

The Guild of NH Woodworkers – Founded 1990
178 Derry Road, Chester, NH, 03036

The President's Message from Loran Smith

Growing Up With The Guild

In 1981, I graduated from college with a degree in Electronics Engineering before realizing, to my parents horror, that I was not cut out for the 9 to 5 grind of a regular job. In the years that followed I tried my hand at a variety of work including surveyor, writer, retail sales, movie stunt man, and mountain rescue personnel before taking a position with a neighbor as an all purpose carpenter building custom homes. The work was honest and physical, and piqued my interest for the next several years as I went forward with the business of becoming a husband, father, and general family man.

When my neighbor retired in 1987, I struck out on my own with big dreams of building high end homes for the rich and famous, but alas, it was not to be. A major recession made it very difficult to secure work, and I soon realized that I needed to specialize if my fledgling business were to stay afloat. Although I sold myself as a "finish man", I found myself taking work painting houses, installing basketball hoops, and patching up after electricians just to keep busy. In a moment of what my wife declared temporary insanity, I went out one day and spent the princely sum of \$120 to buy a small pile of cherry wood, which I used to keep busy during my inevitable "down times".

My first project with this treasure trove was a Shaker-style candle stand, which I donated to the Channel 11 auction. I watched the auction every night until the evening that it finally came up for sale and sold to the high bidder for \$150... enough to cover the materials and then some! My shrewd business sense told me that I was on to something. In the weeks that followed, I declared myself a furniture maker and proceeded to make six identical candle stands for my ador-

ing public...

About a year later, after giving away the last of the candle stands as birthday presents, lightweight sawhorses, or boat anchors, I ran across an announcement for a fledgling assembly of woodworkers who were forming a guild. I struck off alone to attend the group's third meeting, which was being held at Paul Tuller's workshop in the outskirts of Dublin. Pulling off the dirt road and into the driveway, I was surprised to find a large collection of cars, which had transported about 40 like-minded individuals to the meeting. Of course, no one had any idea who I was, but I was welcomed none-the-less and took comfort in my anonymity.

The meeting turned out to be a revelation. Here was a group who embraced the minutia of working with wood (something that I appreciated from my engineering days), and left me with an overwhelming sense of optimism and excitement. For the next four years I would never miss a meeting and I would always return to my shop eager to try out a new technique or talent that I had learned at a meeting. Never one to hang out for long in the shadows, however, I eventually stuck out my neck and asked then President John Skewes how I could become more involved.

"We need a new secretary," he said, and so began my career of public service to the guild.

Although I took excellent minutes from the meetings, I still lacked the confidence to add anything to the group; in fact I still felt inadequate and out of place. By then Terry Moore was President, and when he would ask me if I would like to read the minutes from the last meeting to the group, the lump in my throat would swell to the size of a Bosch sander

President's Message is Continued on Page 4.

David Makarewicz Builds A Stairway To His Fine Woodworking Shop

There is more to fine woodworking than fine furniture! This is readily apparent in this beautiful stairway that Guild member David Makarewicz designed and built for his shop.

David operates Meadowbrook Custom Cabinetry on Route 4 in Northwood, NH.

The primary woods are pattern grade mahogany for the skirt, railing, newel post and balusters. The stair treads are white ash that he cut and milled on his



property several years ago. The risers are cherry and the upper landing is brown ash.

The Sunburst inlay is quarter-sawn Padauk with Gaboon Ebony for the Star and the Compass-point triangles.

Everything, except for the remotely controlled lanterns, was made in David's shop.

With such beautiful design and workmanship, we are looking forward to seeing David demonstrate some of his techniques at future Guild meetings.

Musical Instrument Seminar	2
Calendar of Meetings	3
1999/00 Guild Officers	3
BIG Design Critique	4
Inlays with Garrett Hack & Election	5
BIG Chip Carving	5
Scholarships	6
Book Purchase	6
G S Woodturners	6
North Country Exhibit	6
Classified Ads	6
Abrasive Materials	7-9
Tape Library Catalog	10
Membership Form	11

Web Sites of Interest

- American Woodturners www.rtpnet.org/~twnc/awchapt.html
- Aspen Grove www.aspengrove.com/process.htm
- Black Mountain Wood Co. www.blackmtn-wood.com
- Bridge City Tools www.bridgecitytools.com
- Certainly Wood www.certainlywood.com
- Fine Woodworking Magazine www.finewoodworking.com
- Fur & Feathers Woodcarving www.fandfwoodcarving.com
- Furniture Masters www.furnituremasters.org
- Garrett Wade Company www.garrettwade.com
- GNHW www.gnhw.org
- Humboldt Woodworking Society www.woodguild.com
- Inlay Product World www.inlays.com
- Lee Valley Tools www.leevalley.com
- Lie-Nielsen Toolworks www.lie-nielsen.com
- Maine Coast Lumber www.maineastlumber.com
- NHmade www.nhmade.com
- Taunton Press www.taunton.com
- The Superior Tool Works www.supertool.com
- Woodcraft Supply Corp. www.woodcraft.com
- Woodsmith/ShopNotes Magazine www.augusthome.com
- Woodworker's Journal www.woodworkersjournal.com
- Dave Wachnicki, Shawmaker www.ncworkshops.com
- Ellis Valentine/Jim Cummins www.woodcentral.com

Making The Sound of Music

Guild Musical Instrument Seminar — November 13, 1999

Jon Siegel, Meeting Coordinator Tel 603-934-2765 E-mail jon_siegel@mail.proctornet.com

The November 13, 1999 Guild meeting will be a seminar on "Why and How to Build a Musical Instrument" at Terry Moore's shop in Newport, NH.

The following list of reasons for making a musical instrument is taken from the Luthiers Mercantile International ad in the September 1999 Fine Woodworking magazine.

To satisfy:

- Strong urge to bend wood
- Desire to do fine joinery
- Need to inlay
- Urge to work in thousandths
- Quest to work with the finest woods

More reasons:

- Minimal tools and shop space required
- Broaden portfolio
- Finished product is portable
- Finished product makes music
- Impress your friends

Teachers note:

- Excite students
- Many disciplines brought together

If these reasons apply to you, or if you just want to learn more about this little known craft, be sure to attend this meeting. There will be the usual business meetings in the morning and the presentations at 1 PM.

