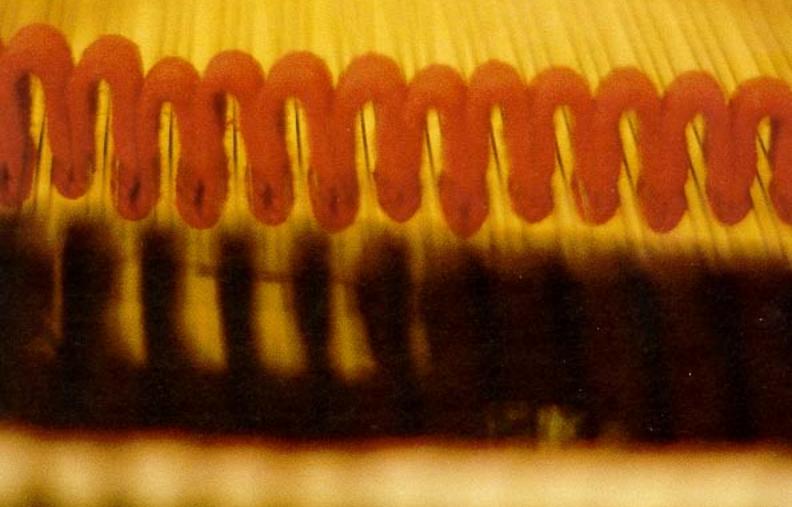
Piano Technicians JOUTHA

June 1983





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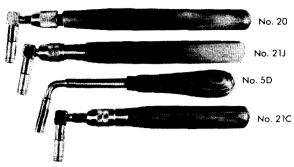
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HARDWOOD EXTENSION TUNING LEVER — Medium priced lever that measures 13" overall, having a 942" wood handle. Chrome plated hexagon shaft extends to 18" long. Comes with our 12" long No. 13B Head and No. 14B #2 Star Tip. Lever weighs 14 oz.

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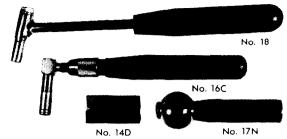
STATIONARY ROSEWOOD TUNING LEVER—This lever is modeled after the Yamaha type in design appearance. The overall length is \$11\forall 2" which includes an 8" rosewood handle. Comes with a stainless steel collar and runing head (our No. 13B) and No. 14B \pi 2 Startip. Net weight 1 pound.

No. 211-Stationary Rosewood Tuning Lever. !

EUROPEAN TUNING LEVER—Imported from England to be used on 1/0 tuning pins that are in European pianos. Lever is all one piece measuring $1042^{\prime\prime\prime}$ long with a 5" high gloss finish, hardwood handle. Shaft and head are polished steel. Choose from a star tip or square head. Weighs 942 oz.

No. 5D—European Lever, Star Head. No. 5E—European Lever, Square Head.

COMPACT, EXTENDABLE ROSEWOOD LEVER—Just like our famous Schaff No. 21 Lever as shown in the catalog, but it is much shorter, measuring only 10" overall with a 6" rosewood handle. Stainless steel hexagon shaft extends to 1432" long. Comes with No. 13B Head and No. 14B Tip. Weighs 1 Lb. No. 21C—Compact Rosewood Lever. i



PIANO FACTORY STYLE TUNING LEVER – Specifically designed by Schaff. 13" overall with an unbreakable 7" PVC plastic handle. Steel shaft is welded at the head for extra strength. Specially designed tuning tip is locked in position with machine screw and lock washer. Hardened tool steel tip will withstand stress and pounding to set and level tuning pins. Standard with a star tip but square tip available. Approximately 17° angle head. Weighs 14½ oz. No. 18 – Factory Tuning Lever.

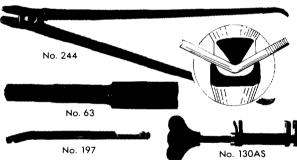
COMPACT, EXTENDABLE NYLON TUNING LEVER—Overall length is 10", with the nylon handle being 6½". Hexagon, chrome plated shaft extends to 14". Comes with our No. 13B Head and No. 14B #2 Star Tip. Weighs 14½ oz. No. 16C—Compact Nylon Lever.

REPLACEMENT TIPS FOR FACTORY STYLE LEVER—These tuning lever tips can only be used with No. 18 Tuning Lever. Available either as a star or square type tip.

No. 14D—Factory Star Tip. No. 14E—Factory Square Tip.

FENDON NARROW WALL TUNING TIP—A must tool for all piano tuners. Whenever tuning pins are too close together (as in the extreme treble of smaller size pianos) for a conventional sized tuning tip, use this narrow diameter Fendon tip. Comes 2½" long, chrome plated and will fit any Schaff tuning lever. Remember, this tip is not designed to take the stress for high tension notes in the bass and tenor sections of the piano. Use only where you have tuning pin clearance problems.

No. 17N-Fendon Tip.



POWER TUNING PIN SOCKET—Triangle shank on one end, star head on the other. Used for fast removal of tuning pins with a reversing power drill, 3½" long.

No. 63 - Power Tuning Pin Socket.

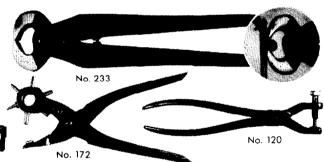
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GRAND HAMMER HEAD EXTRACTING PLIERS—By far and away the best tool available for removing grand hammer heads from their shanks. Pliers are made from casted magnesian bronze and are chrome plated. Adjustable screw has a finders point to prevent slippage during hammer head extraction. Overall length is 8", weight 10 oz.

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GRAND KNUCKLE EXTRACTING PLIERS—One of the most ingenious ideas we have seen for solving an age old problem of removing knuckles from grand hammer shanks. As the insert picture shows, simply grab the knuckle and gently squeeze the pliers. This tool is a standard heavy duty cutting nipper made from a drop forged casting, has a polished head and red enameled handles. Overall length 10½", weight 1 Lb. 3 oz.

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Piano Technicians Journal Official Publication of the Piano Technicians Guild

June 1983 Volume 26, Number 6

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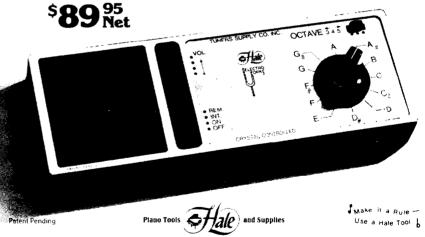
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Editorial

Don L. Santy Executive Editor

Problems, Problems

The Board of Directors, members, the home office staff, the Exhibitors and almost anyone who has some connection with our annual Convention and Technical Institute are plying their minds in search of solutions to problems which come up more frequently each year.

Our Annual Convention and Technical Institute is an event to behold. Those who attend almost always leave inspired and happy with the results. Economics, however, is playing a relentless and insidious role in the background, making this great event more and more unwieldy and financially difficult.

When people don't stay in the Con-

vention Hotel, we lose leverage in terms of the huge number of complimentary rooms we require for our Institute and other needs. After all, the hotel is in business too. We must fill enough rooms to pay for those spaces in which we teach. If we don't, the costs rise astronomically.

A member attending the Convention who fills every hour with classes or activities and partakes in every single event can find the experience an exhausting one. Pity the poor Board members who attend two extremely trying days of Board, two days of Council, numerous other meetings in-between. and one or more days of post-council board sessions. The Board member isn't able to attend any classes, only has a limited opportunity to enjoy the fellowship of other members, has to be ready to answer questions on practically every subject having to do with the Guild's inner workings at all times, has complaints piled on his shoulders, listens to numerous ideas on how the Guild should be run and receives little appreciation for his time and effort.

In addition, our policies state that we must rotate our Conventions by regions, which means that we are restricted to those few locations available within that geographic area. This usually means a

large city. Only a few facilities can accommodate our unique and considerable needs. This means that our site selection is extremely limited.

A college campus is the answer, you say? We have looked into that as well. The few locations we have examined offer dormitories with very few private accommodations. The space available comparable to hotels is extremely limited, so who will get the space that is available? In addition, meal functions are tightly scheculed and you eat when the time arrives for you to eat. There is little flexibility for all food service. Accommodations are spread over huge areas and exhibition space is usually far removed from the flow of activity. Transportation to the campuses, which are usually located well outside of metropolitan areas, can be difficult. This results in more costs, more time and more complications. Although the overall costs are considerably lower, we do not have the services that one can expect from a hotel and this lack of convenience does not make the event an attractive one for people who like firstclass accommodations. This group makes up a large segment of those who support our Conventions.

We are in the process of searching for a campus in close proximity to a first-class hotel accomodation. We know that they exist. We are exploring the idea of separating the Convention proper from the Institute. We are discussing the idea of shortening the length of the whole event and tightening up financial controls. We are kicking around the idea of slating all future Conventions in the middle of the country and trying to figure out ways to attract more members to attend. Every possible solution to high cost, location, length of time, facility, program, attendance, etc., is being explored. We are zealously protecting the integrity of our Institute and the traditions of our annual Conventions. We want to continue to accomplish everything our members want and deserve. We have to do it in the way the majority wants it done.

Let us know your thoughts. Give us your suggestions.

Your comments will be appreciated.

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INDUSTRY **NEWS**

Kimball Merges Sales Divisions of Keyboard Lines

ASPER, (Ind.) — Kimball International, Inc. has consolidated its keyboard divisions — Kimball Piano and Organ, Bosendorfer, Conn and Krakauer — into one division, Kimball Keyboard Divisions.

"The merging of sales organizations will provide one of the best sales forces in the industry," states James Birk, Executive Vice President, Keyboard Divisions. He continues, "The sales organizations, composed of 17 district merchandising managers, will now represent all Kimball keyboard products and will provide the dealer with a complete line of pianos and organs from one supplier.

"We feel this consolidation will provide each dealer with more complete

sales assistance and will help to streamline our own sales efforts," says Birk.

"Each division has a specialty or particular area of product expertise. The joining of these products under one division will provide Kimball with a diversification of quality products under one roof," he concluded.

Kimball Piano and Organ Sales Division is the leading domestic manufacturer of pianos and organs with a full range of piano models from upright to concert grand for the home and institutional markets, and organs with the latest computerized technology, offering the highest quality available in almost every price range. Vertically integrated, Kimball takes complete responsibility for its products, from growing the trees in its own forest preserves through all manufacturing and production phases.

Bosendorfer, regarded as the world's finest pianos, are handcrafted in Vienna, Austria; Conn pianos and organs are top-of-the line products manufactured in Jasper and French Lick, Indiana; and Krakauer console pianos are high quality distinctive, hand-crafted instruments, manufactured in Berlin, Ohio. Together the four divisions provide a complete selection of high quality pianos and organs in almost every price range.

Kimball Keyboard Divisions of Kimball International, Inc. is based in Jasper, Indiana.

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Standard stretch tunings are vastly simplified too, because the Sanderson Accu-Tuner has a built-in stretch calculator. All you have to do is tune—the correct settings for a three-and-one-half octave stretch tuning appear automatically as you step from one note to the next while tuning.

No need for factory recalibration either, with the internal quartz-crystal frequency standard at 440.00 Hz, accurate to one-twentieth of a cent! All the notes are individually accurate to one-tenth cent. So is the cents deviation display, up to 50 cents flat or sharp. Full range extends well beyond 50 cents for offset tuning and pitch raising.

Standard features include: Foot switch to change notes—rechargeable battery—automatic turnoff (in case you forget)—ultra-bright LED displays—liquid-crystal digital displays—offset cents zero—keyboard control of all functions—complete set of input/output jacks—A-C adapter—10-piano memory (optional memory up to 54 pianos).

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Now piano technicians can take full advantage of the computer age to take the drudgery (but not the fun) out of tuning. Be one of the first to enjoy the benefits of tuning with the most advanced instrument available for the piano technician—the Sanderson Accu-Tuner!

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President's Message

Ernie Preuitt President



ow many of you have set up goals for yourselves and, when you reached them, have been content to stop there? The moment we become satisfied with things as they are, the moment we are content with the status quo, we begin to slide backward. We cannot hold our own by standing still, or by doing nothing, for life is movement, either forward or backward.

The idea of setting new goals for ourselves is the secret of personal challenge or growth, and also the means of progress in any field of endeavor.

The Piano Technicians Guild is setting a new goal every time we conduct a yearly convention, by doing the best we can to produce a better convention. How can we do otherwise if we want to see ourselves succeed as a viable part of the business community? At the time of the St. Louis convention in 1973, we topped all records in attendance, tutoring and institute classes and social activities. Each year since, we have far exceeded most of these records only because we have not been content to stand still.

There are probably as many reasons for taking up the piano tuning business as there are piano tuners, but most stay in the trade because they like it. It seems to be one of those trades that gets in your blood, but to be really successful at it, one must continually upgrade one's skills. Practice is good, and there is nothing wrong with good reading materials; but nothing com-

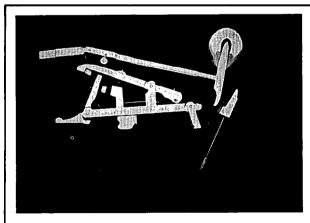
pares to associating with others in the same trade, and what better way than belonging to a local chapter where you can meet periodically and discuss and exchange problems and ideas?

Another of the great opportunities is the annual convention, this year to be held in New Orleans, July 4 — 8, at the Hilton Hotel. We expect a large attendance and we know we will have an excellent institute, and a fun time is assured. Set a goal for yourself — come to New Orleans, and stay where the action is — in the Hilton Hotel.

This will be an opportunity for each of you to issue a personal challenge to move ahead; to meet others in the tuning profession; to meet many of the finest teachers and instructors in the world; to meet and become acquainted with the people who manufacture the very instruments entrusted to your living skills. You'll discover what really makes this interesting trade tick.

This presents such an opportunity that I would like to challenge each of you to take advantage of it; yes, even dare you to try it!

The door is unlocked, but only you can open it with your attendance. Many think they have arrived at the top, are making good money, already know it all, don't care to share their knowledge with others, are not interested in new ideas, there's nothing else to achieve. If this is you, please re-read the first paragraph of this message, and think it over.



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It is hard to imagine writing this column each month before going to the international meeting and tour and then reading about "what will happen" when it is already past. But at this time all of us, meaning those of us who are making the trip, are looking forward to the time of departure and the exciting events to follow. Letters between here and Japan are going back and forth. They are very thorough and organized in Japan, and I am sure they will do an excellent job and we will have a good convention.

Events will start Sunday evening, May 22, with the Board Meeting, followed by a Council Meeting the morning of the 23rd and technical discussions that afternoon. May 24 and 25 are reserved for factory visits.

We will tell you all about it when we come back and hopefully make you feel

that you missed a very interesting experience. Well, we know many of you just cannot go, so we will do our best to give you a vivid report of the events as they unfolded.

There is an interesting article about damper installation for upright pianos in the February issue of "Das Musikinstrument." To put it briefly, you install damper levers with oversized holes, put in wires and drums that are held in correct place, glue your dampers to the drums, fill the holes with epoxy, and presto, your damper job is all done correctly. Since it is not quite that simple, I shall send a copy of the article to our technical editor and perhaps he can publish it in a future issue of the *Journal* together with his comments.

Leafing through foreign magazines, it is always baffling to read about upright or grand pianos by numbers, which

generally refer to size in centimeters; e.g., "Schimmel grand 174" means 174 cm. in length, which translates to 5' 8.5" at a conversion factor of 2.54 cm. per 1".

Here new are just a few measurements in case you want to visualize size:

 $100 \text{ cm.} = 39\frac{1}{3}$ "

125 cm. = 49"

150 cm. = 59"

175 cm. = 69", and

 $200 \text{ cm.} = 78\frac{3}{4}$ ".

Now if you run across anything in between, you will know how to convert centimeters into inches.

Despite being very familiar with the metric system, I can only visualize piano sizes in feet and inches. This means I always have to be ready to convert metric measurements into their American equivalents.

Coming Events

UPCOMING CONVENTION THE PIANO TECHNICIANS GUILD

1983 July 4-8 New Orleans New Orleans Hilton & Tower October 14-16, 1983
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Mount St. Joseph College

Contact: Nancy Burkhalter 1053 West Broad St. Columbus, OH 43222 (614) 268-9770

September 16-18, 1983 ANNUAL WISCONSIN DAYS

University of Wisconsin at Madison

Contact: Bob Hohf

431 N. Main St. Lodi, WI 53555 (608) 592-3731

October 2-4, 1983 FLORIDA STATE CONVENTION

Sheraton, Jacksonville Beach Resort Inn Jacksonville Beach, FL

Contact: Barney J. Johns

3546 Oleander St. Jacksonville, FL 32205 (904) 786-0868

October 14-16, 1983 TEXAS STATE ASSOCIATION CONVENTION

Downtown Holiday Inn Wichita Fall, Texas

Contact: **Jimmy Gold** 2101 Walnut Duncan, OK 73533 (405) 255-5804

October 20-23, 1983 NEW YORK STATE CONFERENCE

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THE ECHNICAI ()RUM

Jack Krefting, **Technical Editor**

am continually amazed at the inventiveness of our readers, many of whom have shared their ideas with us. There is probably no area of piano service that hasn't received exhaustive analysis by someone, and such attention frequently results in the invention of a new tool. Many of these ideas have been featured in these pages, but every time I get out to a seminar someone shows me something else that will do some particular job better than the usual tool.

