

How to Make

a

Beautiful Rocking Chair

By

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Introduction

Elaine Pagels, Author of *The Gnostic Gospels*, said of her study of the dead sea scrolls that much of it was difficult to understand. For example she quoted the line, “If you bring forth what is within you, what is within you will save you. If you do not bring forth what is within you, what is within you will destroy you” as evidence to support her opinion.

Having been a practitioner of meditation for over 30 years, I consider that line to be not only clear but possibly the most understandable directive to humanity I have ever read. To grasp it, it helps to understand the structure of our human existence. Our soul is ever-lasting and the essence of who we are; the part of us that was made in God’s image. Our human body is a temporary “house” for this soul.

As we go through our lives, if we seek to bring forth that part of ourselves which was made in God’s image (that part within us) we will realize the fruits of the spirit and will grow wise and contented in the realization that arises from this bringing forth.

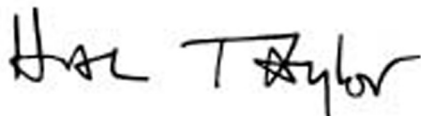
How do we bring forth that which is within us? There are many ways. Meditation is the most direct route. Medical science, in study after study of meditation has shown it to reduce stress, lower blood pressure, increase attention span, improve memory, improve health, enhance the development of ESP and on and on.

Meditation, although it is the most direct route that I know of, is not the only means of “bringing forth that which is within us.” Other means of approaching the effects of meditation include, playing and listening to beautiful music, gardening, solving math problems, painting, sculpting, writing and reading poetry and prose, writing music, playing sports and many others. The key is to focus the mind sufficiently so that the internal chatter, that infernal incessant mental graffiti that goes on in the mind virtually all of the time, is reduced to a minimum.

One excellent form of meditation is woodworking. There is some magic in the working of wood, which is itself at peace and in harmony, that brings focus to our minds and “brings forth that part of us within us which will save us” according to the dead sea scrolls. If the wood working project you are working on is itself beautiful and harmonious then that effect is multiplied in my view.

I consider my woodworking an extension of my meditation and I encourage all of you to take a moment or two each time you start work on your rocking chair to relax and focus, leaving all of your stress behind, letting all conscious thoughts drift from your mind, coming to the center of your being and allowing that which resides within you a clear path out to express itself in your work.

Good luck.



If you enjoy
are easily

many rocking chair makers out there who have taken the time to send me edits. A special note of thanks goes out to Fred Schock of Upperco MD who’s service in this regard goes above and beyond the “call of duty”. His dedicated attention to detail has been invaluable. Thanks Fred.

this book and find that the contents
understandable, it is because of the

First Things First

Cut out the template parts from the big paper roll, leaving about a quarter inch outside the lines. The 'chair parts' (arm and legs) I would recommend attaching to 1/2 inch hardwood or Baltic birch (I know it is in mm but get close) using something like 3M spray mount adhesive. Then band saw close to the line and sand exactly to the line. The reason I prefer using something with a little thickness to it is that as you make more chairs you will, no doubt, desire to make some changes here and there. If you have made your templates out of wood 1/2" thick then it will be possible to glue additional pieces of wood to the edges of these templates and change the shape of one area without having to remake the whole piece and risk not translating the critical edges properly.

For the two 'gluing forms', the rocker and back brace forms, I would use a hardwood like ash or poplar, something fairly strong but not too costly. Make the gluing forms an inch and a half to two inches thick. The back brace forms can be as thin as an inch and three eighths.

1 Wood Selection

I do not recommend purchasing an unattractive wood such as poplar or pine for your first chair as a means of developing your skills. Hundreds of wood workers of all skill levels have produced a beautiful rocking chair from these plans on their first attempt and you can as well. Everybody makes a mistake from time to time; mistakes can be repaired. I also do not recommend laying out the "big bucks" for an extraordinarily beautiful board on your first chair.

Approximately 35 to 40 board feet of 8/4 lumber are required. Remember that a board one foot by one foot by two inches thick (8/4) is actually two board feet. An easy way to keep track of board feet is to convert everything to cubic inches. Measure the board in inches then multiply length X width X thickness then divide that number (inches cubed) by 144 inches cubed (One board foot) to get the total number of board feet in a board. As an example.

One 8/4 board 7 feet long by 15 inches wide would be:

2" times 15" times 84" = 2,520 cubic inches divided by 144 = 17.5 bf

Two of these boards would be required to have enough for a rocking chair.

I get boards eight to ten feet long because they are a lot easier to move around the shop than those 14 foot boards.

A couple small knots can be tolerated and a gouge here or there will not be the end of the world. You will be cutting many small parts out of these boards and it is possible to work around some flaws in the wood without a lot of waste. The boards should be ~90% good.

Photo 1.1 shows a big claro walnut board that is certainly too big for me to be moving around the shop by myself! I used this board to make a rocking chair for Bob Welch. I am in the red shirt and the fellow who does not appear to be working as hard as I am is Kelly O'Bannon, a friend who used to help me make rocking chairs. This board came from Good Hope Hardwoods in Pennsylvania.

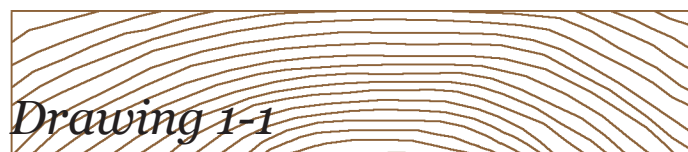
It is best to have boards that are a true 8/4 (two inches) or a little better. More is good and less is not so good and should be avoided. If the boards are pre planed then they will likely measure out at an inch and 7/8 to 3/4. You can use these boards but I greatly prefer buying lumber un planed, that way I can cut out my



small parts before planing and surface each piece individually on my jointer. This sends a lot less wood to the dust collector. Try to purchase lumber that is straight and true. Some faults can be tolerated some not so much. The worst problem for the new chair maker is “TWIST”. When a board lays flat on the floor, all four corners should be touching the floor. If the board rocks back and forth from corner to opposite corner, look for a better board. This is the worst flaw a board can have. Bowing or cupping is tolerable, twist will drive you to drink unless you absolutely love laboring with a hand plane or have a 15 inch jointer. (I do not know anyone who does) Do not fool yourself and do not let any one else fool you; a planer will not take the twist out of a board. Even if it did, the problem with twisted boards is that you have to remove so much wood that what you are left with is usually not thick enough for most chair parts.

I consider boards 11 inch wide to be about as close to heaven as a chair maker can get. With an 11 inch board a two board seat is easily executed and everything just seems to go a lot faster. I would not buy boards less than six inches wide unless you were faced with a variety of smaller boards and you knew you wanted to use a narrower board for the arms, front legs, back braces or rocker billets (parts five inches or under in width).

Most furniture makers like to work with quarter sawn wood, the perfect board for this chair is “slab sawn”, (flat sawn to some folks) see drawing 1-1. If you look at the end grain of the board you are considering, the growth rings should have very much the same form as the “half moon” in your thumb nail. Make sure you do not get too close to the very center of the tree as the wood at the center is usually not stable, or very attractive. Once the board has been selected and all the templates fabricated you are ready to put pencil to wood and outline the parts you need for your rocking chair. Note that the arms and front legs are not initially cut to shape but are cut into billets which go through some processing before being cut to final shape. So, do not get in a rush to make the parts look like they will in the finished chair.



