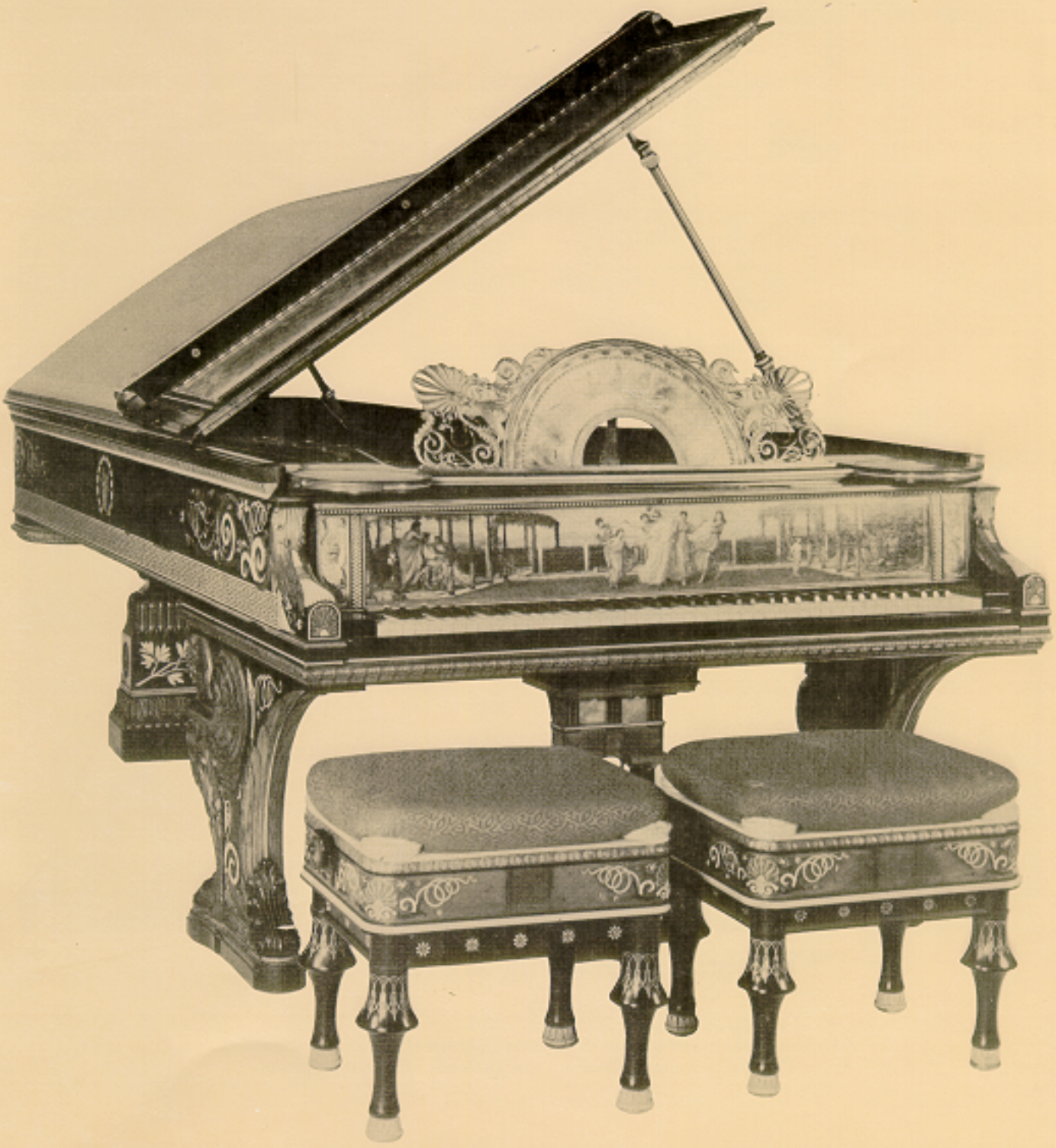
Piano Technicians Journal
JULY 1980



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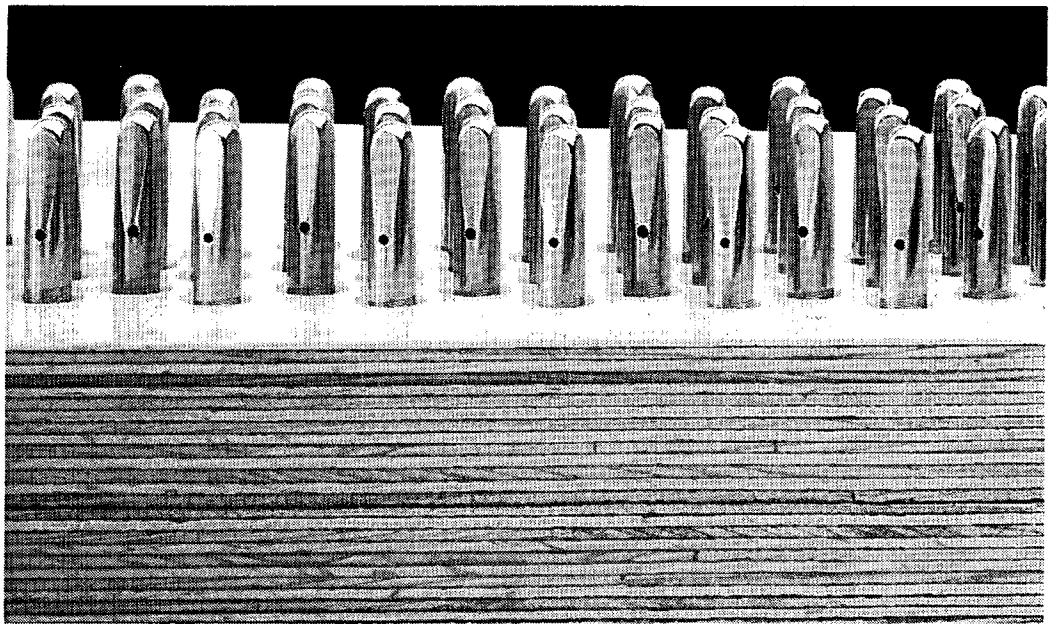

At long last Schaff has obtained a distributorship for the German made, multi-laminated beech pin block material called DELIGNIT®. For several years now this type of pin block has been imported into the United States and Canada. Now this particular DELIGNIT® grade, having the same characteristics of density as used by almost all European piano manufacturers, is available at Schaff.

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Official Publication of the Piano Technicians Guild/July 1980 Volume 23 Number 7

Piano Technicians Journal

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COVER... This Steinway grand piano, which stood in the lobby of the Martin Beck Theater in New York for the last 50 years, was expected to bring between $100,000 and $150,000 at an auction recently. Instead, it sold for $390,000, a record for any musical instrument and a new high for a 19th century, decorative work of art sold in the United States.

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EDITORIAL

Don L. Santy,
Executive Director

Remember the old gag about the guy who was bragging about the fact that he made all the important decisions around his house. He determined what the outcome should be on world affairs and other vital international impactions while his wife was only allowed to decide on what kind of car they drove, where they lived and how to raise the kids.

Well, I'm somewhat in the same boat. I am allowed all kinds of decisions on important social issues and international affairs. They are so simple to contrive. I'm amazed that the government hasn't thought of them long ago. For example:

HOW CAN WE SAVE ENERGY–OIL IN PARTICULAR?

Well, to begin with, we could take the automobile toys away from the kids. They don't have to get behind the wheel of a powerful and dangerous weapon to have fun. They could go back to biking, hiking and even running and walking. They might even get time to do their homework and get educated. Of course, they would lose their mobility, mischeivosity and promiscuity but it would sure reduce the wear and tear on parental nerves. It would save countless lives, reduce insurance costs, keep a lot of people out of trouble (and jail) and practically put all of the auto wrecking yards out of business.

HOW CAN WE REDUCE VANDALISM?

That's easy. Besides putting point number one into effect we can take some of those thousands of older, law-abiding, responsible folks who live in mobile homes around the countryside – and who are always looking for a place to put them — give them space in public parks, school grounds, institutional properties, public building lots, beaches, etc., to keep an eye out for trouble. Given an alarm system for quick help, they could make a considerable dent in vandalism throughout the land.

GET THE DRUNKS OFF THE STREETS?

Where do the drunks come from? Mostly from bars, of course. When people get drunk at home who cares? So we just make all of the bar owners put sleeping rooms in the back (instead of God-knows-what) and make "sleeping it off" mandatory or a report to the cops. We could also get a law passed to penalize the bar owner if he let a guy reel out of his emporium to victimize or become one. We might even go so far as to copy some of the European countries where they really get tough with drinking drivers and take them off the road entirely. See how simple it is when you just think about it for a while.

REDUCE THE JAIL POPULATION?

Well, practically everybody who knows about such subjects claims that 85 per cent of those incarcerated are really not dangerous to themselves or others at all. They say that only 15 per cent are hard-core nasty types who rob, rape, kill and maim other people. If this is true, couldn't we find a better place to keep the petty thieves, peeping toms, embezzlers, fraudulent clerks, shoplifters, dope addicts, larcenists, con artists, tax cheaters, tricksters and other assorted social misfits or ordinary people who make mistakes and get caught.