The only problem is that some of these tools are machined from solid

carry around all the special tools we hear about we would need a pack mule or a forklift when going on service calls. The experienced field technician who makes one house call after another, encountering every possible problem, tries to eliminate the bulk and weight, carrying instead those tools that are useful every time or that will perform three or four functions, thus saving weight and space in the tool kit.

With that in mind, I am announcing a contest to see who can come up with the best multi-purpose tool. We will steel or brass, and if we were to actually feature these tools month by month in

these pages, and the winners will be announced in six months or a year whenever we have enough good entries to make it worthwhile. Here are the ground rules:

- 1. I get to pick the winners. I may consult other technicians, but my decisions will be final and not subject to appeal, even if they aren't very good.
- 2. All ideas and inventions sent to me will be considered in the public domain. If you intend to patent and market your idea, do that instead of sending it to me. We don't want legal trouble, we just want to share knowledge with technicians.
- 3. All entries must be tools or fixtures suitable for more than one piano service purpose. Humorous or weird entries will be judged separately. If any material is to be returned, please say so. There may even be some prizes, but don't count on that.
- 4. Send all entries to me, not to Seattle. If we don't receive some serious entries within 30 days, we'll forget the whole idea. Incidentally, these don't have to be new ideas. If you have submitted something in the past that would be applicable, by all means run it by me again. Some sort of credit or notoriety will be accorded each and every entry, I promise.

Vertical Rebuilding

We discussed the recapping of a bass bridge in some detail in our August, 1980 issue, pp. 10 - 14, and since most of our readers have that issue we will not duplicate that material here. For those who don't have it, reprints are available from the Home Office at nominal cost.

We have not, however, gone into so much detail regarding treble bridge recapping, so perhaps that would be appropriate at this stage of our rebuilding series.

Since a treble bridge is so important and relatively time-consuming to recap or replace, its condition should be minutely checked before determining the amount of the repair estimate. The most obvious bridge defect would be cracking or checking of the cap, and while it is possible to make a good field repair using epoxy, if we are rebuilding the piano we should replace at least the capping. Observe and take notes before teardown so that if the cracking was the result of improper manufacture, that problem can be avoided this time around.

The four most common causes of split bridge caps, in my experience, are (1) inferior wood; (2) poor grain orientation; (3) pins too large for holes; and (4) excessive sidebearing. There could be many other causes as well, including pins touching or crossing in the bridge, excessive dryness, and pins located too close to the side or edge of the bridge; but for now let's consider the more common ones.

Maple is the preferred material in this country, partly because it is hard, stiff, and resistant to splitting, and partly because it is readily available and known to be a good tone radiator. There are many kinds of maple, though only two or perhaps three of them are suitable for bridges. Sugar maple (rock maple) and black maple are the strongest and hardest; northern white maple is somewhat less so, but generally suitable. The other ten or so varieties are considerably softer and therefore relatively undesirable.

Boxwood, a traditional favorite for recorders and other Renaissance wind instruments, has been used at times as a capping material because it was thought to be tonally superior to maple. It has been installed in the high treble

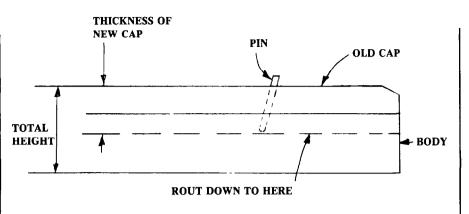


Figure 1

sections of fine grands, identifiable by color (slightly yellower than maple) and by the virtual lack of visible grain characteristics. It is also easily identified, unfortunately, by its tendency to check. Hairline cracks routinely appear at the base of each pin after a few seasons, usually doing no harm but definitely spoiling the cosmetic effect. European beech, harder than its American counterpart and denser than maple, has also been successfully used as bridge material.

Whatever the material, it must be seasoned and moisture conditioned before it can be machined. The free water in the lumens (spaces inside the hollow wood cells) will evaporate in time, eventually leaving the wood with a moisture content of 20% to 30%. Kiln drying will then remove much of the

imbibed water from the lamella (cell walls) until the moisture content has stabilized at 5% to 10%, at which time the wood is ready to be worked.

Let's assume for now that it is our intention to replace just the high treble portion of the cap. First we remove the bridge pins and take a pattern, as has been discussed in recent issues. Carefully measure the height of the old cap from the soundboard at various points so the total bridge height can be reproduced even if the height varies along the length of the cap. Another reason to check this is that it is possible, even if the cap separates cleanly and the bridge body is sound, that the original pins went through the cap and penetrated the body. If so, it will be necessary to remove wood until all holes are gone. Figure 1 illustrates this point, which is



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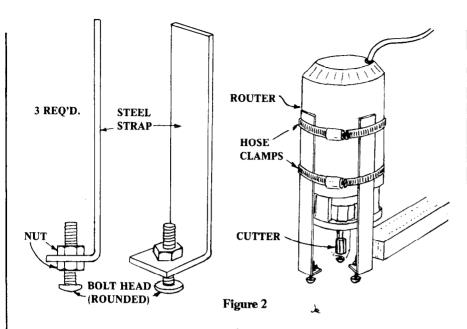
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important because when holes are drilled in the new cap, they must not intersect any other holes, new or old, in cap or body. The precise thickness of the new cap is relatively unimportant so long as the total bridge height is unchanged. The only acceptable change would be a deliberate one for the purpose of altering downbearing, and even then caution is in order; an increase in thickness, combined with a flat board, could result in negative crown and no tone despite all the effort expended in recapping the bridge.

If possible, when the cap is removed it should be preserved in as few pieces as possible so that it may be used as a pattern for the new one; sometimes that just isn't possible, though, and the small bits and pieces must be thrown away. If the piano has a vertically laminated bridge with a cap, do not use acetic acid or other chemical glue softeners to remove the cap; otherwise the glue joints between vertical plies will be softened and seriously weakened at the same time.

If the entire cap is to be replaced, remove it at this time; but if only one section will be replaced, make a neat saw cut through the cap at the point where the new capping will terminate.

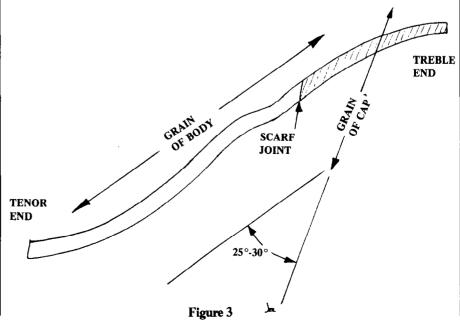
Once the cap is gone, if there are no holes in the bridge body it may simply be scraped to remove all traces of old glue. Usually there will be holes, though, which means planing down the bridge. One way to do the job evenly and efficiently is with an ordinary router

mounted on three or four special legs instead of its usual circular table. Please refer to Figure 2, which illustrates one method of modifying a router. To make the cut at precisely the right height, there are three points of adjustment; the hose clamps hold the fabricated steel legs at the approximate height, and roughly adjusted there. Next, level the router by adjusting the rounded bolts in the bottom of the feet, and then adjust the cutter bit in the router collect for the exact cutting height. The feet will straddle the bridge, and it is important to hold the router firmly in both hands to maintain control. Don't hog too

much material in one pass — it's better to make several shallow cuts of 1/8" or so.

Now piece the old cap together as well as its condition will permit, and lay it out on the new material. Be sure the grain is oriented properly as shown in Figure 3, otherwise the cap will have a tendency to split or be very difficult to notch. For those reasons, the cap should be glued at a $25 - 30^{\circ}$ angle to the body of the bridge, which should be running lengthwise. For resistance to splitting, the cap should be quartersawn, although a flatsawn cap would be a bit more stable in height when the humidity changes, and therefore slightly preferable in that regard. All in all, I would sacrifice that modicum of stability for the greater structural strength and resistance to splitting, but that is an individual choice.

Draw the outline of the old cap on the new material, or if the old cap has disintegrated in removal press a piece of paper on the edges of the bridge for an outline pattern, transferring that to the new wood. Cut along the outside of the line with the bandsaw to allow for trimming after the cap is glued in place, and check the fit. If too thick, the cap may be planed now or after gluing; if it is too thin, we are faced with the unhappy alternatives of living with insufficient downbearing (buzzing, poor tone transmission), shimming the cap up with veneer (an extra glue joint), or



starting over (extra work).

Figure 4 illustrates a technique for insuring that the cap will not slip out of position when glue and clamps are applied. Drive two brads into the routed portion of the bridge in places where there could be no possibility of interference with bridge pins, and clip them off so that they project upward only about 1/16". The clipped stubs will dig into the underside of the new cap when it is placed in position, preventing it from sliding sideways regardless of the clamping method or pressure. Clamp the joint with go-bars, or with a clamp similar to the one illustrated in Figure 2 of our January, 1983 issue. When the glue is dry, remove clamps and trim as needed. The cap is completed in the same manner as a new bridge, which was covered in the last two issues.

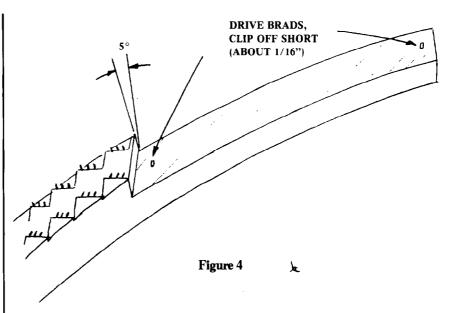
Bridge Modification

QUESTION: Is there anything to be gained by modifying a conventional grand bridge of two piece construction into a continuous bridge such as is found on some fine grands?

Kent Gallaway Ripon, Wisconsin

ANSWER: Experiments in this area have indicated, perhaps surprisingly, that there is no audible difference when this connecting strip is removed, so it is highly doubtful that such a modification would be of benefit. Cutting the treble bridge in half is another story, of course, and the reason for the difference is probably that in the former case the two bridges are roughly parallel and only a few inches apart, connected by the same ribs, whereas in the latter instance the continuity disruption has a definite negative effect on tone quality and ring time. Adding such a connecting piece would add stiffness, which could be good or bad depending on what that scale might need, at least theoretically, but whether that would translate into a direct benefit is a big question mark.

There are other problems with this, too. If the bridge is vertically laminated, the angle of the bend could be such that some of the lamina would break.



The flexibility of the bass bridge would be affected also and plate clearance would have to be considered. Finally, if the vibration from a note in the treble has to travel the extra distance "around the corner and back," might not that energy be better directed into the ribs and soundboard? And when one considers this in light of suspended bridges, the likelihood of success is even further diminished. All in all, I would not do it except in an experimental laboratory.



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Glue Pocket on Rib

Our same correspondent asks the following:

QUESTION: I have a good grand piano that has a bad repair of a separation between ribs and soundboard. The gap between the two members is filled with what appears to be a wood glue but the rib is not joined but still separated from the soundboard. How can I remove this glue; is there a chemical or what?

ANSWER: It depends on the type of glue used, as some have solvents and others do not. Hot hide glue, for example, is soluble in a dilute (25%) solution of acetic acid. For most glues, however, the best chance lies with the application of moist heat. This is the nearest thing to a universal glue softener, so far as I know.

The main problem with applying steam to the underside of a grand soundboard is that the steam isn't smart enough to loosen just the selected joints, but will attack all of them with equal vigor. A boiling kettle of water under the piano could cause everything to release, including the rim laminae. A better approach would be to try to isolate the steam by tipping the piano on its side and placing a wet cloth on the joint to be loosened. Direct a jet of hot air at the cloth with a heat gun, while keeping a fan aimed at the general area to keep cool air circulating.

After a few seconds of injecting hot, moist air into the glue joint, inspect it by jabbing it with an icepick to see whether any softening effect is occur-

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ring. If so, continue; if not, the glue may have to be dug out with a hacksaw blade, which by the way is a good way to damage the rib and/or the soundboard. If the glue cannot be removed without ruining something, perhaps it would be better to leave it alone until rebuilding time, and then install a new board. That decision would depend at least in part on how great a problem is created by the glue pocket, as well as the condition of the rest of the instrument. A separation in the left front "dead corner" could be ignored indefinitely so long as it doesn't buzz, for example, while a separation right next to a bridge could be critical. Ribs pulled loose from the board right behind the bridge are indicative of bridge roll, a serious problem in terms of tonal inhibition as well as repair difficulty. In that event it would probably be best to advise immediate rebuilding of the instrument.

Tuning Test Experiment

Lloyd Winn, who is an advisor to the Examinations and Test Standards Committee, has conducted an interesting study on one critical segment of our tuning exam. Here is his report:

Following is a report on a study which I personally undertook to check, in a small way, on the veracity of one phase of the Piano Technicians Guild Tuning Test procedure, namely the so-called "Master Tuning." Incidentally, I would prefer some other title for this tuning and suggest "Comparative Tuning."

As is well known, the procedure is to have a three-member team carefully tune the test piano, take electronic readings of all the pitches, and use these to comparatively grade the tuning of the one being examined. It seems that this Master (Comparative) Tuning is the part of the process most open to questioning by those inclined to criticise the method. The thought occurred to me that if several very relative Master Tunings could be assembled and presented in such a way that they could easily be compared to each other, some of these doubts might either be allayed or substantiated.

The 1982 Piano Technicians Guild Convention provided an opportunity to do this since all tests being administered there were to be given using pianos of the same make and model. We also had Master Tuning readings for a piano same make and model — which had been used in giving exams here by the Salt Lake City Chapter. Consequently, computer tapes of three D.C. tunings were obtained and the four sets of readings were transferred to a form showing pitches by key names in columns and by octaves horizontally (see Charts I and II). Why only four sets? Well, I had sheets, prepared for another purpose, that would accommodate the pitch readings of all seven octaves on one page.

I have chosen (Chart I) the set of numbers for octave 5 to show the arrangement and to give the reader an opportunity to check the veracity of the Comparative tunings in this area. In grading the test, the pitches of Octave 5 are read with the Sight-O-Tuners set at five and a pitch deviation of 2¢ allowed. It is comforting to note in comparing these four sets of readings (forty-eight pitches in all) that in only two instances did the pitch deviation go beyond the allowable 2¢.

To make the study more meaningful, three sets of pitch readings have been averaged to make a set of numbers against which the others might be comparatively graded, the average readings serving as master tuning. Chart II shows how this appears for the midrange octaves. Pitch readings for Octaves 4 and 5 are taken with the S.O.T. set at five. The tolerance is 1¢. Lost points have been indicated by circling the numbers involved. In this case, only one point would have been lost to a master tuning.

Chart III — a summary — shows the scores that each of the master tunings would receive if they were matched with the average and transferred to a Tuning Exam Form in the same manner as a prospective member's tuning is scored.

The results are incredibly high. Perhaps another experiment might not fare so well, but in this case the results indicate a high degree of veracity for our tuning test procedure.

Lloyd P. Winn, RTT Salt Lake City Chapter

CHART I. Octave 5 Pitch readings of four Master Tunings — tolerance 2¢

Piano	C	C#	D	D#	E	F	F#	G	G#	A	A #	В	
I	3	6	8	+ .5	.9	1.8	.6	1.4	1.0	2.1	.7	1.0	
Π	3	- 1.0	- 1.0	8	+1.0	1.6	1.9	1.5	.8	2.1	.9	1.5	
Ш	+ .4	.6	.6	3	4	+ .3	(3.8)	+1.2	1.3	1.7	1.6	1.1	
IV	6	8	2	+1.1	1.0	.9	.6	1.6	1.5	2.3	2.5	2.5	

CHART II.

