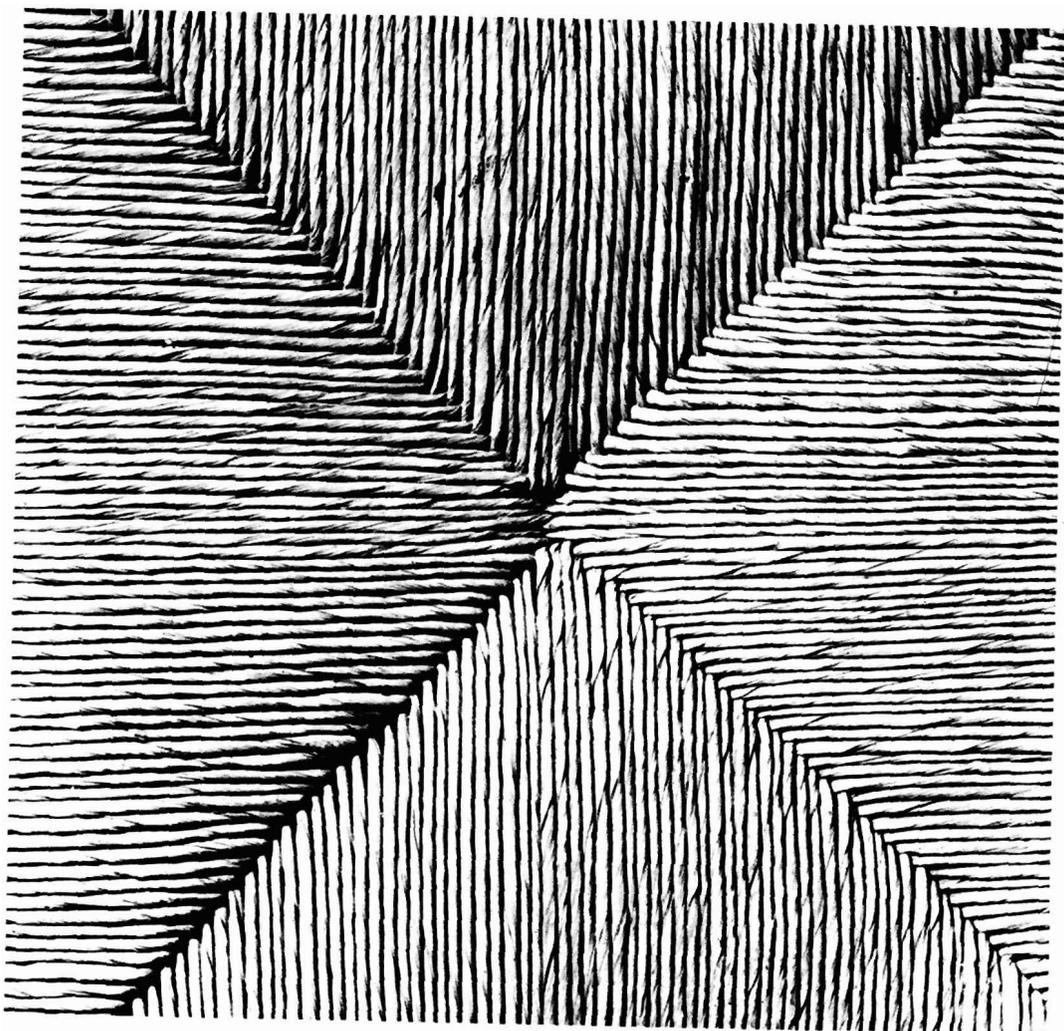


RUSH

SEATS FOR CHAIRS



RUSH SEATS for Chairs

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Natural Rush Seats

Chairs with round rails can have seats woven either of rush or of splint; the original seat usually shows which to use. Rush can be used for chairs of simple design, such as the early American ladder-back type. It should always be chosen for more elaborate chairs, such as the later Hitchcock type and the Sheraton. Rush can be used if seat rails are of the same height, or if side rails are slightly higher than those at the front and the back.

Real rush or cattail is better than imitation fiber for antique chairs although more skill is required to weave it.

The kind of rush used for chair-seating is known as *cattail*. Cattails grow in shallow fresh water, wet swampy places, along the banks of streams, and in lowlands and marshes. They are found in most northern states and they can be gathered easily and inexpensively. If properly chosen and prepared, they are easy to use. Rush may also be bought.

