First project

E	CENTRE		C		B		A	×: dark
	D							•: light

3rd part	2nd part	1st part

D to E ←— C to D (6 times) ←— B to C (6 times) ← A to B (2 times) ← start
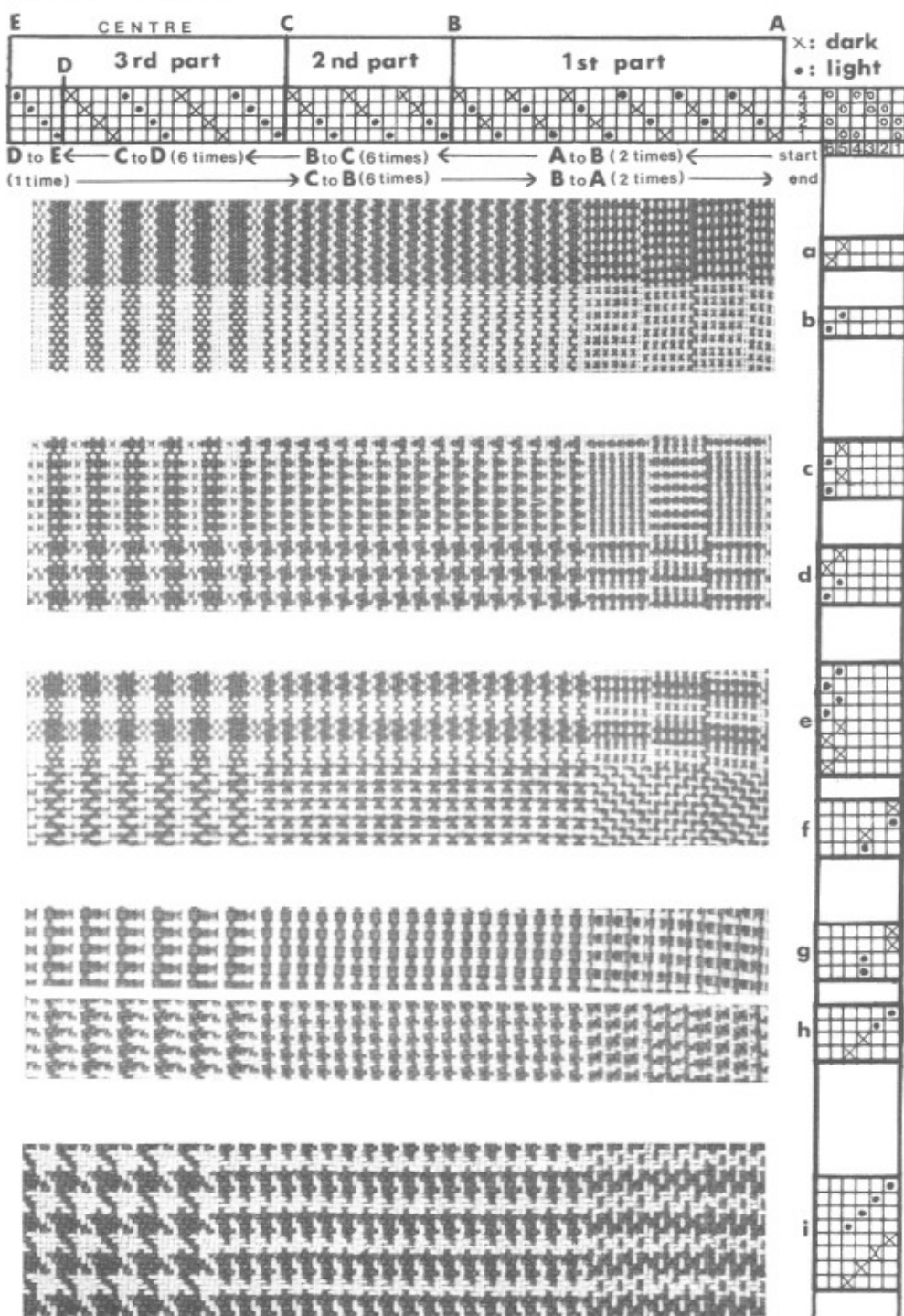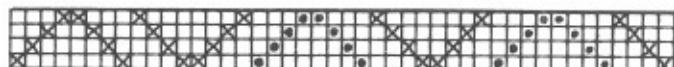(1 time) ——→ C to B (6 times) ——→ B to A (2 times) ——→ end