2	/5	1
Э.	/ J·	- 1

Piano	C	C#	D	D#	E	F	F#	G	G#	A	A#	В
I	- 4.1	- 3.0	- 2.6	- 2.5	- 2.0	- 2.2	- 1.2	9	4	+ .5	+ .6	+ .7
11	- 4.3	- 3.4	- 2.8	- 2.8	- 2.3	- 2.3	- 1.1	9	3	+ .4	+ .4	+ .4
Ш	(2.6)	- 2.8	- 1.8	- 1.4	- 1.2	- 1.6	- 1.2	7	0.0	0.0	+ .1	+ .2
Average	- 3.7	- 3.1	- 2.4	- 2.2	- 1.8	- 2.0	- 1.2	8	2	+ .3	+ .5	+ .4

4	1	′5-	1

Piano	С	C#	D	D#	E	F	F#	G	G#	A	A#	В	
I	- 1.6	- 1.2	- 1.1	5	5	3	2	0.0	+ .2	.5	.4	.1	
п	- 1.4	- 1.3	- 1.3	5	4	3	4	+ .5	.4	.4	.1	.2	
Ш	- 2.6	- 1.8	- 1.5	- 1.3	6	4	5	+ .3	1.2	1.8	.5	.7	
Average	- 1.9	- 1.4	- 1.3	8	5	3	4	+ .3	.6	.8	.3	.3	

CHART III. The numbers which would appear on a TUNING EXAM FORM for each of the tunings discussed above when scored against their average

Piano	Temperament	Bass	Mid-range	Treble	High-treble
I	100	100	100	100	100
П	100	100	100	100	100
Ш	100	98	99	100	100

Gadget of the Month

Jerry O'Connell, who worked for Wurlitzer from 1937 to 1975 and is now an independent technician, has come up with the following idea:

False Beat Suppressor

False beats in piano strings have been a problem for piano tuners for many years. It's a case somewhat like the weather — they all talk about them but not much is done about them.

There are perhaps ten or more suspected causes for false beats in individual piano strings. They can generally be

appear in the tenor and even the bass sections.

In most cases it was discovered that false beats showed up after pitch raisings of 40 or 50 cents or more. One hundred cents or half tone rises really produced them!

The reason (as accepted by many technicians and engineers) is that if a piano, particularly a fairly new one, is neglected and not tuned for several years it will go very flat, ½ tone or more. Then the owner, for one reason or another, has a change of heart and decides that with so sizeable investment as he has in the piano it would be a good idea to have it brought back to its

it properly in the future.

If the tuner pulls the pitch up to slightly above A-440 C.P.S. he is generally going to find that false beats have appeared, particularly in the treble section, which were not there before (if he had checked to listen for them).

The reason is that those strings sat there doing nothing but slowly going flatter and flatter. The portion of each string that makes a small curve around each top bridge pin gradually takes a "set," sort of like the way a pair of bending pliers would form a bend in a soft wire (only on a much smaller scale).

When the pitch is raised, a small part of that little bend is pulled upfound in the treble section, but can also I original standard pitch and take care of ward, and once it's not touching the



Photo 1



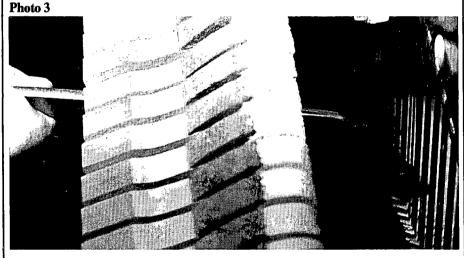
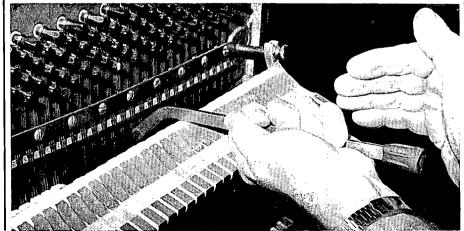


Photo 4



bridge pin or bridge it becomes a very minute part of the speaking length. Now if this were a soft wire it would straighten out immediately just from the normal tension on the string. However, piano wire is not only much harder and stiffer, it has that one quality that all tuners are familiar with — it has "memory." It wants to stay "as is" or "go back to where it came from." The best way to change it is brute force (in a moderate form in this case).

The False Beat Suppressor is merely a string-stretching tool designed specifically to get at the most effective spot on each string so as to apply pressure against the string and remove the little "kink" or bend that is causing the false beat.

In nearly two years of field testing this tool on hundreds of pianos, 75 to 80% of the false beats were either eliminated entirely or minimized to the point where they posed no problem in tuning.

Photo 1 — The False Beat Suppressor Tool is very simple in design. The tip has a radius with a semicircular groove wide enough to accept up to .060" diameter piano wire. The bend near the tip permits it to be used in either the up or down position depending on the location of the strings in the scale and where the pressure is to be applied.

The thickness of the tool is such that it can easily be used between the hammers and/or dampers. A rubber tip on the handle prevents bruising the palm of the hand even when used repeatedly. **Photo 2** — In this photo the tip is turned to the "up" position and the pressure is applied straight ahead or horizontally. The middle string is being pushed back about 1/4", which will generally cause it to drop about ½ tone in pitch. The tip can be slid up or down on the string while applying pressure, providing the spring rail is not used as a fulcrum. While it will bend easily, it also will break or crack easily if it contains short grain.

The strings having treble dampers can also be stretched by using the tool in this same manner. Insert the tool one hammer space to the right (or left) and pass between the damper wires at a slight angle. Without seeing the inserted tip you can feel when it has a string in the groove. Apply a little pressure while

watching the three strings just above the damper head felt. You can see the string move away from the felt. Once oriented it is easy to locate the other two and stretch them also.

Photo 3 — This shows the most effective way of stretching the string with false beats that were caused by pitch raising because it is applying the pressure closest to the point of origin of the false beat. That, of course, is the small portion of the wire that had taken a "set" while being curved around the upper bridge pin but was moved slightly upward during the pitch raising, thus now becoming a very small part of the speaking length of the string.

The pressure may be applied either by several strong, gradual pushes on the handle tip or by 3 or 4 short jabs, 1" to $1\frac{1}{2}$ ", by the butt or lower palm of the hand. In either case a constant pressure must be kept on the tool by the other hand to keep the groove on the string.

If a string drops ½ tone in the stretching process, pull it up to pitch or slightly above and stretch it again with less pressure being applied. Using the tool on several pianos gives one experience as to how much pressure and how often a string must be stretched to obtain maximum results.

Photo 4 — Occasionally, stretching the strings in the middle of the speaking length or near the treble bridge will remove most of the intensity of the false beat, but a small amount still can be heard. Often, more stretching, about 3/8" to 1/2" below the upper "V" bar as shown, will help eliminate that.

If the above instructions are followed and they fail to eliminate the false beats, they were not caused by pitch raising but by one or more of the other causes of these little demons, such as: an imperfection in the string itself, improper bearing, a twist in the wire when it was strung, an improper contact between the string and one of its bearing points, loose bridge pins, etc.

In Conclusion

Our thanks to David Pitsch for his exhaustive three-year series on grand regulating which concluded just two issues ago. David is contemplating writing an equally lengthy series on tuning, beginning early next year, provided

It's The Little Things That Count!

Gerald F. Foye, RTT San Diego Chapter

Rubber Tubing

section of rubber tubing is a handy item to carry in your tool kit. You can stick one end in your ear and blow on the other to help stimulate your eardrums for those fine tunings. However, after two weeks of this and you find you are permanently deaf — don't do it any more. You can also use it to suck out that last drop of coffee in the bottom of the cup at your favorite restaurant or siphon gas from the nearest vehicle when no one is looking — after which a kindly police officer will offer you a set of shiny new handcuffs to try on.

However, on a more practical theme, pieces of tubing do come in handy to slip over the steel pins in the pedal rod dowels after the original felt or rubber grommets have crumbled. Other places to use the tubing are over the pins that serve as back stops or bumpers when the key covers are slid back on many spinet and console pianos. Also, a small piece over the protruding end of a hinge pin helps avoid case damage. Where piano wire is close together a piece of tubing will serve nicely as a temporary (or permanent) mute to mute a section of new wire or to mute an objectionable false beat. And tubing can be used to shield the ends of sharp tools like an awl or a center pin bushing reamer.

There are many kinds of tubing available from many sources. However, my favorite tubing is 5/32 I.D. player piano tracker bar tubing, which is available through piano parts catalogs. You might also obtain a piece from a fellow technician who services player pianos.

there is sufficient favorable reader response to his After Touch series. Please let us know what you think.

In the meantime we have another tuning series, beginning in this issue, by Rick Baldassin of the Utah Valley Chapter. We welcome Rick to the ranks of our regular contributors.

Please send all technical questions, comments, tips and articles to me:

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Adagio

ne of the difficulties of attempting to communicate in print is that it is a linear medium. No matter how many adjectives, adverbs, or participial phrases one uses, it is nonetheless only possible to convey one idea at a time. The public speaker, even though he/she may be using the spoken word (perhaps, indeed, from a written text), has the flexibility of imparting additional meaning to the material through gesture, inflection, body language, and the listener's perceived sincerity.

If we contrast print or even speech with music, we begin to notice the limitations of the word. Middle C, when played by itself, or in a single-line melody, is easily perceived and understood. When it appears in a chord, its presence assumes a differing degree of importance. Middle C, the most familiar note in music, appears in a great number of simple triads, and an extraordinary number of compound and extended chords. The note is still middle C, but in each case it will communicate something very different. The A-minor triad sounds very different from the C-major one, although they have two notes and a major third in common. What has all of this got to do with the subject at hand, which is piano tone? For those of us who pay attention, a great deal. To begin with, this article, and most particularly its writer. can only deal with one idea at a time; but that does not mean other ideas are not important. To follow, it is mandatory for the piano technician to remember that anything which is done to that instrument will affect the performance of its other parts. So if one takes a G4 and lowers it to A3, the sound of the chord will be very different, even though the C and the E have remained completely unchanged. Thus it is with piano tone.

Last month we discussed piano tone from the perspective of volume and time. The tone was broken down into its initiation (ATTACK), its moment of predominance (DWELL), and the period during which it fades into silence (DECAY). The idea was presented that there is a great deal that the technician can do to exert control over each of

The Eclectic's Notebook

Christopher S. Robinson Connecticut Chapter

these components in the process of voicing the modern piano. The next logical question is: Now what do I do?

The answer is: You break down your problem! There are three major parts to the instrument in question. There is the EXCITER, also known as the "action," and we most particularly refer to the piano hammer. There is the OSCILLATOR, also known as the wire, or piano string. And there is the AMPLIFIER, also known as the superstructure, most familiarly the belly; with particular attention to the soundboard and bridges.

Now everyone knows that it will not avail the motorist to pour water into the radiator of an automobile when the gas gauge is indicating the absence of fuel, but many of us piano people insist on doing the same thing, figuratively speaking, when we attempt to regulate the tone of a piano.

So, the piano does not sound good. (Well?) Our first task is to discover what part of the emitted piano tone is deficient. When we have isolated that, our next task is to determine what part of the instrument is causing the problem. It is preposterous to file, stick needles in, or lacquer the hammers if the problem does not originate in the hammers!!! Don't put water in the radiator make it home for dinner. There

is a very simple procedure for isolating the problem we are wrestling with. The first step is to pluck the string. That's correct: *Pluck the string!* Holding the damper off of the strings, take your favorite chipping shank and give the string of the note or area in question a firm pluck. Then listen — does the string sustain (DECAY) more than when it is hit with the hammer? Is the plucked string louder (DWELL) than it is when the proper key is struck?

Initiation (ATTACK) of the note we are dealing with is a bit of a problem here, because plucking the string is quite different from striking it with a felt hammer. However, the key to attack problems will be contained in our perception of the VOLUME of the piano. Now, here's how we shall begin to dissect and isolate the various parts of our problem.

Think for a moment. If the piano produces more volume and/or decay when plucked than when struck with the action mechanism (hammer), what is indicated is that the hammer is not doing its job. That is, the piano belly, or superstructure, is capable of producing greater tone, but the piano hammer is not eliciting that tone in its process of exciting the string and soundboard assembly. Conversely, if the piano produces equal or greater volume and/or decay when struck by the hammer than when plucked with the chip, then clearly the hammer is eliciting adequate or better response from the oscillating/ amplifying assembly. If there is a tone deficiency here, the wire or the superstructure is not doing its job. What we must do is decide whether the tone problem is in the hammer, the wire, or the belly. The process for accomplishing this decision is described above. The sensitivity and skill for perceiving and interpreting what we hear will be akin to having learned to listen for beats as fledgling tuners.

At this point in our discussion, we must bring the melody line to a complete halt while we go back to measure one and write the bass line. I think an allegory is in order here: that of Robin Hood and his bow.

the problem does not originate in the hammers!!! Don't put water in the radiator when the car's out of gas. You will not make it home for dinner. There back the arrow and bowstring, storing

all the energy his strength can muster within the bow and its taut connecting line. Then the fingers uncurl, and all the stored energy is immediately released into the arrow. Away it flies, speeding toward its target. Had the arrow not been there, the same energy would have been released, but into the bow itself, and into the forearm of the archer. The bow must be COMPLI-ANT, which is to say, agreeable to be bent. But it must also have IMPED-ANCE, or resistance to being bent. If the bow is too agreeable, it will bend when the bowstring is pulled, but will not return to its original shape when the string is released. If the bow is too resistant to its temporary deformation, then it will not bend when pulled upon, or perhaps it will break.

Similarly, the bowstring must be taut even when it is not deflected by the pull of the archer; and it must be securely tied to the ends of the bow itself. Can you imagine the unpredictable behavior of the bow if the knot at the end of the string slipped when the arrow was being released so that the bowstring changed tension or length in the very process of setting the arrow into flight?

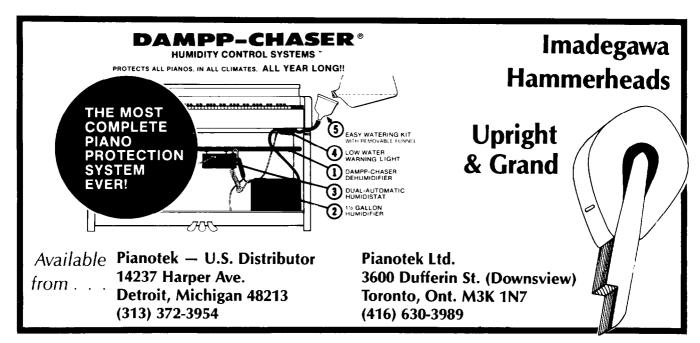
Here the analogy between the bow and the piano ends, because we as piano technicians do *not* want any transfer of energy from the wire into a secondary free-flying object, be it arrow or piano hammer. We seek to set the piano string in motion by striking it with the piano hammer, but what we most desire is for the hammer to get away from the string using its own stored energy, not the imparted energy of the string. We'll continue this next month.



An Interesting Tuner's Event

s I entered a customer's home, a curious $3\frac{1}{2}$ -year-old little girl appeared and watched every move I made. When I took out my tuning hammer she asked what it was. "A tuning hammer," was my reply. "This will make your piano sound pretty" — to which she left the room. Shortly thereafter she returned with a plastic toy hammer and started to hit the case of the grand piano. Of course, Mommy put a stop to that and explained that she should not do it any more. The little girl left the room again and I started to tune the piano. I heard some sort of rustling noise under the piano but I paid no attention to it. When I was through and started packing my tools, LO & BEHOLD! What do you think I found — The little girl had brought in a small blanket and was sound asleep under the piano. Her mother suggested that perhaps I could add another title to Piano Technician. Incidentally, the tot was still sleeping when I left — must have been a good tuning job.

Walter Sierota, RTT Philadelphia Chapter



More Than The Old-Timers Ever Taught Us About **Tuning Stability** (Part III)

George Krippenstapel, RTT **Connecticut Chapter** and Dr. William Trousdale Wesleyan University, Middletown, Connecticut

Practical Suggestions

e will now turn to a discussion of how to deal practically with different types of tuning pins. In the first case, the difference between braking friction and sliding friction is very small. When these pins are tight, they do not move in "steps" and have a very resistant and springy feel to them.

Such a tuning pin is tight in the block and does not move into a new position freely. The pins are what I have called "draggy tight." A small dragging rotation does not succeed in moving the pin to a new position. The motion only succeeds in twisting the top of the pin. The torsion in this twist soon pulls the top of the pin back around to the original position and the tuning stability fails. Baldwins, especially the concert grands, or pianos with falcon wood or multi-layer pinblocks, are usually of this type. They can be disconcerting to a tuner who is not familiar with them. These pianos usually require a lot more time to tune but are highly stable when tuned properly. Unless the follow is excellent, they must be brought into tune from the flat side. A tip which fits well is imperative. The following trick is useful in such cases. Start with the speaking length the slightest determinable degree flat, and with the string well pounded to equalize the tension, place the tuning hammer at the 12 o'clock position. Determine the rock of the tuning hammer on the pin (if any) and locate either extreme position of the rock. Hold the hammer at this location and rotate it in this plane without additional downward or upward force (inward or outward force in the case of an be pressing the pin into the front wall of l

upright). As you turn, make a mental note of the point at which resistance begins. Also make a note of the point at which the pitch begins to change. They may not be the same! The difference in tension between the speaking length and the tuning-pin segment will have to be made up if the tuning is to be stable. Drag-rotate the pin until the string is at pitch, not sharp. Maintain rotational pressure on the tuning hammer, holding the pin in that position until the tension has a chance to creep down the pin. This may take anywhere from two to ten seconds per pin. If the pitch drops when you remove the tuning hammer, repeat the procedure. Resist the temptation to draw sharp. This will slow you down — but it does work.