How to Gather Rush

You can tell cattails from other plants by their round spikes of flowers—the “bobs” or “cattails.” The leaves are in two rows, with their flat sides back-to-back. There are two kinds in New York State: the broad-leafed (about 1 inch wide) and the narrow-leafed. The broad-leafed is more common; the narrow-leafed grows in lowlands and has much longer leaves. Choose the narrow, long leaves (about 7 feet) for chair seating.

Gather the rush when the leaves are full-grown, when the stalks are still green and the tips are beginning to turn brown. Late July, August, or early September is the usual time. Select perfect leaves from the stalks that do not have “bobs.” Cut the stalks just above the surface of the water or ground. Gather an ample supply; leaves shrink at least one-third of their weight as they cure and there is waste in weaving.

How to Dry Rush

Pull the leaves from the stalks. Sort the leaves, placing together those of about the same width and length, and tie them in loose, flat bundles. Be careful not to bend or break the leaves. Dry them thoroughly for at least two or three weeks in a dark, airy room such as an attic or storeroom floor. Do not put the leaves in a damp room where mildew might form on the leaves, or in a hot sunny room where leaves might become brittle.

Rush carefully dried and stored should be usable for a year or more.

What You Need to Weave a Seat

Chair with round rails or one with the edges of the rails rounded, with or without corner blocks.

Rush, 2½ to 3 pounds a chair.

Place where rush can be dampened, preferably a trough which can be made by soldering ends of a 6' length of 5 inch eavestrough. Or dampen in burlap with oilcloth or plastic underneath to protect the floor and covered to retain moisture.

Large teakettle or pail, about 10-quart size, and warm water.

Glycerine, U.S.P. Standard, 2 cups; or urea crystals, 1 cup, when trough is used.

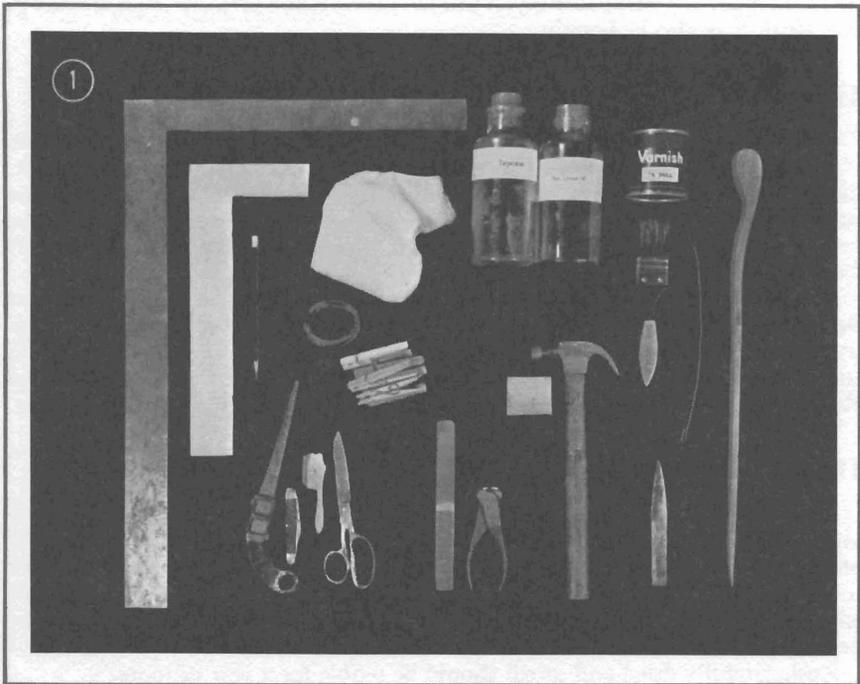
Working surface, with the seat of the chair at a convenient working height. The weaver may sit on a low stool with the chair held in front or fastened to a rigid revolving support, such as a piano stool.

Trough, table, or floor space to hold the rush and tools.

Cutting tools: keyhole saw, knife or shears to cut away the old seat and cut the ends of rush, a razor blade to trim loose ends of rush after the seat is finished.

Pliers to remove old nails or tacks and to cut wire.

Wood file to smooth rough places on the rails and to round the edges.



