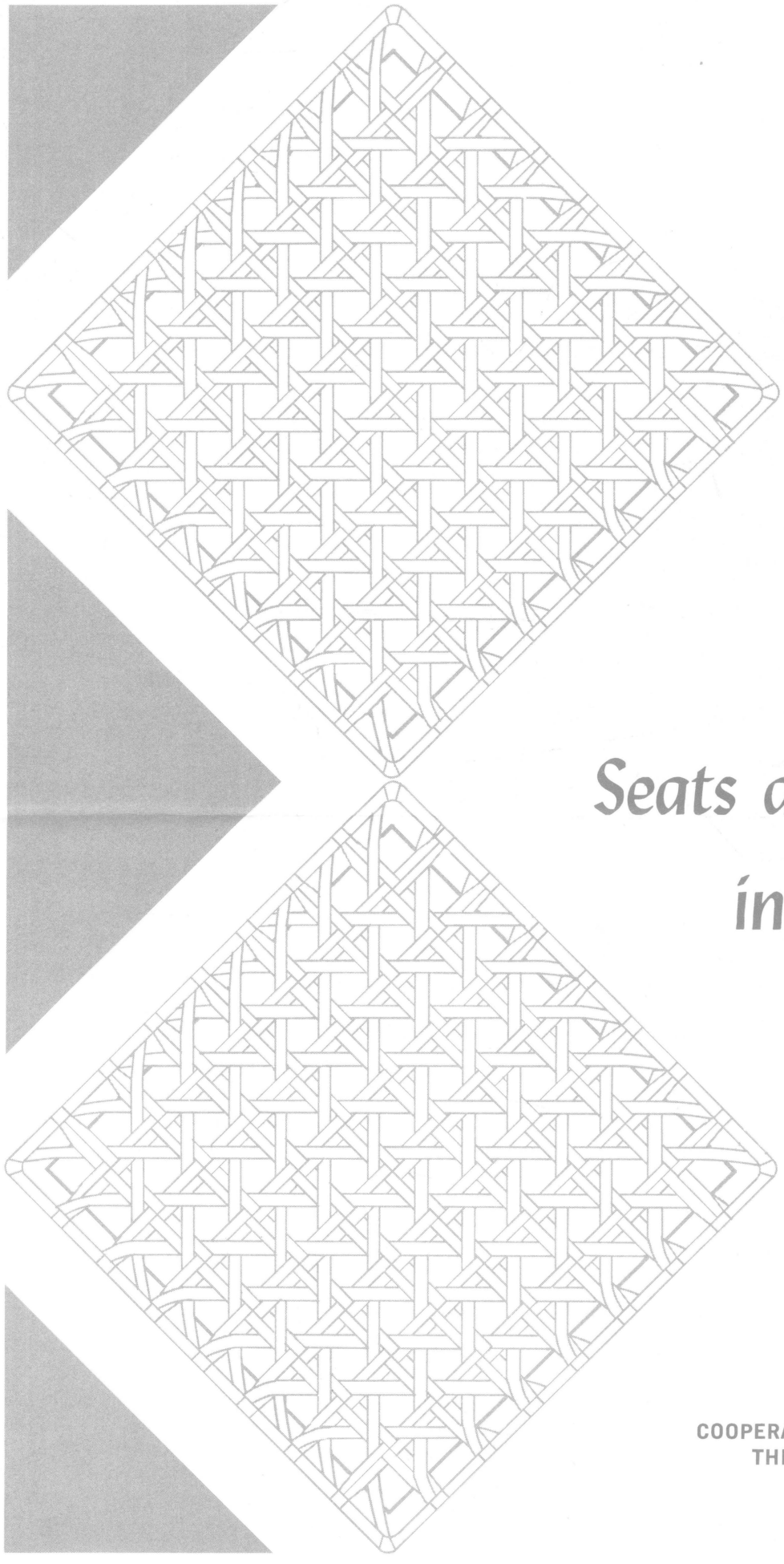
Bulletin 153



Weaving Seats and Panels in Furniture

COOPERATIVE EXTENSION SERVICE
THE OHIO STATE UNIVERSITY

CONTENTS

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Weaving Seats and Panels in Furniture

Many fine old chairs have been relegated to the attic or storeroom because the woven seats have worn out and no one knows how to replace them. Reseating chairs is not a difficult task if directions are followed carefully.

Heavy rush and closely woven cane seats lend themselves to furniture with straight lines, while open woven cane is more appropriately used on furniture with refined and graceful lines. Reed and splint seats are best suited to furniture of sturdy design. Reed and splint suggest a more rustic furniture than either rush or cane, and lend themselves to use in rooms where plain, simple, durable, yet interesting furnishings are used. Today a woven panel in furniture adds a note of individuality and interest to almost any room in our homes.

If a chair that needs reseating is attractive, well-constructed, and comfortable, it may be well worth the time, energy, and materials needed to weave a seat or back in it.

Preparing Furniture Before Re-Weaving Seat or Panel

Remove all old cane or other woven material. If the old pattern is desired save as much as possible to use as a guide. Clean the furniture. Repair all broken holes and weak joints. Refinish the furniture if necessary.

WEAVING WITH CANE

Cane is a name applied to a plant with long, slender, reed-like stems, a class of palms called rattans that grow in warm, moist climates. The outer bark of the plant is stripped off in widths varying from $\frac{1}{16}$ to $\frac{3}{16}$ inch, and in lengths varying from 10 to 20 feet. The width of cane used depends upon the size of the holes and the space between the holes in the frame around the area to be caned. The following table indicates the width of cane best suited to holes and spaces of various sizes in the chair frame. In this table cane is named from wide to narrow.

