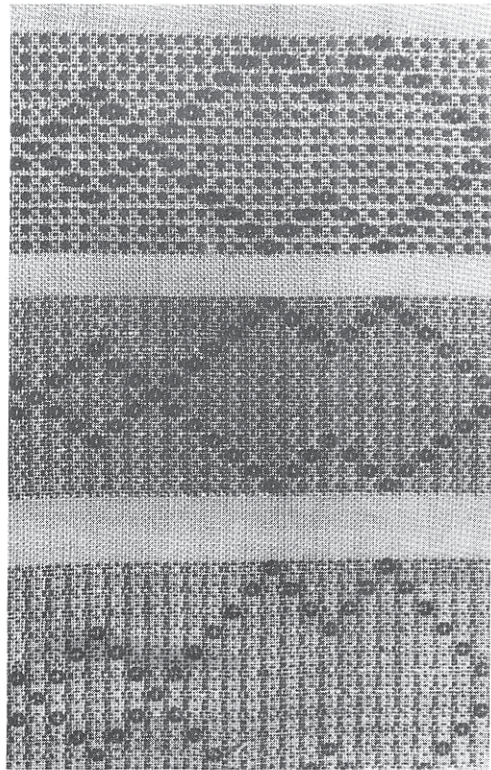

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THE BATEMAN WEAVES -- New Techniques

There is a group of weaves which are becoming increasingly appealing to handweavers but which have seemed so complex that detailed drafts and treadlings are eagerly sought, and weavers sometimes pay as much as five to fifteen dollars to secure simply the directions for threading, tying-up and treadling a single pattern. These unusual techniques are pattern weaves which can make remarkably delicate figures, with considerable elaboration in some cases, though their appeal lies in the beautiful textures which produce the patterns and the backgrounds. Into this group fall many of the Finnish weaves given in such books as KUTOKAA KUVIOLLISIA KANKAITA by Ester Perheentupa, KOTIEN JA KOULUJEN KANGASPUIHIN by Helvi Pyysalo and Viivi Merisals, and KAUNISTA KANGASPUISSA by Rauha Aarnio. Developments of the weaves in this country have been made by the late Margaret Bergman, and in the current work of Dr William G Bateman.

On the surface there may seem to be little relationship between the weaves mentioned, but actually they all have their basic qualities in common. They are multiple-harness weaves (though most of them can be interpreted for 4 harnesses) which are constructed

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to produce a basic tabby and are woven with two shuttles with pattern shots and tabby shots alternated. They are all constructed on basic sequences or threading units and are treadled according to specific unit rotations. They are fundamentally balanced weaves which require, for good effect, that exactly as many tabby shots be woven per inch as there are warp ends, and the pattern weft is a superficial thread which passes over and under the warp, between tabby shots, to give pattern ornamentation in a brocade-like manner. The pattern weft passes over the pattern areas in short floats which are limited by frequent warp tie-down threads, and it is the arrangement of the tie-down threads which produces the basic textures. In background areas the pattern weft appears on the surface at specified spacings, to produce characteristic background textures. It is easy to see that each one of the characteristics outlined above is also one of the basic characteristics of the Summer and Winter weave, a technique which at one time was also considered very difficult and to be used by only the most advanced handweavers, but is now becoming widely familiar to even the beginner at the loom.

Why should these weaves these weaves be considered occult and extremely advanced? Why should it be that one of the most skilled handweavers in this country, who has done endless quantities of 12 and 16-harness weaves in technically perfect interpretations, say that weaving a small piece in one of these techniques was almost impossibly difficult? The reason is the usual one -- that there is a general lack of understanding of the techniques. A large part of this lack of understanding is due to the fact that drafts in these techniques are presented in multitudinous systems, hardly ever two draft forms being alike, so the drafts look like heterogeneous threadings and the tie-ups are consequently baffling. To accommodate the miscellaneous systems of presentation, the treadling orders are without apparent system, or when

an individual system becomes apparent, it is so complex that the theory underlying it cannot easily be grasped.

It is possible, however, to reduce all of these techniques to a common system of drafting, from which both tie-ups and treadling orders may be figured, by using the Unit system of drafting which places all tie-down and base-weave threads on the front harnesses, and all warp ends which control pattern blocks on the back harnesses. Thus, consistent draft or threading units may be devised, which can be threaded from any standard Profile draft of the correct number of pattern blocks.