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- Clothes wringer to remove air and excess moisture from the rush.
 - Metal tool, such as a file with its surface smoothed, to remove air from the rush and to smooth the seat after it is woven. A dull case knife or putty knife may be substituted.
 - Carpenter's square and cardboard to measure seat and square rows.
 - Twine, such as green cotton fish line, strong enough to hold the ends of rush when weaving is started.
 - Clamp clothespins, about 6, to hold the twists of rush.
 - Block of soft wood, about 1"x2"x2", shaped to fit over the rails, to push the rows together.
 - Tack hammer.
 - Stuffer to poke the padding and to roll the seat. A ruler with wooden edge and a rolling pin may be substituted.
 - Cheesecloth to dampen and cover the seat.
 - Wire that bends easily, to hook the twists of rush through the small center opening when weaving is nearly finished.
 - Materials to finish the seat and a brush to apply them.
-

How to Get Ready to Weave

Remove the old seat and all old tacks or nails from the rails. Smooth any uneven places in the wood and round the edges if they are sharp and likely to break the rush.

Dampen the rush

Dampen the rush until it is workable enough to twist and weave without cracking or breaking. This may take 1 hour in warm water in a trough, or 8 to 12 hours spread on the floor and sprinkled.

Fill the trough about $\frac{3}{4}$ full of warm water. Add glycerine or urea crystals (about $\frac{1}{4}$ cup to 1 gallon of water) until the water feels soft. Soak the rush, a handful at a time, in the solution. Urea and glycerine help prevent the rush from drying out, but the solution may have to be changed during weaving, and both are expensive in the quantity needed.

Without a trough, you probably would dampen rush with warm water only.

Choose and prepare leaves

Choose long, unbroken leaves of about the same length, width, and thickness. The number of leaves to use in each strand depends not only on the leaves but on the size of strand you want. Usually, two leaves are twisted together; sometimes, if they are narrow or thin, three may be used. A thin strand is best for a graceful, delicate chair but many strands are needed to fill the seat. It is important to decide what size strands will look best on your chair.

Select and prepare the leaves and make them into strands as you work.

Run the leaves through a wringer to take out air from the cells and to make the leaves workable. Set the rollers tight so that the leaves make a sharp crackling noise as they are run through.

Draw each leaf quickly over the edge of the metal tool (figure 16), to take out any air left in the cells. Continue the process while you are weaving.

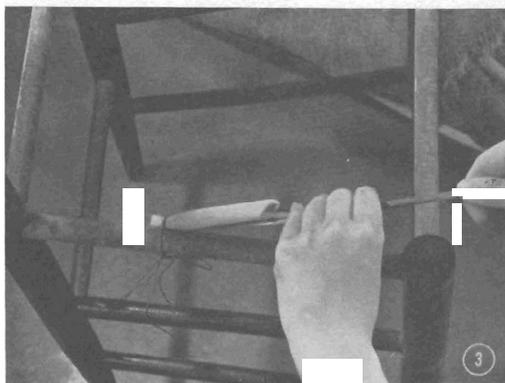
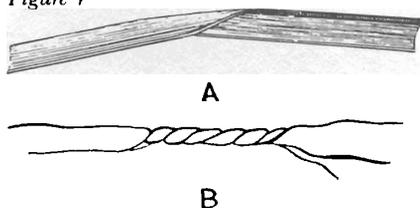
Practice making twists

Cut off about 1 yard of cord, and loop it around the back-seat rail. Tie the ends of cord in a square knot (figure 2); keep the loop about 5 inches long. (Note that ropes A and B are on the same side of rope C.) Arrange two leaves with a butt end and a tip end together and the flat side of one next to the rounded side of the other, like stacked spoons. Put one end of the pair about 3 inches through the loop of cord. Fold it toward the front rail and tie the ends of string around the bunch, making a square knot near the fold of rush (figure 3.) Tie the string temporarily around the side rail. Twist the leaves together, away from you and in such a way that the strand is smooth, even and tight. Usually the thumb and first two fingers of one hand are used to make the twist, and the thumb and fingers of the other hand hold it. Keep the separate leaves straight and smooth as when making a braid; make long but firm twists, keeping the thumbs about 2 inches apart to assure a uniform twist (figures 3 and 4). Practice until you make a smooth, even strand which is of a size and color that complements your chair. Untie the string around the side rail and take out this practice strand before starting to weave.

Figure 2



Figure 4



How to Weave

The weaving of a firm smooth seat takes skill and practice. One satisfactory method is described in the following paragraphs.

