

New Tools and Updates David Lindow

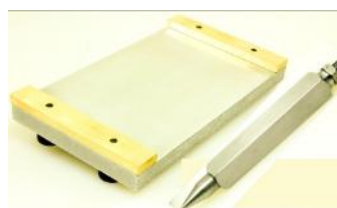
By now it seems tempting to call this an “oldsletter” rather than a newsletter. While John has done a fantastic job gathering information and putting together articles I have been remiss in my obligations to get him what he needed to complete it. It has been just that hectic of a year with trade shows, lectures, demos, and deadlines; however, there is a positive side to the situation. It has afforded me the opportunity to see many of you, and I’ve seen more of you using the LRE than ever. This year ornamental turning took me to New York, Virginia, New Orleans, San Jose, Gatlinburg, Nashville, Iowa, and Ohio on top of having a meeting here. We also have the OTI symposium here in September and another LRE owner’s meeting in Columbia, TN the weekend of Oct. 20.

Being able to mount the Hardinge cross slide on a conventional mini wood lathe allows you to accomplish precision and repeatable turning, facing, and boring using conventional metal turning tools and boring bars. The adaptor slides onto the lathe bed ways and is adjusted by means of the set screw on the holding knob. It is then locked to the bed by using the cam on the adaptor. The Hardinge slides over the adaptor. Depending upon the lathe being used, a riser block may be needed for the tool post.

The MT2 spindles are case hardened and ground with a precision bore for the MT2. This allows for the movement of a chuck from lathe to lathe with much more accurate results. Two adapters come with the spindle, one for using the spindle in the normal manner and a flanged adapter so that the chuck can be moved from lathe to lathe with a MT2 back for exceptional repeatability. This flanged adapter comes in either 1”-8 or 1 1/4”-8 and with a draw bar to hold the flange in place.

The Spring Pen, sometimes incorrectly called a Tympan Chuck or Pen Chuck, allows you to study the effects of a rosette on a piece of paper. It is both a good layout tool and a study aid. The spring loaded pen holder is made of 9/16” square steel and a spring loaded Parker style refill so the tip lands softly on the paper. It incorporates the faceplate from the Dome Chuck kit (this can be bought separately if you do not own one). The paper 4x6 inch index cards are attached with four knurled screws. Using index cards makes it easy to file your tracings for future use.

The other positive effect of the crazy schedule has been that we have completed several new products. This year we’ve seen introduced the Hardinge slide mount that will fit most common mini lathes, the MT 2 spindle with adapters for both 1-8 and 1 1/4”-8 threads, the spring pen, bottle stopper chucks, the large ECF, the V belt drive system, set of engine turning rosettes, set of 4 pumping rubbers, and the long awaited Auxiliary Rosette Holder which stands as the first major component of the spiral system.



Rose Engine News



Because of the disappointment I have faced with the quality of the bottle stopper chucks on the market I have produced better ones in both 1"-8 and $\frac{3}{4}$ "-16 (Sherline).



The Large Eccentric Cutter uses the principles of our smaller ECF which Fred Arbruster designed but is much, much larger. It allows for the use of $\frac{1}{8}$ ", $\frac{3}{16}$ ", and $\frac{1}{4}$ " diameter cutters and is easily adjustable. Extra holders are employed to balance this ECF. Due to its size, balance is absolutely essential, this process is intuitive and quickly picked up.



The V Belt drive reduces the "noise" and vibration caused by the flexing of the urethane belting and gives a positive drive even when the most pointed rubbers are used with the most pointed rosettes. It eliminates virtually all of the 'ski jump' effect. Upon installation the advantages will be immediately obvious.



These belts are run under very low tension. The middle slack belt is for the slow speed drive which is disengaged in the photograph.

The engine turning rosettes are low amplitude C rosettes designed specifically for engine turning metal. They come in six convex sets: 24, 36, 48, 60, 72, and 96. I have an article in this issue which explains how they can be used with different rubbers to produce the patterns of a variety of rosette types including the much used A or sine rosettes.



The set of 4 Pumping Rubbers are each designed with two sides. On the 18 and 24 rubbers the one side will render a sine wave on the side of a cylinder while the other side matches the radius cut on the specified rosette. On the 36 and 48 the one side gives the sine wave. The second sides of the 36 and 48 pumping rubbers are designed to give options on the smaller end of things which will more closely emulate the actual shape of the rosette.



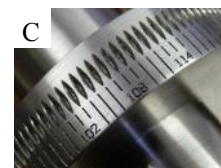
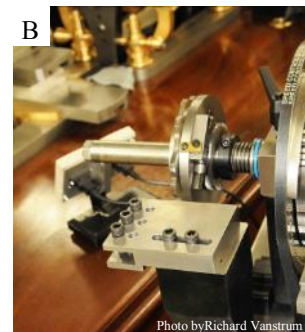
The long anticipated Auxiliary Rosette Holder (ARH) comes with a secondary tower of its own with a clamp for securing rubbers as well as an extender for the rubber. The ARH can be mounted in either direction, can be used with pumping rosettes and in some circumstances can be used with two rosettes. There is a worm for phasing and a marked dial for accurately setting the position. The ARH will be the initial gear holder in the spiral system. The worm has a quick release for quick indexing with the spiral.

We have in production "Puffy Polygon" or "P" type rosettes along with their mechanical opposite shapes. They should be ready to ship in the next few weeks.

We also have the curvilinear apparatus along with an auto feed and stops prototyped and we'll be sending one or two out for testing soon. A special thanks goes to Mike Stacey of Columbus Machine (now an LRE owner himself) for all the help in engineering and prototyping this. You will be able to see it in action at the OTI symposium in September.



A) The installed ARH. Note that it uses its own rubber tower shown lower right and that it uses the extended spindle shaft. It will work with either the extended shaft or the new MT2 shaft. B) View showing phasing worm gear, arrow. Each rotation of the gear phases by 3° . C) Close-up of worm gear showing large sharp markings.





Rosettes

John Tarpley

Editor's Note: This article is based on research as well as E-mail discussions with John Edwards, David Lindow, Jon Magil, and Randy Rhine. Rosette tracings were reproduced from Bill Ooms' software package, PenChuck, from a design program by Randy Rhine, and images originally from Holtzapffel and Company. Any irregularity in the tracings comes from my reproduction and not the original programs. Information is also drawn from the Web sites of John Edwards, www.ornamentalturning.co.uk and Steve Ellis, www.roseengine.co.uk. Finally, information is drawn from John Edwards new publication Holtzapffel Vol. VI.

One of the major woodturning magazines likes to do interviews with professional turners in which they always seem to ask the turner which are his three favorite tools in the shop. While this seems like a trite question, I always enjoy the answer. After reading one of these interviews recently my twisted mind got to thinking, "What is the most important part of the Rose Engine?" Obviously the lathe will not function without many of its parts and each of those could be called the most important. But to me the obvious thing that sets it apart from all other lathes are its rosettes. That led me to thinking about how little I know about rosettes and how I've seen authors struggle to describe the rosette(s) they used to make a project. As I began to look into this topic, what began as a small, useful, space-filling article has taken on a life of its own. I hope this article will inform you about rosettes and perhaps be a starting point for some standardization of a system for describing rosettes.

A rosette can be defined as a cam which is mounted on a barrel and in conjunction with a rubber causes the headstock of a rose engine lathe to rock and produce a cutting pattern on the material being worked. The amplitude, also sometimes known as the throw or stroke of the rosette, is the maximum peak to minimum valley distance of the rosette pattern. The peak to peak distance around the circumference of the rosette is the period (or element). The peak to center distance is the rosette major radius and the valley to centre distance is the rosette minor radius. In conjunction with the rubber it controls the amount of rock in the headstock and the depth of the cutting pattern. For example, the amplitude is much greater for rosettes intended to be used with wood and much smaller for rosettes used for engine turning since the patterns for wood turning are cut deeper and more widely spaced than those for metal which are finer and more closely spaced. Rosettes on antique machines were typically made from brass or bronze and the diameters of the rosettes varied from machine to machine. Today many materials are being used for rosettes from metal to wood, to Corian, and Plexiglas. They are usually patterned and cut on CNC machines to produce the best curves and most exact patterns although jigs using routers or other cutting tools are also still being used.

So how did it come about that Lindow Rose Engines have 5.12" diameter rosettes? You have to put yourself in David and Steve's place and mindset at that time. As David said, "It is such a monumental task we had chosen to undertake. We were designing and building a machine few have ever heard of and fewer have seen. There is precious little useful information on

any aspect of design. We were not only developing a new machine and somehow selling something of which the world has no knowledge of their need, but we have to market an unknown and virtually undocumented product." One of the first decisions they made was to design the machine after the trade engines used in many nineteenth and early twentieth century shops. Since many of these machines used 5" rosettes they decided to follow what obviously worked for those machines. They still had to decide what shapes and amplitudes of rosettes to supply with the machine. This presented another difficulty. As David explains, "One problem we had is that, in a real way, the rosettes provided should be driven by the projects that one wants to complete with them. Since most of us are, in reality, novices we simply don't know what it is we really want to accomplish. Without that knowledge, which takes experience, we're sort of shooting in the dark in regard to making rosettes. When I decided to make engine turning rosettes it took almost a year to research amplitudes. In the end I came to the conclusion that I'd just take a middle of the road approach and wait for feedback. Steve did much of the work developing the original set of rosettes to be supplied with the lathe. We decided to provide classic styles of known usefulness as well as some of the more modern styles to provide a range of possibilities for the owners. From there, we could provide additional rosettes as owners request them." The patterns shown in the article and unless otherwise noted in the discussion are all produced from cutting on the same side as the rubber, that is, left of center on the rosette. This produces the positive pattern of the rosette. The negative pattern would be produced by cutting on the opposite side from the rubber or right of center.

In the Forum section of John Edwards Website he advises that when selecting patterns we need to consider perceived beauty vs. symmetry. pattern with an odd number of repeats is often perceived to be more beautiful than an even pattern. However, asymmetrical patterns may not look good within a symmetrical form. Additionally, he advises avoiding larger prime numbers such as 7, 11, 13, etc. as providing for their phasing will take up a lot of space on the crossing wheel. Also, he reminds us that the amplitude of the rosette will relate to the diameter of the work you will be doing. For example, a 1/8" (0.125") amplitude may be too much for 1" diameter work, but be barely noticeable on 7" diameter work. He also advises that there are practical operating conditions for the amplitude of rosettes. High amplitudes on small diameter rosettes make it difficult for the

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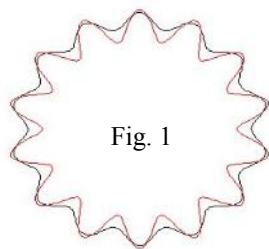


Fig. 1

outside curve of the wave becomes wider while the inside curve is narrower so a wider rubber will have a more difficult time following the curve of the red rosette. Also, I think you can see that it will become possible to cut a rosette that is impossible for a rubber to follow so there are limits to rosette design. While not strictly a factor of rosette design, you can not talk about rosettes without discussing phasing. Phasing is defined as shifting, by a portion of the rosette's

circumference, the relationship between the rosette and the spindle on which the work is held. It can be expressed in several ways, for example, as

half a wave, quarter of a wave, etc. Fig. 2 shows a rosette that has cut a single pattern and then been phased half a wave without moving the crossslide to cut a second pattern. Phasing can also be expressed in degrees with 11.25° being a half-wave shift on a 16-wave rosette or the same shift as shown in Fig. 2. As you can see phasing offers another way to combine and extend patterns produced from the same set of rosettes.

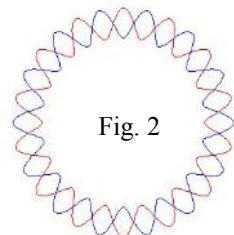


Fig. 2

Steve Ellis points out on his Website that if we intend to do work of a given period then we must have the rosettes used in that period. For example, if you want to copy English 17th century work, it will be hard to do without a Tudor Rose rosette.

However, producing a true Tudor Rose is not as simple as some writers indicate.