The five presenters are:

Terry Moore - guitars; David Nugent - violins;



Uilleann Bagpipes by Bill Thomas

Bill Thomas - flutes and pipes; Jim Schust - drums and Grant Taylor - harps.

The seminar will include five separate presentations, each taking approximately one-half hour. This will give each demonstrator a chance to "show and tell" what is special about his craft, including choice of materials, special tools and techniques, assembly, testing, etc.

While encouraged, actual demonstration of methods will be short because of the limited time. The presentations will include a display of works in progress and finished instruments.

It is hoped that everyone will gain a further understanding of the similarities and differences between these woodworking specialties and an appreciation for the beauty and sound of the instruments.



Ashiko Drum by Jim Schust



Acoustic Guitar by Terry Moore



**Baroque Violin
by Dave Nugent**



**Irish Harp
by Grant Taylor**

Directions to Terry's shop

Going north on Route I-89:

- Exit 9, Route 103 west to Newport.
- Right on Summer St. at Mobile Station.
- 2nd driveway, 1st house on the right.
- Shop is next to house.
- Park in school parking lot.

Going south on I-89

- Exit 13, Route 10 west to Newport
- Left at Common in the center of Newport on Routes 11/103 east.
- Left at Mobile station 3 blocks east on Summer St.
- 2nd driveway, 1st house on the right.
- Shop is next to house
- Park in school parking lot.

Calendar of Upcoming Meetings

For more information see the Guild Web site www.gnhw.net or call the Coordinator listed below

- **Through November 30 – Exhibit**
Lathe Turned Wood. Rotunda, Dartmouth Hitchcock Medical Center.
 Contact Dick Batchelder 603-744-5540 for more info.
- **November 6 — BIG**
Making Shaker Boxes with Jack Grube At Pinkerton Academy in Derry, NH.
- **November 13 — Guild Seminar**
Making Musical Instruments with Dave Nugent (violins), Bill Thomas

(flutes), Terry Moore (guitars) and Jim Schust (drums). Jon Siegel, Coordinator. Tel 603-934-2765.

- **December 4 — GSW**
Tour of Goosebay Lumber and Show and Tell.
 Contact Dick Batchelder 603-744-5540 for more info.
- **February 19, 2000 — Guild**
 Design. We are exploring getting "big name" presenters for this meeting. If you have any ideas, contact Ted Blachly.

- **May 6, 2000 — GSW**
 Turning Symposium – Pinkerton Academy. David Ellsworth will be the key note speaker.
 In February of '97 the Granite State Woodturners and KSC hosted the first and very successful Wood Turning Symposium.
 If you are interested in helping with this symposium contact, Dick Batchelder, Peter Bloch, or Jack Grube

Meeting Schedule Notes:

1. For all Guild meetings, unless otherwise specified, the Steering Committee meets from 10:00 – 11:00, the general business meeting is 11:00 – 1:00, lunch (bring your own) is 12:00 – 1:00 and the presentation is 1:00 – 3:00.
2. BIG, GSW and WEG meetings, unless otherwise specified, are from 9:00 to 1:00.
 BIG = Beginners and Intermediates Group CNEW = Central NE Woodturners
 GSW = Granite State Woodturners Group WEG = Woodworking Education Group
3. For all other meetings or in case of bad weather or other uncertainty, call the Program Coordinator of the Meeting for details.
4. Everyone is welcome at all of these meetings, call the Program Coordinator of the Meeting for details.

1999/00 Guild Officers At A Glance

Elected officers: Telephone E-mail

• President	Loran Smith	603-859-4700	lswood@worldpath.net
• Vice President	Geoffrey Ames	603-269-3571	newt@worldpath.net
• Secretary	Bill Hart	603-382-6960	shart80911@aol.com
• Treasurer	Steve Belair	603-622-0112	smb1026@mediaone.net

Appointed officers:

• Programs	George Andersen	603-654-2725	Glawood@aol.com
• Editor	Roy Noyes	603-887-3682	roynoyes@compuserve.com
• Juried Exhibit	Grant Taylor	603-835-2992	grant@celticwood.com
• Publicity	Steve Bussell	603-887-4744	steve_bussell@iris.com
• Scholarships	Peter Bloch	603-526-6152	bloched@kear.tds.net
• BIG	John Gunterman	603-268-0011	spokeshave@mediaone.net
• Books	Peter Breu	603-647-2327	peterbreu@aol.com
• GSW	Dick Batchelder	603-744-9993	rwb@cyberportal.net
• Shirts	Steve Belair	603-622-0112	smb1026@mediaone.net
• Steering Com.	Jon Siegel	603-934-2765	jon_siegel@mail.proctornet.com
	Bob Martel	603-627-1104	romartel@hotmail.com
	Jack Grube	603-432-4060	jackgrube@aol.com
	Ted Blachly	603-456-2385	t_blachly@conknet.com
• Videos	Peter Bloch	603-526-6152	blockhed@kear.tds.net
• Web Master	John Gunterman	603-268-0011	spokeshave@mediaone.net
• Wood Days	Dave Emerson	603-783-4403	efurnitr@tiac.net
• Wood Week	Geoffrey Ames	603-269-3571	newt@worldpath.net
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BIG Design and Critique Meeting of Oct. 9, 1999

By George Andersen

The purpose of these meetings is to examine and discuss aspects of design and fabrication based on actual objects produced by members of all skill levels. These discussions were lead by master craftsmen Jere Osgood, Wayne Marcoux, Ted Blachly and Geoff Ames, but everyone was encouraged to participate. Our BIG group is fortunate that these skilled artisans are so willing to contribute in this way.

Those that brought pieces were:

- Bill Hart Fireplace bellows
- Lester Huckins Two-drawer table, turned lamp & scroll-saw basket
- Dave Anderson Porringer-cornered window table
- Ted Gage Jewelry box
- Geoff Ames Side chair & spoke shaves
- Ted Blachly Table-top edge mock-up
- Steve Belair 1/12 scale inlaid end table
- George Andersen End table pair & spokeshaves.

The format used was to have each work



Jewelry Box by Ted Gage

described by the producer with an emphasis on any problems encountered; followed by the master's critique and general discussion.

Whether you have work to show or not, such sessions are constructive. Each of us picked up information that will help in the future to better plan and execute our projects.