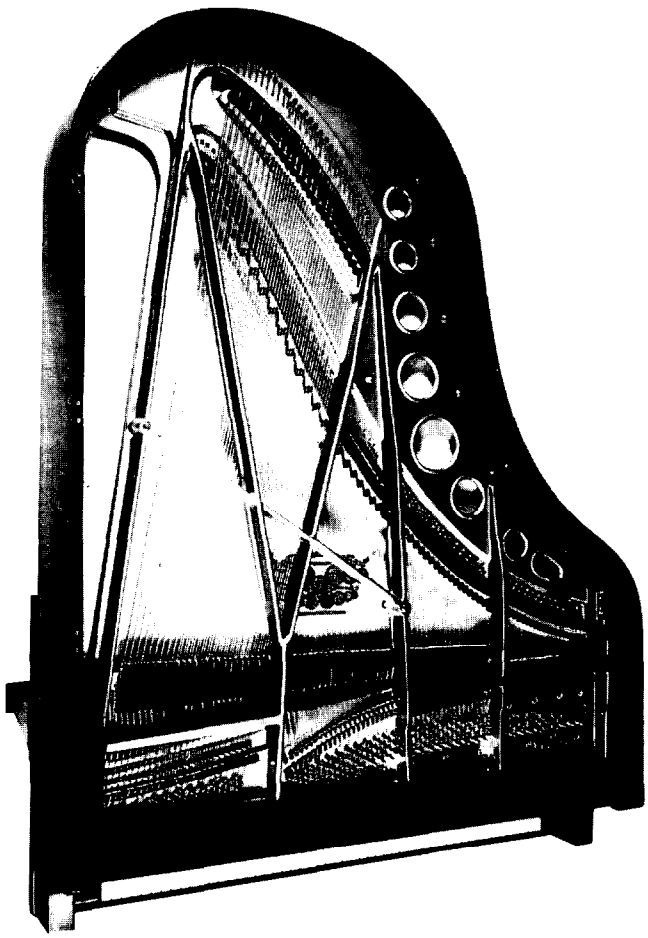
They don't need to be put in cages, they should just get tucked away out of traffic (maybe in college fraternity houses) until they compensate their victims through useful and productive labor under humane conditions. Since it costs about $8,000 per year to keep a prisoner, multiply that by about 450,000 people and you get a small idea of the annual tab to support the system we've got now.

HOW DO WE KEEP POLITICIANS HONEST?

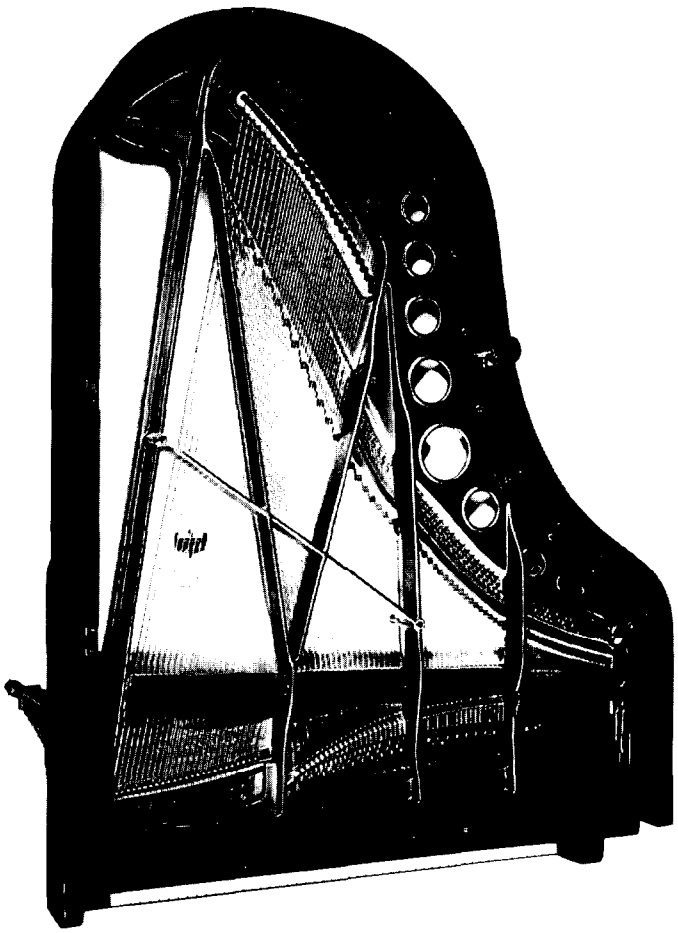
That's the hardest one of all. Just the other day when that question was posed regarding whether or not a certain politician was crooked, the response was, "Are there any other kind?" Now of course we all know there are honest politicians, but how can we increase the number to at least the majority. I say just take the profits out of politics. If you

The Resemblance Is Obvious!

The Kimball 6'7" Grand



The Bösendorfer 6'7" Grand



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think there are none, you really don't know much about how they operate. They have fantastic benefits, generous retirement programs, liberal vacation schedules, huge salaries, fabulous opportunities for self improvement and re-election. Take away their kick-backs, pay-offs, cozy arrangements with special interest groups, hidden gifts, nepotism, cushy work environments and travel allowances, and very few would let themselves in for the punishment that comes with the job. Kick all the lawyers out of politics, of course, and the entire system would improve immediately. Get rid of all politicians' relatives on the public payrolls and our budget size would drop dramatically.

ON CUTTING GOVERNMENTAL SPENDING

Besides putting the above into effect we could somehow put the brakes on an expanding bureaucracy, brother-in-law deals, extreme waste by greedy department heads trying to use up their budgetary allowances, vast and overly generous benefit programs to public employees, especially ex-military, double-dipping, stupid foreign aid to tyrants and dictators; hold the costs of public projects in line by severe penalties on contractors; keep labor in line, and eliminate strikes by public employees, especially firemen, cops and teachers. We could build the national budget around NEEDS instead of SPECIAL INTEREST GROUPS with the most clout, and finally, we could hold the politicians and bureaucrats responsible for costs of the programs they control and come up with the losses out of their own pockets.

YOU SAY OUR KIDS CAN'T READ AND WRITE.

Your wright, they kant. So what do we do? Well, for one thing, we can give the power back to the teachers so they can control the little animals that get out of line. We can make them get good grades instead of apologizing to them for lousy grades and substitute work once again for recess and sand-box. We can hold back the commonly accepted privileges of adulthood (such as driving) until they fulfill their obligation to getting an education. We can get rid of the sloppy sentimentalists who believe in mediocrity and get tough-minded pedagogues who believe in preparing the little darlings for something besides "fun and games" in life. While we are at it, we could put businessmen in charge of the school administration and leave the teachers in the classrooms where they belong. We can even go so far as to tear the control of the social aspects of schools out of the hands of the kids who now run it and like it so much and put it back into proper perspective — AFTER THE LEARNING IS DONE.

MY FINAL SOLUTION TO A MAJOR SOCIAL DILEMMA DEALS WITH WASTE

Waste is definitely getting out of control. All we have to do is put all the garbage collectors out of business and outlaw "garbology" entirely. Instead, have them put compartments in their trucks, put them on the public dole, get everybody to separate their cans, bottles, paper, foodstuffs and other items into pre-delivered bags — deliver them to re-cycling centers, process the stuff and pay the collectors out of the profits and put the rest of the money into social programs to aid the helpless, handicapped, sick and poor instead of subsidizing the tobacco and automotive industries.

Now I could deal with a host of other monumental problems, but you could go to any friendly neighborhood bar or ride in the back seat of a taxicab and hear the same stuff. I just wanted you and my wife to know I was thinking about them and not remiss in my duties. □

PRESIDENT'S MESSAGE

Bob Russell, President

I would like to take this opportunity to express my thoughts and reflections on the Piano Technicians Guild.

Before joining the Guild I was a music teacher and owner of a music studio. I belonged to music organizations and did my thing. It took me awhile to find an opportunity to learn piano technology and when I did I found this profession very exciting and quite a challenge.

I joined the Guild immediately. I was so pleased to find an organization where everyone was willing to share their knowledge. What a great feeling to belong to the Guild, to be one of the members and really count! The Cleveland chapter really helped me. If I had a question I only had to ask. If a problem appeared, someone was always willing to help solve it. I will never be able to repay them for their help. I had never found this sort of brotherly comraderie before, and I belonged to many organizations.

Time passed and I wanted to share more in the organization and work towards strengthening the Guild. I found committees to support and soon became a chapter officer. Invitations to teach at seminars began to be extended and I could at last share with others the knowledge that I had obtained. I really enjoy teaching and experiencing the joy of watching technicians gain knowledge, share ideas and exchange thoughts together.

It is such a good feeling to attend seminars, conferences, and conventions and see members and would-be members eager to expand their knowledge; eager to become a part of our Guild and to help strengthen the Guild with their membership. I always look forward to the warm, wonderful group of people that will be there and the unselfish sharing that will occur.

I do everything I can to give back to the Guild the support they gave to me when I needed it.

After some years I decided I would like to become a board member and really help with membership and promote and expand the horizons of the Guild. I became a Regional Vice President, then Vice President, and now President.

It is very reassuring to have a group of technicians willing and able to help ... just ask. What better membership benefit could we receive? I know I will always support and have a warm place in my heart for the Piano Technicians Guild. A great group of people. □

THE TECHNICAL FORUM

Jack Krefting, Technical Editor

My job as technical editor is a very rewarding one, especially when someone writes to say that the information presented in these pages has done some good for a person in his quest for knowledge. Having said that, I also want to share with you some of the other aspects of this job. Some of the letters and phone calls I get are quite unbelievable; probably because of the illustrious record of my predecessors, it is apparently widely assumed that I am prepared to answer any question at the drop of a hat. Omniscience seems to be automatically conferred upon, and expected of, anyone who holds this title. Let me give you some brief examples of what I am talking about.

A lady from Washington wrote to say that she had a box of old sheet music which ought to be worth a lot of money since the copyright dates were printed in Roman numerals. Her tuner had gone along with the gag, suggesting that she write to me for a firm quote. I had the unhappy chore of informing her that MCMLXIV was no better or worse than just plain 1964, and that music publishers sometimes print Roman numerals so the music won't appear to be as old as it is, especially in the case of a hit song.

Then there was the real estate agent from California who wanted to know how much her old upright was worth. It sounded like about a $200 instrument from her description, but when I told her that she was insulted. Her technician had encouraged her to buy it for $1000 and then appraised it at $3750, I found out later. I knew the cost of living was high out there, but not that high.

One correspondent wanted to know whether Czechoslovakian player rolls were readily available in New Jersey, and another asked whether the Army offered a training course in piano technology. He explained that although he felt it his patriotic duty to fight for his country, it would be safer for him if he were a noncombatant.

I also get letters from people who pretend to be technicians, like the man who wrote, "I have rebuilt many pianos, but I would like some information on how to restore the strikers." Another man wrote, "... In all my years of piano work I have never run across one as bad as this, where the keys play but the music doesn't. What is the best way to trouble-shoot an old piano?".