The second type of tuning pins are those tight pins which have a difference between braking friction and sliding friction which can be easily felt. As one moves the pin, one gets the feeling of reaching a point where there is a "release" or drop in resistance.

Steinways and many other new pianos feel like this. 3 o'clock tuning is useful, especially if the pins are very tight. This sometimes augments the difference between braking and sliding friction and gives the feeling that the pin is moving by "steps." The tension of the string on the pin caused the pin to be pressed into the forward wall of the tuning-pin hole in the pinblock. Placing the tuning hammer at right angles to the string counteracts some of that pressure and relieves the friction to a small degree. Many tuners who routinely tune such pianos pull the string sharp and then 'back out" the torque induced into the tuning pin, and simultaneously seem to

the hole, being careful of course not to induce any bending in the top of the tuning pin. The precise optimal amount of sharpness required is hard to estimate; if the string is pulled too sharp, the tension added to the hitchpin end of the string might cause the piano to go sharp under repeated forte blows. Also, pianos which have pins which seem to move in steps are usually better tuned from the 3 o'clock position for another reason. The tuner is supposed to be maintaining the bias of the tuning hammer on the tuning pin, cocking the hammer to one side or the other, in order to maintain contact between the inner wall of the tuning hammer tip and the flat of the tuning pin. But, since the degree of resistance varies considerably during movement, making it a problem to maintain a constant angle, the tuner will probably subconsciously overcompensate slightly and put a little excess pressure on the pin — in other words, he will be tempted to bend it slightly. If the bending is across the string (at right angles to the string), which would be the case at 3 o'clock, the effect on string tension is minimized.

Tuning pins which have a large difference between braking and sliding friction are pins which seem to "jump." Jumping pins, which must be distinguished from jumping strings, do not result from mere age. They are always a sign of some pathologic condition, as we noted. Extreme cases cannot be tuned, so they must be repaired if the piano is to be used at all.

Pins which are not tight and are of normal to loose torque do not have to be pulled sharp, as there is no significant amount of torque induced which had to be backed out. However, pianos which have this sort of pin, which is to say, most of the pianos which we encounter on a day-to-day basis in the field, usually are not brand new. So with these pianos the condition of the strings, with friction and stiffness, becomes more important, just as the pins themselves give fewer problems.

As a piano becomes older, the string becomes stiffer and moves less freely over the friction points. Also, rust on the surface of the strings increases friction where the strings touch anything, e.g., the bridges or the belly felt.

The most difficult piano to tune

solidly is one with both a low degree of follow and tight springy pins, such as an older piano that has been repinned but has not had the old wire replaced. Another case would be a new or repinned piano in which the string makes a sharp angle at the agraffe or pressure bar. It is impossible to account for any torque induced in the pin and at the same time account for the excess tension in the tuning-pin segment. Although impact movement of the pin may be less unsatisfactory than dragging or smooth motion, the fact remains that a large difference in tension between the speaking length and the tuning-pin segment is needed to effect movement in the speaking length. This extra tension is almost always somewhat more than can be accounted for by backing off the positive torque from the pin. "Bookkeeping" alone will not work, because it is impossible to isolate the relative magnitudes of the effects of the two causes. Great patience is needed; the speaking length must be brought into tune from the flat side, but the amount of string movement necessary is often smaller than the amount by which one can turn a pin. In these circumstances, slightly bending a pin may coax a string up by a small amount which will be locked in when the stress in the pin is relieved. Also, if in such a piano (and only there) a string is slightly sharp, I will (rather than upset the whole string by turning the tuning pin to lower the pitch) push on the speaking length of the string with my finger or a spare hammershank until the string is the least determinable amount flat, then pull it in the usual way. This does not always work; if the string tension in the coil-end segment is already higher than the speaking-length tension, the string will creep sharp.

Pitch Raising and Lowering

On any occasion when a whole piano must be tuned more than about five cents either up or down from the pitch that it is focused at, it is impossible to fine tune unless it is gone over at least twice. The first tuning equalizes the tension over the whole piano and also provides for the attempt of the piano to return to previous pitch. When changing pitch, the pitch set at the start of

the tuning normally provides for an overshoot factor. This usually is an amount equal to not quite half the distance to the desired pitch. For example, if the piano is ten cents flat (or sharp), the pitch should be set *not quite* five cents beyond the desired pitch. This recipe seems to work pretty well for most pianos and for a very wide range of pitch changes. It seems to work about equally well for both pitch raising and pitch lowering.

Each tuner probably has his own favorite method for pitch raising. I will describe the method I use, though I know that there may be other methods. each with its own advantages. I carry a large supply of muting strips of different thicknesses, and I mute off the whole piano. I will set the A-49 to a pitch not quite half beyond my target pitch. I tune all the single strings of the long bridge, then remove the tape and reinsert it into every other string group. This mutes one untuned string of each unison and leaves one string free to be tuned, without my having to stop and move wedges. With two strings tuned on the long bridge I proceed to tune the overstrung bass, first tuning one string of the two string unisons, and finally the single strings of the bass. I do the pitch change in this sequence because the bass seems to change somewhat less than the treble bridge. I then finish up the pitch change by removing all of the muting strips and tuning the strings that were previously passed by. This takes me on an average about fifteen minutes regardless of the size of the pitch change. When I am pitch-raising, I pound, but do not otherwise check or go back, and I move the pin with an impact motion unless it is very loose. Then I am ready to begin fine tuning. When I am lowering pitch, however, I have special problems which I now wish to discuss separately in detail.

Pitch Lowering

Many tuners are of the opinion that lowering pitch is more difficult than raising pitch. There are several things to be said about lowering pitch. First of all, it is a problem that a factory tuner probably never encounters, so there is no reason for a factory tuner to develop a systematic approach to the task. It is



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also certainly true that on an average, pitch lowering is encountered very infrequently, certainly far less often than pitch raising or tuning at pitch. One situation in which pitch lowering is frequently encountered is in periodic tunings in schools, concert halls or places of entertainment, churches, or other institutions. In any professional situation, concert pitch is very important. Any piano tuned in, let us say, the springtime, will undergo a rise in pitch if the summer climate causes an increase in humidity. The pianos tuned during the summer or early fall are frequently sharp and must be brought down and stabilized. Also, pianos fresh from the factory are usually delivered tuned somewhat sharp on the assumption that they will settle flat over a period of time.

If the piano is to be used immediately upon delivery, in a situation where pitch is critical, we have another sort of situation where pitch must be lowered.

There are at least two reasons for the feeling of tuners about pitch lowering. It does not occur with enough frequency to allow for developing experience and routine, and secondly, it usually is required in professional situations where the pitch must be accurate and the tolerance for tuning imprecision is small. To these reasons must be added a third, which is specific to the problem: The dynamics of lowering the pitch of a string and therefore of a whole piano, are different from those of raising a string.

In any case, the forces available for movement of the string segment are less when lowering a string than when raising it. If a certain upward movement of a tuning hammer in raising a string sharp causes a certain result in raising the pitch of the speaking length of a string, a reciprocal downward movement does not produce an exactly complimentary result. For small movements of the tuning hammer, a movement downward produces less change than the same movement upward. The difference can be accounted for by an appropriately excessive reduction in the tension of the tuning-pin segment of the string. This condition is a potential source of tuning instability as the segments slowly creep in an attempt to find equilibrium.

The techniques by which these instabilities may be minimized are exactly pins and fresh new strings that moved

the same as those needed during any type of tuning, the only exception being that pitch lowering presents for every string a problem that is encountered only untypically.

In raising a string by turning the tunin pin, most of the force exerted is required to turn the pin in the block. The force available for countering the tension of the string and the friction of the bearing points is very large. When a string is being lowered, however, the only force available for overcoming the friction of the bearing points is the tension in the string, inhibiting ready and easy equalizing of the tensions of all the string segments. In both cases, raising or lowering, the same canons must be observed. Each movement of the tuning hammer or the pin must be accounted for as causing a change somewhere, either in the speaking length or in one of the segments. The only change that can be directly observed and measured is the change in the pitch of the speaking length. With practice and experience a technician should be able to estimate closely how much change should occur in the pitch when a pin is moved by a certain amount. When the result is less than anticipated, then the residue of movement must be accounted for somewhere, most usually in the difference in tension between the speaking length of the string and the tuning-pin segment. A tuner ought to habitually notice the relationship between the movement of the tuning hammer and the change in pitch of the speaking length of the string. Keeping track of this relationship is of course another example of "bookkeepking."

Maxims, Nostrums, and Canards

We are now in a position to discuss some maxims that have been heard frequently in any discussion of solid tuning. It used to be said that the tuner, if he wished to tune solidly, had to learn to "set the pin." I was told that "if the string is flat, pull it slightly sharp and come into tune from the sharp side"; or "you will feel a kind of click when the pin is in the right place." Maxims such as these seem to have been developed by factory tuners whose main experience was with new pianos which had tight pins and fresh new strings that moved.

without much binding or friction. Should the tuner in the field encounter such a piano, he may be assured that these maxims are still more or less valid. The pianos that the tuner regularly encounters in the field, however, are an entirely different story. As the piano ages, the tuning pins as a rule do not remain as extremely tight as they were in the factory. Distortion due to twisting of the pin is consequently somewhat less of a problem. The friction and binding of the strings, on the other hand, generate problems for the tuner of increasingly greater importance as the piano ages, so these maxims are no longer unqualifiedly useful. Typically, an older piano will have pins which are not so tight that twisting is a problem. However, since the friction in the tuning pin segment of the string usually increases with age, the strings might best be brought into tune from the flat side. Again, in the factory the strings move freely and are elastic; therefore, pounding with forceful blows makes little difference to the tuing stability. The value of pounding becomes increasingly greater as the strings have diminished ability to slide freely on the bearing points.

Humidity Change and Tuning Stability

In the normal course of events, the pianos that we work on eventually go out of tune. No amount of careful tuning will prevent a piano from going out of tune when it undergoes a change of temperature or humidity. We seldom see the same piano often enough to adequately assess the relative effects of temperature and humidity as compared with our attempts to provide a solid and stable tuning. Suppose, for example, that we have very properly and solidly tuned a piano which then undergoes a humidity change. The soundboard and bridge go up (or down), but the piano seems to go out of tune, though not very much. However, when it is then used very vigorously, the tuning goes out very badly. This may be puzzling, and cause the tuner some self-doubts about his work. The experience can be

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PIANO APPRAISALS

A Pretty Sticky Wicket

Joseph Anthony Meehan, RTT Maine Chapter

II. CONDUCTING AN APPRAISAL

Money Up Front

n appraisal starts with a phone call to you. John Q. Public is on the line (John Q. is a hard and unpredictable man to deal with in this or any other business — remember that at all times and lesson number one has been absorbed).

John Q.: "Do you evaluate the worth of pianos?"

Mr. Piano Tuner: "Why, yes sir, I do."

That's as far as the conversation should go before you make it perfectly clear that you are not a missionary; this is your business and you charge X number of dollars because that is the value of your time.

In appraising pianos, time breaks down this way:

- A. Travel to and from
- B. The actual appraisal
 (It varies from situation to situation, but is roughly 15 to 30 minutes for an upright and 20 to 40 minutes for a grand.)
- C. Consultation on the spot or later on the phone at home
- D. Time spent mailing appraisal form, bill, helpful literature, etc.

By now you get the picture. Others who advertise "free estimates" or "free appraisals" are not only hurting for business but they will be hurting from business.

Social Rapport

I'll skip the usual fatherly advice on how to dress for something like this. Looking like one of the 12 apostles would be great in Judea in 30 A.D., but believe me you'll scare the hell out of some social butterfly who needs her Steinway appraised for insurance purposes.

Besides the usual courtesy and professional manner there are some special ethical practices that should be given some thought when appraising.

In the most common appraisal situation you'll be hired by a client to look at a piano in a private home.

Permission to do the appraisal should be obtained directly by you from the seller. This is a safer and more dependable route than to let the client "set things up." You set things up — let it be part of the job description. Usually it involves one extra phone call.

Wake up! Important point here!!! I believe it is important not to know the asking price of the piano beforehand, if possible. I'm human, and if somebody tells me Mrs. Stonebrains is asking \$600, damned if I don't find myself pivoting all around that figure rather than using my open head.

Anyhow, if some blabbermouth throws a price at you, do whatever it takes to not be influenced. Try not to smile right now. See what I mean?

Also, I believe you should go alone to do the appraisal, rather than have the paying party looking over your shoulder. In truth, you'll have the seller looking over the other shoulder.

Your candor is of importance here and it helps avoid the problem of confidentiality because there will be a discussion then and there as to the pros and cons of this piano. Avoid this mess. In every case go alone and phone your client later to discuss your findings.

Take your usual tools with you. You never know what you might run into. (Every old piano I open I have dreams of finding an old bag full of double eagles — so far I've only found the old bag.) In addition to your regular tools a torque wrench in inch pounds and a down bearing gauge are very handy.

Two other important tools are Pierce's Piano Atlas (latest edition) and a decent looking appraisal form. You should explain to the seller that it is necessary for you to take the instrument apart and make the point that this is a routine way of getting inside. (It's amazing how many people grab their hearts and reach for the nitrogly-cerin tablets when they see that front board come off.)

Use the *utmost* care in dismantling the piano, removing grand actions, etc.

Once you do get past the case parts remove the action (especially on grands for obvious reasons — you are there to look at the piano and you're cheating if you're snooping through the strings with a flashlight). Do the same with uprights to get a good look at the soundboard and treble bridge. Watch out for missing bridles as these actions are often a pain to get back into position. Best to leave them in place!

Be sure you have a reliable flashlight. These pianos always seem to be lurking about in dark corners.

Three Little Goals

1. Ascertain the current market value of the piano as is.

Continued on page 26

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THE FULL TIME TECHNICIAN

by Clair Davies, RTT Bluegrass Chapter

Prospecting by Phone

alling people on the phone may be the hardest job you will ever have to do, but it's the only way you can directly control your earnings. Only the old men who came with the covered wagons are able to live respectably on the business that comes to them unsolicited.

When you call more, you earn more. And when you make several hundred calls a year, the ratio of successes is very consistent. A certain number of calls will get a certain number of tunings. You can depend on it.

In fact, it's never a question of success or failure — it's only a question of whether you will make the calls.

You've got to be able to handle rejection when prospecting by phone. People are constantly abused these days by presumptuous intrusions and have become intolerant of strangers who break into their lives with ineptly disguised solicitations.

Telephone solicitors are usually so pushy and transparently insincere that

one wonders whether they ever make a sale. They've just about killed my own enthusiasm for answering the phone. And the calls come day and night.

When working at home in the shop during the day, I naturally leave the answering machine turned off. Blank messages exasperate me, so I jump at the chance to answer in person, despite grimy palms and gluey fingers. Fully half the time the call is just someone reading me another sales pitch from a mimeographed sheet.

I end such insults as quickly as possible. But it compensates me to know at least half my blank messages are only frustrated attempts to sell me something.

At suppertime it's much worse, nearly all the calls being deceit-filled efforts to pry open my billfold. And the phone always seems to ring when I have a porkchop in my grip or a mouthful of crackers.

I stumble for the desk, wiping my hands on anything within reach, trying

to finish what I have in my mouth, frowning with annoyance, but not wanting to miss booking another tuning for tomorrow — only to be greeted by a honeyed voice, inquiring obsequiously, "Good evening, sir, how are you this evening?" It's all I can do to resist tearing the phone from the wall.

I get mad when someone calls me with selling on his mind, and it concerns me that I should ever have that effect when I call people.

There's no doubt the prospectors who call me abhor making anyone mad and have gone to great lengths to develop a spiel that will win me. But actually, sales talk itself seems to be the chief offense — the long, contrived speech made to order for manipulation.

Nobody likes to be manipulated and nothing is so offensive as the apparent presumption that one *can* be manipulated. The salesman errs in relating to lists of numbers instead of individuals with minds of their own.

