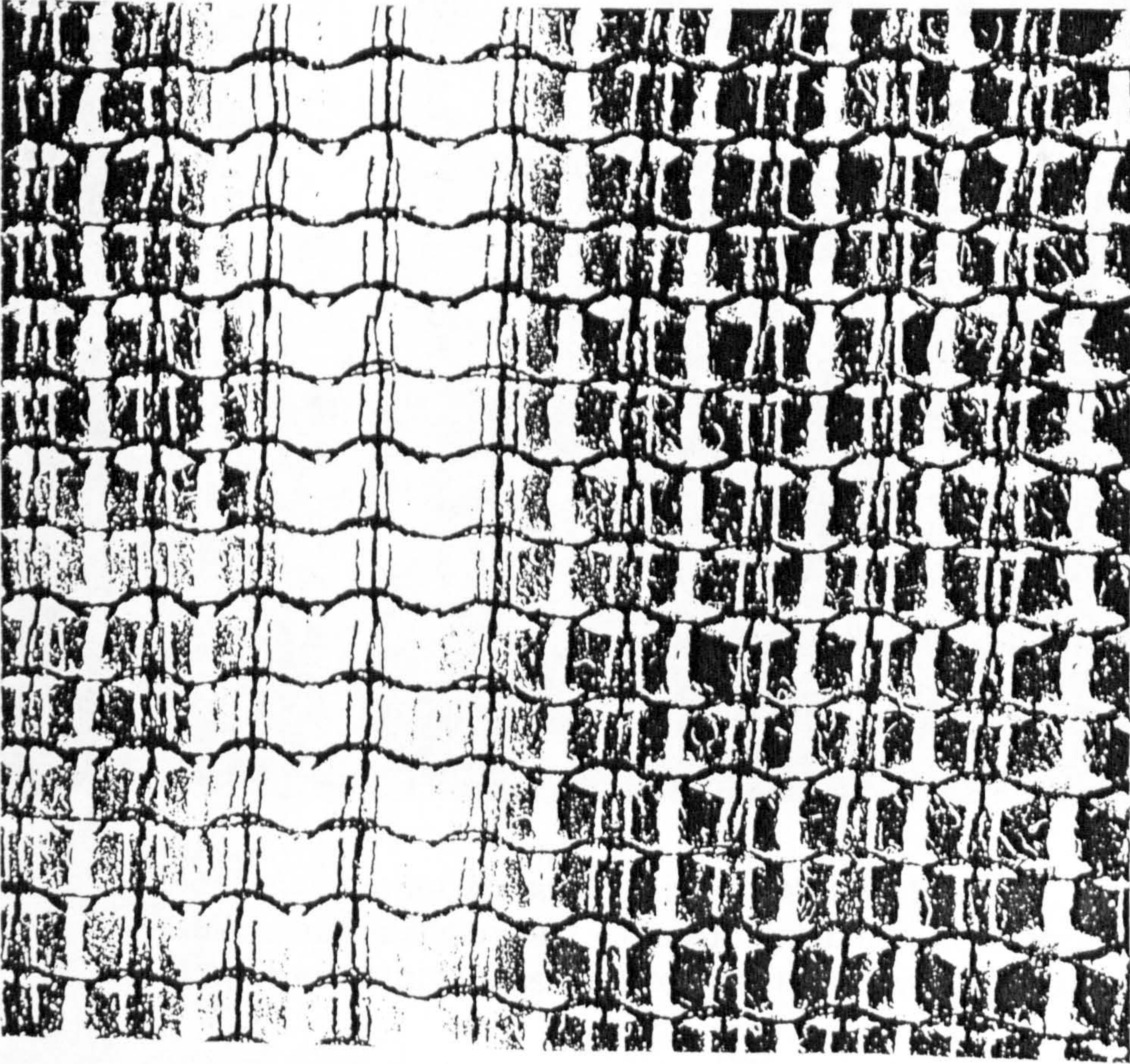
Back cover of Bauhaus Journal 2/3. 1928, advertising Bauhaus products for sale. Note that it is only the *weberei* which has full details of products and their costs. Following four pages: Complete Bauhaus Journal 2, 1931 dedicated to the weaving workshop as Guntha Stölzl leaves.