Occasionally I get an indignant letter from a technician, demanding some obscure bit of information, like the key height of a 1906 Julius Bauer or the precise chemical formula for a particular brand of flange lube. "I wrote once before and didn't get an answer," began one icy letter, "In the unlikely event that you did not receive my first letter, I will repeat my request for the current address and telephone number of the ABC Chemical Company. A self-addressed, stamped postcard is enclosed for your convenience."

The vast majority of correspondents, though, realize that I don't have six secretaries, a scientific laboratory and an unlimited budget. "I know you must be busier than a one-armed paperhanger with fleas," wrote one man, "But I'd really appreciate it if you could answer this question ..." I put his letter on top of the pile.

This month I have elected to talk a little about the characteristics and structure of wood, inasmuch as it is the primary component of the piano. Further discussion and greater detail will follow in the coming issues, as interest warrants.

WOOD STRUCTURE

Regardless of species, wood is comprised of three basic constituents; cellulose, lignin and extractives. *Cellulose* is a carbohydrate that is the principal constituent of wood and forms the wood cells. *Lignin*, the second most plentiful constituent, is an irregular polymer of substituted propylphenol groups. It acts as the "cement" that holds wood cells together. *Extractives* are substances in wood that are chemically removable without affecting the principal components of wood. Also present is *hemicellulose*, which yields several simple sugars when decomposed in an acid solution.

The principal difference between species of wood is the number and kind of cells. Some species have more cells crowded more tightly together, providing greater density; others, chiefly softwoods, contain a large proportion of elongated cells called *tracheids* which we refer to as

wood fibers. **Figure 1** illustrates the important components.

Fibrils are threadlike components of cell wails, visible only under a microscope. *Parenchyma* are short wood cells which store and metabolize plant food materials. These cells remain alive longer than fibers, tracheids and vessel segments, sometimes for many years.

The *lamella* is a thin layer in the cell structure, and the lumen is the cavity in the middle of the woodcell. *Vessel segments*, shown in **Figure 2,** are wood cells of larger diameter that are cylindrical and grow one above the other to form continuous tubes. The openings on the surface of a piece of wood which we know as pores are actually vessels. Similar cells, running radially in the tree as shown in **Figure** 3, are known as *rays.* The rays carry nourishment inward, and may vary in height from the width of a single vessel to three or four inches in an oak tree. These rays, so noticeable in oak lumber orveneer, are invisible to the naked eye in most species.

When we look at a tree we see the outer bark, which is composed of dead bark cells. Their function is to protect the tree, and they are just outside of the live cells of the inner bark, which will eventually become outer bark. Just inside the inner bark is a very thin vital area known as the *cambium layer* **(see Figure** 4). It is through the cambium layer that the tree is nourished and sustained, which is why you can kill a tree by simply cutting a complete circle through the bark and cambium layer. The cambium layer continually produces wood cells and bark cells so the tree may continue to grow in diameter even though the wood in the center does not expand.

Inside the cambium layer is the *sapwood*, which contains some living cells and some inactive cells. Further inward, sometimes darkened by the extractives which resist disease and insects, is the *heartwood.* All cells in the heartwood are inactive but highly resistant to rotting. At the very center of the tree is the wood which represents the stem of the young sapling, known as *juvenile*

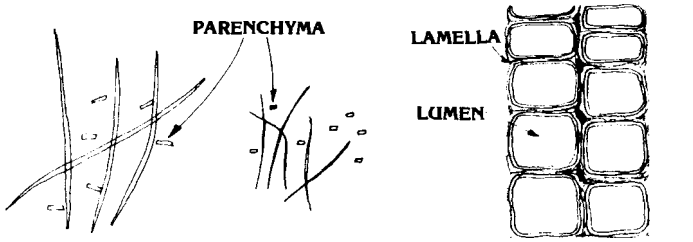


FIGURE 1

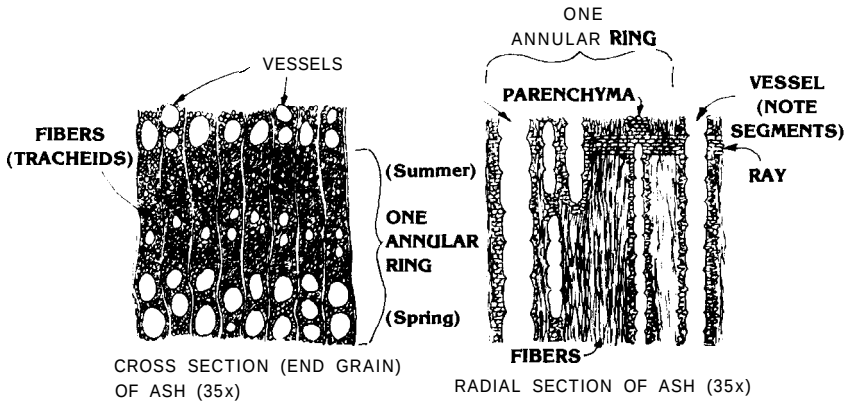


FIGURE 2

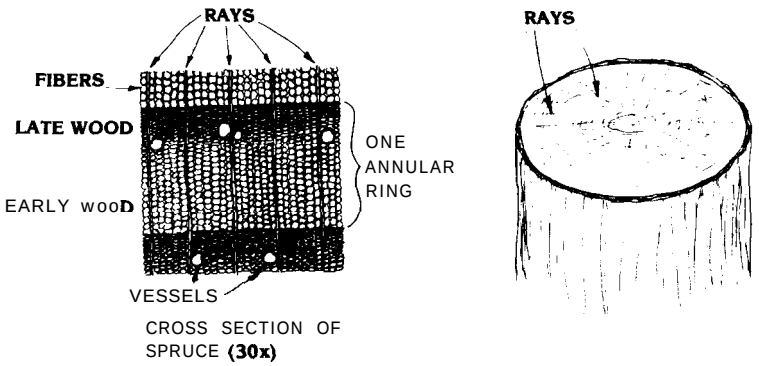


FIGURE 3

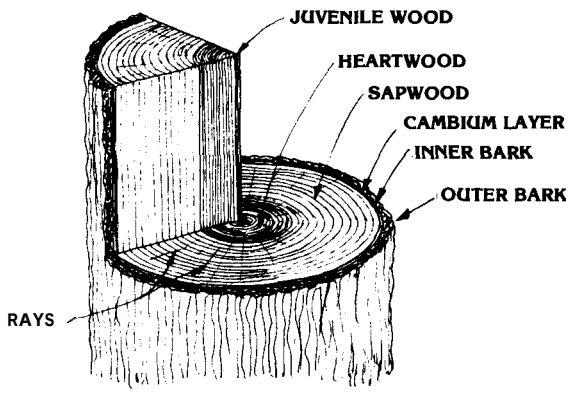


FIGURE4

wood. This is the only wood in the entire tree which will expand and contract along its length after being cut into boards. For this reason, aboardcutfromtheverycenterof a tree would not be desirable from the standpoint of dimensional stability.

Whether living or inactive, wood cells continue to respond to environmental conditions by absorbing or releasing moisture from the walls of the cells. This is known as imbibed *wafer,* and is a factor that must be taken into account when working with wood. Even after seasoning and kiln-drying, the wood will continue to expand and contract in predictable ways when the moisture content of the air is altered. Thefibrils and the lamella of each cell act like tiny blotters, and no wood finish yet devised is able to seal moisture in or out. The wood grows and shrinks with moisture changes, whether finished or not, and it would be nice if all piano salesmen were aware of that fact.

When a tree is green, the lumens are completely filled with water. This is known **as** *free water,* which evaporates away during the air-drying of the cut lumber, at least down to about 30% moisture content. In order to be usable for building pianos, the wood must be further dried by kilns to a moisture content of about 5 or 6%, or even less in the case of a soundboard. It is not possible to dry wood below about 3% without destroying it, so most manufacturers will try for about 4½% in the soundboard and 6% in the rest of the piano.

As previously stated, except for the juvenile wood there is virtually no expansion or contraction along the length of a board. There is considerable dimensional instability across the grain, shown in **Figure** *5* as *radial expansion,* and even more instability around the grain, which is known as *tangential expansion.* These facts are known and used to advantage by every good woodworker. For instance, look at the construction of a dresser drawer. It must be made so that it will not bind shut during humid weather, which is why the bottom of a well-made drawer is cut with the grain running from

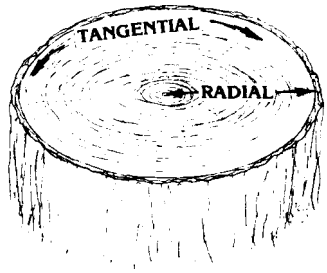


FIGURE 5

side to side. When the weather gets moist, thedrawerwill become longer and slightly taller, but never wider.

Strength is another factor to considerwhen deciding which way the grain should run for a given part. The soft spring growth of a tree, seen as white or light tan rings in the end of a cut log, has desirable characteristics but little strength. The thin darker rings of the summer growth are much harder and, depending on the way the board is cut, can provide either maximum strength or maximum bending resilience. **Figure** 6 illustrates that two boards cut from the same tree will have radically different strength and bending characteristics if one is flatsawn and the other quartersawn.

When wood is to be nailed or pinned, the woodworker must realize which **way** the grain should be oriented for resistance to splitting. Many people are surprised to find that the wood will split far more easily across the annual rings than along them **(see Figure** 7) until reminded of the many unprotected fence poles they have seen which alwayswill split radially as shown in **Figure 8.** One of the direct applications of this characteristic to pianos is that a pinblock with a few thick laminations must be laid up so the laminations are quartersawn.

Sound transmission is another important factor to consider in grain orientation, especially in the soundboard, bridges and ribs. Sound travels very quickly along the length and girth of the hard summer growth rings, but much more slowly in a radial direction (from one ring to another). Apparently the relatively soft spring growth between the hard rings acts as an insulator of sorts; the sound gets through, but not so readily.