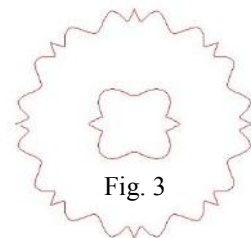


Fig. 3

Tudor Rose has to have pips between the petals. This can be done by using the Tudor rosette simultaneously with a Puffy Pentagon. Fig. 3A shows a completed Tudor Rose. We can see that the petal edges dip slightly in the middle. The F shapes in this example are an optional extra and to achieve this effect it is

necessary to take an F5 rosette and pump it in conjunction with a Puffy Pentagon whose points could be made to lift the cutter clear of the work in between petals. John prefers to describe the F rosettes as Cupid's Bow rosettes which look like hearts being pulled apart.

Steve Ellis notes that Charles Holtzapffel was the first to generate rosette shapes mechanically around 1840. The Holtzapffel rosette forming machine resides today in the London Science Museum Reserve Collection. The SOT is currently cataloguing the equipment in the reserve collection with the plans that someday the catalogue will be generally available.

The first system for naming rosettes that survives today is the Holtzapffel system. While the company primarily produced OT lathes they did make some rose engines. Twelve of their shapes can be seen today in Holtzapffel vol. V by John Jacob Holtzapffel. These

rosettes were made for the rose cutting frame for the OT lathe, but similar 7" rosettes were made for the rose engines. Fortunately John Edwards has just released his new book, *Holtzapffel Volume VI*, which contains a tremendous amount of information about the company and the state of OT at that time. He includes a brochure in this book that contains examples of Holtzapffel rosettes patterns A-S. The examples shown are similar to what we might draw today using a spring pen or pencil which we have in the past called a pen chuck. However, John Edwards points out that this is not really a chuck. He explains, "A Pencil Chuck or Pillar Chuck is a type of Dome Chuck. A Pen Chuck would naturally be something held on the lathe spindle to draw on something held in the Slide-rest. I believe whoever originated the term 'Pen Chuck' was unaware that its proper, established, name is 'Spring Pen' or 'Spring Pencil'; these are drawing instruments held in the Slide-rest to enable a line to be drawn on the piece held in the Chuck."

The Holtzapffel rosettes were either made from uniform repeating patterns such as sine waves or from combinations of shapes that regularly repeat. They were named by letter to indicate the shape of the wave and then a number to indicate the number of bumps or pattern repeats. Using this brochure and some computer tracing software I was able to reproduce the set of shapes shown in this article. As you can imagine after all these years fading of ink and changes in paper color in the brochure, as well as its being reproduced electronically, makes accurate tracing of the patterns difficult. Therefore, irregularities in the patterns are from my reproduction and not from the brochure or the original rosettes represented.

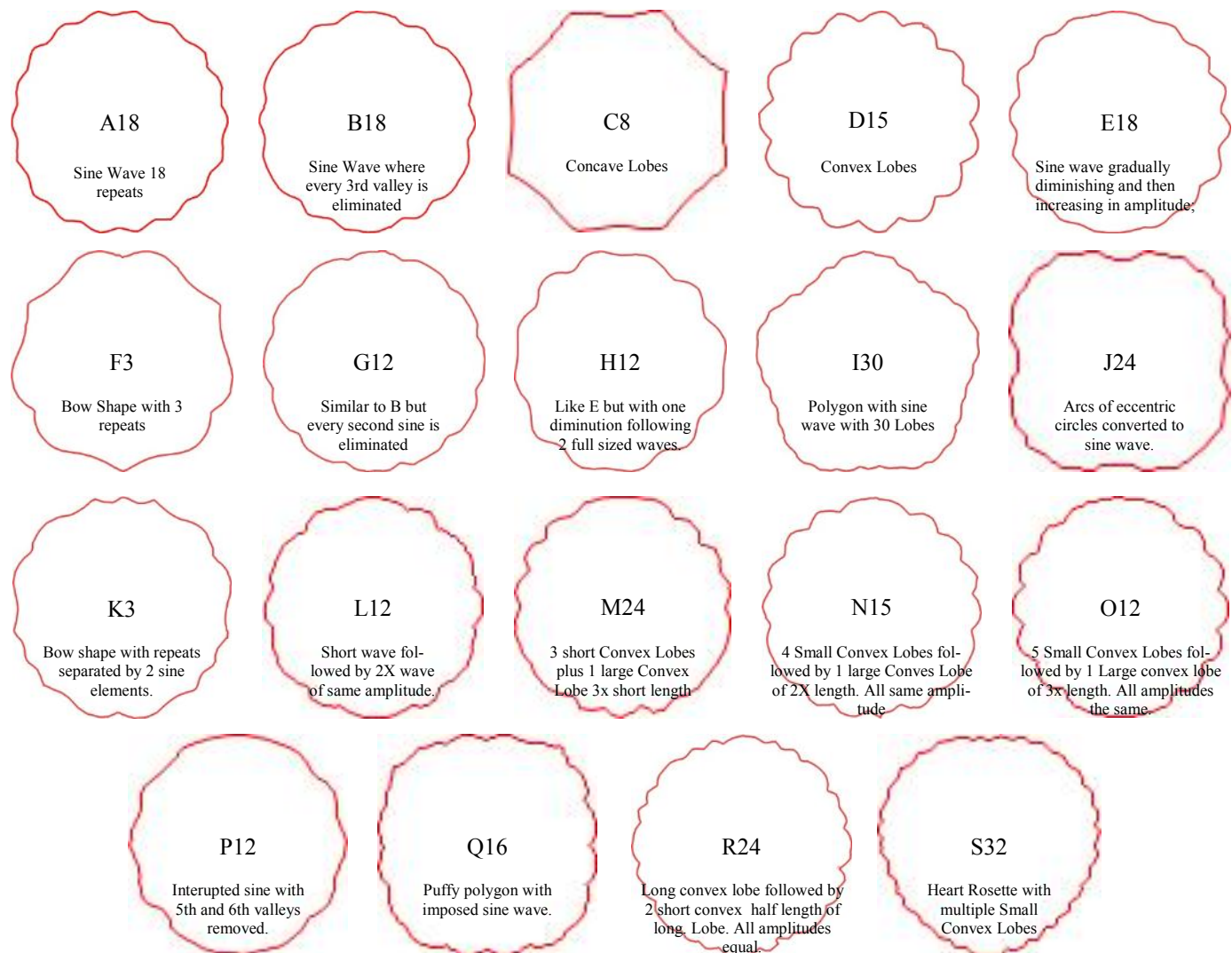


Fig. 3A

John Edwards new book, Holtzapffel VI is available from his Web site www.ornamentalturning.info/HV6_contents_1.htm. It is approximately 900 pages and contains information that is rare or previously unavailable to most turners. Purchase cost and ordering information are available on the site.



Fig. 4 Holtzapffel System of Rosettes

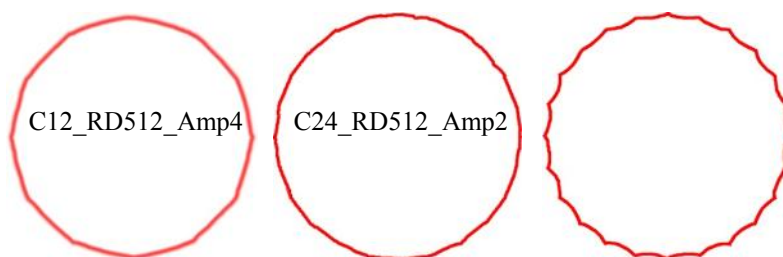
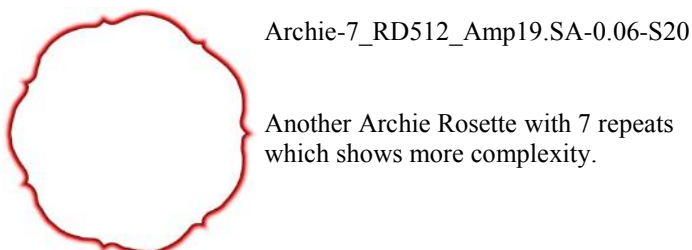
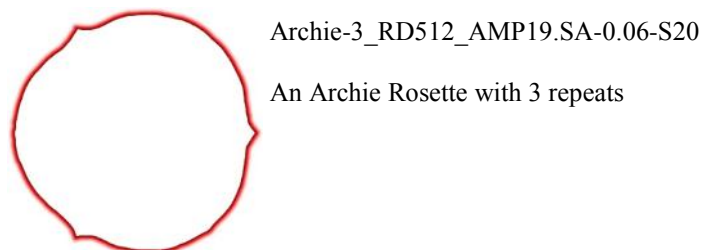
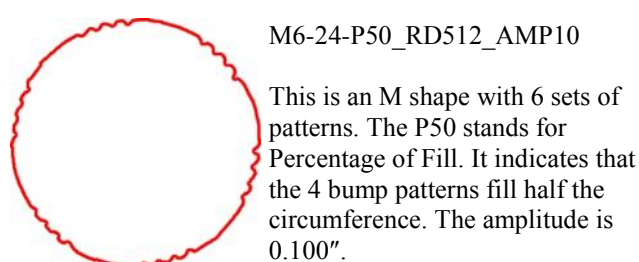
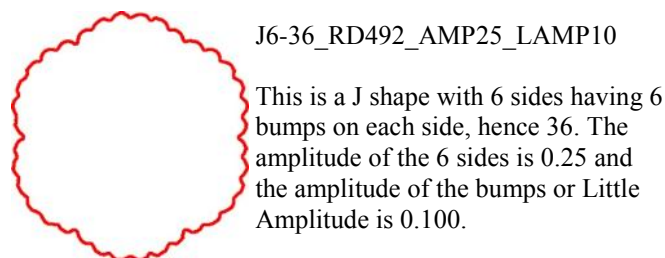
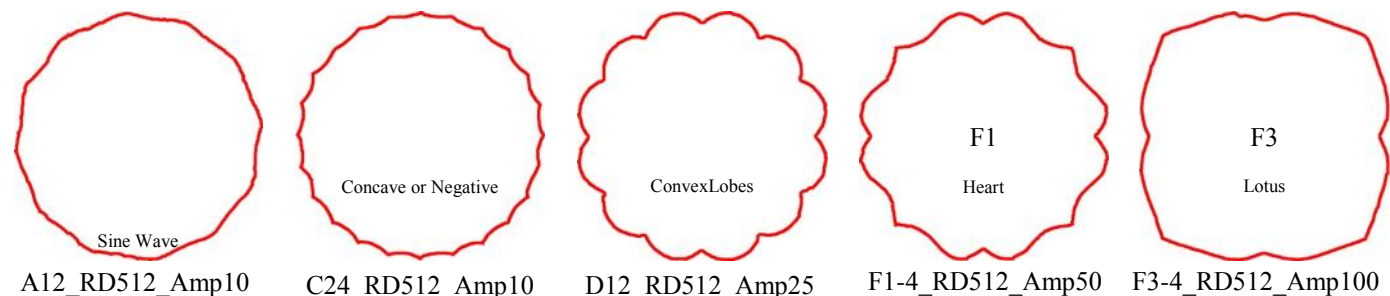


It seems that other rosette makers at least loosely followed the Holtzapffel system and added their own names as new rosettes were developed while some lathe builders followed their own path and developed their own system. The most descriptive naming system currently being used is a multipart naming system developed for a computer program written by Randy Rhine. Randy developed his program for his own use and it is not commercially available. His naming conventions started by following the system Fred Armbruster uses for the Mark II with additions of his own for rosettes and those developed by others. This system follows the conventions of the Holtzapffel system, and adds additional information to further define each rosette especially those with newer or complicated shapes. This system starts with a basic name and the rosette diameter. Additional name parts can be added as needed to describe the rosette depending upon its complexity. For example, a sine wave rosette with 12 repeats, a diameter of 5.12", and an amplitude of 0.100" is A12_RD512_Amp10. The more complex M shape adds a

term, P50 where P stands for percent coverage which means that the bump pattern covers 50% of the circumference of the rosette. Randy notes that since he developed this system for his personal use, he may not have been entirely consistent in using his naming conventions. Randy has developed a set of naming conventions that give a lot of information about each rosette yet it still begins with the system developed by Holtzapffel so we do not lose the link we have with previously designed rosettes.