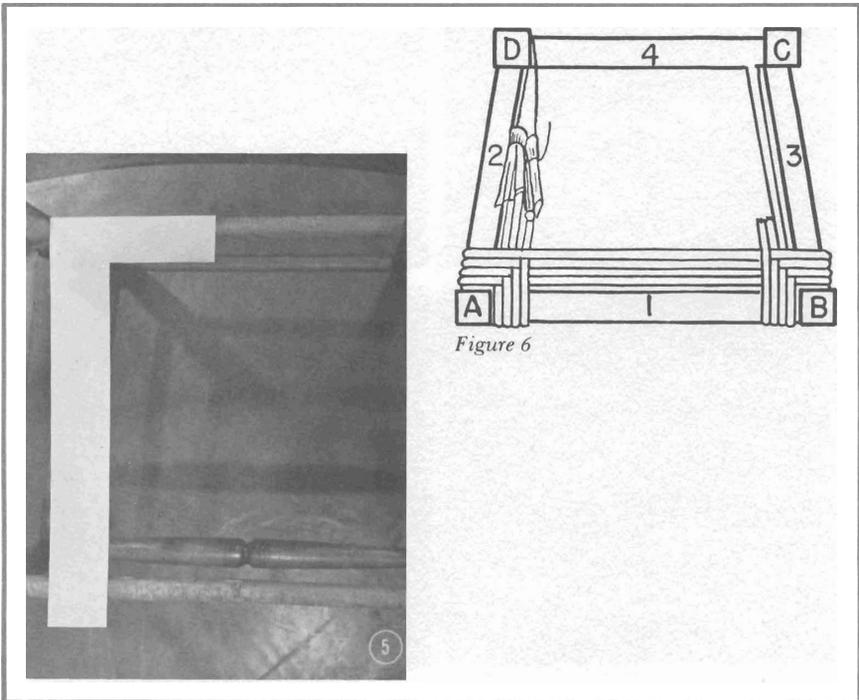
Seats without Corner Blocks

With a carpenter's square as a guide, make a square of stiff cardboard, with the long side about 15 inches (figure 5). Use this to mark off a square center opening. Place the short side of the cardboard square parallel to either the front or the back rail and the long side against the inner edge of the corner of the back rail. Mark with a pencil on the front rail the outer edge of the square. Do the same on the other side of the seat. Adjust, if necessary, to make the distance between pencil lines on the front rail the same as between posts on the back rail.

Weave the corners first until you reach the marks on the front rail (figure 6) and then weave as for a square seat (figure 12). To do this:

Face the front of the chair, push the loop of string that was used for the practice twist close to the back post on the left side of the seat.

Begin with 4 leaves, each long enough to reach around three sides of the seat. Make two pairs, each with a butt end together and the flat side of one leaf next to the round side of the other. Place one end of the pairs through the loop of cord about 3 inches. Fold them toward the front rail and use the ends of string to tie the bunch, making a square knot near the fold of rush.