1/12th Scale Inlaid End Table
by Steve Belair

Editor's Note: We would have used more pictures if good ones were available. If you want to see your work published, make sure I get a good picture!

President's Message Continued from Page 1.

and I could only croak out the one word answer, "No..."

Despite this shortcoming, I still felt the need to grow as a woodworker. I knew that good things often come from taking chances and I made sure that I always entered a piece in each year's juried exhibit.

My engineering background often meant that my presentation skills were far ahead of my wood-working prowess, and because of this my pieces were accepted into each exhibit that I applied for. However, I was still without direction in my work, and I entered a piece in the Guild's third annual exhibit which would have a profound impact on my future as a furniture maker.

It was horrible. I had created a pair of contemporary end tables of padauk and ebonized mahogany that were so bad that juror Peter Korn only allowed me to show one in the exhibit, and that was only out of sheer sympathy. I was publicly humiliated, and vowed to approach my craft from the heart, and to re-examine what had attracted me to this life choice in the first place.

My big breakthrough came at a Guild meeting

later that year. Jerry Osgood was hosting a seminar on veneering, and Terry Moore had brought in his old vacuum pump and bags to sell. I had decided that the furniture that most appealed to me was the early American forms of Queen Anne, Chippendale, and the Federal styles, and so I bought the vacuum setup from Terry.

With absolutely no prior veneering experience, I drafted a plan to build a Federal style hall table for that year's exhibit. Getting a late start on the table meant that I had no room for error or mis-step as I turned and reeded the legs, veneered the curved aprons with mahogany crotch and an ellipse of curly birch, and I even inlaid the top of the legs with birch burl that I had saved, years before, from a pile of firewood. The hand rubbed finish had barely dried when I delivered the piece to the upstairs gallery at the Hanover League shop.

As I tentatively lifted the furniture blanket from the table, I watched the faces of my fellow woodworkers in the room (they were also watching me. No doubt wondering what style I had decided to butcher this year). However, the table was by far my best piece ever and I stood

proud as they stepped closer, checking it over like a mechanic viewing the engine of a Porsche, and complimented my success.

With my newfound direction, I hit the ground running, gleaning every possible bit of information and inspiration that I could from the Guild.

I joined the Steering Committee. I volunteered to demonstrate at Wood Days, Sunapee, and juried exhibits. I pushed myself to new extremes of craftsmanship, practicing new techniques and incorporating them in my work. Soon, I was being asked to demonstrate at meetings and the long time student became a teacher.

It is with a great sense of pride that I accept the job of President of the Guild of New Hampshire Woodworkers, because I am a true product of the Guild.

As a self taught craftsman, any success that I achieve in my chosen field can be traced directly to the Guild, and I look forward to helping pass on that tradition to each and every member.

You take from the Guild by giving to the Guild and we all benefit in the end.

Loran

Inlays with Garrett Hack and Annual Meeting

by Roy Noyes

The Annual Meeting of the Guild was held at Garrett Hack's shop in Thetford Center, VT on October 2, 1999 to prepare the Guild for entering the new millennium.

The following slate of officers was unanimously elected for the 99/00 year:

- President Loran Smith
- Vice President Geoffrey Ames
- Secretary Bill Hart
- Treasurer Steve Belair
- Programs George Andersen

After lunch Garrett's topic was Inlay. Garrett said that sometime after his Shaker phase, he discovered inlay.

"An image that sticks in my memory is a Federal side table illuminated by dim candlelight, the fine white string inlay running up the legs and around the aprons reflected the light and outlined the form in a striking way.



Garrett Demonstrating Inlaying

Photo by John Gunterman

The more I looked at Federal furniture and even styles as far back as Egyptian work three millennia old, the more intrigued I became with what can be done with a few small pieces of contrasting wood set into the surface. The pat-

terns and flourishes attract and delight my eye in a playful and most enjoyable way.

Making inlays was a specialized trade in the 18th century, much like upholstery and carving. Considering how commonly inlay was used in furniture making centers such as Portsmouth, NH and Baltimore, MD, I've discovered that very little has been written about the techniques and tricks of making and using it.

Only through careful inspection of old work and much trial and error have I learned the basic techniques of string inlay and making and inlaying patterns. With these techniques alone, the possibilities are still endless, depending only upon your creativity and patience."

He has had to make some interesting tools and demonstrated the use of them in cutting some inlays.

BIG Learns About Chip Carving From Tim Elliot by George Andersen

Tim gave an excellent presentation on chip carving to a good turn-out of BIG members on September 19th.

Like most masters of a skill, he made it look easy; but then as we experimented ourselves we saw that with the right approach for each cut, even we could achieve interesting patterns. Tim strongly urged those who wish to gain this skill to read and to practice.

For reading he recommended:

Chip Carving by Wayne Barton, Sterling press, ISBN 0-8069-8524 and ISBN 8069-7924-0.

Artistry in Chip Carving by Craig Vandal Stevens, Schiffer Press, ISBN 088740-940-7.

Basic Chip Carving by Pam Gresham, Schiffer Press, ISBN 0-88740-498-7.

Editor's Note: Peter Breu can get Sterling and Schiffer books at a 40% discount. See the Group Book Purchase ar-

ticle in this issue of the Old Saw for information on purchases.

Wayne Barton has a series of books on the subject and also produces good quality tools for this art.

Tim recommends using bass wood for practice, though other woods are more aesthetically pleasing for your final product - including mahogany, cherry, walnut, butternut and soft maple.

Iron on transfers work well and save layout time.

The tools required are few (our wives will appreciate this). A chip knife and a stabbing knife do all the cutting. You already have a pencil, eraser, graph paper, sharpening stone and tape measure.

The chip knife looks like a carving knife with the blade bent off axis with the grip in the direction of the cutting edge. This angle is necessary to allow cutting the chips by forcing the tip along one direc-

tion to the chip depth as the edge simultaneously cuts one boundary of the chip. With three such cuts, a chip is cleanly ejected to leave the desired figure.

These triangular cuts can have many forms from equilateral to isosceles to elongated and elongated, curved figures. Four cuts can produce diamonds, arrowheads etc. Straight and curved lines are made with parallel slices to end stop cuts. Once you have developed this inventory of simple forms, you can plan any design to be made with these elements.

Read the books! Follow some of their exercises and then start making your own. Start with geometric patterns and gradually work toward the organic and artistic. After the session, a number of us agreed that another meeting would be very worth while after we have had a chance to try our hands at this, .

