

Q&A Podcast #2

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GR: Hi, welcome. This is Gary Rogowski for Splinters. I am joined today by Ashley Pieper. Ashley, hi.

AP: Hi, how's it going?

GR: It's going well. It's going well. This Splinters podcast is another Q&A where we answer the burning questions of woodworkers everywhere around the country. We've got a fair number of questions. Let's see how many we can get to today. I want to mention that our partner in education, Highland Woodworking, has a new woodworking search engine on their new website. So please check that out. They've got a ton of information there. So, so why are we even answering questions? Oh, well, it's fun. It's fun. Well, Ash, dive in wherever you want.

AP: Okay. I guess we will start here with Craig Courter from Michigan. His first question is, when using proud finger joints exposed past the edges of each side, what is the best way to smooth the exposed end grain? When I sand the ends, they tend to get rounded over and I want sharp edges.

GR: Well, sharp edges are a mixed blessing. I prefer mine rounded. So number one, when you're cutting the finger joints, you're going to set your marking gauge or set up table saw or router table, whatever, however you're cutting them for say a 16th of an inch deeper cut. Arguably, if you really are trying to keep things flat, you could take a hand plane to them before cutting the joints. Right? If you've set a hand plane for really, a really light pass and a low angle jack or a low angle block plane, you take a couple thousands off working in from both both edges towards the middle. So now that's cleaned up. You can hit that with 220 grit and you're done. So there's not going to be any rounding. I would avoid any heavy sanding. I think that's one thing that that tends to round over your edges is heavy sanding. So that's one thing I would avoid. Yeah, after that, you've got to chamfer your edges. If you cut the joints and put them together, then you've got to chamfer those edges so that you can clean them up. And again, I would clean them up with a cutting tool rather than a sanding tool. So that's my advice. How would you do it?

AP: I think that I would do the same thing, have your sides prepped as much as possible to eliminate having to get too close to those edges so that once the box was put together, I wasn't getting anywhere near them. And the same thing, I would go for a sharp cutting tool for that end grain and try to stay away from sanding because I don't trust myself that I wouldn't have anything uneven on those edges sanding it.

GR: Yeah, sanding just is not that precise, at least for joints that are already put together. I put the joints together and leave them proud sometimes. And so what you have to remember to do is to clean up the long grain surfaces because you can't get in close to the joint itself. There's no way. So you've got to clean that up first. And I don't think it's a bad idea to put a little coat of shellac on things so the glue comes off easier. But after that, one finger after another, depending on how many you got, there's no fast way of doing it. All right, I came up with another idea.

GR: Hand plane the edge or the end of your board, and then chamfer both sides of it. And then do your cuts, however you're making your cuts. So that'll help you quite a bit. So then you're only going to be limited to having to do the, well, two of the long grain edges with the other two already done. So that might help.

AP: Yeah, as much prep work going into that as possible to avoid touching it, I think, helps you out there.

GR: Yeah. Okay. Well, good luck, Craig.

AP: Okay, on to question two. In small box design, when do you feel high contrast between woods is appropriate and when is it not?

GR: Well, I think it depends a little bit on what you're trying to do with the contrasting woods. So what's your intention? Just something I talk about in our Mastery Program a lot. Less is more. That's my feeling. You get more impact with contrasting woods, the less of it that you use. Now you can have, you know, real contrasting woods. I was talking with Ash before about trying to find some holly for some inlay on walnut. So that's that's got good contrast. But the pieces are only going to be three eighths of an inch square. It's going to be really tiny. I built a pine box, frame and panel lid, and I started putting dots all over it. They're all I mean, I got I think there were walnut dots in a pine lid and they're everywhere. Well, I'll put more in because this looks really crappy. I'll put more in. Now it looks really terrible. It's a, you know, silly little box. Nothing big, big deal about it. But yeah, I think less is really more when it comes to contrasting wood. At first, every young woodworker wants to, you know, go out and buy Padauk and Purple Heart and Maple and stick them all together. And it's just too much. Go look at tapestries. Go look at glasswork and pottery. And you'll see that the ones that really, I was looking at some Art Deco pottery yesterday, and I think Faure is the guy's name. This is a glass piece. And it was just gold and black, gold and black, gold and black. And then this pattern and it, you know, it really popped. Less is more, but pick your colors wisely too.

