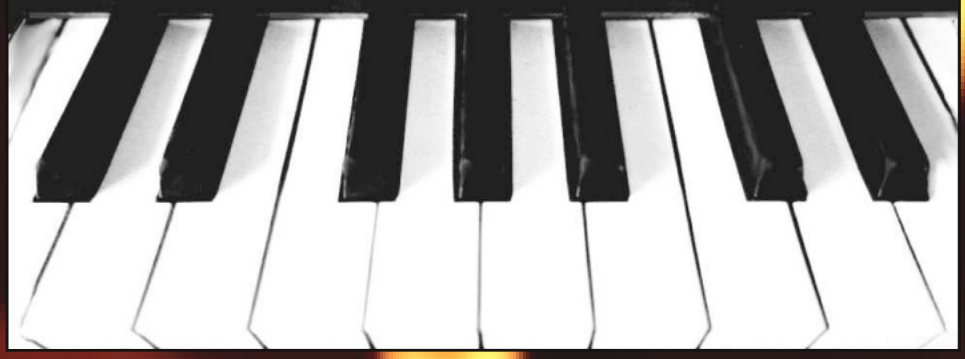
The Buckeye Backcheck

Newsletter of the Columbus Chapter of the Piano Technicians Guild

Volume 41 Issue 1 January 2016



PRESIDENT'S CORNER

Happy New Year to you all. This is the time of year that we often use to take stock, decide on whether to change our course of action, or make multiple changes, or change nothing at all. Clean out your tool box, restock center pins, punchings, rearrange the work space in the office and/or shop. But don't forget one of the most important things to take stock of and that is how we manage our time. What can we do to make our office work more efficient? Better manage our work schedules? Plan our time off whether that is for professional advancement (seminars, conventions and yes, chapter meetings), or time to take care of business matters in the office or whether it is vacation time to recharge. Our instructor at Western Iowa Tech, Doug Neal, had a favorite expression "Proper prior planning prevents poor performance" (I believe the first time he told us this was when we were using the bunch of guys method to pull a plate. He wanted to be sure we knew where we were going with said plate before we had it up in the air). It's of little use, or at best inconvenient to realize the day before sales tax reports, or income tax, or customer reminders, or any other office work is due that this work actually needs to be done. It may be hard to give up that day of tuning, but if you set aside time to do these seemingly mundane chores, you will be grateful later (and if you set them aside in Jan and Feb, you can use them to make up work if a bad snow storm keeps you in and you can use that snow day to do the office work). Remember that when you calculate your tuning fees (which is the bulk of most of our businesses), you need to figure not just your time in the customer's home, but also your travel time and your office work. It pays to be organized and efficient. Most of us don't have a secretary to sort all that stuff out. And on the topic of changing course, one of the items that we will be talking about over the next couple of meetings is what can we do as a chapter to make the most of our time and energy as a chapter. Should we look at a different time for our meetings? What types of technicals would be of the most benefit to the most members? What can we do, as a chapter, to encourage and facilitate upgrading to RPT for our associates? All important questions for the new year. I invite all members to be part of this discussion.

PS: And don't forget to RSVP to Ron Kenreich about the Post Holiday Dinner at Bravos. Please let me know if you did not get the invite.

Kim Hoessly, RPT

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Chapter Meeting Minutes
November 17, 2015

The meeting was held at First Congregational Church.

Attendance:

Kim Hoessly, Ron Kenreich, Chris Burget, Chris Altenburg, Mark Ritchie, John Schmoll, David Stang, Ben Wiant, and new member David Chadwick.

Teasurer's Report:

$1902.62

Old Business:

No update on status of the Chapter Library.

Kim Hoessly will be ordering new action models and exam jigs.

New Business:

It was suggested that the Chapter Post-Holiday dinner be held at a different location this year. J. Liu in Worthington and Old Bag Of Nails Pub in Westerville were suggested, with an inclination toward the latter. No date was finalized during the meeting.

John Schmoll offered to donate an 1897 Steinway A to the Chapter as a potential rebuild project. The primary issues are where to keep it and how much money to put into it, should the Chapter take on the project.

Future technicals were tentatively laid out. In February, Mark and Marilyn Ritchie may be doing one on key bushing while Kim does flange bushing. March is open but may be an Associate Day Seminar. Ben Wiant may be covering Concert Prep in April. And Larry Messerly, CERVP, will cover acryllic keytop repair in May. Locations for all are still to be determined.

Beethoven's 245th!!

www.google.com/doodles/celebrating-ludwig-van-beethovens-245th-year

Piano technician travels to Peru to repair 1872 instrument

Tom Hindman/Charleston Gazette-Mail via AP

CHARLESTON, W.Va. (AP) - In 1872, T. Peterson strung a piano for Chickering and Sons in Boston, Massachusetts.