a

b

c

d

e

f

g

h

i

96

Second project

× : dark
• : light

Centre = 88 threads
Repeat 5½ times

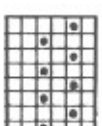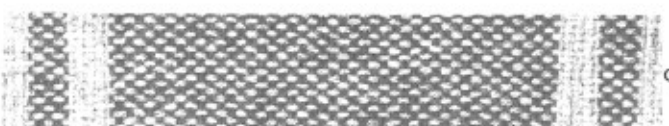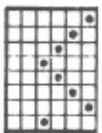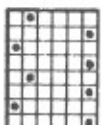← Right side border = 28 threads ←
→ Left side border = 28 threads →

A

B

C

10 times
10 times

D

E

F

G
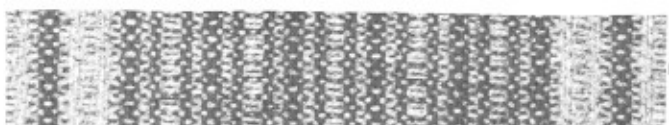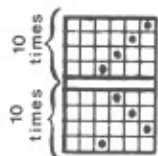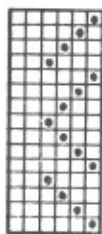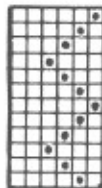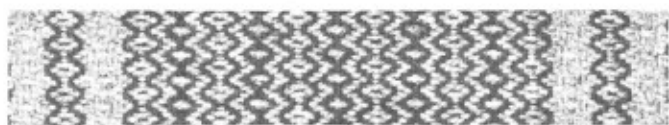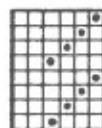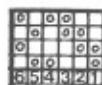
Fig. 506

Second project

On the first project, the threading has been made in a simple way: "twill threading". For this one, we will use "chevron threading". You can compare the difference in design which is made when using the same treadling. We shall make a woolen scarf using two-ply wool of a medium size 12/2 either weaving or knitting wool.

Use the same warping frame as on the first project, with two bobbins of each color you choose. The sample has been made with red wool represented by X and light grey represented by ●.

Warping metric system

You will need:

For the warp and weft: Wool of medium size (2/74 Tex)
                         100 gr. light color
                         100 gr. dark color

Warp for exercise: 40 cm.	40 cm.
One scarf: 52 cm.	52 cm.
Fringe (1st end): 13 cm.	13 cm.
Fringe (last end) from loss on heddles	
	105 cm.

|	
Loss at the beginning to tie on the loom: 20 cm.	20 cm.
Loss at the end to tie on loom (take the fringe	
of one of scarf on this loss): 51 cm	51 cm.
Take-up of warp while weaving: 6 cm.	6 cm.
(6% of 105 cm.)	182 cm (app. 1,82 m.)

Reed: 5 dents per cm. 1 thread per dent
Width in reed: 31 cm.
Thread × Dents × Cm Width = Ends of warp
   1   × 5 ×   31   =   155
Put pegs to get 1,82 meter or slightly more.

Warping English system

You will need:

For the warp and weft: Wool of medium size (12/2)
                         1/4 lb. light color
                         1/4 lb. dark color

Warp for exercise: 55"	55"
One scarf: 60"	60"
Fringe (1st end): 5"	5"
Fringe (last end): from loss on heddles	
	120"

Loss at the beginning to tie on the loom: 8″   8″
Loss at the end to tie on loom (take the fringe
   of one end of scarf on this loss): 20″   20″
Take-up of warp while weaving (6% of 120″): 7″   7″
                                            155″ (app. 4 1/3 yards)

Reed: 12 dents per inch, 1 thread per dent
Width in reed: 12″
Thread × Dents ×   Width = Ends of warp
  1   × 12 ×   12″   = 144
Put pegs to get 4 1/3 yards or slightly more.

Warping direction

Follow draft on page 97
Right border: 4 threads dark X (red)
                  8 threads light ● (light grey)
                  8 threads dark X (red)
                  8 threads light ● (light grey)

Center: 88 threads dark X (red)

Left border: 8 threads light ● (light grey)
                  8 threads dark X (red)
                  8 threads light ● (light grey)
                  4 threads dark X (red)

Warp with two threads.