From the above arguments it begins to sound as though quartersawn wood is by far the best to use in all pianomaking applications; not so, however. Multi-laminate grand rims must useflatsawn wood in order that it may be bent easily into place without breaking, and also for dimensional stability. Since we know that the primary expansion of wood will be tangential, a rim made of flatsawn wood laid on edge will expand and contract primarily up and down, not in and out. It's a lot better to allow a grand piano to get a bit taller during the wet season than to have it grow in length **(see Figure 9**).

Keys are flatsawn also, and for good reason. We can tolerate a certain amount of side-to-side expansion, even though this sometimes causes sticking kevs. This is considered the lesser of two evils, the second of which would be to quartersaw the keys and allow them to get thicker and thinner, changing the key height, key level and hammerline.

Next month we will talk about some of the properties of certain species, especially those commonly used in pianomaking.

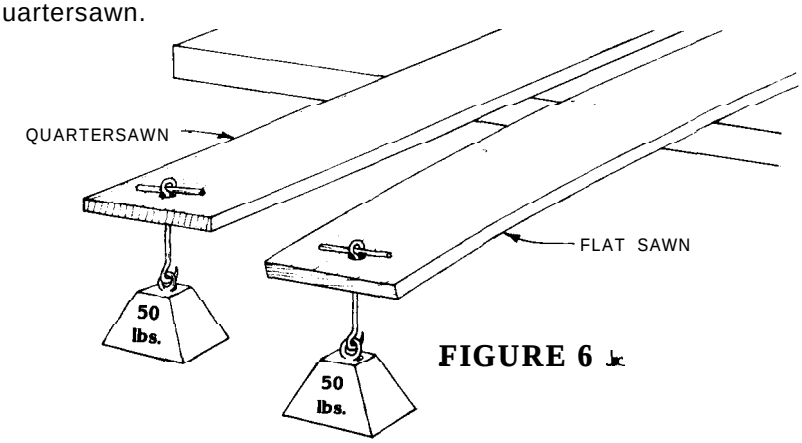


FIGURE 6

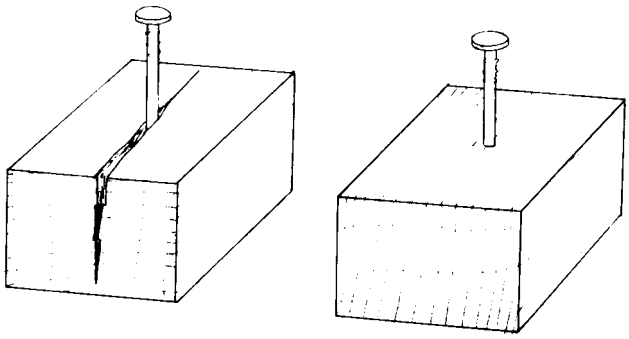


FIGURE 7

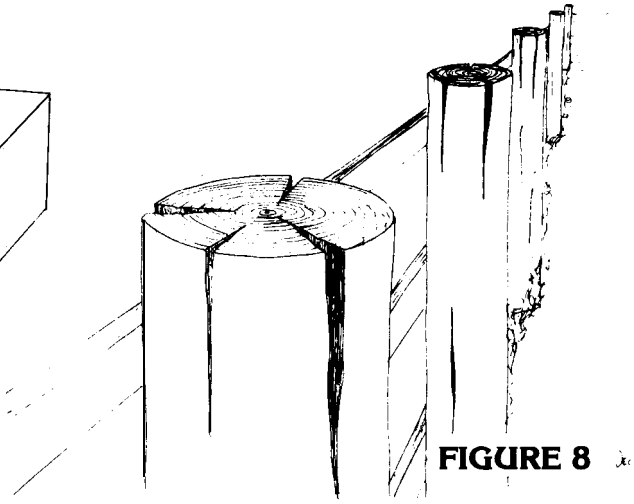


FIGURE 8

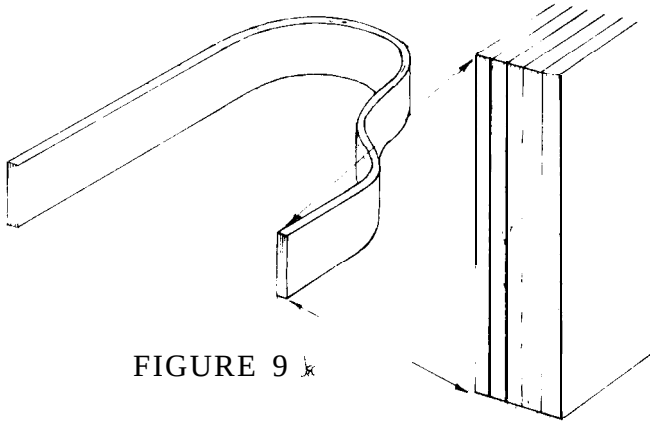


FIGURE 9

OBLONG TUNING TIPS

QUESTION: *"I'd like to know where I can obtain, or have made, an oblong tip for the o/d foreign and square pianos. The adaptable tips that can be gotten from the five leading supply companies are too large. It is horrible to tune with a tip that doesn't fit snugly on the tuning pins. I can have one made, but maybe some readers can suggest how to make one.*

"Also I would like to know if some readers or suppliers know of a better, more lasting pinblock restorer. I think I have used all the available ones already, sold by 6 or 7 companies." — **Carl Heidemann, San Antonio, Texas**

ANSWER: I believe the reason that the standard adapter is often sloppy on the pin is that oblong pins were not made uniformly to a given dimension. In order to accommodate the various sizes, the standard adapter is made large enough to take the largest oblong pins, which naturally makes it sloppy on smaller pins. There is a problem with the taper also, which varies considerably from one piano to the next, and the width of the long dimension across the top of the pin is subject to even greater variance.

One option for the technician who does more than an occasional tuning on a piano with oblong pins would be to buy several tips and modify them to fit various types of pins. There are a number of technicians in our readership with metalworking backgrounds who might want to suggest ways of doing this, and since Mr. Heidemann has specifically requested that the question be left open for reader response, we will do just that.

REPINNING

QUESTION: *"A piano has been repinned and the pins are so much off center that they touch the plate and do not hold well. What now?"* — **Calman Rothstein, Brooklyn, New York**

ANSWER: The piano needs a new pinblock, period. The fact that the pins are standing up straight and touching the plate is a sure indication that the existing block is beyond salvage. It may have been doped or it may be delaminating; at best the holes are obviously no longer round, and the wood has deteriorated to the point where oversize pins will not do the job.

Every piano technician is not equipped to do such work, nor should he feel that all aspects of rebuilding must necessarily fall within the scope of his practice. Some of the finest technicians I know are incapable of replacing a block, and freely admit to that fact. They specialize in home service calls, or fine tuning and regulation, or general piano service. An interesting parallel can be drawn with respect to the medical field.

Doctors cannot be expert in all aspects of medicine, and a general practitioner would not feel humiliated if he had to recommend

a specialist to perform a particular surgical procedure. On the contrary, the patient would expect and appreciate a referral; he only expects his doctor to be able to recognize when specialized assistance is needed, and to frankly say so. The field technician should be able to handle tuning and regulation, plus routine repairs. Beyond that, he can serve his clientele best by having the names of qualified rebuilders available to handle whatever repairs he does not ordinarily perform.

EPOXY BRIDGE REPAIR

In our April 1980 issue **Yvonne Ashmore** of Grass Valley, California, wrote to describe her trials with a particular birdcage piano, and I suggested in print that the next time she does something like that she should take some good photos for publication. She wrote back to say that she isn't an accomplished photographer, and that maybe a class on taking technical photosshould beoffered at a convention or seminar. In passing, she also described a procedure for repairing bridges which have numerous tiny cracks in the capping. This, I feel, is too good not to share with our readers, so here's Yvonne:

"Everyone is probably familiar with the method of using epoxy to repair bridge splits and a lot of people are probably familiar with the technique of heating the stagger pins with a soldering iron to draw the epoxy down into the wood. I have used this latter technique for the fine hairline cracks or checks which appear next to the pin. If the split is big enough to accept my finger nail or if the wood is actuallychunked up I pull the pin, put in epoxy, then replace the pin.

"The piano I have out in the shop now has a little check by just about every bridge pin. These splits aren't big enough to cause the pins to pull out easily but they are there and I couldn't ignore them so I was tediously heating each pin with the soldering gun while putting a drop of epoxy by it. Since this is a boring job I started figuring out how many there were to be done and I came up with the thought that if there are about 230 strings in a piano it follows that there would be about 460 stagger pins. GOOD GRIEF! So out of desperation I switched from the soldering iron to a clothes iron and I love it! This is the schedule I came up with.

- -brush all the foreign matter (why doesn't anybody just say dirt?) off the bridge tops
- -set the iron on a medium high heat (actually mine said wool, but that would probably interpret differently on different models). Too high a heat makes epoxy set too soon.
- -place the iron on a group of stagger pins (mine covered the 24 pins in a set of 4 unisons quite nicely)
- -in the meantime rip up some small strips of cloth about ⅜" by 6" to use for cleaning off excess epoxy and some small squares of cloth about 3" by 3" to use for the same purpose.
- -mix a ***small*** batch of epoxy (about a tablespoonful). You want the stuff to stay runny so it's better to mix several small batches as you go along than one large batch that will be fine at first but will start to get stiff before you are through. On this particular piano I did all of the pins with three small batches.
- -move the iron down to the next group of pins to be done. I leap frogged across the bridge, skipping a couple of groups and then going back to them next time around. That way the iron doesn't get in the way of your cleaning operations when picking up the excess epoxy.
- -using a small pointed stick, put a tiny drop of epoxy onto the bridge by each pin. I used bamboo skewers (the type that is used for shish kabob or hors d'oeuvres). These have a point about the size of a toothpick but they are longer and therefore easier to hang onto. I place each drop on the upper side of the pin, that is the graphited side as opposed to the notched or beveled side because as the epoxy heats up it gets runnier and will run down to the notches anyway.
- -after you have put a drop of epoxy by each pin in a group put the iron back on them
- -now go down to the group that the iron has been preheating and drop the epoxy there
- -by the time you finish this you can put the iron on this new group and go back to the first group to start the clean up
- -if you time this right the excess epoxy will still be runny enough to clean up easily
- -my method was to first use a square of cloth to clean up the space on top between the front and back sets of pins
- -the final cleaning I did with the strips. I would 'shoeshine' them between the pins along the same line that the string will later follow. This prevented any sort of a build up of epoxy around the pin which might prevent the string from making good contact with the bridge.
- —I made sure to have lots of strips so that I was always using a fresh one. Otherwise you end up smearing the epoxy you have just cleaned up back over the bridge

"This method took longer to write down than it took to do. I had all 430 stagger pins on this piano done in less than an hour. When using this 'heat the pin method' before I've been skeptical about the capillary action of the epoxy being drawn down into the wood but this time I feel that there was a good penetration because I could see the dark epoxy filling up hairline splits that had not been visible to the naked eye.