bauhaus-stoffe

bauhaus-beleuchtungskörper

bauhaus-tapeten

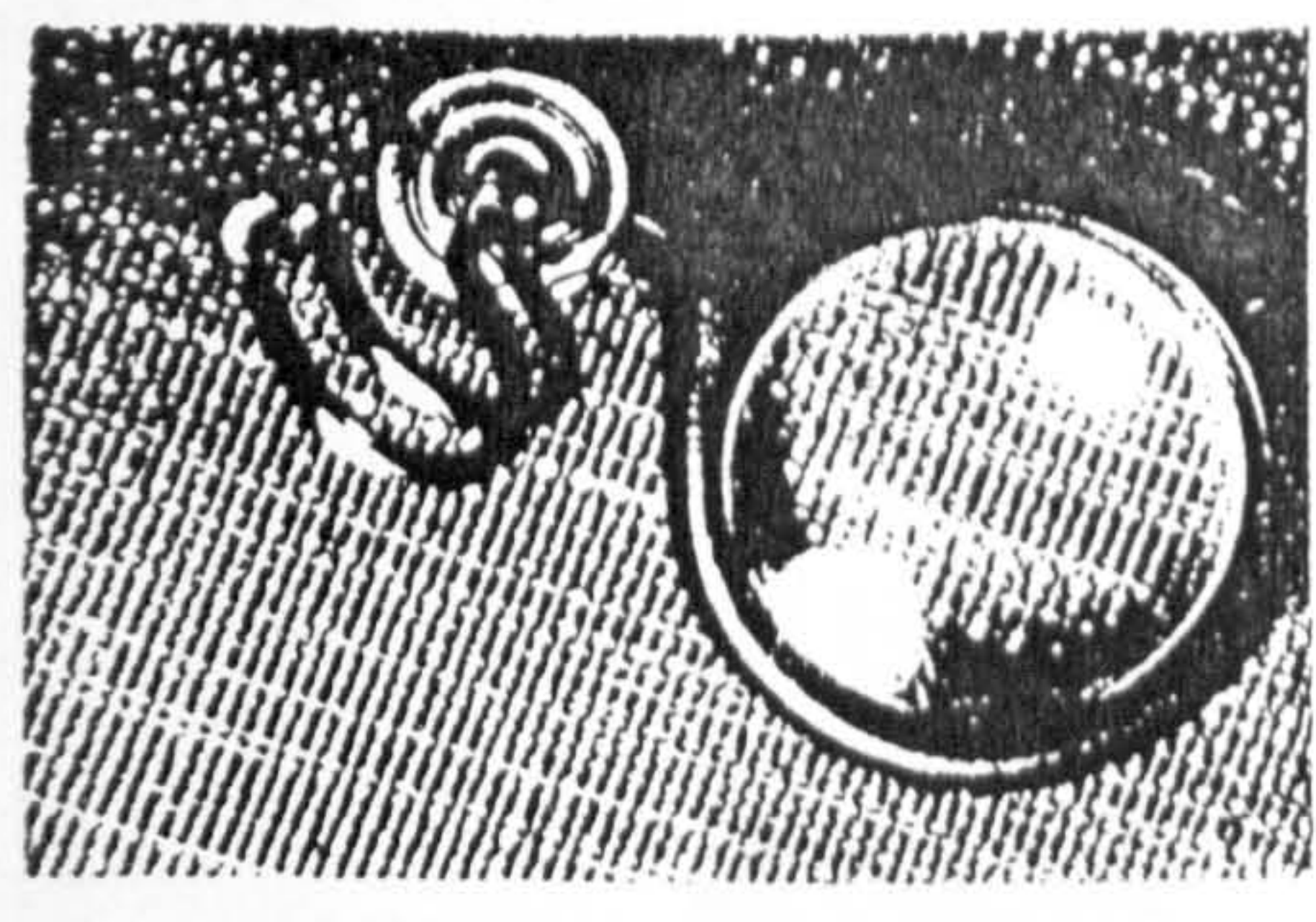
bauhaus-mattglas

# bauhaus-weberei

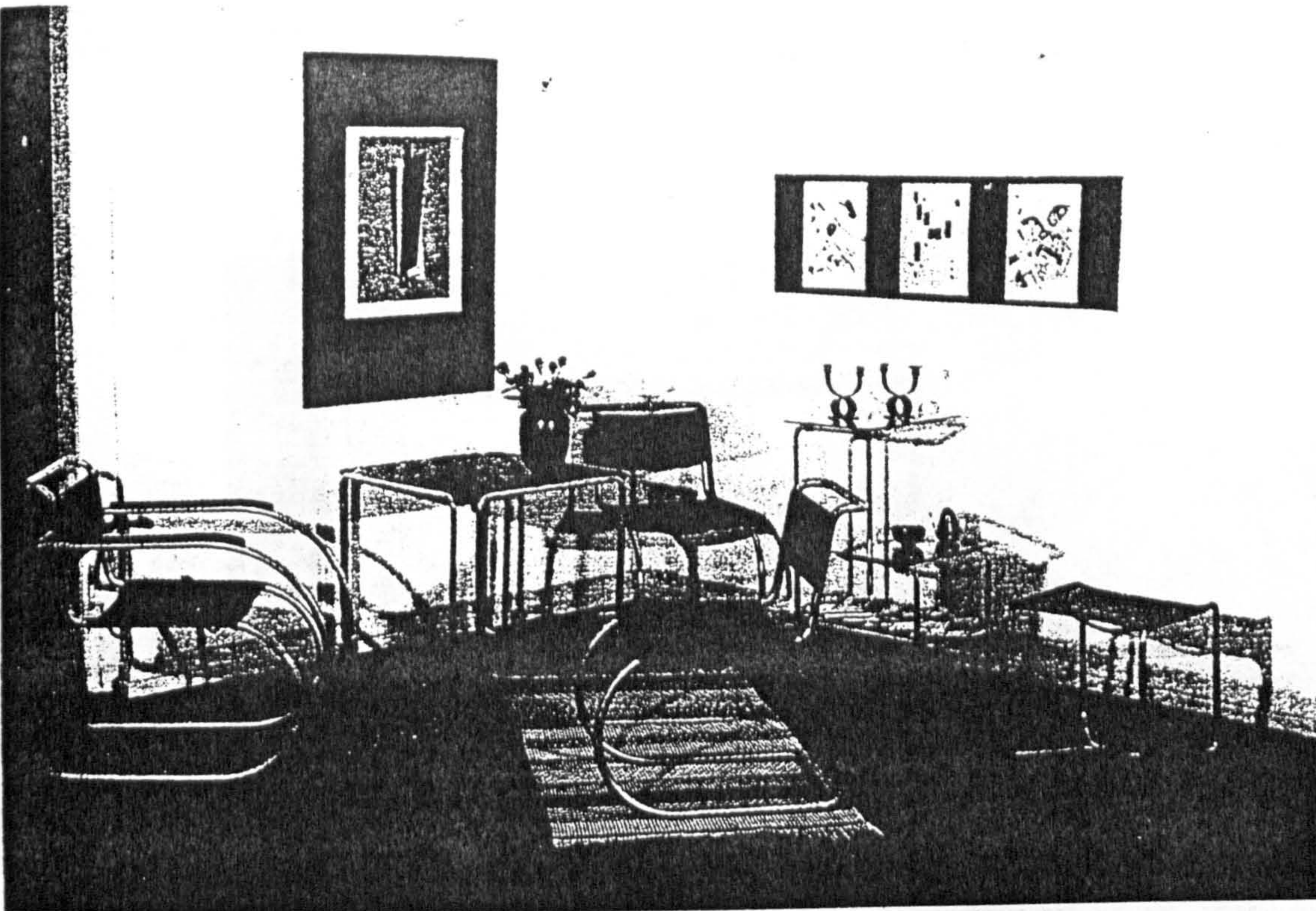
möbelstoffe.  
polsterstoffe in halbselide oder damast.  
divandeecken in wolle  
und wolle mit selide.

spannstoffe,  
vorhangsstoffe,  
gewebte und geknüppte teppiche.