Cane Size	Hole	Space
Common	$\frac{5}{16}$ **inch**	$\frac{7}{8}$ **inch**
Medium	$\frac{1}{4}$ "	$\frac{3}{4}$ "
Narrow Medium	$\frac{7}{64}$ "	$\frac{9}{16}$ "
Fine	$\frac{3}{16}$ "	$\frac{5}{8}$ "
Fine Fine	$\frac{3}{16}$ "	$\frac{1}{2}$ "
Superfine	$\frac{3}{16}$ "	$\frac{3}{8}$ "

Weaving cane comes in hanks of 1000 feet each, and one hank is usually sufficient to cane three or four chairs. Binding cane comes in hanks of 500 feet. There are two widths, narrow and wide, the latter being more commonly used. One strand of binding cane is usually sufficient to finish the average chair. Frequently, cane may be secured at shops where refinishing and upholstery are done.

Equipment Needed in Cane Weaving—Other pieces of equipment needed besides the cane are a knife or scissors, ice pick, and several wooden pegs or short pencils small enough to fit in the holes of the frame, and thus hold the cane in place while weaving. A sponge or cloth and a pan of water are sometimes helpful in keeping the cane moist.

General Suggestions for Weaving with Cane—Cane that is pliable is less likely to crack in the weaving process. Dampen it slightly with water just before using. Cane that is left in the water too long becomes discolored. Water expands the cane and as the water evaporates the cane contracts and makes the surface tight.

Hold the cane with the glossy side up. While weaving, prevent the cane from twisting by drawing it between the thumb and forefinger. Do not draw the cane too tightly for the first four steps, because the surface tightens as the weaving progresses. Keep the strands of cane running straight, and keep parallel those running in the same direction. Weave no more than 2 or 3 inches before pulling the strands through.

Plastic Cane—Plastic cane is generally made in Fine, Medium, and Common sizes. The Common size can also be used as the binder. A 1000-foot roll of plastic cane is usually enough for four chair seats of average size. Plastic cane has a smooth glossy surface and blends with fine grain wood. Plastic cane should **not be dampened** with water as natural cane is treated. Wipe each strand of plastic cane with a powder or a slightly oiled cloth before weaving it, to reduce friction and make the weaving easier. Plastic cane stretches slightly when warm and tightens when cool. Use the following directions to weave with natural cane or plastic cane.

Weaving the Square or Rectangular Surface

Step 1—Start to cane from a hole next to the corner hole on the back right hand side of the chair. Put the end of the strand down through the hole

about 3 inches and place a peg in the hole to hold the strand. The right side of cane should appear on both top and underside of the frame.

Next place the strand down through the hole on the front part of frame exactly opposite the back one; fasten with a peg. From the underside draw the cane up through the next hole on the front part of frame; peg in place, removing the peg from preceding hole. Repeat from back to front and vice versa until the entire chair opening is covered with cane going in one direction. Fig. 1 (a) shows this step.* The corner holes are not used.

When the end of the strand is reached peg the last hole through which the cane has passed and the next one through which the new strand started. The loose ends are tied on the underside of the frame, as follows: push the end under the nearest strand without crossing any holes; then push the end over the strand and under again; cut off the strand $\frac{1}{4}$ inch from the loop. The cane must be wet in order to be pliable enough to tie.

Step II—Starting at the hole next to the corner, pass the strand across the surface from side to side in the direction opposite to the strands in Step I. The strands in this step lie on top of the strands in Step I. Fig. 1 (b) indicates this step. Cover the entire surface with cane going in this direction.

Step III—Repeat Step I, using the same holes and making the strands lie parallel and close to those in Step I and over strands in Step II. See Fig. 2 (c).

Step IV—Real weaving begins with this step. The strands lie parallel to those in Step II, and in the same holes as used as in Step II.

Start weaving at the hole next to the one in the right back corner (marked d). Weave the cane over the strands of Step III and under the strands of Step I, always pushing the strands of Step III to the right. Weave a few strands and then pull the cane through in order to prevent twisting and breaking. Peg the cane in place the same as for Step I.

Although the steps are approached in reverse on returning, the weaving remains the same—that is, weave the strand under Step I and over Step III. Fig. 2 (d) shows Step IV. This is an important step in order to insure a properly woven surface.

Care must be taken that all the strands are as near to each other as possible and that all rows in this step lie in front of the rows in Step II. Soak the woven cane with a wet sponge if it begins to dry, and with a peg straighten the strands of cane, forcing together the pairs formed by Steps I and III, and Steps II and IV.

* In the illustration and those on pages 5 and 7, the cane appears pointed as it enters the holes. This is done in the drawing so as to enable the succeeding steps in weaving to be shown clearly in Figs. 2 and 3, and also the relative position of each strand.

Step V—The first diagonal strand is started at the right hand corner hole at the front. Use one hand over and one hand under the frame to direct the weaving. Pass the strands over the Steps II and IV and under the Steps I and III—that is, over the pairs from side to side, and under the pairs from back to front. Weave to the left hand back corner of the frame. Continue diagonal weaving until the entire surface is covered. Fig. 3 (e) shows this step. Take care that the diagonal strands run into squares, and not between the pairs formed by Steps I and III, and II and IV. The glossy side of the cane is always on top.

Note—When the strands in Step IV are woven back of the strands in Step II, Step V is begun in the right hand corner hole at the back. This keeps the diagonal strands running straight.

Step VI—This diagonal step is the same as the preceding one, with the exception that the strands run at right angles to those of Step V. Start at the right hand corner hole at the back and weave diagonally to the left hand corner in the front of the frame. Pass the strands over Steps I and III and under Steps II and IV—that is, over the pairs running from back to front and under the pairs running from side to side. Cover the entire surface. Strands will run from each hole. The diagonals should run in a straight line. See Fig. 3 (f) for this step.

Step VII—Applying the Binder—Before beginning this step, be certain that all ends of cane are fastened. The binding cane is used to cover the holes and give the seat a "finished" look. When the seat is curved at the corners use a binding cane which is in one piece; when the corners are square, a separate piece of binding cane may be used for each side of the seat.

Fasten one end of the binding cane securely into a back corner hole. On the right side, lay the binding cane over the holes. Hold the binding cane in place with a piece of cane the same size as that used in the preceding steps. Fasten this piece of cane securely under the frame, then bring it up through the hole from the underside of the frame, pass it over the binding cane, and down on the other side through the same hole. Pull cane tightly. Continue until the hole is reached at which binding cane started.