"At any rate I feel that I have done my duty towards the stagger pins on this piano and it didn't take nearly as long as it might have. The epoxy I used is a 4 to 1 epoxy resin mix put out by Tap plastics. I've just now received Ray McCall's list of epoxies and next time I think that I will try one of the Thermoset types.

"The clothes iron is one of my most valuable shop tools. Before discovering this new use for it I

used it for removing old felt from action parts such as damper spoon felt and damper head felt on uprights. First I pull off the bulk of the felt, then use a small art brush to wet the remainder, heat with the iron, and finally clean the rest off with a knife." — **Yvonne M. Ashmore**

MUTING TECHNIQUE

This interesting bit of information was submitted by **Jason M. Kanter** of Dallas, Texas:

"... when I was apprentice to Sheldon Smith he taught me a way to tune unisons using the felt strip which I have never seen anyone else do; just on the chance that it is a little-known method, I want to pass it along because it is very useful not only as an efficient way of tuning unisons but also because it is aesthetically pleasing. After the center string of each trichord is tuned, pull out the felt strip and replace it, pushing it into *every other* gap instead of every gap. This is what most tuners do for bass double unisons, but Sheldon does it in the treble trichord unisons. Then you tune the left-hand string of one note, the right-hand string of the next, and so on. In most pianos this means following a pleasing pattern of tuning pins: top pin, bottom pin, top pin, bottom pin. When done with that series, pull the felt strip and replace it in the alternate gaps. Now you tune the right-hand string of the first unison, the left-hand string of the next and so on. Maybe a lot of tuners use this system; but we don't talk much about muting techniques so I don't know. One advantage of it is, if there is any substantial pitch-change going on, this method stresses the soundboard more evenly than just using a rubber wedge and tuning all unisons one after the next from low tenor to #88, which I have seen some tuners do."

TECHNICAL TIPS

George Peters of Saginaw, Michigan, tells us that he has a universal tool that is of great assistance in tuning, regulating, rebuilding, and even in conducting chapter business. This amazing tool is called a Tuitt, says George, and comes in various shapes including trapezoidal, round, square and triangular. The most useful is the round one — all we need to do is to get a round tuitt.

On a more serious note, Peters cautions us against the practice of placing tuning forks against a part of the piano such as the keyslip, bridge or stretcher. Apparently such contact can cause a drop in pitch of as much as two cents, so the best method is to hold the tines of the fork near the ear. This give the longest possible ring time and will not draw the fork down in pitch.

TIP OF THE MONTH

This month's top tip was suggested by **Bob Erlandson** of Omaha, Nebraska, and involves vertical hammer spacing. Shanks can be burned over if desired, and sometimes the butt flanges can be spaced a bit by loosening the screw and wedging the flange to one side; but if the shank of the screw is already touching that side of the hole in the flange, the hammer will move right back to where it was when the screw is retightened. Erlandson has a neat solution for that, as shown in **Figure 10**.

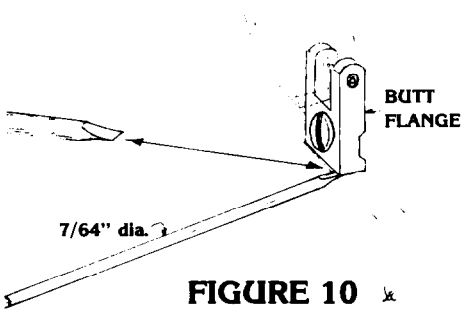


FIGURE 10

A thin dowel, about half the diameter of a hammershank, is cut to a chisel point with a knife. When the butt flange screw is loosened, the flange is pushed over to the side and the point of the dowel is inserted under the corner of the flange. The screw is then tightened, capturing a bit of wood from the end of the dowel between the flange and the rail. The dowel is lifted enough to break off the tip, which is left in place; the rest of the dowel is returned to the toolkit or resharpened for the next spacing job.

GADGET OF THE MONTH

Grand hammer tails must be roughened for good checking, and some technicians prefer to score the tails with a series of parallel grooves. Now there is a tool available which will cut these grooves quickly and effortlessly. Called a checkering file, its distinction lies in the fact that all of its teeth (over 3800) are arranged in parallel ranks and files like a marching band.

This tool is illustrated in **Figure 11**, with a closeup inset to show the detail of the tooth pattern. It measures 29/32" wide, is 10½" long including the tang, and is made in Switzerland. It is available for $15 from Ford.

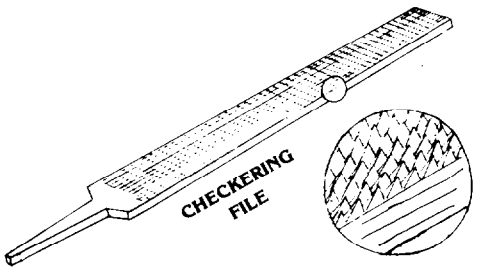


FIGURE 11

READER FEEDBACK

In our January 1980 issue the subject of rib strength came up, and I made some statements in reference to rib scaling. **Hugh J. Manhart** of Omaha, Nebraska, took exception to this in the April 1980 issue, and after reading my answer in that issue he wishes to press his point a bit further:

"... I still must believe that terminating soundboard ribs into the rim of a piano is a definite fault, or poor theory, in piano technology. The fact that some manufacturers do this in no way makes it right, or clearly the best way. It only says that there exists a practical reason, namely a practical way of maintaining the soundboard crown under the downpressure of the strings.

"I used the example of the acoustic guitar because of the similarity between its top and that

of the piano soundboard. The differences are quite obvious, but the question initially asked why are ribs there and feathered. My answer is sound and to the point. The question of deadness of sound is rather academic no matter how ribs are situated. Side by side, the 'very dead-sounding piano *will* have its ribs stuck into the rim, whereas a properly designed soundboard *will* not, and the difference will be noticeable. This is simply one of those gray areas of piano engineering." — **Hugh J. Manhart**

Gray area or not, I still stand on my January statements. I have heard too many excellent pianos built with varying rib lengths, some notched and some not, to be able to make a statement that one design is good and the other bad. The ratio of strength to flexibility is still a basic one; whether the maker achieves this balance with a stiffer board and short ribs, or whether he thins the board and uses notched ribs, makes little difference to me so long as the combination selected matches the scale of the instrument.

It would appear at this point that Hugh and I cannot totally agree on this topic, except that we will agree to disagree, which is probably a healthy indication of progress in our profession. As technicians, we learn more when our views are challenged than when they are meekly accepted, if only because the challenge forces us to thinkagain about our statements. ❑

Reader Feedback

Dear Mr. Santy,

In a recent article, you said: "Laughter is good for you . . . Laughter is good for progress and everybody's state of mind.. . Don't take yourself too seriously. Have fun in everything you do.. ."

Well, I enjoy my piano tuning career so much for those reasons exactly. I recently decided to start putting some of the things that happen to me that I think are humorous down on paper. I have always enjoyed reading the comics, but this is my first attempt at creating my own. I don't think anybody would laugh at them except a piano tradesman.

For example, I was tuning a piano in a church cultural hall the other day. As I was finishing, they started coming in to set up for a play. A little kid came up and said: "what are you doing to the piano? Is it broken?" A lady says: "I didn't know that the lid opened!" A girl says "Do you have to turn all of those"? A man in thecornershouts "You're one decibel off!" Somebody asks "Do you do that by eat?" A woman comes up with a serious expression on her face asking for a price to repair a stuck key on her piano . Someone wants to know how much they should pay for a used piano — to see if the one they bought last month was a good deal!

The problem with humor in our business, is that most all the things that sound funny to *us, we cannot* augh about *with* the customer. They are very private, unless we can find a way to share these common experiences with one another.

Like the family who wanted a 'good deal", a piano they could work over at home so the kids could get an appreciation for what they had. So they paid $50 at a awn sale, got 10 "gorillas" to lift it onto a pickup truck, So it was so heavy and stable that "why tie it down?" So it bounces down the irst hill as it slides out of the truck . . so they want an estimate on repairs — mostly self help — so they can split costs with the truck driver — who was just trying to help — and doesn't have any insurance . . . so I never hear from them again . . .

What your magazine needs is a good comic series dedicated to the humor in our trade. Please let me know if you are interested.

By the way, keep up the good work with the magazine. I don't know what I would do without it.

Sincerely,

Roy E. Howard
Piano Tuner/Technician

Auctioning Rare Pianos

By Lita Solis-Cohen
Reprinted with permission from the Philadelphia Enquirer

Old pianos and other antique keyboard instruments are a little like elephants. You don't have to have very many to have a large collection.

Indeed, a collection of half a dozen pianos or harpsichords is considered a large one. Considering that early pianos and harpsichords measure about eight feet long, it takes a fire station to display a representative group.

Nevertheless there is a small group of dedicated collectors who anxiously await the infrequent sales of clavichords, virginals, harpsichords, spinets and fortepianos at Sotheby's and Christie's in New York and London.