When he finished his work he elegantly looped his name onto a sticker and slapped it inside of the piano where, 143 years later, Jonathan Cleghorn found it in Urubamba, Peru

Cleghorn was there to fix the piano, which resides in the Baptist seminary in town.

He can't tell you how it got there. All he knows is that it was purchased by a family in Boston around 1872, then it somehow made the trip to South America.

There are no piano shops in Urubamba, a small town situated in a valley that's 9,500 feet in elevation. Nor are there any in the nearest city, Cuzco. The closest piano shop is in Lima, 24 hours away by car through winding mountain roads.

Somehow, someday, the piano made the trip through the mountains and into the city.

Cleghorn's trip to Peru is just as unlikely. Normally, the 27-year-old piano technician checks in to work at the Kanawha Piano Gallery, an unassuming music store in Clendenin.

He has always liked fiddling with pianos.

"Growing up we had a junky old piano in our garage that I learned to take apart and put back together," Cleghorn said. "And it was a piece of junk that no one cared if I destroyed, so I could play with it all I wanted."

For the full article go to:

http://www.washingtontimes.com/news/2015/dec/6/piano-technician-travels-to-peru-to-repair-1872-in/?page=3

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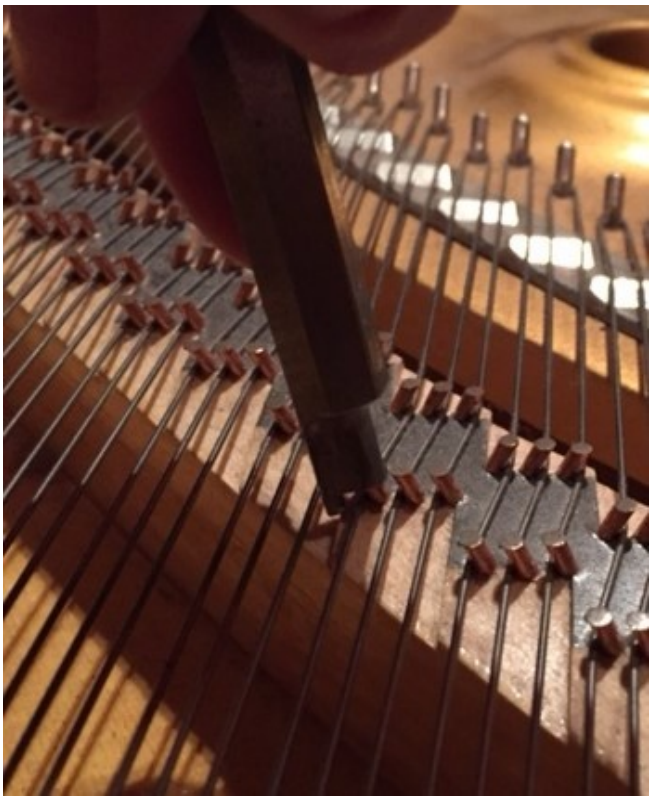
Tech Tip

by Kim Hoessly



At Convention last summer, I purchased a nice tool for cleaning up string noise by "seating" the string on the bridge pin from the side (Photo 1). We have often made bends in the strings at the capo and agraffes as well as when we seat the strings from the top at the bridge pin, but it is also important to make that bend from the side of the bridge pin as well. Now, this is not some huge bend that you manhandle into place, just a gentle twist of the tool. I tried to take a picture to give you the idea of what I'm doing (Photo 2). Sometimes it doesn't do very much to help the sound (leading me to believe any problems are coming from something else), but other times, it has noticeably cleaned up the tone. So far, I've just been using it on isolated strings, but I'd like to try it on a large scale when I do a major voicing job. Also, I've only used it on grands as I would have to remove the action on a vertical for access to most of the bridge, or at least that part of the bridge that gives you the most trouble (mid to high treble), but I'd like to try it sometime to see if it would helpful for verticals as well.

The technician who makes these is in Washington State. His name is Roger Gable and his business is Moondog Manufacturing. You can contact him at roger@moondogmfg.com or 425-252-0757.

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Fun With Inharmonicity

David Stang gave the technical presentation on string inharmonicity. He started off by going over the basics that describe theoretically perfect strings. He then went on to elaborate how real strings are more likely to behave and commented on "...how a bunch of smart guys from the seventeenth century" were able to devise formulae to describe the various factors affecting strings in motion. All done empirically without the aid of our modern analytical devices. Particularly noteworthy is how stiffness creates "dead zones" in the nodes between partial segments and termination points that effectively make the partial segments smaller, and therefore sharper. Also important to grasp is the difference in elasticity when transitioning from plain steel to wrapped wire. Many beginning tuners may mistakenly think that the wrapped string will be more inharmonic, but due the the elasticity of the inner core wire, which is often a much thinner guage than the neighboring plain wire, there is often a sudden drop in inharmonicity there. This is especially true in shorter scaled pianos. The remainder of the article is David's descriptions of the numbered illustrations.