Raise the next loop in the tying cane and slip the binding cane through the loop, lapping it over the starting end of the binding cane. Draw the loop tightly and fasten securely. Clip the end of the binding cane at the edge of loop. These loops may be made at every second hole if the holes are close together. Fasten any loose cane by plugging the necessary holes from the underside of the frame. Fig. 3 (g) shows the application of the binding cane.

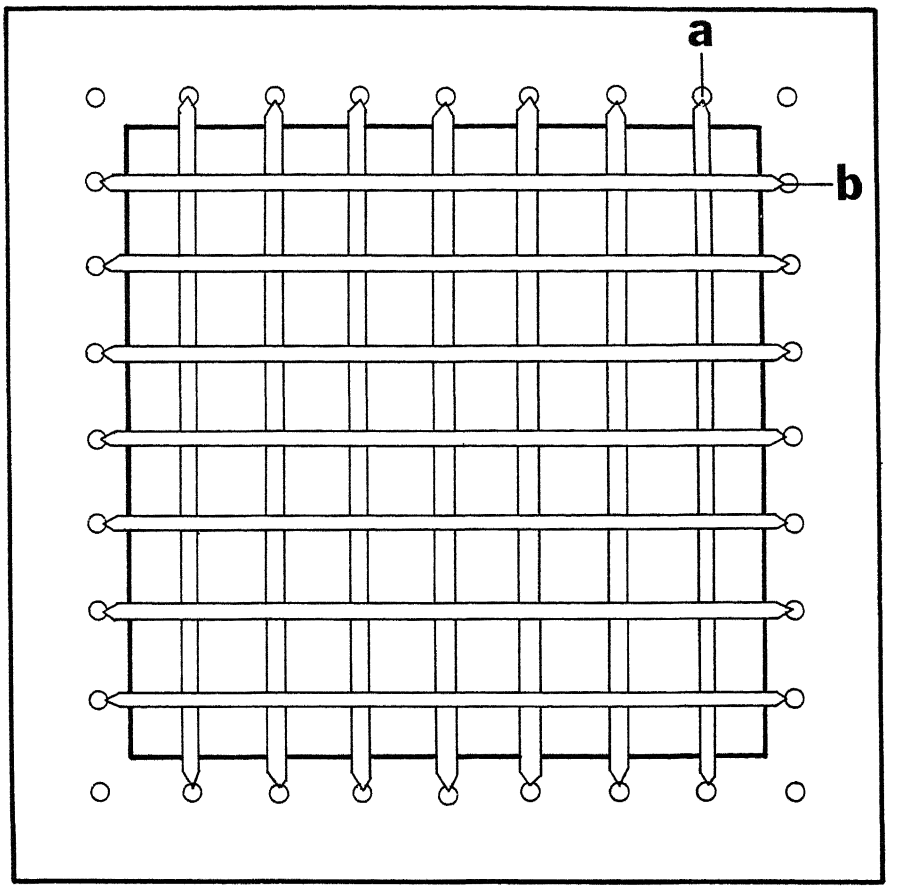

Fig. 1—Step I (a) and Step II (b) in weaving a cane seat for chair. (Cane is narrowed at holes to enable succeeding steps to be shown. See Figures 2 and 3.)

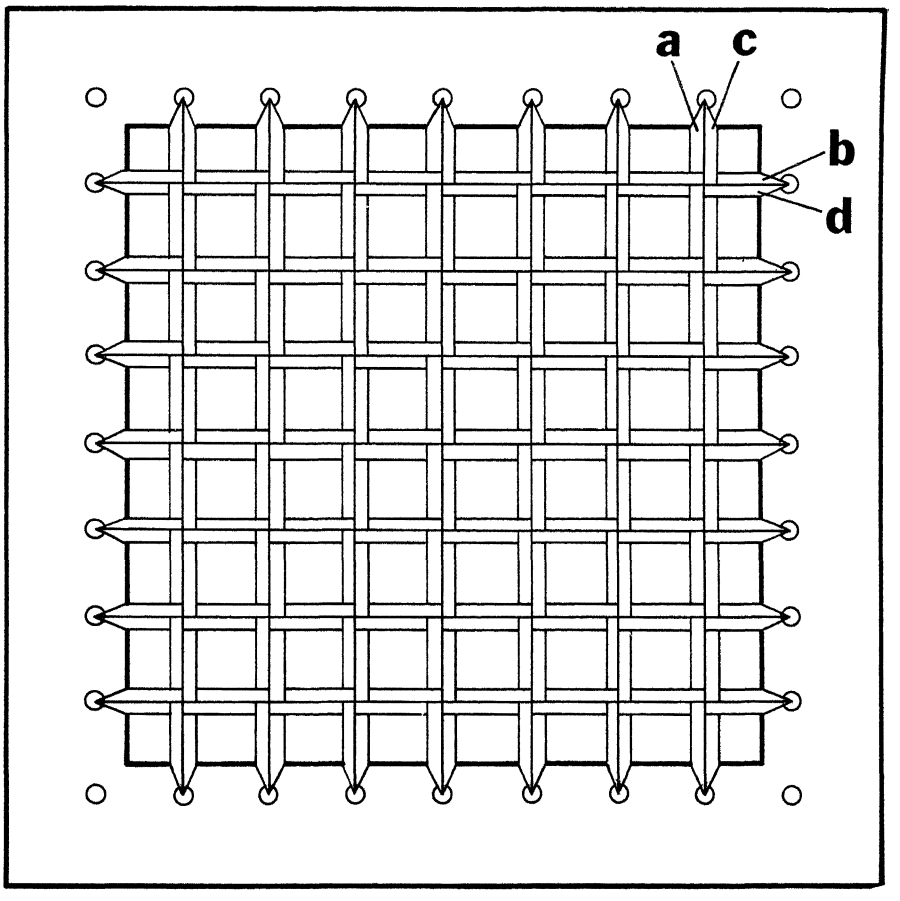

Fig. 2—Continuing the weaving of one seat shown in Fig. 1 Step III (c) and Step IV (d).