The Profile draft is a draft which indicates pattern units instead of individual warp threads, on horizontal spaces which represent pattern blocks rather than individual harnesses. A filled-in black square in a Profile draft indicates a specific unit of warp ends threaded to a certain pattern block, the unit varying according to the technique being threaded. The same Profile may be used in threading any of the many techniques which are classified under the Unit Class of weaves. However, a KEY is required for each technique to indicate what the unit threading is. For instance, in the Summer and Winter technique the key is: 1, x, 2, x; with "x" representing any one of harnesses 3 or higher which are the pattern harnesses (1, 3, 2, 3 for Block A, 1, 4, 2, 4 for Block B, 1, 5, 2, 5, for Block C, etc). In the Atwater (Bronson) Lace technique the key is: 1, x, 1, x, 1, 2; "x" being one of the pattern harnesses which are harness 3 and on. Since the Profile draft represents pattern blocks rather than individual threads, the first or lowest line of the draft carries symbols for all units which are threaded to Block A, the next space is Block B, the third Block C, etc, and Profiles are read from right to left as are thread-by-thread drafts. Tie-down and base-weave harnesses (the front

harnesses) which are threaded with unvarying regularity are not indicated.

Although the Summer and Winter and the Atwater Lace techniques are the most commonly known weaves of this class, the Unit Weave class has endless potentialities in addition to the little-known techniques which are now being pioneered. Probably the most complete research on new Unit weaves now being carried on is the experimental work of Dr William G Bateman of Seattle. Dr Bateman has devised and done extensive experimenting in three new techniques known as the Boulevard Weave, the Bateman Blend Weave and the Tag Weaves. (The name Bateman Blend has been given by the Shuttle Craft Guild in recognition of Dr Bateman's work, though those who have studied Dr Bateman's exhibit textiles will recognize it as the Atwin Weave.) To his experimental work in new and unusual techniques Dr Bateman brings the training of his lifetime profession as a theoretical chemist, and a lifetime of spare-time activity in the creative arts, which combine to make his work logical, imaginative, and always beautiful. We are indebted to Dr Bateman for permission to publish his techniques, for the extensive use of his unparalleled sample collection, and for his prompt and lucid explanations whenever problems regarding the weaves have occurred. He has also permitted us to rearrange his draft forms slightly so that they correspond to those of other Unit weaves. (Those who use the Bateman exhibit will notice that Dr Bateman in his drafts places the tie-down harnesses at the back of the loom instead of at the front.) The following short article on the Boulevard Weave is quoted.

THE BOULEVARD WEAVE, by Dr William G Bateman

The Boulevard Weave is a Unit weave from the drafting and threading standpoint because:

- (1) The threading unit is fixed and invariable

- except for the pattern-harness change from one pattern block to another;
- (2) The threading can be done from a Profile; from the weaving standpoint because:
- (1) The pattern blocks are independent and any one, any combination, all, or none can be woven at will;
- (2) The texture flexibility is produced by varying the weaving rotations.

In the Summer and Winter Weave the pattern blocks overlap by one thread and the basic threads are on harnesses 1 and 2 in alternate position across the web. In the Atwater Lace Weave there is introduced in addition to the pattern blocks of five threads, a sixth thread which is on harness 2, and each alternate warp thread is on harness 1. The Boulevard is another unit weave which, like the Atwater Lace weave, has pattern blocks and a tie group of threads. When this weave was devised two or three years ago, a thorough search of handweaving literature did not bring it to light. It was therefore tentatively called new, and since it aroused much interest, was given a name for convenience. Boulevard comes from Boulevard Park, the interesting Seattle district (where Dr Bateman's home is located) which has wonderful vistas of the Cascade Mountains, Mount Ranier and the Duwamish River Valley.

The threading unit for this weave is 6 threads. Three of these form a tie-down group and the other three are on one of the pattern blocks.