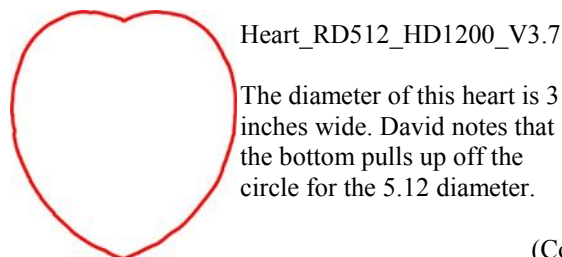
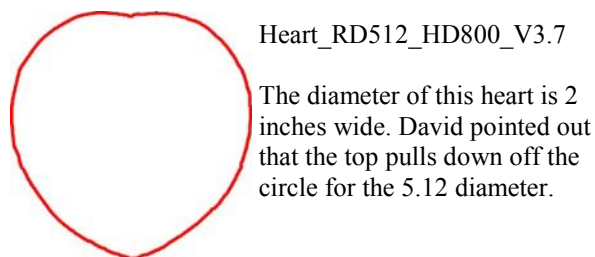


Fig. 5 Rosettes with the Rhine Naming Convention

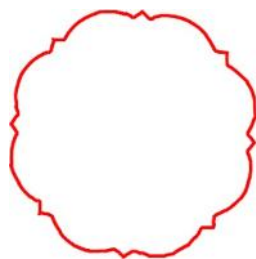


At left are 3 C rosettes. David comments: "Notice on the 24 bump at 0.020" has flat sides. At 0.100 the sides are noticeably concave. At 0.400 the C12 rosette will actually be bulged outward and still give the negative effect. Up until the flat point a sine wave can be accomplished by using a rubber with approximately 1/2 of the radius that makes up the bump on the rosette. In the case of the 24 bump with a 0.020" amplitude the rubber's radius will be about

2" in order to accomplish a sine wave on the work." Additionally, David says, "One advantage to this type of rosette is that the rubber can come out of the valley more efficiently than it can go over a peak without adverse noise." {Ed, Note: See David's article on rubbers and rosettes in this issue.}



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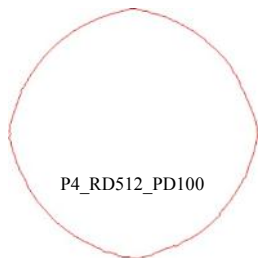
DB2-8_RD512_Amp20-P75-S20

DB stands for Dan Brown

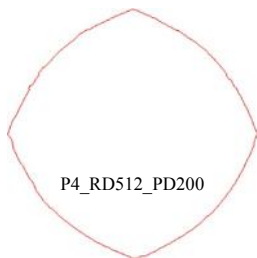


BP5-30_RD512_Amp40_LAMPO_P100L

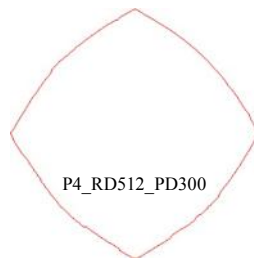
A Bumpy Polygon with 5 sides and 30 bumps.



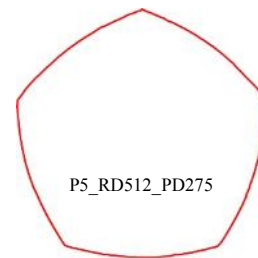
P4_RD512_PD100



P4_RD512_PD200

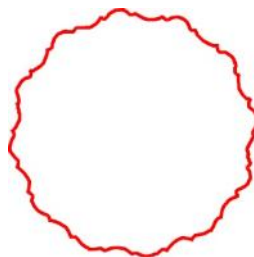


P4_RD512_PD300



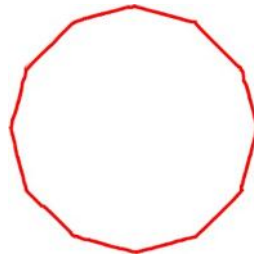
P5_RD512_PD275

This is a P or polygon rosette. Note this is not the same P as the Holtz system. It is also called a Puffy Polygon. The 4 denotes 4 sides. The PD is the polygon diameter given in inches, not thousands, which is the dimension at which it will produce a regular polygon for that number of sides. For example, a P4_PD100 will produce a square at 1" diameter. You can see how the geometry changes from a 1" square to a 3" square.



PF12_RD512_Amp20_IP80_OP75

Noted as Paul Fletcher's favorite rosette..



RP-12_RD512

Regular Polygon with 12 sides.

Now that we have reviewed the Holtzapffel rosettes and naming system and the system Randy Rhine has developed, what rosettes do we have on the Lindow Rose Engine and how are they named? The second question is easiest to answer first. At present the rosettes are only identified by numbers which have been given by the company producing the rosettes. I mentioned earlier that David did not want to just make rosettes and ask owners to buy them without any direction for how they could be used. This is part of David's philosophy to only make quality products that can be utilized by the owners. As David says, "I would have, a long time ago, made "puffy polygon" rosettes if I knew what people would use. Sadly, I do not know. I almost just made up a set, but alas I didn't want to go any further down the schizophrenic pathway of just making some miscellaneous rosette and saying to my customer, "Here it is; have fun!" I want a defined purpose and intent with a particular project in mind. That being said, David realizes that his owners are now producing unique designs that may require special rosettes. Therefore, he will soon be able to take orders for custom rosettes in plastic and ultimately in bronze. Using my spring pen I traced the 20 rosettes that came with my lathe as well as the additional sine wave and oval sets that are available. In order to trace the rosette patterns as accurately as possible I used the 45° rubber so

that it would fit into all the coves and trace each bump. These tracings were then computer manipulated for reproduction. As I mentioned earlier any irregularities are due to my manipulations and not the rosettes themselves. Rosettes for the LRE have a diameter of 5.125". I measured amplitudes by one of the two methods David suggested. If the rosette is on the lathe, first the RE must be set to Top Dead Center and to rock equally side to side. Then a dial indicator can be setup at spindle center height and the deflection to one side is then measured. This is the amplitude. If the rosette is off the lathe the amplitude can be found from a simple formula $A = (HD - LD) / 2$ where A = amplitude, HD is the distance between high points of the rosette (major diameter) and LD is the distance between low points of the rosette (minor diameter). Being an experimental biologist rather than a theoretical biologist I found that I preferred the dial indicator method. I found it easier than trying to be exact on choosing the measurement points which were especially difficult on irregularly shaped rosettes. As rosettes become more complicated a single amplitude number may not give all the information needed for that rosette.

Rose Engine News



Fig. 6 Lindow Rose Engine Rosettes



I decided we have two unique shapes that I have not seen defined before. The DF shapes are rosettes with small convex bumps with neutral radial curves between them. The Ov are ovals. The number is the amplitude of the rosette which is one half the difference between the minor and major axes.



Fig. 7 A Table of LW rosettes arranged by catalog number.

Catalog Number	Name	Amplitude in Inches
101	B18	0.40
102	C12	0.022
103	D12	0.018
104	Tudor Rose-4	0.100
105	BP-4	0.125
107	P4	0.250
108	D82-12	0.125
112	A12	0.270
118	A18	0.125
122	B12	0.040
124	A24	0.105
132	C12	0.060
136	A36	0.075
137	G5	0.325
140	D40	0.050
143	D5	0.048

Catalog Number	Name	Amplitude in Inches
146	B6	0.060
148	A48	0.040
149	DF12	0.090
152	DF15	0.085
161	G12	0.145
167	D18	0.125
170	J12	0.300
173	B16	0.045
178	I40	0.245
180	Ov82	0.455
181	Ov86	0.365
182	Ov89	0.270
183	Ov93	0.180
184	Ov90	0.090
196	A96	0.020

This article has explored a large number of rosettes and their names. I hope you now have a better understanding for the various types of rosettes that you might want to use for a specific project. For LRE owners as your skill develops and you find you need a rosette that David has not made remember that we will soon have the ability to ask for custom made rosettes.

The Holtzapffel system worked and continues to work well to describe traditional regularly shaped rosettes; however, the addition of the amplitude can provide a useful differentiation between rosettes that are otherwise similar. The system used by Fred Armbruster and further developed by Randy Rhine gives more information about rosettes and adds conventions for irregularly shaped rosettes and rosettes not in use at the time of Holtzapffel.

It seems that at this point in time there are enough makers of modern rose engines, collectors of antique engines, and users of both that we should develop a naming convention for rosettes so that we are all talking the same language.

As an editor I would like to see a system that fully describes the rosette so that the full name could be used at the beginning of an article and then the same rosette could be referred to by

shorthand name for the rest of the article.

There are several ways we might accomplish an accepted naming convention. One way would be the appointment of a Blue Ribbon panel jointly named by the SOT and OTI. This panel could consist of rosette makers and our well respected Masters of OT. With today's ability for E-mail, Skype, and digital conferencing they could meet without having to leave their offices. If we do not develop a naming convention in the near future, we will probably develop so many specialty rosettes that we will have missed our chance at accomplishing this task.

Quick Tip from DL

When using the large eccentric cutting head how is the correct counterbalance chosen and used?

Choose the block that most looks like it will balance out the position of the one carrying the cutter and remember that it will need to stick out a bit farther because it has to counteract the weight of the cutter. Make sure when you turn it on you do not have it at a high speed. Bring the speed up slowly to see if it's balanced well enough to give you the speed you need.



Of Rubbers and Rosettes

David Lindow

A sine wave is essential for so many patterns in engine turning, if trade rose engines, or ones specifically made to do engine turning for the jewelry and watch trades, are studied it is quickly realized that there were very few with A (sine) or D (convex) shaped rosettes, this may not make sense at first, but when the issue is studied we realize that the ever plain looking C (concave) type rosette which is ubiquitous on this type of machine, used in combination with the proper rubber, can not only reproduce the basic shape as the rosette but also its opposite (yes, on the same side of center) as well as a sine wave or any shape in between. This makes this most mundane looking rosette amongst the most versatile. While vibration can always be a problem with RE turning, it can be especially problematic for engine turning. As we will see, the rubbers used with C rosettes are much larger and not pointed. Using A rosettes would require a pointed rubber which can follow the profile. This can increase vibration so using C or D rosettes eliminated this problem. Additionally, more sine rosettes would be required to produce various amplitudes which can be produced with fewer C rosettes with various sized rubbers.

In engine turning the sine wave form is used to make a lot of patterns, but for barleycorns, basket weaves (sometimes called cross stitch), drapes, many moire's, and chains it is essential.

In order to reproduce the shape of the rosette use a rubber that is relatively pointed such as the pointed end of the 45°/half inch rubber or perhaps the 1/4" roller as can be seen Figures 1A and 1B. This shape assumes that the cutter is on the left side of center. If the cutter is put on the right side of center it will produce the opposite shape, like that of a D shaped rosette. However, if the shape of a D rosette is desired it can be accomplished in another way by using a rubber of the same radius as the rosette profile. See Figures 2A and 2B. Furthermore if a radius larger than the rosette profile is used the amplitude is reduced while the basic D shape is still produced. The amplitude can be reduced down to the point where a T shaped rubber traverses the two peaks of the rosette. Of course, if the cutter is moved to the right side of center the C rosette shape will be produced.

The sine wave is produced by employing a rubber with a radius of half the rosette profile or in other words the diameter of

the rubber must be the radius of the rosette profile. See Figures 3A and 3B where a 3/4" rubber was used on the OD of the 24 pumping rosette. If the rosette profile is not known the rubber size necessary for creating the sign wave can quickly be determined. If the rubber diameter is too big it will tend to look like Fig. 4A. If it is too small it will look more like Fig. 4B. There are places where increasing the inner radius or outer radius can be useful in ornamental turning such as on the inside of a cup.

The LRE engine turning rosettes are numbered with the number of bumps followed by the radius of the bump so as to make it easy to choose the proper rubber to create a sine wave. The exception is with the LMW2400 rosette where the 24 is for 24 facets while the 00 means that each facet is dead flat to produce a polygon. To create the sine wave with this rosette use a #4 rubber which has a diameter of 4" on the curved surface. Also, when using the straight line chuck all of these profiles translate directly. See the Engine Turning instructional document for more examples of these principles.

This is a list of rosettes by number.

LMW2400	24 bumps with flats
LMW36175	36 bumps with a radius of 1.75"
LMW4810	48 bumps with a radius of 1"
LMW6075	60 bumps with a radius of .75"
LMW7262	72 bumps with a radius of .625"
LMW9637	96 bumps with a radius of .375"

Quick Tip from DL

When ordering replacement triangular cutters for the UCF is there a specific size, type to look for? Is there a recommended source?