Finish of the Cane Surface—Caned surfaces may be varnished, shellacked, or left natural. A coat of shellac or varnish produces a hard, glossy surface that is easy to clean. Cane may be stained to harmonize in color with the framework around the caned surface. The cane may be stained by brushing on the stain and allowing it to stand long enough to give the desired color. With the cloth wipe off the stain not absorbed by the cane. The color of the stain will show greatest on the surface at the intersections formed by the different steps. This irregular distribution of stain on the caned surface gives a pleasing reflection of light. Allow the stain to dry and then varnish or shellac.

Weaving the Irregular or Round Surface

When chair seats, backs, or other parts of furniture are irregular or round in shape slight variations in weaving are made. Count the holes in the back of the frame and insert a peg in the center hole. Do the same with the front of the frame. Start Step I at the center holes on the back and front of the frame instead of at the corner as directed in Step I for weaving the square or rectangular surface (page 4). Continue to carry the cane from back to front and vice versa, working to the left until all the holes except the corner ones are used. If there are any holes in the front rail not used, continue to carry the strands from these holes to holes in the side of the frame, keeping strands parallel to those already in place. Fig. 4 shows Step I on an irregular surface. Usually the corner holes in the front of the frame are not used. Repeat for the right half. This completes Step I.

The remaining steps are the same as for the square surface. If the holes are not even distances apart, it is sometimes necessary to skip holes so that the strands lie straight and parallel to each other.

In weaving Step V on this surface it is sometimes necessary to run several diagonals from the same holes in order to keep the strands running straight in the woven surface.

Variations in Patterns for Cane Weaving

Five-Step Caning—Cane weaving of five steps is not common. It may be done where the surface is not subject to hard wear. It is neat in appearance, is simpler to weave, and requires less cane than seven-step caning. It is used where decoration and not service is the object. Wider cane is frequently used for the first two steps.

Strands in the first step are strung in the frame according to the standard method of caning just described. Strands in the second step extend in opposite direction to the first, and are woven over and under those in the first step. The first series of diagonals form the third step. In this step the strands lie on top of the strands in the first two steps and are not woven. The second series of diagonals form the fourth step. Strands in this step extend in opposite direction to the first diagonals. The second diagonals are woven over the first diagonals and under the intersection of strands of first three steps, including every alternate first diagonal.

The binder is applied in manner described on page 4.

Spider Web Weave—This is another decorative pattern. The weaver who undertakes this weave needs previous experience in both seven and five-step caning. The design is pleasing but intricate.

Cane Webbing or Machine Woven Cane

Covering surfaces with cane webbing takes less time than hand caning, but the worker must be careful not to spoil the surface. Machine woven cane is sold as cane webbing. It ranges in widths from 8 inches up and can be had in rolls of any length. The fineness of mesh depends upon the width of cane used. Cane webbing may be purchased either in open or close woven mesh.

Equipment Needed To Insert Cane Webbing—The equipment necessary for inserting the webbing is a small mallet or hammer, a chisel, and several wooden wedges of varying widths. Glue, an oil can with a large nozzle or a stiff brush for spreading the glue, and a piece of spline are necessary.

Inserting the Webbing—The frame of the surface must have a groove cut about $\frac{1}{4}$ inch deep, $\frac{3}{16}$ inch wide, and $\frac{1}{2}$ inch from the inside edge. If this groove is not already in the frame one may cut by hand with a chisel and, if necessary, smooth the frame surface with a plane.

The webbing should be soaked in warm water for several minutes until it is pliable. Then lay it on the frame and cut to fit the shape of the seat, allowing an inch excess from the outer edge of the groove, around the entire piece. See that all strands run parallel with the front of the frame, and that all weavers extending over and parallel with the groove are pulled out.

With a wedge and a mallet begin at the front and force the webbing into the groove. Insert the webbing at the back next and then at the sides. The corners are done last.

The edges of the webbing projecting beyond the grooves are cut off with the chisel and mallet. Run either liquid or hot glue into the groove, using the oil can or stiff brush for spreading it. Liquid glue is recommended for the amateur, since it does not harden rapidly. This process must be carefully done to insure a neat surface.

Inserting the Spline—Splines are used as a finish for the groove, after the cane has been fastened in. They are made either of reed or wood. They are wedge shaped, with a curve on the edge that will be uppermost when the spline is properly inserted in the groove. It may be possible to use the old spline if