Air Dried Lumber and Turning Stock

By Jack Grube

The last Old Saw contained an add for James Mills Lumber in Hudson. I went there on Saturday and was surprised by what I saw.

First, Jim is a very nice guy, the mill is at his house, and he will help you or leave you alone. It's all native, air-dried and

well priced. If you are looking for pine, maple, cherry - you should stop by.

The lathe stock is a small pile of thicker (8/4) end cuts and shorts. Most of it was 8/4 and not a lot of quality left when I was done shopping. He did have two nice large planks of tiger (12/4) that had de-

fects. It could make some nice turning stock (\$2.00 bd ft) for small turnings.

He is located off Route 28, south of Route 111 just over the Pelham line.

Scholarship Opportunities Expanded, Apply Now!

The Scholarship Committee is very pleased to announce that the funds available to be distributed for the next year are double last year's levels! This increase is due to the successful raffle at the Sunapee Fair, and to some money carried forward from last year.

A total of about \$6,000 is budgeted for this year. This means that we will be able to help subsidize even more of the interesting educational opportunities that our members wish to pursue. And in addition, we will begin a new part of the program, where we will provide one larger grant each year to enable a member to take advantage of some bigger (and more expensive) opportunity.

Details on the larger grant program are still to

be determined, but for now, it is time to consider making an application for the regular scholarships.

The deadline for receiving applications is November 15, 1999.

The maximum grant per application is \$400, and this shall not exceed 50% of the total costs, with the applicant covering the other portion.

The application should include:

- * A description of the proposed activity
- * How the activity will benefit the applicant
- * Total costs involved
- * How the applicant might consider sharing the new-found knowledge with other members of the Guild.

Feel free to call or email members of the com-

mittee with questions:

Applications should be mailed to Peter Bloch, 2 Otterville Road, New London, NH 03257.

The committee is:

Peter Bloch (chair) 526-6152 blockhed@kear.tdsnet.com

Jack Grube 432-4060 jackgrube@aol.com

Loran Smith 859-4700 lwood@worldpath.net

Please visit my web site, where there is lots of information and photographs about my translucent turned-wood lampshades. And a whole section of the site is devoted to Kathy's music and photography. Just click on this link: woodshades.com ...we are always open to feedback

Group Purchase — Last Call for Book Orders

Peter Breu

Book Coordinator

Tel: 603-647-2327

E-mail: peterbreu@aol.com

1/2 Price Taunton Sale!

Once again we have a special pre-holiday 50% off deal with Taunton. I will be taking orders at meetings (or you can call or email me) and will place the order

December 1st. The books typically arrive within a few days, so you will have them to put under your tree. I will take orders from all 6 publishers (Taunton, Astragal, Schiffer, Tiller, Penguin -formerly Rodale

and Sterling) and, if we meet their minimum order, will place it then. The discounts for the other 5 publishers are typically 40% off. Please feel free to contact me with any questions.

Granite State Woodturners News

Richard Batchelder President Tel: 603-744-9993 E-mail: rwb@cyberportal.net

Our last meeting on *Bowl Turning — Green to Finish*, hosted by Charlie Sheaff, was held on Sept 18th at Keene State College. The demonstration left many of us itching to go home and make some bowls. It was nice to see the process taken from start to finish, as you can always pick up little tricks here and there that other people use.

Charlie showed us how he uses the McNaughton System to make nesting bowls, this saves wasting good wood into useless chips. We were also able to see his

recycled refrigerator/bowl drying kiln, I know that I was impressed at how well it worked. Thanks again Charlie for your time.

Symposium Update

Things are coming together, we are putting together the list of demonstrators and we are sure that you will all be impressed with who we are getting to come. David Ellsworth has agreed to be our keynote speaker.

There will be around 20 demonstrations, trade show and flea market as well as an

instant gallery. Additional info should soon be appearing in many of the popular trade magazines as well as the AAW web site: <http://www.RTPnet.org/~aaw/>.

Our Next Meeting:

Dec 4th, 9:00-1:00 at Goosebay Lumber, Rt. 4 Chichester, NH. Come prepared for a tour of the retail lumber operation and a Show and Tell (bring something you have made)

Carl has lots of unusual turning blanks for sale, so you won't want to miss meeting.

North Country Exhibit "Lathe Turned Wood" Until November 30,

You also won't want to miss the exhibit called *Lathe Turned Wood*. It runs from Oct 6th through Nov 30th in the Rotunda at Dartmouth Hitchcock Medical Center, One Medical Drive, Lebanon, NH

The exhibit features the work of four NH woodturners: GNHWW members Jerry Burt of Plainfield, Stanley Dole of Meriden, and Robert Pearson, Jr. of Webster plus Dustin Coates of Etna.

For more information, contact Jerry Burt at 603-675-6141 or E-mail blw@turbonet.

Classified Ads — For Sale

Table saw, 10" Inca Model 34J, Swiss made, 1.5 HP. With Mortising Table, Tenor, Sliding Table and tooling. **\$875**
Drafting table, adjustable 4' x 3'. **\$50**

Delta scroll saw, 18", variable speed **\$150**

I bought a Unisaw, a DeWalt Scroll Saw and learned to use CAD!

Pete Boorum, Tel. 603-669-4185

Table Saw Fence, 50" Grizzly, complete with rails.

I bought a Join Tech Saw Train fence.

\$50 or B/O

Roy Noyes

Tel. 603-887-3682

Sanding and Sharpening Materials Facts Not Fiction

By Roy Noyes

Every woodworker is interested in sanding and sharpening because it is a required part of every project, no matter how plain or how fancy. We are continually admonished to work only with sharp tools and to sand surfaces smooth by sanding "through the grits."

Ironically, almost no one knows what the various grit designations really mean, how they compare or how to select the grits to use in a particular application. So, we decided to find out by going to the web to get the facts and report them here.