Buying Wood

Buying good wood is always an adventure to me, sometimes a good one and sometimes not. If you can find a good reliable place close to you then you are quite lucky. Here is a place that I use, Rick Herbine and he can ship anywhere. He recently shipped a load of walnut to a rocking chair student in Ireland.

Herbine Hardwoods in Leesburg, VA, Phone 703-771-3067. Rick is an exquisite woodworker who runs a saw mill and a covey of solar kilns. He can help you with wood selection but his inventory is not huge. If you tell Rick what you are looking for and he does not have it on hand, he can find the wood, dry to your specs and call you when it is ready to be shipped.

Check Out The Check List

At the back of this book you will find a Check List, it is wise to follow this check list pretty closely. Some items can be completed out of sequence, others will cause problems. For the first couple chairs I would not deviate.

You should note that at the top of the check list, above ‘special features’ (where I always write “BEAUTIFUL”) you will see the major components listed. SEAT, FRONT LEGS, BACK LEGS, HEAD REST and so on. Notice that each one of these chair components has a box in front of it for a check. As you get each of these pieces rough cut, place a check in front of that component. When you have checks in ALL of the boxes, you are ready to “MAKE A CHAIR”. Do not get carried away and start shaping parts until you have checks in front of everything. No good cabinet maker starts his cabinet until his “cut list” is completed. This is your “cut list”.

Chair Sizing

People come in all shapes and sizes and two people six feet tall may not fit the same size rocking chair. Some folks have long legs, short legs, long torsos and on and on. As a result it is a little difficult to gauge what size chair an individual needs based solely on their height. That said, it is still the best rough guide. This is the scale I use:

5' to 5'5"	Small
5'6" to 5'9"	Medium
5'10" to 6'2"	Large

Taller than 6'2" or shorter than 5' ? Give me a call and I will help you out.

2 Layout

When you are looking at two, three or four big boards and you have all these chair parts you need to cut out of them, it can be a little intimidating. It is worth mentioning that the beauty of your chair is a function (in part) of how well you execute the layout. I strongly recommend that before you start the actual layout you read the book through “Rocker Billets” to give you a good feel for what parts you need and how you want the grain to flow in these parts. Then you can start to fit the templates to the lumber to see how you are going to proceed. The hardest part for me to account for in the layout is always the rocker billets. I do not know why, they just seem to be difficult for me. Perhaps I just don't think in straight lines.

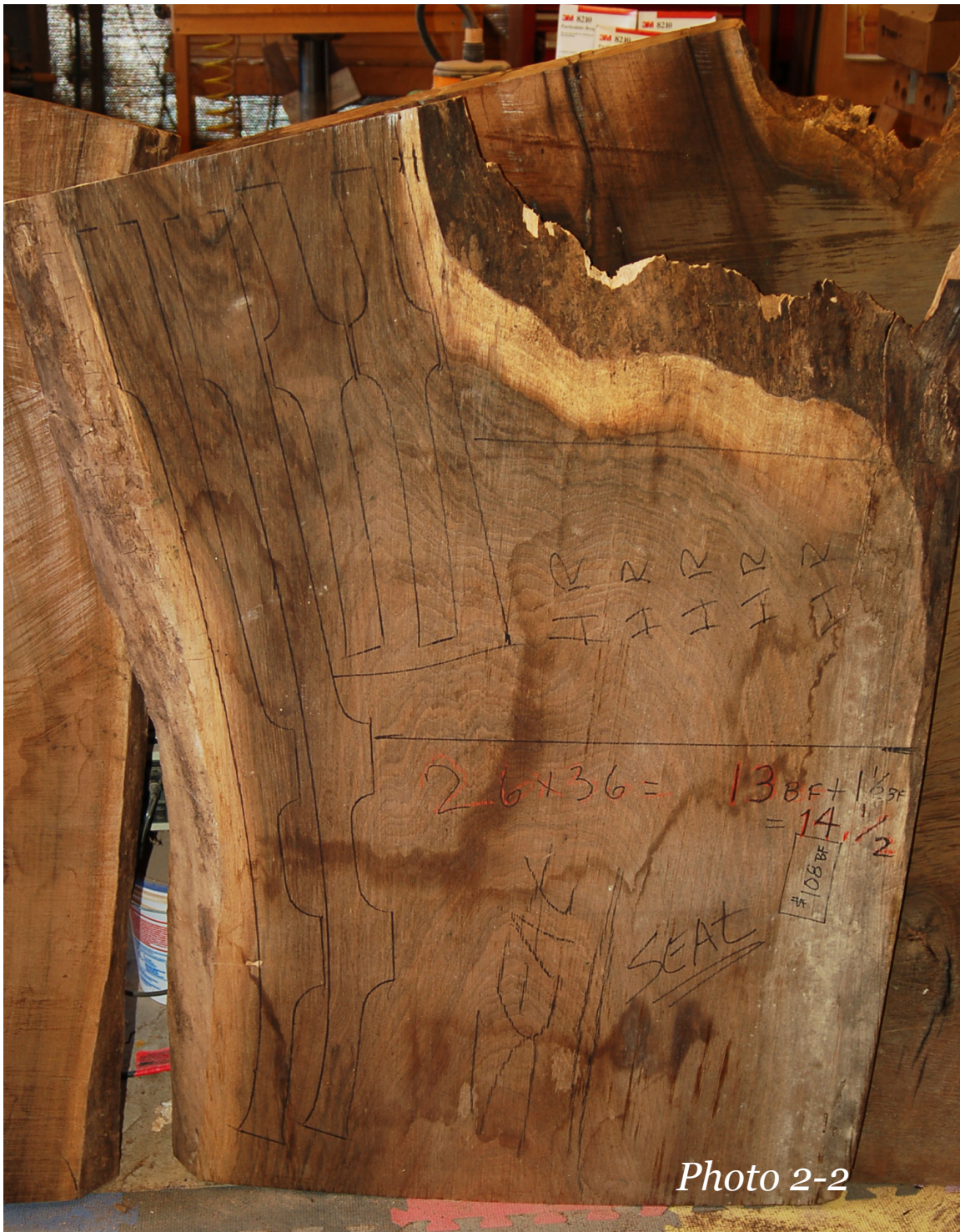
I pay particular attention to symmetry when making my chairs. I believe the seat,

headrest, arms and legs should reflect a very nice bilateral symmetry and the grain in the seat should be echoed in the headrest. In my opinion this brings a completeness to the finished rocking chair that is absent in most other chairs. I began this pursuit of enlisting the assistance of the grain of the wood in making my chairs more beautiful after reading a book by James Krenov, whom I admire more than I could describe with mere words. This passion/obsession has evolved over the last ten or twelve years and the last 300 rocking chairs. You will find through the course of reading this book the means and methods I use to achieve optimal symmetry in the finished chair. This is, of course, optional. The back legs, arms, seat and so forth do not 'need' to have a pleasantly matching grain, other chairs do not, but I think it is well worth the effort. Why not showcase mother



nature's work as well as your own? Especially since it takes no additional time, wood or energy!