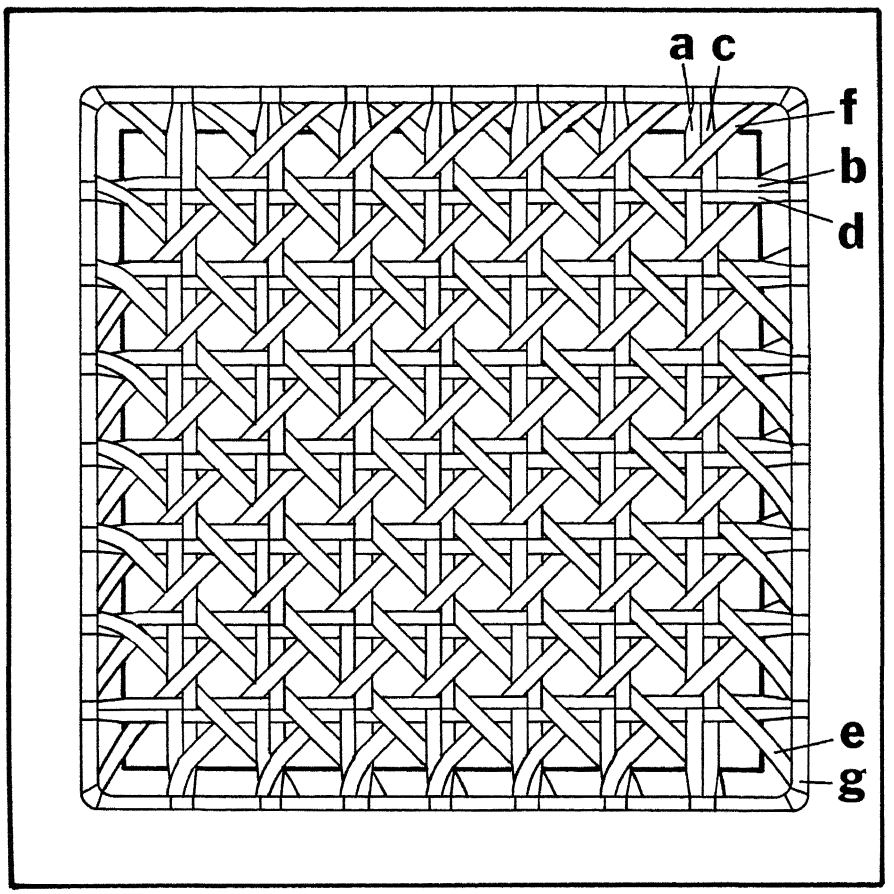

Fig. 3—Completed woven cane surface; Step V (e), Step VI (f) and binding, Step VII (g). Note how bindcane is held in place.

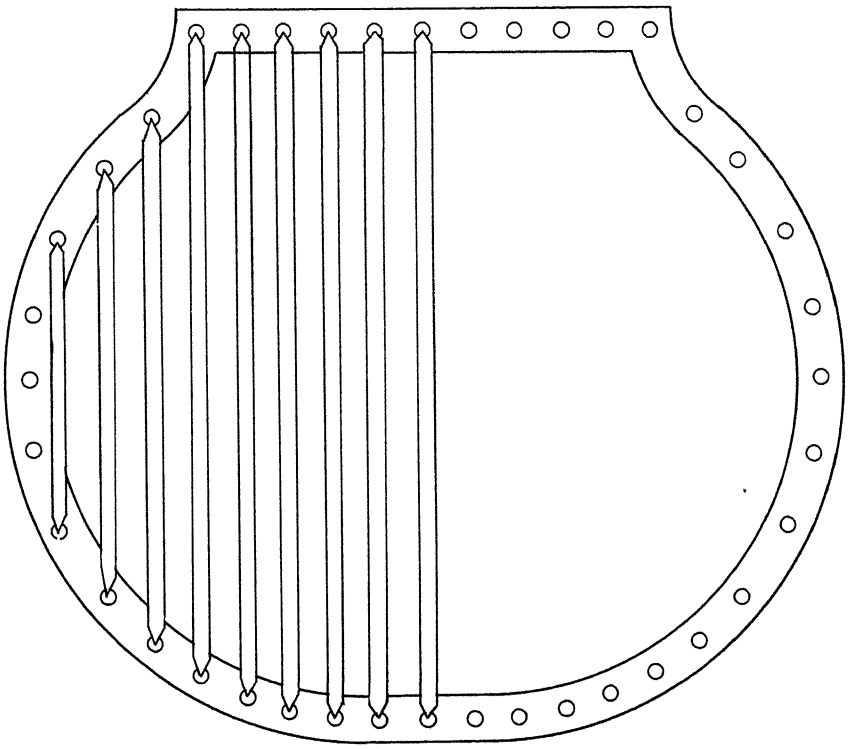

Fig. 4—Weaving Step I on an irregular surface.

care is taken to preserve it when removing the old webbing. Hickory and reed splines are pliable, but need to be soaked in hot water to make handling easier. The spline is inserted in the groove, and the joint is made at the rear of the frame. Force the spline down nearly flush with the frame, using the mallet and wedge, Sponge off the excess glue and allow the webbing to dry. Irregularities will disappear as the surface dries.

Finishing the Surface—Sanding lightly with 00 sandpaper will eliminate the small hair-like projections on the surface of the webbing. Singeing the surface with a flame will do the work effectively, but caution must be taken not to burn the webbing.

Surfaces made of machine woven cane may be finished the same as hand woven cane surfaces. See directions for finishing surfaces in seven-step caning.

WEAVING WITH RUSH

Rush is the name applied to many stemlike plants of the sedge family. The plants are found growing in wet places throughout the northern hemisphere, as in lowlands, marsh lands, or along the banks of sluggish streams. Flag and cat-tail are plants that belong to this family, and are used for rush seating. Rush may be gathered when the tips of the leaves begin to turn brown. This is usually about August. The rush is then dried in the shade.

Rush may be purchased from an upholstery supplier and comes in three sizes: size 4—$\frac{4}{32}$"; 5—$\frac{5}{32}$"; 6—$\frac{6}{32}$" wide. Two colors of rush are available; tan and tinted.

Equipment for Rush Weaving—Equipment for weaving rush seats, in addition to the rush, is padding material such as bits of rush, thin sheets of wood as from berry boxes, or corn husks; if fiber is used for weaving, paper may be used to pad. Shellac or varnish for finishing the seat, small staples or tacks, a hammer, and a block of soft wod are additional equipment.

Preparation of the Rush for Weaving—Rush is dry, and needs to be soaked in water about 10 hours before using. Another way to moisten it is to soak it for 1 hour and then wrap in wet burlap and let it stand for 12 hours before using. The butt ends which are too coarse for weaving must be cut off. The leaves are then twisted together. The number of leaves used depends upon the desired thickness of the strand of twisted rush. One, two, or three leaves are usually twisted together. The twist should be long and tight, as well as even and smooth, to make a satisfactory weave.

Weaving a Square Rush Seat

Start at any corner, as A in Fig. 5, lay the end of a strand of the rush over rail 1 close to the corner post, with the end of the strand to the inside of the frame. Draw the strand over the front edge of rail 1, then under the rail and over the top of the end of strand. Then draw the strand over top edge and under rail 2. This binds loose end of strand.