GR: And here's the other thing. Woods change color over time. Right? So you might find some orange padauk, but it's brown in a couple of years. You can't stop it. There are lots of recipes out there for trying to, but you can't really stop it. So your idea at first may not turn out. I did a table once a round tabletop in cherry. And cherry when you first use it is this sort of salmon pink color. It's very, it's very pretty. It's very nice. And I said, oh, I'm going to put some plugs in this and they'll be mahogany. The contrast is just beautiful. You can't see it at all. That cherry's so dark. And it's like, it's like the chameleon effect. You know, the two woods next to each other. They just merged together. I want to look like you. So the cherry and the mahogany look very much the same. So restraint, restraint, that's the key.

AP: Yeah, I don't think you want those two woods to compete with each other and then take over that aesthetic of whatever your design piece is too. So if you have all this chaos happening between those two contrasting woods, even if their tones look okay, then you have those grain patterns or whatever other details of the wood are in there. So I think it's easy for it to get chaotic rather than classy in usually what you're trying to go for.

GR: Yeah, yeah, it's really a question of what, again, back to intention. What are you trying to do with the, with the contrasting woods? You can show them off, but it's important to remember what you're trying to do with the piece and dial back.

AP: OK, last question from Craig. How do you get a straight cut on your bandsaw or do you need to joint, plane, sand when trying to cut straight edges?

GR: Joint plain sand. Where's the sanding coming from? You don't need a straight edge to cut on the bandsaw. You could just strike a line and cut straight yourself. There's that. Sounds hard, but you know, a few miles of bandsawing and you don't think anything of it. Just remember to line up the back of the blade with your pencil line. And if you're always doing that or line up your pencil line with the back of the blade, if you're always doing that, then curves and straight lines fall right into place. You can, if you've got a fence, then you need two point contact throughout. If you got a foot long piece, then you need a fence that's, you know, 18 inches long, thereabouts. So that those two points are always in contact. That's your line, because that's what describes the line in geometry are just two points. So, but what I normally do when I'm rough milling is to joint an edge, call it good. It's not square necessarily. I don't care if it's square, but it's straight. So that's all you need to do.

GR: But say you're on the table saw, and you got a piece of plywood with a crummy edge, you could run it over your jointer, but only if you have carbide knives. I knew a shop, though, that I don't know which jointer, they had a lot of machines. They had a 24 inch coffin makers jointer, 24 inch. I would turn that thing on and just. Well, you can imagine.

AP: Like you're going to end up in a coffin yourself? Yeah.

GR: Oh, my goodness. That was a terrifying machine to turn on.

AP: Keeping business going.

GR: Yeah. But, you know, maybe one of their eight inch jointers. They used the very last three quarters of an inch for plywood cuts. So they would trash that side of the knife. I have the carbide inserts now. And so I can run it over most any section, because the carbide knives will handle it. But normally, what I do with plywood is, again, it's got to have two point contact on the table saw, particularly because if it's got one point, it can spin and you can contact the back half of the blade, which is very, very bad. So you need a splitter in place behind the blade. But if you make a cut, and then flip the board and make another cut and flip the board again, and make a third cut, I feel that that third line is pretty straight. Perfect? No, I didn't run it over the jointer. But on the table saw, if I can get three decent cuts, and I have, you know, you're taking just little tiny trim passes. As long as I can start off with two points that are against the fence, that gives me a pretty straight line. And I don't have to joint it or sand it. Sanding again is just not going to give you any accuracy. So I would avoid that.

AP: OK, our next question. "Hi, Gary. My latest assignment is an outdoor dining table, which I presume should be made with teak. I have not worked with teak, so should I leave it unfinished? What about glue? I have noticed on many designs that the top is made frequently with slats, with spaces. Is there a functional reason for this? Thanks, Karl Wustrack, San Francisco, California."

GR: Well, San Francisco has weather unlike any other place in the country. So. What's that quote by Mark Twain, 'coldest winter I ever spent was summer in San Francisco'. A couple of thoughts on this, on this topic. The slats in the tabletop are to let water run away. So you're not dealing with a large panel collecting water on the top of it. Years ago, though, I worked with a landscape designer and built him a coffee table. But he showed me this bench that he had outside. And there were relief slots cut into the bottom of it. And those were expansion slots because it was kind of a solid top. I don't think there are any slats to it. And that's the same thing they do with flooring. So it allows for a little bit of movement if you want to go with a solid top. But outside, I would avoid that. Yeah, it just makes sense to be able to let the snow or the rain or the fog drift off the top. So that's, yeah, that would be number one. And then the question of to finish or not to finish outdoors.