anfragen direkt an bauhaus dessau, abteilung weberei

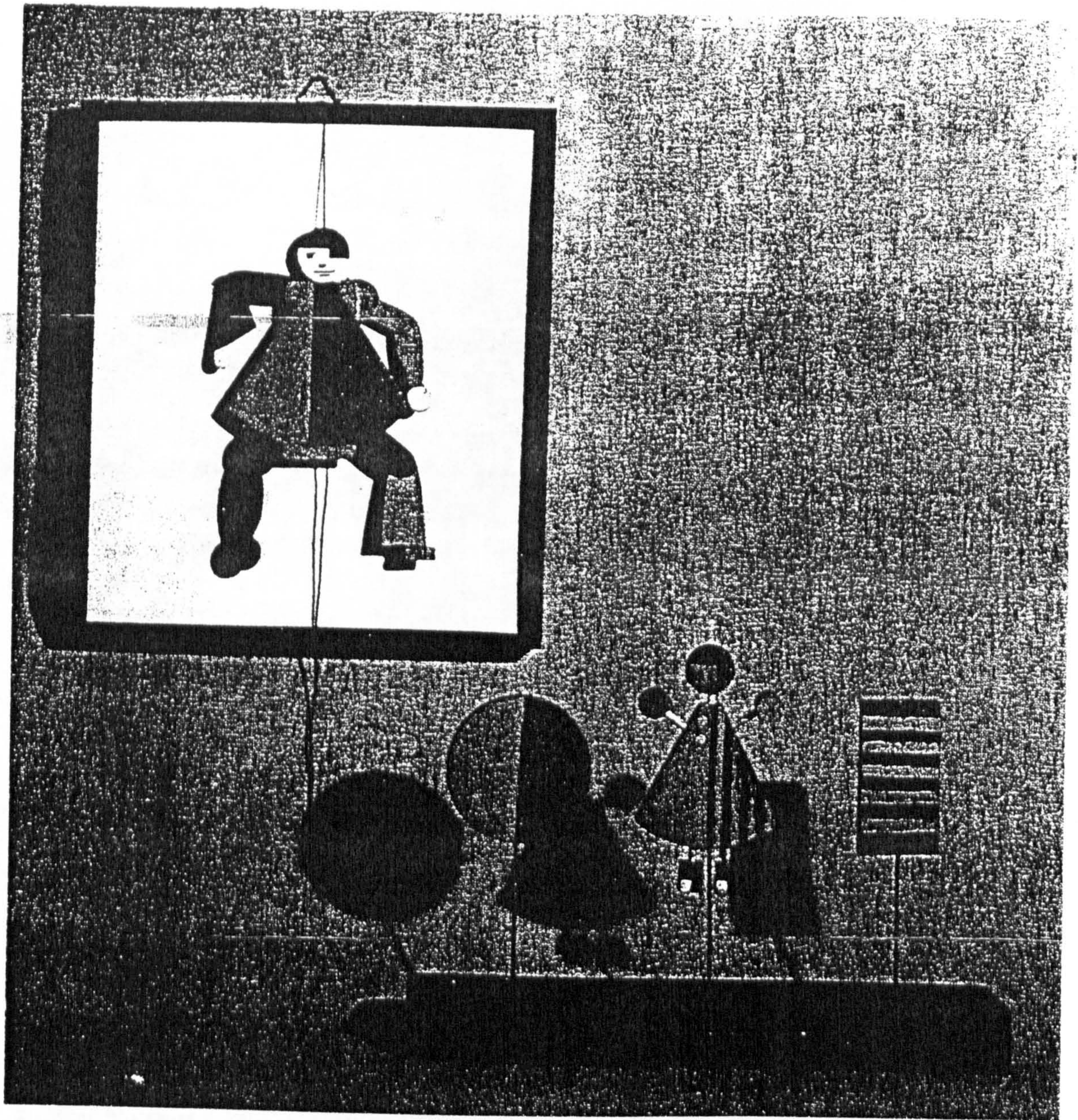


bauhaus-stoffe



**Bauhaus Archiv, Museum für Gestaltung, Berlin**

Galerie am Sachsenplatz, Leipzig. Exhibition Catalogue Number One, showing Grete Reichardt fabrics for sale, "nächter gewebt" ,woven later..



**Bauhaus Archiv, Museum für Gestaltung, Berlin**  
Galerie am Sachsenplatz, Leipzig. Exhibition Catalogue Number Three, showing Grete Reichardt "steck puppchen", stick puppet, attributed to Albers' *Vorkurs* in 1926. These items have been restored. It is fascinating to consider what Albers' reaction to this restoration would have been.

**bauhaus dessau hochschule für gestaltung**

auf grund des beigefügten zeugnisses über ausbildung und leistung ist  
durch beschluss des meisterrates

der studierenden **frau anneliese albers**  
geboren 12. VI. 1899 zu **charlottenburg**

als beleg für das abgeschlossene studium

in der **w e b e r e i =** abteilung

dieses **b a u h a u s - d i p l o m**  
nr. 10

zuerkannt worden

dessau, den 4. februar 1930

die direktion:

*Hannes Meyer*  
hannes meyer

die abteilungsleitung:

*Gunta Sharon-Stölzl*  
gunta sharon-stölzl



**Bauhaus Archiv, Museum für Gestaltung, Berlin**

Anni Albers' Bauhaus Diploma, signed by Meyer and Stölzl, detailing the training undertaken during the sixteen semesters.

# ausbildung:

eintritt: 21.IV.1922.

sommer

1. semester: 1922

anmerkung: das studium fällt bis frühjahr 1925 auf das bauhaus weimar.

winter

grundlehre bei herrn professor muche.

2. semester:

1922/23

grundlehre und einföhrung in die künstlerische gestaltung bei herrn j.itten.

3. semester:

1923

eintritt als lehrling in die weberlei. erste entwürfe und modellarbeit für meterstoffe.

4. semester:

1923/24

fortgesetzte handwerkliche ausbildung, assistiert in der färberei.

sommer

5. semester: 1924

wie im v i e r t e n semester; insbesondere arbeit an wandbehängen undmeterstoffen.

winter

6. semester:

1924/25

wie im f ü n f t e n semester; insbesondere entwurf und ausföhrung eines smyrna - teppichs.

7. semester:

1925

urlaub vom 1.4.25 bis 1.10.25.

8. semester:

1925/26

theoretischer unterricht und bindungslehre; verschiedene gobelins; künstlerische gestaltungslehre bei herrn professor kandinsky.

9. semester:

1926

bindungslehre; arbeiten auf schaft- u. jaquardmaschine.

10. semester:

1926/27

wie im n e u n t e n semester.

1. semester:

1927

wandbehänge auf der schaft-maschine.

2. semester:

1927/28

fensterwand des theatercafés dessau, künstlerische gestaltungslehre bei herrn professor klee.

3. semester:

1928

6 wochen vertretung der werkstattleitung arbeit an theatervorhang oppeln.

4. semester:

1928/29

meterstoffe; decken; gewebter teppich; versuche mit neuem material.

5. semester:

1929

mitarbeiter der weberlei; ab 1.9.29 bis 1.11.29: stellvertretende leitung der weberlei.

6. semester:

1929/30

arbeit an schalldämpfendem spannstoff für die eula der bundesschule a.d.g.b. bernau bei berlin.

# der direktor

hochschule für gestaltung

postanschrift: bauhaus Dessau

frau  
**annelie albers,**  
**dessau**  
burgkühnauer allee 2.

fernraf: sammel-nr. 3136, nach geschäftsschluss: 1587  
bankkonto: sächsische kreditbank Dessau nr. 2634  
postbezeichnung: Magdeburg 13701

ihre zeichen

ihre nachricht vom

unsere zeichen  
hm/mg.