The inserts we use are TDAB 505. The TDAB stands for the type of insert while the 505 is size data. I prefer the .007" radius for most work, but I also have bought them in larger radii. Much smaller, and they will not leave a good finish as they're too sharp. I used to get them from MSC, but of late they stopped doing business with Circle Tool in favor of Hertel which they claim have the same specs. However, I sent the whole lot back because they looked like they'd been finished with a piece of concrete.

Until I find a more ready source I will keep them in stock and for sale.

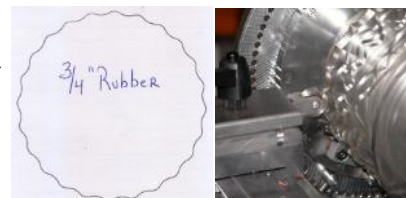


Fig. 3A



Fig. 3B



Fig. 4A



Fig. 4B



Fig. 1A



Fig. 1B



Fig. 2A



Fig. 2B



Juicing It Up

Brian Clarry

Introduction

‘Juicing It Up,’ or the English interpretation—How to oil the Lindow Rose Engine and Hardinge sliderest—is the subject of this article. As a woodworker and woodturner the only use of oil in my life is for the car, and someone else does that for me. After a terse email from David Lindow about not using enough oil and with the introduction of a new word in my vocabulary, I decided to write this article. I understand I’m not the only one to neglect their equipment, so I hope this article will change your thinking as well.

The new word in my vocabulary is ‘Galling’; the definition is “causing two engaging metal parts to lose metal from one to the

other because of heat or molecular attraction resulting from friction”. After understanding that definition I guess oil is important!!

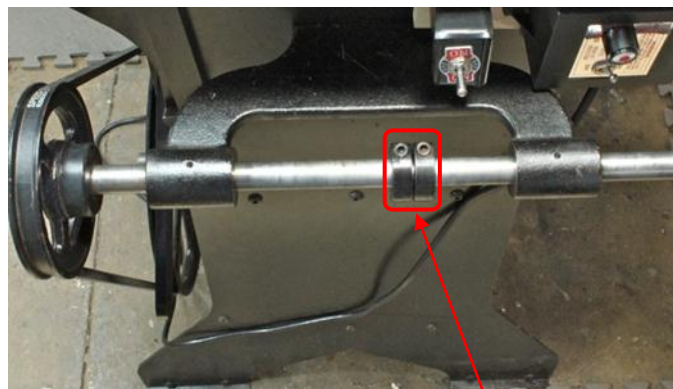
The oil recommended to me for engaging metal parts is Mobile Vactra 2 Medium Way. After research, the smallest amount I can find is 1 gallon. At \$24 per gallon it is worth having the excess available. The recommended grease used on the headstock pivots is Super Lube Silicone grease or any synthetic grease. One possible vender is Enco or you can find it on the Web.

It is difficult to recommend the frequency of oiling as this depends on the frequency of use, and the environment. Suffice to say have your oil can close by, and over oil as opposed to being mean with its use.

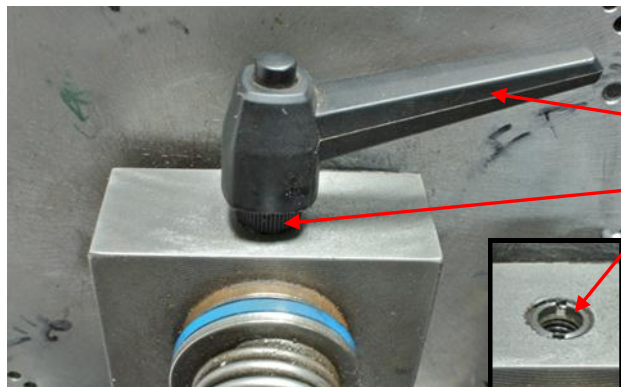
Lindow Rose Engine



Handle Shaft—there is a hole in each of the bearings that holds the shaft of the handle. The shaft should be rotated and small drops of oil should be inserted in the holes.

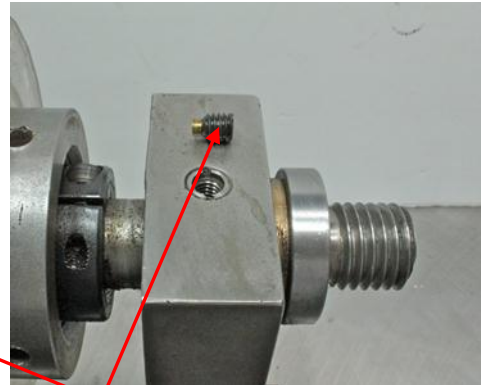
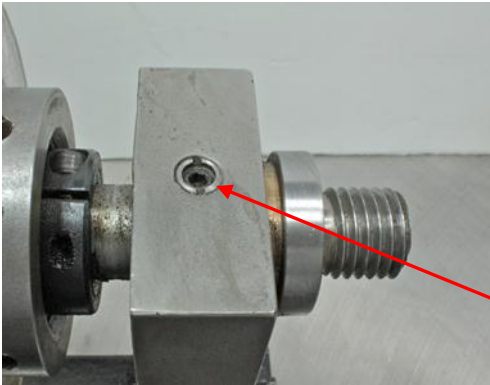


Also, at frequent intervals loosen the two locking collars and move the shaft to one side to expose the bearing surfaces. The surface of the shaft should be wiped clean and re-oiled.



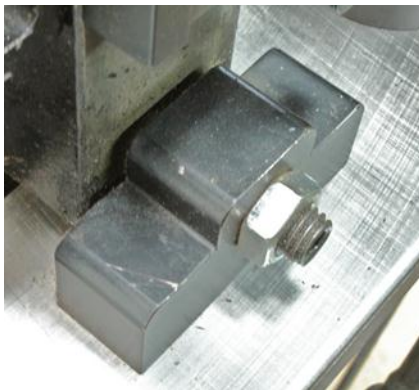
Headstock Rear Bushing—The plastic handle should first be removed. By depressing the button on the top of the handle it can be rotated clockwise. Then release the button to turn the handle counterclockwise to remove the handle. The oiling port, under the handle, is shown in the insert photo at lower right. The spindle should be slowly rotated and small drops of oil should be inserted in the hole. Replace the plastic handle. Excess oil will drop down the side of the headstock and oil the pivot at the base of the headstock.

(Cont. on p12)



Headstock Front bushing—Using an Allen key remove the small threaded plug. The spindle should be slowly rotated and small drops of oil should be inserted in the hole. Replace the threaded plug. Excess oil will drop down the side of the headstock and oil the pivot at the base of the headstock.

Note: If there is no hole to oil the bearing call Lindow Machine Works.



Headstock Pivots—At the base of the headstock are two pivot points. These pivots need to be greased, however, it is okay for the oil to drip down from the headstock bearings during use.

To grease these pivots, first loosen the nuts and use an Allen key to slowly unscrew the pivots. Using your hand support the headstock and further loosen the pivots to lift the headstock. Smear Super Lube Silicone grease in the pivot recess in the headstock and both pivot points. Replace the headstock and tighten the pivots and nuts so that the headstock rocks freely, and does not shake.

Hardinge Sliderest

The surfaces of the Hardinge sliderest and the ways of the top and bottom slides should always be cleaned after each use. It is very important the ways between the top slide and bottom slide and their base should be wiped clean and re-oiled.

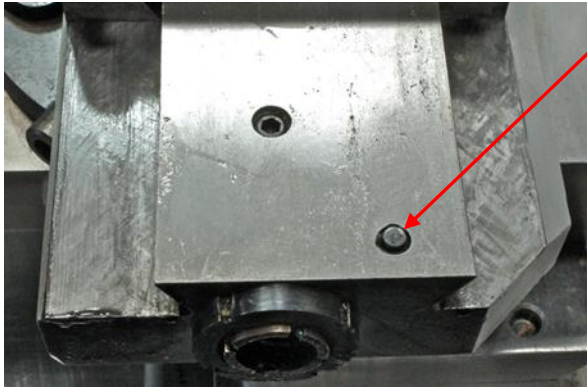
A tear down of this nature is not necessary on a daily basis; however, it is a good idea to reach under and oil the lead screws with each days use. The ways which should be wiped clean with every use and fresh oil applied.



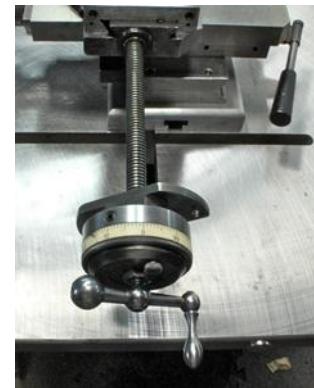
Top Slide—To remove the top slide from its base.

1. Remove the two screws holding the dial and handle to the top slide. Rotate the handle counter-clockwise and remove the lead screw shaft from the top slide.

(Cont. on p13)



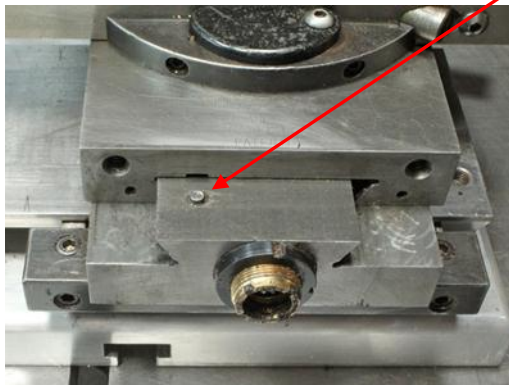
2. To remove the top slide from its base unscrew the stop screw in the base so that it is just below the surface. The top slide can now be removed from its base.
3. Oil the top slide and replace
 - a. Thoroughly clean the ways of the top slide and its base including the spacer and gib.
 - b. Wipe clean the lead screw.
 - c. Oil the ways spacer, and gib. Refit the top slide on its base.
 - d. Turn the stop screw so that it is just above the surface.
 - e. Oil the thread of the lead and screw into the base.
 - f. Replace the two screws holding the dial and handle to the top slide.



Bottom Slide

To remove the bottom slide from its base.

1. Remove the two screws holding the dial and handle to the bottom slide. Rotate the handle counter-clockwise and remove the screw shaft from the base of the bottom slide.



2. Unscrew the stop screw in the base so that it is just below the surface. The stop screw is accessed from a hole in the bottom of the black bar holding the angular tie downs. The bottom slide can now be removed from its base.
3. To oil the bottom slide and replace
 - a. Thoroughly clean the ways of the bottom slide and its base including the spacer and gib.
 - b. Wipe clean the lead screw.
 - c. Oil the ways spacer, and gib. Refit the bottom slide on its base.
 - d. Turn the stop screw so that it is just above the surface.
 - e. Oil the thread of the lead screw and screw into the base.
 - f. Replace the two screws holding the dial and handle to the bottom slide.



TWO ORNAMENTAL BOXES

Andy Woodard

These two projects here were accomplished using most of my equipment, with the exception of a chain saw and sledge hammer. Three lathes were used to produce these boxes—a conventional Oneway 1018 to rough the blanks, a Lawler ornamental lathe to produce thinned cylinders of contrasting woods, and a Lindow/White rose engine to ornament the box. The boxes are roughly 3.5 inches in length and 2 inches in diameter. You can produce the same results by modifying my procedures to fit your equipment. I invite you to refine these boxes using your own ingenuity.

Window Box



Blanks prepared on conventional lathe



Blank being opened with a boring bar on Lawler lathe

Woods native to my area of the country were chosen for the window box: dried holly, walnut, dogwood and cherry. Titebond II glue was used to assemble the parts. Other materials were tried unsuccessfully, but were still illustrated below for your information. My samples of lignum vitae and blackwood were not compatible with Titebond II glue. Argentinean osage orange was too fibrous and wet to hold detail after it was thinned to these dimensions.

On a conventional lathe the blanks are rounded, a tenon applied on one end, mounted in a conventional four jaw chuck, and bored with a 7/8 Forstner bit.

Alignment of blanks was accomplished following techniques thoroughly explained in previous articles of this publication by Brian Clarry and David Lindow.

Lawler components consisted of boring bars and parting tools held in a Phase II quick change tool post. Conventional dial indicator techniques were used to properly align these components to the headstock. A convention four jaw chuck held the work to the lathe spindle.