The chair I make today is more beautiful and comfortable than the chairs I made 12 months ago. Having been making rocking chairs full time since 1993 I continue to make changes to my design as it becomes clear to me that changing this line or that line will make the chair either more beautiful or comfortable. I would have



thought that since '93 the changes would slow but they have not. This, by the way, is the reason for this 'new' book; the current design is so much different from the chair I was making when I wrote the first book that it became clear I needed to update the information for my students.

"Form follows function". This is an adage that I place great store in. In my years of studying art, this truism has stuck to me like glue and I find myself continually rediscovering how valid it is. The *function* of a rocking chair is to be *exquisitely comfortable*. Every stick of wood in the chair should support the rocking chair's



Photo 2-3

function, to be comfortable. Any change that is made for appearance that does not also support the function, or perhaps even detracts from the function, is poor art indeed and should be avoided.

When I began making rocking chairs, my first step in the process was to plane all boards smooth. I have changed my mind of late and leave the boards rough for much of the layout, smoothing most surfaces with my jointer. This leaves a lot more wood for the chair and a lot less for my dust collector. Whether or not this is the “best” method is questionable. I like it a lot more than the old way and will mention it as I go along.

Start laying out the largest parts first. I usually start with the back legs or seat, depending on the size of my board. If it is wide enough for a two board seat then I do the seat first. If the board is long enough to allow you to lay out the headrest adjacent to the seat for that lovely matching grain pattern you will achieve, then you should do that.

After the seat and back legs are accounted for then think about getting the rocker billets out of the way.

Photos 2-1 thru 2-4 show some boards from George Washington’s Mount Vernon Estate. This walnut tree was a sapling when George passed from this world and had to be taken down in order to recently restore the distillery. Bill Jewell and his organization Historical Woods, (www.historicalwoods.com) here in Fredericksburg, is able to obtain wood from historical sites along the east coast which he then processes and sells to individuals to make beautiful things. Not only does this tree have historical significance it also has some of the most beautiful grain I have seen in a walnut tree.



Photo 2-4

These large ungainly pieces presented a challenge for layout that I hope you do not have to face in your boards. Photos 2-2 and 3 show how I laid out the parts for one chair. In the end there was not much but saw dust left and some of the wood had to be repaired before it could be used, but when you get wood like this you want to use all of it. After all of the head scratching and mind changing you must eventually make the first cut and get the rocking chair making underway, photo 2-4.

3 Back Legs

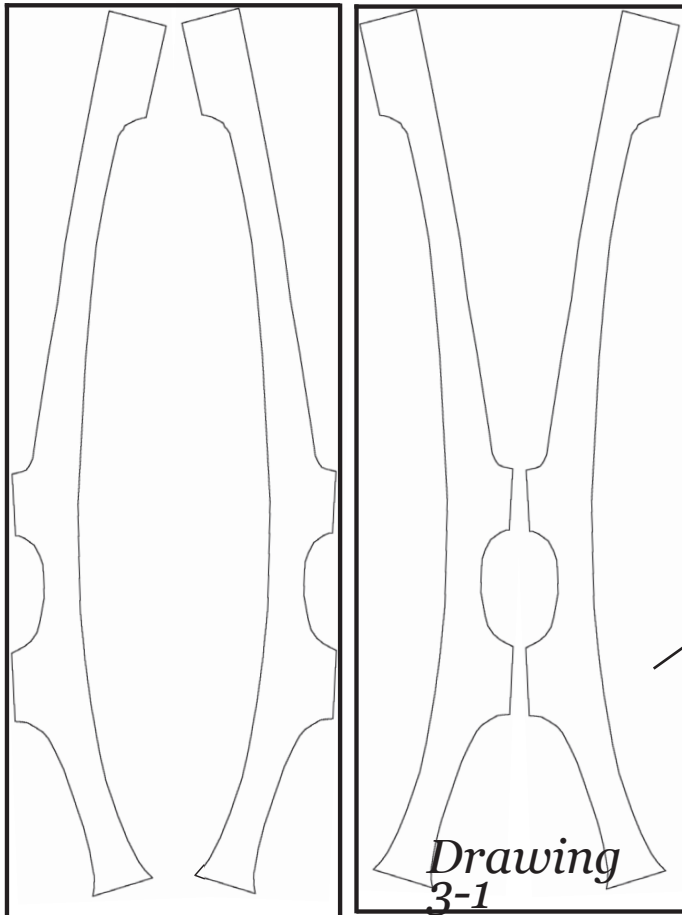
In order to achieve a matching grain pattern in the back legs, lay them out in one of two ways, as shown in drawing 3-1; side by side, in a wide board, or head to head lengthwise in a narrow board. I prefer the wider board but this will require a board 10 to 13 inches wide depending on the size chair being made.

When using the 'wide board' method, if the legs do not quite fit, you can shift one leg up four or five inches to provide a little extra room and this will not adversely affect the grain match. When using the "side by side" method the legs can be positioned 'front to front' or 'back to back', both methods work. However the facing pattern usually provides a much more attractive grain pattern in the finished legs.

The wood removed from the back of each leg will be the source of one or two back brace billets. One will be used for the front piece of the back brace and you may or may not elect to use the second piece for the back of the back braces. The two center pieces

of the back brace laminations will be ash, which is used for its flexibility, strength and its propensity to return to form. This will be covered in depth later.

