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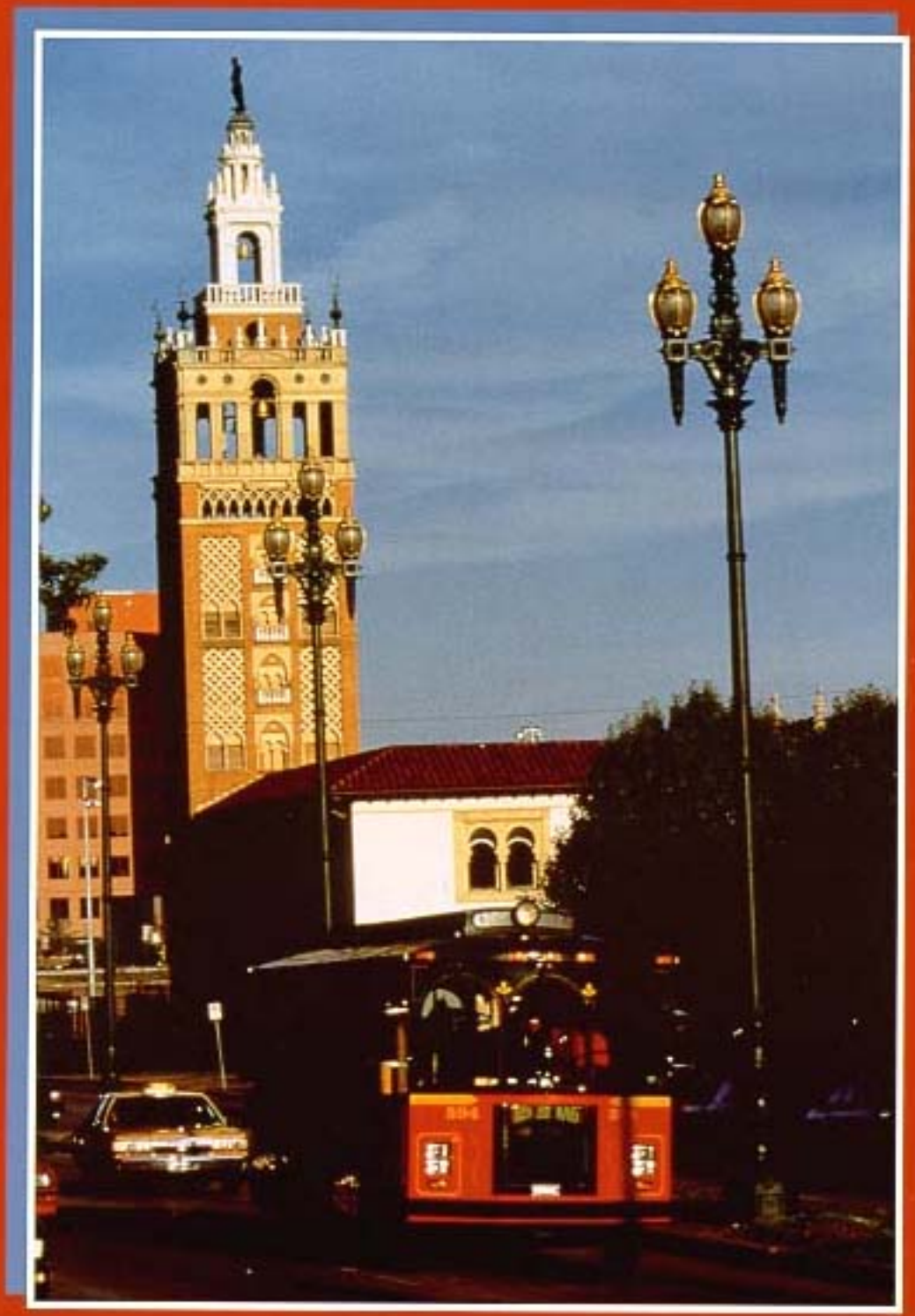

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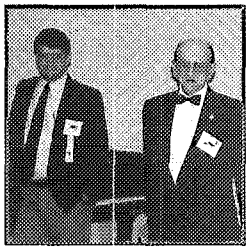
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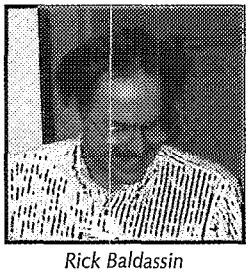
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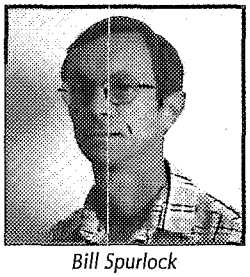
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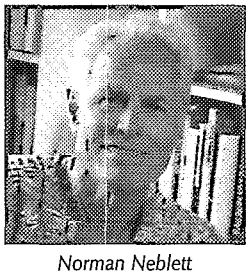
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EDITORIAL PERSPECTIVE

Enjoying the Unexpected

Piano work is never boring for me. I suppose that if my clientele consisted solely of one make and model of piano which I tuned and serviced four times a year, and if I did this work five days a week, it might be. My typical work week, though, will include a day or two of work on the *Journal*, a couple of days at the university (where I might work on anything from "beater" practice room pianos to harpsichords and fortepianos to nice concert grands), and a day or two of tuning and servicing pianos for private clients. A day or two of shop work often will complete my week. The actual mix of work changes from week to week.

Things become especially interesting, though, when the unexpected happens. For example, a few weeks back I was happily tuning for a major piano recital when, just 15 minutes before the house opened, a string broke. A flood of possible decisions swept before me: I could replace the string and pull it a whole-step sharp, finally tuning it to pitch at five minutes to 8:00; I could splice the string and leave it a half-step sharp until five minutes to 8:00; or, given that the broken string was shared between two notes and was high in the treble section, I could just remove it and leave two original strings on each of the two affected notes. I opted for the latter choice because I noticed the difference in sound between the two-string notes and the three-string notes on either side was fairly insignificant. Taking great pains not to alarm the artist, I gently explained what had happened and which notes were affected. I told him, "I really doubt that you'll experience any problems at all with this, but I just wanted you to know about it." The recital went very well and there were no problems with the "different" notes. Following the recital, the pianist said he hadn't even noticed a difference with the two notes, "But," he said, "I'm really glad you told me about it." It's always nice when what you *think* is the right call turns out to *be* the right call!


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Steve Brady, RPT
Journal Editor

Occasionally a house call will yield a surprise as well. Consider a recent visit to "tune" a new customer's high-end grand piano. Not only was the piano virtually unplayable because of regulation problems, but it sat in direct sunlight and was actually warm to the touch. I knew immediately it would be folly to tune the piano that day. Explaining this to the client, I recommended that we begin work on the regulation instead. I did what I could in the time allotted and then booked a four-hour visit to conclude the regulation and tune the piano.

My work is so interesting that sometimes I forget to take a day off. When a technician friend called the other day with a unique invitation, I hadn't had a real day off in a couple of weeks.

"Ya wanna go roller skating?" my friend asked.

My immediate reaction was to explain that I hadn't been roller skating since the beginning of the industrial era, and to beg off politely. But instead, something in a long-unused part of my brain clicked into gear and I heard myself saying, "Hey, that sounds like fun!"

So we went roller skating. I was unsteady and uncomfortable and several times came close to falling over. I got a blister on one foot. After an hour, I couldn't skate anymore. But as we retired to a nearby restaurant, I mused over the singularity of the experience – how spontaneous and wonderful, and what a perfect counterpoint to too many days of uninterrupted work.

The unexpected – in whatever form – often is viewed as an annoyance, something to be dealt with quickly because it has to be done in order to get back to the expected. But in reality, the unexpected is life itself: random, chaotic life, waiting to challenge us, to thrill us, to test us. Enjoy it.

Please submit tuning and technical articles, queries, tips, etc., to me:
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The Country Club Plaza was the first shopping center in the nation and is still a mecca for visitors seeking shopping, fine dining and entertainment. The trolleys run regular schedules between downtown and the Plaza.

PIANO TECHNICIANS **Journal**
Volume 42 • Number 7 • July 1999

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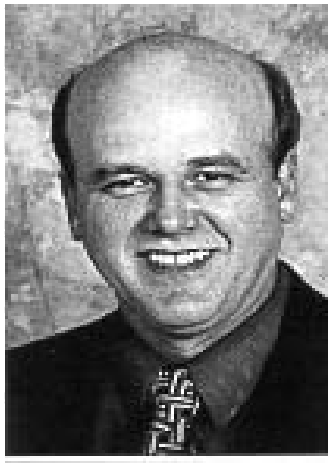
PTG Grows with Shared Talents

Last month I wrote about how an individual can have an effect on PTG by his or her interaction with the music industry, especially outside of our Guild. This month I'd like to illustrate some of the possibilities that occur within PTG.

Each of us belongs to an organization like PTG for a wide variety of reasons. Some of us are interested only in the technical aspects of the piano and PTG is a way for us to pursue a deeper understanding and/or a more advanced methodology. Others will gravitate toward the business end of things, searching out new and better ways to promote ourselves, more efficient use of our time, the various possible diversification that adds flexibility and strength to a business. Still others are interested in the social aspects, looking to share stories and in general to the camaraderie that comes from a group of folks so deeply involved in such an esoteric kind of craft as ours.



David P. Durben, RPT
PTG President

From the nuts and bolts folks we probably can expect a contribution in the form of classes or writing that will illuminate some technical aspects of our profession. The business-minded ones can help us to make money (yes, it can be done in this business!). And the socialites probably will bring some organizational efforts to spread the word and strengthen the effect of the Guild.

Each of us has a personality type that lends itself to one or more of these areas and as we discover what our individual gifts are, we can choose to share those gifts with others. Some of us will find ourselves in front of a classroom, others in a one-on-one tutoring session, still others in a Council or Board meeting. When we take that special talent that has been given to us and fashion a way to share it with others, we have increased the gift to ourselves and we have made a unique contribution to our friends and colleagues.

I believe that we each have a duty to share the gifts we've been given. For it is through these individual offerings that we grow as a Guild, as a community and as a society. In a world that focuses so much on the needs of the individual, I find a tremendously uplifting breath of fresh air in those individuals who focus on what they can give.

As we head for Kansas City, we each will bring our own set of expectations to the convention. My hope for each of you is that your list of expectations includes the opportunity to make a contribution to this convention, because you can individually make a difference, and that is where the greatest satisfaction lies.

David P. Durben

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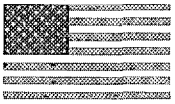

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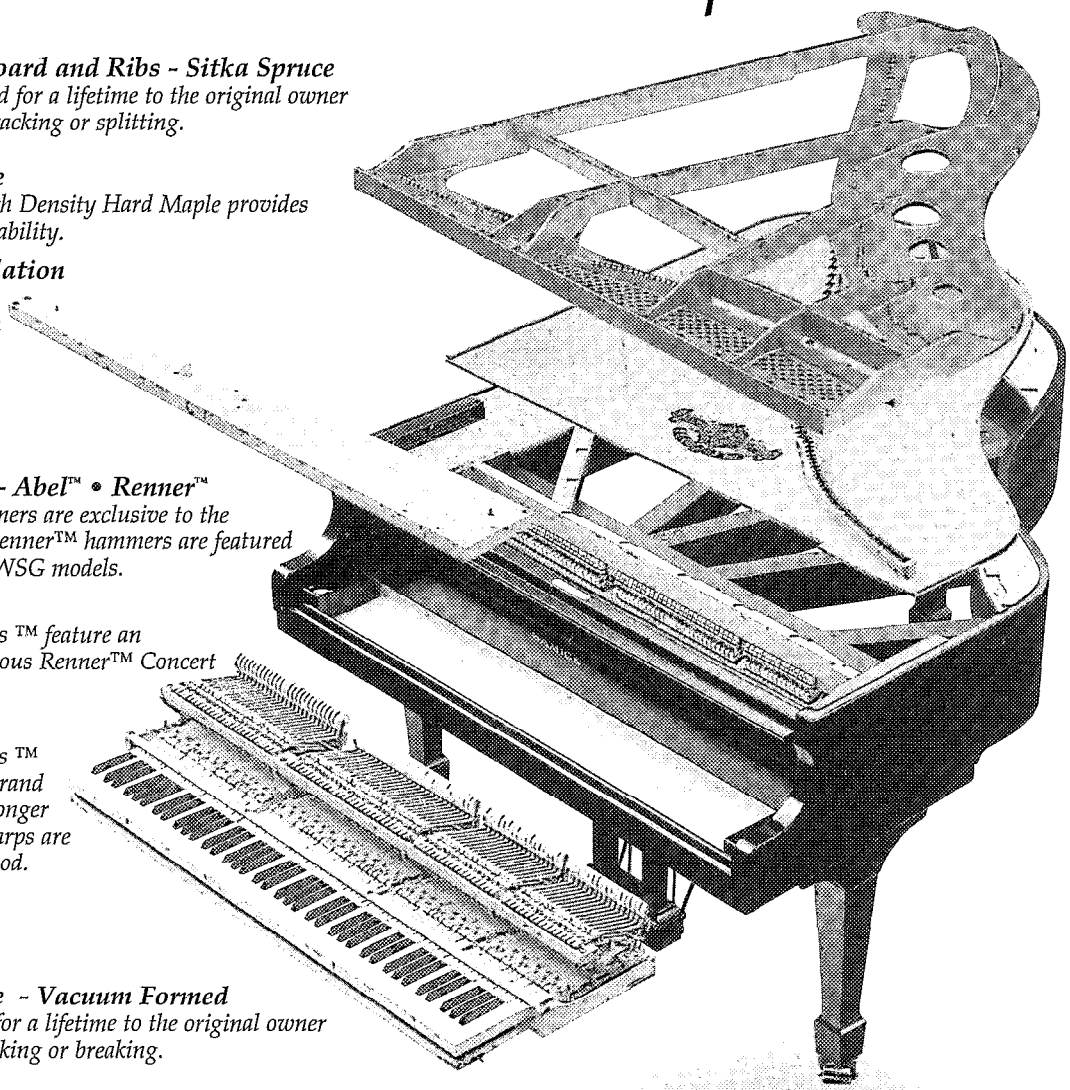

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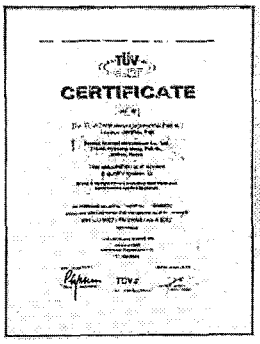

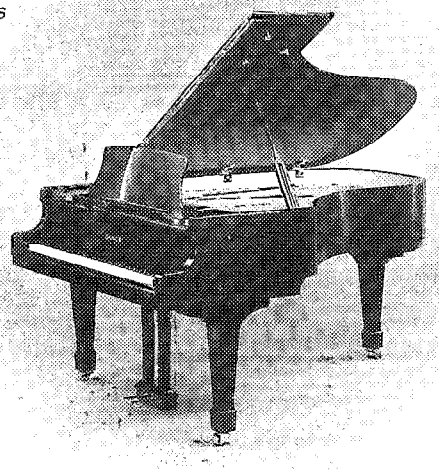

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Letters to the Editor

Another Visit to the Temperament Festival

For those who missed the Temperament Festival in Rhode Island last year, reading RPT Virgil Smith's interesting review may have created some confusion. I know that this is the case for those of us who participated in it. It's true the Festival was first and foremost a tribute to the work of Owen Jorgensen, RPT, that multi-faceted jewel who has expanded the horizons of so many of us. It's also true there were five pianos, each tuned to a different temperament. But the four "Historical Musical Tunings" were presented as everyday temperaments (not museum artifacts), each with its own special characteristics and advantages. There were also three rounds of direct comparison – a competition to determine overall best temperament. More than anything, the competition proved that any of the tunings presented could qualify to be the "normal, everyday tuning" and meet "all the demands of today's music world" (Virgil's phrasing). And the final voting for overall best temperament wasn't "slightly in favor" of Bill Bremmer's Equal-Beating Victorian ... Equal Temperament got trounced.

First, let me correctly enumerate the tunings and pianos used in the Festival: ET tuned on a new Yamaha by Virgil Smith, RPT; Equal-Beating Victorian tuned on a new Walter Grand by Bill Bremmer, RPT; Handel Well-Temperament tuned on a new Mason-Hamlin by David Lameroux, RPT; Kellner Well-Temperament tuned on a new Baldwin by myself; and Paul Bailey's modified Meantone tuned on an older Steinway (with 7/8 scale keys) performed on by Karen Hudson-Brown, RPT.

Secondly, for those who wonder about who was doing the voting (based on a thumbnail survey at the outset of the presentation), the Festival was the first experience with anything other than ET for about half the audience. Only 10 percent or so actually had tuned a "Historical Musical Tuning."

Regarding the competition itself, the first round – between ET, Handel, and Kellner – was a little closer than Virgil let on. It took four votes to determine the winner. Handel received a mere handful of votes and was eliminated on the first ballot. After the second ballot, the class broke for intermission with Kellner and ET in a dead heat. The third ballot, right after intermission, was interrupted as the room filled to standing room only (with faces not recognized from the first half, I might add). Equal temperament won on the fourth ballot by only a few votes.

The second round, between RPT Paul Bailey's Modified Meantone (PBMT) and Bill Bremmer's Equal-Beating Victorian (EBV) was extremely interesting. It's true that the Meantone was found to be "rather strong whiskey" for an everyday temperament, but it did, amazingly enough, garner about 20 percent of the vote. In the third and final round, the competition for best overall temperament, EBV bested ET by a similar margin (about 4 to 1). I would like to underscore that result. After listening to 18th-, 19th- and 20th-century music on five different tunings, 80 percent of the electorate preferred Bill Bremmer's EBV. It might be fair to say that after hearing Owen's "Lost Sounds of Music," the overwhelming majority thought that Equal Temperament Brand whiskey was too watered-down.

I am not certain how Virgil arrived at his stated conclusion that ET is the only acceptable overall temperament – especially in the face of the competition results – but it is evident he reached this conclusion long before he arrived in Rhode Island. During the Festival, Virgil was an eloquent proponent of ET. He also promulgated the old myth that ET was the end product of tuning evolution. This myth, told for true throughout this century by heedless historians and reiterated in Virgil's article, claims 19th-century musicians were frustrated with the limitations of earlier temperaments and found ET to be the best solution. In actual fact, those frustrated musicians lived in the 15th and 16th centuries. All of the theoretical temperament work was completed by the end of the 17th century. By the 18th century, musicians were confident that they had the best solution, perhaps perfection, in what we now call Well-Temperament. What really happened in the 19th century was that Well-Temperament was increasingly and inaccurately referred to as Equal Temperament (see the Essay on the History of Tuning, Chapter 11; *PTJ* June '99). This was especially true of our forebears, the newly emerging professional tuners. One of the biggest surprises to have come out of Owen's research is that ET, as we know it, wasn't tuned on pianos by professional tuners until William Braid White taught them to do so, during in the 1920s and 30s. One of the intents of the Festival was to shed light upon, if not directly challenge, this basic assumption regarding the history of Equal Temperament, still held inviolate by Virgil and so many of us working in the profession today.