     1st: 2 dark threads one round trip. Make crossing at both ends. Stop
           the ends by turning them around a peg which is not used on your
           warping board.

    2nd: 2 light threads. Make two complete ways. Take your dark threads
           off the peg and turn your light threads on it. This prevents the cut-
           ting of the ends.

    3rd: 2 dark threads. Repeat same as second.

    4th: 2 light threads. Repeat same as second.

    5th: 2 dark threads. Make 22 complete turns on the warping board.

    6th: Same as 4 th.

    7th: Same as 3rd.

    8th: Same as 2nd

    9th: Same as 1st.

Now, tie the cross both ends and beam and thread your loom by following
the instructions starting on page 44.

Weaving

Use one shuttle with light thread same as warp. For each sample, weave approximately 15 cm (6").

A) Weave with treadling A. Place a stick to divide.
B) Weave with treadling B. Take off the divider stick and use it again to divide.
C) Weave with treadling C.
D) Weave with treadling 1-2-3-4 (10 times) and then, 3-2-1-4 (10 times).
E) Weave with treadling E.
F) Weave with treadling F.
G) Weave with treadling G.

ATTENTION

On treadling A and D, one warp thread will not be woven on selvage right or left. When the weaving is finished, cut this thread and enter the end in the weaving.

Scarf

Now, choose which pattern you prefer and make the scarf using for beginning and end a different pattern than the center, if prefered.

Before starting the scarf, start by introducing a piece of carboard of approximately 12 cm (5") in the shed to save the fringes.

When finished and taken off the loom, make a sewing on each end before cutting to prevent unweaving and press with a steam iron.

The scarf is ready to wear and samples to display.
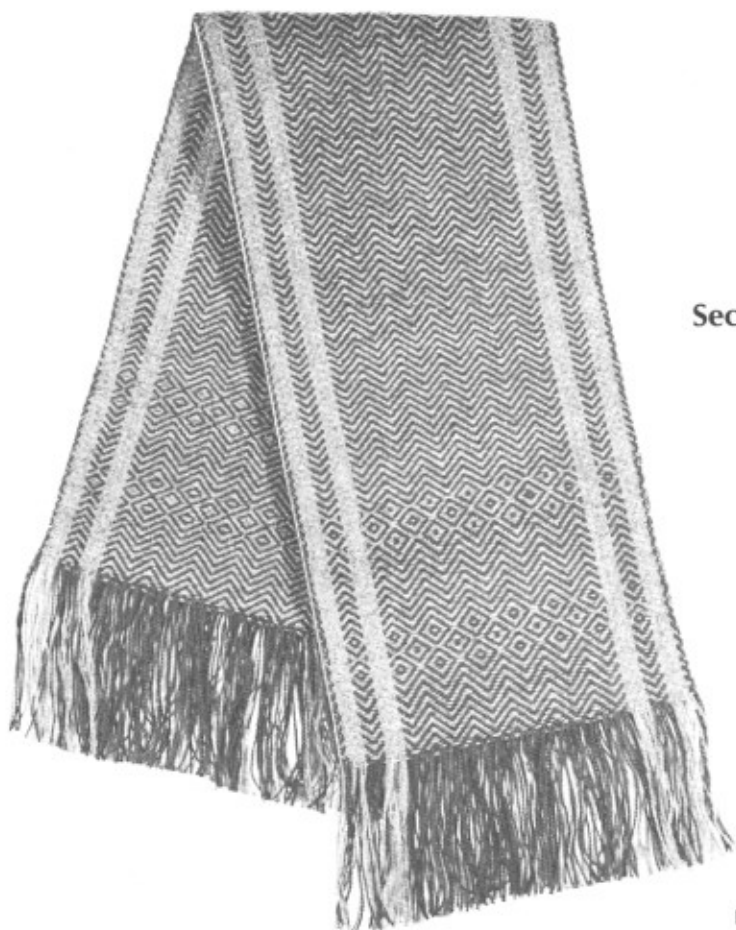
Second project
Scarf

Fig. 507

First project
Place mat

Fig. 507 A

XVII COUNT AND SIZING

(Conversion from English to Metric system)

Thread sizes, yardages per pound, etc. on English system

Most weavers are puzzled about the yardage they may expect to find in each pound of the yarn they are using and also about what the different numbers mean on the labels. So perhaps a discussion of these items will not be amiss.