GR: Do you own a boat, Carl? Because if you own a boat, you know that every year or two years, you are refinishing all the woodwork on the boat because the finishes break down so quickly. I tend to lean towards the No Finish side, which means everything's going to go gray, which is a lovely color. I think any board will will start to change color, oxidation, sunlight, weather, that sort of stuff. So it's almost indistinguishable one species from the next. Is that walnut? What is that? It's hard to say. Number one, I'm using an epoxy or I suppose Titebond III for outdoor stuff, waterproof glues. But if you want to keep the color, then finishes, a varnish with a UV inhibitor, but they're lying to you. It doesn't inhibit. Well, it slows it down a little bit, but not not all that much. So you're going to have to strip it and refinish it every year to be to be safe, which makes the slats, the spaces between your slats really problematic. But that's how it goes. You know, if you can, try and keep it covered, keep it out of the weather. That's the other thing. I had gotten some redwood from a guy and really long pieces. And I said, okay, I'm going to put them down

as steps. And I'm not finishing them. And they're great. And they look fine. If you if you finish your outdoor furniture, you have to keep finishing your outdoor furniture. I don't know the finish that lasts for longer than a couple of years. Depending on your environment, of course, how much sunlight, because the sunlight's really tough, really tough on stuff. Water is just water. It's not too bad.

GR: So there are different types of varnish for different situations. And varnishes used outdoors are called long oil varnishes. There's a lot to varnish chemistry, I'm going to simplify greatly. So there is your medium, the vehicle, which is oil of some sort, whether it's tung oil or linseed oil or some mixture of other oils. There is a thinner to thin, right? There are solids, alkyd, urethane, polyurethane. That's what's left on the surface.

Once the finish dries off and to help the finish dry off are heavy metal dryers that are added to the mix. And the heavy metal dryers are nasty, nasty things. But they help the stuff flash off. And as a result, it's got a chemistry to it that is fine tuned by the manufacturer. So don't be mixing stuff. And the long oil varnish means that there's a little bit more oil in it, so that it's more flexible. A spar varnish, for instance, if you put it on a spar, well, first thing in the morning, it's cold and it's all shrunk up later in the day.

Maybe it's hot. It wants the spar wants to expand. So the long oil varnish allows you to expand and contract more easily without cracking and splitting. So I'd go with the long oil varnish and just be really good at refinishing. That's what it really takes overtime. The flip side is put a coat of wax on it. Call it good. Clean the wax off every year. Pretty easy to do with the, you know, a rag soaked in paint thinner and be careful with the rag, of course. But clean it off, put another coat of wax on. It's tough to tough to deal with outdoors, outdoor stuff.

AP: Yeah, outdoor stuff seems to be some of the most challenging with all those decisions. And you kind of end up with the same end result. You either have to finish off or you're going to have to sand back some if it gets rough. So I think you're always going to have a level of work there that you need to decide for the long term and what works for you.

GR: I think that probably the most important thing is try to protect your furniture if it's outdoors. Keep it out of the sun, keep it out of the weather. And if you can do that, that'll help. But if you can't do that, well, do your best.

AP: OK, on to the next question. "Gary, I've been rapidly digesting fine woodworking articles since the early '80s and saved an article you contributed, 'Breadboard Ends', which I read again last night in preparation for a large kitchen island top made of curly maple. The top is 36 inches wide, a length of 81 inches, which begs a question. Assuming the pegged tenon approach is best for this width, my question is, should I make more than three tenons or make three wider tenons? If more than three, what spacing would you suggest? If wide tenons, how many inches each?" Peter Given, avid but amateur woodworker.

GR: Peter, I gotta tell you a story. So early on, I was going to make my sweetie a sewing table.

And so I unwisely chose Birch. I have never used Birch since I chose Birch to make this sewing table. It was 21 inches across. And I wanted breadboard ends. This is going to be great because it covers up the ends of your boards, the end grain. So that slows down the moisture exchange. And it's a, you know, it's a nice visible feature to a piece to have breadboard ends. So I said, I'm going to put a sliding dovetail a 21 inch long sliding dovetail. Oh, mercy. It was so hard to fit. It was so hard to fit. Back then, there was a shop called Specialty Woodworking. And I took it in. And Bobby Bigger was the foreman there. And he just he looked at the tabletop and he looked at the dovetailed breadboard ends. He didn't say a word to me, he just shook his head. He was being very charitable. He could have said, you're a knucklehead.