The caller who is simply running through a routine on cue unwittingly buries his chances with everyone except the very most gullible. And tuning for the gullible few who bite on a conventional line of hokum won't keep you and your family in pork and beans.

Then what kind of line can you use? How can you get people to let you tune their pianos?

The answer is that you can't get them to do anything. A sales pitch just won't do it, especially with the class of people who own pianos. They have to have already felt the need. Even then, they will balk at any attempt to snow them or talk them into it. Wouldn't you?

All you can do is introduce yourself, name a single attractive reference to inspire trust, and ask whether they'd like the piano tuned. Be forthright and brief. There's no offense in that, no insult, no presumption, and very little to get mad about. The ones who *need* you will respond.

Always remember, though, the ones who need you at the moment you call will be few.

The piano just isn't that important in most homes. Quite understandably it's going to be right near the bottom of the list of things that need doing.

Calling my regular customers, I book half; from lists of referred prospects, I

get one in six the first time around: is one in twelve of those who own pianos (or in good areas, about onethird).

Be content to catch the few who are ready, and ask the others if it's all right to call again later on. They will love you for letting them off the hook so easily, for making it easy to say no.

Let them see you as a kind person. someone comfortable whom they can trust — the very antithesis of a salesman. It will give you a better chance in the future to become their regular tuner.

The most attractive reference to give, believe it or not, is the name of a friend of theirs whose piano you've tuned. (Keep asking for names!) Evidently, friends and neighbors trust one another's judgment in these things.

Big name references can make you sound snooty or, worse yet, expensive. Lay on the big stuff — like all the famous people you've tuned for — only if they ask, and then in extreme moderation.

Use the impressive institutional reference, such as the big church, the big store, the school or university, when you're canvassing an entire neighborhood and you have no personal reference to give.

Thorough canvassing is good, working from the phone book or a city directory, although it's hard work. With this method, you can develop a comprehensive list of all the piano owners in the very neighborhoods you prefer. Those who have no piano will quickly tell you so, and all the others go right into your card file. You will get to talk immediately to scores of people who wouldn't hear of you for years any other ting by phone. I was very inclined to wav.

Don't despair of anyone who says no the first time, and always be courteous when they do. Nothing is more revealing of an opportunistic attitude than your tone becoming cold upon rebuff.

Be patient. Call again. But unless they say to call sooner, wait a full year. Don't be a pest. Some of my best regular trade is with people I had to call three or four times at yearly intervals before they finally said yes.

Persistence pays off in calling, as it does in anything else. Resolve to stick

with it over the long haul. And use canvassing street by street, the response every trick you can think up to combat discouragement, because you will get discouraged.

> Dick Flegle says he makes his calls as soon as he gets home from his day's work, leaving no interval to fill up with doubts. He wants to get the calling done while his energy level is still high. He wants to get it off his mind so he can go on and enjoy his leisure time without worrying about his calendar.

> Phil Bashaw, another master of this subject, does his calling on a regular schedule up to six hours a week, limited to the dinner hour. He choses not to worry about interrupted meals, because that's the best time to catch people at home, and he doesn't waste time and energy dialing empty houses. Making calls regularly also builds up his tolerance for it.

There's something to be said for experience, too. You will gradually learn for yourself when to call, how many to call and when to stop.

I fend off emotional exhaustion by interspersing household chores and little jobs in the shop between calls. And I use a touch-tone phone instead of dialing — another important small detail.

Keep a record of results, to remind yourself of successes; otherwise you will dwell on the lack of them.

Set quotas of people to call, not a specified number of tunings to book. It helps take the pressure off.

And above all, take your time; don't let intensity take you over.

Let me tell you a final trick to help keep you going.

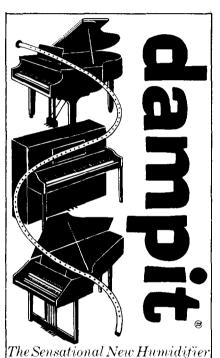
Tuning was ten dollars, and my hide was still soft and smooth, back when I was getting my first experience prospecguit cold when anyone turned me down. I'd sit staring at the phone, writhing with anxiety, wanting to know just one good reason for going through that torture.

Of course, the one good reason was obvious, and before long I began asking myself, "Well . . . do you want the ten dollars?'

In moments of hesitation, that question never failed me. It settled me right down. The answer was never in doubt.

Do you want the ten dollars?





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Sound Background

Jack Greenfield, RTT Chicago Chapter

Flemish Keyboard Stringed Instruments

Transposing Keyboards

ne of the major advances in the design of the harpsichord, the introduction of the second keyboard in Flemish harpsichords, occurred around the start of the seventeenth century as a system for transposition, necessary not only to shift the range for vocal music but also because of the variations in pitch levels in tuning of musical instruments. The concept of absolute pitch values for specific notes had not yet appeared in European music. A4 could be anywhere from more than three semitones above to three semitones below its present level. There was some degree of uniformity in orchestral wind instruments tuned to what was called "chamber pitch;" Baroque chamber pitch was generally lower than the present standard pitch. The "choir pitch" to which church organs in the same region were tuned could be different, often higher. As for harpsichords, they were tuned to the orchestral instruments or the organ when played together. Until the invention of the tuning fork in the eighteenth century, the tuning pitch of harpsichords varied greatly. According to Frank Hubbard (Three Centuries of Harpsichord Making, 1965), harpsichord strings of a fixed length could be tuned over as wide a range as a fifth and still sound reasonably well.

The double manual transposing harpsichord originated in the late 1500s in the shop of Hans Ruckers, the first of a remarkable family of instrument makers in Antwerp. During the middle 1500s, Antwerp with its fine harbor had

reached a high level of economic prosperity and had become one of the richest cities in the world. Much of its commerce was based on finance and luxury goods. Art and music flourished in the midst of this prosperity and Flemish harpsichords began to compete with Italian instruments in export trade to the rest of Europe.

Guild of Harpsichord Makers

In Antwerp, as elsewhere in Europe, many economic activities were controlled by craft and trade guilds. Instrument makers belonged to the Guild of St. Luke, which had been an organization primarily for painters, sculptors, carvers, bookmakers and a variety of other craftsmen, but there were no rules governing instrument making. In 1557, ten instrument makers requested the city authorities to establish regulations for guild control. In the following year an ordinance was issued as requested. The document recorded in the Antwerp municipal ledger (translated into English in Raymond Russell's The Harpsichord and Clavichord, 1959) lists ten original guild members authorized to make and sell harpsichords and similar instruments. Future applicants for membership would be required to pass an examination. For acceptance it was necessary to build an instrument at least five feet long. The work was to be done in the shop of a Guild member who supplied materials and tools. The completed instrument had to pass inspection by an examining committee of guild members. If approved, the applicant entered the guild. He received no pay-

ment for his work on the instrument and it became the property of the member who provided facilities and supervision. If the instrument failed, the applicant was required to remove it and pay for the materials used. Non-guild members were no longer permitted to make harpsichords for sale; the penalty for violation was forfeiture and a fine. Guild members were required to identify their instruments with a distinctive emblem. This was usually a pewterware piece with a rose-like symbol and the maker's initials attached on the sound-board.

Flemish Harpsichord Design

Because of the scarcity of existing older Flemish instruments, it is impossible to establish conclusively the extent, if any, of Italian influence on early Flemish design. Later Flemish instruments show the following differences:

- 1. Longer scaling the typical length of C5 is 14" long, about 3" or 4" longer than in average Italian instruments.
- 2. Flemish bass strings are about the same length as Italian but much shorter than the calculated theoretical length relative to the longer treble strings.
- 3. Since the case outline follows the curved line formed by the string ends, the Flemish bentside is not curved inward as deeply as the Italian; the Flemish instrument has a broader tail.
- 4. The Flemish strings are under higher tension. To sustain the

greater force, Flemish instruments were built with heavier cases and frames were made of thicker wooden parts.

5. Flemish soundboards were made of spruce or pine; most Italian instruments used cypress.

The Ruckers Family

Flemish harpsichords reached their high degree of overall excellence to a large extent as a result of the work of the Ruckers family. Although they were prominent in their day, the only sources of biographical information now available on the Ruckers are church and guild records and contemporary correspondence and other documents by persons interested in Ruckers instruments.

The Ruckers' business was established by the first Hans Ruckers, whose father, Franz, may have been a harpsichord maker in Malinnes. Hans was about 20-25 years old in 1575, when he married in Antwerp. There is no record of his apprenticeship before his admittance to the guild in 1579. Two of his ten children, Hans the younger, often called Jan, born in 1578 and Andreas, born in 1579, served as apprentices to their father. Andreas entered the guild in 1610, Jan in 1611. Third generation members of the family who continued harpsichord making included Andreas' son with the same name who became a guild member in 1637, and Jan Couchet, Jan Ruckers' nephew by marriage who was trained by him and entered the guild in 1642. The fourth generation that continued the Ruckers' business included the three sons of Jan Couchet, one also named Jan, Joseph, and Abraham. The relationship to the family of another instrument maker, Christopher Ruckers, is not known.

Ruckers Harpsichord Design

Ruckers designs were standardized to some extent. The single manual harpsichords, available in 48", 72", and 86½" lengths, had a compass of four octaves from C2 and were strung with one set or choir of eight-foot-pitch strings and one choir of four-foot or a second set of eight-foot strings. Notable features were:

- 1. Stop mechanism provided to allow either choir to be played separately or both together. In typical Italian instruments the fixed registers prevented performance on single strings.
- 2. According to Hubbard, in Italian harpsichords eight-foot- and four-foot-pitch strings did not blend well when played together because of a clash with the second partials of the eight-foot strings. The tone of eight-foot Ruckers strings, however, gives the impression of more even or weaker upper partials and blends well with four-foot strings.
- 3. As an option in larger instruments, a third set of strings could be provided giving two eightfoot sets and one four-foot set; all three could be played together or any one alone.
- 4. A buff stop which gives a variation in tone quality. This consists of a series of leather or felt strips mounted on a sliding rail producing a muted pizzicato effect when the strips touch the strings.

Outstanding Tone of Ruckers Harpsichords

From a musical standpoint the most outstanding quality of Ruckers harpsichords was their tone. Russell described the sound as smoother but with somewhat less definition; there is less initial accent but longer sustained sound. The basses have "a drum-like resonance which produces an effect of great nobility and power." Some critics have considered Ruckers' achievement in tone quality comparable to the Stradivarius achievement in violin tone.

Specialists in the study believe that the fine tone of the instruments was due to Hans Ruckers' mastery of the art of building soundboards. He used quartersawn spruce, thinner than in the soundboards of most other builders. Ribs made of the same spruce and bridges made of beech were placed precisely for optimum tone quality. The actions are also examples of fine craftsmanship, but other parts of the instruments not directly related to tone production appear to have been made with less care.

Ruckers was more concerned with sound than appearance.

Addition of Second Keyboard For Transposition

In vocal church music, transposition of organ accompaniment was necessary to accommodate different voice ranges.



In the early sixteenth century Arnold Schlick had discussed a method of transposing by shifting the position of the keyboard. Ruckers applied this principal to the harpsichord by means of a second keyboard offset so that the note played would sound a fourth lower than written. For example, an F4 key played on the lower or F keyboard would produce the tone of C4 in the normal upper or C keyboard. Because of the enharmonic difference between sharps and flats in meantone temperament tuning, extra strings tuned to D[#] were provided to be played by the G[#] keys in the transposing F keyboard instead of the E^b strings of the normal C keyboard. There were still only two choirs of strings as in single manual instruments but each keyboard had its own two registers of jacks. The jacks for $D^{\#}$ and E^{b} were designed to pluck only the corresponding strings.

Double Keyboards In Unison

During the third or fourth quarter of the seventeenth century, a trend from regular meantone to irregular temperaments with an increased number of acceptable intervals reduced the necessity for the transposing keyboard and extra D" strings. It was then found more desirable to place the keyboards in parallel and use them to give more contrast in tone. Many older instruments were rebuilt with the second keyboard aligned to the first and a second set of eight-foot strings and a keyboard coupler added. The stops were arranged so that the upper manual sounded single eight-foot strings, and the lower manual sounded either or both the fourfoot and the second eight-foot strings. The eight-foot strings were tuned in unison, the four-foot were an octave higher. Two-manual harpsichords, either altered old instruments or newly built in this design, were the most widely used type in the early eighteenth cen-

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tury. Although Jan Couchet may have altered some transposing harpsichords, there is no evidence that any unison double manuals were ever built in the Ruckers shop.

Other Flemish Instruments

The instruments built by Hans Ruckers and his descendants for about a century beginning from 1579 were considered the finest of their day and were exported in great numbers. Ruckers' prestige aided other Flemish builders who made similar instruments, some comparable in quality. However, the political separation of Flanders from the Netherlands and the rise of the rival seaport, Amsterdam, which lured away population as well as commerce, caused a decline in the Antwerp economy which ultimately hit instrument making. The drop was so great in the final decades of the 1600s that the guild organization of harpsichord makers ended. Flemish instrument building continued into the next century but only at a level sufficient for domestic needs.

Ruckers Instruments Today

Ruckers instruments retained their high value after many years of use and were rebuilt over and over. When this was no longer possible, salvagable parts were combined with new parts in hybrid instruments sometimes offered as genuine Ruckers. Few contemporary instruments from other Flemish builders have survived but well over 100 Ruckers harpsichords and virginals are still in existence. Some authorities do not rate the virginals as high as Italian virginals but the Ruckers harpsichords are held in the highest esteem. Unfortunately, very few are substantially unaltered. A transposing harpsichord built by Jan Ruckers in 1638 now in a collection in Great Britain is the only known existing unaltered example of its type.

Piano Appraisals Continued from page 21

Roughly, but as accurately as possible (don't you love wording like that?), figure the cost of repairs, reconditioning or rebuilding, if necessary.

3. Generally by adding up Goals 1 and 2, you will have the projected future value of this particular piano.

One amendment to this constitution is that when the piano is a poor or risky investment, say so. In other words, if the poor beast has two casters over the hill and the other two on banana peels, declare it null and void and certainly NOT worth repair.

In short, this is the method of appraisal that I use. There are other methods and combinations of methods which we will get into soon enough.

Using an appraisal form, go rapidly and accurately through the structure and guts of the instrument. This is the mechanical end of the job. Sometimes it's easy — sometimes not. Fill out all the nuts and bolts stuff on the appraisal form but hold off on assigning values and repair costs. This is another reason to go alone. It gives you a chance to get away from the piano and think.

Thank the owner and after carefully putting the piano back together advise that your client will call after consultation.

Now here is where you really earn your money, so use the old noggin well. Look up the date of manufacture from the serial number. Usually I can figure out the bottom lines while I'm driving home or to the next job.

Later call the customer and explain your findings and advisings. Have one copy of the appraisal form in the mail the next morning. Do not procrastinate on either of these two things or a sale might be lost and it's your fault.

The seller will invariably try to obtain information as to condition and value of the piano. Try to remember who is paying you and that what you say just in passing could jeopardize the sale.

In response to "what kind of shape is it in?" or "am I asking too much?", explain that Mrs. Jones is paying you to evaluate this piano and that you will have to discuss this with her. Somehow most people get the idea that they might have blown it by not getting a professional opinion themselves. However, when the piano is totally gone and not worth a warm bucket of spit I will admit to dropping a not-so-subtle hint as to the condition and value.

Next issue — The Appraisal Form.

A Series of Articles Dealing With the Integration and Equation of Aural and Electronic Tuning Techniques

No. 1

Rick L. Baldassin, RTT Utah Valley Chapter

Introduction

n the next few issues, a series of arintegration of aural and electronic tuning techniques will be discussed. Pertinent information will be brought out and analyzed from both the aural and electronic standpoints, so that every

technique used aurally will have an electronic equivalent, and every technique used electronically will have its aural test. My hope is to present information which will be helpful to both aural and electronic tuners, and to provide a firm understanding of the equivalent tests and procedures from both worlds for the growing number of tuners who use both their ears and the "box."

While the mastery of certain basic concepts and theories is essential to the success of the modern tuner, the introduction of highly accurate tuning aids has created a revolution in the way the piano technician must think and function. These aids have created problems as much as they have increased general awareness. The problems stem from the fact that tuning electronically does not always give aurally acceptable results. On the other hand, with the increased accuracy of measuring with the electronic aid, minor flaws can be detected in aural tuning methods. On one extreme there are those who advocate tuning aurally to the extent that they exclude anyone who uses an aid from their list of people who know "how to tune." On the other extreme there are those electronic tuners who turn their noses up at aural tuners because they think they cannot possibly equal the highly accurate electronic results by ear. ticles based on tuning theory and the In the middle, there are a great number of tuners who prefer to tune with their ears and an electronic aid.