GRIST

Cotton and linen yarn, both in the warp and the weft yarns, are designated by numbers to show their grist, that is, their size. They may be purchased as single-ply or they may be plied, so we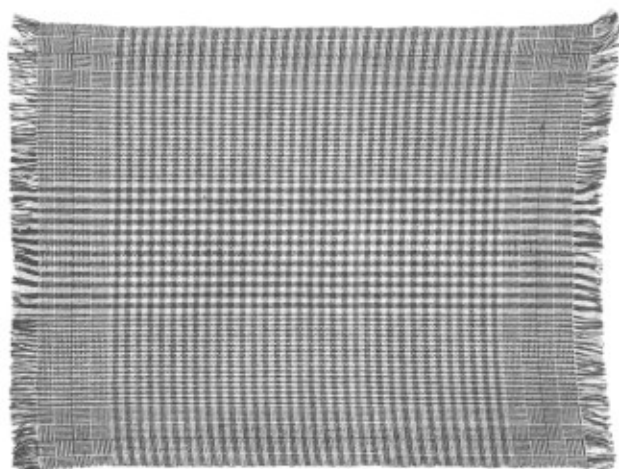 have 2-ply, 3-ply, 4-ply, etc. yarns. Speaking of identical fibers of the same ply, the higher the number, the finer the thread. A 20/2 in linen or cotton is, therefore, finer than a 10/2. At the mill, these fibers are spun so that there is a definite and known number of yards per pound. To spin a 2-ply yarn from a single ply yarn, the length, that is the yardage of the fiber per pound, is doubled upon itself and the two strands are then plied or twisted together in the spinning. Therefore, you can see that a 20/2 yarn, for instance, will have one-half the number of yards in each pound that the 20/1 fiber has.

Given the size of the yarn or as we say, the count and knowing the ply, you may use this simple formula to arrive at the yardage per pound. For cotton, the formula is based upon the fact that a pound of No. 1 single-ply (1/) yarn contains 840 yards. Therefore,

$$\text{Yardage per pound} = \frac{\text{Count} \times 840}{\text{The ply}}$$

Solving 20/2 cotton yarn, you have:

$$\text{Yardage per pound} = \frac{20 \times 840}{2}$$

or 8400 yards.

For linen, the formula is based on the fact that single-ply No. 1 linen yarn contains 300 yards per pound, and this amount is known as a lea.

WOOLEN AND WORSTED YARNS

Unfortunately, the situation regarding these yarns is complicated. Encyclopedias list at least seven different systems in determining the count and yardages per pound.

The most frequent terms encountered here with regard to woolen yarns are cuts and runs. (No. 1) single-ply woolen yarn measures 300 yards and weighs one pound. The term run is used in another system. A run of No. 1 single-ply woolen yarn weighs one pound and measures 1600 yards.

Worsted is a hard-twisted, smooth-surfaced yarn spun from long staple pure wool and is carted so that its fibers lie parallel to each other. The term may also apply to a similarly spun mixed yarn. The unit used with reference to this yarn is called a count. Each count of single-ply worsted yarn measures 560 yards and the number of the yarn depends upon how many counts of single-ply yarn there are in a pound.

On man-made fibers, the most common system used was the "denier". We did not mention this system to avoid the confusion of the various counts of these differents yarns.

Buy enough yarn at once. Handweavers would do well to buy yarns directly from concerns which cater to them. We also advise you to order sufficient yarn for your project, as different dye lots will show up in the over-all color of your weaving, as it does in your knitting. A small balance left may be useful, and running short may be a disaster on a large project.

Some information on the conversion of English measures to metric measures.

Reed: English system, the number of dents is determined per inch.
Metric system, the reed density is determined by cm. or 10 cm.

In the industry, they use the number of dents per 10 cm., as they may have 87, 111, 128 dents per 10 cm., but in handweaving we use the number of dents per cm. which is more simple as the assortment of dents is not so large, 2, 3, 4, 5, 6, 7, dents per cm. which can also be 2,5- 3,5- 4,5 etc. if needed.

TEX SYSTEM

The international system which applies to yarn is called "Tex system".

The Tex system is simpler and easier to memorize than the English system. The number of the yarn is determined by the weight in grams of 1000 meters. This means, the thicker the thread, the higher the number, as its weight is higher than that of a fine thread.