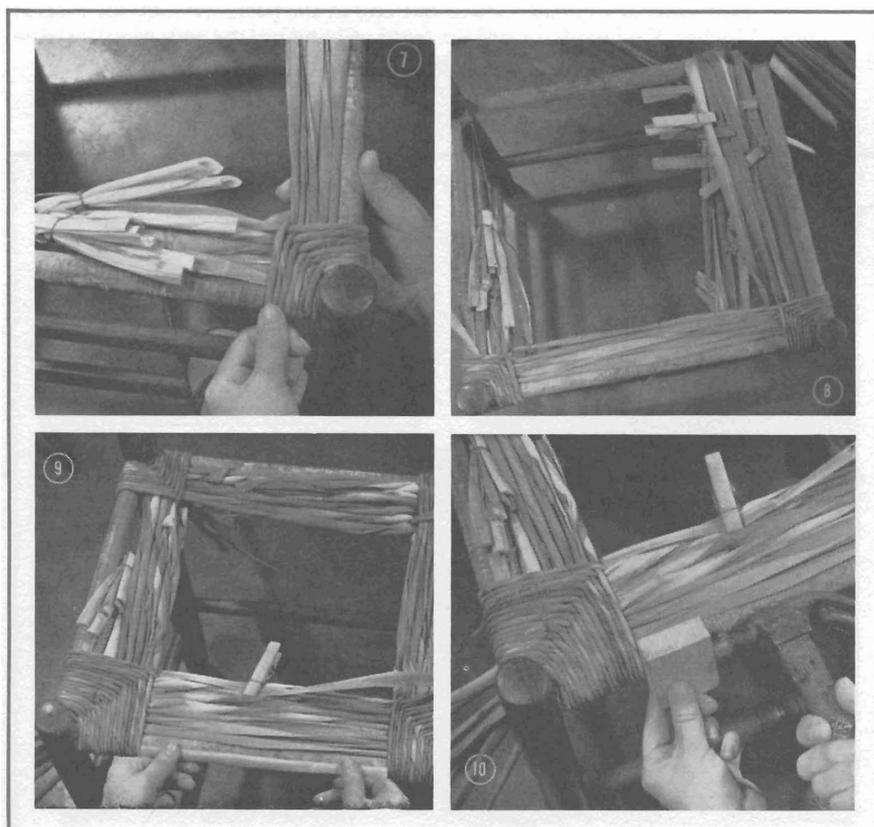


Choose one pair of leaves, bring them almost to the front rail and then twist them into a strand. Turn this twist away from the post; keep all other twists in the same direction like a rope. Draw the strand over rail 1, close to post A, up through the opening of the chair, over the side rail 2, again close to the corner post A, and up through the opening again, thus holding the beginning of the twist (figure 12). Lift the strand from the underside of the seat to shorten it, helping to make the seat firm (figure 7). Lay the strands in position to make a square crossing and a seam straight from the corner of the seat.

Pull the strand, without twisting the leaves, across the front of the seat. At post B, (figure 12), twist the leaves, bring the strand over side rail 3, close to post B, up through the opening of the seat, over front rail 1, again close to post B. Arrange the strands as at post A.

Pull the strand, without twisting, to the back and fasten it firmly by winding the ends around the back rail and tying them together or by holding them with a clamp clothespin (figure 8).

Strands are twisted only over the rails where they will show, not on the underside of the seat.



Weave the second pair in the same way. Loop the ends tightly around the back rail and fasten them with a clothespin to the first.

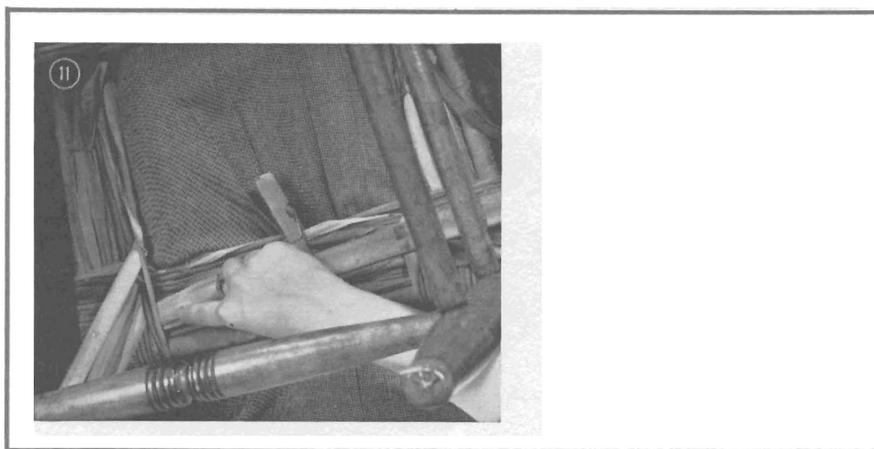
Tie more leaves, one pair at a time, in the same loop of string and weave in the same way. About 5 twists fill 1 inch. Use a piece of rush or the cardboard square every 2 or 3 rows to make sure that the corners are square and the rows straight (figure 9). Use the hammer and block of wood to force the strands in place (figure 10). Keep the seam straight from the corner toward the center of the seat. Make a square crossing; add from 4 to 6 inches of another leaf to fill out a thin strand (figure 14).

After the corners are woven as far as the marks on the front rail (figure 8), fasten the ends on the right-hand side: tie with a square knot a piece of string about 18 inches long around all the ends of rush. Loop the ends of string around the back rail and tie another knot. Pull the strands taut and keep the rows straight and close together. Remove the clothespins and cut away the rush over the rail (figure 11, underside of chair).

If the rush breaks, replace it with another piece.

Padding. After the front corners are filled in, pad them. The padding is put in the pockets on the underside of the seat at each side of the corner seams. Butt ends and short lengths of rush are folded the length of the opening and forced in flat bunches from the center toward the corner posts. To do this, turn the chair over. Use the wooden stuffer (figure 1) and poke a bunch of rush into the pocket on the underside of the seat, from the center to the seam (figure 11). The finished seat should be hard and flat, or slightly rounded, but not overstuffed. Rush shrinks as it dries, so put in enough padding to make the seat firm but not fat. Both front corners should be of the same thickness.

As you continue to weave around all four corners, add padding about every 3 inches. Back corners take less padding than do front corners. When you have finished the weaving, add the last padding by poking in bunches parallel to the last strands.