For all threadings the tie group is harnesses 1, 2, 1. For the 8-harness threading, Block A is 3, 4, 3; Block B is 6, 5, 6; Block C is 8, 7, 8, with a tie group always preceding the pattern trio. With 6 harnesses only the A and B pattern blocks may be drafted, and on 4 harnesses the 4, 3, 4 is the sole pattern block. Patterns may be extended to 10,

12 and more harnesses by following the same system. In all cases the tie group (1, 2, 1) is threaded at the left of the warp to form the left selvage, balancing the group which forms the right selvage.

With 8 harnesses any 3-block Profile may be used for threading. This gives many pattern effects. Vertical stripes can be woven on one block or on a combination of two blocks. By the use of all three blocks all-over pattern textures can be done. With 6 harnesses a 2-block Profile gives the all-over effects and a more limited range of patterns and stripes. On 4 harnesses only the latter are possible, but they are very interesting.

The features of the weave are the vertical tabby stripes made by the unused pattern blocks, while the tie-groups weave a figured stripe, and a hollow square unit which has a modern touch.

DRAFTS for the Boulevard Weave

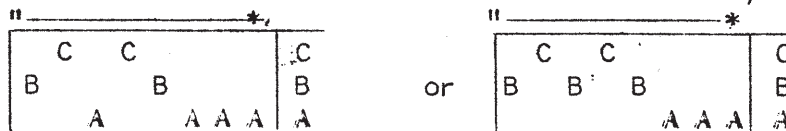
Following is the KEY or unit draft, thread-by-thread, for the Boulevard Weave.

0 0				10 D	Read from right to left in the usual manner.
9				9 D	
	8 8			8 C	
	7			7 C	
		6 6		6 B	
		5		5 B	
			4 4	4 A	
			3	3 A	
2	2	2	2	2	
D	C	B	A	"	*

At right is a Profile draft for threading the 4 blocks; * means start; " means repeat from beginning.

	D				D
	C	C			C
B		B			B
			A A A		A

To thread from this Profile one first threads the six threads of the A-block unit (1, 2, 1, 4, 3, 4) then repeats this twice to give 3 a units, or 18 threads. Follow this by one B unit (1, 2, 1, 6, 5, 6), one C unit, one D unit, one C unit, one B unit. The entire draft is then repeated, starting with three A units, and continuously repeated to the left selvage. Three threads on 1, 2, 1 are then added to form the left selvage. This is the method for interpreting any Profile draft. This draft can be modified to 3 blocks for 8 harnesses in two ways:



Profile Drafts may be devised in any way desired, according to the limitations of the harnesses available, by using single repeats of a draft unit or by repeating any unit any number of times to form blocks of any desired size. Both single units and repeated units are used in the above simple draft.

TIE-UPS and TREADLINGS for the Boulevard Weave

Multitudinous textures of exotix nature are possible with the Boulevard threading, some of them highly delicate and ornamental, others stark and modern. The different textures are produced through using different tie-up systems and weaving these in different treadling rotations. Many of the more elaborate textures and patterns require the use of more than the normal number of treadles, so it is advisable often to use the 2-treadle method of making the pattern sheds, with the left foot controlling the tie-down harnesses or harness and the right foot depressing the pattern combinations. It is easier, faster and more natural to weave with a full tie-up so that the right foot may operate the tabby treadles

and the left foot the pattern treadles, in walking motion. Therefore it is very useful to have two or four treadles beyond the usual quota. However, in these weaves textures are more important than pattern elaboration so it is possible to combine pattern blocks so that fewer treadles are required. Since in most cases the 6-thread draft unit requires a rotation of 12 shots, which demand two or three treadles for each pattern block plus the tabbys, the rotations are complex and more easily mastered if the full tie-up can be used.

The hollow-square texture is a variation of great interest, with a strong, modern feeling. It is woven on the following tie-up:

	A	B	C	all tabby		A	B	C
C ₈	8 8	8 8		8		8 8	8 8	
7	7 7	7 7	7	7	7	7	7	7
B ₆	6 6		6 6			6 6		6 6
5	5 5	5	5 5	5	5	5	5	5
A ₄		4 4	4 4	4			4 4	4 4
3	3	3 3	3 3	3	3	3	3	3
2	2 2	2 2	2 2		2 2	2 2	2 2	2 2
1				1				
	1 2	3 4	5 6	7	8 9	a	b	