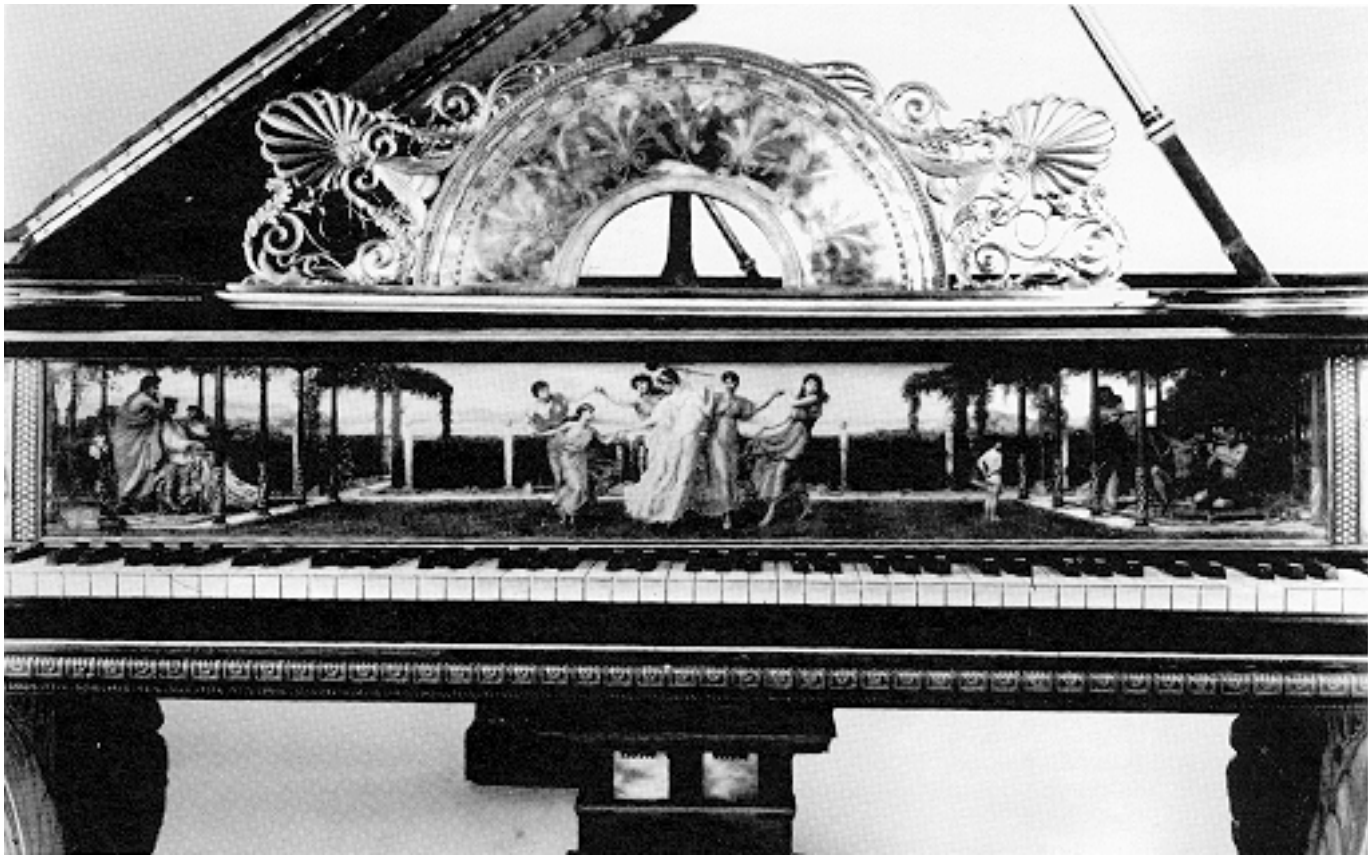
The sale at Sotheby's in London last month caused great excitement because an unprecedented number of instruments, 25 in all, were offered and among them was the earliest upright piano made in England, the earliest English square piano made by John Zumpe in 1766 and a rare Adam-style pianoforte by William Southwell in a case in the form of a semi-elliptical side table. (For some reason, pianos made to look like some other piece of furniture are particularly sought after. The whole idea of trying to hide a piano seems to appeal to collectors.)

The upright made in London in 1804 by John Isaac Hawkins is the first upright made in England but the second ever constructed. Hawkins made the first one in Philadelphia in 1801 and it is now at the Smithsonian in Washington. Hawkins called his pianoforte a "portable grande" and his was a great improvement over previous attempts to produce an upright piano by turning a grand on its end — resulting in pianos which measured nine to ten feet high and looked like they would topple over. The novelty of Hawkins' invention was in running the strings to the floor, thereby considerably reducing the height while maintaining a reasonable string length.

Hawkins' mahogany case decorated with brass mounts made it an attractive piece of furniture, and it was bought by a dealer for $16,650. The same buyer paid $41,000 for the Irish piano made in the form of a demilune side table. Its hinged top is inlaid with satinwood and yew wood to form half a fluted oval. He also bought for $7,750 a German lyraflugel, a lyre-shaped instrument nearly seven feet tall on striding animal feet.

Other pianos in the sale brought less, because they were less decorative, even though some were important in the history of music. The early square piano by Zumpe, the most important of the early English school of piano makers, was a plain rectangular box and

The Alma Tadema piano stood in the lobby of the Martin Beck Theater in New York City for the last 50 years, but when sold at a recent auction brought a record amount for a musical instrument and a record for a 19th century decorative work of art sold in the United States.



Shown above is a close-up of the panel immediately above the keyboard of the "Alma Tadema Piano." The piano was recently sold in New York for $390,000, considerably more than the previous record for a piano, $114,000, and more than any other musical instrument has ever brought at auction, beating the record $297,000 paid a year ago for a Stradivarius violin. The piano's decoration was done in 1887 at a cost of $40,000. Auctioneers were Sotheby, Parke-Bernet, 1014 Madison Ave., New York, NY 10021.

needed an immense amount of restoration. According to Graham Wells, Sotheby's musical instrument specialist, among other problems it has a big hole in its sound board. That explains why it sold for a relatively measly $7,200. It is important musically because it is inharmonic; that is, it has two black notes between each key. For example, the A sharp and B flat — the same key on a modern piano — could be tuned to slightly different pitches.

The Zumpe was part of a group of instruments consigned by John Broadwood and Sons, the celebrated London makers of 18th- and 19th-century pianos. Unfortunately, most of them were in neglected condition. An exception was a small conductor's piano made by Broadwood in 1815 that had big brass handles on its sides. It was formerly the property of the noted 19th century conductor Sir George Smart, who used to carry it in his coach with him. It sold to a musicologist for $2,800.

None of the prices in London, however, approached the record $390,000 paid at a PB84 Victorian furniture sale in New York in March for the Alma Tadema piano. That price, paid by an investment banker who said he was fed up with the stock market, did more than topple the previous record for a piano, $114,000, paid at Christie's in London a year ago for a lavishly carved and gilded Bosendorfer semi-grand ordered by the Empress Eugenia of France.

It also was more than any other musical instrument had ever brought at an auction, beating the record $297,000 paid in London a year ago for the Hubermann (formerly the Kresiler) Stradivarius violin, the instrument Fritz Kreisler used for his most famous recordings. (Mischa Elman's Stradivarius was sold at Christie's last Saturday for $220,000.)

Indeed, in the past the best violins had been worth more than the best pianos. But the Alma Tadema piano was in many ways a special case. It was named for the English painter who supervised the opulent decoration of its Steinway body. Edward Poynter, then president of the Royal Academy, put a small version of his famous painting, "The Wandering Minstrels," over the keyboard and under the pewter, brass and copper music stand in the form of pierced anythymia. The ebony and sandlewood case is encrusted with cedar, boxwood, brass, ivory, coral and mother-of-pearl inlay. The lid is inscribed with the names of Apollo and the Muses.

It was made for Henry Gurdon Marquand, the second president of the Metropolitan Museum of Art, who had it shipped to London in 1887 for decoration that cost $40,000.

When the piano was auctioned off in 1903 in Marquand's estate sale it brought the not-so-paltry sum of $8,000. The buyer, William Barbour, a New York financier, paid another $1,050 for the two piano stools.

However, the piano had fallen on relatively hard times of late. It had spent the last few decades in the foyer of the Martin Beck Theatre in Manhattan surrounded by people sipping Orange Crush.

Even though the new owner was bragging after the sale that he expected he could resell the Alma Tadema within a year for $1 million or more, collectors of early pianos have tended in the past to look on the Victorian instruments with some disdain. "All costume and not much instrument," says Charles Wilson, a collector from Harrisburg, Penn., of the Alma Tadema. His criticism, though, is extended by many collectors to Victorian pianos generally.

Personally, Wilson says, he would rather have another Joseph Kirkma double keyboard harpsichord like the one that came up at Sotheby's in May that might bring as much as $60,000.

Collectors Ike Wilson believe music should be played on instruments of the period it was written. "Modern pianos sound like clogged thunder in the bass. Early pianos have a clearer tone and blend better with stringed instruments," he contends.

Those with the keenest ears do tend to agree that a 60-year-old Steinway sounds better than a new one. The era between the wars is the most respected period for Steinways and it is rare to see one of these go at a public auction for less than $3,000 if it is in good condition. The initial cost, of course, may be only part of the expense; restoration can be costly.

"The way to find a bargain is to find a piano with lots of cracks in the sound board," says Wilson. "Cracks scare away the competition but don't affect the tone. If it sounds good, it is good."

Collectors have a wide choice of keyboard instruments. English spinets, Italian harpsichords and virginals fall into the $4,000 to $10,000 range. Early square pianos (actually they are rectangular) cost from $500 to $5,000 depending on condition. Squares made after 1820 are hard to sell because they're even bigger and uglier than those made earlier. Often people make desks out of them.

A side view of the Alma Tadema piano is shown above prior to its recent sale at an auction in New York City. The piano's lid is inscribed with the names of Apollo and the Muses.

Old upright pumper player pianos can still be bought for around $2,000 complete with rolls, but Nickelodeons start at $5,000 and a Steinway Duo Art Reproducer in a elaborately carved case would cost $15,000 or more, according to both John Ford, of Ford Pianos, 31 W. 33rd St. in New York, and William Kromer, who restores player pianos in Wayne, Penn.