Square Seats

Seat frames may be square or have corner blocks that make the opening square (figure 26). Weave these seats, and seats that are wider at the front, after you have filled the corners, as follows:

Weaving the first strand, corner A (figure 12). Use the same loop that you had for seats wider at the front or make a similar loop if you are just starting to weave a square seat. Tie in the butt ends of two leaves, one of which is long, and the other short. Twist and weave around post A (figure 12).

Loops of string seldom have to be cut; weaving covers them.

Joining the rush. As you leave corner A (figures 12 and 13), add a new leaf. Place this between the weaving and the strand, with the butt end hanging down below the underside of the seat about 6 inches, or the amount of the stiff end of the leaf, with the curved side toward you (figure 13). Twist this new leaf with the other two, about twice to hold them together. The butt ends make a seam on the underside of the seat and should hang down rather than be caught in the weaving. Always add a new piece of rush after you finish each corner so when weaving the next corner the rush will be securely fastened and you will have enough to go around that corner.

Adding rush. Occasionally you may need to use a third piece of rush to fill out the strand, as when crossing twists at the seam (figure 14).

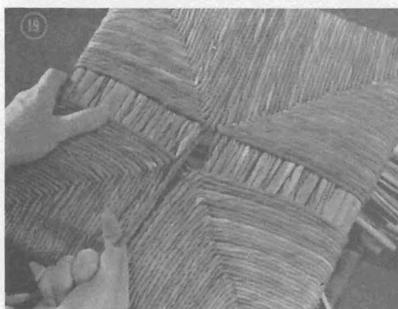
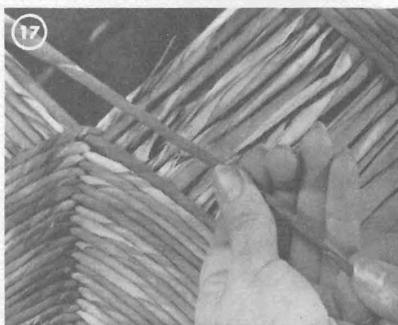
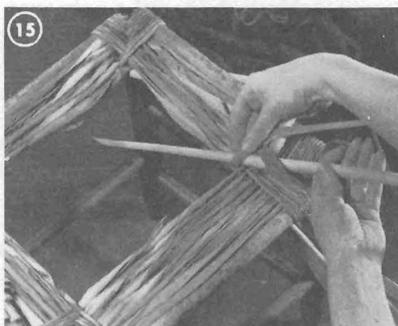
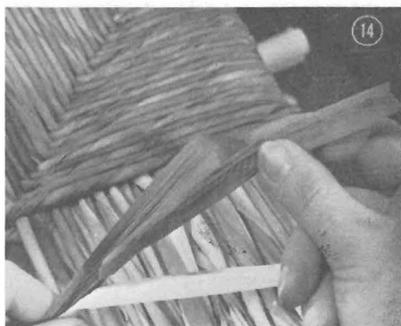
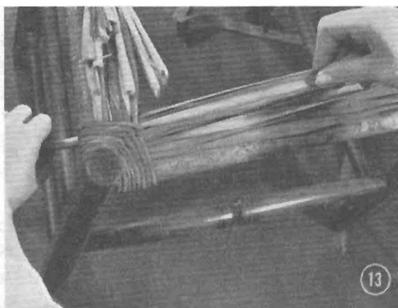
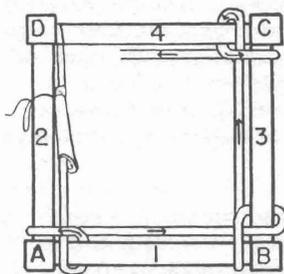
Continuing the first strand. Continue to corner B (figure 12). If the strand is too "fat," drop the end of the shortest leaf. This can be cut off or folded in for padding. Twist and weave around corner B. As you leave this corner, again add a new leaf. Continue to corner C and weave. Add a new piece of rush, proceed to and weave around corner D, again adding a piece of rush (figure 12).

Splicing. If rush breaks or you do not have enough to finish weaving the corner, another piece may be spliced in (figure 15). After you weave the first half of the corner, add a new leaf at the seam with the butt end extending about 6 inches below the seat. Twist the old leaves once around the new to lock it. Then arrange the leaves parallel and twist all three together. If the strand is too thick, pull out the shortest leaf. Continue, weaving the second half of the corner. On the underside of the chair these butt ends will stick down, but at an opposite angle from those used for joining, and will be cut off.