Use This wood for the front piece of the back braces



*Drawing
3-1*

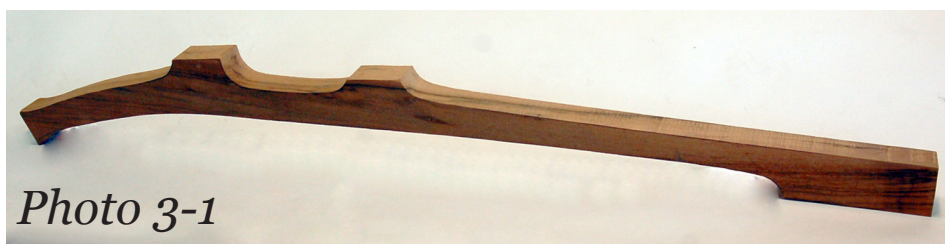
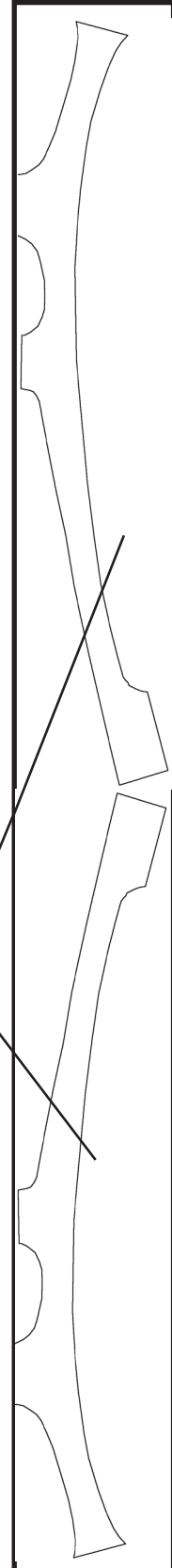
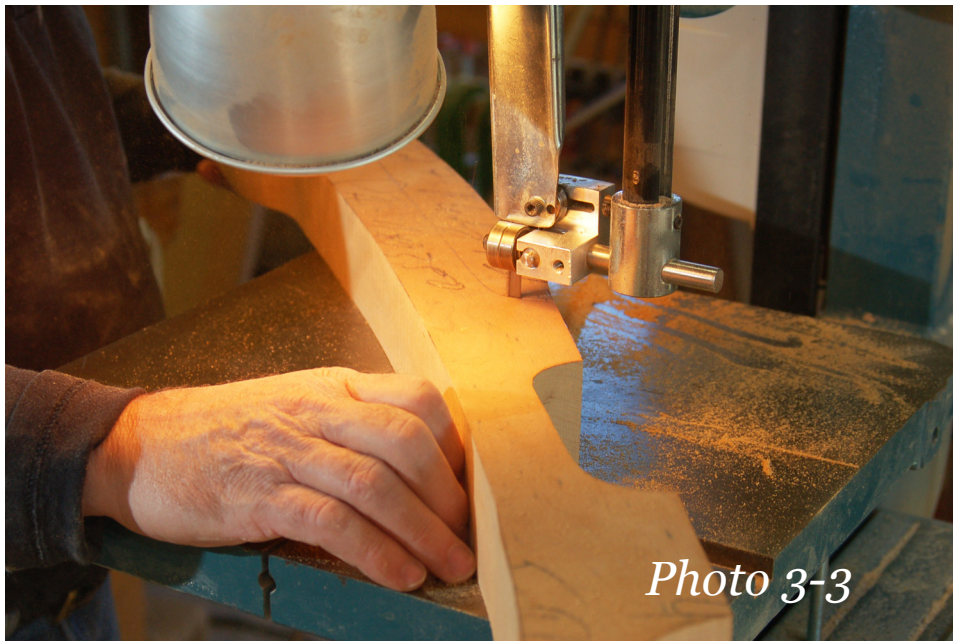


Photo 3-1



I trace the back leg pattern on my boards with the boards rough. After I have completed tracing, I cut the legs out, cutting outside the line at least 1/8".

Next, I smooth the face of the board **OPPOSITE** my drawn outline, shown in photo 3-2. This provides a stable base for the band saw table, insuring that my final cuts will be true and square.



Following the jointing of the face opposite the outline, band saw exactly to the line. When using the band saw I attempt to cut the line in half, leaving a little line behind. Of course, this is easier said than done. This method keeps me (I think) from cutting away too much wood.

After I have band



sawn the leg to the line, I then take the leg back to the jointer and smooth the side on which the outline was drawn, making sure, as much as possible, to keep things square. If it ends up a little out of square it is not, by any means, the end of the world. Don't fret. You can see in photo 3-3 that I am keeping the front portion of the top of the leg square on the fence.

It is possible to use a thickness planer to smooth this side AND make it parallel, however, my experience has always been that you don't know for sure when the planer is going to "snipe" the end of a board. I like to keep as much thickness as possible and am willing to accept a little out of square to do so.

4 Chair Seat

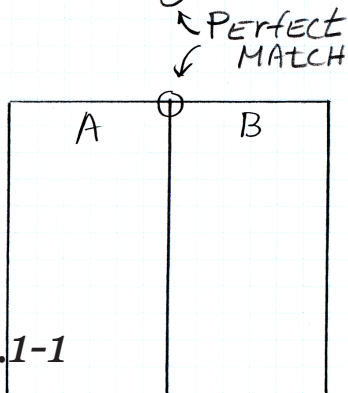
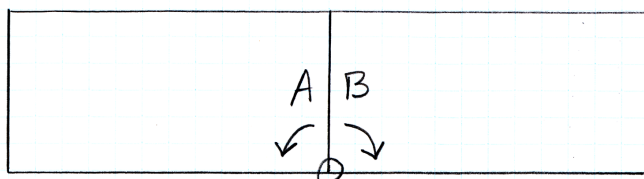
In order to extract the optimal beauty from the wood, pay attention to the grain orientation. A single board chair seat is impractical for this chair for several reasons but a two board seat is as good as it gets! A three or four board seat is almost as good but I would not use more than four boards in a chair seat unless there were extenuating circumstances. As shown in these drawings, the grain in a chair seat is always oriented “up”. The reason for this is because the center of the seat will be ground away and if the ground out portion “follows” the grain lines it is probable that you will not have an attractive grain pattern and the bilateral symmetry will, in all probability be reduced significantly.

Whether a two board seat, a three board or four board seat is made, is a function of the width of wood being used. Almost all chair seats are less than twenty two inches wide. Therefore an eleven inch wide board usually makes a perfect two board seat and an eight inch board will make a perfect three board seat. And, if my math serves me correctly a six inch board will render a nice four board seat. As I said earlier, I would shy away from buying boards less than six inches wide.

4.1 Two Board Seat

In the making of a two board seat, start with a board two times the length of the seat plus one inch. If the seat length is 22 inches then start from a board 45 inches long. After cutting the seat board, joint one edge smooth and cut the board in half at the mid point.

In order to achieve what appears to be a book matched seat, pivot the two pieces



Drawing 4.1-1

the three lengthwise and glue the assembly up as shown.

the most attractive match).
ing 4.1-1 at the top. While the
as good as the top. I like the
that will be seen more than the

cut according to plan. This is

it

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rain match at the back of the
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re “ripped” board in the seat,
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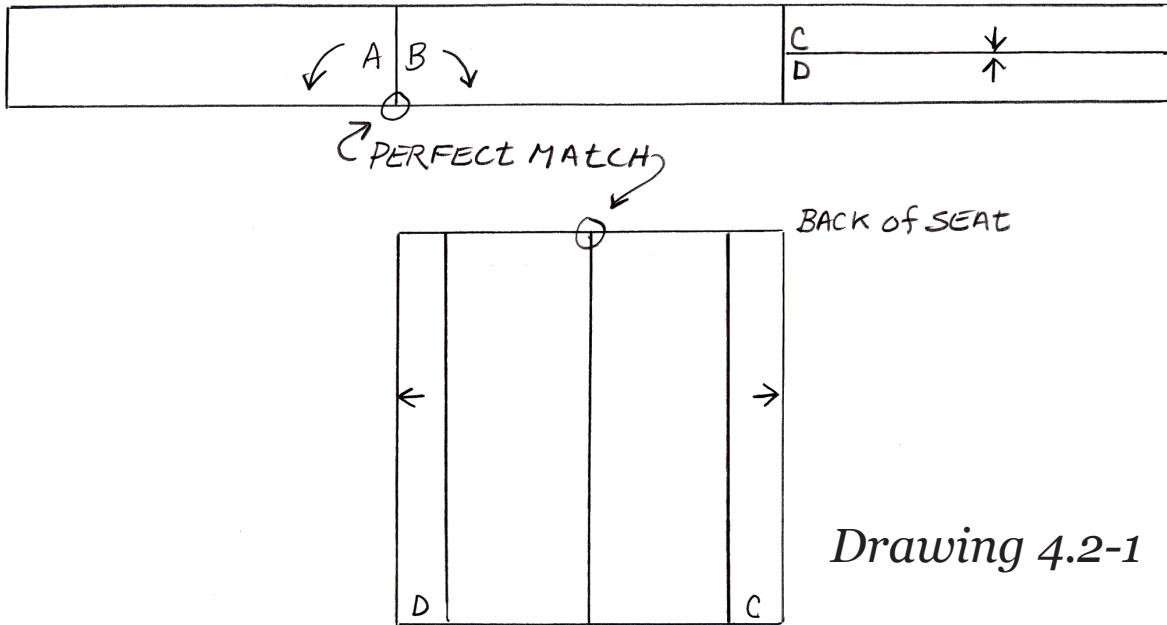
ng. Rip the least attractive of



4.3 Four Board Seat

A four board seat is straight forward.