Coming Events

Notices of seminars will be accepted for insertion in THE JOURNAL no sooner than six months before an event. In addition to the listing below, your seminar may be publicized through one free display ad, two columns by two inches deep. It is the responsibility of the advertiser to submit copy for the ad to the Home Office. Material must be received six weeks prior to the publication date of THE JOURNAL.

Note: All seminar dates must be approved by the Conference Seminar Committee. Please submit the appropriate information on the Request for Seminar Approval Form **which may be obtained from the Home Office.**

September 19-21, 1980
WISCONSIN DAYS SEMINAR
Milwaukee, Wisconsin
Contact: Jonathan Moberg
2420 N. Bremen Street
Milwaukee, WI 53212

October 5-7, 1980
FLORIDA STATE CONVENTION
Jacksonville, Florida
Contact: Barney J. Johns
3546 Oleander St.
Jacksonville, FL 32205

October 11-12, 1980
OHIO STATE CONFERENCE
Cincinnati, Ohio
Contact: Willard Sims
c/o Baldwin Piano & Organ
1801 Gilbert Avenue
Cincinnati, OH 45202

Oct. 16-19, 1980
New York State Convention
of Piano Technicians Guild
Contact: William Moonan
811 Amherst Drive
Rome, NY 13440

October 17-18, 1980
TEXAS STATE SEMINAR
Dallas, Texas
Contact: Martin Wisenbaker
808 Cordell
Houston, TX 77009

Nov. 7-9, 1980
CENTRAL WEST
REGIONAL CONVENTION
Wichita, KS
Wichita Chapter

After Touch

David W. Pitsch

50 POINT GUIDE TO GRAND REGULATION

In the May article we discussed a 50-point checklist to be used in regulating grands. Last month we printed a grand regulation chart which shows how each of the nine action regulation steps directly affect the others. Now in combining these two concepts we will go through each of the 50 points in the checklist and explain in detail how to perform each step.

I. KEYS & KEYFRAME

1) TIGHTEN ALL SCREWS, REMOVE ACTION AND KEYS

Before anything else is done to the piano, all of the screws should be tightened. This includes the plate screws, case parts, action parts, lyre and damper assembly parts. This is to insure that everything that should be snug and tight is, eliminating any noises or excess wear which could crop up from loose fittings. It also insures that all of the moving parts are in correct relationship to each other. When tightening down the plate bolts, use a large screwdriver which has had the tip ground to fit the plate screw heads. The whole blade should fit the screw head, not just the corners of the blade. I use a Sears 3/8" Craftsman which has a square shank, enabling me to use a crescent wrench on the shank to help turn the screw. If this method is used, be sure to put your weight on the screwdriver to keep from ruining the head of the screw. Do not turn plate screws more than ½ turn at a time, and skip every other screw. Otherwise, it is very easy to flex the plate, running the risk of possible plate breakage. Do not attempt to change the nose bolts unless something is obviously wrong, such as the bolt coming loose in the beams under the soundboard. Nose bolts are not to be tightened to achieve more downbearing. Tighten all action and case part screws hand tight. Overtightening will only crush the wood or else result in a stripped screw hole. On aluminum action rails, if the hole is stripped, a larger, self-tapping screw will solve the problem. Do use common sense and refrain from tightening screws which are adjustments to action mechanisms. These include the drop, let-off, jack regulating screw, jack stop rail, repetition lever and spring screws, cheekblock adjusting screws, etc.

To tighten the action screws the action must be removed from inside the piano. Take care not to depress any of the keys when pulling the action out, or a broken hammer shank will result. Place a hand on each end of the keyframe and pull the action out slowly. Now remove the action bracket screws which hold the stack into the keyframe. Some actions have the front screws (nearest the keyboard) slanted at an angle. These are removed first and installed last. Make sure you have some method for returning the action screws back into their original holes. Set the stack aside and remove all 88 keys. To keep from enlarging the balance pin hole on the bottom of the key, take hold of the key at the back as well as the front and lift off evenly.

2) SAND KEYBED, APPLY TALC OR SLIPSPRAY

The ideal match between the keybed and the keyframe is for both to be perfectly straight and level. Otherwise when the keyframe shifts, high and low spots are sure to occur, resulting in noises. Therefore sand lightly the keybed to give it a level, smooth surface upon which the keyframe can slide. Also apply talc, slip-spray, or some other substance to help the keyframe shift quickly back and forth. A straightedge may be helpful in finding high/low places.

3) SEAT ACTION ON KEYFRAME, REPAIR STRIPPED SCREW HOLES

Seating an action frame is an often overlooked procedure. The keyframe should be straight and flat on its underside to match the keybed. If the action brackets have any amount of space between the bottom of the bracket and the top of the screw hole on the keyframe, a warped keyframe will result when the brackets are screwed down tight. Of course, if any holes are stripped, drill-plug-and redrill (see "Von Der Werkstatt" April 80). Cross-threading the screw holes can be eliminated by starting the screws by hand or by turning the screws backward until it drops into the threads.

4) BED KEYFRAME: BACKRAIL, FRONTRAIL, STUDS; SAND AS NECESSARY

Now that the stack is on the keyframe without the keys, back up the balance rail bedding screws (make sure you get the ones only visible from underneath on Yamahas) and install the action into the keybed, securing the cheekblocks. The cheekblocks should apply a small amount of pressure to the keyframe to keep it down, but not so much as to cause it to raise in the middle. A perfect fit is when the shift pedal works freely with the keyframe secured on the keybed. Bed the backrail first, then

the frontrail, lastly the balance rail studs. The correct specification here is to not have any spaces between any of the three rails at their point of contact with the keybed, both in the regular and in the shift positions. When bedding the front or backrail, tap on the rail and listen for knocking noises. Mark offending areas with chalk. If the knock is at the ends of the front rail, the cheekblocks were not fitted correctly. If the knocks are at the middle of the frontrail, try to loosen the cheekblocks to see if they were too tight. If not, then lift the front or backrail up enough to place sandpaper strips grit side up under the contact points on each side of the chalk marks. Draw the sandpaper out and recheck the area for knocks. Remember that the area to be sanded is not where the chalk marks are, as these are the high places, but rather the low places surrounding the chalk marks. Go slow in the sanding process so as not to sand the keyframe too much, producing more high places. On a badly warped keyframe, one might have to cut out strips on the top of the frame and hammer in hardwood wedges in order to straighten it out (front or back rail only).

Bedding the balance rail can be done by either of two methods. The short method is to take a straightedge over the entire length of the keyframe, spanning the front and back rails over where a stud exists. Turn the stud down until it just touches the straightedge. At this point the three rails are in a straight line. Do this to every stud, and if the keybed is perfectly flat (which it isn't) then the keyframe should fit. But since the keybed is not perfect, correct any small differences by installing the keyframe complete with keys and stack into the piano, securing the cheekblocks. Now by lifting gently on the top of the stud, and at the same time knocking lightly with the other hand, adjust the stud so that it makes a knocking noise when the stud is lifted, but is secure with no pressure on the stud. Do this to all of the studs and the keyframe can be considered bedded to the keybed. The other method is with using strips of newspaper. With the keys off the keyframe but with the stack screwed on and cheekblocks secured, slide a strip of newspaper under each of the bedding screws and starting at one end, turn the studs down until friction is felt when the newspaper is pulled gently. Go onto the next stud and turn it down also until resistance is felt. Recheck the first and second studs before going on to the third. Continue the operation remembering to recheck those studs already set until all of the studs are down. Check the front rail to make sure that the studs are not down so far as to raise the front rail and you are finished.

5) ALIGN ACTION RAIL DISTANCE IF NEEDED

All piano actions were designed with a specific distance between the middle of the center pin of the hammer shank to the middle of the center pin on the whippen flange. Most actions have an adjustment on one of the other rail to correct this measurement. Some, like Steinway, are permanently set. However, if this distance is not correct, the action will not play right and is impossible to fine regulate. Contact the manufacturer for the correct specifications for the particular instrument if this appears to be the case.

6) REMOVE THE STACK, POLISH KEY PINS, CLEAN KEYFRAME

Take the stack back off the keyframe and set it aside. If the punchings and backrail cloth are in good shape, clean with a brush. If not, replace with new felt and cardboard. Clean the key pins or replace if they are pitted. Turn the front rail pins back straight if they were turned before.

7) PUT KEYS BACK ON KEYFRAME, CHECK CENTER HOLE FOR LOOSE/TIGHT FIT

Return the keys back on the keyframe in the same manner in which they were removed, taking care not to damage the balance hole. If the keys do not slip easily over the pins, ease the balance hole either by removing excess wood (from the sides only) with a file or else by squeezing the wood with a balance pin hole easing tool (available from Yamaha or Francis Mehaffey). The file used to remove wood is a #6 round tail bastard with two edges ground down so that only the sides of the hole have wood removed, not the front or back of the key. I prefer the Yamaha tool since it leaves what wood there is there, and eases the inside of the hole to the correct contour from the insides of the hole. Check for looseness at the front/back of the balance hole by pulling gently at the front of the key. If any looseness is evident, then repair the hole area (see Von Der Werkstatt June 79).

8) CHECK BUTTONS, EASE OR REBUSH AS NEEDED

After the balance hole is made to fit, correct any problems with the balance rail button bushing. If too tight, ease with key easing pliers. If too loose, rebush (see Von Der Werkstatt April 79). The correct tolerance is 0.1mm-0.2mm lateral movement.

9) CHECK KEYS AT FRONT RAIL PINS, EASE OR REBUSH AS NEEDED

Similar to the balance rail, ease if too tight, rebush if too loose. Check with the key in the down position. A 0.3mm lateral movement is correct.

10) CLEAN AND BUFF KEYTOPS AND FRONTS

Clean the tops of the keys with a moist cloth, using a little mild dishwater soap if need be. Buff lightly on a clean buffing wheel if desired. To make the plastic feel more like the old ivory, sand down the keytops lightly with 0000 steel wool or wet/dry sandpaper.