13. II. 30.  
tag

unter bezugnahme auf unsere gestrige besprechung betr.  
unterricht in der weberei hat der gestrige meistrat  
beschlossen, sie als nebenamtliche lehrkraft der weberei  
einzusetzen.  
wir nehmen kenntnis, dass sie zunächst bis ende des winter-  
semesters ohne entgelt am freitag - vormittag  
im einvernehmen mit der werkstattleitung, frau Sharon,  
gestaltungs-theoretischen unterricht erteilen, wir sind ferner  
der meinung, dass ab sommersemester 1930 die tarifmässige  
stundengebühr vergütet wird.

die leitung:

*(Signature)*

## leistungen:

- I) vom 1.5.28 bis 15.6.28, sowie vom 1.9.29 bis 1.12.29: stellvertretende leitung der weberei
- II) vom 1.4.29 bis 1.12.29: mitarbeit der weberei
- III) einige der einzelstücke, die auf ausstellungen gezeigt wurden:  
gobelin 1924/2; gobelin we 81 (besitz: national-museum münchen,  
gobelin we 108; smyrna-teppich we 110; flügeldecke we 493/445;  
jaquardgewebe we 335; decke 565; flügeldecke we 587/629;  
behang we 625; behang we 664; behang we 689; behang we 791;  
theatervorhang oppeln 1/123; gewebter teppich a 365; behang  
a 113; behang we a 955; meterstoffe, z.b. we 705/706 a; 836;  
357; 896; 911; 912; 166; 167; 168; 169; 171; 172; a 374;  
verschiedene stücke, z.b. we 48; 53; 72; 178; 377; 439; 535;  
575; 589; 717; 906; 997; w.a 302; 356; 390; 391; 392.

## fähigkeiten:

frau anneliese albers  
hat sich ganz besonders intensiv für den ganzen aufgaben-  
komplex der weberei eingesetzt. sie hat für die beiden  
gebiete der weberei:

für das freikünstlerische werk

für die entwicklung zum gebrauchsstoff

entscheidend klare mitarbeit geleistet. - ihre muster der  
meterstoffe zeigen beherrschte verwendung der materialien  
bei hochkultiviertem materialgefühl; ein differenziertes  
empfinden für alle ausdrucksmöglichkeiten im gewebe: für farbe  
tonwerte, struktur, griff. sie hat laufend versuche gemacht,  
neue materialien in die weberei einzubeziehen und gab so-  
mit anregung für künftige wege und ziele innerhalb des ge-  
bietes der weberei.

frau albers hat auch in der freischöpferischen arbeit:

gobelins, wandbehänge, teppiche,

dessau, denwertvolle werke hervorgebracht. - scharfe und sichere kritik  
befähigen sie zur pädagogischen tätigkeit, wie auch zur künst-  
lerischen leitung einer werkstatt oder eines mechanischen be-  
etriebes.

die direktion:

*(Signature)*

hannes meyer

Jan. 10, 1961

## Appendix Three

Frau Gunta Stözl  
 Vertonstr. 16  
 Marbachstr. 1  
 Wittenberg

Liebe Gunta,

es war besonders nett mit dir zusammen. Deine Werkstatt zu sehen und über so viel s und so viele Meinungen auszutauschen. Beiliegend schicke ich dir den Katalog meiner Arbeiten über den wir sprachen.

Inzwischen ist ein merkwürdiges Problem in Bezug auf meine früher Vandebendege aufgetaucht, siehe Katalog "Tapestry 1967". Wie du dich erinnern wirst, hatt ich damals eine Reihe dieser Stücke, Doppelgewebe, Leide, ca. 70" x 48" gross, wie ich erwähnendes Stück, entwickelt. Von den ausgeführten Stücken ist nur noch eines, so viel ich weiss, vorhanden, im Harvard Museum. Verschiedene Entwürfe anderer Stücke in dieser Serie von mir, schenkte ich dem Museum of Modern Art, New York.

Zu meiner Überraschung zeigte mir jetzt Grottes in Nürnberg ein Stück dass Ruth Hollos damals nach mir machte: auf meiner speziellen Kette, gleiches Prinzip Doppelgewebe, also gleiche Patronen der Schaffmaschine, gleiche Breite und annähernd gleiche Länge, auch Seide, mit nur etwas anderen Farben im Schuss und etwas verschobenen Rechtecken aber trotzdem sehr ähnlich selbst darin, meinen Entwürfen. Grottes waren erstaunt als ich die Geschichte dieses Stückes Ihnen erzählte. Du wirst dich gewiss an die Situation damals erinnern. Ich war gestört damals von Ihrer Invasion in mein Formbereich das ich langsam, durch viele Variationen von Entwürfen aufgebaut hatte. (Übrigens gibt es eine samaline Reproduktion, sogar 2, in der Veröffentlichung von Sonja Delaunay :Tapis et Tissues. mit meinen 2 Stücken.

Da diese Arbeiten als Anni Albers Arbeiten richtig anerkannt sind, muss ich diese Sache jetzt klarstellen, damit sie nicht nachher angezweifelt werden, und ich als Nachläufer erscheine. Würdest du mir einen Brief schreiben, die Sache klarstellen, in einer Form die ich weiterzeilen kann, an Grottes, zum Beispiel? Ich wäre dir ausserordentlich dankbar.

Herrlichst, Deine,

Anni Albers

### Bauhaus Archiv, Museum für Gestaltung, Berlin

Anni Albers letter to Guntha Stözl concerning the rightful ownership of the doublecloth fabrics during the period 1926-27



## **Appendix Three**

### **Correspondence.**

**Ella McLeod  
Marianne Straub.  
Miscellaneous.**

ELLA McLEOD, 20 MOUNT PLEASANT, FARNHAM, SURREY  
FARNHAM GU9 7AA

June 17. 83

Dear Diane -

You seem to have plenty of spare  
energy! Best wishes to  
you six years of full-time &  
living - its very good to  
keep stretching.

But I'm not the like  
for you - only slight  
involvement with double  
stitched cloths. I think  
Pete Collingwood has done  
some anatomy of multiple  
cloths in his inimitable  
way: worth looking up all

his books/publications - as  
he spans recondite old → new  
Persian? Also ditto  
the very oldest - Egyptian  
mummy cloths; so wide that  
they must have been worn  
multilayer  $\approx$  to open to  
& goodness knows the skill needed  
to do that with leash-looms.  
(Ref. to researches by Crawford  
Grace, & daughter? <sup>18th Egypt?</sup> British Museum  
Before deciding whether  
to approach Marion Sa  
Rosemary O. I should see  
Straub, recent book. (the

only dipped) - & see what  
you think of her approach.  
She's very clear-headed &  
loves to ~~see~~ take. Don't  
know if she'll be here all  
of six years at Cambridge.  
If she takes to you, she's a  
grand bore, & if she  
doesn't, not so good.  
Rosemary would back you -  
but hasn't even wrote contacts.  
Have you thought of Pete  
Cottingham? His range &  
clarity are both tremendous.  
His worldwide contacts

At this time you must  
be rushing madly. Let  
me know if you should  
come to Farnham.  
Local ~~paper~~ shows 18-30  
Time (not Sunday!) & London  
shows late.

Go on keeping in touch.  
& I'll help if I can.

Yours  
Ella Wel.

If you should come to show her,  
I'm not available Time 21, Tue 29/30 July 13  
till after 6pm. but I could offer sheet  
if wanted

ELLA McLEOD, 20 MOUNT PLEASANT, FARNHAM, SURREY  
(0252) 714046 GU97AA

Dec 5. 85

Dear Diane.