Photo 4.3 shows what the back of the seat can look like if one pays attention to their wood. This is a walnut chair that has not been “steamed”. Most wood processors, prior to drying walnut, will fill the drying chamber with steam at a fairly high temperature. This causes the dark pigment in the heartwood to flow into the sapwood which is normally as white as paper, making it almost as dark as the heartwood. Most industrial customers do not want to take the time to use the sap



wood intelligently in their design and therefore mandate that all their walnut be steamed. In order to find un-steamed walnut you will have to find someone with their own sawmill and kiln. It is worth the effort to find that person because the contrast between heartwood and sapwood that occurs naturally in walnut can be



quite striking. Why not take advantage of it?

5 Headrest Stock

The headrest is coopered, meaning it is made out of several pieces of wood that have their edges cut at an angle so that when fitted together they effect a comfort-

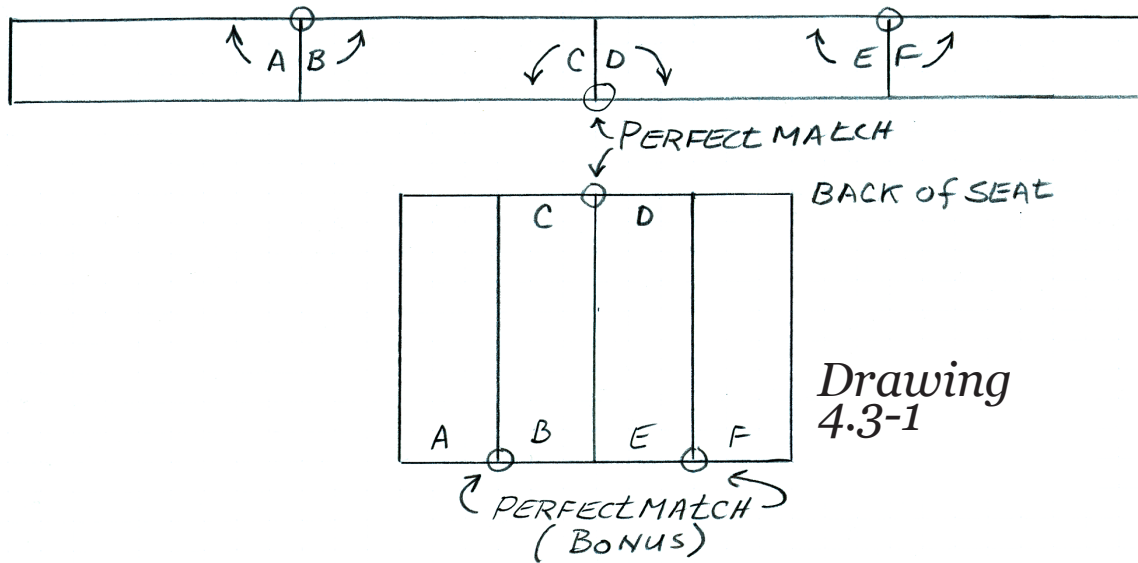


Photo 4.3

able curve. This is the way barrels are made. I do this for two reasons. First, I like the headrest grain to run the same direction as every other piece of wood in the chair and second, it allows me to achieve a very comfortable ergonomic curvature in the headrest which translates on down into the back braces, which will then conform much better to the body than other rocking chairs.

Note that the headrest boards are rough. Later, the front face only will be surfaced in order to make subsequent headrest operations more fool proof. For now, only cut the billets out. I like to start with six blocks from 4 to 5 inches wide (4" for a small chair and ~4 & 3/4" for a large) by seven to eight inches long (depending on what your band saw will cut). This provides a contiguous width of 24 to 30 inches which is sufficient width for most chairs. These headrest pieces will be cut and arranged much like the seat, in order to achieve a harmonious bilateral symmetry. In the headrest the "perfect grain match" is oriented top center. If you cut the headrest boards immediately adjacent to the seat boards then you will

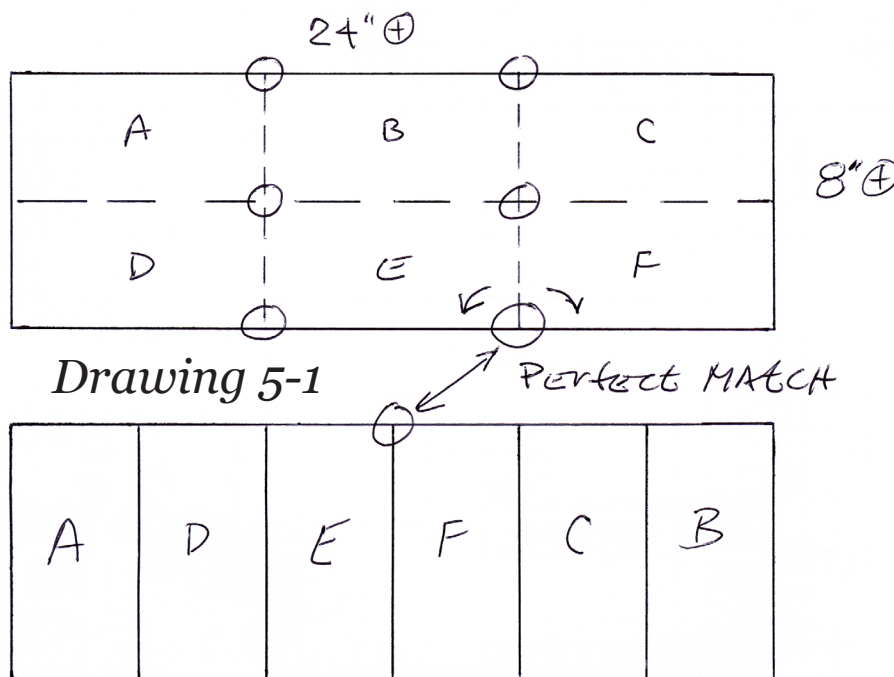
end up with a very nice “repetition of form” in the headrest/seat grain.

Drawing 5-1 shows a typical layout for the headrest billets in a board ~8 inches wide while photo 5-1 shows a similar layout with a 13” wide board, which will allow three billets in the width. There are potentially six perfect grain matches



Photo 5-1

(six circles) shown in drawing 5-1 while there are only four in photo 5-1. Because the center of the board is likely to be “flat sawn”, the grain match there will not be attractive. Use the top two circles or the bottom two circles, in drawing 5-1 as they will produce a more attractive grain match. Photo 5-1 shows the perfect matches with *. Inspect each potential match and decide which one is the most beautiful. It is smart to mark your board in some manner (A, B, C etc) prior to cutting such that the board can be “re-assembled” in order to assess the grain matching potential. Otherwise, you may lose your orientation and it can be surprisingly difficult to reconstruct the board.