> Admittedly, each method has its advantages and disadvantages. Aural tuning excels in the ability to make com

plex compromises, evaluate, reason and think, but does not lend itself to easy duplication, and fatigues more easily. The electronic aid makes duplication easy, never fatigues, and is great for very accurate evaluation, but lacks a brain to compromise, reason and think. Generally, where one method is weak, the other is strong, making the integration of both methods a desirable solution. In order to integrate them, however, we need to be able to equate the aural and electronic tuning techniques.

Before a discussion equating techniques can begin, some tuning theory must be given as background. This month we will discuss the overtone series, comparing a theoretical and actual series for a given note. The discussion will then move on to intervals, locating the coincident partials for the intervals frequently used in tuning.

Overtones

When a string vibrates, it vibrates in $1, 2, 3, 4, \ldots$ parts at the same time. As a result, what is known as an overtone series is set up when each note is played. Because a string with speaking length "L" also vibrates in lengths ½L. 1/3L, 1/4L, etc., the same string with fundamental frequency "f" also sounds frequencies 2f, 3f, 4f, etc., and all are present in varying amplitudes simultaneously. Musically it sets up the overtone series as follows:

Theoretical Overtone Series for Note A₂ (110 Hz)

220 330 Frequency: 110 440 550 660 770 880 990 1100 1210 1320 1430 1540 1650 1760 C[#]5 C#6 Note: **A2** A3 **E4** A4 E5 G5 **B**5 **D**[#]6 G#6 **A5 E**6 F6 G6 **A6** Partial: 1 3 4 5 6 7 8 9 10 11 12 13 14 15 16

In this example, the frequencies of the series are whole number multiples of the fundamental frequency ($1 \times 110 = 110$, $2\times110=220$, etc.) The notes listed are the closest keyboard notes corresponding to these frequencies. The partial number illustrates how many "parts" the string is vibrating in to give these frequencies.

It is not difficult to prove the presence of these overtone frequencies, either aurally or electronically. To prove their presence aurally, hold down note A2 (110 Hz) without playing it such that the damper is not in contact with the string. With a staccato blow, play the notes listed in the series (A3, E4, etc.) one at a time. This will set the partials of note A2 in motion sympathetically. Observe that even after the damper of each of the series notes has stopped that string itself from vibrating, a tone of that same pitch (or nearly so) remains sounding. This is proof that each of these pitches exists when the note A2 itself is struck.

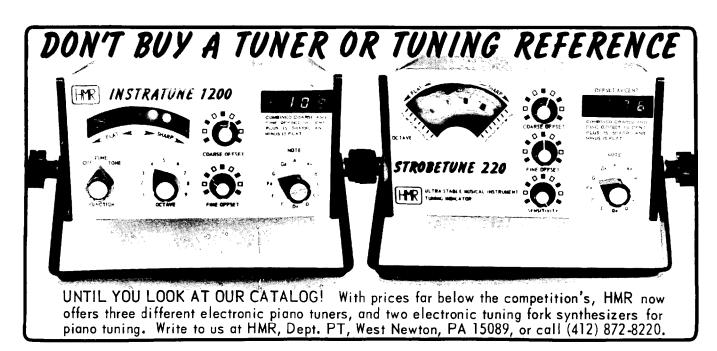
To prove electronically that these frequencies are present, play note A2 with the tuning aid set on the note and octave settings (A3, E4, etc.) listed as notes in the overtone series, and see if a pattern is picked up on the display. A pattern present is proof that this frequency is present. If the tuning aid is set on a note and octave setting which is not listed as part of the series, no pattern will be present.

A string which exhibits exact whole number multiple frequencies is known

as a harmonic string, and the pitches of the overtone series are often referred to as harmonics. Harmonic strings are present on instruments such as the violin and double bass. The piano does not have harmonic strings. They are, of course, inharmonic. This means that the piano string does not vibrate in exact whole number multiple frequencies, and the pitches present in the overtone series are most commonly referred to as *partials*.

Here is a comparison of the overtone series of a harmonic double bass string, note A-110 Hz, and an inharmonic piano string, note A-110 Hz. Notice how the deviation increases the higher the partials get.

		1	
Partial	Double Bass A-110	7'4" Piano A-110	Deviation (BPS)
1	110.0	110.00	0.00
2	220.0	220.22	0.22
3	330.0	330.68	0.68
4	440.0	440.97	0.97
5	550.0	551.41	1.41
6	660.0	662.15	2.15
7	770.0	773.20	3.20
8	880.0	884.29	4.29
9	990.0	995.68	5.68
10	1100.0	1107.45	7.45
11	1210.0	1219.64	9.64
12	1320.0	1332.18	12.18
13	1430.0	1445.17	15.17
14	1540.0	1558.43	18.43
15	1650.0	1672.49	22.49
16	1760.0	1787.07	27.07



Intervals

When two notes are played simultaneously, they create an interval. Each note of the interval sets up its own overtone series, and at some point they have at least one pair of common overtones, or coincident partials. Coincident, or nearly coincident, partials are what we listen to when we tune. Intervals are named according to how far apart they are on the keyboard. The following charts illustrate the locations of the coincident partials for several intervals, and explain how to set the elec-

Partial

Note

Note

Partial

Ratio

Partial

Note

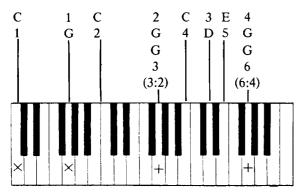
Note

Partial

Ratio

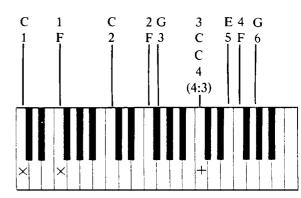
tronic tuning aid to find them as well. The ratio numbers indicate the partials of the interval notes which coincide. For example, the 3:2 ratio in the fifth indicates that the 3rd partial of one of the notes coincides with the 2nd partial of the other note. The "x" represents an interval note, and the "+" represents a coincident partial.

FIFTH (3:2) (6:4)



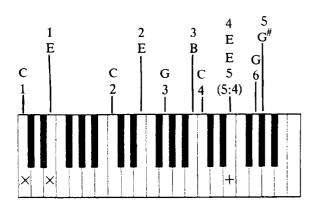
The fifth has two sets of coincident partials, 3:2 and 6:4. The 3:2 pair are located an octave above the top note of the interval and the 6:4 pair are located two octaves above the top note. If, for example, the notes in this fifth were C4 and G4, the tuner would be set on G5 to find the 3:2 coincidence, and set on G6 to find the 6:4 coincidence.

FOURTH (4:3)



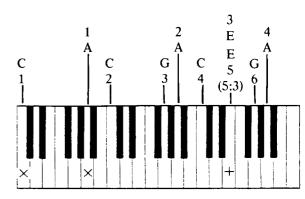
The fourth coincides at 4:3. The coincidence is located two octaves above the bottom note of the interval. If the notes in the example were C4 and F4, the tuner would be set on C6 to find the 4:3 coincidence.

MAJOR THIRD (5:4)



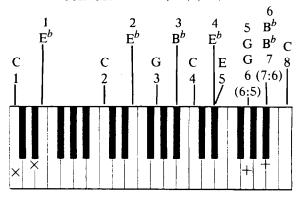
The major third coincides at 5:4. The coincidence is located two octaves above the top note of the interval. If the notes in the example were C4 and E4, the tuner would be set on E6 to find the 5:4 coincidence.

MAJOR SIXTH (5:3)



The major sixth coincides at 5:3. The coincidence is located an octave and a fifth above the top note of the interval. If the notes in the example were C4 and A4, the tuner would be set on E6 to find the 5:3 coincidence.

MINOR THIRD (6:5) (7:6)

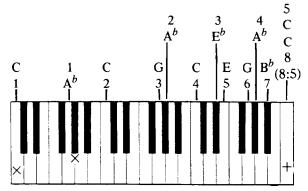


The minor third coincides at 6:5 and 7:6. The 6:5 pair are located two octaves and a fifth above the bottom note of the interval, and the 7:6 pair are located two octaves and a fifth above the top note. If the notes in the example were C4 and $E^{b}4$, the tuner would be set on G6 to find the 6:5 pair, and on B^b 6 to find the 7:6 pair.

Partial Note Note Partial

Ratio

MINOR SIXTH (8:5)



The minor sixth coincides at 8:5. The coincidence is located three octaves above the bottom note of the interval. If the notes in the example were C4 and A^b4 , the tuner would be set on $C^{\overline{7}}$ to find the 8:5 coincidence.

To prove aurally that the intervals do coincide at these locations, hold down the interval notes without playing them. Strike the note marked as a coincident partial with a staccato blow as before, and listen for a beating tone which remains. The tone is beating because the coincident partials are not exactly in tune with each other. Play the interval again, listening at the pitch level of the coincident partial; observe that this same beating occurs. Knowing where the coincident partials are located for the various intervals enables the tuner to know "where to listen" for the beat rates used in tuning the piano.

To prove that the intervals do coincide at these locations electronically, set the tuner on the note and octave setting of the coincident partial for the given interval. Play the interval notes one at a time and observe that there is a pattern present for each. This proves that each interval note has a partial present at this pitch level. The cent settings will be different on each interval note, unless the interval is just (no beats), and the difference between the two readings represents the cent width of the interval. Knowing where the coincident partials are located for the various intervals enables the tuner to know "where to measure" the cent width of intervals used in tuning the piano.

A more in-depth discussion of how to | tervals aurally was also equated to use these concepts, both aurally and electronically, will be presented in future months.

From the above it is apparent that tests which were proven aurally could also be proven electronically, and viceversa. Listening to the beat rates of inmeasuring the cent width of an interval electronically.

Next month our discussion will include octaves and double octaves, and how to tune and test the various types. (Types of octaves?)

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Membership Is Everybody's Business

Charles Huether Vice President

any years ago the Piano Technicians Guild, Inc. asked members and interested industry people to comment on their personal experiences belonging to and with members of the organization. The replies were interesting and inspiring. We are reprinting a few of them. Keep in mind that they are about twenty years old.

WHAT THE PIANO TECHNICIANS GUILD MEANS TO ME

We servicemen of the Piano Industry MUST, sooner or later, learn the hard facts that no individual can do for himself... what an organization... can do for him...

The statement "United We Stand, Divided We Fall" still holds true. The more we work together in a common cause, the easier it will be to gain respect for all concerned.

This is what the Guild means to me. It is my SALESMAN at large; a TRADEMARK of qualified service; and a BEACON LIGHT for the years ahead. It is an incentive for the young men to enter a field that can gain the respect of other professions . . . which has taken years to learn and practice. The Guild is also a place where the member can be alerted to new ideas in our fast and ever changing times. It is my workshop and business office.

The unorganized tuner may not know it, but he has benefitted by the existence of the Guild and the standards it has set for the Piano Service Field. The public is becoming more concerned with the work of the Guild and this spells "Good Bye" to the charlatans.

Much more can be done, but this must come from those fine men outside the Guild who have hesitated to join our ranks for one reason or another. Take it from one who knows and has served the profession for over thirty years. I urge you to join today. You will never regret it.

Anson D. Overdorff

belonging to the Guild we would be most appreciative. Send your letters to: Membership, c/o Editor, *Piano Technicians Journal*.

MANUFACTURER URGES MEMBERSHIP

We have always regarded the Piano Technicians Guild with its fifty-two Chapters as one of the finest things that has ever happened to the Piano Industry.

The purposes and objectives of this organization of professional craftsmen merit the highest esteem of all who are in any way connected with the piano.

The new program of technical training is sure to further the fine service that Piano Technicians Guild members are known for, and it is our hope that before long every competent Tuner will wear the lapel button of the Piano Technicians Guild.

In all my travels throughout the United States, I urge every tuner to affiliate with the Piano Technicians Guild. With my best wishes for continued success, I am

Very truly yours, KRAKAUER BROS. Al. S. Zeisler, Vice President

FROM CANADA

We think very highly of the Piano Technicians Guild and of its aims and objectives to provide more highly skilled piano technicians.

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As you know we have worked closely with the Piano Technicians Guild in the past, and supported Piano Technicians Guild efforts in Canada, and will, of course, continue to do so.

With best wishes for continued success.

Yours sincerely, Heintzman & Company, Ltd. Bradford C. Heintzman, Vice President

The enthusiastic response of long ago encourages us to ask for letters today. If you would like to write telling of your experiences concerning benefits of

Booster Club	Pts.	Mbrs
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ALLEN, Jon		
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ATHERTON, Olan M	2	
BAIRD, John H		
BALIGIAN, Agnooni C	1	!
BANTA, Norman		
BARBER, Edward D		
BEATON, Richard		
BECK, Jacqueline		
BERRONG, Jack	2	2
BITTINGER, Richard	26	6
BLANTON, Tom R	1	1
BLOCH, John	4	1
BONFIETTI, Gino		
BOURDON, Donald W		
BOWSER, Gary		
BOYNTON, Richard B	. 1	1
BRADY, Stephen H		
BRIDGES, Nate		
BRILEY, James E		
BROOKS, Walter		
BROWN, Glenn		
BRUBAKER, Jerry R		
BRYANT, Ken	3	3
BULLOCK, Wilber W., Jr		
BUYCE, Harold R		
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CASWELL, Alan R		
CHURCHILL, Kenneth R	3	3
COATES, Timothy C	5	1
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DOERFLER, Richard		
EATON, Wendell E	4	2
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FLEGLE, Richard A., Sr		
FLOYD, R. Errol	2	2
FREIDIN, Irving	5	1
GARRETT, Joseph A		
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GUERRA, Edward F	1	1
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HUFFORD, Robin	31	WHALEY, Denzil1	New Members
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1983 Piano Technicians Guild Convention New Orleans, Louisiana

The CBD Shuttle Bus offers a very easy way to get around the Central Business District and the French Quarter. The Shuttle stops on the corner near the front entrance of the Hilton and will take you all the way up Canal Street through the business district and then over to Poydras Street, where the Super Dome is located, and back down Poydras Street to the river and to the front door of the Hilton. This service is available daily from 6:30 a.m. to 7:30 p.m. except Sundays and holidays.

For shuttle service in the French Quarter (Vieux Carre'), one can board the Vieux Carre' Shuttle on Canal Street during the peak hours, or during off-peak hours (9:30 a.m. to 4:00 p.m. and 6:00 p.m. to 12:30 a.m.) boarding is one block off Canal Street in the French Quarter on Iberville Street. This shuttle offers a very good tour of the French Quarter and excellent access to any area in the quarter. These shuttle lines are used both by tourists and the people who live and work in the CBD and Vieux Carre'.

The famous New Orleans St. Charles Ave. Streetcar is another exciting tour and is very inexpensive. Walk to St. Charles Street up Canal (the walk is only 3 or 4 blocks from the Hilton), and get on the Streetcar at Canal Street. St. Charles Street is one of the most beautiful streets in New Orleans, lined with big Oak trees and beautiful homes. The streetcars run the full length of St. Charles Street and return to Canal Street. This is an event to remember for a lifetime.

Stay at the Hilton with us. There is more at your reach than one can imagine, and the cost is as low as it has been in a long time. There are no hotels nearby that can offer lower rates than the home office has negotiated for us this year at the Hilton.

One thing that we have not been able to locate nearby is a camping ground for campers or motor homes. There are some camp grounds in New Orleans, but not very close to the hotel and in peak traffic hours the trip to the hotel could be long. There is parking at the hotel and motor homes can be parked in the parking lot, but there are no hook-ups.

When you stay at the Hilton, everything is at hand and at the same time you are helping to keep the cost of the convention to each member to the lowest possible price. The hotel makes many facilities available to us at no cost because of an anticipated number of rooms being rented. If this number of rented rooms is not reached, the hotel then charges us for use of rooms for classes and the like. If this happens the cost of registration has to be raised to cover the additional charges.

Come to New Orleans this July, and enjoy one of the best conventions of the Piano Technicians Guild yet, and take in all the good food, music, and sights. See you at the Hilton!

Nolan P. Zeringue Local Host Chairman





Ben McKlveen 1983 Institute Director

man was watching his wife prepare a large rib roast for a dinner party which they were hosting. Before putting the roast in the pan, the wife took a carving knife and cut a slice of meat from each end, and threw them in the garbage. Shocked at the apparent waste of good meat, the husband asked why she did this. She replied, with some irritation, "Because my mother always did it that way, as did her mother before her!" Curious about this strange custom, the husband called his wife's grandmother to ask about its origin. The old lady laughed and said, "My dear, when my daughter was growing up and learning to cook, we didn't have a roasting pan big enough for a large

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967 Airport Blvd. South San Francisco, CA 94080 (415) 871-4482 roast, so we always had to trim a little off the end of the meat so it would fit in the pan."