I am gratified that Virgil gave proper kudos to Karen Hudson-Brown, RPT. Her playing was just great. She really was the star of the show. There also were significant contributions from David Lameroux, RPT and Dr. Al Sanderson, RPT; and a wonderful demonstration of vocal harmony from Larry Crabb, RPT with his barbershop quartet.

A final word about the winner: those who attended the Festival got the chance to see a soft and well-spoken, multi-talented Bill Bremmer, RPT, present his EBV. This is a true Modified Meantone, not a modified ET as suggested by Virgil. This tuning is extremely well-crafted and won the competition hands down.

So what did we learn from the Festival of Temperaments? That Bill Bremmer's EBV is the bee's knees? Of course not and he would be the first to agree. But we may have learned that there is not one-and-only-one correct tuning for the needs of today's musicians. Tuners have been arguing the best way to divide an octave from time immemorial. Debate may have subsided for much of this century, but it certainly has picked back up now. It is only fitting and proper that as we approach the 21st century, we reexamine our beginnings. In so far as two of the tunings presented were crafted during the past few years by brother RPTs (including the winner), it is certain that the evolution of tuning is not over; nor has the last word been spoken about how to best divide the semi-tones in the octave.

— Skip Becker, RPT
Northeast Florida Chapter

Continued on Page 16

Tips, Tools & Techniques

Centering Hole in End of Rod

To drill a hole in the center of the end of a rod, clamp a piece of scrap wood to the table of your drill press, where the drill bit can pass all the way through the scrap and the table. Drill a hole the size of the outside diameter of the rod. Without moving the scrap, change the drill bit to the size of the hole you wish to drill in the rod. From the underside, insert the rod through the hole in the scrap and drill the hole right in the center of the rod. The closer you can keep the end of the rod to the top surface of the scrap, the more accurate it will be. This also works to make bushings. If the rod you are drilling wants to turn, you can hold it below the drill press with a pair of locking pliers.

— John Dewey
Central Illinois Chapter

Replacing Jack Spring Retainer Strings on Grand Wippens

The most important tool for this operation is the Butler EEZ-THRU Floss Threader. This is a nylon loop with a long, needlelike nose that is designed to pull dental floss under permanently installed dental bridges.

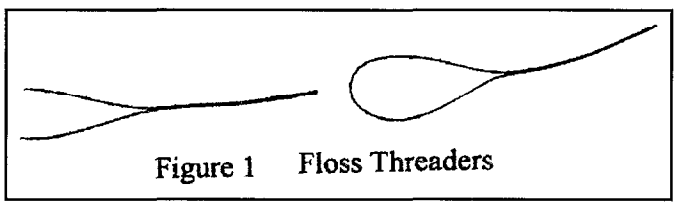

Figure 1 Floss Threaders

Figure 1 shows the loop in its original form and also one which has been cut to open the loop. After removing the plug and the remaining string from the jack, insert the needle of the floss threader through the jack far enough to draw your new string through the beginning of the loop (see Figure 3). It is then easy to pull the string back through the jack. It works equally well to hang the new string in the bottom of the "Y" and, holding the two legs of the open end together, push them through the jack from the front and pull the string through that way. Finally, remove the nylon tool and finish the job by fastening the new string in the jack with a new plug.

— Don Stephens, RPT
Oklahoma Chapter

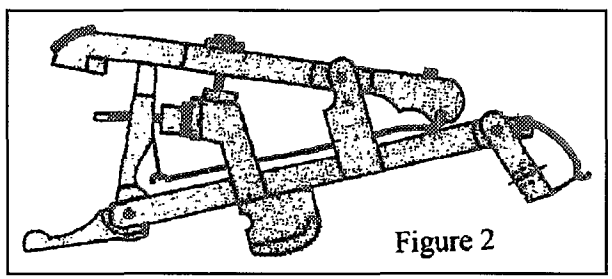

Figure 2

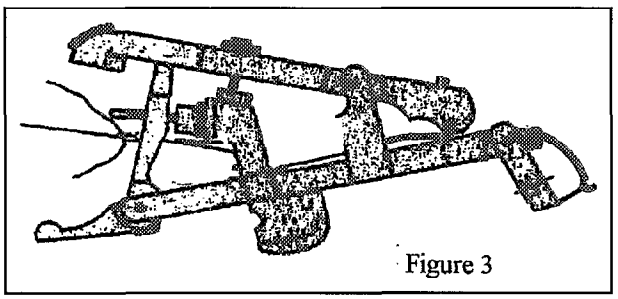

Figure 3

Muffler Rail Tip

Many times, when the muffler rail is engaged on a vertical piano (usually the middle pedal, on Asian-made instruments), the upper treble strings may have an odd, distorted sound, as if the unisons are badly out of tune (even though the piano has just been quite perfectly tuned).

Simply back off on the trapwork turnbuckle slightly to raise the rail while you strike an offending note and the tone will "clear up." The hammers were – at first – striking the muffler felt too deep, at the wrong distance and angle from the strings.

— Michael Slavin, RPT
Reprinted from NewsLINC, *newsletter of the Long Island-Nassau Chapter*

Magnetic Dust Pan

The older I get, the more often I get those not-so-funny attacks of the "YA-HAAAAs" when for some unknown reason (no, I haven't been drinking) the old nerves jump and that box of screws in my hands goes flying across the floor. It is the biggest pain in the you-know-what to sweep up the mess, separate the dust from the screws, razor blades, metal debris and whatnot and salvage the good stuff.

I saw an item advertised in a woodworking magazine where they put some magnetic tape across a dust pan to capture the steel screws. Variation on a theme: magnetize the entire dust pan! Then after sweeping mixed debris into the pan, begin step one of the reclamation by tilting the pan over. I keep a flour sifter around to help separate the dross from the treasure and an old baking tin for final salvage. Works great and is easier than any other method I've tried.

— Bob Bartnik
Reprinted from The Richmond Update, *newsletter of the Richmond, VA Chapter*

Tuning Upright Players

I recently read in Larry Fine's *The Piano Book* the following about player pianos: "Many (technicians) won't even consent to tune them because the player mechanism is in the way and makes tuning difficult. Actually, a knowledgeable technician often can remove the parts that are in the way quite quickly..."

This left me with the impression that tuning a player would be nearly the same as tuning a "normal" upright. With these facts and impressions in mind, I faced my first player upright the other day. I immediately removed the brace that extended from the plate to support the "roller box." I was about to remove this box altogether and the bellows assembly to its right when I saw all of the tubing connected to them. This was enough for me to disqualify myself as "knowledgeable" for the time being. This was a pretty frustrating tuning. Can anyone impart some knowledge please?

— Cliff Lesher
South Central Pennsylvania Chapter

Larry Fisher, RPT: Tuning player uprights is not that big a problem ... different yes. It's been decades since I had to remove a player action from a piano in order to tune it. They can be a bit more work than the ordinary upright, but with the right attitude, you can amass great wealth and prosperity.

Removing the player action on these old things should be avoided at all costs. If this means a bit more effort and frustration on your part for the duration of an hour to tune a piano, well so be it. I don't care if they've been rebuilt or if they're about to fall apart. The screws, wood and other materials and parts don't need the yearly activity and exposure to wear and damage. They're old and complicated. Parts for every player I've done in the past have been increasingly more difficult to find.

Removing the player to store somewhere else is a matter of convenience for the tuner *only*! The customer really doesn't need to be bothered with storage of the unit somewhere else in their castle when it fits quite snuggly and securely in the piano it was intended for. Leave it in there.

I don't even like tilting the action back on those that offer that feature. With some you don't have any choice but to tilt the spool box motor out of the way, but the rest of them I leave be. With some Acolians I use a short piece of dowel similar to that used for hammer shanks to prop/wedge the spool box far enough away from the tuning pins to allow free passage of my tuning lever. I try to incur as little activity on the working parts of these things as possible for the purpose of basic yearly tunings. Playing a roll through them is considered a desirable activity since it helps to keep things limber and working well. Removing the player to tune on an annual or biannual basis is a major source of potential damage and unnecessary wear.

The only time you should need to remove the player action on these old things is to facilitate repairs to the piano. Converse with the customer on the potential of hazards along the way like: age hardened rubber hose and tubing, lead tubing and fittings that crumble and break, gaskets that don't let go easily, leather nuts that disappear between your finger tips before your eyes, and rubber coated cloth that sheds rubber chips as you brush up against it. Fun stuff!!

Jazz Tuning

Yesterday I tuned for a new client who just moved here to Ohio from the Boston area. Just before I began to tune he asked me to give him the "jazz tuning," and *not* the "classical or pop" tuning. It seems his technician in Boston offered him a choice from three tunings - jazz, classical, and pop. In 21 years of tuning full time, I have never been asked to do a "jazz" tuning, although I tune for quite a few jazz players. So, I tuned the piano as I always do and he was very pleased, but I thought I'd throw it out to see if any light can be shed on this. Anybody have any thoughts on exactly what he may be referring to?

— Mark Potter
West Jefferson, Ohio

David Severance, RPT: As an amateur jazz pianist, I'm much more concerned with the color I impart with chord voicings than I am with the "key color" of any particular tuning scheme. I believe that jazz is the continued evolution of tonal music that classical composers largely abandoned for atonal music at the turn of the century. What a classical artist might require in a tuning may be entirely different from what a "jazzer" might require. With the sophisticated harmony of jazz, all kinds of colors are available within a key signature. I'm not saying historical temperaments don't fill a niche but for me I'm not sure I want a flat 9 sharp 11 to sound different in E flat than G. If I did I would voice the chord differently. Therefore, what constitutes a good tuning for me in order of importance are solid unisons, clean octaves and a well executed equal temperament.

Gina Carter, RPT: I don't know if jazz artists are more sensitive than classical ones, but I had the wonderful experience of working with Marcus Roberts last month. He was just as picky about clean unisons as any classical pianist with whom I've worked. One of the least demanding people I've ever met. He knew what he wanted: even action and a solid tuning. If ever you have the opportunity to work with him, or even just to attend one of his concerts, don't miss it. He's fabulous!

Del Fandrich, RPT: My observation has been that jazz musicians are a bit more used to the idea of being treated as second-class musicians. They often must be a little more tolerant of the poor condition of the studio piano just to get the recording made. Pianos used for classical recordings generally have actions that are in better condition and they tend to be tuned a bit better, if just as badly voiced.

However, after having conducted several thousand "factory tours" it also has been my observation that "jazz" pianists are far more sensitive to the subtleties of piano sound and voice than are "classical" pianists. To generalize greatly, the classical pianists seemed to care more about uniform action performance and jazz pianists cared much more about the sound of the piano — the music, if you will. Pop pianists didn't seem to notice either.

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Jim Harvey, RPT: I once attended a technical by an avid practitioner/supporter of historical temperaments. Several different historical temperaments were presented. On one of these, a well-known hymn was used as the demonstration piece. Frankly, it was beautiful to the extent that it sent cold chills up the spine. All the "colors" that have been mentioned here were evident. Later, I tried the same piece (same piano, same tuning, same key signature), but played my way. I used chords that I routinely use but can't begin to annotate for scoring purposes. My version was as awful as the former was beautiful. Although I remained in the "prescribed" key signature, my choice of inversions (alternate positions in 12-tone) and passing chords destroyed both the material and the otherwise skillful tuning. I concluded that the tuning is co-dependent on the score ... as originally written. I'm open to having my conclusion proved wrong, but not to changing my playing style.

Ola Andersson: As a jazz musician and concert arranger I believe equal temperament is preferred by jazz pianists. My interest in this profession started by my getting tired of jazz pianists never knowing what kind of piano they would be getting and preferring to play digital instead. For me as a gut string double bass player, playing with a digital piano is hopeless. So, for the health of the touring jazz pianist give him an equal temperament on the jazz club pianos.

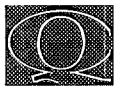
Severance: If I were to list the elements that I deemed crucial in communicating with my music, jazz, the tuning temperament wouldn't make the top twenty. In other words, for me, what the temperament can add or subtract in comparison to more important elements is insignificant in the broader framework of what we are trying to do as musicians. It's a non-issue. Even though I find equal temperament suits my purposes quite well I wouldn't refuse to play a piano tuned in an another temperament any more than I would refuse to play a grand that had a high gloss finish instead of satin. Just personal taste, nothing more. I've read Owen Jorgensen's books. I've tuned and played historical temperaments off and on for over 20 years and I still prefer equal temperament.

Mark Potter Responds

Thanks to all who weighed in on what may constitute a "jazz tuning." I certainly had decided that with all the key modulation and extended chords and rich coloring inherent in jazz playing, equal temperament was a choice that surely would not disappoint most players. It's hard to argue with David's wish list of solid unisons, clean octaves and a well-executed equal temperament.

While it's true that I too have noticed in some jazz recordings, more so than in classical ones, that somebody neglected to have the piano tuned, I certainly wouldn't deduce that any player would actually *prefer* it that way! I wonder if perhaps an acceptance of the piano's condition, however poor that may be, might not creep into the psyche of the inveterate jazz player due to the multitude of poorly attended pianos one may play in the course of so much club work. If playing a slightly out of tune piano drove you nuts, playing jazz for a living might not be a healthy career path! Just a theory....

FAC Averaging



I have a good instructor/client with a 1917 5' 7" Sohmer grand and a '70s Baldwin SD-10 in her studio. She always wants the two tuned to each other for obvious reasons, but I keep telling her that the best I can do is have them both at the same pitch, and beyond that the pianos are just too different to tune exactly to each other. Then I started thinking, maybe there is a compromise, in between, that would allow me to do this. Is this possible? How would I determine the compromise? She's rather picky – would she be happy with the result? Where does the line get drawn as to which pianos (style, make, model, size, etc.) can be tuned exactly to each other? I use an SAT, and maybe I could play around with the FAC numbers to reach the compromise.

—John Piesik, RPT
San Diego, CA Chapter

Marcel Carey, RPT: I averaged FAC tunings at the Orford Art Center to tune a S & S model D and a Yamaha CF III for two-piano concerts. The two pianos sounded very clean and crisp together. When checking individual tunings on both pianos, the tunings were very acceptable, not perfect but ... I ended up using the same tuning for all concerts that summer and I never got a single complaint about the tuning. Last summer I used RCT and averaged the tunings for the same two pianos and they were fine too.

Paul S. Larudee, RPT: Averaging them is easy on an RCT because the program will do it for you. It may be a bit more cumbersome on a SAT, but it's just math. If you like, you can give greater weight to one piano than to the other.

Michael Jorgensen, RPT: Tune the piano with higher inharmonicity first using "natural stretch" as some refer to it. (i.e. all 10^{ths} and 17^{ths} beating the same speed). Alternatively, choose a low stretch number on an electronic tuning device and/or average them. The lower inharmonicity piano will not have to be stretched as far to match. The bass will never match with good unisons but the trebles likely can. It's wise to educate your customer explaining reasons for that limitation. Test the pianos by playing simultaneous chromatic scales on both.

Keith McGavern, RPT: In one situation I have 24 Sohmer studios in one building, numerous Yamaha U1s in another, and a bunch of Baldwin Hamiltons. I used to average all the FAC readings on these particular pianos in a computer spreadsheet when I was using the SAT II, now I let RCT do it. It just seems to be the way to go now. It's really quite interesting to read and discover all the different ways that are being used by piano tuners to choose how they want to perform the job of tuning a piano.

Fred Sturm, RPT: I think the notion of using the "same" tuning for two disparate pianos is misguided. The sameness of the tuning is only for those partials which the tuning program reads, i.e., sixth partial in the bass, fourth in the tenor, second in the mid-treble and first in the high treble for an SAT. Now, if you play the two pianos together, they will sound

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more in tune to each other if their first partials correspond throughout (that's an oversimplification, I know, but reasonably accurate. At any rate, the fourth or sixth partials are rarely the optimum partials to match.)

I believe it is better to tune each piano to itself and let the chips fall where they may, for the most part. I have done this with considerable success for many years. Our piano teaching studios each have a Steinway B "matched" with a Yamaha G-2, quite disparate. I've never had a complaint.

In a concert situation, I would place the pianos together and play unisons throughout to pick up any oddities. Tune each piano to itself and there will be very little that will stand out when the two are played together.

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Touchweight a Matter of Physics

Relative to the conflicting letters from Andrew Margrave and David Hughes, I believe that the key to the different touchweight of a note with the bridle wire too far toward the keys lies in the physics involved. The hammer assembly weight is lifted by the jack under normal conditions. Under "bridle wire too far toward the keys" conditions, this weight is augmented by the weight of the whippens being pulled by the hammer assembly. Both Hughes and Margrave are right. The difference in touchweight is due to the differing distances from the fulcrum points of the action parts involved. Normally the whippen weight, which is always present (Hughes), is pushed up as the key is played. With the bridle wire too far toward the key, the whippen weight becomes involved as part of the hammer assembly weight since it is being tugged by the hammer butt stop via the bridle strap. Without weight, the whippen would not impede the hammer assembly. But, as David Hughes states, it is the way this weight acts that causes the problem. Now not only is the dead weight of the whippen involved, as before, but now it is acting to increase the apparent weight of the hammer assembly. It actually takes less force to move the whippen when the force is acting upon it farther from the pivot point (bridle wire vs. capstan or sticker). Of course this is far outweighed by the very disproportional effect this drag has upon the operating weight of the hammer assembly, since this unwanted drag is farther away from the hammer assembly's pivot point than is the jack.

—Jim Cox, RPT
Northern Michigan Chapter

A Guide to Bridge Recapping — Part V

By Bob Hohf, RPT
Contributing Editor

"...where angels fear to tread."

I am not a physicist or an engineer. Neither a mathematician nor a scholar. I am a craftsman and a dreamer. If I am also a fool for venturing into this realm, so be it. If there is anyone who has all of the qualifications necessary to speak with authority on this topic, let that person step forward. In the meantime:

Downbearing

If it is possible to make a statement about downbearing that all piano people can agree upon, it might be the following: "Downbearing is important." Downbearing is one of the most fundamental parameters of piano construction. It is intimately involved in the tone production and the tonal balance of pianos. For generations, piano makers and rebuilders have measured, discussed, created and laid awake at night pondering downbearing. And yet, the moment one moves beyond the statement, "Downbearing is important," consensus ends. Some technicians measure downbearing with rocker gauges, some with bubble gauges; some measure angles, some take measurements with coins; some have formulas, handed down from mentor to student, for calculating downbearing. Those inclined to wonder about pianos can strike the jackpot by wondering about down-bearing. It is a wide-open field. Sift through the dozen or so theories currently on the table; consider carefully their similarities and differences, their strengths and weaknesses. Then throw them all out and devise your own. Try it, it's fun.

For the purposes of our discussion here, we will define downbearing in terms of *force*, or rather, *opposing forces*. Since we are defining downbearing in terms of forces, it can be quantified by using normal units of force such as pounds, kilograms, newtons, etc. The opposing forces are generated by the strings under tension and the soundboard under tension and compression. When a string under tension is deflected away from the straight line that describes its rest position, it exerts force and will return to the rest position unless it meets a resistance that opposes the force. The more the string is deflected, the greater is the force it exerts to return to rest. Similarly, when a soundboard is deflected from its unloaded rest position, it exerts force to return to rest unless it meets a resistance that opposes its force. Again, the greater the deflection, the greater is the force to return. Pianos are designed in such a way that the forces between the deflected strings and the deflected soundboard *oppose* each other in a strung piano. The forces exerted by the deflected strings and soundboard each provide the resistance that prevents the other from returning to rest.