Pull the strand directly across and over the top of rail 3 on the opposite side of the frame. Keep the strand close to the corner B and draw it tightly. Draw the strand over the edge and under rail 3, then up and over the top of the first row of rush and rail 1, keeping the strand close to the corner B. Draw the strand over the outer edge and under rail 1, then directly across over the top of rail 4 on the opposite side of the frame. Keep the strand close to the corner C and pull tightly. Draw the strand over the edge and under rail 4, then up over the top of the first row of rush and rail 3, then over the edge and under rail 3.

Draw the rush across to the opposite side, over the edge of and under rail 2, then up over the top of the first row of rush and rail 4, then over the edge and under rail 4, keeping the rush close to the corner D. Continue to weave in the same manner until the seat is completed. Place a wooden block against the strands and tap the block with a hammer to keep the strands close together where they go over the rails. In the diagram the rush is shown the same width throughout. In actual weaving, as the rush is drawn tightly over the rail it flattens somewhat.

When new strands are added they are joined by tying the two ends with a square knot, at a corner or at a place where the joining will not show in the finished seat. When two or more strands are being used in weaving, one new strand is twisted at a time. The upper or top end is knotted to the lower end of the leaf.

Some expert weavers do not tie the knots when joining strands, but add strands by twisting the preceding leaf about the added one. This method of joining strands requires patience and dexterous handling of the rush.

When the seat is about two-thirds finished, pad the seat between the upper and lower rows of strands with paper, broken ends of rush or corn husks, in order to keep it firm. Pad the seat carefully so that the material will not work up through the top. Pad it firmly at the edges of the rails to make the seat more durable. A smooth stick may be used to push the padding into the corners.

When the entire seat has been covered fasten the ends of the last strand around another strand on the underside of the seat or tack it under the rail.

Weaving Rectangular Rush Seats

A rectangular shaped rush seat is woven the same as a square seat until the short rails are filled in. Fill the center by going over the top and under the long rail, then directly across half the frame opening, and up through between the strands at the center of the seat, then across the remaining distance and over and then under the opposite long rail. Fig. 6 shows the weaving of the rectangular rush seat. Repeat until the seat is completed. Keep strands close together at center of seat and at the edges of the rails.

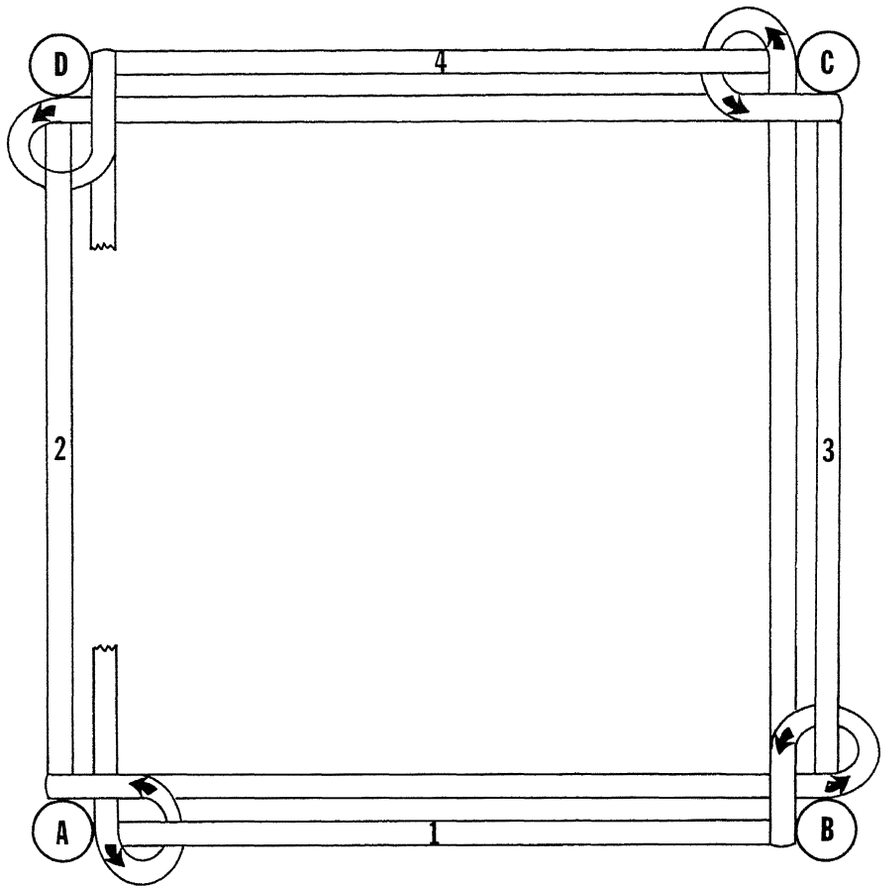

Fig. 5—First step in weaving a square rush seat.

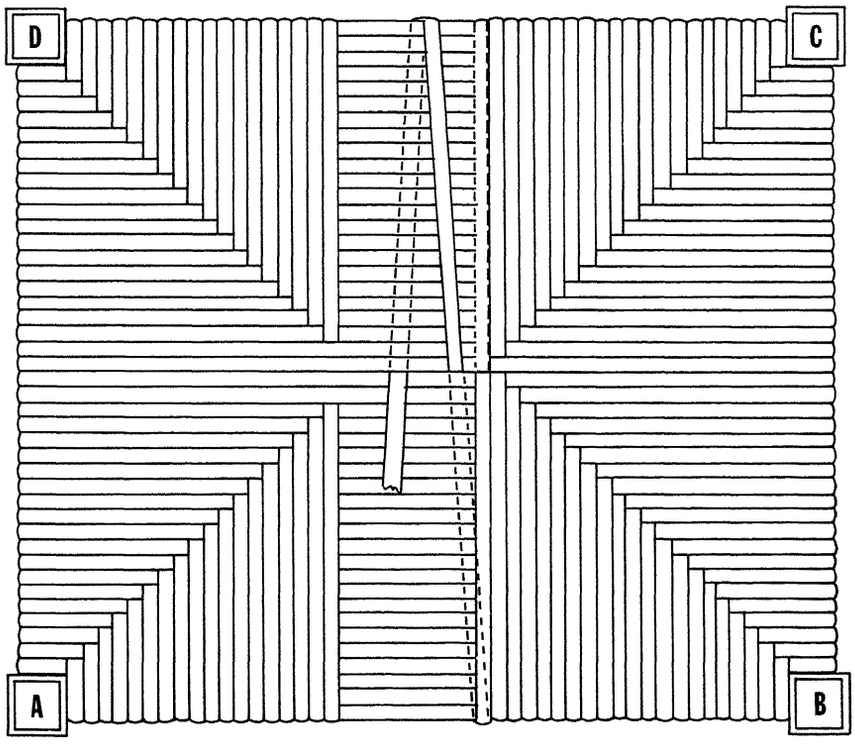

Fig. 6—Weaving in the center on a rectangular rush seat.