The first blank was opened as a cup would be with sides parallel and the bottom flat with a boring bar. The outside was trued and thinned to a desired thickness. The first layer was removed from the lathe in the chuck. Each succeeding blank was chucked separately, mounted on the lathe and opened to the diameter of the preceding blank. It was parted off and glued immediately to the preceding blank. The assembly was thinned and faced off with a parting tool. These steps were repeated as many times as there are layers—here there were three. The original tenon was kept and the entire assembly was trued and removed from the Lawler lathe.



Face blank with parting tool



Measure Depth



Cut to thickness



Completed Assembly



At this point the blank is ready to mount on the Lindow Rose Engine. Tools used were the universal cutting frame with triangular cutters (UCF), drilling frame with square end mill, and the eccentric cutting frame with a single beveled cutter (ECF). Each tool was held on a Hardinge sliderest by a Phase II quick change tool post. A double eccentric dome chuck with index head and a conventional chuck held the work on the rose engine spindle. A straight rubber was used with a twelve and a twenty four bump rosette at separate times to produce the patterns on the window box. The Hardinge sliderest is set in line and parallel to the spindle.



The top 2/3 of the blank was selected to house the windows. The top of the blank served as the tenon to hold the blank on the index that was mounted on the double eccentric dome chuck. The straight rubber was used with the twelve bump rosette. The UCF was oriented and centered as shown and the cut was made to a depth that revealed the layers equally. This depth was recorded and repeated every 60°. Cuts to this depth should be made incrementally since the thinned layers are fragile.



The bottom third was ornamented with the same rubber and rosette. The cutting frame was positioned as shown. This time the cut exposes only two layers. The distance between the bottom and the windows was divided by an odd number, here five, to give the distance to progress longitudinally between cuts. Phasing (here about 33%) between cuts was accomplished with the worm gear. The edge of the bottom was shaped with the same UCF, rubber, and rosette after it was roughed and attached with a recess to the box body.

The bottom was shaped using the same rosette and rubber, but the UCF was moved as shown. Taking care to deepen the surface so that an outside rim was left, the cutter was set slightly eccentrically to the left of center and five phased (33% with the worm gear) successively deeper cuts were made.



The lid was made from a separate blank of dogwood. Hard maple is shown here for clarity.



The predominant lid pattern was made with a single bevel cutter held in the ECF positioned as shown. Successive cuts were made to a consistent depth and thickness. Phased using the detents, as shown, on the crossing wheel. A straight rubber rode on a twenty four bump rosette. The radius of the cut influences the depth of the cut to give the desired symmetrical coves.



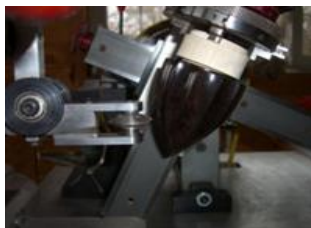
The rope pattern was produced by the same cutter. The ECF was set just eccentric to the left to establish the parameters of the eight cuts. Eight cuts were made to the same depth with the work rotated and fixed at eight intervals using the indexing holes on the crossing wheel. The lid was finished with a hand carved finial which contributed an organic feature.

FLUTED BOX



A blackwood blank of sufficient size for the intended box was mounted in a conventional chuck and rounded to the basic profile. The blank was fixed to a prepared waste block with a recess/tenon arrangement. This was mounted on the indexable double eccentric dome chuck.

The Lindow threading attachment with the 8tpi threading thimble was used to thread the box lid.



The UCF was oriented as shown, but toward the end of the table enough to allow unrestricted rotation of the assembly. The straight rubber was brought against an oval rosette that had been rotated on the barrel to a point that the desired curve of the oval could be replicated on the box. The mounted blank was relocated by the auxiliary slide wheels upward and to the left to bring it into a field that, by eye, would approximate the desired oval segment profile on the blank. The blank could then be moved to the conventional lathe for rough waste removal if necessary to save time.



The UCF was centered horizontally on the blank, the index set at 0° and a trial cut of three flutes was made. The purpose of this was to establish the depth of cut that accommodated the planned twelve flutes. Once this depth was established rough cuts of all the flutes every 30° was made.

The blank was scored slightly to allow reverse chucking on the conventional lathe. The blank was mounted on a four jaw chuck and hollowed through its recess. The interior was sanded and polished.



The female portion of a two start 8tpi thread was cut on the blank body. A matching male thread was cut on the prepared lid that already had the "Fish" pattern cut on it. This same male thread was prepared on the previously used waste block (make reference marks between the dome chuck and the waste block to insure proper remounting).

The blank was remounted in the dome chuck using the threaded waste block. A finish cut of the flutes was accomplished. The box was removed from the dome chuck and polished.

The "Fish" pattern on the box lid was produced following Brian and David's modification of the original instructions found in T.D. Walshaw's *Ornamental Turning* (pp. 99-105). I altered the pattern by not cutting the space between the fish, but rather extending the cuts with progressively increasing radii.

{Ed. Note: When moving from one lathe to another you may find that the work does not run true either axially or radially or both. This problem can be solved by using a leveling chuck on the RE.

If you wish to make a layered box similar to the Window Box Andy made for this article and don't have access to an OT lathe you can use the new Lindow Hardinge Adaptor to mount your sliderest and tool holder to a conventional mini lathe.

Hold Down Clamp for Rubbers

by Steve White

Several years ago I noticed that when I remove a rubber from my Lindow-White Rose Engine the hold down clamp would fall. Since I change rubbers frequently, I wanted to fix this. So I flipped the clamp over and I drilled and tapped a 10-32 hole in 2 places. The piece of threaded stock that sticks out was set to .475" long. This way when I remove the rubber, the clamp doesn't fall. I also noticed that I wanted more clearance on the 5/16 holes that were in my clamp. I opened up the holes to 11/32. This little project only takes about thirty minutes, but I found it to be very worthwhile.

[Editor's Note: In an E-mail discussion about this question, David Lindow asked the question if Steve had considered putting a spring under the clamping screws. Steve responded he has considered this and likes the idea, but feels it is a hassle if you need to move the screw from one hole to another. David noted that the clamp holes on later machines were made larger to prevent the jamming problem Steve described.]





Design of Rose Engine Turned Art Work

Danny Wells

The Principles

I believe there are general design principles for traditional lathe work which not only apply to traditional turned work, but are just as important for rose engine work. Of these, the two most important principles are proportions and curves.

Proportions consider not only the relationship of the entirety of the work, but also the relationship of the different parts or elements of the work. Elements of a piece are more appealing to the eye if they are present in proportions of thirds or fifths or conform closely to the Golden Mean. For example, I design my trumpet yelpers to be 9" long or tall with a 3" mouthpiece and a trumpet barrel of 6" (including the ferrule). This design conforms closely to the Golden Mean and is very pleasing to the eye. When I made my first RE trumpet yelper, I made the RE features fit within those parameters, so that the overall piece had a pleasing, balanced appearance as shown in Fig. 1.

Maintaining a curved line is extremely important on traditional lathe work. I believe that it is so with RE work as well. The good Lord created very few, if any, things in nature with straight lines. A person's eye can detect the tiniest portion of a straight line in a line that is supposed to be curved, but sometimes does not recognize a curve in what is perceived to be straight. However, the mind does accept that perceived "straight" line as pleasing. Not all RE features can be applied to a curved form. However, if a person can learn what RE features can be applied to a curved form and learn to execute them well, those pieces will have a greater appeal. A good example is the phased cut pattern that Bill Ooms used to create the spiral on his Pink Ivory goblet, which were applied to a convex curve. Bill taught me how he made these cuts, and I applied it to the concave curve of the bell of my trumpet yelper, and it worked just as well. It is an impressive feature on a flat surface because of the spiral, but is very impressive when applied to a curved form. See Fig. 2.

With these two ideas in mind, I would suggest that you save photos of objects with shapes that are appealing to you or that you think might be applied to the objects you like to create. Also, save photos of RE pieces that have features that you like that could be applied to your work.

There are some RE features that only lend themselves to a straight surface type of work, such as a basket weave design. It could possibly be applied to a curved line, but with difficulty, and in my imagination (since I've not tried it) would not add much emphasis to the curve. However, the basket weave is impressive in its different variations on a straight line.

Another major design consideration is how does the feature work into the overall design? Is the feature going to be the major focus or an accent? Is the feature pleasing to the eye and the touch if implemented at a particular location in the design? The tactile response one gets from a rose engine turned object is very

important. For example, a basket weave applied to a game call in the area where the call will be held would not be pleasing to the touch. On the other hand, a sine wave rosette feature deeply cut to create a deep curve on the insert of a duck call (the area in which a duck call is normally held) serves as an excellent receiver for the linked forefinger and thumb. This idea applies to other objects as well, such as the areas of a box that will be held to remove the lid from the box, or the area of a bowl that will be held when it is picked up. The main thing to remember is that in the areas that are to be held sharp edges are not pleasant to the touch.

Selection of the best suited materials is also a part of the design. Will the material provide clean cuts; will the material show off the cuts well or will the cuts be hidden by busy grain pattern? If two different kinds of materials or woods are used, do they complement each other or contrast in a pleasing way? If strength is required, will the material provide the strength necessary after the cuts are made? If the material is too busy for large areas of ornamentation, is there a place for a small accent that will enhance and/or add value to the project? A good example of this is the blue swirl resin/burl trumpet yelper shown elsewhere in this newsletter. This material is far too busy for any RE features to be applied and would certainly lose its impressiveness if RE features were added. However, an engine turned nickel silver ferrule that David Lindow sent me (as a sales maneuver) was just the right touch to add just enough "fancy" to set this call apart.



Fig. 3

One other thing to think about in the planning of the application of features is whether there is a place for a feature that would present a surprise to the viewer. Examples would be a rosette feature on the inside of the lid of a box or on the bottom of a bowl. On the Aristocrat trumpet yelper, the barley corn on the face of the faux ivory that one saw when the call is picked up to look at it is the surprise, and they are really surprised. On the duck call it is the deeply cut barley corn on the face of the ivory on the end of the insert. The face of the ivory



Fig. 1 Aristocrat Trumpet Yelper



Fig. 2 Bell end of the Aristocrat Trumpet Yelper



was polished before cutting. Fig. 3 shows the cuts left flat, polished diamonds that caught the light and the eye.

The Design Process

For me the process begins with a drawing that includes precise measurements which becomes my working plan, but not one written in stone. The drawing is important in order to visualize the proportions, the places for curved and straight-lined forms and as a plan for the sequence of cuts. My drawings, like the one in Fig. 4, show just the general shape that I want with notes about features or settings, etc.

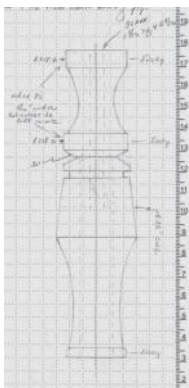


Fig. 4 Drawing

Next are the trials or as I call them models. The model is the attempt to execute the plan in an inexpensive piece of wood. The models serve to confirm or deny whether the two-dimensional design on paper is a pleasing design in three-dimensions. Since I

am first, a very cautious person and second, the materials for my projects are rather pricey, I want to know that I can get the cuts accomplished as planned. Sometimes I have learned from my models that the plan has not been completely executable as I have drawn it. Fig. 5 shows some models and general trials of features done in preparation for my Aristocrat trumpet yelper and specific trials of features for the Blackwood and Ivory duck call. I bought a box of several 2" X 2" X 15" hard maple turning blanks to use for models when I first started using my rose engine.

There are two main limitations on a rose engine that pose some problems with executing any plan:

- 1) The methods available to chuck or hold an object on the machine. I prefer a collet chuck when possible or an expansion chuck. Both of these style chucks are more accurate, but take up more length than the Sherline 3-jaw chuck. If you're doing spindle type work like I do, you also need to have a couple ways of holding the tail end centered and supported as well. I use the Lindow tailstock bed with the screw feed tailstock with the adjustable live center. I made a long slender cone from white nylon stock as the center for the adjustable tailstock center. It will slide up into the bell of a trumpet yelper or the barrel of a duck call.



Fig. 5A Models for Aristocrat Trumpet Yelper



Fig. 5B Models for Blackwood and Ivory Duck Call

- 2) The space that is needed around the cutter while the cut is being made and the space required around the cutting frame to make the cut.