Cotton known on the English system as No. 1 becomes No. 590, as 1000 meters of it weighs 590 gr. but cotton No. 10 (English count) is now No. 59 as it weighs 59 gr. The No. 10 yarn is 1/10 of the weight of No. 1 yarn; as the Tex size of No. 1 is 590, it has to be divided by ten to give the Tex size of No. 10 yarn that is 59. This is exactly contrary to the English system.

The number of the ply does not change the count of the yarn; but 1000 meters of No. 59 (Tex), 2-ply cotton, will weigh 118 gr., and 1000 meters of No. 59, 4-ply cotton, will weigh 236 gr.

The number of the ply precedes the yarn number, i.e. a 2-ply yarn is called 2/59 and a 4-ply yarn is 4/59 which is the contrary to the English system (10/2 and 10/4).

The yarn may be indicated by "Z" if it is right hand twisted and by "S" if it is left hand twisted. Usually, the plied yarns are twisted contrary to the simply, Example: two yarns "Z" twisted will then be plied by an "S" twist.

The number of twists may also be indicated on the label. The number mentioned should be the number of twists per meter.

A yarn No. 2/59 S 400 means: 2-ply yarn No. 59 (59 gr. per 1000 meters) which has been plied on the left hand at 400 turns per meter. Usually, because the single ply was twisted on Z, the double ply was twisted on S.

The Tex size does not mean that cotton, wool, worsted, linen or man-made fibers are the same size if they have the same number, since they may vary according to the weight of the raw material. Example: No. 60 of a metal thread is much finer than a No. 60 wool thread.

To help you with the conversion of patterns from the English measurement to Metric system, we have designed the table on page 105.

Note: For standard count, the fractions on the weight per 1000 meters have been rounded.

APPENDIX

Count of threads most commonly used in weaving and conversion of the numbers in TEX system. Number of yards per pound and number of metres per kilogram.

COTTON – RAYON				WOOL				HEMP – JUTE – RAMIE LINEN THREAD			
ENGLISH		TEX		ENGLISH		TEX		ENGLISH		TEX	
Number of yards per pound	Size	Size	Equivalent in metres per kilogram	Number of yards per pound	Size	Size	Equivalent in metres per kilogram	Number of yards per pound	Size	Size	Equivalent in metres per kilogram
840	1	590	1695	560	1	886	1129	300	1	1660	602
8400	10	59	16949	5600	10	89	11287	3000	10	166	6024
4200	10/2	2/59	8475	2800	10/2	2/89	5618	1500	10/2	2/166	3012
3360	8/2	2/74	6757	3360	6/1	148	6757	2250	15/2	2/111	4505
6720	16/2	2/37	13514	5040	9/1	98	10204	2700	18/2	2/92	5435
8400	20/2	2/30	16667	3360	12/2	2/74	6757	3000	20/2	2/83	6024
2800	10/3	3/59	5650	4200	15/2	2/59	8475	6000	40/2	2/42	11905
5600	20/3	3/30	11111	4480	16/2	2/55	9091	4000	40/3	3/42	7937
6720	24/3	3/25	13333	8960	32/2	2/28	17857	6000	60/3	3/28	11905
8400	30/3	3/20	16667	2240	12/3	3/74	4505	3600	12	138	7246
14000	50/3	3/12	27778	1400	10/4	4/89	2809	4200	14	119	8403
840	4/4	4/148	1689	2240	8/2	2/110	4545	4800	16	104	9615
1680	8/4	4/74	3378					5400	18	92	10870
2520	12/4	4/50	5000					6000	20	83	12048
3280	16/4	4/37	6757					9000	30	55	18182
2240	16/6	6/37	4505					3750	25/2	2/66	7576
2800	20/6	6/30	5556					1800	12/2	2/138	3623
280	4/12	12/148	563								

Fig. 508

THINK METRIC

The metric measurement will be used all over the world within a few more years, we should get familiarized to its application in handweaving.

Metric measurements should be completed in Canada by 1980, we do not know the deadline for the United States.

Many changes will have to be made to integrate the metric system. The most important change for the weaver is the reed, since it determines the number of ends to be warped, and the count of yarns.

On the following page there is a table for comparison of reeds and the difference of the number of ends when warping.

The first column gives the standard dents per inch.

The second column gives the standard dents per centimeter.