Are you practicing your craft by using techniques that are rooted in the dim past? Is it time for you to take a hard look at what you are doing to see if there might be a faster or better way of doing it? Perhaps there are better supplies or products available for certain jobs, or different or newer tools to help you do a job more efficiently. The 1983 Institute of the Piano Technicians Guild is dedicated to help you with this exploratory process and a whole lot more.

In past issues of the *Journal* I have outlined the classes and instructors for this year's Institute. A few additions to the previously announced schedule should be noted:

Joe Bisceglie, of Steinway & Sons, will be teaching a class called Grand Regulating and Voicing In The Field.

Fred Drasche, Steinway's "grand old man," will be with us again to talk about Steinway pedals and sostenuto.

Kohler and Campbell has assembled a capable team of specialists to teach classes about vertical trouble-shooting, repair, and maintenance.

Mr. Bix, of Bix Manufacturing Company, makers of finish removal products, will be giving classes on the removal of varnish and lacquer, and will be available to talk about refinishing problems.

Steve Nicholson will be available in the Exhibit area with a computer to talk to all you computer buffs, to demonstrate, or let you try your hand with a computer keyboard.

Our Institute staff will be on hand to help you in any way possible. If you haven't made plans to be in New Orleans for this convention, then by all means, do so immediately! It is an opportunity you can't afford to miss.

CHAPTER CONTEST — BE A WINNER!!

Promote Attendance at the 1983 Convention New Orleans, LA July 4 — 8, 1983

You will want to enter this contest not only to create interest, excitement and ATTENDANCE at your 1983 convention but to win one of the exciting prizes named below.

RULES

FIRST PRIZE — FILM "Music of Sound"

Awarded to the Chapter with the largest percentage of PAID member registrations to the convention.

SECOND PRIZE — SET OF TECHNICAL INSTITUTE TAPES

Awarded to the Chapter with the second largest percentage of PAID member registrations to the convention.

THIRD PRIZE — FOUR COPIES OF THE CLASSIFIED INDEX

Awarded to the Chapter with the third largest percentage of PAID member registrations to the convention.

The winning chapters will have special recognition at the convention.

GET ON YOUR MARK GET SET GO!!!!!

WIN

1983 Institute Classes

REPEAT

Auro-Electronic
Tuning Techniques
Shop Business and Operation
Installation of Upright
Hammers, Shanks, and Butts
Grand Dampers

Steinway Servicing
Historical Survey of
American Piano Industry
Grand Regulation

Vertical Piano Trouble-Shooting From the Bottom Up Progressive Grand Regulation Grand Hammer Installation Advanced Player Repairs Advanced Player Forum Private Tuning Tutoring

NEW CLASSES

Basic Tuning Class Electronic Tuning Basic Vertical Regulation Hammer Construction and Voicing Vertical Dampers Voicing Wood Joints **Home Computers** in Your Business Pinblocks Woven Felt Manufacturing Use and Problems Keyboard Building Comparison of Aural and **Electronic Tuning** Rescaling Problems Pinblock Plugging Audiologists and How we Hear **Business Class**

Tools

INSTRUCTOR

Bowen

D. Snyder, W. Snyder Brandom (Everett)

Edwards, Caskey Dennis, Utsonomija, Nishio (Yamaha)

Huether

Johnson, Reuter,
Weisensteiner (Kimball)
Juhn
Neblett
Robinson
W. Snyder, D. Snyder
Heischober
Heischober
Selected Technicians

INSTRUCTOR

Stegeman Sanderson Wurlitzer Team

Krefting
Krefting - Sims (Baldwin)
Hunt - Jameson
Geers
S. Nicholson

R. Kingsbury - S. Kingsbury P. VanStratum

W. Brooks J. Coleman - G. Defebaugh

S. Fairchild
B. Russell
Dr. C. Berlin

J. Harvey (Kawai)

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AUXILIARY HIGHLIGHTS

The Piano Technicians Guild Auxiliary invites wives, husbands and friends of technicians to sign up for our convention program.

The registration fee for Auxiliary activities admits one to the following:

- * An Entertaining Reception on Tuesday
- * A Scrumptious Luncheon on Thursday

plus

- * An Introduction To New Orleans so you'll know what to see and how to get there
- * Lots of musical entertainment
- * The Auxiliary Council
- * A meeting with the Piano Technicians' Sketch Artist
- * Admission to one institute class
- * Auxiliary classes on Piano related topics
- * Auxiliary classes on general interest topics

AND MORE

ALSO... you can buy a ticket for a SUPER 2 PLANTA ION and LUNCH TOUR which departs from the hotel Wednesday morning. The bus will take you to Nottoway and Houmas House Plantations with lunch at Jean Lafitte's Restaurant and bring us back to the hotel for just \$30.00 apiece. The tour is open to anyone at the convention.

PIANO TECHNICIANS GUILD CONVENTION AND TECHNICAL INSTITUTE JULY 4-8, 1983 THE NEW ORLEANS HILTON HOTEL

Registration Form

Name						
Home Address						
City		State/Province_	Zip			
CHAPTER NAME		Nickname for Bad	ge			
☐ Member	□ N	(If not the same as all on-Member	oove)			
Visually Handicapped	· □ ×	Vill be Staying at the	Guild Headquarters Hotel			
Spouse's Name		_ Nickname for Bado	ge			
(If Attending)	SISTRATION (If not the same as al				
	Check Boxes	s and Total				
		Staying at t				
GUILD MEMBERS		Headquarte	rs Hotel			
Postmarked by May 2	□ \$ 90.00 □ \$110.00	□ \$ 85.00 □ \$105.00				
-	_ 3170.00	L 3105.00				
NON-GUILD MEMBERS Postmarked by May 2	S175.00	L. \$170.00				
- · · · · · · · · · · · · · · · · · · ·	□ \$175.00 □ \$195.00	□ \$170.00				
SPOUSES			OPTIONAL TOUR HIGHLIGHTS			
Auxiliary Member	□ \$ 35.00	□ \$ 30.00	When you register for the 1983 Convention don't miss the boat or bus by not signing up for the two			
Non-Auxiliary Member		□ \$ 40.00	optional tours offered.			
SPECIAL CLASS			LOCAL HOST CHAPTER SPONSORED			
PRIVATE TUNING Tutoring	□ \$ 35.00	□ \$ 35.00	MISSISSIPPI RIVER STEAMER CRUISE - Enjoy dinner,			
Banquet (optional)	□ \$ 30.00	□ \$ 30.00 -	New Orleans jazz and a cruise down the Mississippi River. The cruise will be offered Tuesday evening, July			
Closing Luncheon (optional)	□ \$ 15.00	□ \$ 15.00	5, and is being planned by the Local Host Chapter. The paddlewheels will start churning and members			
TOURS	- 25.00	E 4 35 00	will be loaded aboard right next door to the hotel.			
MISSISSIPPI RIVER STEAMBOAT	□ \$ 25.00	□ \$ 25.00	Step aboard and relax to the sights and sounds of New Orleans. Only \$25.00 per person.			
CRUISE Tuesday Evening, July 5 (Includes Dinner and Entertainment)			AUXILIARY SPONSORED			
SUPER 2 PLANTATION AND	□ \$ 30.00	□ \$ 30.00	SUPER 2 PLANTATION AND LUNCH which departs			
LUNCH TOUR Wednesday, July 6	_ 7 30.00	□ ₹ 30.00	from the hotel Wednesday morning. The bus will			
(Sponsored by Auxiliary)			take you to Nottoway and Houmas House Plantations with lunch at Jean Lafitte's Restaurant and bring you			
TOTAL ENCLOSED	\$	\$	back to the hotel for just \$30.00 per person. The touis open to anyone at the convention.			
Tickets for optional functions must be bou	ight no later than 4	18 hours before the	event.			
NOTE: Spouses of Guild members and/or	•					
Guild member rate. Guides for visually ha	ndicapped technicia	ans may attend class	ses at no charge.			

Cash _____ Check ____ Money Order _____ Chapter No. _____ Member No. _____

Classification _____

DO NOT WRITE HERE

Date Rec. _____ Priority Number _____

Amt. Pd. _____



Photography by Molly Webster

Dr. Charles Berlin, Instructor 1983 Institute

ne of the outstanding instructors for the 1983 Piano Technicians Guild Institute in New Orleans next month will be Dr. Charles I. Berlin, an audiologist and professor of physiology at Louisiana State University Medical Center.

He has worked as part of an LSU research team that discovered a special type of hearing impairment called "ultra-audiometrics," where the patient cannot hear at normal frequencies but can hear sounds at extremely high pitches.

Since this discovery in 1975, he and his colleagues have designed a hearing aid that people with this problem can use to hear normally.

Dr. Berlin, who has been a musical star at bustling bistros around New Orleans for years, is one of the city's medical superstars. He has guested on the "Today Show" and has been the subject of features in *Time* and *Discover* magazines as well as the big daily papers.

In addition to his medical duties at LSU Medical Center, he is the resident jazz pianist at the New Orleans Marriott Hotel. This dual interest in audiology and jazz caught the attention of Martha Lagoy, assistant Institute director, and she contacted Dr. Berlin about teaching at the 1983 Institute. His expertise in audiology and his ability to speak to musicians and technicians in language that they understand make his appearance at this year's Institute extremely valuable and one not to be missed.

Ben McKlveen Institute Director

Auxiliary Exchange

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Editor, Auxiliary Exchange

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President's Message

Dear Friends and Members of the Auxiliary,

As I approach the end of my term as president of this organization, I am beginning to compare what I thought I could accomplish as president to what I have actually done. Of course, there are many things I had thought I would do but I haven't, and there are many very good things that have happened which weren't because of me at all. I think the most important thing that has happened is that I am more firmly committed to the importance of having an Auxiliary and I understand the Auxiliary much better than I did two years ago.

The "me generation" is a tough cookie to tackle when it comes to promoting any kind of an auxiliary. The very word "auxiliary" implies there is another more important group to which the auxiliary is an appendage. Some of us who are working so hard to be treated as equals have a hard time justifying membership in a subordinate organization. Nevertheless, all of us can enrich our own lives by learning how to share an experience with someone we care about. All of us can benefit from a new circle of friendships, too. All of us are better off thanks to our affiliation with the Piano Technicians Guild Auxiliary. These are some of the things I have learned in the last two years.

Our Auxiliary serves an important need in an industry where the business often extends into the home. It is hard for anyone who lives with a piano technician to separate herself or himself from the business. There will be phone calls at home. There will be extra papers and mail and boxes and desks because the business is usually headquartered in the home. And there will be weekends devoted to seminars or long trips in the summer devoted to conventions. The Auxiliary puts a person in touch with others who also live with such a business. It provides a forum for sharing the business in a positive manner which helps to balance the ways we share its less desirable aspects. The Auxiliary gives us our own circle of friends so we don't feel left out when the technicians get 100% absorbed in soundboards and pinblocks at the seminars and conventions.

It gives me a good feeling to be able to say I now understand the Auxiliary and I know how important it is as an organization and as an auxiliary organization in particular. Before I was elected president I knew how much I enjoyed my own association with the organization, but now that I have traveled to many parts of the country and spoken with many people in my capacity as the Auxiliary's president, I can see how the Auxiliary can and should be an enjoyable and fulfilling association for all the people who are connected with piano technicians. What a great thing to learn!

Tune in to New Orleans tout de suite!

Julie Berry

This Fast-Changing World

The following remarks were given by Esther Stegeman at an Auxiliary luncheon held on March 26, 1983, at the University of Wisconsin at River Falls. Esther is a past president of the Auxiliary, a member of the Minnesota-North Iowa chapter, and an Honorary Life Member of the Piano Technicians Guild Auxiliary.

This fast-changing world brings changes in our Piano Technicians Guild Auxiliary — thus, some updating from past to present. The foremost reason for membership in the Auxiliary and in a local Piano Technicians Guild Auxiliary Chapter is that one's spouse has chosen the technical and highly skilled profession of a piano tuner-technician. He or she (the spouse) needs and values the fellowship of comrade tuner-technicians and the Piano Technicians Guild, the only organization of its kind.

All spouses wanting to help their technicians to be successful in this, their chosen career, must stand behind them and join them in all that helps to bring success to them, whether it be in their work, making public contacts, or mingling with persons of many different occupations. Most importantly, and with good reason, technicians value the local Piano Technicians Guild meetings, the annual Conventions, the regionals, and the seminars which lend immeasurable help and provide the fellowship that all tuner-technicians need; and let me add that the spouses need this fellowship, too. In fact, in this fast-changing world more and more women are choosing the occupation of piano tuner-technician—and thus the membership of the Auxiliary is no longer exclusively women, as male spouses certainly want to and should join too. I have for years thought and said, "when new members join the Piano Technicians Guild they should, at the same time, also take out memberships for their spouses in the organization's Auxiliary."

Periods of visiting, discussing, entertaining, and the intermingling of men and women (tuner-technicians and Auxiliary members) in conversations at local chapters, seminars and conventions afford the fellowship needed with persons having similar interests. All tunertechnicians, I'm sure, want their spouses to take an active interest in the Auxiliary and in all the meetings which they (the technicians) like to attend. Payment of yearly Auxiliary dues (which amount to less than 45¢ a month) and some sacrifices may have to be made on our (the spouses') part, but are a small price to pay for the fulfillment it will bring to the professional lives of the piano tuner-technicians. It is a satisfaction to spouses to feel and know that they have contributed to Piano Technicians Guild benefits as well as receiving

Members of the Piano Technicians Guild are able to receive from and give to their fellow technicians through combined cooperation, constructive instructions, valuable information and new ideas which help to raise the standards of the tuner-technicians' profession and their organization, thus serving the world for the betterment of music. So—spouses—join the Auxiliary and in togetherness work for this worthy goal! Every spouse join, be a member of the Auxiliary and stand behind your tuner-technician 100%.

You have just heard that an Auxiliary is a "Helping Unit," a vital important part of a professional occupational organization. As Auxiliary members we can all help give and share in this Piano Technicians Guild organization which has elevated the tuner-technician's profession to the cultural and business level to which it deservedly belongs. Would that all piano technicians' spouses might realize the full value to their tuner-technicians and to themselves of being a member of the Piano Technicians Guild Auxiliary.

Esther Stegeman

Hazel V. Vennberg 1904-1982

Our thoughts and prayers are with Arvid Vennberg, the rest of the Vennberg family, and the members of the Minnesota-North Iowa chapter as they mourn the loss of Hazel Vennberg. Hazel was a faithful member — in fact, a charter member — of the Minnesota-North Iowa chapter. She was a good helper through all the years, before and after the merging of the A.S.P.T. and the N.A.P.T.

Hazel and Arvid were married 51 years. Many times over the years their chapter met in their lovely home in Red Wing, MN, both for the technical meetings an the coffee hour. Hazel was a grand and lovely lady to know and love. We will miss her.

Tune In To New Orleans . . . Tout de Suite

Tout de suite means "right away" in French, and that slogan has never been more timely. Perhaps you are among those people who are still trying to decide whether or not to attend the national convention this year. Your technician has expressed an interest in going but no final plans have been made. Even if the technician does decide to go at this late date it will be another decision to make about whether you should go, too. I have been telling you all year that I want you to come to New Orleans; this is my last chance to persuade those of you who still haven't decided to join us. All I can say is . . .

- ★ Moonlight on the Mississippi
- ★ Super Hilton hotel rooms that are the same price for two people as for one
- ★ A trip to two plantations
- ★ Jazz brunches
- ★ Carriage rides around the French Quarter
- ★ Fresh seafood
- ★ A vacation and business trip wrapped into one
- ★ Good times to remember for years to come.

Tune In To New Orleans . . . Tout de Suite

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PIANO TECHNICIANS GUILD

Piano Travelers Association

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GRAHAM ANDERSON, Piano Rebuilding and Repair, 1225 Bennett Drive, Alabaster, Alabama 35007. 20 years experience with Steinway — London. Specializing in replacement of action rails. Also available GENUINE IVORY KEY TOPS replaced. Call or write for free estimates. Area Code 205-664-2527 or 205-663-6449.

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Substantial improvement over any published method. Clearly written instructions. Easy-to-learn routine. Designed for use with Hale Sight-O-Tuner — can be adapted for others. \$10.00. Don Hardin, 2620 Cypress Ave., Stockton, CA 95207.