Figure 1. This depicts a theoretical vibrating string where the solution of the wave equation is a sinusoidal function and the shape of the string is a sine curve. The solution for the frequency is a simple equation depending on Tension, Length, Diameter, and Mass per unit length.

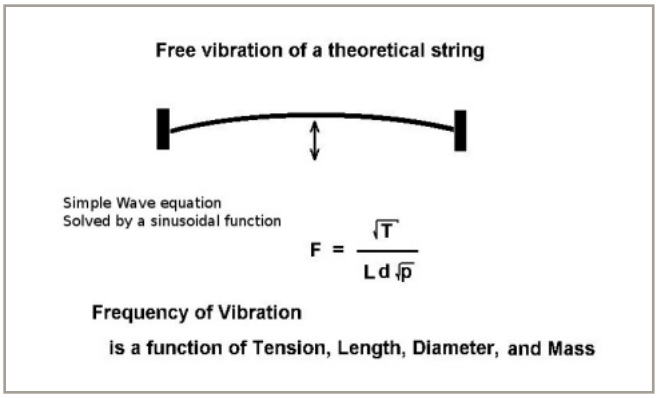

Figure 1

Figure 2. This depicts a /real/ vibrating string where the solution to the wave equation is complicated and the shape of the string is not quite a sine curve. The stiffness in the wire doesn't allow it to flex at the termination points, and there is less flex at the nodes in the upper partials. The solution for frequency includes a Stiffness factor. Note that tension is in the bottom of the expression, so stiffness is /inversely/ proportional to tension.

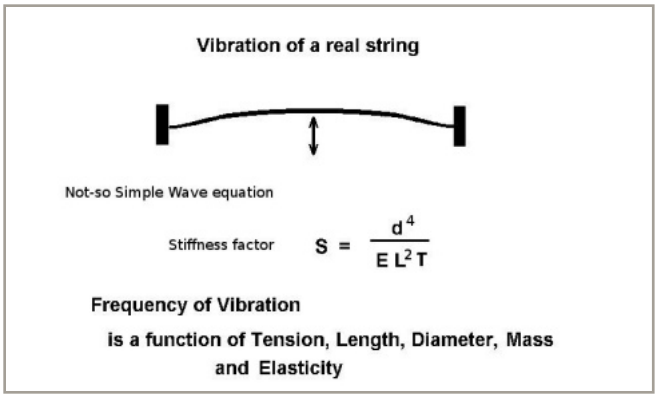

Figure 2

Figure 3. Inharmonicity is a function of stiffness (n refers to the number of the partial). Each successive partial has a larger inharmonicity factor than the previous.

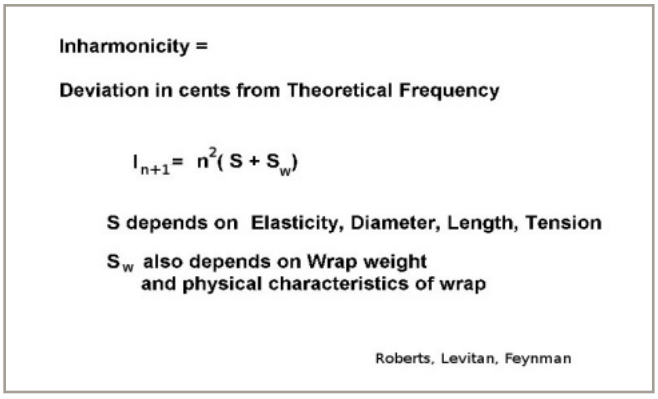

Figure 3

Figure 4. This illustrates how inharmonicity is related to string thickness. It gets greater as the string gets thicker, as one would expect. Also the relationship gets more pronounced as the string gets shorter.

Figure 5. This illustrates how stiffness, and therefore inharmonicity, is inversely proportional to tension. I think this relationship is counter-intuitive because one would