The third column gives the exact equivalence in inches of the dents per centimeter of the second column.

Other columns gives the number of threads to warp to obtain the width mentioned in the two first horizontal lines.

The first horizontal line gives the weaving width in inches.

The second horizontal line gives the exact equivalence in centimeters.

If the item you want to weave is a twill pattern, you will have a variation in the width of your material, although you warp the exact number of threads given in your pattern.

Example: Material 40'' wide, one thread per dent, 12 dents per inch reed.
It gives 480 threads. Now if you have a 5 dent per centimeter reed and you warp 480 threads, your material will be 37-13/16'' wide (width in reed). If you wish to obtain the exact width, i.e. 40'', you should warp 508 threads. The number mentioned in parenthesis is obtained by multiplying the corresponding number of dents per centimeter by the exact equivalence in centimeter of the desired width.

If it is a material with designs such as Colonial Overshot, Damask, Summer & Winter, by warping the exact number of threads given in your pattern, the width of your material will be reduced. If you want to keep the exact width, you must make some modifications on the block by adding a few ends where it is possible, without deteriorating the pattern. This can be done on the main part as well as on the border. The book "Creative Weaving" by Robert Leclerc will be very useful to know to make these modifications.

WARPING TABLE

Peus au pouce / Dents per inch	Peus au cm / Dents per cm	Equivalence en pouce / Equivalent in inches	LARGEUR – WIDTH											
			8" 20,32 cm	10" 25,4 cm	20" 50,8 cm	26" 66,04 cm	32" 81,28 cm	36" 91,44 cm	40" 101,6 cm	42" 106,68 cm	45" 114,3 cm	50" 127 cm	54" 137,16 cm	60" 152,4 cm
5	2	5.08	40 7 7/8" (41)	50• 9 13/16" (51)	100 19 11/16" (102)	130 25 5/8" (132)	160 31 1/2" (163)	180 35 7/16" (183)	200 39 3/8" (203)	210 41 5/16" (214)	225 44 1/4" (229)	250 49 1/4" (254)	270 53 1/8" (275)	300 59 1/16" (305)
8	3	7.62	64 8 3/8" (61)	80 10 1/2" (76)	160 21" (153)	208 27 1/4" (198)	256 33 9/16" (244)	288 37 13/16" (275)	320 42" (305)	336 44 1/8" (320)	360 47 1/4" (343)	400 52 1/2" (381)	432 56 11/16" (411)	480 63" (458)
10	4	10.16	80 7 7/8" (82)	100 9 13/16" (102)	200 19 11/16" (203)	260 25 5/8" (264)	320 31 1/2" (325)	360 35 7/16" (366)	400 39 3/8" (407)	420 41 5/16" (427)	450 44 1/4" (458)	500 49 1/4" (508)	540 53 1/8" (549)	600 59 1/16" (610)
12	5	12.7	96 7 9/16" (102)	120 9 7/16" (127)	240 18 7/8" (254)	312 24 9/16" (330)	384 30 1/4" (407)	432 34" (457)	480 37 13/16" (508)	504 39 11/16" (533)	540 42 1/2" (572)	600 47 1/4" (635)	648 51" (686)	720 56 11/16" (762)
15	6	15.24	120 7 7/8" (122)	150 9 13/16" (153)	300 19 11/16" (305)	390 25 5/8" (396)	480 31 1/2" (488)	540 35 7/16" (549)	600 39 3/8" (611)	630 41 5/16" (641)	675 44 1/4" (686)	750 49 1/4" (762)	810 53 1/8" (824)	900 59 1/16" (915)
18	7	17.78	144 8 1/8" (143)	180 10 1/8" (179)	360 20 1/4" (356)	468 26 5/16" (463)	576 32 3/8" (570)	648 36 7/16" (640)	720 40 1/2" (712)	756 42 1/2" (748)	810 45 9/16" (801)	900 50 5/8" (889)	972 54 9/16" (961)	1080 60 11/16" (1068)
20	8	20.32	160 7 7/8" (163)	200 9 13/16" (204)	400 19 11/16" (407)	520 25 5/8" (528)	640 31 1/2" (651)	720 35 7/16" (732)	800 39 3/8" (813)	840 41 5/16" (856)	900 44 1/4" (916)	1000 49 1/4" (1016)	1080 53 1/8" (1098)	1200 59 1/16" (1220)

Fig. 509