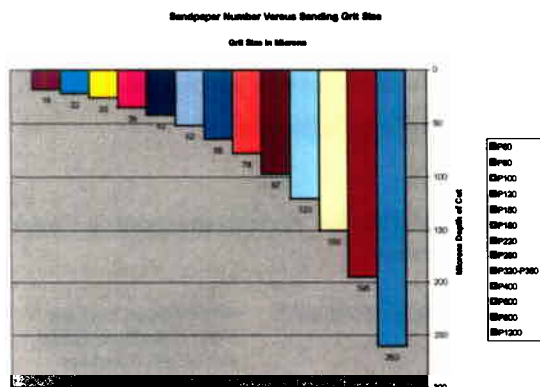
There are two major standards organizations:

For the US it is CAMI – Coated Abrasives Manufacturer's Institute and for Europe it is FEPA – Federation of the European Producers of Abrasives. These organizations set the standards for the manufacture of most abrasive products. However, some specialty products, such as 3M abrasive pads, are manufactured to a proprietary standard set up by the manufacturer.

Abrasive grit is sized according to the size of the mesh in the screen that is used to sort it. The standard screen mesh used in Europe is different than that used in the US. Therefore, a US 120 abrasive is a different size than a European P120 or a Japanese 150. The approximate sizes of grit used in most abrasives is shown in the chart at the right.

The relative size of the abrasive "teeth" for some common sandpaper is shown in the graph below:

Sanding through the grades



From the graph above, it is clear that one does not need to remove much wood to remove all the scratches from the previous grit size. For example, in going from 120 to 150 sandpaper, only about 23 microns, or less than one thousandth of an inch thickness of wood has to be removed to eliminate all of the previous scratches that are as deep as 150 microns. In fact, sanding through the grades from 100 to 400 will remove less than 5 thousandths of an inch of wood or about the same as two thin shavings from planing.

One could jump directly from 100 grit to 400 grit paper and achieve the same result, however, it would be a lot more work and take a lot longer because the finer paper removes less wood with each pass.

Comparison of Grit Sizes Used on Sandpaper, Belts, Disks, Wheels, Stones and other Abrasive Materials

Sandpaper and Other	CAMI USA Mesh	Avg. Dia.	FEPA Europe Mesh	Water-stones Japan	Average Grit Size Microns
	36	0.0267			530
		0.0204	P36		519
	40	0.0167			424
		0.0160	P40		407
	50	0.0137			348
		0.0127	P50		323
	30	0.0104			265
		0.0102	P60		258
		0.0077	P80		195
	80	0.0075			190
		0.0061	P100		154
Coarse Crystolon	100	0.0055		150	140
		0.00496	P120		126
	120	0.00453			115
Medium Crystolon, coarse India	150	0.00378			96
80 micron belt		0.00315			80
	180	0.00303	P180	240	77
	220	0.00256	P220		65
60 micron belt		0.00236			60
Extra Coarse Diamond		0.00228	P240		58
Fine Crystolon, medium India	240	0.00209		280	53
		0.00205	P280		52
Coarse Diamond		0.00181	P320		46
Fine India	280	0.00173		360	44
40 micron belt		0.00157	P360		40
Medium Diamond	320	0.00142		500	36
35 micron belt		0.00138	P400		35
30 micron belt		0.00118	P500		30
Washita	360	0.00110		600	28
Fine Diamond		0.00098	P600		25
	400	0.00092			23
22 micron belt		0.00087	P800		22
Soft Arkansas, 20 micron belt	500	0.00079		1000	20
18 micron belt		0.00071	P100		18
	600	0.00062			16
15 micron. belt, 15 micro. SiC paper		0.0059	P1200		15
Hard White Arkansas, extra fine Diamond, medium Ceramic	700	0.00055		2000	14
12 micron belt	800	0.00048			12
Hard black Arkansas, 9 micro. belt	900	0.00035		4000	9
6 micron belt	1000	0.00036			6
5 micron SiC paper	1200	0.00026			5
Extra fine white ceramic, green chrome rouge, 3 micron belt	1500	0.00012		6000	3
1 micron belt	2000	0.000039		8000	1
Chromium oxide polishing compound, 0.5 micron chromium oxide paper 0.5 micron Chromium oxide paper		0.000019			0.5

Choice of Abrasive Grit

The speed of stock removal depends upon the size and shape of the abrasive grains. Obviously the larger and sharper grits cut faster regardless of the use. Select the type of grit for:

- 1 Degree of finish
- 2 Speed of stock removal
- 3 Life of the product
- 4 Total Cost of Use

The following descriptions of abrasive grains are taken from information provided by Pacific Abrasive, 7100 Village Drive Buena Park CA 90621 (800) 755-2042, courtesy of Lyle Rawlins' deltanet web site.

Garnet: Natural Abrasive

Garnet is a **natural abrasive** made by crushing garnet crude. Garnet is a soft material and is not as hard, nor as durable as the various man made abrasives. Garnet fractures along the cleavage lines of the crude (blocky) crystals, exposing very sharp cutting edges as the grains fracture.

Garnet is widely used in the woodworking industry, particularly in finishing operations. Garnet is the recommended abrasive if you are getting burning of the wood with other abrasives. Garnet is not suitable for use on metals.

Aluminum Oxide: Man Made Abrasive



Types of Aluminum Oxide

White Brown Premium Blue

The most popular of all abrasives, Aluminum Oxide is **extremely tough** and has a wedge shape for high speed penetration of tough materials without excessive shedding or fracturing of the grain.

Aluminum Oxide is suited particularly well for grinding high tensile strength materials such as carbon steels, alloy steels, tough bronze and hard woods. Aluminum Oxide is used whenever toughness (the ability to resist fracturing) is the main consideration.

Zirconia Alumina: Man Made Abrasive

A blocky shaped grain that has a micro-crystalline structure, and is characterized as being **self-sharpening**. This self-sharpening characteristic gives Zirconia Alumina good life on

heavy stock removal applications.



Zirconia Aluminum Oxide

Zirconia Alumina is well suited for heavy grinding of metals and for planing operations for wood because of its controlled fracturing that exposes new, sharp cutting edges.

Only available in grits 24 through 120.

Silicon Carbide: Man Made Abrasive



Silicon Carbide

Next to diamond in hardness, Silicon Carbide is characterized by its black, sharp, sliver-like grains, that makes it **superior for its ability to penetrate with light cutting pressures**.

It is primarily used for grinding nonferrous materials such as brass, copper, bronze and aluminum. Silicon Carbide is

the grain of choice for certain finishes on stainless steels. (It also is widely used in woodworking to sharpen chisels and plane irons and flattening the bottom of planes.)