Drawing 5-1

effect, in my opinion, is quite nice and well worth the effort. Decide now on the best arrangement for the remainder of the headrest billets. Before setting them aside, clearly number them on the top as in Photo 5-3.

6 Arm Billets

The arm blank rough cut dimension is five inches wide by your pattern length plus one inch. Layout the arms in the same manner the back legs were laid out. You can place them side by side in a wide board or nose to nose in a narrow board.

Photo 6-1 shows two perfect arm boards. Notice how the grain pattern is “rising”.

Joint the bottom surfaces smooth now and just joint the top about 75% smooth. A lot of wood will be removed from the top by various means and there is no prize in making it pretty now.

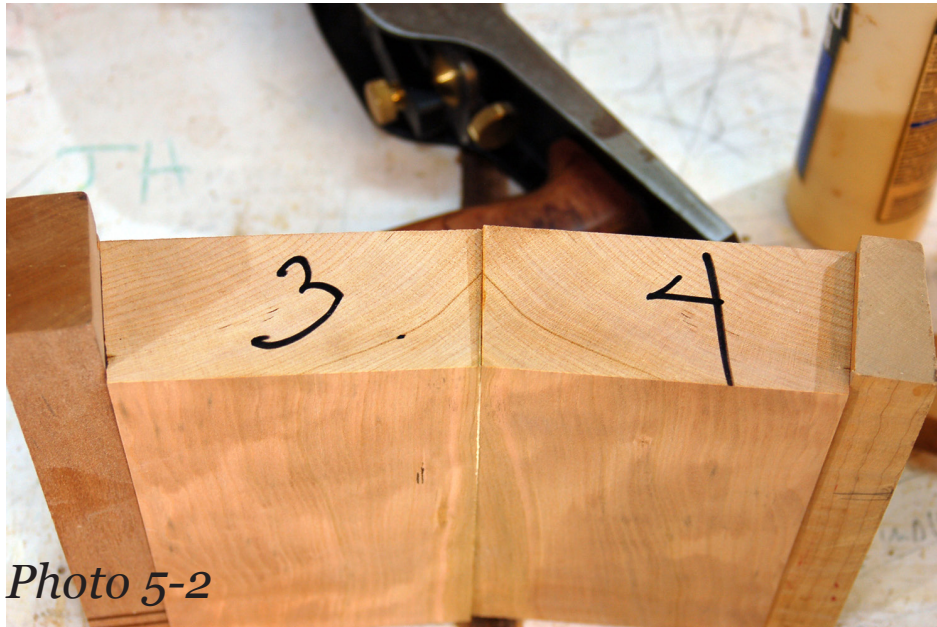


Photo 5-2

Now is a good time to glue a 5/16” thick strip to the back/top of each arm so you will not be delayed when time to cut the coves. Photo 6-2 shows this piece of wood being glued. It does not have to be this wide, a 5/16” X 5/16” will be fine. It is best to make it full width.

DO NOT get in a hurry and cut the arm outline at this time! The outline



Photo 5-3

is not cut until much of the top has been shaped. Set the arm billets aside,

they are finished for now.



Photo 6-1



Photo 6-2

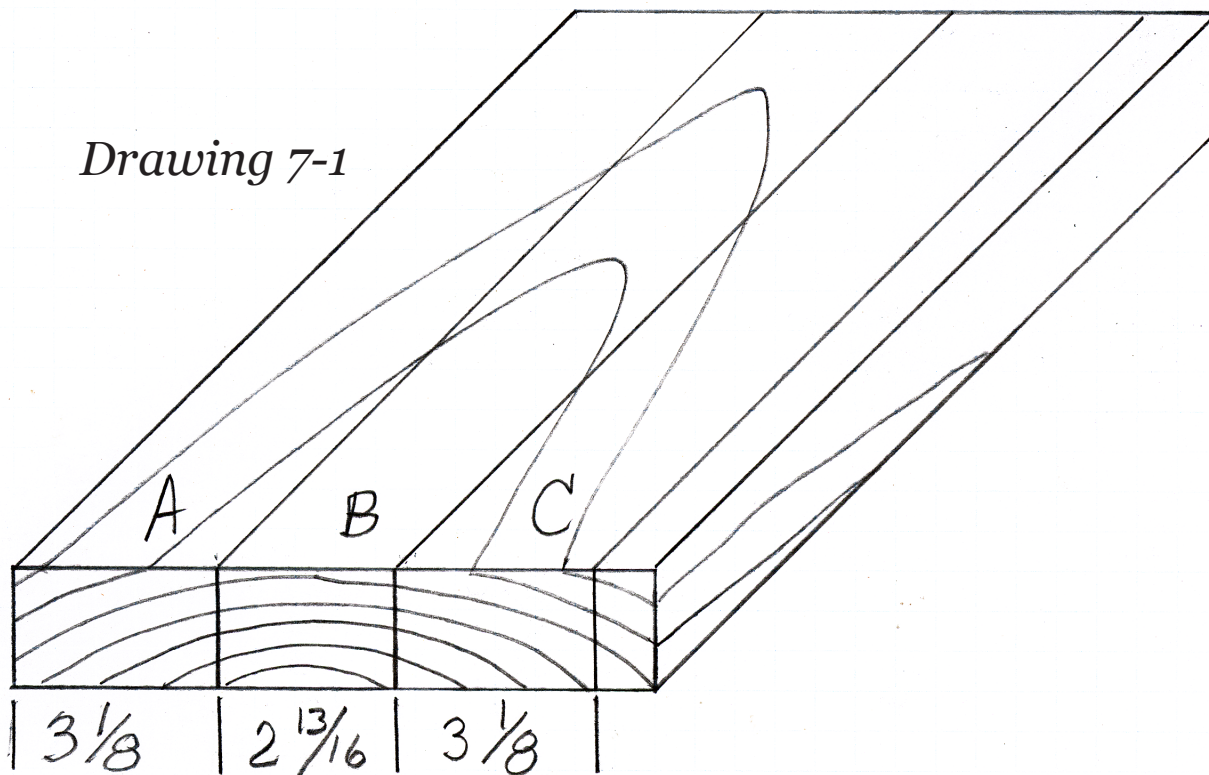
7 Front Leg Billets

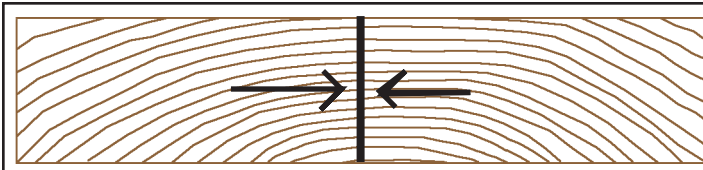
Three billets are required for the front legs. I know there are only two front legs; however, this design dictates that width be added to them in order to achieve a nice sweeping radius when looking at the chair from directly in front. This third billet (the adder) is cut a little narrower than the legs. After the front leg/seat joints are properly cut in the front legs this third board will be glued to the outside of the front legs, adding the desired width.