Figure 1 illustrates the forces between the soundboard and strings in three cases, using arrows to represent the magnitudes and the directions of the forces. In this drawing, the thicker the arrow the greater the force. Case 1 represents a soundboard whose position is near to its rest or unloaded position and a string that is deflected far from its rest position. Remembering that, for both the string and soundboard, the greater the deflection, the greater the force; the upward force of the soundboard is small and the downward force of the string is large. The greater force of the string will overcome the weaker force of the soundboard and move the soundboard downward. As the soundboard moves downward and *farther* from its rest position, the force it exerts increases. At the same time the string also moves downward and *closer* to its rest position, decreasing its force as it moves. At some point the *increasing* force exerted by the soundboard will exactly equal the *decreasing* force of the string, and the soundboard/string system will stop moving at that point of equilibrium. The equilibrium is represented by Case 2 where the two forces are equal and opposite. Case 3 represents a string that is deflected only slightly from its rest position and a soundboard whose deflection is far from rest. In this case, the upward force of the soundboard is greater than the downward force of

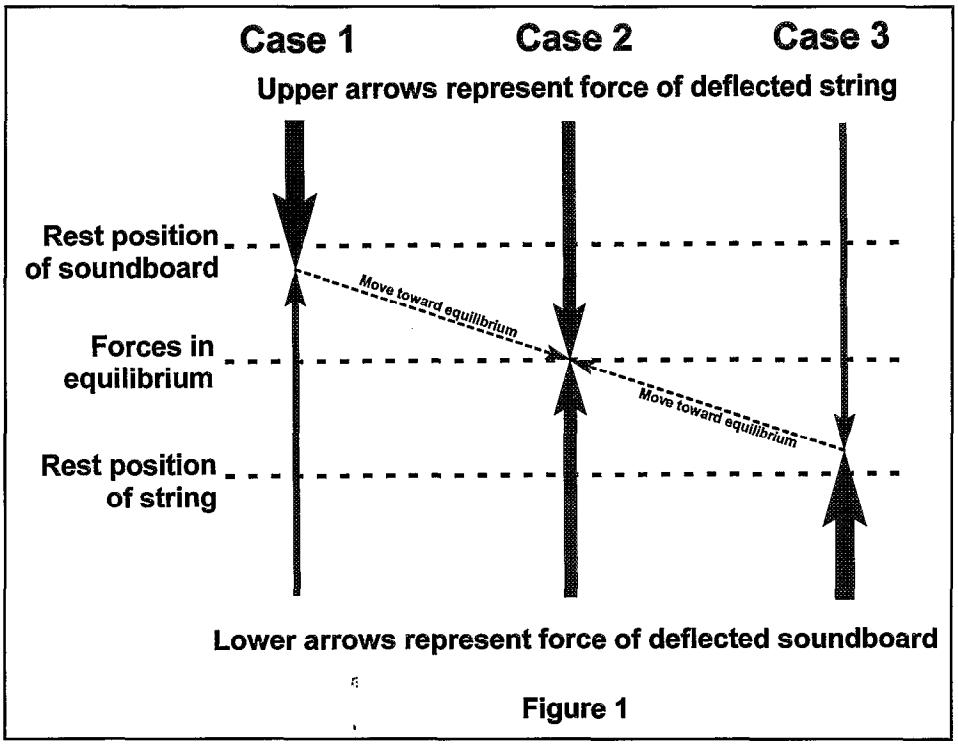

Figure 1

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the string. The string and soundboard will move upward to the point where the forces are in equilibrium. Cases 1 and 3 are unstable and cannot exist more than momentarily in reality. The opposing forces of the soundboard/string system always will move to the point where the forces are in equilibrium represented by the center case.

Pondering the equilibrium of forces between strings and soundboard can provide some insight into why downbearing is so poorly understood. Defining downbearing in terms of forces, rather than in terms of geometry, means that there is no *practical* method of directly measuring downbearing in a strung piano.[1] Also, even though the rest positions of the strings and soundboard can be accurately established, the actual equilibrium position of both in the strung piano *cannot be predicted.* The point at which the forces will balance will be somewhere between the two rest positions, but that is about all we can say for certain. In spite of the way Figure 1 is drawn, the point of equilibrium between the strings and soundboard is *not necessarily* half the distance between the rest positions of the strings and soundboard. Soundboards are much more flexible in the bass and tenor sections than in the high treble. Relating force to deflection in strings is straightforward: different strings with the same parameters will always exert the same force when deflected the same amount. On the other hand, relating force to deflection in a soundboard is far from straightforward. Not only does soundboard stiffness vary in different areas of the same board, but stiffness can vary greatly from piano to piano even when the pianos are seemingly identical. To further cloud the issue, the force exerted by the soundboard changes with the humidity: when humidity goes up, the soundboard force increases and the point of equilibrium rises. The opposite happens when the humidity falls. All these factors contribute to the difficulty in creating a model describing how the vibrating energy is transduced from the strings to the soundboard.

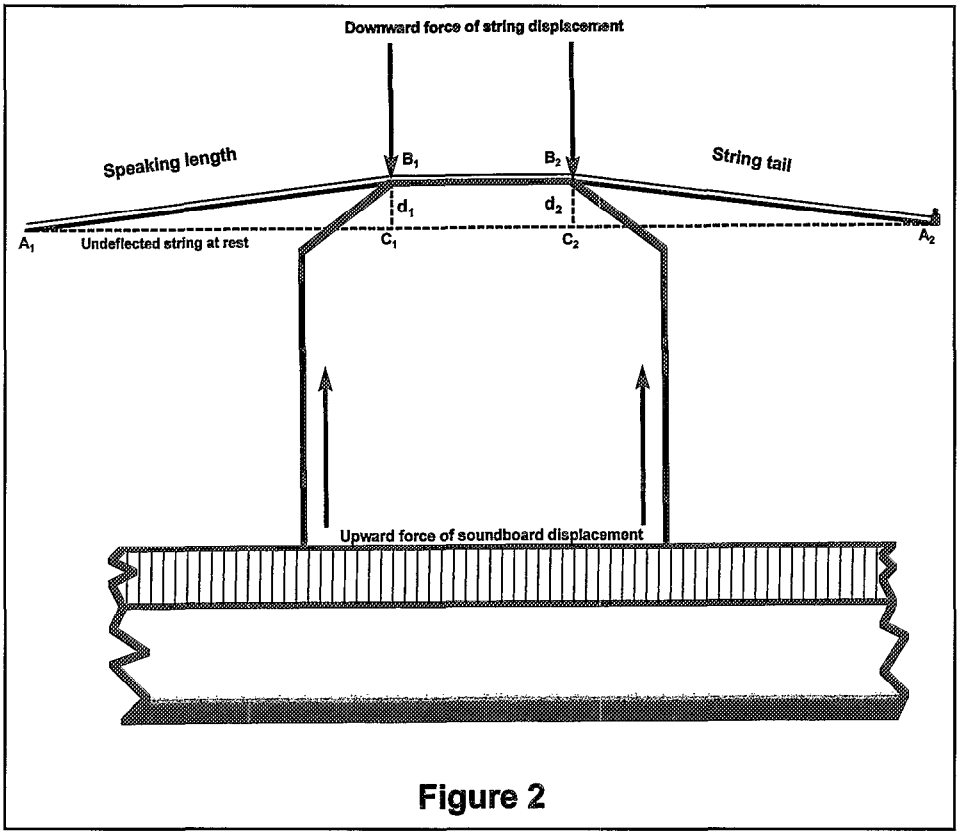

Figure 2

Our goal is, of course, to devise a procedure which will put us in *control* establishing optimum downbearing. The optimum downbearing is the equilibrium of forces between the strings and soundboard that will result in the minimum of energy loss into the system. Please note that I am not talking about *impedance.* Impedance refers to the *rate* that energy moves from one element of the system to another and not to the *efficiency* of the energy flow. *Increasing* impedance slows the rate of energy transduction, thus *increasing* sustain and *decreasing* volume. Therefore, there is no *optimum* impedance for a piano. Instruments with different impedances will have different musical capabilities: which is better or worse is largely a matter of taste. It often is taken for granted that the impedance of the energy transduction between the strings and the bridge/soundboard is directly related to downbearing: that is, increasing downbearing increases impedance and decreasing downbearing decreases impedance. I believe there is reason to think there is no such relationship between downbearing and impedance. Consider the many pianos in the world with more than ample downbearing in the top two treble sections. If impedance were directly related to downbearing, these pianos would have *high* impedance, and, thus, long sustain and weaker volume. In reality, these pianos frequently have neither sustain nor volume. I have have done low-tech experiments involving a monochord and model sound-boards where the forces of down-bearing were easily variable. In this simple setup, I have never observed any audible change in sustain or volume related to changing down-bearing.[2]

"But come closer, Starbuck, thou requirest a little lower layer" [3]

The belief I am expressing is that optimum downbearing has more to do with minimizing energy loss than with establishing impedance. Energy loss includes energy that is diverted into heating up the system and energy that establishes modes of vibration in the system that do not produce audible sound. Reducing energy loss in the system might easily be attributed to a change in impedance. The difference is that reducing energy loss can increase *both* sustain and volume. The goal in optimizing downbearing is to maximize both sustain and volume, not trade one for the other.

Figure 2 is a diagram of a string deflected by a bridge creating

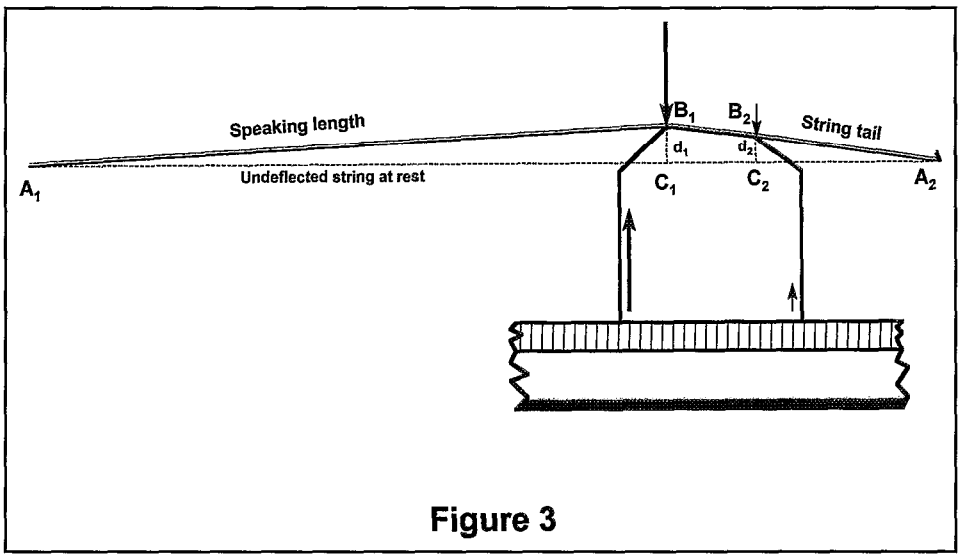

Figure 3

downbearing. The downward force exerted by the string is represented by the two arrows at points B1 and B2. B1 represents the bridge termination of the speaking length of the string, and B2 represents the bridge termination of the string tail or aliquot. The downward force is represented by two arrows because B1 and B2 are the points where the great majority of the force of the string displacement is exerted. If the termination points were absolutely incompressible and the top of the bridge were perfectly flat, there would be *no* downward pressure between points B1 and B2. Of course, in reality, the pressure of the string creates a rounded surface at the termination points by compressing the rock maple cap. The dotted line A1A2 defines the undeflected rest position of the string and the lines B1C1 and B2C2 represent the displacement at the string terminations. The lengths of B1C1 and B2C2, represented by d1 and d2, are equal in this case. The upward force exerted by the deflected soundboard to balance the force of the string is represented by the upward arrows on the bridge. Figure 2 represents a beautifully symmetrical case where the speaking length equals the tail length, the force of the string is exerted equally at both the front and rear terminations and the force exerted by the displaced soundboard is in exact opposition to the string force in both quantity and direction. This situation can occur on, at most, a few strings in a piano and even then only by the serendipity of the physical universe.

While Figure 2 diagrams a fictional symmetry, Figure 3 shows an asymmetrical configuration which is very common in real pianos. The speaking length of the string is several times longer than the string tail. The top of the bridge, defined by the line B1B2 , is not parallel to the rest position of the undeflected string, line A1A2, and d1>d2. In this configuration, the string exerts great force at the speaking length termination, point B1, and very little force at the string tail termination, point B2. The depression left by the string at B1 is deep with crushed or perhaps flaking wood while the depression at B2 is slight or nonexistent. To counter the force exerted by the string, the soundboard twists to accommodate.

The actual length of the lines on the bridge cap where the force is exerted depends on the amount of the force and the compressibility of the cap. Greater downbearing or softer wood will result in longer and deeper impressions made by the strings on the caps. It is the lengths of the three string segments, A1B1, B1B2, and B2A2, and the displacements, d1 and d2, that determine the magnitude and distribution of the force exerted by the string. Once the bridge cap finally is shaped, the soundboard will contort in any way that it has to in order to provide exact opposition to the forces of the strings. Does this sound like "the tail wagging the dog?" It is. In a strung piano, the displaced soundboard must be in such a shape that it can vibrate in a manner that will produce audible sound. The shaping of the bridge cap determines the magnitude, distribution and directions of the forces of downbearing. Improper shaping of the bridge caps can, and often does, push the soundboard into a shape where it is not free to resonate and vibrating energy is absorbed rather than radiated.

Figure 4 is a schematic diagram of the string configuration of Figure 3. Figure 4 is drawn grossly out of scale in order to clarify the relationships. As mentioned above, the downward force of the deflected string on the top of the bridge is not exerted at a single point but distributed mainly between two points (B1 and B2). By extrapolating speaking length, A1B1, and the string tail, B2A2, we can create an intersection at a point Dp. Dp defines the *single point* of deflection that would produce the same positions of the speaking length and string tail as diagrammed in Figure 4. We can call Dp the *primary displacement* and the length dp reflects the *total* force exerted by the string as if it were applied to only one point. In this configuration,

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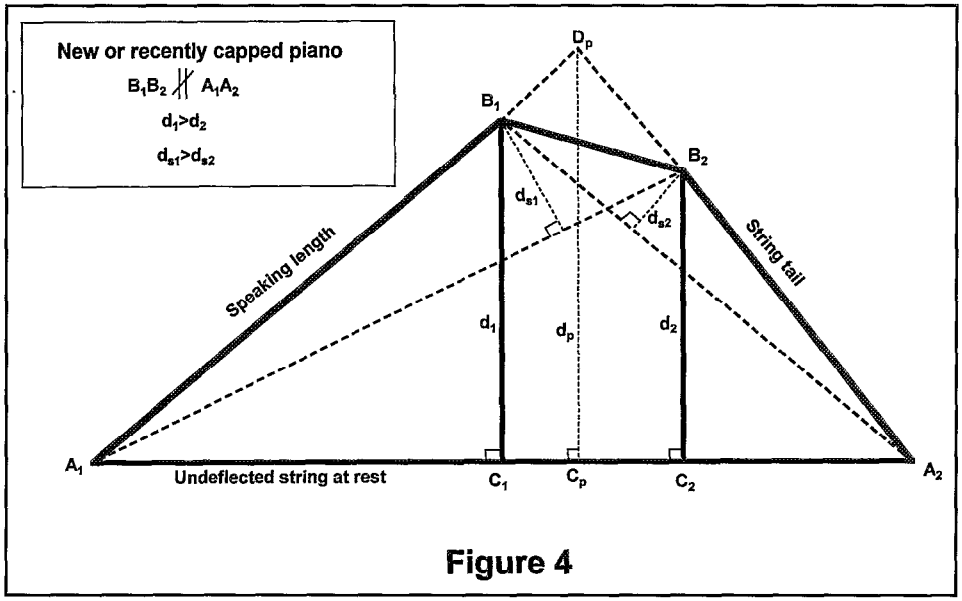

Figure 4

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$d_p > d_1 > d_2$. The total downward force of a string deflected to the single point D_p would be the same as the total force distributed between the two points B_1 and B_2 (the string termination points on the bridge cap).

By connecting point A_1 with B_2 and B_1 with A_2, as in Figure 4, we can create the two *secondary displacements*, d_{s1} and d_{s2}. I have drawn the diagram with d_{s1} greater than d_{s2} because this is the case most commonly found in pianos. The proportion of these two secondary displacements reflects the distribution of the total string displacement force between the points B_1 and B_2. In other words, if d_{s1} is twice as long as d_{s2}, B_1 will receive 2/3 of the total force and B_2 will receive 1/3.

Understanding downbearing is further complicated by the fact that the ability of deformed wood to spring back into its original shape is limited. Over time the wood in a soundboard takes on a *compression set*. This means that, when wood is bent and immediately released, it will return to its original shape, but the longer it is held in the bent shape, the less it will return. Over time wood tends to forget its original shape and take on whatever new shape it is forced into. What this means in the piano is that the rest position of the soundboard in Figure 1 moves *downward* closer to the rest position of the string. The upward force that the soundboard can exert to balance the downward force of the string *decreases*. Since the wire of the string has a much longer memory than wood, its ability to exert downward force remains constant. Therefore, the point where the forces are in equilibrium moves *downward*. This is why soundboard crown and downbearing *decrease* as pianos age.

Where Figure 4 illustrates the potential configuration in a new or newly-recapped piano, Figure 5 illustrates the string configuration of a piano where the soundboard has taken on a significant compression set. Applying the same sort of analysis as in Figure 4 reveals some dramatic results. In Figure 5, point B_2 has dropped below the line B_1A_2. This means that d_{s2} is now *negative* and the force of the string is now pulling *up* on B_2. This reversal of force direction occurs in spite of the fact that B_2 lies above A_1A_2, the undeflected string at rest. The primary displacement, D_p, no longer lies between B_1 and B_2. B_1 now receives the total downbearing of the deflected string plus the force caused by the negative secondary displacement of d_{s2}.