Other applications of Silicon Carbide include grinding of glass, wood, rubber and plastics. It is used also to finish and polish automotive primers, lacquers and sealers.

It cuts hard woods very rapidly, but may leave black grains in the pore of light, open-pored woods.

Coatings

The manner in which the abrasive grains are distributed on the backing is referred to as its "Coating". The two levels of abrasive grain density are Open Coat and Closed Coat.

Open Coat:

Abrasive grains cover approximately 50% - 60% of the coated surface. Open Coat products generally offer greater flexibility, faster cutting, and provide a greater resistance to loading. Open Coat products are used widely for **woodworking applications**.

Closed Coat:

Abrasive grains cover 100% of the coated surface. The greater number of abrasive grains normally results in a higher amount of stock removal during the useful life of the product. Closed Coat products are widely used in **metalworking and some woodworking applications**.

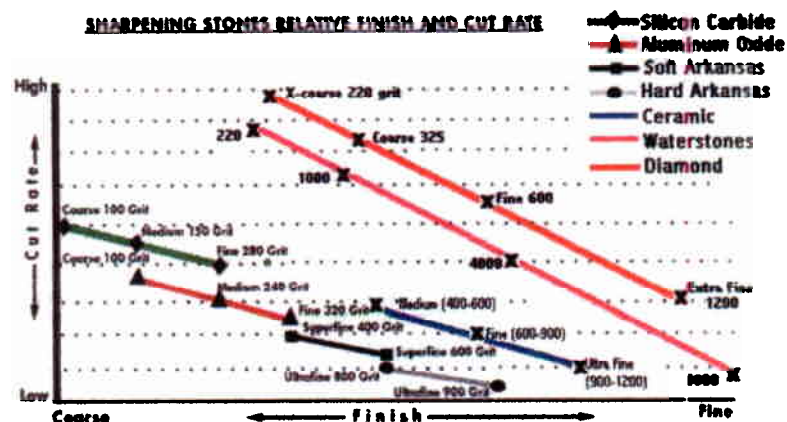
Stearate Coating

Some sanding materials are coated with zinc stearate as a lubricant to keep the surface from plugging up with resin or wood dust. However, stearate is a waxy material and is not water soluble. Particles of stearate left on the surface from the sanding will not be wetted by water based finish films and may cause orange peel and fish eyes.

It is soluble in conventional solvent finishes and non-water-based varnish, Danish oil, polyurethane, etc. do not have this problem.

Bonding Adhesives

The chart below shows the relative finish and cut rate for various sharpening stones. Sandpaper is similar



Thanks to Norton Company and Tactical Knives magazine for the information in this chart.
Steve Bottorff 1999

The bonding adhesive determines how well the grit sticks to its backing. Glue bonds do not hold as well as resin bonds and are used to release dulled worn particles such as Garnet which does not form new sharp edges.. Resin bonds are used when a grit like Zirconia breaks and exposes new sharp edges.

Glue bond systems use animal hide glues, alone and with fillers. Glue bonds are not as resistant to heat as resin bonds, but do give a finish almost one full grit size finer than resin bonds. Resin bonds have a tendency to provide a harsher, more scratchy finish in fine grits that is more difficult to polish out.

Glue bonds are more flexible than resin bonds. However, synthetic resin bonds offer greater resistance to heat, and are more durable in heavy stock removal applications, and provide the best all-around bond system.

Backing Materials

Paper Backings:

Available in "A", "B", "C", & "D" weights for use in sheets, rolls and disc, "E" & "F" weights for use in belts, disc, and rolls.

Cloth Backing

"J" Wt. Cloth:

The most flexible, and lightest weight of the cloth backings, used extensively for contour grinding. Available in Aluminum Oxide, Open and Closed Coat, and Silicon Carbide, Closed Coat.

"X" Wt. Cloth:

A heavier backing used on most abrasive belts for all types of applications where you need a stronger backing or where extreme flexibility is not required. Available in Aluminum Oxide, Open and Closed Coat, Silicon Carbide, Closed Coat, and Zirconia Alumina Closed Coat.

"X" & "Y" Wt. Polyester:

Synthetic backings designed for their extreme strength, widely used in severe grinding applications for metal, glass, and wood working. Polyester backed belts are waterproof, and can be used either wet or dry, and the belts are washable. Available in Aluminum Oxide, open and closed coat, Silicon Carbide, open and closed coat, and Zirconia Alumina, open and closed coat.

Film Backings:

A tough Mylar film for use in sheet, rolls and disc. This Mylar film provides a very

uniform backing which is used in final finishing of wood working and solid surface materials.

The following material on micro-mesh abrasives was taken from the Scientific Instrument Services catalog, Page A95.

Micro-mesh Abrasives

Micro-mesh Cushioned Abrasives were originally developed for the aircraft industry to remove scratches from aircraft windows. However this unique product will finish or restore a wide range of materials including plastic, metal, wood and painted surfaces to high gloss, "see-through" finish.

There are 9 grades of micro-mesh materials from 1500 to 12000. Start with the 1500 and polish all the way through the series to 12000. You may find that some surfaces (especially those with deep scratches) will require the entire series of material to achieve the finish you want.

Cushioned Abrasives

A cushioned abrasive is a cloth backed material with a resilient layer of latex upon which a layer of abrasive crystals are glue bonded. Cushioned abrasives are made in such a manner that the crystals are held in a resilient matrix as opposed to a hard resin, which will allow the crystal to recede when subjected to contact pressure.

In the case of micro-Mesh products, there is a cloth mesh or screen backing upon which a latex film is placed. Then various sizes of silicon carbide crystals are adhered onto the film.

What is unique about cushioned abrasives is that they do not give any random deep scratches. Instead, they produce an extremely uniform scratch pattern over the entire work surface. When contact pressure is applied, the crystals recede and rotate slightly to present their sharp edges evenly across the surface. The abrasive crystals all cut together with a fine planing action.

Because the crystals can move back into the cushion, a much larger crystal can be used to achieve a very fine uniform scratch pattern. The larger crystals and the flexible glue bond result in a longer lasting material.

Cushioned abrasive products like micro-mesh have an extremely long life since the crystals are not subject to fracture or overheating. The crystals continue to cut effectively until they eventually become dull and lose their cutting edge.