Cut the front leg billets $3 \frac{3}{16}$ " wide, leaving a little over $\frac{3}{16}$ " for squaring. I know this is a little over the top but much of the wood I have been using lately has been so bad that it needs that much room to get it cleaned up. If your wood is pretty clean then $3 \frac{1}{8}$ " should provide plenty of working room. Leave the billets the full two inches thick (or as close as you can get) and cut them $\frac{1}{2}$ inch longer than the template.

The front leg grain should match like the other parts cut out thus far, and this is easily accomplished. When I have a board that is at least $9 \frac{1}{4}$ " wide I will cut the three billets out side by side as shown in drawing 7-1. In this example I would use billet "A" and "C" as the two front legs as they have the most similar grain pattern. Then I would use "B" as the adder. The piece you decide to use as the adder gets cut to only $2 \frac{13}{16}$ " so you must decide how you are going to use the pieces prior to cutting.

If using a board less than 7" wide you can place the two legs side to side as in drawing 7-2. If the board is less than six inches wide you can place them head to head or toe to toe. The same strategy for the other parts in the chair apply to the front legs.





Two legs from a board 6 & 1/4" wide

Drawing 7-2

In truth, the front leg is the least critical for good matching because much of the original two leg billets it is cut away in the process of shaping. The only prominent piece left, when completely shaped, is the leg beneath the seat. The added piece is what you will see above the seat and because of the way it is cut, it will usually match well.

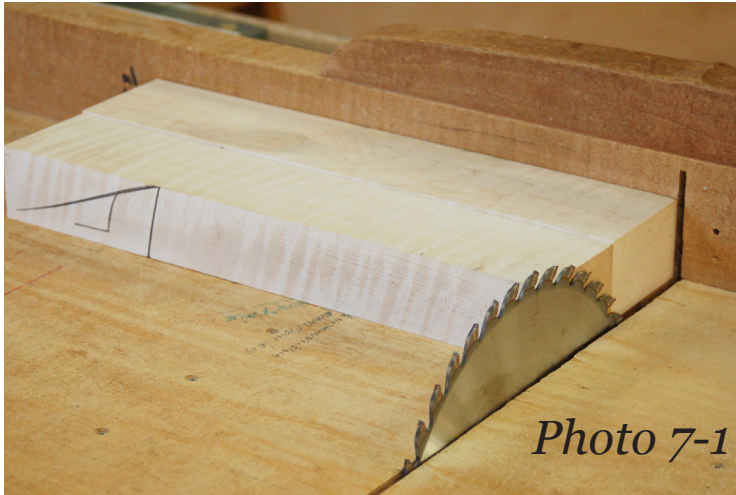


Photo 7-1

After the front legs are cut, arrange them for good bilateral symmetry and trim the tops and bottoms square (photo 7-1). Mark them while everything is still fresh in your head, as shown in photo 7-2, so you do not have to recreate the scene of the crime at a later date.

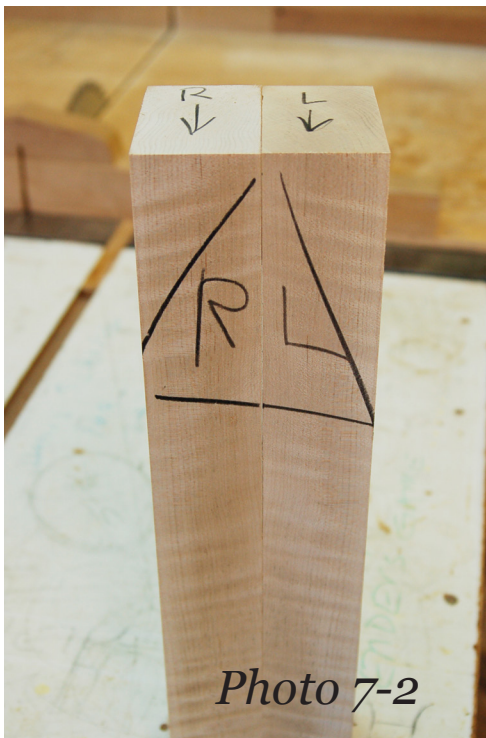


Photo 7-2

8 Back Brace Billets

The back braces require four billets $1\frac{7}{16}$ " wide by 2" thick by the length required for the size chair you are making ($28\frac{1}{2}$ " to 33").

If you choose to use the advanced back brace method, explained in appendix M, you will need two additional ash billets which will be used to make 40 10" long wedges which will be sandwiched between your back brace lams, 3 in the bottom and 2 in the top.

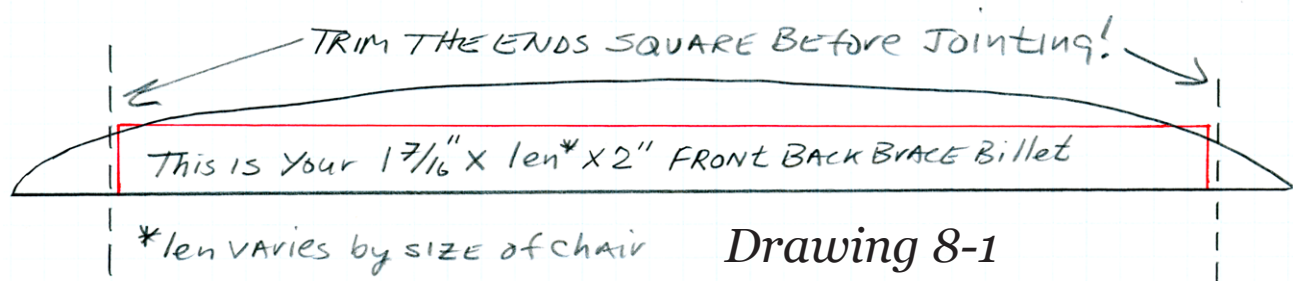
One billet will come from the back leg scrap if it is usable. If the front *and back* of the back braces are to be the same wood as the rest of the chair then, you will use both pieces from the back legs. If an accent wood is to be used for the back of the back braces, (I like to use a walnut back for cherry and maple chairs while on a dark wood chair I stick with the same wood) then that piece of wood must be selected now.

The two middle laminations for the back legs will be ash, which has been used by bowyers (bow and arrow) for the last several thousand years for its flexibility, strength and memory. Therefore, the four billets of wood required are as follows:

Billet for top lamination (front)- from the back leg scrap

Two billets for middle two lams - quarter sawn ash.

Billet for the back lam - wood from the other leg or accent wood.



The scrap from the back legs will look like drawing 8-1. The first step in using this board is to trim the ends square. Make them not cut too short but also make sure they are trimmed enough that they will be safe to push through the jointer. It is absolutely not safe to attempt to join a board with no edge to push against.

Joint the surface opposite the band sawn cut then joint the two edges so they are square and smooth. Cut out the remaining billets. I cut these pieces a little heavy initially, perhaps an inch and a half then joint one face and two edges just as I did the scrap piece.

Now, rip all four (or six if using advanced method) billets at exactly $1\frac{7}{16}$ " and trim them to the appropriate length for the size chair being made. If you do not take the time to trim them all to the same length now, you risk an alignment problem when gluing them up. Once they are all cut to width and length, mark them clearly and set them aside. There may be a little bit of a rounded corner on the pieces that came from the back leg scrap but as long as it does not reach the center of the board, all is well.