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HALE ELECTROFORK. Excellent condition. \$60 postpaid. Mark Perry, 3249 Bloomington Ave. S., Minneapolis, MN 55407. (612) 729-1302

ZUCKERMANN HARPSICHORD KITS — A real challenge for the interested technician. Factory direct shipment at factory prices. Trouble-shooting and advice for kit builders. Authorized Agent Yves A. Feder RTT, Harpsichord Workshops, 2 North Chestnut Hill, Killingworth, CT 06417. Telephone (203) 663-1811.

A PIANO MAY LOOK GOOD, BUT THEN... Looks are deceiving. Quality soundboard installation by those who care. Richmond Piano Rebuilders, 3133 W. Cary St., Richmond, VA 23221. PH (804) 358-1929.

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WANTED

TUNERS NEEDED. Anchorage Alaska desperately needs qualified tuners due to rapid growth. Work in beautiful setting where you're minutes from the mountains and moments from the salt water. Several people needed to serve in rural Alaska, also. For information or assistance write or call: The Plano Shop, Inc., P.O. Box 110818, Anchorage, AK 99511. (907) 562-2267

WANTED: Fully qualified professional piano tuner-technician for New York City artist department. (212) 582-6798.

WANTED: PIANO TECHNICIAN, full-time position, mid to upper teens depending on tuning skills. Excellent benefits. Work with two other tuners. Must be able to tune at the examiner level as described by PTG, although actual certification not required. The aptitude for high level regulating and rebuilding is required, although actual experience is not a prerequisite. Training to be provided. Application deadline July 15, 1983. Send resume and three references to Joseph Balconi, Director Instrument Office, Eastman School of Music, Rochester, NY 14604.

WANTED: MASON & HAMLIN. Want one that was a player. Have player mechanism to install. Brady, 4609 Cranbrook, Indianapolis, IN 46250. (317) 259-4305, after 5 pm. (317) 849-1469.

TECHNICAL SPECIALIST: PIANO TECHNI-CIAN — The piano technician is responsible (with additional part-time help) for the care, maintenance and rebulding of over 200 Crane School of Music pianos. This includes 5 Steinway concert grands, and 75 Steinway and Mason and Hamlin grands and 100 Steinway uprights. Instruments range in age from 8 to 30 years. Duties will include tuning, minor repairs, regulations, voicing, rebuilding and maintining inventory records. Applicants must have extensive experience in all aspects of piano tuning and maintenance and rebuilding, with considerable skill in the voicing and regulation of Steinway and Mason and Hamlin grands and uprights. Knowledge of harpsichords and other keyboard instruments is desirable. Also desirable is the ability to teach classes in piano maintenance and the training of apprentices. Salary: Competitive. Starting date: August 1, 1983. The applicant should provide substantial documentation, through reference letters and other sources, of the scope, depth and quality of professional background, training and experience. The Crane School of Music, a unit of the State University of New York, College at Potsdam, is one of the largest music schools in the country. The school, located in Northern New York, is accredited by NASM and serves approximately 500 music majors (graduate and undergraduate) and the north country community. Deliberations will begin on May 15, 1983. Persons should submit a resume and letter of application to Mr. Sal Canla, Chairman, Piano Technician Search, State University College of Arts & Science, Potsdam, New York 13676. An Affirmative Action/Equal Opportunity Employer.

WANTED: Set of keys for Wurlitzer #739167, circa 1958. Call Piano Hospital, (206) 693-1511.

MISCELLANEOUS

SIGHT-O-TUNER MODIFICATION. For the first time - INTERNAL ERROR COMPEN-SATION. The "Error" discussed by Steve Fairchild has been compensated internally, freeing both dials for measuring. No confusing Error Compensation Chart or third dial. Bourns 10-turn Knobpots give increments of .01¢! Now tune with even higher accuracy in less time. Cleaning, calibration, guarantee, and temperament systems of leading concert technicians included. Best prices - why pay more? Repairs accepted. Methods proven by full-time concert RTT with electronic experience. Careful don't get off pitch! RICK BALDASSIN, (801) 374-2887. Endorsed by Dr. Albert Sanderson, inventor of the Sight-O-Tuner.

SIGHT-O-TUNER SERVICE. Calibration, repairs, and modification. Write or phone Richard Weinberger, 14130 Alta Vista, Saratoga, CA 95070. Phone (408) 867-4513.

WHO SAYS THE GOOD DIE YOUNG?



The Baldwin Hamilton is built to last. Not just for a semester or two. But for generations. And because it has the Baldwin name on it, it has the Baldwin sound in it.

That's why it's the studio piano selected by more piano teachers and music schools than any other.

The Baldwin Hamilton. Chances are, it'll still be working six days a week long after you've retired. **Baldwin.**

BALDWIN SPECIAL SERVICE—You may order Baldwin replacement parts at any time our office is closed—nights, weekends, and holidays—by dialing direct (513) 852-7913. Your verbal order will be recorded on our automatic answering service and processed the next working day.

The Interchangeable Key

If it's a Wurlitzer, it's designed and built with the technician in mind.

While most piano keys that are broken must be replaced with handmade keys, Wurlitzer has designed, engineered and built their keys to be interchangeable. Yes, you can order a replacement key for any Wurlitzer Piano and it will fit!

Wurlitzer believes it is important to help make your job a little easier and to save you and your customers the aggravation of delays in parts delivery and the additional aggravation of reorder, or further

delay because of ill-fit.

That's why Wurlitzer key blanks are stored in a 7% humidity before they are machined in a humidity controlled atmosphere of 7%. The routing operation that follows produces the most accurately cut keys in the industry, routing all critical holes and maintaining accuracy at \pm .001 of an inch. Consider how accurate that is when the human hair is .003 of an inch!

To insure further the quality and dependability of our keys, we try to locate any potential problems in advance—before they become problems for you. For example, keys that will warp in the field will do so as a response to changing atmospheric conditions—heat and humidity. To find those keys that have a grain characteristic that may bring about warping, keyboards are put in a heat chamber for 24 hours during which the moisture content of the wood is reduced even further. This process brings about warping that could take months to develop; thus discovering the problem before the instrument is in the field. After 24 hours in the chamber, the keyboards are inspected by skilled people who can detect any warping that has taken place. These keys are then replaced with keys that have already been tested.

The Wurlitzer key is indeed interchangeable because it is built to the most exacting standards; but, in addition, our keyboards go through a leveling operation with special machinery and skilled operators that make sure the touch is even throughout.

All of this, of course, provides a more uniform and dependable piano that can make your job a little

less frustrating.

Our continuing commitment to you, the Technician, is apparent in our ongoing willingness to teach and train. Our key technical people attend PTG meetings and conventions and conduct training sessions. Our service department continues their service seminars. Our technical staff is at your service to provide any assistance you might need.

We recognize that a quality instrument must be well maintained. That's why Wurlitzer Pianos are designed, engineered and built by high technology craftsmen at Wurlitzer with you in mind.



Wurlitzer Hot Lines:

Call toll-free between 8:00 A.M. and 4:30 P.M.

800/435-2930

For parts call Code-A-Phone:

800/435-6954

In Illinois call:

815/756-2771

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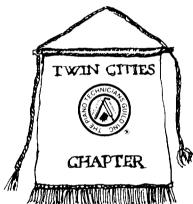
Dekalb, Illinois 60115

Piano Technicians Journal

UPDATE

June 1983





The Blue & Gold Chapter Ranner

The Twin Cities Chapter has a new banner, thanks to determination and planning by Bill Balamut. The banner will be on display at the Convention with information on how and

where your chapter can order one like it.

Plans are underway to have a display of chapter banners at every convention with the same style and format for each. These are elegant in royal blue satin with bright gold logo and lettering. Each banner has gold cord and rod and we are pleased to announce a very reasonable price — again, thanks to Bill at less than \$35.00 each.

If you are sending a delegate to the convention, how about ordering a banner for display all week in the convention hotel? And at every chapter meeting, too.

Write Kim Roback, ABC Lettering, 6020 Main Street, Rockford, MD 55373. All specifications and details have been sent to that company and they are set to carry out your orders.

May Chapter Mailing

List of members dropped for nonpayment of dues

Special Notice about the bylaw amendment requiring a member who wants to return to the Guild to have taken the new tuning test before reentry can be approved

Chapter Management & Achievement letter from Dale Heikkinen with new Chapter Achievement Quarterly Activity Report Form

Federal ID Number information for chapters concerned about IRS taxes on income

rDele	gates, A	lternates	and All Members ———
Saturday, July 2			Delegates and alternate registration and open discussion on council business

Sunday, July 3
8:00 - 9:00 am
10:00 am
Delegate and alternate registration
Council session opens

Monday, July 4
8:00 - 9:45 am
Chapter Council Conclave suggestions and ideas

Tuesday, July 5 5:45 - 6:45 pm Regional meetings for general discussion, questions and answers

Piano Technicians Guild Calendar

June 15
PRESIDENT'S CLUB

Closing date for points towards President's Club pin for bringing in new members.

July 1-2

Pre-Council meeting of the Board of Directors

BOARD MEETING

Council session. All members welcome.

July 3-4 COUNCIL

July 4-8
CONVENTION OPENING

Grand opening session on Monday evening. Parade to the exhibits. Institutes start Tuesday. See full schedule in your convention brochure.

Responsibilities of Newsletter Editorship

ave you been playing "editor-in-thief" with your chapter newsletter? As editors, we often have lean months when filling empty pages can be a problem. Most of us have been tempted to use materials from other sources, not only to relieve our editorial burden but in an honest attempt to circulate information to our readers. If you are planning to copy items for use in your newsletter, please consider the following.

Copyrighted materials, including magazines, books, etc., are legally protected items. Although chapter newsletters are non-profit, educational publications, they still are not immune to copyright laws. Permission must be granted in order to reprint articles, cartoons, poems, etc., from copyrighted sources. If you wish to reprint a copyrighted work, get permission first or do not use it. A sample permission request form appears to the right of this article. "Fair Use" (Section 107, Public Law 94-553) is a very gray area; your personal interpretation of it might not hold up in court.

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Non-copyrighted materials can be used if certain rules of etiquette are observed. A courteous gesture is to write to the author requesting permission to use his/her material. At the very least, if you already have printed someone's work without first approaching him/her, send the author a note and a copy of the newsletter in which the work appeared. Most chapter newsletters are happy to have their items reprinted providing credit is given.

Chapter Newsletter Committee

Convention Awards & Citations

The Annual Awards Banquet will be held in New Orleans this year. The beautiful GOLDEN HAMMER Award was officially inaugurated in New Orleans so this will be a special occasion.

Who will be inducted into the HALL OF FAME this year?

Come and cheer the winners in the Chapter Achievement awards — perhaps your chapter will be right up there!

It will be a time to welcome new officers to the Board of Directors and give warm thanks to board members who are leaving. COME JOIN US IN SHOWING OUR APPRECIATION.

SPECIAL NOTICE!

A Registered Technician or Craftsman who resigns from the Guild or is dropped for non-payment of dues should be alerted to a new bylaw which is expected to pass at the Council Session in New Orleans.

The new law will require the member to take the new Registered Technician Tuning Examination in order to be reinstated into the Guild if the last examination taken was not the same as the current tuning exam.

Please be sure that members who are on the drop list are aware of this as it may cause the member to stay in the Guild to maintain present Registered Technician status.

If you have any questions about this, please call the Home Office.

From the 1982 Hall of Fame Awards

It is with pleasure and gratitude that I accept the honor of becoming a member in the Piano Technicians Guild Hall of Fame that you and the Guild have so generously bestowed upon me. For many years the Guild has been a valuable asset to me. Its ideals of excellence and superior craftsmanship have long been and will continue to be goals I strongly support. It has helped me immeasurably.

Cliff A. Geers

In New Orleans At The Annual Convention SIGN UP NOW AND JOIN IN ON THE FUN

Performance will be at Closing Luncheon Friday, July 8

Name		
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City	State	Zip

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Letters

Dear Mr. Santy,

The Bad are winning. The Good are losing. All is lost.

There is no hope.

With all the hustle and bustle of Christmas and New Year I just got around to cracking the pages of the Journal. Your editorial, especially the words of Ron Berry, brought great joy to my heart! Are we 3 the only ones left who really care? I am 44 years old and have been in the piano service business for 25 of those years. I have not been to a Chapter Guild meeting for at least 5 years. No, I assure you, I am not proud of that fact. As our family grew to 6 children (2 natural, 4 more adopted) my time became increasingly precious. Priorities changed and a number of things had to be let go. My involvement in the local Chapter was one of them. The very reasons and attitudes mentioned along with the "me" generation, and "take whatever you can get without giving anything in return" (and, I might add, CHARGE, CHARGE, CHARGE for it), by some of the Chapter members were strong determining factors in my decision. I had too little time to be wasted on frustration.

I and those few who shared the "other thoughts" were made to feel like freaks, out-of-it, and wrong. Here is just one of the things I heard.

"Gentlemen, every service man who rings that doorbell gets his, so YOU make sure you get yours."

Of course this was backed up by articles (some from the *Journal*), charts, testimonials and what-have-you.

Not that a "good business sense" is wrong, mind you; just that I believe the pendulum had swung too far the other way. It seemed that the customer was made to look like a slab of money and it was your right and privilege to slice off as much as possible, by whatever means available.

Simply, my personal policy is that of the Golden Rule. I strive to GIVE my customer as much as I reasonably can give (and then some) in the time that I am in that home. Example. I often go into homes where the piano has been fairly regularly tuned — and that is absolutely all that has ever been done. In a 1½ hour "tuning time" I often perform the following on a typical spinet piano.

Vacuum and clean all accessible
 areas

- 2. Tighten pedal block screws, regulate pedals.
- 3. Regulate lost motion on 88 notes.
- 4. Ease (perhaps) a few sluggish keys, or more.
- Tighten accessable action screws, if needed.
- 6. Raise pitch 1/4 step (or more).
- 7. Tune A-440.
- Oh yes, and I always
- 8. Tighten the loose bench legs.

Total Cost — \$40.00 plus tax.

I am happy. I have performed what I believe is a complete service call in the alotted time. (It can be done, I do it all the time.) I received my fee for the time spent. The customer is happy; never has the piano felt (and hopefully sounded) so different. And the bench doesn't wiggle anymore!

Giving as much as I reasonably can has been an infallible method of building a solid service business. I try at all times to upgrade the piano (thus upgrading the craft) at every opportunity. I am rewarded with recommendations for additional piano work and a good night's sleep.

Reactions I have heard from Craftsmen fellow technicians:

"Vacuum and clean? You crazy? I charge an extra \$15.00 to do that! You make the rest of us look *bad!!* Besides, you embarrass the lady of the house by asking for the vacuum cleaner!"

"You tighten screws and ease keys and don't charge extra? You crazy or something? I leave an estimate. If they don't want the work done, tough. I got my tuning fee. The hell with them."

"I go in and I give the customer a 1½ hour tuning, making sure I take my time. That's it, Buster. Anything else is extra bucks. I'm not giving anything away."

Mr. Santy, I tell you, I quietly fold my tent and steal silently into the night. Your final words in the *Journal*, "Those who do 'good' for nothing — or for very little — will protect our society from rot and decay," should, I suspect, bring a host of loud guffaws, sneers and bellylaughter from a large segment of our brother/sisterhood.

But not from me. Perhaps the bill of Responsibility should be kept a secret by those who know and abide by it. The Bill of Responsibility is, of course, known by many other names, such as Faith, Hope or Charity. "Cast Your Bread Upon The Waters" is another. "Do Unto Others —" I'll not go on.

No, all is not lost, but sometimes it feels that way. Good will ultimately

A Teaser For Tuners

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Crossword puzzle solution.

reign, and everything has its just reward.

It is curious, in my life, how things happen and end up tying themselves together. Saturday night I read your editorial. Sunday morning, in church, the pastor's sermon reinforced everything you had to say. I enclose the service bulletin, not to "preach" to you or invade in any way your personal beliefs whatever they may be, but to simply let you know that others have said and "hundreds and thousands of people who believe in and accept the responsibility —" do believe — and accept. I would like to be counted as one of them.

You have spoken what I have felt for years - and was afraid to open my mouth anymore to say. Surely everyone has his own point of view, to which he is most certainly entitled. I sincerely hope your editorial will have some effect — no matter how small — to either bring about some change or to help bring forth others who feel and practice the moral and ethical standards - and are afraid to speak their piece. There is something definitely missing now. I can remember early issues of the Journal in which the words "moral," "honesty." and "values beyond" were very common. Occasionally the words "God" or "Supreme Being" appeared — but not anymore.

Thank you, for stepping forth. I certainly realize how much you must have anguished in writing this editorial — in the face of the oncoming tide.

The bad guys are there. So are the good.
All is well.
There is hope.

Most sincerely, Willard H. Jost