GR: So here's here's my approach. And you do the math on your 36 inch top. So your breadboard end is over that size and for maple, I'd say three inches wide, maybe four inches wide. I don't know. There's a Shaker table. I've got a photo of it looks like it's only two inches wide with like an eight foot long tabletop. So maybe you can get by with something thinner. I would run a groove along the whole length of the breadboard end and a corresponding tongue along the end of the tabletop with a series of tenons cut into it. And like I said, you do the math on it, but I don't make my tenons much wider than two or three inches. And the mortise for them is perhaps a half an inch wider than that. So two and a half for the twos, three and a half for the threes. But between the tenons is a tongue or a haunch. And that's what's going to give you strength along the length here. We don't want to put too many holes in the breadboard end because that just weakens the piece. Anytime you put a hole in a piece of wood, you weaken it. Even filling it with a tenon, we want to be judicious about how many of them we use. We don't want to make one giant 36" long mortise and stick a tenon in there. That's no good. So we divide the tenons up so we're minimizing the movement. And I don't know, I'd say four or five tenons. And you can have big, long stretches of haunches in between those tenons, four or five inches, whatever you need. Haunch is only maybe half an inch deep, so that's not going to introduce too much weakness.

GR: Remember that you're only going to glue the center of this breadboard end to the tabletop. That's all you're going to glue. To help out this situation, what you need to do before you cut any joints is fit the long grain of the breadboard end perfectly to the end of the tabletop so that it's a beautiful fit, snug all the way along, no high spots, just a great fit. Then you're going to put a slight spring joint into the long grain of that breadboard end. A 32nd of an inch, maybe a 16th or so. And so you're going to get pressure at the ends, but remember, you're only going to glue the middle, the middle three inches. Now, the tenons should have pins in them. So if you run five or four or six, it's a question of how that looks along the tabletop, so you decide on that. But the tenon has an elongated hole in it, a slot in it, really, to allow for movement. So the pin stays locked in place and you can take it just from the top through the tenon, or you can take it all the way through the whole breadboard end. But it is free to let that tenon expand and contract over time. Glued in the center, all your tenons are pinned, so they'll stay in place, and that spring joint helps hold everything together.

GR: Now, if you're smart, and I have not been smart many, many times, you put that Greene and Greene plug in at the end of your breadboard ends, and that helps to disguise the movement. I also think that if you make your breadboard end a little bit longer, say a quarter inch longer on

each side, then your tabletop, you won't see the movement. And that Greene and Greene plug helps to disguise any movement. So that's a great way of finishing up the breadboard ends. And that disguises movement.

GR: I did a toolbox, hand cut all the dovetails, did a breadboard end for the top. When I glued up and I used a tongue and groove joint and screws to hold the breadboard end in place with the elongated holes.

That center two or three inches is still holding to this day, doing great. It moved the day after I glued it. It has never moved back to being flush. You know, I don't know where you live, but, you know, it depends. That sewing table I built, that 21 inches of birch, it moved a quarter of an inch a year. It was crazy how much that would move. So if you've got flats on stock, that's going to increase the amount of movement

depends on what. Well he's using maple, curly maple. So, you know, that's a fair amount of movement. So if you disguise it, so you can run your tongue and groove joint full length on the breadboard end, but then put a plug to disguise it and leave it over overhang, then you won't see that finish line that when the top shrinks up. Good luck. It's a lot of work.

AP: Okay, ready for the next question?

GR: Sure. We got time for a couple more. Yeah.

AP: Okay. If you were designing a wooden or brass hand plane, what would be the most important features?

GR: All right, who's this question from?

AP: Yours truly.

GR: Okay. Interesting question. Interesting question. Repeat the question. I'm stalling.

AP: If you were designing a wooden or brass hand plane, what would be the most important features?