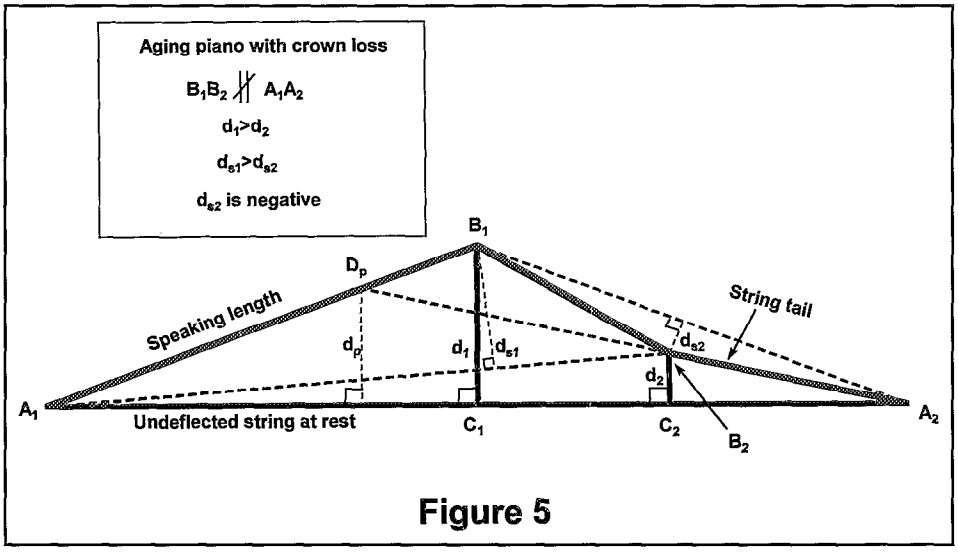


Figure 5

Figure 6 depicts a more advanced case of crown loss where B_2 has dropped below A_1A_2, but there is still positive downbearing at B_1. I am including Figure 6 as an exercise for anyone who may want to test their understanding of this analytical technique. First, referring to Figure 5, draw in the various displacements. Then take the letters from their jolly little pile and place them by their appropriate points and lines. For extra credit, draw in arrows representing the various components of force including both relative magnitude and direction.

Figures 4, 5 and 6 illustrate what happens when a bridge cap is shaped in such a way that the top surface of the cap is *not parallel* to the rest position of the string, and $d_1 > d_2$. In my experience, this is the most common configuration found in pianos. This configuration may be satisfactory initially. However, one does not have to fully understand the diagrams to appreciate that, when the piano ages and the rear downbearing becomes negative, the balance of forces between the string and the soundboard becomes severely disrupted. Considering how the soundboard must contort in order to counteract the force of the string in Figures 5 and 6, it seems reasonable to assume that the stresses imposed upon the soundboard very possibly may inhibit its ability to resonate. There are certainly pianos that straddle the cases depicted in Figures 5 and 6 on a seasonal basis and that exhibit a dramatic loss of tone in the dry time of the year. While not all seasonal problems with tone can be explained with this model, there are those that follow these patterns.

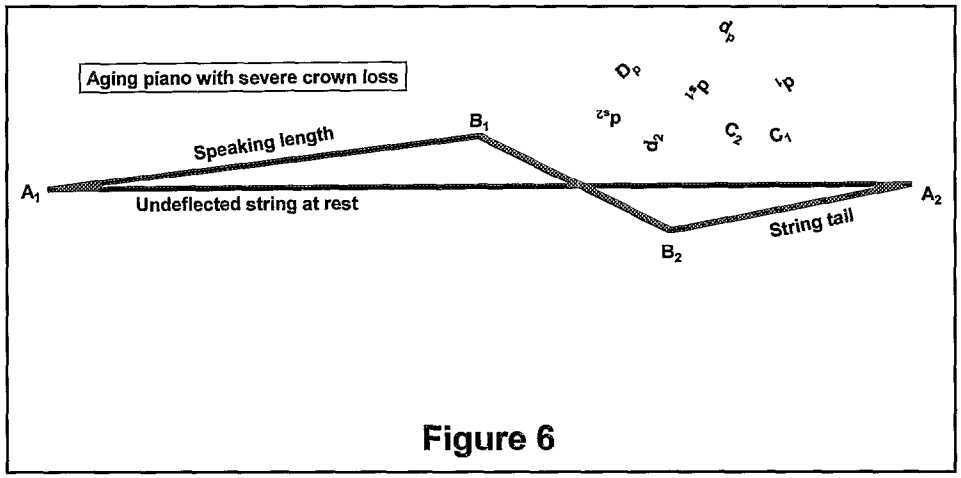


Figure 6

One might ponder the reasoning behind creating this common configuration of down-bearing. It seems likely that the front of the bridge cap is raised in order to make a more definite termination for the speaking length of the string. However,

any gain in this area will be obliterated when the excessive force on the front of the bridge drives the soundboard down to the point where the rear bearing becomes negative and beyond. Actually, I tend to believe that severe errors are inherent when downbearing is conceived in terms of angles rather than by forces, and when the bridge cap is shaped with the soundboard in its unloaded rest position.

Figure 7 shows the configuration where the top of the bridge, B1B2, is parallel to the undeflected string position, A1A2, and therefore d1=d2. Since the speaking length, A1B1, is almost always longer than the string tail, A2B2, $d_{s1}<d_{s2}$. This means that there is *less* downward force at B1 than at B2. The beauty of this configuration is that, as the piano ages and gradually looses its crown, the top of the bridge *remains parallel* to the undeflected string position. This means that the *ratio of the magnitudes* of the forces at B1 and B2 remains constant, and the piano arrives at the condition of zero downbearing at both B1 and B2 *at the same time.* The configuration in Figure 7 is the *only* one with these properties. Some may question the wisdom of having less downbearing (force) on the front of the bridge than on the rear. But Figures 4 - 6 describe what happens when there is *more* force at B1 than at B2, and it is *not possible* to establish *equal* forces at B1 and B2 more than temporarily. Equal forces at B1 and B2 implies a *non-parallel* configuration, and in the non-parallel configuration any change in the soundboard due to humidity or aging will throw off the equality. The only exception is where the speaking length is equal to the string tail length, *and* d1=d2.

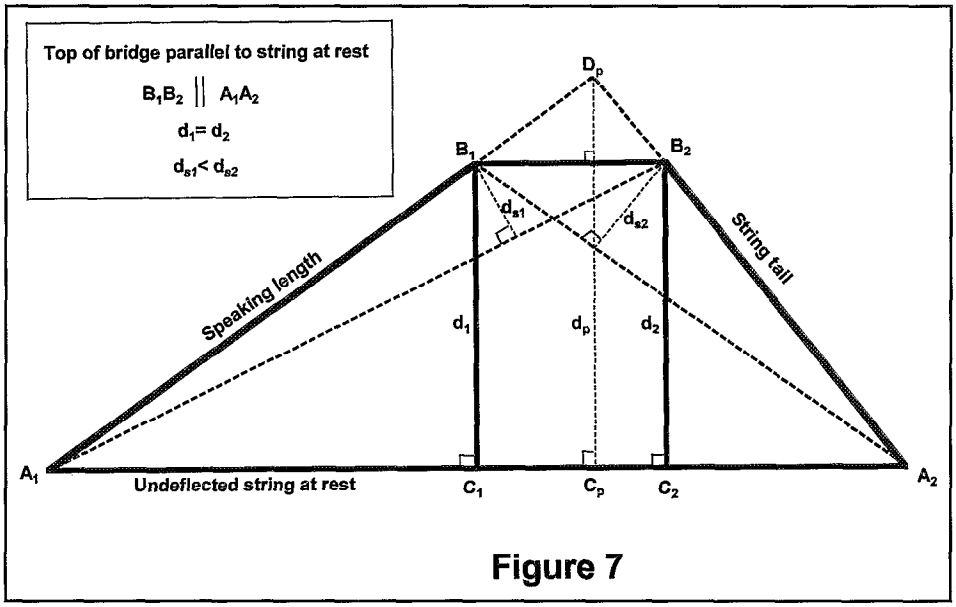


Figure 7

"Hark ye yet again, — the little lower layer"[4]

We have been discussing the distribution of forces that one string exerts *across* the top of a bridge, but this is only part of the story. Perhaps of even greater importance to the overall performance of a piano is the distribution of downbearing along the *length* of the bridges. It often seems that, as piano technicians, we have spent so much time studying and working on pianos that we now have difficulty recognizing some of their most obvious features. It can be very useful to practice a simple exercise from time to time: clear your mind, banish all thoughts of technical information and simply look at a piano as if for the first time. After a while your gaze may wander to the inside of the piano and notice the plate, strings, bridges and soundboard. One of the most striking interior features of every piano is that there are so many strings close together on the bridge in the treble and the strings become fewer and farther apart as the bridges extend into the bass. We have seen this so many times that we have become numb to its significance and yet this feature is of primary importance in understanding the resonant system of the piano.

Chart 1 (Page 22) draws comparisons between the sections in one large and one small piano. The purpose of Chart 1 is to relate the number of strings to the bridge length in the different sections of the two pianos. The Model D is a 5 section piano while Model M is a 4 section piano. Therefore, sections 2 and 2a together in the Model D correspond to section 2 in the Model M. I separated sections 2 and 2a on the chart to show the difference between the low and high tenor in the Model D. Sections 3 and 4 in both pianos are strikingly similar. The most important numbers on the chart are the numbers of strings per inch of bridge length in the different sections. In the Model D there are 2 to 5 times as many strings per inch of bridge in the treble as in the other ranges of the piano. In the smaller Model M, the between ranges are somewhat smaller, but there are still about twice as many strings per inch of bridge in the treble as in the other ranges. Looking at these statistics, one might be tempted to conclude that the imbalance of tone which characteristically plagues larger pianos may not be due to string length alone. The smaller discrepancies between the sections of the Model M may help us understand the commonly expressed sentiment that smaller pianos often have *better* high trebles than larger pianos.

What Does This Have to Do With Downbearing?

Historically, there seems to have been a "rule of thumb" for setting downbearing among piano makers which even may persist into the present day. This is known as the "One-fortieth Rule."[5] This rule states that the downward pressure of each string on the bridge should be one-fortieth of its tension. This amount of downbearing was achieved by attempting to deflect each string at 1.5 degrees from its undeflected rest position. A very important implication of the One-Fortieth Rule is that, with an equal-tension scale, every string should push downward on the bridge with the same force. For 160 lbs. tension, this would amount to 4 lbs. of downward force per string. In real pianos with tension that varies, the downward force of each string would vary somewhat.

In order to understand what the One-fortieth Rule means to the overall function of a piano, let us hypothesize a

Continued on Next Page

A Guide to Bridge Recapping

Continued from Previous Page

Model D and a Model M piano that both have equal-tension scales and that both have downbearing set according to the One-fortieth Rule. We are setting up these imaginary pianos in this way to so that we can simplify calculating the distribution of the downbearing along the length of the bridges. Now let us define the term load density as *the percentage of the total downbearing per inch of bridge length.* The reason for defining load density in this way is to provide us with a unit of measurement that will allow us to compare the load densities of different pianos. In our imaginary pianos, the load density in a particular section can be calculated by dividing the "% of total" number of strings by the bridge length of that section. For example, the load density of our special Model D in section 4 is 21%/10"= 1.87.

The load density refers to the *distribution* of the forces of downbearing, that is, how the total forces of downbearing are spread out over the lengths of the bridges. It is my belief that the distribution of the force of downbearing is far more important to the overall function of the instrument than the total amount of force. There is no point in attempting to figure the absolute amount of force per inch of bridge length because this changes constantly due to changes in humidity and the natural process of aging.

Chart 2 lists the calculated load density in every section of our imaginary pianos. We can see readily that section 4 of Model D has almost 5 times the load density of section 2. In the Model M the discrepancy is less but the load density of section 4 is still over twice that of section 2. Considering sections 3 and 4 together, the Model D has 43 percent (1.87 x [10 + 13]) of the total load on 20 percent (9 + 11) of the bridge length. The Model M has 34 percent (1.58 x [9.5 + 12]) of the total load on 29 percent (13 + 16) of the bridge length. On the other hand, section 2 and 2a of Model D have 41 percent of the total load on 56 percent of the bridge length, and section 2 of Model M has 36 percent of the total load on 47 percent of the bridge length.

Graphs 1 and 2 (Page 23) show the load density data from Chart 2. The degree of the load imbalance on the treble bridge of our imaginary Model D is striking. One cannot help but wonder whether this load imbalance is somehow related to the characteristic tone imbalance found in many large pianos, especially since the load imbalance in the smaller Model M is much less pronounced. String length and overall size certainly contribute to the different tonal characteristics of small and large pianos. Unfortunately, these parameters are beyond the limits of what rebuilders can address. But we have some strong suggestions that the distribution of the downbearing also can influence the tonal character of a piano. Learning to adjust tonal balance using downbearing can put a very powerful tool into a rebuilder's bag.

We must also wonder how greatly our imaginary pianos differ from those in the real world. Real scales can have widely varying string tensions. And it is questionable how accurately the One-Fortieth Rule actually could be implemented, even if one would attempt to set a piano up this way. However, we are discussing a *model* for downbearing whose usefulness is determined only by its ability to describe real world instruments. I believe there are many pianos whose tonal problems can be clarified in terms of load distribution.

"Equal" load distribution

Perhaps one of the most fascinating things about the piano is that it is very difficult to *prove* anything significant. Certainly, the above discussion of load density and distribution doesn't prove anything, in spite of its charts, numbers and calculations. It is merely an attempt to gain some understanding in order to approach the process of setting downbearing with something other than a handful of dice.

Before attempting to devise new methods and procedures, one must first form a clear idea of how the improved piano might differ from those produced by conventional methods. The goals here are the same as they have been for generations: wide dynamic range, long sustain, and, perhaps most important, balance of both tone and power in the different registers. Traditionally, theoretical analysis has been shown to be of only limited use in attaining these goals. In piano work, it seems that the *empirical* always wins out over the theoretical. This means trial and error. In the case of downbearing, it means try something and see what happens, and if you don't like the result, try something else. Of course, with complex operations on pianos, trial and error can become very expensive and time consuming. In order to minimize waste and maximize the probability of success, two things are very helpful: a clear idea of the goals based on understanding the

CHART 1

	Model D	Model M
Total bridge length	117"	73"
Total # of strings	243	226
Section 1		
Bridge length-% of total	29"-25%	17.5"-24%
# of strings-% of total	39-16%	42-19%
Strings/inch of bridge length	1.34	2.40
Section 2		
Bridge length-% of total	42"-36%	34"-47%
# of strings-% of total	45-19%	82-36%
Strings/inch of bridge length	1.07	2.41
Section 2a (Model D only)		
Bridge length-% of total	23"-20%	
# of strings-% of total	54-22%	
Strings/inch of bridge length	2.35	
Section 3		
Bridge length-% of total	13"-11%	12"-16%
# of strings-% of total	54-22%	51-23%
Strings/in.	4.15	4.25
Section 4		
Bridge length-% of total	10"-9%	9.5"-13%
# of strings-% of total	51-21%	51-23%
Strings/inch of bridge length	5.1	5.37

CHART 2

Load Density

Imaginary pianos with equal tension scales, set up with the One-Fortieth Rule

	Model D	Model M
Section 1	0.55	1.08
Section 2	0.45	1.06
Section 2a	0.95	
Section 3	1.69	1.92
Section 4	2.10	2.42
Section 3 & 4	1.87	1.58

choices and control over the tools and materials involved. Without this control, the best ideas in the world are useless since they cannot be accurately implemented.

Based on the above discussion, it seems very possible that creating downbearing in a way that is *balanced* along the length of the bridges might be an improvement over downbearing that is *unbalanced.* Balanced downbearing means that the load density is uniform or *equally distributed* along the entire length of the bridges. We have seen that some pianos already may have a much more balanced load density than others. Conceiving the idea of uniform load density, or equally distributed downbearing, is easy, but devising a procedure that will implement the idea is not.

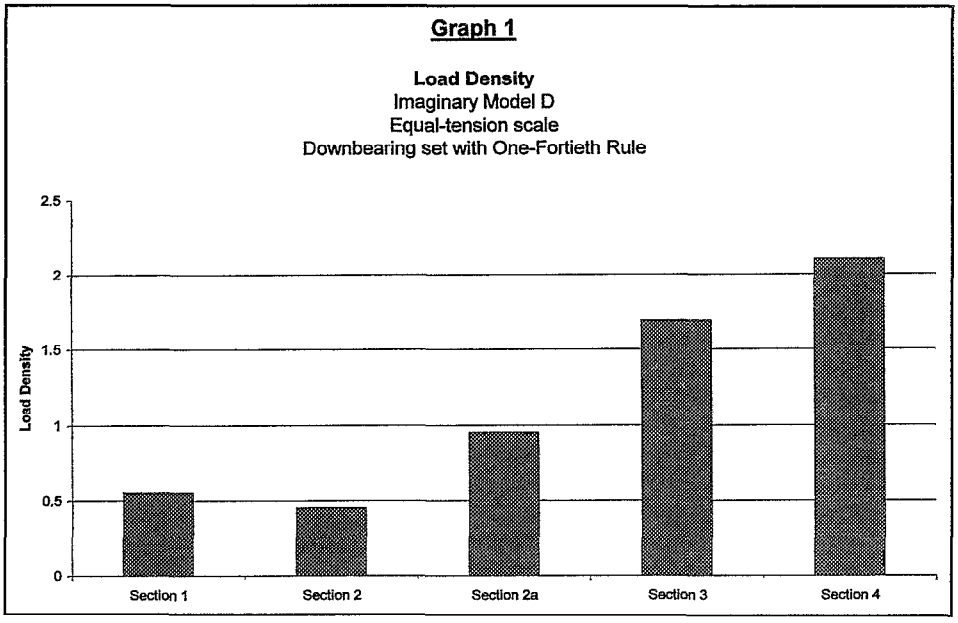
"Equal" distribution of downbearing is very similar to "Equal" Temperament, in that "equal" in both is a theoretical ideal rather than a practical reality. There probably never has been, nor ever will be, a piano tuned to a perfectly equal temperament, just as a piano with a truly equal distribution of downbearing is probably impossible. In both cases practical reality and the imperfection of materials will prevent attaining the ideal. However, understanding this, I have no problem with using the word "equal" in either case, even if it refers only to *intent* and not the actual result.

Summary

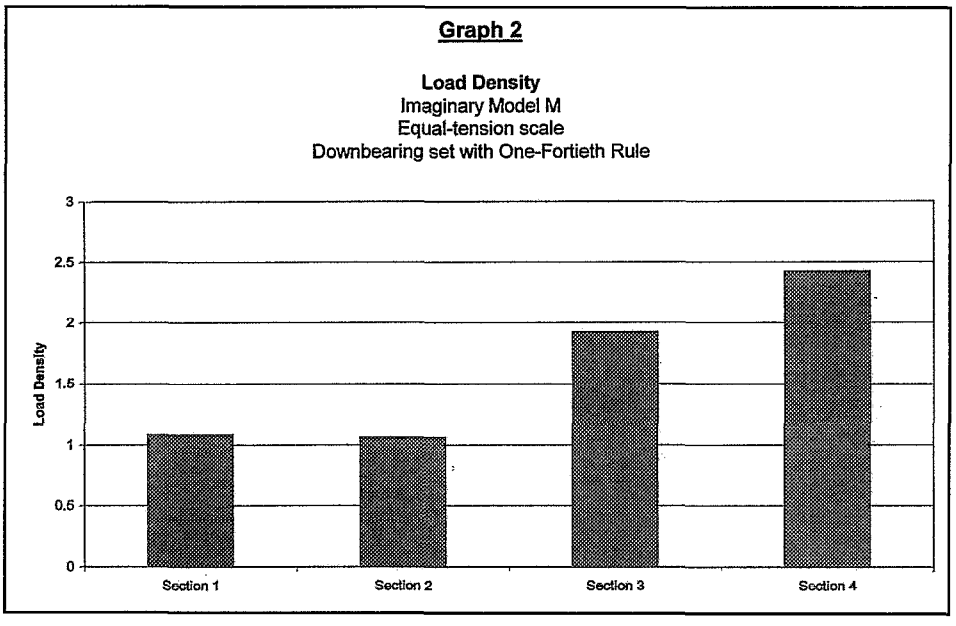
This discussion of downbearing might well be considered just the "tip of the iceberg." It is in no way exhaustive or definitive. Far more information can be gleaned from the type of analysis in Figures 4 - 7 than what we have drawn from them here. I have deliberately avoided some thorny issues and glossed over others. We have only pursued the discussion to the extent that is necessary in order to understand the reasoning behind my method of establishing downbearing.