I've not got personal knowledge  
of your present powers & office (very!)  
So for reference I shall speak

of the qualities I know in the  
Park, & leave the present to other  
Good luck to you applicants -

BUT - a new-finished house  
in Plympton, & jobs in Chelsea  
& Brighton! You know!

Concerning, research -  
did you know that Peter Collingwood  
went recently to the States to  
SEE Ann's Alban clothes. might  
be worth visiting him - the

the exhibition in USA would be  
better for first hand knowledge.

Double-dotted were a feature  
of Welsh quilts - see the old  
ones at St. Foyers. ~~For~~  
many years they've used Sivel  
horrid heavy yarns. "<sup>colours</sup>"  
evolve a quite nice light-weight  
fragment from Westmoreland, etc.  
(please return)

As you will now know,  
the spread of knowledge about  
weaves, construction, yarns,  
dyeing was very haphazard  
& patchy - individual owners  
the would-be craftmen weavers  
early in this century -

I knew it early, i.e. trying to find training ground for team weavers from Howells, <sup>since</sup> <sup>in the 1930-40's</sup> at which I was keeping on knowledge gained there. Elizabeth Percival & the first Guild Summer schools which only started in 1936! The choice in 1930 was either ① a Technical College - Salisbury, Wiltshire <sup>Bradford? Halifax?</sup> <sup>which would only be a bit of the control</sup> or Royal College which is these days taught very elementary stuff, no advance or what we were doing at Howells - or ③ the craft schools of Scandinavia, of which we knew little & which were very tight.

It happens that unlike Elizabeth, Elizabeth Percival was fascinated by construction with her I delved into Watson's 'Colour Weave' - from that we learnt fundamentals of cloth construction & went on our way, which I'm sure Salisbury/Leeds would not have allowed! Double cloth: cloth or brocade included. In 1940 we had to turn to our sources from such a base. But such familiarity was unusual & apart from Marion's studies & other designs for Hollywood, I don't remember much double cloth other than cravatmen workshops - but then there weren't many. But one came across very lovely uses of it in industry - some. We had a good linen brood/unbleached free upholstery from Donald Bross.

There were occasional dream parties.  
I'm remembering 1930-50  
Also in sun, in the flat-iron  
Carpet world of daylight. And  
(good & awful) in bedspread.

Well - so much for me,  
Scattered recollections.

I'm writing amid chaos -  
a burnt-out top floor, & even  
cold & distracted ground-floor.  
After a month, work isn't starting  
yesterday. I'm poofing a  
distracted water cat, who  
can't settle whether the bangs  
& bangs & voices are more  
dangerous than the cold, bleed  
wet world outside! I'm sleep-  
opposite with friends. but friends

has in daylight. I can  
do with you good wife -  
& send my love to you  
for whatever you have on.  
You sound well-run - in as  
ORGANIZER . . . .

To you best, a good  
Christmas & 1986 -

For Ella Mel.

*Marianne Straub RDI · 67 Highsett · Hills Road · Cambridge CB2 1NZ*

*Telephone (0223) 61947*

27th June 1983.

Dear Diane,

Thank you for your letter of June 21st. I must admit that I can not remember your work, nor your person. The trouble is that I get to know, at least just to talk to some 200 new students every year.

Since you have chosen to research into an area of textile construction in which I have been particularly interested, I am willing to be your specialist textile supervisor.

The only problem is that Exeter is such a long distance from Cambridge. Perhaps we could arrange to meet in London once every term. I do go to London fairly regularly, and it would not be too difficult for me to find a quiet place where we could work together.

I would be interested to see an outline of your plans for your research. I take it that you will start "in earnest" on your research in the autumn. I shall be in Cambridge all through the summer, excepting odd days in London or Bath. Should you be coming this way, do come and see me. But I do need to have advanced notice, by 'phone or letter. If you chose to 'phone, let it ring a good length of time as it is some distance between the 'phone and the kitchen....

Yours sincerely,

*Marianne Straub.*

27-6-83 Preliminary letter from Marianne Straub indicating her particular interest in the doublecloth structure.

67 Highsett · Hills Road · Cambridge CB2 1NZ

Telephone (0223) 61947

22nd Jan 1985.

Dear Diane Bell,

Your letter of December 17th was one of many that awaited me on my return from Switzerland at the weekend. I note that there is a further delay in the CNA's involvement in your degree work.

However, as long as you can do preliminary work, your time will not be wasted. I shall be most interested to hear about your visit to the Bauhaus archive. I have no idea of the extent of the collection they have assembled.

Should there be a catalogue of the Bauhaus textile collection, please buy a copy for me. I will refund you when we meet again.

Best wishes,

*Marianne Straub*



Marianne Straub RDI · 67 Highsett · Hills Road · Cambridge CB2 1NZ

Telephone (0223) 61947 .

4th September 1935.

Dear Diane Bell,

This is, I am afraid, a much overdue thank-you letter. I was delighted to receive your card from East Germany and your letter and the book on Katja Rose's work. I had not heard of her before.

I am so glad that you have had this opportunity to gather so much information ~~in~~ about the Bauhaus in the two Germanies. It must have been very interesting to be able to compare the life in the two countries, apart from doing a serious study of Bauhaus history.

I do hope that the CNAА will get round to approving your research degree soon. I suppose they get so many applications for degree work that they get behind with their consideration of the validity of many of them. But whatever the outcome of your effort will be in the end, and your application gets turned down, you will have benefitted a good deal by what you have already achieved. You mention that the final decision should have been made in June, and were expecting to hear from the CNAА shortly after you wrote to me. As far as I am concerned I have not heard from the CNAА.

I had a visit <sup>from</sup> Dr Christian Wolfsdorff of the Bauhaus Archive some time in the Spring. I think it was in May. The reason for his visit was to get information on Ottilie Berger, whom I knew a little. She took my place in the Helios Design Studio in Bolton for some weeks whilst I travelled in Scandinavia with Ethel Mairet. I think a monograph on her work is due to be published by the Archive soon.

Dr Wolfsdorff gave me a copy of the Bauhaus Archive catalogue. I see that Grete Reichardt is briefly mentioned. The three stars are Gunta Sharon-Stölzel, Ottilie Berger and Anni Albers. Heinz Otto Hurlimann is not even mentioned. Unavoidably the collection in the archive has great gaps, and for this reason I think you will find it difficult to write a basic book on the Bauhaus Textiles. If a more balanced and representative collection of the Bauhaus textiles were available, I expect, it would have been done long ago.

I shall be most interested to hear how your plans are progressing and look forward to seeing your photographs some time.

With my best wishes,

Yours sincerely,

Marianne Straub.

4-9-85 Letter from Marianne Straub following a discussion of Bauhaus weavers and their work suggesting there are unavoidable gaps in the collection.