Weaving Irregular Rush Seats

When the front rail of the seat is longer than the back, measure the difference between the posts on the front and back rails. On the front rail starting from post A as indicated in Fig. 7, measure in one-half the difference between the front and back rails, and mark this point with a pencil. From post B measure in the same distance on the front rail and mark the point.

Weave in the corners A and B as far as the pencil marks. Fasten the end of the first strand on inner edge or rail 2. Weave the first strand over then under rail 1 and continue to weave at the corners A and B as for the square seat (See Fig. 5) ; fasten the end of the strand on the inner edge of rail 4 back of corner B. Fasten the beginning of the second strand on rail 2 back of the first strand and weave in the same way as the first strand. Fasten the end of the second strand on rail 4 back of strand one. Continue with as many strands as necessary to weave the corners.

Weave the remaining square or rectangular surface as described on pages 10 and 12.

Finish of a Rush Seat—After the weaving is completed trim off all rough ends and finish the seat with several coats of shellac or varnish in order that it may be more easily cleaned. The rush may be coated with equal parts of oil and turpentine. Allow to dry thoroughly. Finish the surface with two coats of varnish, allowing each coat to dry.

Other Rush Seating Materials

Many materials other than rush are used for this type of weaving. Fiber (which is a twisted paper) is tough, strong, and serviceable. It comes in balls of various weights, and has the added advantage of being machine twisted and does not require the frequent knotting that rush does. A strand of fiber from 15 to 20 feet long may be used at one time if it is formed in a loop and held together by a rubber band. A new strand of fiber is added by tying one end of each of the new and used ends with a square knot. When weaving the irregular seat, tacks or staples are used to fasten the fiber to the rails as the corners are filled in. A shellac or varnish finish is used on a fiber seat.

Raffia and corn husks are sometimes used instead of rush. Corn husks are often used in toy furniture. The short lengths of corn husks precludes them from general use. The husks nearest the ear produce the best seats. Twine is sometimes used for this type of seat.

REED OR SPLINT WEAVING

Reeds which are used in weaving seats come from a species of palm which grows in a warm moist climate. These palms are stripped of leaves and bark, and split into round or flat strips of different widths

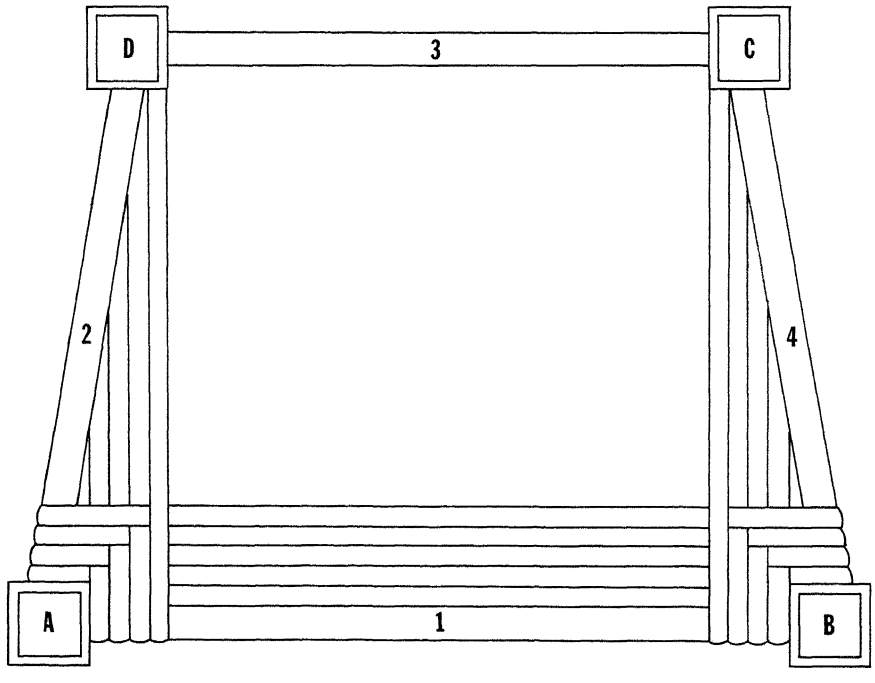

Fig. 7—Weaving in the corners on an irregularly shaped rush seat.

and diameters. Reed has a softer, duller surface and is more porous than cane.

Hickory bark and ash splints are used for this type of weaving. Indian splints, which are long shavings of wood similar to hickory splints, may be used.

Preparation of the Reed and Splints for Weaving—Splints are rolled in balls with the right or smooth side inside. This smooth side should be at the outside when woven in the seat. The splint is drawn through from the end which has both corners cut off, thus > in order to prevent the splints from slivering. Sometimes ash splints need to be restripped before using. Splints must be soaked in cold water until pliable.

Reed is either flat or round, and may be bought in hanks, coils, or bundles. The cost is determined by its width. Reed has a smooth side with a beveled edge which must be on the right side when woven. Reed is more pliable if soaked in water for a short time.

Diagonal Weave on a Square or Rectangular Seat

Placing the Warp Strand—Fasten the splint either by tacking it to the inside of the back stretcher or rail, or by wrapping it around the rail several times. Carry the splints to the underside of the opposite rail from which the end was fastened, keeping the splint close to the corner. Continue wrapping around in this manner, keeping the strands of splint as close together as possible until the seat is completely covered from back to front. Figure 10 (a) shows this process. The surface may remain one night to allow the strands of splint to shrink. After shrinking they may be pushed more closely together and more splints added to fill in the spaces caused by shrinkage. If an antique appearance is preferred the addition of extra splints is omitted.