Weaving the rest of the seat. Go on weaving, as for the first strand, around post A to posts B, C, and D, (figure 12) until there is only space for two more rows on the side rails. Continue to make the rush workable by running it through the wringer and using the metal tool (figure 16). Smooth the twists (figure 17). Join a new piece of rush after each corner. Pad the seat as you weave (figure 18). Keep the strands taut, rows straight, by pounding them with the block of wood, seams straight and the opposite sides of the chair alike (figure 16). Check as you go along to see that the opposite openings measure the same and that you have the same number of twists over each rail. Occasionally force the metal tool quickly between the rows to straighten them and to smooth the strands. Before the rush dries out, roll and polish the strands with the round end of the stuffer until the seat is smooth (figure 24).

If the sides are shorter than the back, fill the sides and then weave from back to front in a figure 8: To help prevent holes near the center, weave around the right side rail twice for the last two strands, proceed to the left rail (figure 19) and weave around it twice. Then weave in a figure 8 over back and front rails until those rails are filled in (figure 20). Sometimes this process is reversed. Join the rush at the

Figure 12



center after weaving the front rail, or after weaving around both rails.

Pull the last few strands through the small opening with a hook made of wire (figure 1). Weave in as many rows as possible; when you think the seat is filled, add one more strand. Fasten the last strand on the underside of the chair by separating the ends, winding each one around a nearby strand (figure 21), and tying them firmly with a square knot.

If the unfinished seat is left overnight, fasten the last twist to the seat with a clamp clothespin. Cover the seat with wet cheesecloth, to keep the rush from drying out.

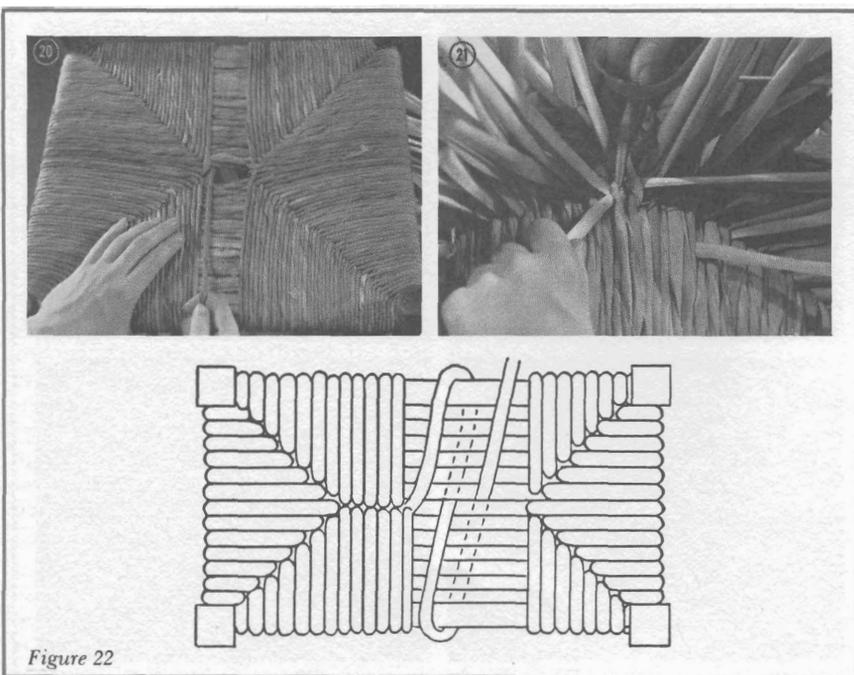
Seats Wider than Deep

Weave until the sides are filled as directed for a square seat. See that the opening measures the same on one side as the other, and the front the same as the back. Complete the filling of the back and front rails by weaving twists in a figure 8, going over and under the front rail, up through the opening, over and under the back rail, and again up through the opening. If you finish weaving the corners on the left-hand side of the seat, weave from there in a figure 8 until the opening is completely filled (figure 22). You may reverse this, weaving from the right side or the back rail first.

Just before making the figure 8, you may weave twice around side rail, instead of the single strands as shown in figure 22.

Seats with Corner Blocks

The chair in figure 26 has corner blocks which substitute for filling corners. Weave around four sides, beginning at the back left corner.



How to Finish the Seat*

After you have completed the weaving and padding, trim the butt ends on the lower side of the seat to about 1 inch, so that they do not show as you face the chair (figure 23). Trim any loose ends with a razor blade or shears. Use the rounded end of the stuffer to pound and even the seat.