Marianne Straub RDI · 67 Highsett · Hills Road · Cambridge CB2 1NZ

Telephone (0223) 61947

1st October 1985.

Dear Diane Bell,

Thank you for your letter and for sending me a copy of the Exhibition Catalogue from Pésaro. I had not even heard of the exhibition taking place. I am glad you managed to get there and to see so many, as yet to you unknown, Bauhaus cloths.

I am glad you have at last been able to get your M.Phil sorted out and are now set to get on with a proper programme.

I note that you would like to come and see me some time this term. It would suit me best if you came some time in November. October seems already fairly booked up.

The November dates which are already booked are: 1st to 4th  
13th & 14th  
22nd, 23rd, 24th

Let me know the date you would like to visit me as soon as you can, so that I can reserve it for you.

I am glad you have discovered the "TAKANA" technique. I have found it a very enjoyable way of designing double cloths. There are some Icelandic cloths, very beautiful, in this technique. A counter-march loom is ideal for the purpose.

best wishes,

Marianne Straub.

1-10-85 Letter from Marianne Straub with a final paragraph concerning the Täkänä technique.

Marianne Straub RDI · 67 Highsett · Hills Road · Cambridge CB2 1NZ  
Telephone (0223) 61947

5th November 1985.

Dear Diane Bell,

Thank you for your letter. I note that you will be free to visit me after November 25th.

My free dates after that date are: November 27th and 29th.

December 4th 5th 6th and 11th.

I shall be going to Switzerland on or just after December 13th. for three weeks, and shall probably be in India for the second half of January.

Have you seen the Catalogue of Anni Albers Exhibition in America? No sooner had it arrived here I lent it to Mary Schoeser, but I will lend it to you later if you would like it. Mary is just off to the USA so I shall not have the book back by the time you come to see me.

Best Wishes

Marianne Straub.

P.S. Let me know as soon as possible which date you have chosen to  
come to see me.

5-5-85 Letter from Marianne Straub suggesting research into the Anni Albers catalogue from the exhibition in America.

MARIANNE STRAUB RDM  
67 HIGHSETT  
HILLS ROAD  
CAMBRIDGE CB2 1NZ  
TEL: 0223 61947

21. 11. 85.

Dear Diane Bide,

Thank you for your letter. Dec 4th is alright  
Come any time you like in the morning. I'll be  
here.

I can not remember whether I gave you instructions  
how to find me. Walk down Station Rd. Turn right  
into Tenison Road. 150 yds along turn left into Tenison Ave.  
which if you go straight on gets you into Highsett whilst T  
Ave turns off to the right.

Yes, please bring for me to see all the weaving you  
have done since you last saw me, plus what you think  
is important of your Bauhaus research\*. I am sorry, Mary  
Schoeser has taken my Mini Fibres catalogue, and is at  
present in the USA. \*I can not think of anything else  
you need to bring at this point.

Yours  
Marianne

Marianne Straub

21-11-85 Letter from Marianne Straub prior to a meeting to discuss the first  
series of woven samples.

MARIANNE STRAUB RDI  
67 HIGHSETT  
HILLS ROAD  
CAMBRIDGE CB2 1NZ  
TEL: 0223 61947

6th September 1986

Dear Diane,

Thank you for your letter. Was very sorry to read that you have lost your baby. You must have had a some very distressing months, and the urge to continue with your degree work will be a support to overcome the disappointment.

You will have enjoyed your industrial research work. My heart sank when I read that you had gone to Wales for your studies, but recovered when I got to the second half of the sentence that mentioned Yorkshire and Manchester.

I am very glad that you have chosen to concentrate on stitched double-cloths for the fashion trade. It is to my mind the most interesting aspect of the double-cloth constructions. It has endless possibilities, whilst the interchanged double-cloth range is of a much more limited nature, and because the surviving welsh mills have debased the quality and colours of their blankets I can not look at it any more.

I do not think that the CMAA will consider paying me for seeing you, because I have never been appointed by them to supervise your work. I have, in fact, had never any communication from them concerning you

I am however willing to see you some time in October or November. As far as I can say at present I am not available on October 9th and 23rd nor on Novemebr 4th 19th & 20th. x Oct 27

I have several other commitments which are not yet finalised as far as dates are concerned. So please give me plenty of warning when you are planning to see me. I could, if you wish, see you in London. We probably could meet at the RSA.

Best wishes,

*Marianne Straub*

6-9-86 Letter from Marianne Straub after the research into industrial production of doublecloth in Wales and Yorkshire.

MARIANNE STRAUB RDI  
67 HIGHSETT  
HILLS ROAD  
CAMBRIDGE CB2 1NZ  
TEL: 0223 61947

.. 2. 1987.

Dear Diane

Here with 3 doublecloth samples, which may help  
you on the way to design some interesting fabric designs  
of your own.

You will find notes on previous visits in  
the D'Harcourt's "Textiles & Linens. Part and Part  
Techniques" pages 44, 49. I wish you were  
back in the library.

Marianne Straub  
67 Highsett Hills Road  
Cambridge CB2 1NZ

11-2-87 Letter from Marianne Straub accompanying three doublecloth  
samples from her personal collection.

Dear Diane,

Thank you for your letter. I was delighted to hear that you now have a daughter.

Thank you for the information about the ammunition belt. I will keep it in my records.

I think I had better continue to supervise your practical work. It would be difficult to change to a new supervisor at this stage.

I have never had any communication from the CNRA - i.e. Exeter. I don't suppose they do not intend to pay any expenses let alone fees. By now they must consider the matter superseded.