The tie-up at the left produces the weave which Dr Bateman calls typical. By changing treadles 1, 3 and 5 as shown at the right, a slightly different background texture is produced and each of these treadles is lightened by two harnesses. (This last is the tie-up which was used for the brown and tan PORTFOLIO sample.) Blocks are combined by dropping certain harnesses. For instance, if blocks A and C are to weave together as pattern on the first sheds, treadle 1 will be tied to harnesses: 2-5-6, and treadle 2 will be tied to harnesses: 2-3-5-6-7 of the first tie-up. To weave A and B together, the first treadle is tied to: 2-7-8, and the second treadle to: 2-3-5-7-8. To weave Blocks B and C together, the first treadle is tied: 2-3-4, and the second treadle is tied: 2-3-4-5-7. It will be noted that treadle 7 stands alone. This tie-up is

the separating shed which is woven at the beginning and the end of each 12-shot treadling rotation. Because it is an unusually heavy treadle, it is placed at the center of the loom where it will be easiest to operate. Treadles 8 and 9 are the ones used to weave all pattern texture with no background. The blocks are treadled in the following order:

Block A	Block B	Block C	All pattern
b	b	b	b
7	7	7	7
a	a	a	a
1	3	5	8
b	b	b	b
2	4	6	9
a	a	a	a
2	4	6	9
b	b	b	b
1	3	5	8
a	a	a	a
7	7	7	7

Read from top to bottom. Throw tabby weft (like the warp) in the a and b tabby sheds, and pattern weft in the pattern-block sheds.

The Texture which Dr Bateman calls the Dukagang effect is produced when eight center shots only are woven, the separating shots on treadle 7 eliminated. For either method, the unit treadling is repeated at will, to build up blocks of any desired size, but a complete sequence must always be treadled. The experimentally minded weaver will be able to devise further textures through slight changes in the tie-ups or/and treadling rotations. No-tabby weaves are also good, particularly in polychrome. Fancy stripes are woven by using only one pattern block or by weaving units in two pattern blocks alternately or in some other predetermined order. The variations are almost infinite and some of the more interesting variations will be taken up in later

Bulletins. Only one further variation is presented here (and illustrated by the yellow and blue sample in the PORTFOLIO). This weave gives an unusual background of small squares, broken in pattern areas by small, flower-like diamonds. The tie-up is:

	A		B		C		tabby	
C 8	8 8	8 8			8			8
7	7 7	7 7			7		7 7	
B 6	6 6		6 6	6 6	6			6
5	5 5		5 5	5 5	5		5 5	
A 4		4 4	4 4	4 4	4			4
3		3 3	3 3	3 3	3		3 3	
2	2	2	2	2		2	2	2
1	1	1	1	1		1	1	1
	1 2	3 4	5 6	7	8 9	10	a b	

A variation of this adds harnesses thus:
 to treadle 2
 add harness 3,
 to treadle 4
 add harness 5,
 to treadle 6
 add harness 7.

The number 7 treadle in this case is used as the center pair of each treading unit: Treadle:

Block A	Block b	Block C	All pat	Background
a	a	a	a	a
1	3	5	9	none
b	b	b	b	b
2	4	6	10	7-8
a	a	a	a	a
7	7	7	7	7
b	b	b	b	b
7	7	7	7	7
a	a	a	a	a
2	4	6	10	7-8
b	b	b	b	b
1	3	5	9	none

"-----"

	C C		C C		C
B B		B		B B	B
	A A	A A		A	A

This is the Profile which Dr Bateman used for a charming mat woven in this

technique. He wove the blocks in the following order, one unit on each: A, B, C, A, B, C, A, C, B, A, ALL pattern, background, all pattern. This was border at each end; center in all background.

THE BATEMAN BLEND WEAVE

The Bateman Blend is a 6-thread Unit weave which Dr Bateman originally called the Atwin weave because textures could be produced on it which closely resemble both the Atwater Lace and Summer and Winter techniques. The Atwater Lace can, in fact, be exactly duplicated, though Summer and Winter (see illustration on front cover) is somewhat different due to the 6-thread rather than the 4-thread units. However, in view of the fact that the primary interest in this technique lies in the unusual textures which cannot be produced by either of the earlier techniques, and which have been devised by Dr Bateman, it seems only appropriate that weavers should know this technique by his name.