Use Wet or Dry

Micro-mesh abrasives may be used wet or dry and after you're done, it can be washed out and used again. Every sheet is color coded and has the grit written on its reverse side - the higher

the grit number, the finer the cutting action. The variety of grits permit the restoration of most surfaces to a mirror finish.

Micro-Mesh costs more than ordinary sandpaper, but produces finishes 10 to 20 times finer.

Using Abrasive Materials

Working Through the Grits

The use of abrasives for either sanding or sharpening is really a two step process.

- 1 Get rid of all of the blemishes.. This means nicks, dents, pits and deep or cross grain scratches. This should be done with the coarsest grits you plan to use and don't stop until all the blemishes are gone.
- 2 Finish the surface with finer grits to remove all of the scratches of the coarser grits and all of the scratches of the finer grits as well. The goal is to have the final scratches so fine that they will not be observable in the final finished condition.

Don't skip more than one grit at a time. If you do, you will spend more time, not less.

Use Proper Lighting

Proper lighting of the work area is very important. Make sure you have plenty of light, but not overhead light. The light should come across the work at a low angle to the surface. This type of light will create shadows so that tiny dips, ridges and scratches will stand out.

Don't Use Fine Grit More Than Necessary

The finer the grit, the slower the stock removal and the more work it is to use. Consider the final surface needed and work to that finish.

Use of very fine grits in woodworking will polish the surface and reduce the ability of that surface to accept stain or dyes.

Usually 120 grit is fine enough for stain or dye application. After the final finish is applied, finer grits may be used to obtain a high degree of surface polish.

Understanding the principals of abrasive finishing will make your work easier and less time consuming.

The Guild of NH Woodworkers Video Tape Library Catalog

Jack Grube - Video Librarian
E-mail JackGrube@aol.com

6 Sundry Lee Terrace

Londonderry, NH 03053 Tel. 603-432-4060

The following are the videos currently available from the Guild Library for borrowing or purchase. They are cataloged by date of the presentation.

All tapes may be borrowed for 30 days at no charge.

Guild tapes may be purchased by members for \$10 and by non-members for \$15. Non Guild tapes are not for sale.

Guild Tapes – Meetings

Title	Presenter	Date	
Spindle Turning	Jon Siegel	1/91	
Hand Cut Dovetails	Terry Moore	4/91	
Babbitt Bearings	Bill Thomas	1/92	
Wood Identification	Bruce Hoadley	3/92	
Windsor Chairs & Benches	Jim Becker	5/92	
Solar Wood Kiln	Grant Taylor	9/92	
Water Based Lacquers	Enduro	1/93	
Green Turned Bowl	Peter Bloch	3/93	
Ball & Claw Foot	David Lamb	5/93	
French Polish	R. Mark Adams	9/93	
Design Conference	Panel Discussion	1/94	
Multi-Axis Turning	Mark Sfirri	4/94	
Veneering	Jere Osgood	5/94	
Japanese Mortise & Tenon	Paul Tuller	9/94	
Guild Show 1994 Hanover LNHC Gallery	Terry Moore	10/94	
Business of Woodworking	Panel Discussion	11/94	
Gluing Columns	Jon Siegel	94	
Scraper Day Symposium		1/95	
Turned Wooden Hats	J. Michelsen	5/95	
Wooden Boats	Lou Yelgin	6/95	
Arts & Crafts Furniture	Sir Alan Peters	8/95	
Living with Crafts '95	Sunapee	8/95	
Sharpening Symposium	Pinkerton	9/95	
Intro to Woodturning	Siegel & Bloch	1/96	
Windsor Chair Symposium – 1996 (4 tapes)		1/96	
#1 - Assembly	O Clairmont		
#2 - Splitting & Turning	D Sawyer		
#3 - Carving Ears	P Scheffer		
#4 - Panel Discussion			
Spindle Shaper	Jere Osgood	3/96	
Lumber Selection	BIG Meeting	4/96	
Living with Crafts '96	LNHC Exhibit	8/96	
Wood Finishing Symposium		9/96	
Guild Show - 1996	T. Moore	11/96	
Care & Use of Old Tools	Mike Dunbar	12/96	
Turning Symposium – 1997 (16 Tapes)		2/97	
#1 - Bowl Turning: Green to Finished	Sheaff		
#2 - Captured-Ring Goblet	Motter		
#3 - Unusual Material	Ireland		
#4 - Hollow Vessel	Elliot		
#5 - Control, Comfort & Safety	Kephart		
#6 - Composite Material	Sheaff		
#7 - Art vs. Craft	Panel Disc		
#8 - Christmas Tree Ornaments	Rosand		
#9 - Intro to Woodturning	Grube/Celona		
#10 - Segmented Turnings	Bowman		
#11 - Spindle for Furniture	Siegel		
#12 - Wooden Bullets	Salwasser		
#13 - Surface Decoration	Batchelder Elliot		
#14 - Natural Edge Bowls	Ertel		
#15 - Wood Lampshades Bloch			
#16 - Instant Gallery			
Woodworking Injuries	Eberly & LeRoy	3/97	
Shaker Boxes	Steve Allman	4/97	
Finishes & Stains	Terry Masaschi	4/97	
Furniture Masters – 1997		9/97	
#1 – Exhibit			
#2 – Lectures	Osgood, Breed & Schmidt		
Hand Planes	Garrett Hack	9/97	
Managing A Small Woodworking Business (2 tapes)		10/97	

Guild Hargate Exhibit 1997	St. Paul's School	10/97
Basics of Wood Carving	Bill Thomas	11/97
Kitchen Cabinetry Moore,	Sanborn & Smith	2/98
Carving Symposium – 1998 (10 tapes)		4/98
#1 – Carving Volutes	Bill Thomas	
#2 – Transitions and Focal Points	David Lamb	
#3 – Sign Carving	Tom Chicarillo	
#4 – Celtic Knot Carving	Grant Taylor	
#5 – Abstract Carving	Nicola Taylor	
#6 – Intro. To Carving & Sharp	Gregg Plum	
#7 – Advanced Sharpening	Gregg Plum	
#8 – Songbird Carving J	John Byrne	
#9 – Figure Carving	Dave Dupouy	
#10 – Decoy Finishing	Bill Luti	
Wood Symposium – 1999 (7 tapes)		5/99
#1 – Understanding Wood II	Bruce Hoadley	
#2 – Rain Forest Update Jack Carr		
#3 – Properties of Wood Jack Carr		
#4 – NH Forests	Ethan Howard	
#5 – Vacuum Drying Wood	Earle Rich	
#6 – Wood in Craft Markets	Arthur Grohe	
#7 – Harvesting Native Woods	Garrett Hack	