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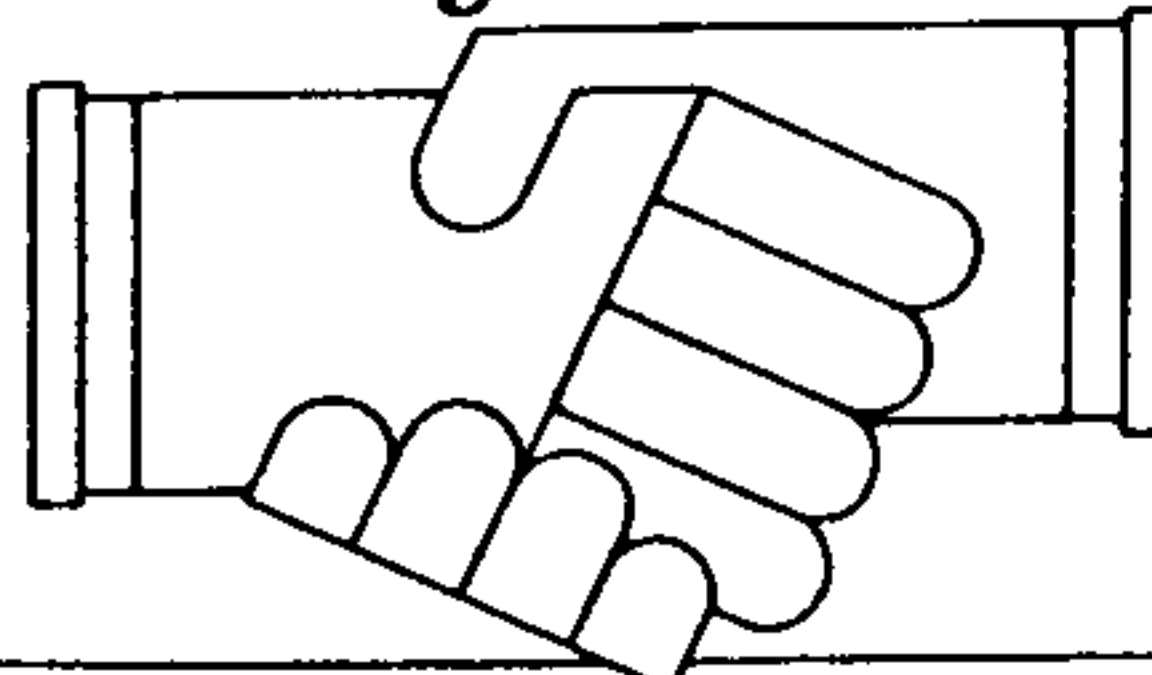
I would be glad to have  
reached the stage where you have  
something to show me. We can  
meet in London.

With my best wishes,

Marianne Straub

---

## Shirley Institute



Didsbury Manchester M20 8RX  
England  
Tel 061-445 8141  
Telex. 668417 Shirly G

### INFORMATION ABOUT TEXTILES

Dear *Ms Bell*

The Shirley Institute receives a large number of requests for information, free of charge, on the production, processing, properties and applications of textiles from the public and from organizations outside our membership. Unfortunately, due to the very pressing demands of our research and development work for members and clients, we are not able to expend time on answering these requests. Furthermore, we do not produce descriptive matter on textiles for distribution free of charge.

We suggest that the library staff at local or city libraries should be asked to help in finding books containing the relevant information and requests for specific literature and information may sometimes be met by large firms and organizations, some of which are listed beneath.

- ✕ British Carpet Manufacturers Association, Royalty House, 72 Dean Street, London W1V 5HB
- ✕ J. & P. Coats (UK) Ltd, Thread Advisory Service, 12 Seedhill Road, Paisley PA1 1JT
- ✕ English Sewing Ltd, 56 Oxford Street, Manchester M60 1HJ
- ✓ Fabric Care Research Association, Forest House Laboratories, Knaresborough Road, Harrogate HG2 7LZ
- ✓ Home Laundering Consultative Council, Wellington Hse, 6-9 Upper St Martin's Lane, London WC2
- ✓ ICI Fibres Ltd, Hookstone Road, Harrogate, North Yorkshire HG2 8QN
- International Institute for Cotton, Kingston Road, Didsbury, Manchester M20 8RD
- ✓ International Wool Secretariat, Wool House, 6 Carlton Gardens, London SW1Y 5AE
- ✓ Lever Bros. Ltd, Educational Dept, Lever House, 3 St James's Road, Kingston-on-Thames, Surrey
- ✓ Silk Association, c/o Rheinbergs Ltd, Sovereign Way, Tonbridge, Kent TN9 1RN
- ✓ Singer UK Customer Relations, Unit H, Grafton Way, West Ham Industrial Est, Basingstoke RG22

- 1 -

A Company Limited by Guarantee  
Registered Office: Didsbury, Manchester

Reply from the Shirley Institute suggesting that "doublecloth" covers a rather indeterminate range of fabrics and fabric types.



Textile Museums:

✓ Gallery of English Costume, Platt Hall, Wilmslow Road, Rusholme, Manchester  
M14 5LL

Greater Manchester Museum of Science and Industry, Liverpool Road, Castlefield  
Manchester M3 4JP

Helmshore Textile Museums, Higher Mill, Holcombe Road, Helmshore, Rossendale  
Lancs BB4 4NP

Quarry Bank Mill, Styal, Cheshire SK9 4LA

We attach a list which indicates some of the periodicals and books which may be helpful to you.

Yours sincerely

Reg Bumbakireh

'Double cloth' covers a rather indeterminate range of fabrics and fabric types. It is unlikely that you will be able to find any central source of information about such fabrics or a collection of them.

Watson's Advanced Textile Design by Z T Groszicki (7<sup>th</sup> edition) contains some information - this is available through the Textile Institute, 10 Blackfriars Street, Manchester M3 5DR on purchase.

Perhaps you need to refine or redefine the subject matter to be covered by your thesis.

# Manchester Polytechnic

Director K Green BA MA

Faculty of Art and Design  
Department of Textiles/Fashion  
Head W A Morrell AT1  
Cavendish Building Cavendish Street  
Manchester M15 6BG  
Telephone 061-228 6171

You might also visit

The Woollen Museum  
Llandysul  
Mid-Wales

The Folk Museum  
St Fagans  
N Cardiff

Our reference WAM/KB      Your reference      Date 5 February 1986

Ms Diane Bell  
Plymouth College of Art and Design  
Tavistock Place  
Plymouth  
Devon PL4 8AT

I hope some of this is of use.

Yours sincerely



W A MORRELL  
Head of Department  
Textiles/Fashion

Dear Ms Bell

Thank you for your letter of 17 January.

As David Jeremiah suggested, I would be only too happy to help with your work towards your thesis. My main suggestion would be to call in to see me when you are up here at the Whitworth Art Gallery as we are little more than a mile from there. I would be interested to see your work and discuss it with you, to be frank I am intrigued to know how something so mundane as a double cloth structure can prove the foundation for a doctorate.

Certainly the structure, in a number of variations, is still used today, one company still making reversible coats is Weatherall. The company who make the clothes are:- Baccarat Weatherall, 6-12 Colquitt Street, Liverpool, L1 4DF (write to Claire Black). They don't do the actual weaving but would give you the name of their weavers.

The construction is also used in furnishing fabrics, wherever it is useful to achieve a certain effect, but it would be surprising if one company used it to the exclusion of other weave constructions. You might ask at your nearest reference library for Skinner's British Textile Register which could quote companies who do this work.

You should also contact some of the Welsh places and I give a few addresses below though you may have them already.

Ivion Griffiths  
Tregwynt Mill  
Letterston  
Haverfordwest  
Dyfed

Malcolm McIntyre Reed  
Welsh Crafts Council  
Ladywell House  
Newtown  
Clwyd

/Continued

5-2-86 Letter from William Morrell, Head of Textiles at Manchester Polytechnic, stating that he is "intrigued that something as mundane as a doublecloth structure can prove the foundation of a doctorate."