The unit for the Bateman Blend is closely related to that of the Atwater Lace (1, x, 1, x, 1, 2, with "x" representing a pattern harness) with the exception that the third thread of the unit is placed on harness 2 and the last thread of the unit, commonly known as the tie-down thread, is placed on harness 3. Thus, three instead of two harnesses are required for the tie-downs, and the pattern harnesses are numbers 4, 5, 6, etc. This threading unit has sometimes been used as an expediency by weavers who wish to lighten the threading on harness 1 for Atwater lace, when a fine, closely set warp thread is used. But its use as an independent technique seems to have been unknown until it was introduced by Dr Bateman. It is evident that there is one less pattern harness available than when weaving Atwater Lace, but also there can be more pattern elaboration with this weave than with the Boulevard Weave, as 8 harnesses permit five pattern blocks instead of three. There are, however, many features common to the two techniques and many of the textures may be woven on either. For instance, the PORTFOLIO sample with hollow squares, previously referred to under the Boulevard Weave was actually woven on the Blend.

The unit threading is shown below for Bateman Blend.

8 8	7 7	6 6	5 5	4 4	8 E 7 D 6 C 5 B 4 A
3	3	3	3	3	3
2	2	2	2	2	2
E	D	C	B	A	

Patterns may be threaded from any Profile draft with an appropriate number of pattern blocks, but in most cases the Profiles which are built up on twills, point twills and extended point twills are preferable to patterns which use repeats of any single unit. In the applications of both of these techniques, Dr Bateman's own work has a strongly modern or contemporary flavor, as he avoids the use of elaborate Profile patterns such as the multiple-harness Profile drafts given in the SHUTTLE CRAFT BOOK OF AMERICAN HANDWEAVING for Summer and Winter threadings. In most of his threadings Dr Bateman arranges his pattern blocks in simple twill order, or point twill. Although with each series of samples worked on a single threading there is usually one sample which is woven-as-drawn-in in the traditional manner, this sample serves merely to introduce the threading which is the basis for the texture experiments.

TIE-UPS and TREADLINGS for Bateman Blend

Again, the various textures characteristic of the weave are produced by the use of different tie-ups with different treading rotations. The Atwater Lace weave is produced if the first tie-up on the next page is used in the typical Atwater Lace tread-

ling manner (See BULLETINS for February and March 1953).

E	8		8	8	8	8		8	
D	7		7	7	7		7	7	
C	6		6	6		6	6	6	
B	5		5		5	5	5	5	
A	1			4	4	4	4	4	
	3	3	3	3	3	3	3	3	
	2								2
	1								1
		1	2	3	4	5	6	a	b
		all A		B	C	D	E	tabby	

This is the heavy tie-up which weaves lace spots on tabby background. Tie pattern harnesses and treadles (A to E) to the blank spaces only for Lace background, tabby spots.

Two treadlings which produce textures similar to Summer and Winter are shown in the two top borders of the illustration just inside the cover. These were woven on the 10-harness Profile below:

"-----"									
-----*									
			G				G		G0
			F				F		F9
		E			E		E		E8
	D				D		D		D7
C							C	C	C6
B							B	B	B5
						A		A	A4

Dr Bateman for his similar samples used 8 harnesses.

"-----"									
-----*									
		E			E				E 8
		D	D	D	D				D 7
		C			C			C	C 6
	B					B	B	B	B 5
						A		A	A 4

Warp was of 30/3 mercerized cotton (Lily) set at 30 ends per inch, with tabby the same and Fabri for pattern weft. A shot of 1/64 supported gold metallic was thrown in a tabby shed along with the tabby weft at regular intervals to add slight glitter.

Because of the number of pattern blocks used,

it was necessary to weave with the 2-foot method of the pattern sheds, so in the tie-up the two tie-downs were placed on the first two treadles, the pattern combinations alone on the following treadles. The separating treadle in this case is number 10, but for better leverage the weaver may wish to place it nearer the center of the loom.