Non-Guild Tapes – General

Dovetail A Drawer	Frank Klausz	85
Making Mortise & Tenon Joints	Frank Klausz	86
NH Crossroads #1706	David Lamb	97
NH Crossroads #1716	Jon Brooks	97
Refinishing Furniture	Bob Flexner	87
Venturing...The Entrepreneurial Challenge (6 tapes)	Vermont PBS	

Non-Guild Tapes – Woodturning

Bowl Turning	Del Stubbs	85
Turning Projects	Richard Raffin	91
Multi-Axis Sculpture	Stoney Lamar	93
One Of A Kind Bowls	Liam O-Neil	93
Production Turning	Nick Cook	93
Spindle Turning Techniques	Palmer Sharpless	93
Hollow Forms and Fiber Optics	Paul Fennel	93
Multi-Axis Spindle & Jacobson Collection	Mark Sfirri	93
Surface Design	Hosaluk & Sfirri	93
AAW Symposium		93
Natural Edge Bowl & Instant Gallery	J. Ferola	
Signatures in Wood	Ditmer, Holzapfel & Scarpino	
Fun At The Lathe	Timby	
Hollow Vessel w/ coin		
Turned Forms	The Irving Lipton Collection	
Masterworks	The Wornick Collection	
Structural Harmony	Gianfranco Angelino	
The Translucent Bowl	Ron Kent	
Jewel Fantasies in Wood	Frank Cummings III	
French Follies sur Bois	Jean-Francois Escolen	
Treasures in wood	Hans Weissflog	
Emotional Expressions	Giles Gilson	

Equipment Advertising Tapes

Dispoz-A-Blade System	Esta-USA	
Leigh Jig - Instructional	Leigh	
Nichols Lathe		96
The Stewart System		
Woodchuck 5 Axis Milling System	Phantom Engineering	95
Woodchuck Inst. Video #1	Phantom Engineering	95
Vic Wood Lathe		
Video Catalog	Laguna Tools	

How to Pay Dues or Join the Guild

The dues are only \$20 per year for individuals and \$30 per year for corporations. The Guild year runs from September 1 to August 31 and the dues are not prorated. Please fill out the form below completely and return it with your check to Steve Belair:

Make your check payable to: **The Guild of NH Wood Workers**
Send to your check and this form to: **Steve Belair, Treasurer,**
1555 Bodwell Road #32, Manchester, NH 03109

Date: _____ New: _____ Renewal: _____ Check No. _____ \$ _____

Name: _____

If No Business - Skip to Home and Personal Information

I operate a woodworking business: Part time: _____ Full Time: _____ No Business _____

Partner's Name: _____

Woodworking Business Name: _____

Business Address: _____

City: _____ State: _____ Zip Code: _____

Business Phone: (____) _____ - _____ Ext. _____ Fax: (____) _____ - _____

Business E-mail Address: _____

Business Web Page URL: _____

Business products and specialties: _____

Home Information

Home Address: _____ City: _____

State: _____ Zip _____

Home Phone: (____) _____ - _____ Work Phone: (____) _____ - _____ Fax: (____) _____ - _____

Home E-mail Address: _____

Home Web Page URL: _____

Personal Information

Send mail to: Home _____ Business _____

My skill level is: Beginner _____ I intermediate _____ Advanced _____

I am a member of: AAW _____ BIG _____ Central NE Woodturners _____ Furniture Masters _____

Granite State Woodcarvers _____ Granite State Woodturners _____ League of NH Craftsmen _____ NE Woodcarvers _____

National Woodcarvers Association _____

Other _____

I would like to join: BIG _____ Granite State Woodturners _____ The Education Group _____

My areas of interest in woodworking are:

Accessories _____ Baskets _____ Boats _____ Boxes _____ Business _____ Carving _____ Computers _____ Crafts _____

Design _____ Educator _____ Finishes _____ Furniture _____ Inlay _____ Kitchens _____ Marketing _____ Millwork _____

Musical Instruments _____ Pattern Making _____ Restoration _____ Scroll Saw _____ Sculpture _____ Signs _____ Tools _____ Toys _____

Turning _____ Veneering _____

Other (Please specify) _____

I would like to volunteer to work on:

Wood Days at Canterbury _____ Wood Week at Sunapee _____ The Education Group _____ The Juried Exhibit _____

The Old Saw _____ The Video Library _____ Programs _____ Publicity _____ Scholarships _____ Shirt Sales _____

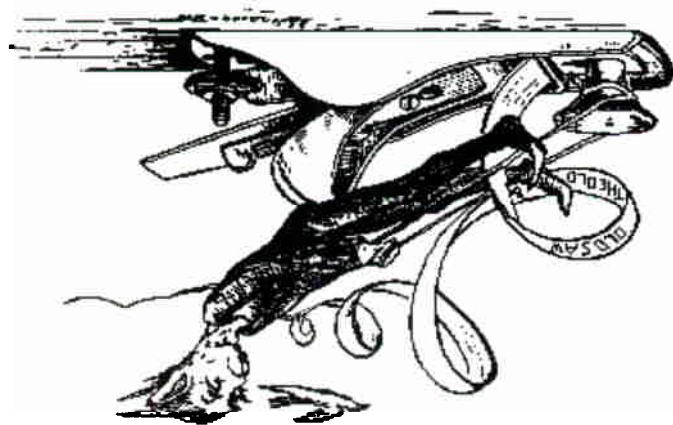
Special Events _____ Special Purchases _____ Other _____

I am willing to demonstrate the following: _____

I will help in any way needed: _____ Comments _____

I would like to help start a group on: _____

I suggest new programs or activities on: _____



The Guild of New Hampshire Woodworkers
Established 1990



The Guild of NH Woodworkers
The *Old Saw* Newsletter
178 Derry Road
Chester, NH 03036-4311

Last Issue if Dues Not Paid
by Jan 1, 2000

Dues are Due – This is your Bill

The GNHWW Fiscal Year runs from September 1 to August 31.

Please send your check and the form on Page 11. to:

Steve Belair – Treasurer
at the address on the form.

Thank you!