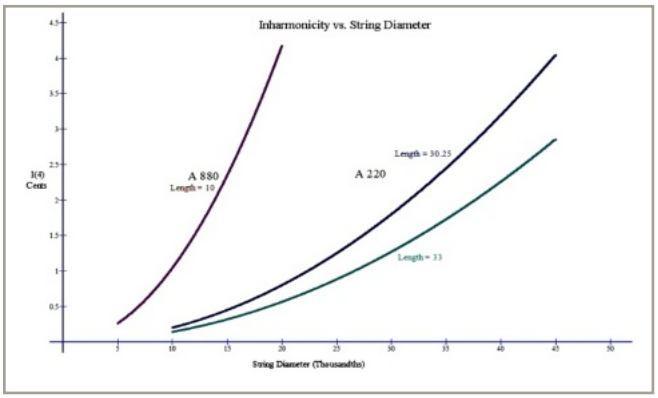

Figure 4

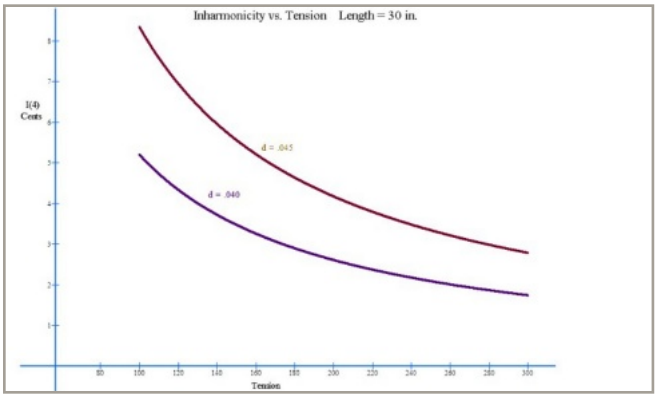

Figure 5

McPhail small grand

	F	L	dw	d	T	I₄(meas)	
B2	123.5	36.38	64	38	74	3.65	
C3	130.8	36.25	62	38	82.9	3.52	
C#	138.6	36.00		40	91.8	4.50	
D	146.8	35.75		40	101.5	3.56	
D#	155.6	35.5		42	124.0	4.79	
E	164.8	34.7		42	132.9	5.07	

Knabe console

F#3	185	25	58	35	60	6.05	
G	196	25		38	79	7.5	

Grotrian 9'

						I₄ (calc)	
E1	41.2	76.25	123	51	312	1.06	
E2	82.41	54.25	64	40	245	1.08	
F2	87.31	72.12		52	157	1.06	

	F	L	dw	d	T	I₄ (meas)	

McPhail small grand

A4	440	17.19		38	190	6.9	
A4	415	17.19		38	169	7.8	

Figure 6

think inharmonicity would be greater with greater tension. I used to tell people that harpsichords have less inharmonicity than pianos because there is less tension. Wrong! Harpsichords have less inharmonicity because the strings are more thin.

Figure 6. This illustrates the differences in inharmonicity where the wrapped strings meet the plain strings. Another thing that seemed counter-intuitive at first is the fact that a wrapped string has less inharmonicity than a plain string of the same frequency. That's because the wrap adds diameter and weight but not stiffness. These charts illustrate this for different pianos. (F=Frequency, L=Lengthdw= diameter of wrapped string, d= diameter of core of wrapped string or of a plain string, T=Tension, I[4]= Inharmonicity in cents of the fourth partial.) The drop in inharmonicity of my little grand is about a cent. The manufacturer of my strings gave me two notes of plain strings made of an alloy that is less stiff than normal strings, which made the transition a little better than it might be otherwise.

I measured the inharmonicity of the transitional pair of notes of a small Knabe upright, and the difference is around a cent and 1/2. Just for fun I temporarily tuned the G 50c high and the F# 50c low, then attempted to tune them as a unison. It was impossible! (I measured by using the electronic tuner in "regular" mode where it does not use an inharmonicity curve. I noted the change in offset when telling it to "listen" to the fundamental and then to the 4th partial)

Next is the calculated inharmonicity of partial 4 of a 9' Grotrian where the consistency of inharmonicity all across the piano is amazingly good.

The bottom chart illustrates what happens to a single note when it's tuned a step low. The tension is lower and the inharmonicity is significantly higher. This shows that when notes are out of tune, they're not just out of tune, they also are different in inharmonicity! (Along with the fact that the tone varies because of the difference in tension at the bridge.) In general a piano with more inharmonicity is less tunable because even in unisons the various partials of the notes are less likely to coincide.

(See "Inharmonicity in real pianos", by Dan Levitan, PTG Journal Feb 1995) I also used the series "The Calculating Technician" by Dave Roberts, Journal 1978-1980 to calculate the numbers.

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www.ptgcolumbus.org

Columbus Chapter of the Piano Technicians Guild

President	Kim Hoessly, RPT
Vice-President	John Schmoll, RPT
Treasurer	Ron Kenreich
Secretary	Christopher Burget
Imm. Past Pres.	Bryan Hartzler, RPT

Contributions and pictures for the Buckeye Backcheck and the web page are always welcome, (even if they are only peripherally related to pianos)!
- Chris Burget

Post-Holiday Dinner
Saturday, January 16
6:30pm

Bravo! Italian Cucina Crosswoods
7470 Vantage Dr
Columbus, OH 43235
www.bravoitalian.com/crosswoods

Please **RSVP** by **January 8** to
Ron Kenreich 614-309-4754 or
rkenreich@earthlink.net

Map Link:
https://goo.gl/maps/iVHD6b3zJ3w

This newsletter was created using the open-source program Scribus running on the Linux Mint operating system.

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