When working on a traditional wood lathe, I regularly make cuts with traditional tools within an 1/8" of the chuck or tailstock. This is not possible with a rose engine. An eccentric cutter cutting a 3/16" diameter circle requires a 1 1/4" diameter clearance space for the cutter head. A horizontal cutting frame requires about 1 1/8" diameter clearance to make even the smallest cut. So, for that 3/16" diameter circle, the cut must be at least 5/8" away from the chuck. The center of a cut made by a horizontal cutting frame has to be at least 9/16" from the chuck. Thus if you want to make a cut close to the end of the blank being held in the chuck, you've either got to make the blank longer to provide additional material to hold with the chuck, or you've got to move the cut further away from the chuck.

By making models, those challenges can be determined, and then adjustments can be made in either the design or the machine setup before you attempt to execute the plan and its associated cuts in the final materials. Models are time consuming, so if there are features that I'm going to use that I am comfortable applying, I don't take the time to put these in the model. This is where the rubber meets the road and most of my education in RE machining has taken place.

The Critique

The final aspect of design is the critique. A critique is usually first self-imposed, determining what you like and don't like and could have changed to improve the work. But probably the best critiques are from others who understand the art form, you trust, and most of all who have your best interest at heart. A critique is another person's opinion. Don't take it personally. You want to know what would make the piece more appealing to someone else. I asked David Lindow and Mike H. another artist/callmaker who is a very successful award winning decorative call maker for their critiques of the duck call. David made the comment that "criticizing a piece requires that the two personalities be confident" and I totally agree. I'll share some of their thoughts and mine on the Blackwood and Ivory duck call.

The greatest aid for the critique is good photographs. Good photos, sharply focused seem to reveal things that the eye does not capture from the object in hand. I almost always see things on a call in a photo that I didn't see with the call in hand. The subject of photographing your work would take another article. Suffice it to say that you need to learn to take good photos of your work if you want good critiques. Plus photos are the only way to share your work long distance. I'm in Louisiana, David's in Pennsylvania and Mike's in Oregon. So here are some photos in Fig. 6.

David's perspective was from the technical side. He noticed that in the section where the ivory "buttons" were inlaid, the cutter was slightly off center. I already knew that, but I needed to know that it was noticeable to others as well. How to correct that is still



a question. He felt that the curve from the end of the “button” inlay section to the mouth end of the call should have what I call a greater gradient of curve. He liked the curve on the bell end of the trumpet yelper better. He had other comments about cuts etc., but you get the idea. He was complimentary overall.

Mike’s perspective was more from an art angle. He first listed the things that he liked: the scrimshawed 1/2” buttons, the materials, the barleycorns etc. Then he explained his other thoughts: he felt the smaller ivory buttons made the call seem busy; he prefers an overall shape that is more traditional—slimmer at the waist with a smaller tapered insert (the part where the ivory bands are).

Since he is an accomplished scrimshaw artist, he would prefer a duck or dog in the 1/2” buttons instead of the OT designs. That was his opinion. I accept that.

There are some things I would change. The cut that creates the base for the “button” inlays (where it was off-center) is too deep. The inlays standing proud of the surface help to overcome that look, but not enough for my taste. The overall shape is too cylindrical. The diameter just below the inlays should have been larger, which would have allowed for the steeper curve that David and I both wanted, and would have given the call more shape. The insert ended up a 1/4” longer than the original plan, so the barrel should have been lengthened a 1/4” to maintain the proportion.



Fig. 6 Blackwood and Ivory Duck Call. Note that different rosette patterns were used on each side of the call.

Make notes of the critiques, and then include the ones you deem viable into your next plan. Critiques are the only way you can improve your work. Critiques will build your confidence as well, by showing you what you did well.

Summary

Most of my work has been in the spindle turning realm, and what I have provided here is derived from that experience, but most of it will apply to faceplate or bowl turning as well as boxes (a hollow spindle turning). I’m sure those of you who spend more time turning bowls or boxes could add to this from your experiences.

Quick Tip from DL

I’ve looked for 8mm or WW collets in several catalogs without success. Any suggestions?

Levin carries them for about \$125. Sherline carries them. Derbyshire may still have them at about \$50 each; although, they may only sell the 10MM ones at this point. Thomas Starrett sells them to me 10 off at about \$11; although, like Sherline they are not hardened and should be considered mediocre which is good enough. Let me know the part numbers of the sizes you need, and I’ll order them for you so you can get the discount. They have sets as well as individuals in both SAE and Metric.

Editor’s Chips

—John Tarpley

I hope you noticed our new masthead and layout being introduced in this issue of the *Lindow Rose Engine News*. It was designed by **Diana Stacey**, an excellent graphic artist and designer. As has been previously announced Steve White decided to withdraw from active involvement with the Lindow White Rose Engine Lathe due to the constraints of his fulltime position and other factors in his life. Therefore Lindow White Machine Works has become Lindow Machine Works and a new logo and masthead was needed to reflect the new status for the company. As you can see from the new accessories being announced in this issue the company continues to move forward, develop new products, and fulfill its mission statement to, “Set New Standards in the World of Ornamental Turning.” The Web site is also undergoing a redesign which should better serve owners as well as potential owners. As you can also see from this issue, Steve continues to maintain his interest in OT and the Rose Engine he helped develop. We’ll continue to see and hear from

Steve as he continues with rebuilding antique machines and developing new ideas for current ones.

This issue is being printed later than I had planned. This is because this has been an extremely busy year for David and others so far which has meant that deadlines had to be more flexible than we wanted. I want to thank everyone who helped with this issue. It would not be done without you.

This newsletter is reader driven. Please send me your ideas for articles and items of interest. I want to hear about your favorite Web sites. Please send photos of your work. Most of all consider writing an article so that you can share what you are learning with everyone working on this learning curve to become a Rose Engine Turner.



Spiral Pattern on a 10" Platter

by Sam Seaton

My Friend Andy Woodard asked me to share how I did the spiral cuts on my platter pictured above. It was a fairly easy, but time consuming process, requiring attention to detail. Please read **all** directions before beginning, since important hints are at the end. Remember, these instructions are for a relatively flat turned piece, such as a platter. And all measurements might need adjustment on your platter.



First, I began with a 2" x 10" x 10" piece of wood and glued a round 3 1/2" waste block in the center of the back. The blank was then turned to round on my Powermatic 3250. The outside of the platter was turned to a 22 - 24° slant, starting at the top and going to the bottom of the outside of the bowl to the edge of the waste block.



I then turned the inside of the platter, cutting the sides at a 22 - 24° angle from the top outside edge to the bottom about 1 1/2" inches from the center of the inside of the platter leaving a 3 3/4" round flat in the center of the platter with about a 5/8" thick bottom and 5/8" wall thickness. I then sanded the turned platter to 400 grit.

(Cont. on p22)



Spiral Pattern Directions



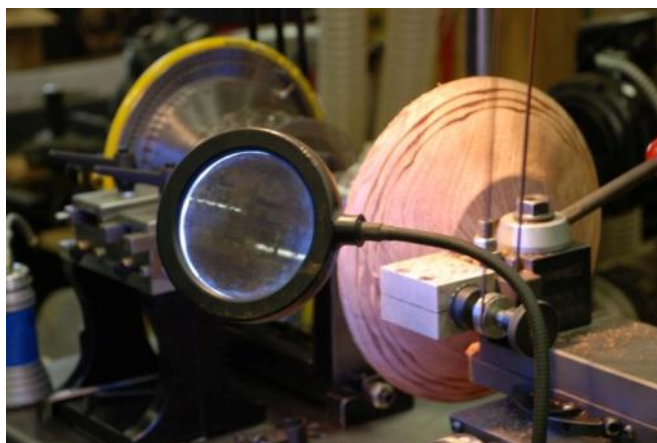
I setup the Lindow Rose Engine Lathe to ornament the platter shaped on the Powermatic Lathe. I used a twelve lobe sine wave rosette, a 1" radius rubber, and a 1/8" flat bottom 4 flute end mill and the Drilling Frame to cut the spiral pattern. I used the Universal Cutting Frame (UCF) with the 2 triangular cutting tips in horizontal alignment for the rosette pattern in the center of the front and back of the platter. I turned the rosette pattern in the center of the inside first. I cut the rosette pattern with the cutter on the left side of center so the lobes face toward the outside of the platter.



Next to the rosette pattern. On the inside of the platter I began the spiral pattern with the drilling frame and 1/8" end mill cutting on the right side of center so the lobes will face towards center, continuing from there up to the outside rim of the platter raising each row about 3/8".

I wanted to phase each pattern repeat by 1/4 of the previous row so I divided each lobe into fourths. Since I used the 12 lobe sine rosette, I multiplied 4×12 to get 48 which divides evenly into the 96 hole division plate on the Crossing Wheel resulting in an answer of 2 which is the number of holes I moved each time I phased to get 1/4 of each lobe. Expressed mathematically, $(4 \times 12/96) = 2$. I started at the first hole of the 96 divisions for the first row of cuts and moved two holes for the next row of cuts and so on until I had cut four rows.

At the fifth row, I started over going back to the first hole and repeated the pattern as before. I continued this until I got to the top of the platter or until I thought it was a good place to stop.



I turned the platter over; rechucked it with bowl reversing jumbo jaws, cut the waste block off and shaped the center with a 1/2" flat bottomed router bit in the drilling frame. I then started at the outside rim and made the spiral cuts with the Drilling Frame and 1/8" end mill cutting on the left side of center moving towards the center of the platter until I got to the flat in the center of the back of the platter lowering each row about 3/8".

(Cont. on p23)



I cut a rosette in the outside center with the UCF cutting on the left side of center to finish the pattern.

Two last but important tips:

So that lobes on the spiral face the inside of the platter or the rosette pattern, when cutting the inside of the platter cut the spiral on the right side of the center. In other words, make cuts on the right side of center when cutting the spiral pattern up on the inside. Make cuts on the left side of center when cutting the spiral pattern on the back or down the outside of the platter so the lobes face away from center.

Inside - Right of center—stair step up

Outside - Left of center—stair step down

Above all, Have Fun.



Amalgam-Mutt blanks. (the blue resin and burl call) by Danny Wells

This is a good example of keeping your eyes open for new materials. I found this at the Southwest Association of Turners symposium last year. The blank for this call is created by first cutting a slab of burl from a burl cap, in this case Mallee burl. The mold for this is 1.5" square and 6" long (exactly what I use for my trumpet yelpers). The slab of burl cap is placed in the bottom of the mold with the outside of the cap up. Then the resin is mixed and poured over the burl cap. Then the resin is cured.

This process creates a beautiful combination of materials, and the resulting turned object has an awesome figure. This is also an example of a material that can not be enhanced by applying an OT feature to the material. However, as you can see there is an engine turned feature on the ferrule, so graciously supplied by D. L. (He gave me two of these ferrules with the hopes I would want to make my own, which I did.) But the point is that this very small amount of RE work accenting the call makes it POP or you might say "gives it some class". It's like a beautiful lady in a solid black evening gown adding a string of pearls to the outfit.