9 Rocker Billets

The rocker billets will be 42 to 43 inches long by $1\frac{9}{16}$ wide by the thickness of the lumber (hopefully 2"). These boards need to be a true $1\frac{9}{16}$ thick so that the rockers, after being cleaned up following removal from the gluing forms, can be maintained at a full $1\frac{1}{2}$ ".

In the beginning of my chair making experience I used seven laminations in the rockers, each lam being a heavy eighth inch. (an eighth plus a 64th) Then It became clear to me that this was not producing a rocker with the stiffness required, so I increased to eight lams and not terribly long ago I increased again to nine lams. I am sure I will not have any need to go beyond nine lams but you never know!

Using nine lams per rocker means 18 lams are required to fabricate two rockers. However, 7 lams are required to make up the "transitions" or "stacks" as I call them, from the rockers to the legs. This is the portion of the rocker that allows you to create the beautiful "fair curve" flowing from rocker to leg. This brings the total required to 25.

Unfortunately for builders of this rocking chair this means cutting a fourth rocker billet as it is difficult to get 25 lams out of three rocker billets. I usually get between seven and nine lamination strips from each billet. This means that when I was using seven or eight lams I could usually do the rockers and the stacks from three rocker billets. Now that I have gone to nine lams I sometimes need to cut



Photo 9-1

four rocker billets. This is good news and bad news. The good news is that you are making a better rocking chair, the bad news is you need an extra billet.

If the wood being used is a full $\frac{9}{4}$ then three billets will do. If less than that, usually a fourth billet will be required. (I would plan on four)

Photo 9-1 shows three billets cut from a beautiful curly cherry board from Good Hope Hardwoods. When they ship wood to me the eight quarter boards always measure from two and one eighth to two and a quarter ($\frac{9}{4}$). So - I am in effect buying nine quarter wood for an eight quarter price. Not a bad deal. They don't brag about this, they just sell you

$\frac{8}{4}$ and ship it to you heavy. The good thing about this is that I will NOT need to go to a fourth rocker billet in this chair because the heavy eight quarter boards give me an extra two lams per billet leaving me extra lams instead of short.

The black line drawn on the end is for keeping track of which edge is being cut. When these billets are ripped, the board has a tendency to bend towards the lam just removed. To continue to cut from the same edge will result in lams thinner and thinner in the middle. To counteract this bending, flip the billet 180 degrees (like a turkey on a spit) and remove wood from the opposite edge. This line keeps you informed of where you are; either cut with the line up or down. NEVER on the side!

Congratulations! Having made it this far you should have "checks" in front of all of the components at the top of the check list. You are now ready to Start Making Your Chair!

10 Gluing Up the Seat

Assemble the seat on a bench as it will be glued up. I always mark the seat well to avoid possible errors later. As you can see in Photo 10-1 the back leg notches are well marked,



Photo 10-1

the front sculpts are marked and a “cabinetmakers triangle” is marked on all boards to facilitate keeping everything in order. The first step in gluing up the seat is to plane each edge that will be glued in order to effect a perfect joint.

Photo 10-2



Photo 10-2

shows me using my lovely Veritas plane for this operation. Once you see the difference between a joint straight from a jointer and a perfectly planed joint you will never allow an unplaned joint to leave your shop.

After all joints are perfect, proceed to gluing. Photo 10-3 shows me spreading glue for the last joint in this seat. When edge gluing 8/4 boards it is important to use a “force distributor” on the top of the assembly such as the one shown in photo 10-4 and drawing 10-1. This

force distributor prevents the clamp from exerting more pressure on one edge or the other of the boards being glued. Note that this force distributor should run the entire length of the seat.

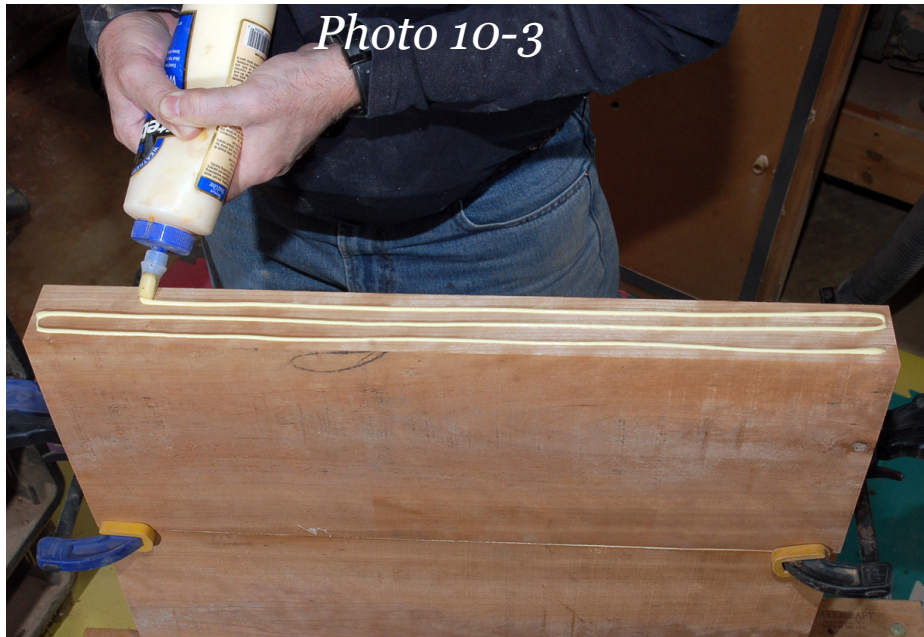
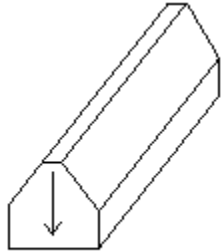


Photo 10-3

If using clamps with a “ball and socket” and the ball lands in the center of the top board then this board is not as essential, although it is still helpful. If using Bessey K body clamps or similar then it should be used in order to properly distribute the force of the clamp.

Photo 10-4 shows a two board seat in which the top



Drawing 10-1

board had to have a knot removed, thus the seat became three boards. The finished appearance of the seat will still be that of a two board seat. You can see from photo 10-5 that I like to glue up my seat assembly on a small saw horse dedicated to this job and that I alternate my clamps. I have recently switched to Jorgensen bar clamps with a “T” handle which applies much more force than the Bessey clamps I started out with.



Photo 10-4

I highly recommend the reading of Bruce Hoadley’s book, “Understanding Wood”, particularly the section on “Adhesives and Gluing”. He points out, quite correctly, in my opinion, that any straight handled clamp is not capable of applying sufficient force to join wood two inches thick. You can squeak by if you modify your straight handles in a manner similar to what I have done in the past,



Photo 10-5

see Appendix B, “Ugly Grips”. If you modify your clamps in this manner it is possible to apply over four times the pressure than with the old painted wood handles. The down side is that the clamps wear out faster due to the increased forces. You can see some examples of clamp handles modified in this fashion in photos 10-6 and 10-7 (Appendix B, Ugly Grips).

If you have not yet purchased clamps for this job, buy clamps with a “T-bar” handle or a “crank handle”, either one of which will provide more than four times the pressure of a straight handle. Read Hoadley’s book to discover exactly what is required.



Photo 10-6



Photo 10-7