When splints are joined, notches may be cut in the edge of both the old and new splints, as indicated in Figure 8. At these notches the two pieces are tied together with stout thread or fine cord. Or the two pieces may be joined by notching them and fitting A into B as Figure 9 indicates. Always end the strand of splint on the bottom of the seat; never end a strand near the front or back as it may loosen if it is too short. The seat may be padded at this point by stuffiing soft paper into it. Be careful to keep the surface smooth.

Placing the Filling Strand—The filling weavers are placed next. The strand of splint is fastened to the rail the same as for the warp or preceding step. The weavers start on the rail at the right side of seat next to the back post and weave to the left, Fig 10 (b).

Strand I—Weave over the first two strands of the warp, under the next two, over the next two, under two, and continue weaving until the opposite rail is reached. Carry the strand down over the side rail and continue weaving in same manner on the underside.

Strand II—The second strand of weaver will go over the first strand of warp, under the next two, then repeat over two and under two across the seat, over the rail and on the underside.

Strand III—The third weaver will go under the first two strands of warpers, over the next two, and repeat under two and over two across the entire seat.

Strand IV—This weaver will go under one warper and over two, then continue weaving, repeating under two and over two across the seat.

The first four steps in weaving make a unit. This unit is repeated until the entire surface is filled with weavers—that is, repeat strand I in row five, strand II in row six, and so on. Fasten the end of the last strand by weaving the end over the woven strand, forming a locked end.

Fig. 8—Joining splints by notching and tying together.

Fig. 9—Joining splints by notching and fitting A into B.

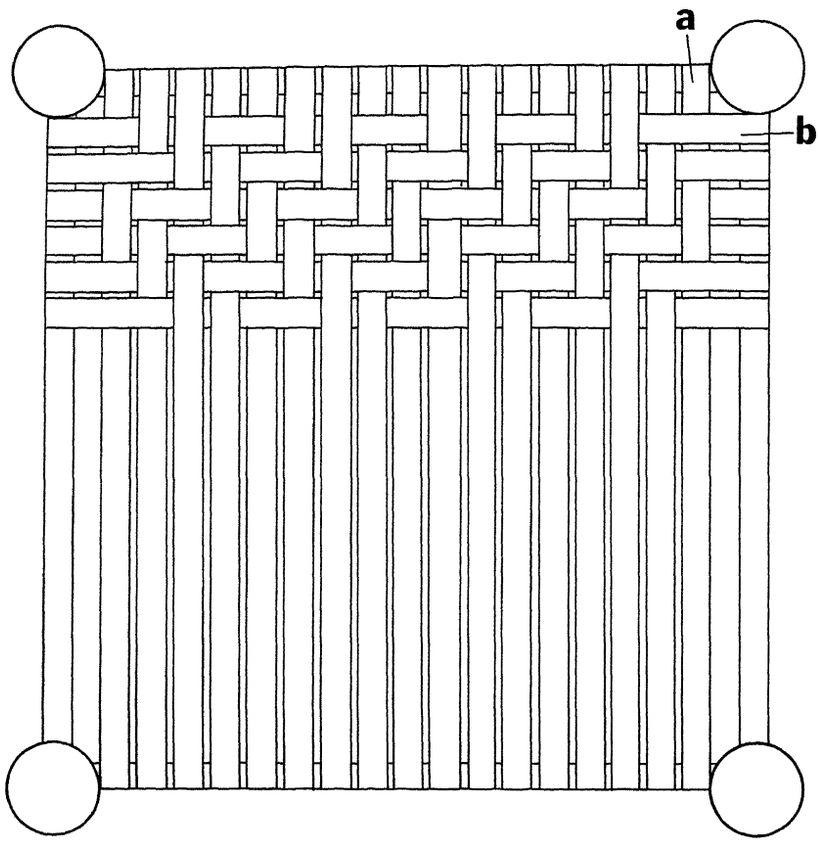

Fig. 10—Placing the warp strand (a) in the diagonal weave of an ash splint seat; (b) placing the filling strand.

The diagonal weave remains the same where the filling weavers run over three and under three warpers instead of over two and under two. The first strand must be started by going over the first three strands of warp at the back right hand corner of the frame.

Finish of Reed or Splint Seats—Reed is light in color and may be stained to blend with the color of the piece of furniture. Splint may be stained, if a darker color than its natural color is desired. Reed is porous and soils easily. It may be finished with shellac or varnish.

Weaving a Seat of Irregular Shape

When the seat is irregular in shape, measure the distance on the back rail between the posts, then the distance on the front rail between the posts. Find the difference between these measurements and mark half of this distance on the front rail starting from each post and measuring toward the center of the front rail. This makes the seat square. This square surface is woven in the same manner as the square or rectangular seat. Spaces on the sides may either be filled in with short pieces of splint, maintaining the pattern lines, or the sides may be filled in as the weaving proceeds.

Many patterns may be woven, depending upon the ingenuity of the weaver. The effects are secured by skipping certain strands.

Other Materials Used for This Type of Seat

The method of weaving as described for rush or splint may be followed if binding cane is used. The cane must be soaked a few minutes before using. The strands are joined by tapering the ends and cutting them diagonally as shown in Fig. 11. The ends are then tied securely together. A seat woven of binding cane is given a shellac or varnish finish.

Fiber (which is machine twisted paper) or Indian splints may be used in this weaving process. The fiber is woven dry and stretched tightly, but the Indian splints are moistened before weaving. They shrink on drying, which tighten the seat. The fiber is finished with either shellac or varnish.

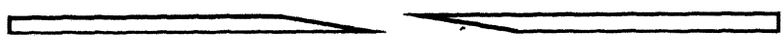

Fig. 11—Joining the end of binding cane.