City of  
Manchester  
Cultural  
Services

Gallery of English Costume  
Platt Hall  
Rusholme  
Manchester M14 5LL  
Tel 061-224 5217

18 February 1986

Ms Diane Bell  
Department of Design Crafts  
Plymouth College of Art and Design  
Tavistock Place  
PLYMOUTH  
PL4 8AT

Dear Ms Bell

Thank you for your letter. It is very likely that we have examples of woven doublecloth in our collections, but I am afraid that we do not have the time at the moment to check all through our 20th century collections to find any. However, if you are going to be at the Whitworth Art Gallery next week, perhaps you would like to come in and see us, as we are less than a mile away, and discuss how we might be able to assist you. If we know exactly what you are looking for, it would make our job much easier.

Yours sincerely

*Anthea M Jarvis*

ANTHEA M JARVIS (Mrs)  
Keeper

18-2-86 Letter from Anthea Jarvis, Keeper of English Costume at Platt Hall. The indexing of costume collections usually refers to the fabric type but double woven or doublecloth seldom appear.

# The Whitworth Art Gallery

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UNIVERSITY OF MANCHESTER WHITWORTH PARK MANCHESTER M13 6ER  
Telephone 061-273 4865



JH/EW

20 February 1986

Ms Diane Bell  
9 Beyrout Place  
PLYMOUTH  
Devon  
PL1 4QY

Dear Ms Bell

With reference to your letter asking to study material in our reserve collection for your PhD on woven double cloth, I write to say that I shall, unfortunately, be on maternity leave from the last week of February. Maude Wallace, who assists part-time in the Department, will, however, be available to help you on Tuesday 25th, Wednesday 26th and Thursday 27th February. As most of the textiles concerned are housed in a basement store it would be most helpful if you could telephone a day or so in advance of your visit to make an appointment.

Yours sincerely

*E. Wilson*

PP  
Dr Jennifer Harris  
Assistant Keeper in charge of Textiles

20-2-86 Letter from the Whitworth Art Gallery prior to research in their textile collection of the doublecloth fabrics by Alexander Morton and Voysey.

THE POLYTECHNIC  
QUEENSGATE HUDDERSFIELD HD1 3DH  
TELEPHONE 0484 22288 Ext 2054  
Telex: 517463 KLADG



Department of Textile Industries  
Head: Professor M S BURNIP  
BScTech MSc PhD AMCST CText  
FTI FRSA

MSB/AVS

4 March 1986

Miss Diane Bell  
Plymouth College of Art and Design  
Tavistock Place  
Plymouth PL4 8AT

Dear Miss Bell

Thank you for your letter of 17 January 1986 about your research into double cloths. You will of course have consulted old text books including both of Watson's publications about some of the historical uses of doublecloth. Another source would be the pattern books of mills if they have kept them. Some of my design colleagues have direct experience of designing for the Yorkshire industry where such structures are still used. Leaving aside the stitching systems, they would suggest that double cloths could be divided into two categories:

- (1) Double plain for figured goods;
- (2) Heavier fabrics for coatings etc.

Double plains are still used both as mens suitings in fine yarns by most of the local fineworsted manufacturers and as fancy coatings, furnishing fabrics etc by several local firms.

The traditional heavier weight overcoatings are still produced although not in the great numbers that they were say 20 years ago. Huddersfield Fine Worsted Ltd at Kirkheaton still make a few and I think Moorhouse & Brook at New Mill will also produce some. Other local woollen manufacturers such as John Crowthers at Milnsbridge, and Courtaulds Northern Woollen at Plover Mill, Lindley will also produce these fabrics. Some will be used in furnishing fabrics, by say Firth Furnishings, whilst Fox Bros in Wellington, Somerset who are producers of high quality coating fabrics are also likely users of such structures.

I hope this information is of assistance to you.

Yours sincerely

Professor M S Burnip  
Head of Department of Textile Industries

cc Mr D Braithwaite  
Mr K Fox

4-3-86- Letter from Professor Burnip, Head of Textiles at Huddersfield, with details of current manufacturers in the Huddersfield area.

Amgueddfa Werin Cymru  
Stryd Fawr  
Cardiff CF1 6NB  
(0222) 509111

Welsh Folk Museum  
St. Eugene  
Cardiff CF1 6NB  
(0222) 509111

17th January 1991.

Cyfeirnod: Cerint Jenkins M.A. D.Sc. F.C.M. F.S.A. F.M.A.



AMGUEDDFA DIWYDIANT  
GWLAN CYMRU  
MUSEUM OF THE  
WELSH WOOLLEN INDUSTRY  
DRE-FACH FELINDRE • LLANDYSUL • DYFED  
Teleffôn/Ffôn: 0555 370 929 SA44 5UP

Diane Bell,  
9 Beyront Place,  
Plymouth,  
Devon.  
PL1 4QY.

Dear Diane Bell,

Sometime ago you wrote to Dr. Dyfed Elis Gruffydd regarding your research into the 'Tapestry' Double Cloth bedcover patterns/history. I wonder if you were able to complete your research and if you have published it. I would be very pleased to have details of the publication if they are available. I have taken over from Dr. Gruffydd and I am very interested in these cloth patterns and did some research in Philadelphia last spring. It is an interesting area of textiles which no one seems to have investigated in any depth.

I would be pleased to hear from you concerning your work.

Yours sincerely,

Museum Officer

17-1-91 Letter from John Spencer, Museum Officer at the Welsh Folk Museum indicating his interest in doublecloth patterns.

## **PRIMARY SOURCES FOR RESEARCH**

### **Bauhausbild Archiv, Weimar**

Professor Shadlich      Weimar Hochschule für Architektur, Direktor

### **Weimar Staatarchiv,**

Michel-Triller      Weimar StaatArchiv

### **Weimar Schloss Museum**

### **Wissenschaftlich- Kulturelles Zentrum Bauhaus Dessau**

Lutz Schobe, Kunsthistoriker

Dr. Opetz, Direktor

### **Bauhaus Archiv, Berlin**

Magdalena Droste      Direktor

### **Dessau Stadt Archiv**

Ulla Machlitt      Dessau Stadt Archiv

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### **Victoria and Albert Museum**

### **William Morris Gallery, Walthamstow**

### **Whitworth Art Gallery, Manchester**

### **Platt Hall Museum of Costume, Manchester.**

### **South West Mills**

Crewkerne Textiles Ltd

John Heathcoat, Tiverton

### **Yorkshire Weaving Mills.**

John Crowther, Milnsbridge

Borval Fabrics, Huddersfield

Firth Furnishing, Huddersfield.

Joshua Ellis, Dewsbury

Skopos, Dewsbury

### **St Fagan's Folk Museum, near Cardiff, Wales**

### **Drefach Felindre Wool museum**

**Welsh Woollen Mills**

Thomas and Sons, Annanford  
Elvet Woollen Mill  
Griffiths and Son, Tregwynt  
Wallis Woollen Mill

**Musée des Tissus, Lyons**

**École Municipale de Tissage, Lyons**

**Musée des Canuts, Lyons**

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