GR: Okay, you let me, you gave me room. Features, not feature, because it's tough. So number one, it's got to work. There's no point in making the hand plane if it's not going to work. So the bed has to be really true, flat, untwisted. The wedge and wedge pin have to work. So that geometry has got to be right. The placement of the wedge pin needs to be in a spot where it's putting pressure down as close to the front of the blade as possible. So that part of it really needs to get nailed down. With the brass plane, you could do more of a screw type locking piece with a pivot so just a simple brass pin and a screw it down and presses down on the like a Norris. I think the Norris or the Spiers hand plane has one of those kinds of lockdowns. But you've got to hold that blade firmly in place. So that's, that's really important. It needs to feel good in your hands. What does that mean? I don't know. Depends on your hands. Are you lefty or righty? And yeah, all those things. But then it should look cool. You know, you're spending all this time. I mean,

the very first, yeah, the first wooden hand plane I built, I've used it a fair amount. It's a clunker. It's a clunker. It's not very pretty. Yeah, spend some time and make something that's really outstanding. It's fun to make your own hand tools. And in the Mastery Program, we make both a wooden plane and a brass hand plane. And that little one, you've seen that little one of mine, I put these little features in it and they don't serve any useful purpose, but I like seeing them. Little dots, little dots of inlay.

AP: Joy, joyfulness. That's a purpose. Yes. Joy.

GR: Well, yeah, yeah, I guess you're right. So those are the things. But satisfy the requirements so that you can use the piece. Make sure you've got a solid lockdown system for the blade.

AP: Okay, so we're kind of moving in the theme of hand planes here. So the next question is, why are sliding mouths not a typical feature on bevel down planes?

GR: This is an interesting question. I don't have the definitive answer. This is just my theory. Low angle jack planes and low angle block planes are bedded at a 12° angle, right? There is no chip breaker. The bevel acts as the chip breaker. Bench planes are embedded at a 45° angle with a chip breaker. My sense is that the bevel on the low angle tool, designers don't think it's enough. And so they have that sliding mouth to help give another breaking point for the shaving. So the shaving is going to roll up and then it hits that mouth very quickly and starts to lift off. But I don't think you should worry about it. I don't think so. I'm not a huge fan of a tight mouth opening. I can get I can get great shavings if I fool around with the sharpness of the tool and how I'm holding it down. Now, on the low angle jack and the low angle block plane, those are Lie-Nielsen tools. I mean, you might be able to find a low angle jack Stanley, but I think they're pretty rare. You can adjust the bevel. You can adjust your sharpening angle. And that will change the geometry of the chip rolling. But, you know, the block plane we made in class is a high angle block plane. So it's bedded at a 30° angle. And then you've got your 25° or 30° bevel. So it's, you know, 57° pretty steep, 57 to 60 degrees. So it's a very steep angle. And I just used mine the other day. I pulled it out and said, 'Oh, this is going to tear out.' I know you can see the swirl in the grain. And I was using my low angle block and I pull out the high angle block. I tore it out.

AP: You felt good about it at least when you walked into it.

GR: Felt like you made the right choice. I did everything right and it's still screwed up. But half of it was fine. And the other half was just a lost cause. So scraped it out. It's fine. But yeah, I think that matters. I don't think the I think they put that mouth opening on those on those planes because they don't have the advantage of a steeper chip breaker.

AP: Yeah That's one other thing. Something I didn't move very often and it's hard to make me kind of consider like the, you know, how important is this if it wasn't to be here?

GR: I just point to the fact, no offense, Thomas. I just point to the fact that the British and the Dutch and the Spanish managed to build incredible sailing vessels for centuries and sailed them

around the world without the use of tight mouth openings and adjustable mouths and all that stuff. They were using wooden hand planes. I think the real key for me, the investigation I've done on it says you need as thick a blade as you can possibly get that cannot chatter. And if you can eliminate the chatter. I think with Lie-Nielsen, you've got such a nice bronze bed on there that that really helps and good locking devices. I can get .001 of an inch shaving with my low angle block plane after sharpening. Mouth opening hasn't, that one has no mouth, mouth opening adjustment. So yeah, I don't I don't think it matters. Yeah. But I think I think the stiffness of your blade matters a lot. And so when we make plane irons in class, it's at least an eighth of an inch thick, sometimes even 5/32 of an inch thick. And that that helps if if you've got a low angle tool or even a high angle block plane, that'll help the down on that chatter in the cut. That's the real culprit, I think.

AP: Okay, are you ready for another one?

GR: Sure.

AP: What are the three most versatile and essential planes if you were starting?

GR: I'm sorry. I can't answer this question. I'm sure to offend one of my hand planes.

AP: Loaded question.

GR: Yeah. Well, you gotta have, all right, I gotta choose one. I'm grabbing my low angle block plane. Thank you, Thomas. Yeah. That's a great, it's a great tool.