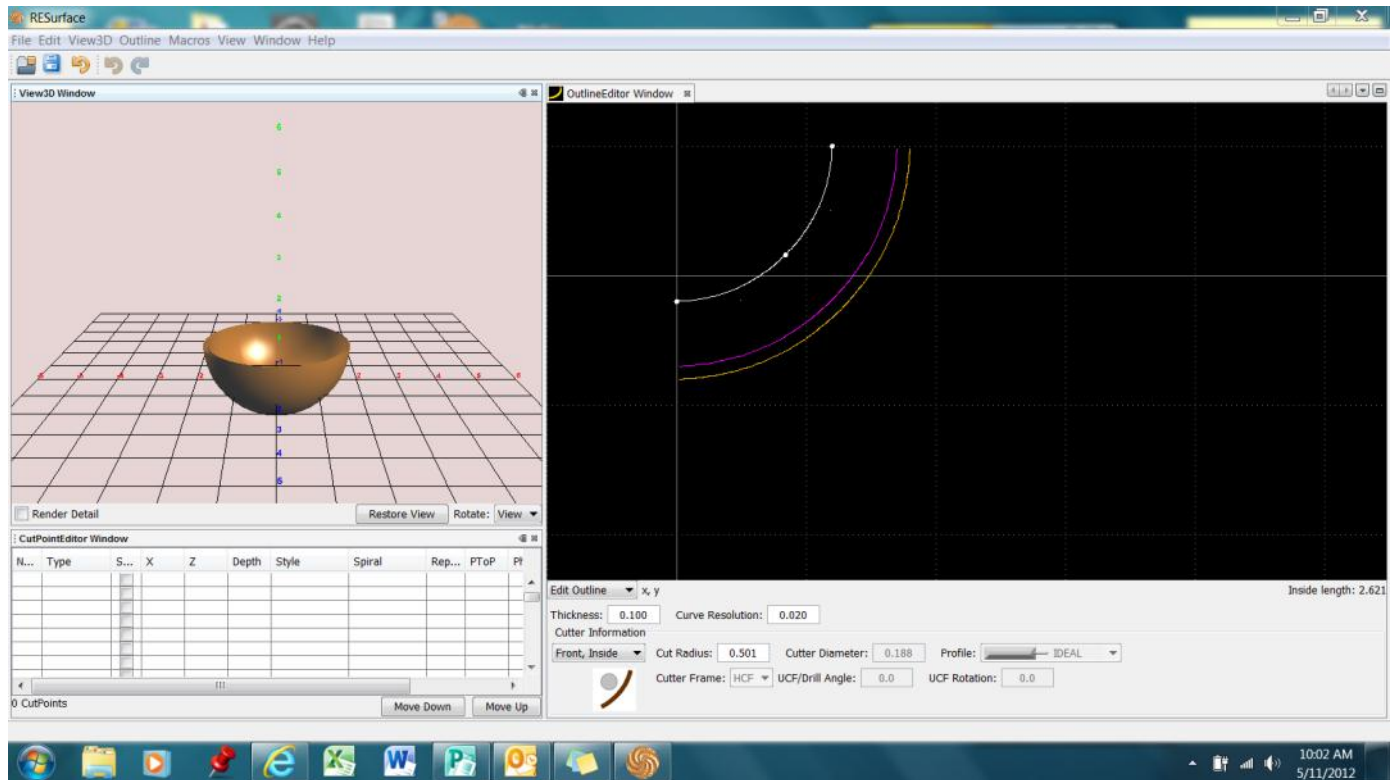


RESurface Software Reviewed by John Tarpley

In a previous issue I reviewed Bill Ooms' PenChuck software. In this issue I'll review another of his software programs which allows you to visualize your project before you commit it to wood. Bill calls this program RESurface and it is available as a basic program and an advanced program. Both can be downloaded from his Website which is www.billooms.com. This

software grew out of software Bill developed for his computer controlled rose engine. Several people at the last OTI meeting asked Bill to make the design portion of his software into a stand alone program usable by traditional rose engine turners and this is the result. I have been testing the basic program.

When you open the program you get the following screen.

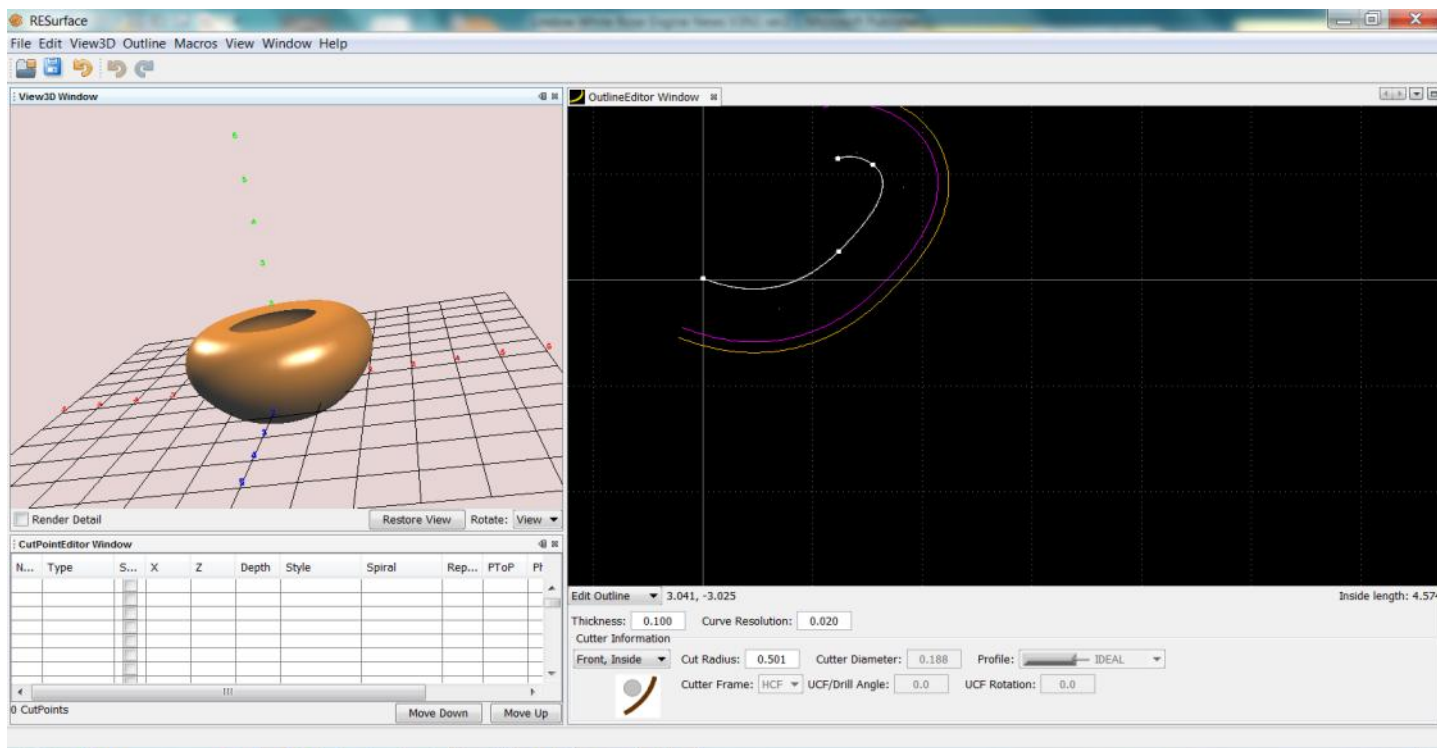


On the left is the 3D View window which shows the results of your drawing. You can grab the grid in the window and rotate the drawing 360°. You also have control of the color of the drawing and the color of the background. Below that window is the Cutpoint Editing Window. I will say more about this window later. To the right is the Outline Editor Window where most of the work is done. Below that are various controls that can be used to setup or modify your drawing. In the Basic version not all these controls are available. You can manipulate the positions of the windows on your screen as well as close windows you do not want to see.

This program works equally well on spindle work as well as bowls. One limitation is that when modeling boxes you can do both the lid and bottom in the same drawing, but it is difficult to make some lid shapes on the box. Also, you can not remove the

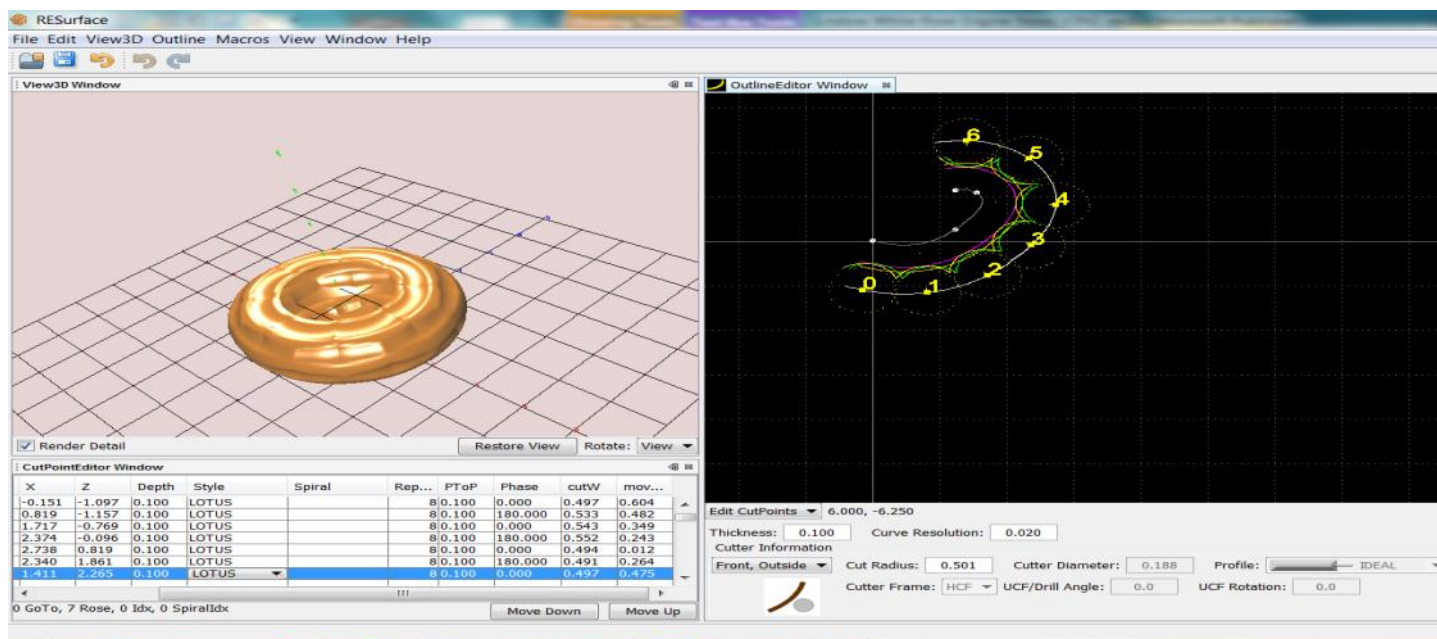
lid from the box and examine the inside. Therefore, it is usually better and easier to do boxes as two drawings.

If we focus on the Editor Window you can see three lines. The brown line represents the outside of the object. The purple line represents the inside of the object. The yellow line represents the cutting frame. Using the thickness and curve resolution boxes under the window you can setup your basic drawing. You then simply add points to control curves and manipulate the curve between points. The next image shows you a more enclosed form that was created by inserting 4 points and manipulating the curve between various points.

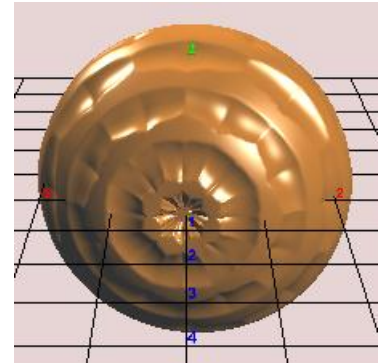
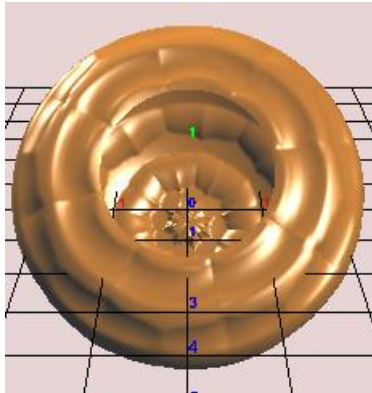


Thus you can see that with just a few clicks, mouse drags, and some practice you can create pleasing bowl shapes. Thus far everything is very much like other woodturning design programs. But now we are ready to add rose engine work to our drawing. To do this we first must know our cutter radius and set it in the window and switch from Edit Outline to Edit CutPoints. We can also setup our cutter to be front or back and inside or outside. In the basic program you can only use a horizontal

cutting frame. For this example I am choosing to place the cutter on the outside front. As you double click on the line to place a cutpoint you will see the cut radius and depth. By dragging the green radius line until the green points just touch you can create a non-overlapping pattern. For this example I chose a Lotus rosette and phased every other cut producing the result shown below.



(Cont. on p26)



As you can see from the above images you can view the bowl from any perspective. For these images I elected to rotate only the bowl and not the grid.

Once you have created a design that you like you can print any window so that you can print the 3D rendering, the Outline Editor and the all the information in the CutPoint Editor Window which can be used as a guideline for setting up your rose engine to commit your project to wood.

Bill allows you to download the Basic program on the honor system so you can try it and then purchase if you find it helpful. The basic program is \$50. From there you can upgrade to the advanced version for an additional \$150. Bill accepts payment by PayPal or you can contact Bill to arrange payment.

As I started to evaluate the software and Bill and I were discussing some questions I had for him he told me about RESurface2 which he has now released. For those who have already purchased the advanced software this will be a free upgrade. For everyone else it will be available for the same price as the original program. Bill has an excellent video available on YouTube that shows the new program. This new version has added many features that will make it a very useful, full featured program.