In my pianos, I want the top surface of the bridge cap *parallel* to the undeflected position of the strings *when the piano is strung and up to pitch.* I also want the load density to be as constant as possible along the length of both bridges. This means *less* downbearing per string in the treble and *more* downbearing per string in the tenor and bass than is conventional. I believe setting these two parameters in this way makes better pianos. In any case, regardless of what my personal goals may be, I believe my method of establishing downbearing gives the rebuilder more power to control the entire recapping process than the other methods with which I am familiar. The method can be used to produce *consistent* and *predictable* results whatever the goals of a particular rebuilder may be. Next time we will discuss the method.

Graph 1



Graph 2



Notes

1. Actually, I believe there is a way to arrive at an accurate assessment of the total force of downbearing in a strung piano by direct measurement. However, it is complex and *impractical.* Personally, I have deferred pursuing this idea until my retirement.
2. My findings are, admittedly, far from definitive. I am well aware that others with more credentials than I have believe in the direct relationsip between impedance and downbearing.
3. Ahab attending to the threat of insurrection in *Moby Dick.*
4. Ibid.
5. Gravagne, Nick. "Good Vibrations," *Piano Technicians Journal,* March 1988.

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Ear Training — Part I

By Edward Sutton, RPT
Pittsburgh, PA Chapter

Graceful, flowing work is the goal of all our learning. Making money is good, being recognized is good, helping people is good, but all of this is better if we can enjoy doing it. Much of the material we study is highly intellectualized. This is necessary for us to understand what we are doing, but in another sense, it isn't always the best way to learn how to do what we ultimately do. For piano work to flow, it needs an element of play, an element of the athletic, a touch of the sensual and ultimately a sense of the musical and melodic.

In a way, tuning is a form of playing the piano. Enjoyment is empowering. It helps us to hone and extend our skills. The responsibility for finding his or her joyful, flowing way of work lies ultimately with each person, because each way must ultimately be unique. It probably will be the result of giving up many hard learned methods and techniques in order to focus on that special collection of methods that work for – maybe – only one person. It may be for a good reason that old hands brag, "I've forgotten more than you'll ever know." But it also can be good to make a light-hearted study of many methods and approaches, looking for the ones we especially enjoy and dropping those that don't work for us.

For me, tuning means, above all, being able to hear what I'm doing. Somewhere along the way I realized that learning to hear better and learning to tune better were two sides of one endeavor. I began to look for ways to hear more and for exercises to train myself to hear more accurately. One summer I worked through the complete PACE tuning series and the

Tuning Exam Study Guide. I was very lucky to have the time and use of a fine instrument on which to do this. Those studies gave me a very good foundation in the theory and practice of tuning, but they still didn't enable me to do quick, efficient quality aural tunings. I began to think about short, simple exercises I could do while tuning, or while traveling, that would help me close the gap between my knowledge and my everyday ability to use that knowledge that would enable me to attain the ease of working I desired.

I was looking for a path that – almost magically – connects what the intellect has learned and what the body knows. Part of this path cannot be expressed verbally, but we can learn the feeling of being on it and how to direct ourselves back toward it when we've wandered off. The reward for the effort is great: tuning becomes a natural extension of ourselves. When we're on this path our hands go where they need to go, our ears listen where they need to hear and everything we do is the natural expression of all that we know. This way is not something one person can define for another person, but perhaps, if you are already looking for it, I can mention some things that may help you, or at least encourage you to keep developing your own way.

The articles that follow in this series will be generally short and simple. I'm not trying to communicate information so much as call your attention to some points of interest. Mostly they are things you can notice or use while tuning. If they don't help, at least they won't waste much time.

This month I'll end with a suggestion that may be the best I can offer:

Close your eyes when you tune. When you're tuning unisons, don't stare at the tuning pin or the hammer. Just close your eyes and listen to what's happening. When you get to a troublesome pin or string, don't get angry and try to stare it into submission, just close your eyes and listen. If your mind starts to wander, close your eyes and listen inward. Observe your process of listening. Notice how much of your brain can be excited by listening if you give it a moment just for hearing. Your brain can savor a sound much like you might savor a sip of fine wine.

All of this will happen automatically if you just close your eyes and listen. Please don't turn it into something to learn and accomplish. Just close your eyes and enjoy your inner topography. The rest is already there.

Grand Damper Regulation

By Ken Sloane, RPT
Cleveland, OH Chapter

Preface

The following procedure is written in regard to a Steinway damper action, but most of the information can be applied to any grand damper system. It deals only with the "nuts and bolts" part of damper regulation. Important areas of damper reconditioning such as grain orientation of felt, guide-rail bushing, shape and size of felt, etc. will not be discussed.

Steps in grand damper regulation:

1. Position the guide rails in relation to string spacing. Use a screwdriver against the plate and rail to wedge the rail into place.
2. Check the keyframe position to damper action; move either or both as necessary.
3. Set the lift at the key cushion for three dampers, one each from the center of the bass, tenor and treble sections (these sample dampers must be free in the guide rail and properly oriented to the strings as outlined in the remaining steps). The damper underlever should engage the key cushion felt when the key is depressed 1/8" (approximately 1/2 of the hammer travel). This can be accomplished by inserting the damper loosely in the top flange (set screw finger-tight) with the top flange set too high on the wire. With the action in the piano so frequent checking is easy, gradually pull the wire out of the top flange until the proper lift is achieved. Remove the action, tighten the damper set screw, check damper alignment, reinstall the action and check again for proper lift off the key.
4. Check to see if the sustain mechanism of the damper assembly is level to the sample dampers (does not touch one end first). If necessary, adjust the height of the treble sustain pivot by cutting or planing the appropriate end of the pivot block and then shim the opposite end.
5. Put dampers through the guide rail and check for tightness. Where necessary, insert 7/64" drill through guide rail holes, allowing it to "spin" through, compressing as opposed to cutting the felt. I find this preferable to removing felt at first as it simulates the compaction and stabilization of felt that thousands of up/down damper cycles will produce. If you don't do this initially, you may have a poor fit at the guide rail hole shortly after the piano is put into service. However, if the tightness returns after several "compactions," you must remove some felt. To accomplish this, I suggest using a smaller drill initially, going to larger drills as necessary. Hold the drill tightly (a pin vise can be used) so that it will not "spin" in the hole. This will remove more felt. Use the 7/64" drill again to stabilize the felt.
6. Free the top flanges on their wires as much as possible by bending wires at the bottom bend (below the guide rail). Ideally, the flange should move up and down on the wire with almost no friction. This shows that the damper wire is routed through the guide rail properly and it also will expedite the rest of your damper job to be able to move the top flange easily on the damper wire. Bend at the top if deviation from a 90-degree angle is obvious between wire and guide rail. Check for freedom on the wire again. Be reminded that, for various reasons, the top flange cannot always be made to move freely on the damper wire with just wire bending. Sometimes gripping the damper set-screw assembly and top flange with thumb and index finger to enable a gentle squeeze (trying to force

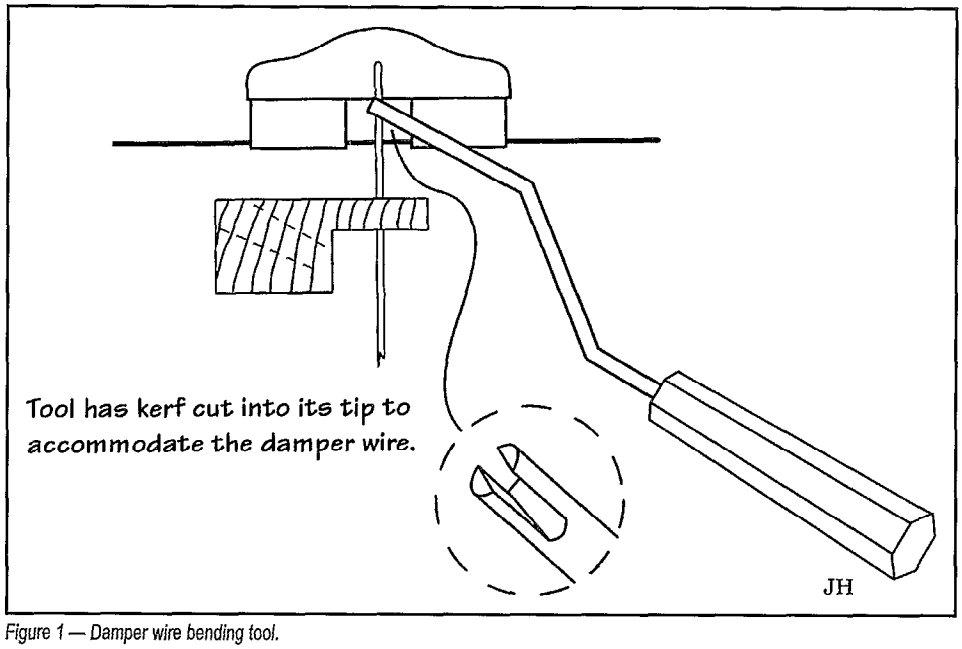

Figure 1 — Damper wire bending tool.

set-screw assembly further into the flange) will help, but don't labor with this problem too much. As an alternative, you can check for proper routing of the damper wire through the guide rail by bending at the bottom of the wire in an exaggerated fashion while lifting the underlever to find the most friction-free point.

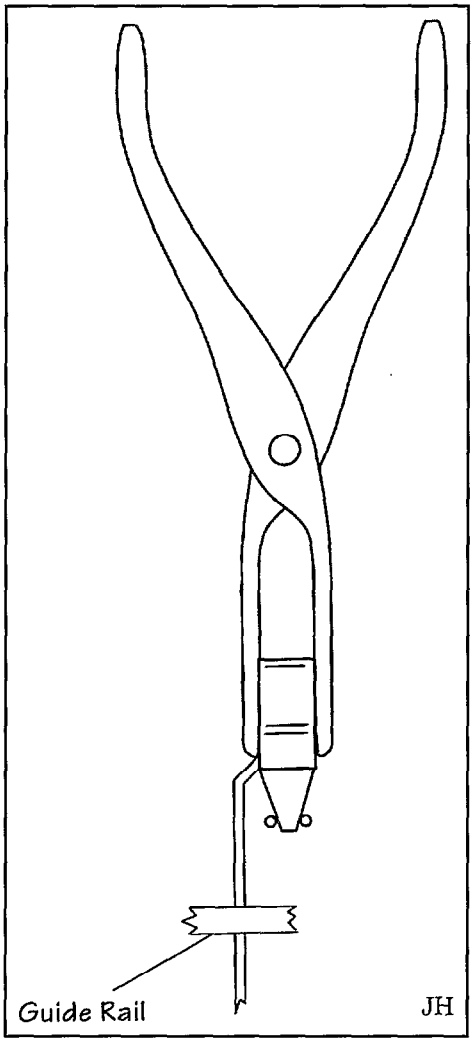

Figure 2—Parallel-jaw pliers used to square-up damper head.

7. Wedge up the damper rack or adjust some sort of jig to an average of the sample dampers and lightly tighten all set screws (felts all touching strings).
8. Begin coarse alignment of the dampers to strings. Most of your bending now will be above the guide rail at the crook just below the damper head. Use a suitable bending tool for the lower bend of the crook (Steinway uses a tool that permits the regulator to accomplish this bend from within the action cavity) and parallel-jaw pliers for the upper so that the tightness of the damper wire in the damper head will not be affected (see Figures. 1 & 2 — these tools can be made from drill rod and linesman's pliers). Also, "tilt" the damper head fore-and-aft with your hands (you're bending the wire at the point where the wire enters the damper head) to adjust the damper so that it lifts slightly at the back end first or the front end if you regulate that way (some manufacturers prefer no "tilt"). As the dampers get smaller, this "tilt" should gradually disappear.
9. Check the lift off of the key again and adjust as necessary. Check pedal lift, also, and adjust pivot block as necessary (see Step 3). As you move the top flanges to adjust for proper lift from the keys, also pay attention to the uniformity of the damper lift with the pedal and make the right compromises so that scraping and shimming underlevers will be kept to a minimum when adjusting for fine lift with the pedal (Steinway adjusts for uniformity in the damper lift by shimming under the damper lift-tray felt or scraping the bottoms of individual underlevers). Make sure the wedges clear the strings.
10. When coarse bending is finished and the lift off the keys is correct, tighten the set-screws. I use a pair of pliers, but be careful not to over-tighten.
11. Now the fun part. To get all the dampers not twitching or traveling, evenly spaced, tilted properly and all lifting together with the pedal (high treble lifts slightly after the back wedges in the bass start to leave the strings), you will have to commit to regulating practices that will fix one thing but may affect another. For example, the tilt of a damper will affect the way it twitches and taking "travel" out of a damper may well affect its spacing. Here are some rules of thumb:

- That damper can be "twisted" for twitching by grabbing the damper wire below the bottom bend with pliers and rotating (hold underlever with the other hand) in the direction opposite of twitch.
- Above the guide rail, bends will mostly affect spacing.
- Below the guide rail, bends at the bottom of the wire affect traveling and the freedom of the wire in the guide rail. The top bend mostly affects spacing.
- Each of the above can affect any of the others.
- The wedges, upon returning to the strings, should move the two strings of a bi-chord and the outside strings of a tri-chord an equal amount away from the damper. With the tri-chord, the center string (ideally) should not be deflected sideways.
- Adjust fine damping by leveling strings and bending strings at agraffes to get even spacing within a tri-chord. Change tri-chord wedges that have different thicknesses of the two wedges within the tri-chord. Do subtle bending of the damper wire to fix dampers traveling or not spaced and/or square to the strings.
- Be sure, when bending the damper wire below the guide rail, that you are not introducing too much friction at the guide rail hole. Lift underlever with finger before and after bend to test for freedom of movement or loosen set screw to see if top flange is loose on the wire.

Last of all, ***have fun!***

Tools From Coat Hanger Wire

By Ernie Juhn, RPT
Long Island-Nassau Chapter

If you like to make life easy for yourself, you know the value of practical tools. On the other hand, it is a known fact that some of the most expensive and complicated tools are not necessarily the most practical. I once tuned a piano for a customer who actually invented a machine that is capable of tuning a piano all by itself. When I asked him why he did not use his own machine to tune the piano which I was working on, he answered that the machine is too heavy and can not be transported from his shop (next door) to the room where I was working. Indeed, I saw the contraption; it was big and complicated but it ***did*** work well. When I asked how long it takes to tune a piano, the answer was "about six hours." Now, back to my coat hangers.

Below you will find a few useful tools made of coat hanger wire. One of the methods to check for even hammer-to-string contact (after hammers have been properly filed) is to lift the hammer against the string and (while depressing the sostenuto or the sustain pedal) pluck the three strings of a unison one at a time. With moderate pressure of the hammer against the strings, all three strings should be muted by the hammer. If one or two keep on ringing you easily can tell which of the strings need to be pulled up in order to level the strings. The tool to pull up on the hammer shank is similar to a stringing hook, and is shown in Figure 1. This tool was made from coat hanger wire.

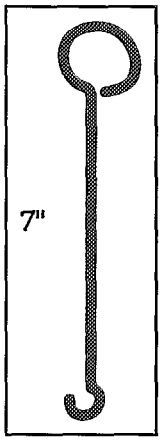

Figure 1

If you have lost your stringing hook, you can easily make one out of coat hanger wire (Figure 2). Wrap plastic tape around the handle.

There is no need to stand behind the upright piano (as we have been taught to do), in order to put the hammer springs into place. A simple tool can be made out of coat hanger wire to do that job fast and with ease (see Figure 3).

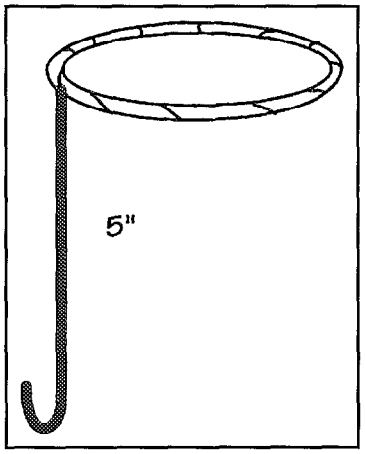

Figure 2

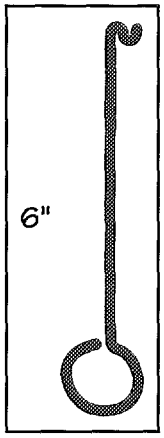

Figure 3

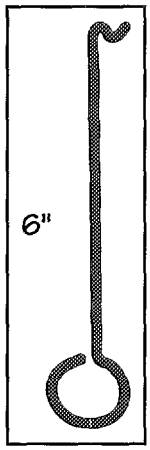

Figure 4

An excellent grand repetition spring adjusting tool, shown in Figure 4, can be made out of the thinnest coat hanger wire you can find. You'll need to do a little filing to flatten the sides on the working end of the tool. This tool makes it easy to unhook the spring as well as putting it back into place. It also can be used to "massage" the spring in order to weaken it.

A combination tool of greatest versatility is pictured in Figure 5. It can be used to set hammer blow, checking, let-off and drop. On grands the tool is used by inserting it from the top (between dampers).

Have you ever lost your rubber mute (the one with a wire handle)? An eraser cut to shape and a handle made out of a coat hanger wire makes a perfect substitute. Similarly, most capstans and some grand let-off dowels can be adjusted rather well with a simple tool made of coat hanger wire.