		A	B	C	D	E	F	G	tabby				
10		10	10	10	10	10	10	10	10				
9		9	9	9	9	9	9	9	9				
8		8	8	8	8	8	8	8	8				
7		7	7	7	7	7	7	7	7				
6		6	6	6	6	6	6	6	6				
5		5	5	5	5	5	5	5	5				
4		4	4	4	4	4	4	4	4				
3	3								3				
2	2							2	2				
1	1							1	1				
		1	2	3	4	5	6	7	8	9	10	a	b

This is the tie-up which weaves only a single pattern area at one time. Two or more pattern blocks may be woven at one time (with consequent lightening of treadles) by dropping some of the pattern ties, but preferably leaving at least one tie between each two dropped.

Treadle	Block A	Block B	Block C	And so on. All further pattern blocks are treadled in the same rotation but on treadles 6, 7, 8, 9. Tabby weft on <u>a</u> and <u>b</u> , pattern weft on pattern treadles.
a	a	a	a	
10	10	10	10	
b	b	b	b	
10	10	10	10	
a	a	a	a	
1-3	1-4	1-5		
b	b	b		
2-3	2-4	2-5		
a	a	a		
2-3	2-4	2-5		
b	b	b		
1-3	1-4	1-5		

The texture shown at the top of the illustration was treadled according to the foregoing order of rotation, with one unit woven on each pattern block in this order: A, B, C, D, E, F, G, F, E, D, C, B, A. A metallic shot was added in the first b shed of each rotation.

The second texture was woven the same, except that the a, 10, b, 10 shots were omitted and the metallic was thrown in the first a shed of the rotation. This is the classical Summer and Winter order of treadling, but the pattern blocks do not form a 45 degree diagonal because of the use of a 6-thread drafting unit against an 8 instead of 12-thread weaving rotation. This is easier to weave because of the omission of the heavy, separating treadle. The background is somewhat heavier.

The lower pattern band in the illustration shows an unusual texture with a softer, spongier quality, produced by using tabbys in unconventional order and throwing metallic alone the number 10 treadle. Treadle this:

Block A	Block B	Block C	Block D
a	a	a	a
1-3	1-4	1-5	1-6
b	b	b	b
2-3	2-4	2-5	2-6
b	b	b	b
2-3	2-4	2-5	2-6
a	a	a	a
1-3	1-4	1-5	1-6
b	b	b	b
10	10	10	10

In all of these weaves the two sides of the fabrics appear quite different and in many cases it is a matter of personal choice which one is considered the right side and which the wrong side.

USE of the BATEMAN WEAVES for 4 and 6 HARNESSES

Although Dr Bateman has done all of experimenting on these weaves on eight harnesses, and the techniques are all adaptable to the use of from eight to sixteen harnesses, the 4-harness and 6-harness weaver should not consider these weaves closed to him. For all of the Bateman weaves, the textures are of greater importance than the actual patterns in which the textures are interpreted. The 6-harness weaver is able to produce all of the textures in both warp and weft stripes and will find almost as much interest in the weaves as the 8-harness weaver finds. The 4-harness weaver has a distinct limitation, but is able to thread the single-block basic texture and may therefore weave all pattern and all background in alternating stripes.

As with all of the Unit Weaves, the tie-ups for these weaves are constructed on simple principles so it is easy to reduce a tie-up for more than the available number of harnesses to use on fewer harnesses. Simply eliminate the top two harness rows of a 10-harness tie-up to give an 8-harness tie-up, and likewise eliminate the treadles which weave blocks threaded to the last two harnesses. By eliminating the top 4 harness rows and the treadles which control blocks on these, a 6-harness tie-up is made from a 10-harness one. The same method may be used in reducing Profile drafts, but Profile drafts are so simply to construct that this is hardly necessary.

This article gives the basic characteristics of the Boulevard Weave and of the Bateman Blend Weave, and a few texture variations for each. The third Bateman technique, the Tag Weave remains. This will be taken up in the March Bulletin, along with further variations of the Boulevard and Bateman Blend.

B is for BATEMAN

And I hope you find the weaves which Dr Bateman originated interesting.

The pattern texture with the hollow squares can be woven on the Boulevard and Bateman Blend weaves both. The tie-up for weaving it on Boulevard is given, and the one for the Blend will be given next month. If it is woven with the pattern block tie-up shown at the right on page 8, the background is in vertical lines of tabby similar to that in the sample shown above, but without the background squares. You may like this second background better.