New features of the program include:

- ◆ A new Data Navigator which lets you view and edit any data including the coordinates on the outline points.
- ◆ A new Property Editor for editing anything selected in the Data Navigator.
- ◆ The Pen Chuck is included so that you can see a line drawn on the shape in lieu of a detailed rendering. This is well shown in the video and will be useful to anyone using a slower computer. As you can imagine 3D rendering takes significant amounts of computer power and drawing a simple line rather than the cuts is much quicker while you may be playing with designs. You can then do a 3D rendering of your final design. I have an i7 processor and find the drawing very quick, but less powerful processors may take more time for redrawing.
- ◆ The ability to create your own rosette library. The rosette patterns can be written in software and imported as plug-ins to become a permanent part of the software. Thus we can

and will have a software library of LW rosettes so that we can make drawings based on any rosette we have.

Additionally, you can edit a rosette pattern and see the effect on the cut surface. This modified rosette can be written to a file and placed in a spreadsheet. This file can be used to make custom rosettes.

- ◆ In this version more specialized cutters for cutting frames are available. Also, like rosettes you design custom cutters and write that data to a file which can be used to create a custom cutter. Thus you will be able to design using all the cutting frames and specialized cutters you have. This makes the program very real world and related to your rose engine.

Unfortunately although the program has Undo and Redo buttons on the Edit menu, they do not work in the traditional manner of going back a step at a time. Bill explains that this requires a lot of memory and the program already uses a lot of memory. Also, it would add a lot of programming time to the program's development. Instead Bill recommends that you periodically save your work or save different versions with the "Save As" menu item. Then you can easily do a "Revert to saved" if needed.

With the new version of the program this is certainly a full featured program. If you are like me and find drawing on the computer easier than drawing with pen and paper, this may be the program for you.

Quick Tip from DL

What is the recommended source and type of belting for the overhead and the smaller belts for the cutting frames?

So far I've preferred the orange urethane belting; however, a pretty good case can be made for green. Unfortunately, the green belt that we've obtained from McMaster-Carr was not impressive. It was certainly not the quality of the days gone by. It can be purchased from McMaster Carr by the foot or from MSC in a package of 100 feet.

For welding I highly recommend buying an Eagle belt welder off of eBay. It's of good quality.

Rose Engine News



May 4 & 5, 2012 Lindow Owners Group Meeting

by Ed DeMay and Jeffrey Cheramie

The 2012 Spring Lindow Owners Group Meeting was held in David Lindow's Shop on May 11th and 12th with 11 attendees. During and after coffee and doughnuts David introduced everyone to Peter Gerstel's version of a Goniostat. Peter said that

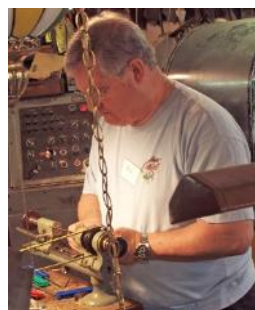
he will have some for sale at the OTI Symposium in September in Scranton, PA. Next David introduced everyone to the Accu-Finish Series I and II diamond wheel grinder for tool bit sharpening. These machines allow for the accurate and precise grinding, shaping, and sharpening of carbide tool cutters. These grinders are a bit (No pun intended)

pricey but when you consider that you will conservatively need a minimum of 30 to 40 cutters then the price becomes a lot more palatable especially since the quality of OT work is directly related to the quality and sharpness of the cutters we use.

David then showed everyone how to make an adapter plate for using Peter's Goniostat on the Accu-Finish grinder. It consisted of a piece of Phenolic Resin Board shaped, drilled, and tapped to fit on the grinder. After helping and directing the construction of the adapter plates, we moved on to a discussion of purchasing solid micro grain carbide stock to shape into cutters. The stock is purchased in 1/8, 3/16 and 1/4 inch round stock. The

stock is available in single or double end grinds. The advantage of doubles is that you can make 2 cutters from one bit purchased. The stock is supplied ground at a 60° point approximately 3/8" long. David uses several sources and recommended looking for sales and making use of free shipping when available.

Initial shaping is done using a silicon carbide grinding wheel on a regular grinder with final shaping on the Accu-Finish grinder. The proportions of the cutters are very important and you may have to make a cutter, test it, and modify it before deciding on a final shape. Much like making and turning an object, the use of proper proportions in making cutters is very important. David stressed many times that a smaller size cutter might even be better than what your eye feels would be the proper size. David showed how to use DMT Serrated Knife diamond sharpeners in a variety of grits to make and shape beading cutters. These sharpeners were taken out of their regular holders and held in a lathe collet while the bit was free handed to obtain the proper shape. Extreme care must be taken not to use too much pressure which can overheat the hones



Bob Barbieri



Leonard Boerman



Freshly Ground Shaped Cutter



Hardinge Adaptor on Jet Mini

which will very quickly ruin them.

David has introduced a Hardinge Adapter for a mini lathe. This adapter plate allows the Hardinge Crossslide to be accurately mounted on a mini lathe allowing the user to then use the quick change tool post and stationary tools in the same fashion as a regular metal lathe. This was particular handy for using boring bars to precisely hollow boxes. We discussed the advantages of using end mills vs. boring bars for hollowing boxes and cylinders. The use of end mills and the RE lathe appears to be somewhat slower than the use of boring bars on the mini lathe, but one only has to use his imagination to see the advantages of both and the possibilities are endless. David has also developed a number 2 Morse taper spindle for the Lindow Lathe that allows changing from lathe to lathe with greater accuracy. Members machined several pieces and soon saw the benefits of this type of setup.

The meeting was pretty much student driven this time. Any and all questions were covered which meant that we were going from topic to topic with time moving all too fast. David's wife was a gracious hostess for our meals and it was pretty quiet around the table while everyone was enjoying her home cooking. Thank you, Becky, for making us feel welcome and allowing us to invade your home for the weekend. Most of Saturday afternoon, our last day, was used making threads with the 60° cutters that had been made the day before. David worked with us to help understand multiple lead threads, making the threads look appropriate, and how to close the lid of a box quickly without a lot of turns. A successful two day workshop came to a close with Eric Spatt graciously opening his shop for all to view.



L, Jeffrey Cheramie; M, Joe Bates; R, Peter Gerstel



L, Richard Vanstrum; R, Jeffrey Cheramie



David Lindow



May 4 & 5, 2012 Owners Meeting David Lindow's Shop Photos courtesy Richard Vanstrum



Profiled Cutters



Lindow Machine Works



L, Ray Simmons ; M, Geoff Saver;
R, Dan Henry



L, Ed Demay; R, Bob
Barbieri



Dan Henry; Geoff Saver



Example Pendant



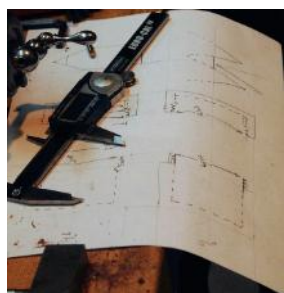
Dan Henry; Leonard Beorman



Goniostat



Lt to Rt, Peter Gerstel; Bob Barb-
ieri; Jeffrey Cheramie; Joe Bates



Leadwood Box Drawing



Lt to RT, Geoff Saver; Ed Demay;
Joe Bates; David Lindow; Peter
Gerstel; Jeffrey Cheramie



Bottle Stoppers



Leadwood Box



June 2012 Iowa Get Together-Lindow Rose Engine Lathes

Roy Lindley

Amidst the mid July corn fields of Iowa and thanks to the gracious hosts from the Manchester, Iowa area, eight Lindow Rose Engine owners worked through basics of the lathe and learned some new set-ups to broaden their portfolio of ornamental turning skills. Outside of working with the lathes there were many shared life experiences intertwined with great burgers, brats, pizza, and chicken. There was even a little time for sleeping as the days of the Friday and Saturday event tended to be far into the evenings. Several participants even had a take home project to showcase their efforts and to remind them of the processes they used.

Since several owners were relatively new to the lathe, David Lindow opened the session with the all-important basics such as how to check for headstock top dead center, cross slide alignment with the head stock, determining rosette rocking motion, and centering the cutting frame to the lathe spindle. This was supplemented with a demonstration on how to efficiently change the main set of rosettes including assembly order details involving bearings, collars, the main drive pulley, the wavy thrust washer and lubrication of the head stock bearings. A common perception is that such a process takes considerable time but in fact can be accomplished in 5 minutes plus the time one spends rearranging the rosettes.

A particularly useful discussion concerned how to adjust and clean the Hardinge cross slide unit. David demonstrated how to measure and adjust the base screws to achieve parallelism of the dovetail with the machined aluminum base (this becomes a good reference for many setups). This discussion also covered adjustment of the cross slide relative to the dovetail, finding perpendicular and setting the top slide protractor, changing the slide's feel with the upper and lower gibs, adjusting lead-screw backlash, some trouble shooting, and of course cleaning and lubricating everything. David uses Way Oil which is a machine tool product with the property of remaining on the surfaces but one must deal with the tendency to accumulate dust. *{Ed. Note: For a source of this oil, see Brian Clarry's article in this issue.}* An important lesson learned is to tighten the gibs and then back off for the desired "feel" appropriate to the turning situation at hand. When the Hardinge unit is disassembled one gets a bit more appreciation of the American workmanship and quality.

With the basics behind the group, attention turned to setups and individual practice on the half dozen available lathes. A particularly interesting pattern and technique is creating barley corn patterns based on sine wave motions from the rosettes. This can be done in a pumping mode on a cylindrical surface or in a rocking mode on the face of a cylinder. One key to success is proper rubber and rosette selection for the dimension of the work-piece. Certain variations require attention to phasing between the pattern courses. In the pumping mode David was using rubbers from a new set he is now offering. With adequate oil for

the rubbing contact on the rosette and the correct thrust spring, the result is a very cleanly cut diamond shaped pattern. Of course this does require diligent attention to the setup details and the moves between courses.

Another common ornamental turning pattern is the sea shell like look on a domed surface. To create this the work-piece centerline remains parallel to the lathe centerline but is offset radially relative to the rotating cutter. The rotating cutter in the universal cutting frame is left in the position necessary for creating a pattern at the center of the work piece before being displaced radially. Because the new position of the cut on the dome is not a level surface, only part of the pattern is cut when the piece is rotated about the lathe centerline. With the forethought of the work piece being mounted on the index head, one can repeat the partial pattern shell around the center as geometry and tastes allow. Examples were completed with 5 and 6 around one full pattern in the middle of the dome.

For additional illustration and practice, there was also a linear chuck setup and hands-on threading as part of the weekend's project box. This necessitated sharpening of a few cutters and learning about various upgrades and additions for the LRE. The outboard rosette holder assembly on the extended spindle attracted considerable interest as did the new Morse taper configuration. The outboard assembly includes an indexing worm (3° per turn instead of 2° per turn on the main headstock) which introduces some interesting possibilities such as when using two rosettes simultaneously. The Morse taper spindle configuration also remedies much of the work-piece alignment problem when moving between the LRE and a standard wood lathe. There are #2 Morse taper mounts with threads common to many woodturning chucks. In use, the artist-turner just places the work-piece and chuck in whichever lathe they wish to use along with the obligatory and necessary draw-bolt that secures everything safely.

Apart from owners capturing glimpses of their peer's lives through many conversations and making new friends in the process, a single and useful takeaway from the weekend was the value of a slow feed rate for the final cuts. One can remove stock quickly to the limits of the machine and tooling when there is not a concern for appearance. However when appearance matters, there is no substitute for a very slow feed rate combined with a shallow cut. Over and over, this was obvious from the practice and the demonstrations independent of whether the work piece was a domestic or exotic wood. This aspect is on the pathway to success assuming one of the cardinal rules of ornamental turning is to assume sandpaper has not been invented yet.

In the final analysis Iowa was a terrific experience and could be repeated if for no other reason than to see what the place looks like without the legendary tall and abundant corn of late June.



570-937-3301
dlindow@socantel.net

DAVID LINDOW
527 GRAVITY ROAD
LAKE ARIEL, PA 18436

Submit Articles for future Issues of the Rose Engine News to
John Tarpley
2169 Highland Acres Way
Gatlinburg, TN 37738
jjtarpley@comcast.net