If you would like to regulate hammer blow, let-off and drop outside the piano and don't have a let-off rack, there is a simple way out. Just regulate the first and last key of each section and use the simple system shown in Figure 6. Make standards from coat hanger wire with a 90-degree loop in one end. Fasten the standards to the end action brackets with the rear

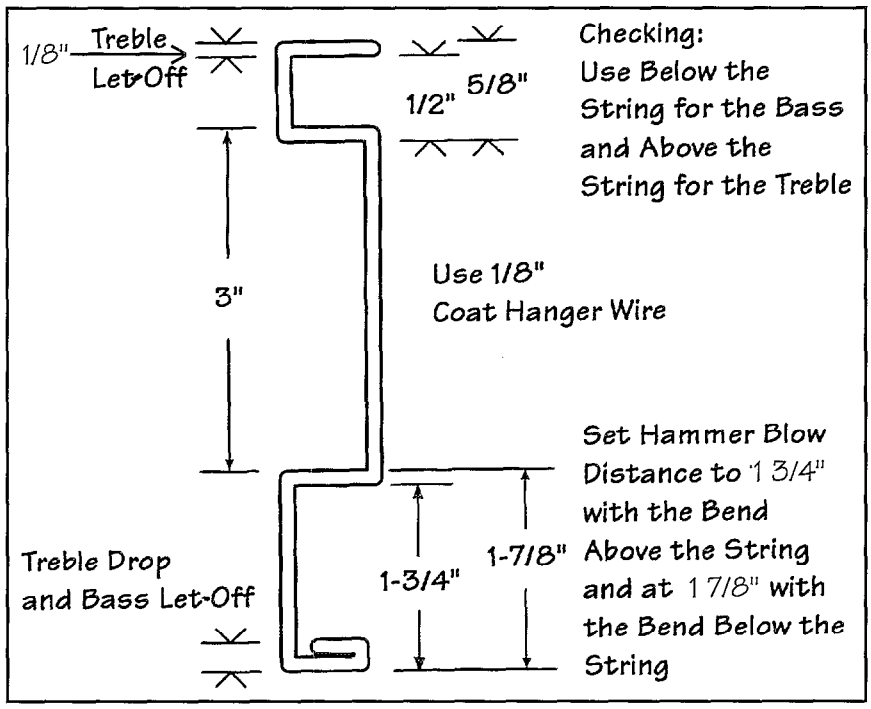

Figure 5

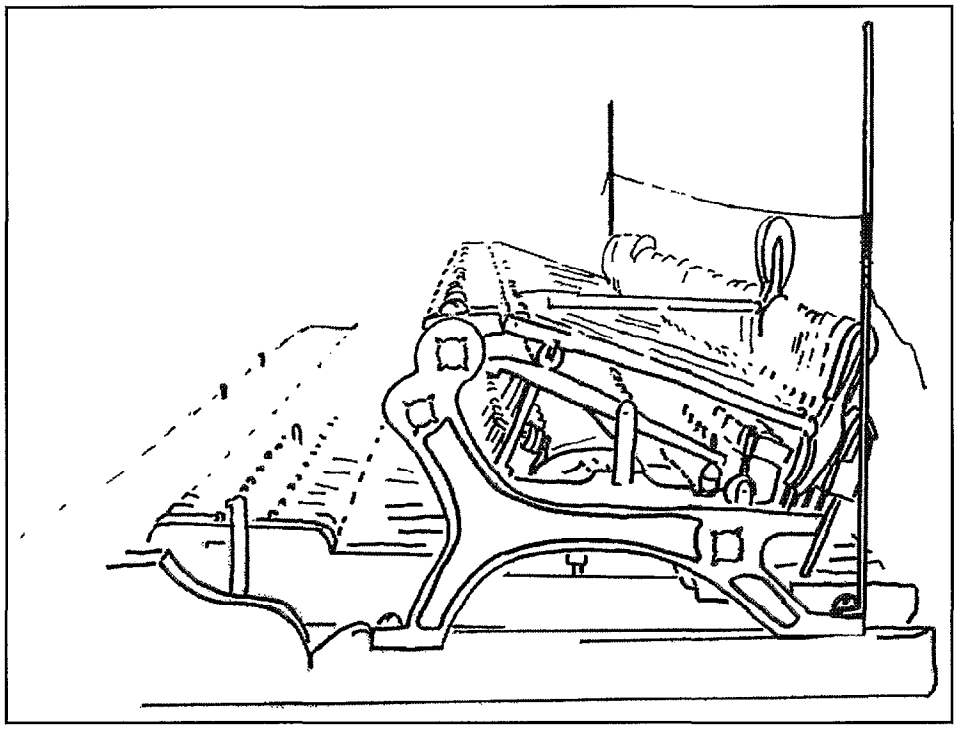

Figure 6 — Let-off jig made from coat hanger wire and string.

action-bracket screws, then stretch a piece of string between the wires. Move the string up or down as desired and bend the wires forward or back to make sure that the apex of each hammer meets the string. Use the first and last key (adjusted in the piano) as guides, set up the jig to match the guides, then regulate the rest of the hammers to the jig.

Three more coat-hanger-wire tools are shown in Figure 7. A perfectly usable pair of tweezers can be made out of coat hanger wire. Want to check downbearing and have no gauge? A simple rocker gauge can be made in a jiffy. Make sure to file all three legs simultaneously on a flat file. A balance-hole easing tool of great popularity was introduced by an Asian piano company some years ago. The idea is to insert the tool from the key-button side and then turn it 90 degrees. By doing so one actually depresses the side of the hole rather than risking elongating the key hole and introducing the familiar "chucking" noise. An inexpensive version of the tool can be made of our coat hanger wire quite nicely. Again, file the sides of the working end flat.

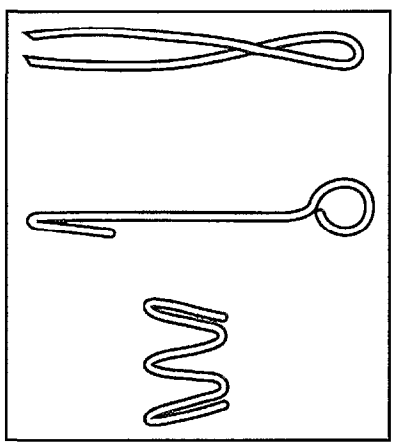

Figure 7 — Top to bottom: Tweezers, balance-hole easing tool and rocker gauge, all made from coat hanger wire.

Coat hanger wire has been used by technicians to store bass strings and I have even seen a rather neat punching holder made out of this useful material. This article would not be complete if I did not mention a perfectly serviceable grand damper wire made out of – you got it – a piece of coat hanger wire.

Hint: When making these simple tools I found it most practical to use Vise-grips and, of course, needle-nose and regular pliers. Using a grinding wheel is a great time-saver but not absolutely necessary. A file will do quite nicely. If you own a pair of "compound leverage" bending pliers, you can make perfect "rings" for the handles on most of the coat hanger tools.

Finally, I have to admit a total failure. I ***did*** try to make a tuning hammer out of coat hanger wire — it just did not work.

By David Patterson, RPT
Toronto, ON Chapter

The Bartolomeo Chronicles

Bartolomeo takes stock of his checklists

As Bartolomeo develops his procedures for different tasks, he finds the situation much as his teachers predicted. That is: he evolves gradually into methods that are unique to him, although each personalized procedure is actually a hybrid assimilation of many suggestions, demonstrations, ideas and personal findings. Within any specific area of piano technology, all of his combined input blends on the job and crystallizes into one repeatable technique that's his.

Checklists are the way for Bartolomeo to develop his sequence of activities. While utilizing checklists, he doesn't need to rely on his memory, a habit that is often a major time-waster. He is prompted to cover every item every time. He guarantees efficiency by avoiding any doubling back en route. He has a path to follow during unusual situations. And he owns a customized guide that can be altered and changed, growing with him as his methods "evolve."

He likes to use an action overhaul procedure checklist, along with a separate one for returning the action to the piano. Regulation checklists save a lot of trouble because there is never a missed item.

With an action on the bench, he wants to assure that basics are covered. In particular, he wants to avoid ever having to work under difficult on-site conditions, doing a repair item that could have been handily dealt with in a workshop. All center pin work is completed, including not just hammer butts but the pesky jack flanges and the difficult-to-diagnose wippen flanges. Looseness in the hammer butts can be tested by feel, briefly jiggling each hammerhead sideways. With the spring rail removed, tight hammer butt assemblies, when tested, fail to return properly with gravity's assistance. Samples of one or two notes per section often can suffice for testing jack flanges and wippen flanges. The jack flange is intended to be the loosest in any action and can be simply felt with the finger after disabling the jack spring. Tight wippen flanges, often forgotten, can lead to losses in speed of repetition. With the wippen removed, its flange can be tested with a finger or a gram resistance gauge. For both jacks and wippens, this sampling reveals whether further investigation is called for.

Jack flange glue joints are notorious troublemakers, causing Bartolomeo to stress-test each one and re-glue as necessary. Butt leathers often are overlooked and can be sanded/shaped to remove ridges. With dampers removed, butt leathers are very accessible. With dampers in place, he does the best he can with a specially-designed sanding tool.

Damper lift rod bushings are a common cause of pedal squeaks, running second only to dummy dampers. The bushings are removed, replaced and thoroughly lubricated during even the most basic bench sequence. Dismantling a lift rod in the home is certain to disrupt the daily service schedule and gives Bartolomeo time to consider his missed opportunity when the action was on the workbench previously.

Many of the overhaul checklist points involve cloth, leather and felt reconditioning. In general, Bartolomeo uses felt for cushioning and cloth for wear. Cloth is woven and is to be ripped in many cases instead of cutting. A side view of cloth shows the telltale weave. Traditionally, dyes not reaching a white interior means dense cloth which means quality. The two ends of a circular piece of cloth, if sized correctly, actually will "knit" themselves together and seal the bushing, preventing a pin, wire or rod from working its way through the opening. Felt, on the other hand, consists of compressed fibers, which also can be seen. For thickness options, it normally rips laterally in layers; the ragged side then can be glued down, with the smooth side exposed.

Piano technicians will do 88 of these and 88 of those. By the time Bartolomeo finishes doing the 88th note of some seldom-encountered process, he has developed a routine and is getting a reliable quality result. The challenge is that the same repair may not be seen for years, causing him to relearn the whole procedure. Consequently, the quest for consistency, speed and orderliness continues through the use of checklists.

Next month, Bartolomeo examines the keys.

An Essay on the History of Tuning — Part XII

By Skip Becker, RPT
Northeast Florida Chapter

Optional Reading: The French Revolution

At the stroke of the 19th century, the eyes and ears of the world were all directed toward Paris. Since the fall of the Bastille (July,1789), Paris had provided a seemingly endless source of headlines for both France and the rest of the Western world. History-shaping events were reported from the Capital nearly every day and the passage of time proved that some of them, including the most improbable, had actually occurred. Citizen Louis Capet, who had formerly borne the title King Louis XVI, had been arrested, bullied and imprisoned by mere commoners. Then, in January 1793, the man who had been ruler of France by divine right, anointed by the Church, and all but worshipped by vast numbers of the people—that man had been beheaded, slaughtered in public like an animal. His Austrian queen, Marie-Antoinette, followed him to the scaffold in October of the same year.

In rapid succession, one generation after another of Revolutionary leaders had risen to power and fallen again. The time of turnover came to be measured in mere months instead of years; each new faction, on achieving mastery, exhibited more savagery than the last. Each was more fanatically dedicated to the ruthless repression of treasonous plots; and the more plots were discovered, the more new plots came to light. This was the time history remembers simply as "the Terror." Over 300,000 suspects would be arrested.

No one was above suspicion. Georges Danton, "the incorruptible," once the unchallenged champion of the people against their aristocratic oppressors, more lately the rival of Robespierre, was arrested on 10 Germinal, Year II of the Revolutionary Calendar (March 30, 1794). He lost his head within a week. In all, more than 20,000 heads would roll into baskets, like common criminals. The fledgling United States, born of their own Revolution (with so much help from France),[1] sent one of their best Revolutionaries, Thomas Paine, as Ambassador. Paine's reports appalled the Americans, who soon recalled him because the French were giving revolution a bad name. A terrified Paine would not leave Paris. He had no wish to add his head to the growing collection mounted on pikes, displayed on town gates and walls. He remained a virtual prisoner at his post, under suspicion, fearing to be caught trying to escape. The bloodshed would not end until Robespierre,[2] the seemingly invincible leader, was himself overthrown in the National Convention, on the most famous date of the Revolutionary calendar: 9 Thermidor, year II (July 27, 1794).[3] He would submit to the persuasions of "the Machine" the following day.[4] History says the Terror then became revulsed at itself, and finally ended.

A Tale of Two Piano Shops

It was the best of tunes; it was the worst of tunes.[5] (This introduction was simply too delightful to pass up.) We begin again, more accurately this time: It was the best of tuners; it was the worst of tuners.

It certainly was the best of times for Sebastien Erard (1752-1831). During the years leading up to the storming of the Bastille, his piano shop on the Rue de Bourbon was the premiere source for pianos in Paris and the surrounding countryside. He had a reputation for excellence, which he had enjoyed since his apprenticeship. The Duchess of Villeroy, a great patroness of art, sought out the promising young artisan in 1777, and placed her well-equipped castle workshop at his disposal. He built his first piano for her; it may have been the first piano built in France.[6] Even this first commissioned work, at the young age of 25, was said to be "superior to any instrument of its kind."[7] With the endorsement of the Duchess, the nobility (the only people with money) were soon queuing up to buy his pianos. He also was said to be good company — extremely intelligent, and possessed of an engaging and magnetic personality. His customers became his friends and valuable allies.

It was the worst of times for the Parisian Luthiers Guild. Mostly displaced (and disgruntled) Germans, the Guild members were envious of Erard's success, a virtual monopoly of the scanty Paris piano market. Because they controlled charters to sell instruments in Paris, the Guild raided Erard's premises, and appealed to the Crown to close his shop. Erard was not a member.

Unfortunately for the luthiers, the effort backfired. King Louis owned several Erards. The latest royal acquisition from Maison Erard was a combination piano and organ (with two keyboards). This magnificent instrument was presented as a gift to Marie-Antoinette; it was well received, and made Erard a celebrity. King Louis shared the opinion of his wife, cousins and friends: Erard had made significant improvements to the piano, and deserved to be franchised. Erard was given a special charter that placed him beyond the authority of the Guild. He could sell pianos in Paris, in the suburbs, or anywhere else he chose. The story became great advertising (the likes of which could not be bought). By 1789, Erard's fame was worldwide. He was the man who had bested the Luthiers Guild at their own game.

Of course, times change. During the Reign of Terror, mobs of "citizens" patrolled the streets of Paris (usually indistinguishable from simple robbers), sometimes in search of bread (many bakeries were looted), always to the peril of aristocrats and symbols of nobility. An early victim of such ad hoc "Public Safety" committees was the Erard instrument factory. Sebastien Erard already was safely in England when the Revolution broke out, very glad to be learning the modern piano business (he became a good friend of the Broadwoods), and making the most enviable contacts in the British peerage, as he had done in France. His factory in Paris was left in the capable hands of his co-founder and brother, Jean Baptiste. One night a committee (or mob) convinced itself that expensive instruments were the playthings of the rich; they "patrolled" Rue de Bourbon, and pelted the Erard factory with torches.

At first, the thick window glass resisted the assault and

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the torches fell harmlessly to the street. Then an inspired citizen hurled a "sabot" (a wooden shoe) with sufficient Revolutionary ardor to burst a pane, allowing the next wave of torches to land inside with incendiary effect – and coining the term "saboteur."[8] Jean Baptiste Erard was living on the premises, hiding in shadow as he watched his factory burn. He feared he recognized the faces of vengeful luthiers in the mob. He hastened to England to join his brother.

Both Erards were well received in England, and soon opened a new piano and harp shop in London, opulent enough to rival any establishment of its kind. They would not choose to return to Paris until 1796, after the revolutionary fervor had cooled down and the new French government began to rigidly enforce a ban on goods imported from England, which included pianos. They then removed to Paris, leaving the London concerns to Pierre Erard, Sebastien's nephew. In Paris the brothers opened the new Erard Instrument Factory, in a very fashionable neighborhood. It was once again an opportune time to be making pianos in France. "Erard's prominence in manufacturing dates from that time and for many years the pianos built by him in Paris followed the English models very closely."[9]

It is true that the early Erards were copies of the Broadwood models; in fact, Erard remained quite faithful to Broadwood innovation, being the first continental builder to follow their lead using foot-pedals rather than knee-levers. But if Erard was interested in Broadwood's designs, it was because Broadwood was making the best pianos in the world – and in large quantities at that. More important, Broadwood was continually experimenting with ways to make pianos better. In this area, the interests of Broadwood and Erard coincided perfectly. Those early Erards were really a combination of Erard's personal experience and his close study of English manufacture. He would have his own contributions to the piano and one improvement soon followed another.

Most notable were wrapped steel strings (instead of brass strings) for the bass notes, the agraffe (1808 patent), repetition action (1808), capo tasto (1838) and iron bracing beginning in 1823. But the *coup de grace*, what made Erard the favorite instrument of all the great artists (except Chopin) for more than two generations – and assured Sebastien Erard immortality in the piano world – was the double-escapement action (1822). Sigismond Thalberg, a leading pianist of the time, wrote about it: "By its ingenuity the mechanism surpasses anything of its kind that has been made or tried. It permits the performer to communicate to the strings everything that the most skillful and most delicate hand can express."

Pianists today feel the same way. The world watched as Sebastien Erard assembled the modern piano in his workshop. His pianos became the standard of the industry and dominated the concert stage. Success followed success. He was altruistic, a princely entertainer and quite prominent in both French and English society. "For many years the Salon Erard was the center of the intellectual life of Paris and Salle Erard the place where Liszt and all the great virtuosos of the day played before most distinguished audiences."[10] Because of the great genius and personality of Sebastien Erard, the fame and prestige of his pianos continues to this day.

The House of Pleyel

The Reign of Terror held another piano-maker in its grasp: Ignace Pleyel. Pleyel (1757-1831) was an Austrian prodigy, the 24th of 38 children, and the most famous pupil of Haydn.[11] He was a virtuoso and very successful composer. After studying with Haydn, he worked as composer to the court of Naples. He then moved to Vienna, became an intimate at that court and befriended princess Marie-Antoinia (the French would call her Marie-Antoinette). In 1783, he moved to France to become chapel-master of the Cathedral in Strasbourg. He was thrilled when Louis XVI married his friend the Austrian princess and visited the French court often. On one occasion, he presented the new queen with the gift of a harpsichord fitted with a "celeste" attachment, a device which bowed a rank of drone strings. At that time, the celeste was still quite novel (it would become somewhat common). In an effort to impress his favorite queen, young Ignace claimed the invention to be his own, which he had chosen to name the "Marie-Antoinia," in honor of their royal friendship. The queen was impressed. A few years later, the Committee for Public Safety was not. The first time Pleyel was arrested, in December 1791, we are uncertain as to whether the charges were political or musical in nature. But the French Revolution was nothing if it did not support the Arts.[12] Although the religious functions (including music) of the church were abolished, as were secular concerts, revolutionary music was celebrated.

Pleyel's value as a musician was recognized. He was encouraged to write music for military dramas. But this job description was a bit too radical for the former courtier (especially the pay); he decided to accept another offer, one to conduct the Professional Concerts in London.[13] In 1792, he returned and lived in Strasbourg for a while. The second time he was arrested (in 1793), on charges of collusion with an Austrian conspiracy, he lucked out again.[14] Although Pleyel was born in Austria (this made him very suspicious), his judge was Georges Danton, "the incorruptible." Danton was known for his moderation, even in the face of crowds demanding heads. He would not convict without hard evidence; most of the "suspects" sent to his court were set free, as was Pleyel.