AP: The 102?

GR: Yeah, the 102. It can do more jobs than any tool I've got. It's an amazing tool. And it fits the hand nicely. The only thing you can't do is shoot an edge because it's got rounded sides. But that's what makes it feel nice in the hand. Good adjustment, great steel on the iron. So I grab that one because it's just so versatile. Got to have a bench plane. So I'd probably grab, well, in my kit, I'd grab my own Stanley #5. It's got a Hock iron and a Hock chip breaker. And that thing is just, it cuts great. Can I call a shave a plane? Can I call a spoke shave a plane?

AP: Yeah.

GR: I got to have my 151 Stanley spoke shave. I take that before I grab my bull nose plane. Because who knows what you're doing, right? You're only giving me three.

AP: Yeah, there's three. I think that those are truly the most versatile. As you're saying, you know, with a shave, you can do all kinds of rounded parts and any kinds of features in your work, chair work, whatever. And the same with a five. It could work as a smoother if you really, you know, want it to work that way, or it could hog off material if that's what you needed also.

GR: Yeah, you know, I could go with the 5 1/4 but nah I'll stick with the 5. I'll stick with the 5. Those are, those would be my three out of out of my kit. That's what I would grab.

AP: Okay. And the last question of the specialty planes, which do you find to be the most useful?

GR: Unquestionably, the scrub plane. Unquestionably. I love that thing. I've been doing that timber frame job, which is still marching on very slowly. And the boards are twisted. And there's knots. What are you going to use? You going to use a scrub plane. What's the mouth opening look like? It's like the Grand Canyon that mouth opening is huge. I don't care. It's getting the work done. I can take it up on the ladder and use it. I could use it on the beams. I use it sometimes with really precious woods that are twisted and I don't want to, you know, a little worried about running through the jointer. I love them. I think scrub planes are just fantastic. How about you? What's your what's your go to specialty plane?

AP: Oh, I was thinking on that even after I formed that question. Like, if this was turned the other direction. Yeah. Truthfully? Oh, wow. I don't want to mimic yours. I'm trying to think of something else that's comparable that would do similar work. It's really hard to choose that. So probably a shooting plane. I feel like that I use quite quite a bit for edges and miters. And I think depending on your work, that's pretty reliable to have set up. And yeah, I really like that.

GR: You have the hot dog on it, the whole thing?

AP: No, mine's actually pretty comfortable. I have the Veritas one and it has the handle. It's kind of kicked out to the side. So the geometry of it is nice where the pressure stays flat along that sole and it's great. Yeah, I get such reliable edges off of it. It's hard to say I couldn't use that.

GR: Yeah, nice. Does that have a track too? Is that all set up with the track?

AP: Yep, mmhmm, yep.

GR: Oh, that's high style. Jeez, look at you.

AP: I got it on the seconds sale, to be fair. I lurked and waited patiently a couple of years ago. I mean, you couldn't take a guess at what's about it as a seconds, especially after you work with it a bit. Who knows if there was any scratch or who knows? Ding in there. You couldn't identify what it was now. But yeah, it's good reliability. I feel like especially dependent on how your other tools are set up and things, it picks up the slack for those things and you get a good fitment.

GR: So describe this plane for those folks who don't know what it looks like.

AP: It is like an L shape. So you have a flat, heavy sole and then the top is basically 90 degrees. And so that's where your blade is bedded in at an angle. And so you push that across and then you'll have either 90 degree edges or you can set the shooting board to have miters for like 45s or

whatever angle you actually need.

GR: Is there a chip breaker on the blade?

AP: Yes, there is. There's a chip breaker and there's a standard adjustment features like with most Western planes. So you can close the mouth up a little bit more. It actually has an adjustable mouth in it as well, which is interesting. Yeah, so it has an adjustable mouth and it looks the same as a Western plane is in a low angle feature, but it's on that 90 degree side.

GR: Oh, no, I'm envious. Well, that's good. That's good.

GR: Well, I want to thank you, Ashley, for helping me out again. This was great fun. And please send in your questions, folks, to studio at northwestwoodworking.com or on the new Highland Woodworking website. There's a spot there for sending your questions in. Happy to answer them. And it's fun. It's a lot of fun. So take care out there. Thank you, Ashley.

AP: Thank you, Gary.

GR: Adios. Byebye.