On the upper side, trim the loose ends, straighten the rows, and pound with the stuffer to mold and polish the twists (figure 24). You may use a piece of leather also for polishing.

Let the trimmed and polished seat (figure 25) dry thoroughly. Depending on drying conditions this may take from one to four weeks.

When dry, to help prevent the rush from becoming brittle and breaking, apply at least two coats of one of the following penetrating or resilient coatings to both sides of the seat:

- $\frac{1}{2}$ gum turpentine and $\frac{1}{2}$ linseed oil. Apply two coats, one day apart.
- Penetrating wood sealer (tung oil and varnish resins). Two coats one day apart. Apply, let stand for 20 minutes, wipe off excess.
- Oil-modified polyurethane. (Contains mineral spirits, or its solvent is mineral spirits.) Two coats one day apart. Apply, let stand for 20 minutes, wipe off excess.

As wear becomes evident apply additional coats. Be sure no one sits in the chair until the finish has dried thoroughly.

*Revised by Clark Garner, Assoc. Prof., Dept. Design and Environmental Analysis.



Fiber Rush Seats

Fiber rush is made from a very tough grade of paper twisted into a strand to resemble rush. It may be purchased in dark brown in widths $\frac{3}{32}$ inch, $\frac{4}{32}$ inch, $\frac{5}{32}$ inch, and $\frac{6}{32}$ inch to resemble antique rush seats, and in multi-colored strands in $\frac{6}{32}$ inch to resemble new seats.



What You Need to Weave a Seat

Chair—same type as for real rush

Fiber rush—2 to 3 pounds, 4/32- or 5/32-inch width (6/32-inch is coarser and used mostly for large seats and porch furniture)

Working surface, table, cutting tools, pliers, wood file, metal tool, carpenter's square, clamp clothespins, block of soft wood, hammer, stuffer, and wire (see page 4)

Twine, such as cotton fish line, about 10 yards

Fine wire, all-purpose glue, or transparent fish line to fasten ends of rush

Padding—corrugated boxes, the equivalent of 8 flat pieces, each 10 inches by 18 inches

How to Get Ready to Weave

Prepare the chair (see page 3). Buy the fiber in pound or 2-pound lots, or in quantity on a large reel. Pound lots cost a few cents more; reels take time to unroll and rewind. On a reel, roll and unroll the rush rather than pull it. Take off about 25 yards to work with at one time. Tie the end to a nearby strand, and wind it in a roll about 6 inches across. Twenty-five yards of 5/32-inch width fiber weighs about 1/2 pound. Tie the string in a slip knot around the roll so that it won't unwind or untwist.

How to Weave

Use one strand and weave as you do real rush. The fiber is already twisted. Dampen the fiber by dipping the roll in and out of warm water; if wet, the paper softens and cannot be used.

For seats wide at the front, cut separate lengths each time you weave around the two front corners. For square or oblong openings, use one long strand.

To begin weaving, fasten the ends of the fiber as for real rush, but alternate hooking and tying the ends to a nearby strand to make them less bulky. Each time you weave the corners, tighten the preceding strand.

Join the fiber by one of three methods: (1) fold back the ends of the fiber and wire them together; or (2) overlap the ends about 3 inches and tie them together with very fine wire, fish line, or heavy thread; or (3) tie the end with a square knot on the underside of the seat.

Padding. If firmly woven and the seat rails are about the same height, padding may be omitted. To tighten loose strands, add heavy corrugated cardboard. Other cardboard or heavy paper can be used but may rustle. Begin padding after 4 or 5 inches are woven on the front rail. If the rails are of even height, cut four pieces of cardboard, one to fit each section of the seat. Force them under the weaving from the upper side of the seat. If the rails are of uneven height, two pieces of cardboard may be used in each section. More padding may be added. A hole about 2 inches square must be left in the cardboard at the center of the seat to get the fiber through. If brown paper is used, cut it in squares and fold it in triangles.

To fasten the end of the fiber after weaving is completed, pull it to the underside of the seat, untwist the paper, cut it in half, wind each around a nearby strand, and tie.

Unfasten joinings that are conspicuous, overlap the ends, and glue or wire them together.

Seats should be finished as for natural rush.

This bulletin is one of a series of how-to publications on replacing chair seating materials:

327E681 **Cane Seats for Chairs**

327E682 **Splint Seats for Chairs**

327E964 **Hong Kong Grass, Rope, and Twine Seats for Chairs**