The third time Pleyel was arrested he began to worry. He shared a cell with his erstwhile judge. The doomed Danton had been charged and convicted of "excessive moderation" (this is true!) at the instigation of Robespierre. Across the jailer's stroll, in the large cell facing his own, Pleyel recognized the 28 former members of the "farmers-general," a benevolent organization similar to the Free-masons, but one which restricted its ranks to the nobility. They had made flashy targets for revolutionary fanatics. Later that afternoon, each would prove that their blood was not really blue. Ironically, many of these farmers-general had forsworn their hereditary privileges; some had even become dedicated Revolutionaries, helping to form the new republic. Among these later was Dr. Antoine Laurent Lavoisier, whom history remembers best as "the Father of Modern Chemistry."[15]

Meanwhile, poor Pleyel was hurried through what was called a courtroom. He was interrogated — but stoutly maintained his loyalty to the republic. As a final test, he was compelled to compose music to a revolutionary drama, a task he had previously evaded.[16] In a commandeered hotel room, constantly watched by two gendarmes, Pleyel finished the work in seven days. It received such enthusiastic approval

that his loyalty was never questioned again.[17] Quite naturally, the nerve-wracked Pleyel was not anxious to hang around and find out exactly how true that might prove to be. He fled again to London, found a new agent and commenced another concert tour. He would not return to France until the revolutionary fervor had died down (along with the Erard brothers), in 1796.

In 1797, he opened a music shop and publishing business in Paris and continued composing. The House of Pleyel would issue some 4,000 titles during the 39 years of its existence, including many by Beethoven, Boccherini, Clementi, Cramer, Dussek and Haydn. An important achievement was the issue of the first miniature musical scores in 1802. Rather late, in 1807, he would enter the piano manufacturing business, making his first piano at the age of 50. In July, 1813, he wrote to his son Camille: "We have manufactured 31 pianos since January 1, almost all large ones; you see that I am not falling asleep and that I will easily reach 50 pianos this year and maybe beyond that." (in 1813 Broadwood produced over 1,000). In 1824, Ignace retired, handing the business over to his son. Under Camille's leadership, Pleyel would become France's second largest piano manufacturer, behind only Erard. In the face of Erard's worldwide prestige, Camille assembled a stable of "Pleyel Artists," mostly the composers whose music he published. The intimate friendship between Camille Pleyel and Chopin resulted in that composer's lifelong devotion to Pleyel pianos, and Pleyel's most famous (and marketable) endorsement.

Further Optional Reading: The Rise of Napoleon

Other unbelievable stories coming out of Paris, which it would have been easy to dismiss as wild rumor, were also confirmed. The old enemies of France – Austria, Prussia and England – had sought to take advantage of the chaos. Prussian troops advanced on Paris. But now, the tide of war had turned again in favor of France. Despite the Terror, the Revolutionary government managed to put over 1,000,000 troops in the field, however riddled through with desertions, political harassment and executions. In the west and in the southeast, a royalist counter-revolution (the "White Terror") broke out. British-financed royalists even tried to seize power in Paris, but were crushed by the young general Napoleon Bonaparte.[18] The former artillery corporal from Corsica had just begun to make headlines. Soon the world would closely watch Napoleon, the man who led impossibly large armies at will, across Europe, even into Africa. Very little of Europe would not become part of the French Empire, or allied to it by treaty.[19] By the end of the 18th century, Napoleon had proclaimed the end of the Revolution and assumed control of the government as First Consul (1799). During the first years of the 19th century, he was living in Paris, busily exploiting his popularity. In 1801, he bought a piano from Erard (legend says he could play). In 1802, he slashed the budget of the conservatoire by 3/5ths, directing them to confine their studies to military music. In 1804, he was elected Emperor (complete with hereditary title), in the election which eliminated the need for future elections.[20]

Notes:

1. Some histories claim poor Louis XVI had bankrupted his government supporting the American Revolution. Others claim he merely completed the ruin of the state finances. By 1789 he was in no position to pay for demanded improvements, or reduce taxes on the nobility, who were in revolt. He couldn't even afford to hire enough troops to protect himself.
2. Robespierre did not wear robes. His full name was Maximillien Francois Marie Robespierre. After he rose to power, he arrogantly affected the dress of the nearly extinct aristocrats; he was renowned for impeccably tailored green silk suits and powdered wigs.
3. The Revolutionary Calendar changed the Roman names of the months, and commenced at the founding of the French Republic, Sept. 21, 1792 (1 Thermidor, Year I). It was offered as a gift to the world, but was used only in France and her puppet governments until 1815. Had Napoleon been a bit more successful, we would be in the year 207.
4. "The Machine" was the contemporary name for the guillotine.
5. Apologies to Charles Dickens, this author couldn't resist the epigram from S. Wolfe.
6. Some histories claim Pascal Taskin made pianos in Paris a few years earlier.
7. Some piano historians claim it was a copy of a Zumpe square.
8. The legend is merely reported. We tell it for true; it is part of the oral tradition of piano tuners. The hurling shoe origin of "saboteur" is true enough and the Erard factory was burned. That the two happened together has not been independently verified by this author.
9. Alfred Dolge, *Pianos and Their Makers* (Dover Publications, New York, 1972), p. 253.
10. Dolge, pp. 253-4.
11. Your author finds this remarkable: Pleyel's father produced 38 children. He was married twice, and lived to be 99.
12. Enthusiastic Revolutionary decrees included the creation of the elementary school system, trade schools (polytechnic), the Metric System and the National Institute of Music, (soon to be known as the Conservatoire).
13. Some mainstream histories describe Pleyel as graceless. During his London tours, he often appeared in direct competition to his old maestro Haydn. If there was a rivalry, it was between their respective promoters. The two, whenever together in London (as they often were), were warm and friendly toward each other. They frequently dined together and attended each other's concerts.
14. Pleyel's experiences with the French revolution are legend. They differ with each telling and are largely unprovable. Some say Pleyel was arrested repeatedly in 1793-94 and repeatedly condemned to death for his Austrian and royalist sympathies. The above telling is offered as the official *PTJ* version.
15. Lavoisier is worthy of special note, even in an essay supposedly about tuning. His pioneer experimentation techniques and brilliant conclusions would lead to the way we think about chemicals today. No mere theorist, his work with chemical fertilizers greatly improved France's food production, at a time when masses were starving. His chemical processes also improved France's gunpowder. He served on various political committees and was instrumental in standardizing the Metric System (another of Revolutionary France's gifts to the world). He was well known in France and respected throughout the world. Lavoisier sat with the handful of esteemed scientists (along with Benjamin Franklin) who adjudicated the worth of the notorious Dr. Anton Mesmer. Even this remarkable individual couldn't escape the youthful indiscretion of being a farmers-general. The wisdom of the Revolutionary court said: "Lavoisier is an educated man. We have no more need of educated men."
16. A piano concert wouldn't draw much of a crowd, but the French loved their musical dramas. During the Reign of Terror theaters were filled to capacity, often beyond. Revolutionary France needed musicians.
17. The work, "La revolution du 10 aout 1792" is a rather banal patriotic hymn. It requires a large ensemble of voices and instruments, including church bells and cannons. The premiere in Strasbourg used bells chosen by Pleyel from those requisitioned from churches of the region, no longer holding services.
18. On 13 Vendémiaire, year IV (Oct. 5, 1795).
19. Although never able to effect a landing in England, Napoleon did occupy Egypt, threatening the British in India.
20. Napoleon was elected Emperor in the famous plebiscite of 1804, by a comfortable margin. Some 3,000,000 votes for – nearly 8,000 against.

Certified Tuning Examiners

The following is a revised list of Certified Tuning Examiners who are available to give Registered Piano Technician exams to members of the Guild. Please contact them directly to arrange testing.

Northeast — Region 1

010 – Western Massachusetts
John E. Stebbins

021 – Boston, MA
Christine Lovgren
Fredrick J. Mudge
Albert E. Sanderson

031 – New Hampshire
Peter W. Poole

041 – Maine
Paul Rice

054 – Vermont
Marc P. Poulin

060 – Montreal, QC
Marcel Carey

062 – Toronto, ON
John E. Lillico
Robert Smit

064 – Connecticut
Bruce A. Macleod
Christine S. Towne

078 – New Jersey
Charles P. Willis

101 – New York City
Daniel Levitan
Michael Miccio

111 – Long Island-Nassau, NY
Allan N. Schumacker

117 – Long Island-Suffolk, NY
Eli Lee Dobrins

122 – Capitol Area, NY
Stephen H. Snyder

131 – Syracuse, NY
Robert W. Lee
Paul J. Simkin
Kenneth A. Williams

142 – Buffalo, NY
Charles R. Erbsmehl

151 – Pittsburgh, PA
David J. Barr
Randall Mangus

170 – So. Central Pennsylvania
Keith A. Bowman
Michael Carraher

190 – Southeastern Pennsylvania
Ruth B. Phillips

191 – Philadelphia, PA
Stephen C. Prentice
Howard E. Stickley III

195 – Reading-Lancaster, PA
William H. Keller

Southeast Region — 2

201 – Washington, DC
Michael R. Travis

212 – Baltimore, MD
Patrick L. Stone

223 – Northern Virginia
David H. Frease
Bernard Tolbert

240 – Roanoke, VA
Andrew J. Lyford

274 – Central North Carolina
Ernest B. Bremner

275 – Research Triangle, NC
Richard C. Ruggero

282 – Charlotte, NC
William J. Clayton II

301 – Atlanta, GA
Fengsheng Chen
Larry B. Crabb Jr.

309 – Augusta, GA A.
Keith Morris

334 – Palm Beach, FL
Thomas C. Servinsky

372 – Nashville, TN
James E. Arledge
Herbert A. Dady Jr.

381 – Memphis, TN
Asa Wilkerson

South Central Region — 3

752 – Dallas, TX
Walter K. Connell
Kerry M. Symes
Fred T. Yonley Jr.

771 – Houston, TX
Michael Ello

787 – Austin, TX
Ramon A. Ramirez
Mary C. Smith

871 – New Mexico
Richard G. Raskob
Fred S. Sturm

Central East Region — 4

431 – Columbus, OH
John F. Schmoll

441 – Cleveland, OH
Kevin M. Leary

452 – Cincinnati, OH
Nevin E. Essex
Michael J. Wathen

462 – Indianapolis, IN
Ronald L. Berry
Robert S. Bussell

481 – Detroit-Windsor, MI
Richard Bittner
John L. Cavanaugh
Hugh B. Gulledge
Zen Reinhardt

493 – Western Michigan
Dean L. Reyburn

537 – Madison, WI
William E. Bremmer

600 – Waukegan, IL
Robert L. Guenther

601 – Chicago, Il
James P. Houston Jr.
Kenneth Orgel

625 – Central Illinois
John H. Baird
John H. Minor

Central West Region — 5

501 – Central Iowa
John De Haan

553 – Twin Cities, MN
Dennis H. Johnson
Paul M. Olsen

631 – St. Louis, MO
Willem Blees
David B. Porter

641 – Kansas City, MO
Stephen D. Berg
Kent E. Swafford

671 – Wichita, KS
Alan B. Crane

683 – Nebraska
Richard E. West

803 – Boulder, CO
Christian Finger

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Kathy K. Smith

905 – South Bay, CA
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917 – Pomona Valley, CA
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Brian S. Holt

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Thomas A. Kuntz

PTG Review
Dedicated To PTG News • Interests & Organizational Activities
PIANO TECHNICIANS GUILD

Trolley Provides Unique View of KC

By Becky Yockey
Kansas City, MO

Buy a trolley pass for $9 and you have a unique, no-hassle way to see the sights of Kansas City. The air-conditioned trolleys have huge windows and driver-guides who narrate snippets of local history as you're driven about town. Trolley passes are sold at Crown Center (across Grand and 1 block south of the Hyatt), and you can board the next available vehicle just outside the main entrance to the shops.

The trolley route includes stops at Crown Center, the Westport area, the Plaza, the Nelson Gallery and City Market. Purchase a pass, get off at several stops and browse, take pictures, shop, re-board the trolley and set off again. Re-board before the trolley stops running and get off at Westport or the Plaza to take in a movie, enjoy micro-brewed beer or listen to live music.

Trolley cars generally run from 10 a.m. - 6 p.m., with a trolley leaving Crown Center at least every 30 minutes. Make sure someone takes your picture in front of the trolley by its name plate — they're dubbed Molly, Polly, Dolly, etc. Crown Center Information, 274-8444, can provide the most current running hours and route information.

To find out about bus service, available all day and after the trolleys stop running, call the Area Transportation Authority information number, 221-0660. They can provide you with the most direct route (and bus number) from one point to another. Metro buses run from early morning to long past dusk and your fare depends on how many zones you travel through. Busses are air-conditioned and drivers can help you watch for your stop.

July 20 - 25 Calendar of Events, July 20-25

Ongoing:

Trolley Tours — 221-3399

10 a.m. - 10 p.m., Monday - Thursday; 10 a.m. - 6 p.m., Friday - Sunday; fares $6 - 9, 20 stops, lower fares after 5:30 p.m.

Crown Center Exhibit — 274-8444

"Even More Things People Collect," 10 a.m. - 6 p.m., Monday - Wednesday and Saturday; 10 a.m. - 9 p.m., Thursday and Friday; and Noon - 5 p.m., Sunday.

Plaza Fiesta Cruise — 756-1331

40-minute narrated boat rides on the Plaza's Brush Creek, 11 a.m. - 9 p.m., daily, fares $5.50-6.50.

Nelson-Atkins Museum of Art — 561-4000

"Mummies" and "Life in the Arts—Palaces of Rome" begins July 25. Open 10 a.m. - 4 p.m. Tuesday - Thursday; 10 a.m. - 9 p.m., Friday; 10 a.m. - 5 p.m. Saturday; and 1 - 5 p.m. Sunday. Closed Mondays. Admission, $5 adults, student ID $2, children 6-18 $1. Sculpture garden featuring works of Henry Moore, south of the building — always open, admission free.

Kemper Museum of Contemporary Art — 561-3737

Open 10 a.m. - 4 p.m., Tuesday - Thursday; 10 a.m. - 9 p.m. Friday; 10 a.m. - 5 p.m., Saturday; 11 a.m. - 5 p.m. Sunday. Closed Mondays. Admission free.

Kansas City Zoo — 871-5701

Special exhibit "Amazonia — The South American Rain Forest," 9 a.m. - 5 p.m. daily. IMAX theatre, sea-lion training session, pony and camel rides, zoo train.

Toy and Miniature Museum — 333-2055

Special exhibit "Happy 40th Birthday, Barbie," 10 a.m. - 4 p.m., Wednesday - Saturday; and 1 - 4p.m., Sunday. Admission $2-4.

Kansas City Museum — 483-8300

"Ripley's Believe it or Not," open 9:30 a.m. - 4:30 p.m., Tuesday - Saturday; Noon - 4:30 p.m., Sunday. Admission $2.50 adults; $2 children 3 - 17 and seniors.

Kansas City Convention and Visitors Bureau — 691-3800.

JULY 20 - 22

KC Wizards — 472-4625.
Professional soccer. Games begin at 7 p.m., Arrowhead Stadium.

JULY 23 - 24

KC Royals vs Oakland, 7:05 p.m., Kauffman Stadium, call 816-921-8000 for ticket information. Joe Walsh will perform in concert following the game on July 24.

JULY 25

KC Royals vs Oakland, 12:05 p.m., Kauffman Stadium
Celebration honoring George Brett's induction into baseball's Hall of Fame.

I Found The Beef!

By Bill Prindle
Kansas City Chapter

They say that an Army travels on its stomach. My observation holds that there must be some truth to this for piano technicians as well. When I go on vacation one of the things I remember most and enjoy is finding that meal that is extraordinary. We talk about it in the car for hours. "Man, wasn't that a good ...?" So while you are in Kansas City for the Convention, I thought I would tip you off to my favorite places to eat. Some of them are those places that are a little out of the way that you may not be enticed to stop at when just driving by.

Kansas City is famous for BBQ. My favorite is *Gates.* It is known nation-wide and has several locations in the area. It offers different flavors of sauces and a variety of meats that are slow cooked over wood. One thing that you absolutely need to know is what to expect when you walk in. You walk in the door and approach the counter where you order and pick up your food on the spot. You will notice that the nice lady behind the counter is yelling at the top of her lungs, "Hi may I help you?" Now, you are about the 10th person in line and you realize you are 15 feet away and find it incredible that she is asking you for your order. This is where you need to realize that she is, and you in turn have to yell out what you want. You will be shy and have to repeat your order until your volume reaches that of when you are calling the children in from the neighborhood at dinnertime. Don't worry, the slight embarrassment is worth it and you will not be alone. One more thing, if you order ribs, a short end has more meat on them than the long ends. Enjoy.

My favorite hamburger is located at a placed called the *Westport Flea Market.* It is a little bar and grill in the Westport area which is where Kansas City was founded. It is a little shopping area with other great restaurants that is a little north of the Plaza. It is also a great place to get an actual homemade tenderloin. My honey raves about the grilled Cajun chicken sandwich, which is what she always orders. There you order at the bar and they will call your name to pick up your food at the kitchen window. Another place I like in Westport is *McCoy's.* It has a diverse menu that is great and they have outdoor patio dining.

My favorite Mexican food is found at *Margarita's.* It is located on Southwest Boulevard. Everything is authentic with chunks of beef or chicken instead of hamburger. It is all homemade on location.

If you are looking for Cajun food, I recommend *Jazz.* It has a complete menu of Cajun food and they have heart healthy meals indicated on the menu. I have not tried any of those although I am sure they are good. It's just that is not why I like to eat out – I go for the stuff that is going to keep me awake at night. I like to try to remember how good it was instead of how I feel at the time.

Let me hasten to add this is not a comment on this restaurant, it is how I tend to eat in general.

Since I have mentioned the Plaza, let me say that is has numerous places to eat that are all noteworthy. I have not eaten at all of them but my friends have told me how good the following places are: *Ruth's Chris Steak House* (it is supposed to have the best steak in the country), *KC Masterpiece BBQ, Houlihan's, Japengo* (seafood), the *Cheesecake Factory* and the *Grand Street Café.* The Plaza restaurants are all fine dining and are priced accordingly.

The last place I will tell you about has home-style, pan-fried chicken. Their chicken is so good it will make you want to slap your momma, at least that's the expression. They serve real homemade mashed potatoes and green beans that taste like the ones that are homegrown and cooked real slow with just the right seasoning. The name of the place is *Stroud's* and it is one of those places that you wouldn't go to if you didn't know.

So, as you can see, I am not hungry for long and there is no reason for you to suffer either. I will mention that most of the places I've described will have waiting lines during the later evening and weekends. I will prepare a map of the area with directions to the above places that you can pick up at the PTG Booth in the exhibit hall. I have volunteered to work the booth and will be at your service. I may ask you to bring me back a pork chop or something. Enjoy KC!

Volunteers Needed For Visually Impaired

The committee for the concerns of visually impaired technicians is looking for volunteers to be of assistance to sightless technicians who will be attending the 1999 PTG Technical Institute. Perhaps the two things, which might appear most formidable to the sightless technicians who are considering attending the convention, are getting to the right room at the proper time and touring the exhibit hall.

If you are interested in being of assistance, we offer you this opportunity to make the 1999 Convention more enjoyable and meaningful to a colleague and make a new friend in the bargain. If you know that you will be attending the convention in Kansas City, and are interested in assisting, please contact Committee Chairman Richard Hassig, 2310 N. Ohio Ave., Davenport, IA 52804. Telephone 319-386-4084.

Other members serving on the committee are: Lorne Buntemeyer, Lawrence, KS; Roy Escobar, Houston, TX; and Don Mitchell, Vancouver, WA.

If any of these gentlemen is a friend of yours and you would like to discuss this concept with them, please do so.

I am not into e-mail as yet. If that is your preferred means of communication, please contact Sandy Roady at the PTG Home Office at sroady@unicom.net.

— Richard Hassig

www.ptg.org/1999/conv/

Last year the Institute put itself on the world map by setting up a web page on the Information Super Highway (Internet). This new and useful tool has been crafted and managed by the brilliant team of Dean Reyburn and Mitch Kiel. If you are online, you have to check this out. This year, Dean and Mitch have created a "Bulletin Board" where you can post messages, ask questions or look for roommates in Kansas City. Check out exhibitor listings with lots of background information, instructor bios, and KC hotel info. Give us your feedback. This page is available to anybody in the world with Internet access. And it's done with style and creativity. Thanks, Dean and Mitch!!

Industry News

Wapin LLP Formed

Sioux Falls, SD — Wapin LLP has secured the rights as the exclusive worldwide distributor of the Wapin technology, a patent pending system for attaching a string to a piano bridge. The patent itself remains the exclusive property of the University of Cincinnati, with Wapin LLP as the sole agent for distribution and installation certification. With the advent of Wapin LLP, technicians will be able to become certified in the installation of the Wapin system and receive their licenses much quicker. Wapin LLP offers a comprehensive training program for technicians and rebuilders. "We want both advanced and novice technicians to know that Wapin can be installed easily and affordably," says Bill Springer, RPT, one of the founders of Wapin LLP. The training available can include full recapping of piano bridges, restringing and rescaling, but typically requires only one day of hands-on instruction during an actual Wapin installation.

"I also sell rebuilt pianos in a very competitive market," says Springer, " anything I can do to get a competitive edge I make use of right away. With Wapin installed I know my pianos will sound great! Wapin gives me that extra 'edge' or 'niche' if you will. At this point I love answering the question, 'what's that funny little sticker above the keys mean?'"

The essence of Wapin is that it adds clarity, sustain and power to any piano. "It negates the concept that you have to have a big soundboard to have a big sound", says co-founder Tim Coates, RPT. Coates continues, "If you take an empty swing on a swing set and push it, it starts going back and forth and eventually it goes in circles.

This motion is similar to the coupled motion of the piano string when struck by a piano hammer. The Wapin technology uncouples this motion, allowing our "swing" to go "circular" almost immediately." To the listener, that means a bolder, purer overall sound. "When we first tried the experiment on a monochord, the results were off the scale", states Michael Wathen, RPT, co-inventor of Wapin, and founding member of Wapin LLP. "We were never able to duplicate that particular result. Chock it up to some atmospheric anomaly, sun spot or something, but we have seen a marked improvement in every instrument on which we have installed Wapin. The Wapin technology is patent-pending internationally, and remains the exclusive property of the University of Cincinnati

Complete information about Wapin, including sound and pictures, becoming certified, and registering licenses can be found at: www.wapin.com. Email to: bill.springer@wapin.com. ◆

New Research Shows ABS Piano Action Parts Superior to Wood

Compton, CA — Research conducted last fall by Prof. Abdul Sadat, Chair of the Industrial & Manufacturing Engineering Department at the California State Polytechnic University has concluded that piano action parts made of ABS Styran are superior to traditional wooden piano action parts with regard to strength, durability, dimensional consistency and resistance to climatic change.

The research, which was released in December of 1998, compared ABS Styran hammer flanges and carbon composite jacks with traditional wooden hammer flanges and jacks through a series of tests. In the strength comparison (called the "fracture load" test), the ABS Styran flanges were shown to be more than 50 percent stronger than the wooden flanges. In a similar comparison of strength, Kawai's carbon composite "Black Jacks" proved to be over 2-1/2 times stronger than the comparable wooden jack. "ABS Styran has been subjected to a great deal of unfair and undeserved criticism over the years," said Brian Chung, Vice President and General Manager of Kawai America. "Competitive dealers will tell their customers not to buy a piano with plastic parts, without offering a shred of verifiable evidence to support their comment. They also cite the fact that no other piano manufacturer utilizes ABS Styran as proof that ABS is substandard. The *truth* is that Kawai was both innovative and visionary when we introduced ABS Styran in our piano actions over 25 years ago. And, thanks to this new research, it is now a proven fact that ABS is *superior* to wood for specific applications within a piano action."

In comparing the ABS Styran and wooden hammer flanges for their ability to resist shrinking and swelling, the parts were subjected to extreme heat and dryness for three hours and then placed in 90 - 100 percent humidity for 24 hours. When measured, the ABS Styran flange swelled only about 0.15 percent in size, while the wooden flange swelled over 5.0 percent. "The fact that ABS Styran resists moisture and swelling/shrinking over 30 times better than wood is of tremendous importance to a piano consumer," said Don Mannino, RPT, Kawai's Piano Technical Manager. "Since ABS action parts won't change in size and shape with humidity, action parts will not warp and action screws will stay tight for significantly better hammer alignment, resulting in a more precise touch and higher-quality tone for the pianist over the life of the piano."

In a final test that measured the strength of ABS Styran over time, Dr. Sadat compared a 27-year-old *used* vertical piano ABS hammer flange with the same brand new grand piano wooden flange evaluated in the first strength comparison. Prior to this test, it was clearly noted that the *used* ABS parts were made with an older ABS formula and that they were taken from a vertical piano, (since Kawai had not yet put ABS Styran into grand pianos at that time). Despite these disadvantages, the 27-year-old used vertical piano ABS Styran flange was shown to be significantly stronger than the brand new wooden grand piano flange.

In his conclusion to the study, Dr. Sadat stated, "... for the range of experiment carried out, ABS plastic and carbon composite materials exhibit superior properties as compared with their wood counterpart. One of the important findings of this study may be attributed to the dimensional tolerances at manufacture and the dimensional changes in environment as the wood parts proved to be inferior to ABS plastic."

Commenting on the research at the 1999 Winter NAMM Show, Kawai's Executive Vice President, Jun Ando, stated, "It is time for other manufacturers to end the debate and begin to rely upon the scientific facts. From this point on, the intelligent consumer will know that ABS action parts are superior to wooden parts and that a Kawai action is, without doubt, the most stable and precise action in the world."

For more information, contact Joe Deleski at Kawai America Corporation (phone 800-421-2177, ext 384). ◆

New Members Join In April

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062 — Toronto, ON
Ari Isaac
308 Betty Ann Drive
Toronto, ON M2R 1B1
Canada

064 — Connecticut
Melanie A. Brooks
29 Rowland Road
Old Lyme, CT 06371

Frank L. Vasi
26 Eastwood Drive
Branford, CT 06405

078 — New Jersey
David J. Eggleston
30 Jackson Avenue
Dover, NJ 07801

Glenn A. Vallespir
249 Glen Avenue
Glen Rock, NJ 07452

101 — New York City
Asami Alberti
P. O. Box 20477
New York, NY 10023

Jeremy E. Arbital Jacoby
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Forest Hills, NY 11375

Alexander Kostakis
140 W. Poplar Street
Floral Park, NY 11001

Victor M. Torres
2271 Southern Blvd.
Bronx, NY 10640

111 — Long Island-Nassau, NY
Lawrence B. Prosono
74 Spring Lane
Levittown, NY 11756

186 — Pocono Northeast, PA
Vernon K. Harbach
452 Ridge Road
Jersey Shore, PA 17740

Region 2

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James J. McWhirter
8072 Forest Glen Drive
Pasadena, MD 21122

275 — Research Triangle, NC
John C. Cottle, Sr.
1507 Parmele Drive
Wilmington, NC 28401

327 — Central Florida
David M. Dowd
5939 Kendrew Drive
Port Orange, FL 32127

334 — Palm Beach, FL
Tobias R. Hamilton
3114 Alice Drive
West Palm Beach, FL 33461

381 — Memphis, TN
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Senatobia, MS 38668

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727 — Northwest Arkansas
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741 — Tulsa, OK
Lee Jackson
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752 — Dallas, TX
Gary W. Sherrill
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Plano, TX 75075

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Indianapolis, IN 46201

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Greenfield, WI 53220

543 — North Central Wisconsin
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Shell Lake, WI 54871

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7570 Nose Lake Road
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683 — Nebraska
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815 — Colorado West
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Glenwood Springs, CO
81601

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901 — Los Angeles, CA
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Klayna M. Snider
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Pleasanton, CA 94566

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Douglas J. Atkins
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Kettering, OH 45419

Region 5
683 — Nebraska
Mick J. Johnson
2000 1/2 East 34th Street
Kearney, NE 68847

Region 6
803 — Boulder, CO
Jonathan D. Finger
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Niwot, CO 80503

Region 7
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162 Hidden Ranch Circle, NW
Calgary, AB T3A 5R1 Canada

Wayne A. Cressman
151 Abalone Way, NE
Calgary, AB T2A 6Y1
Canada

Lee M. Post
308 Canyon Close
Canmore, AB T1W 1H4
Canada

841 — Salt Lake City, UT
Paul N. Gates
176 No Main, Unit B
Farmington, UT 84025

In Memory...

James Barry
Opelika, AL

Jimmy Gold, RPT
Duncan, TX

AUXILIARY exchange

DEDICATED TO AUXILIARY NEWS AND INTERESTS

Use Talents Wisely

"Use what talent you possess; the woods would be very silent if no birds sang except those that sang best."
— Henry Van Dyke

When I turned the page to May in my monthly planner, I saw this quote. I have often wondered why some people were given so many talents, but did little to develop them. Others with fewer talents have tried to sing, but the world couldn't hear them. I guess we have to realize that the "world" is the place where we live.

Phyllis Tremper
PTGA President

Are you doing all you can in your own little "world?" You may not think it's much if you teach an adult to read, take a child to an art gallery or a concert, or help a senior citizen write a letter to a grandchild. But it is!

Last week I saw a beautiful bright blue bird in my yard munching on seeds that I had left for him. Then along came a big blue jay and chased him away. Now that blue bird had a reason for being there and the big bully chased him away for his own selfish reasons. Do not be offended by the big bullies telling you you are not good enough, not strong enough. Persevere and sing your song in your own little world. You will be heard!

Which brings me to a related topic. As you know, our convention takes place this month and we will be seeing each other again. Would you talk to each other for a minute or two about who you would like to have as officers next year. We will be nominating a new slate to run your organization and voting next July 2000. Many of you have talents you didn't know you had. Some of you have never had a chance to use your talents. Here is your chance. Speak up. If there is an office you feel you could excel in, let someone know. We would like volunteers and not have to beg! Remember, the nominating committee has a big job to do and they have to do it across country. Wouldn't it be nice if they had some input this July so they could publish a slate of officers by next February. Please talk to the person who is currently in office who has the job you think you could do. She will tell what the office entails and how much time it involves.

We are going into the 21st century and our organization needs new insights, new ideas and new creativity. You could be the one. Please volunteer your time and talents. This is *your* organization and we need ***you.***

However, don't forget to put a *Little Music in Your Life.* And remember, *Music is the Spice of Life.*

I look forward to seeing all of you in Kansas City this month.

— Phyllis K. Tremper
President, PTGA

Bits of Heaven

Spring brings a bit of Heaven
To resurrected earth,
For everywhere the eye can see
Are signs of bright rebirth.

Arising from their graves of ice,
The crocuses lift their heads...
And all around the countryside
Are lovely flower beds.

The barren trees of Winter
Are filled with buds today,
As the birds return rejoicing
From their Winter holiday.

The snowflakes of December
Are April memories,
Caressed by southern breezes
And sun-kissed melodies.

The doubts and fears of Winter
Give way to joy and mirth
For Spring brings bits of Heaven
To resurrected earth!

— Clay Harrison

Piano Technicians Guild Auxiliary

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Words of Wisdom

Others are a reflection of you. Surround yourself with people who bring out the best in you.

Even if you're on the right track, you'll get run over if you just sit there.
— H.L. Mencken

You can always tell a real friend: when you've made a fool of yourself she doesn't feel you've done a permanent job.
— Laurence J. Peter

It is far better to have good memories than a good memory. Too many people who pride themselves on their good memory remember things that were best forgotten.
— Sidney Harris

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VIDEOS

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WANTED!! DEAD OR ALIVE: "Steinway uprights and grands." Call collect, Ben Knauer, 818-343-7744.

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EVENTS CALENDAR

JULY 21 - 25, 1999
PTG ANNUAL CONVENTION & INSTITUTE
HYATT REGENCY HOTEL, KANSAS CITY, MO 64111
CONTACT: THE HOME OFFICE (816) 753-7747
3930 WASHINGTON, KANSAS CITY, MO 64111

OCTOBER 1 - 3, 1999
OHIO STATE / CENTRAL EAST REGIONAL
GRAVE PIANO & ORGAN, COLUMBUS, OH
CONTACT: KIM FIPPIN, (614)890-2197
275 FOXTRAIL PL, WESTERVILLE, OH 43081

SEPTEMBER 24 - 26, 1999
NYSCON
DAYS INN, KINGSTON, ONTARIO
CONTACT: JOHN HALL (613)353-6175
BOX 41, BATTERSEA, ONT K0H 1H0 CANADA

OCTOBER 8 - 10, 1999
TEXAS STATE ASSOCIATION
WACO CONVENTION CENTER, WACO, TX
CONTACT: JAMES GEIGER (254)867-9589
3924 KENDALL LANE, WACO, TX 76705

OCTOBER 29 - 31, 1999
NORTH CAROLINA REGIONAL CONFERENCE
RADISSON HOTEL, HIGH POINT, NC
CONTACT: DAVE FEENY (336)697-2646
3455 MCCONNELL RD, GREENSBOBO, NC 27405

All seminars, conferences, conventions and events listed here are approved PTG activities. Chapters and regions wishing to have their function listed must complete a seminar request form. To obtain one of these forms, contact the PTG Home Office or your Regional Vice President.

Once approval is given and your request form reaches the Home Office, your event will be listed six-months prior and each issue until the month in which it is to take place.

Deadline to be included in the Events Calendar is at least 45 days before the publication date; however once the request is approved, it will automatically be included in the next available issue.

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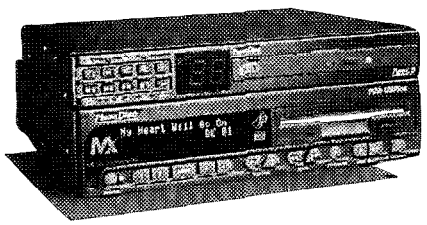

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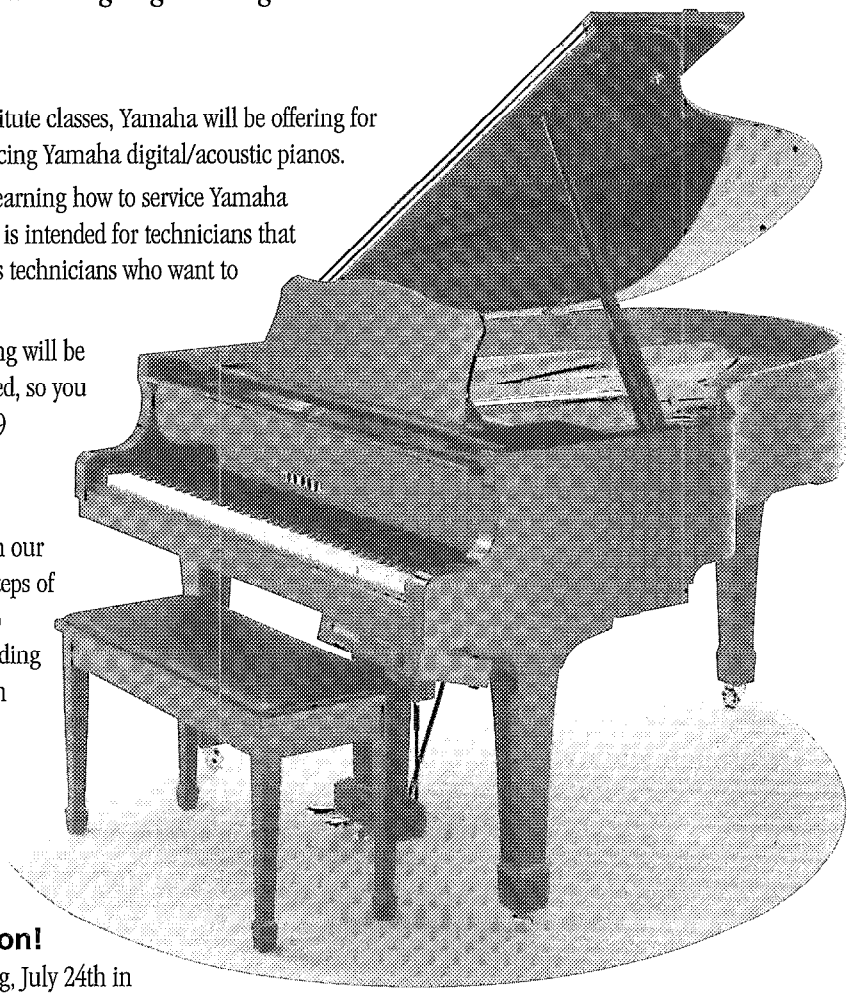
PTG GAZETTE

YAMAHA

July 1999

Kansas City Here We Come...

Yamaha is proud to be a participant in the upcoming 42nd annual National Piano Technicians Convention in Kansas City. It looks like it's going to be a great convention. We hope to see you there!



"A Day With Disklavier"

On Wednesday, July 21, one day prior to the Institute classes, Yamaha will be offering for the first time, a full day of instruction on servicing Yamaha digital/acoustic pianos.

This class will give you hands-on experience learning how to service Yamaha Disklavier digital/acoustic pianos. "A Day With Disklavier" is intended for technicians that are currently servicing Yamaha Disklavier pianos as well as technicians who want to learn how to service these pianos.

Regardless of your Disklavier service experience, the training will be custom tailored to your experience level. Class size is limited, so you must pre-register by calling Judy Naylor at (800) 854-1569 or at (714) 522-9905.

The 37 Steps of Grand Regulation

In this class, LaRoy Edwards and Terri Niimi, instructors in our Little Red Schoolhouse Program, will be covering the 37 Steps of Grand Regulation and why the sequence of the steps are so important. This three-hour class will assist your understanding of grand regulation and will provide you with many tips on improving the touch of the grand piano.

Exhibit Hall

Greg, Mark, Steve, Bill, Terry and LaRoy will be in the Yamaha booth during the convention. Come by and say hello when you are in the Exhibit Hall.

A440 Big Band Plays at Yamaha Reception!

You are invited to attend our reception on Saturday evening, July 24th in the New York/Atlanta room.

The PTG A440 BIG BAND was such a success in Providence, we have decided to make it a tradition. If you are interested in participating, please let us know what instrument you play, so we can save a seat for you on the bandstand. Contact Steve Pearson at (800) 854-1569 or (714) 522-9843.

See you in Kansas City!

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