11) SQUARE KEYTOPS, CHECK FOR WARPAGE

Using a straightedge upon the key tops, checks for tilting. If not square, take a blunt object against the balance rail pin and bend until the key is square. If the key is warped badly, steam to bend it back (see the Technical Forum March 79).

12) ADJUST KEYHEIGHT AND LEVEL ALL 88 KEYS

If the manufacturer's specifications are available, try to use the given keyheight. Where no measurements are given, or if the given height does not work, then the correct keyheight can be figured out. Use an end key #1 or #88 and regulate it completely to make sure everything will work out right. Remember that the key can not be so high as to interfere with fallboard, nor can it be so low that in the down position the keytop lip hits on the key slip. The key height should be positioned so that: 1- there is clearance under the fallboard and the underside of the key is not showing at the keyslip in the up position, 2) the key pins still have space showing at the top of the balance pin and the key has about 3/16-1/4" of the front rail pin inside it in the up position, and 3) in the down position there is enough key pin left to work with the punchings to achieve aftertouch. You may have to change the thickness of the backrail cloth if #1, 2 & 3 can not be met. After the correct key height is worked out, level all 52 white keys to this height, using either a beveled straightedge to make the middle keys a little higher, or a regular straightedge to make all 52 the same. Then set the correct height for the sharps, as will be dictated by the type of sharp used. Normally this measurement is ½", from the top of the natural to the top of the sharp. However, some sharps are not this tall and if set at ½" would allow the wooden key to show through. Adjust accordingly. Remember that the sharp should be approximately ⅛" above the natural in the down position. Small adjustments can be made if the keys and stack are on the keyframe. Just cut a slot in the correct size punching and by turning the keyframe up and lifting the key and felt punching up slightly, slide the cut punching onto the key pin. When setting the keyheight, depress the key often so that all of the punchings are pressed down to the bottom of the key pin.

13) LAY DIP

My preference here is to make sure that the dip is deep enough to provide escapement during the rest of the regulation. I will correct this when I later adjust for aftertouch. If this system seems awkward, then set the dip using a key dip block. Whenever adjusting the punchings, always leave the felt punching on top and graduate the paper punchings so that the thickest is on the bottom.

14) SPACE KEYS

As the last procedure in this section, make sure that all of the keys have an equal amount of space between them. In bending the front rail pin to space the keys, lift the felt punching and bend the pin at the bottom. That way if the bending tool does put a nick in the pin, it will be in the area where the punching is and not up higher where it would cause the key bushing to wear. In spacing the sharps, remember that it is more important for the key to be spaced properly and to not rub on its neighbor than it is to be perfectly squared. This grand regulation guide will be continued next month. □

Accent on Tuning Problems

by Newton J. Hunt

Some of the most useful information to come out of the last two years use of the proposed testing procedure is an objective analysis of the skill levels of the testees, a concept of what a good tuning is and some of the most effective tuning evaluation procedures I know of.

If you are in a testing situation, or just wish to be able to perform an analysis of your own work these procedures can be helpful. If you do not have testing equipment and wish to objectively look at your own tuning you will have to do the tuning and then walk away from it for an hour or two to let your mind rest and acquire a new perspective on tuning.

It is of no consequence which fork you use or which "temperament octave" you prefer. The analysis of tempering will require a minimum of twenty-five notes for potential error elimination. The only strictures on this two-octave placement are those imposed by the piano and your ears. The two octaves should not cross over wound strings if at all possible and the range should not be such that the beats of sixths and thirds become too fast for accurate assessment.

For this purpose the biggest or the best is better, but biggest does not necessarily mean the best, so choose an instrument that is easy to tune and fine for listening and all that might imply for you.

Pick almost any notes, high, middle or low and using that note as a pivot point, check the two fourths, the two fifths and especially the two thirds that revolve around that one note and compare them all but in pairs, not mixed. If all appears well with that note and its intervals, then go to the next note above or below and continue this form of analysis until the entire two octaves have been validated and possible changes noted but not necessarily made yet.

As an example, C_4 is the pivot note. Listen very carefully to the C_4-F_4 and G_3-C_4 fourths several times. What is being sought is a variation of the beat rate that is less than acceptable. Within practical limits, they should be identical. If no change is desired, then switch to the related fifths, C_4-G_4 and F_3-C_4, again played several times, seeking improper tempering. It is well to make good use of the third/sixth test of fourths and the sixth/tenth test of fifths to help define beat rates (see Nov. '78, p. 17). The more difficult but highly informative conjunctive thirds $G^{\#}{}_3$-C_4 and C_4-E_4 must have the 4:5 beat rate ratio that has been discussed in the Journal of November 1978, page 18. This is one one of the more helpful tests in that it has a balance that remains constant and once the ear is attuned to the relationship, a minor error assumes major proportions.

Each octave must be tested three ways. First the third/tenth test will verify the degree of expansion, second the conjunctive thirds will validate the stretch and

the proper placement of the two inner notes, and finally a very careful aural evaluation is made.

Careful running of adjacent thirds, sixths and tenths will also help in finding errors, especially minor ones. One must not rely on tenths, thirds, sixths, fourths or fifths to the exclusion of the others. They must all be used but if minor sacrifices must be made, favoring the thirds and sixths seems to be more tolerable.

What must be done when an error is found is to determine which note or interval to change. If, for example, the C_4-E_4 third is a little too slow, the related thirds, fourths, fifths, sixths and tenths (where possible) of BOTH C_4 and E_4 need to be assessed. It is not at all impossible for both notes to need changing. What is not uncommon is that by changing one, other changes need to be made in a chain that may take an hour to rectify. If this does happen, just continue on until you have arrived at THE perfect temperament — for that one piano. It does happen that three intervals will seem to be improved by a minor change and three others will not be improved, but made worse. If this does happen, make a choice to change or not to change and continue on with the process. It may happen that some of the other notes will need improvement, but you will not know this until you have finished the analysis. It will out in the end. This is why I suggest checking the entire two octaves first, to get an overview, then begin from the start and make your changes.

This is fatiguing work, so do not allow yourself to get to the point where you cannot hear anything at all. Stop earlier, rest, and then return. This is one reason a committee can do a super tuning easier than one person.

The purpose of all this is to improve your tuning, improve your perception of your tuning, and increase your error spotting and correction speed.

After the temperament has been verified, the next set of values is for the bass. Evenly digressing thirds, tenths and seventeenths, smooth octaves and double octaves, smooth twelfths and balanced conjunctive thirds, although the thirds will be somewhat wilder than can be permitted in the middle register. Check for smooth fifths and slightly faster fourths than in the middle.

Intervals should not be played hard. Generally, hard played intervals are harder to hear accurately. Hard playing increases ear fatigue. Play gently and listen carefully.

Going into the treble, the fourths, fifths, octaves, third/tenth/seventeenth, progressive thirds, tenths, and seventeenths (all the way up); single, double and triple octaves all need to be played in a rarely varied pattern that you establish for yourself. The conjunctive thirds are useful surprisingly high, into octave six on some pianos. The fourth and fifth drop out about C_6 but the twelfth can take over until the end. What is wanted is clarity of tone (no beats in single, double and triple octaves, and in twelfths). What is wanted is an even progression of the third and its relatives, and finally, definition of tone in the high treble. Playing octaves softly up and down will often show an out-of-tune octave faster than some of the other tests, especially on a piano with a faulty treble.

I have both taken and have administered the Sanderson/Coleman test, and although it is time consuming for both the tester and the testee, I feel that the merits of the test far outweigh its liabilities. In terms of its merits as compared to the present test, I think the testees learn so much about their abilities, their handicaps, about themselves and their tuning, that using any of the older testing procedures leaves the testee and the tester in considerable doubt, in some cases, of the tuner's ability. Objectivity is worth striving for.

There has been some anxiety concerning the use of electronic tuning aids (ETA) and a computer. The more accurately two or more tuners can tune a piano, the wider the margin for error the testee will have; the ETA is used only to accurately record the master tuning done by the aural testers, and the calculator is used only in the scoring. The scoring can be done with pencil and paper, but what would be required is six columns of figures: the master tuning measurement, pitch compensation factor (in the event the testee tuned the piano flat or sharp the total point loss could be staggering without making allowance for that fact), the adjusted figure, the testee's tuning record, the allowed margin for error (as much as 6 cents in the bass and 6 in the treble) and finally the score. I would not care to have to do all that addition and subtraction by hand, it would take hours!

Finally, every point taken off the score must be verified and agreed to aurally by examiners and examinee or it is declared an invalid point loss and restored — also the test is just plain FUN! □

THE AUXILIARY EXCHANGE

Luellyn Preuitt

The month of April yielded several interesting reports from seminars held around the country. **Julie Berry**, auxiliary first vice-president, attended the Pennsylvania State Convention and has taken time out of her busy schedule to write us about it — "The Auxiliary schedule at the recent Pennsylvania State Convention provided just the right atmosphere for getting acquainted and for soaking in springtime freshness from the Pennsylvania mountains, thanks to the careful planning of **Donna and Helen Fornwalt** and the other ladies from the Altoona area. On Friday the auxiliary members were invited to sit in on two enterprising classes on financial planning and business building. After lunch **Kathryn Snyder**, second vice-president of the national auxiliary, showed members of the group some slides which helped demonstrate various stages a piano goes through as it is being rebuilt. Kathryn's explanations and remarks were specifically tailored to the interests of the group, reflecting the fact that it was a program designed for the auxiliary and not the technicians. Everyone enjoyed the chance to ask questions which might sound elementary to a technician. Saturday was a day for getting out in the sunshine and walking and breathing the fresh spring air as we toured Bedford Village, a reconstructed pioneer settlement in Bedford, Pennsylvania. Following the tour and lunch at a local restaurant, the auxiliary members were treated to a plant party and a free plant to take home as a gift from the convention. It was a fine convention, with time for making new friends as well as catching up with 'old' friends."

Thank you, Julie, for always being so generous with your time and talent.

Ginny Russell is another auxiliary member who is always willing to contribute her thoughts and effort. Ginny attended the New England seminar in April, and here is her report — "In April, the Vermont chapter hosted the New England Seminar. These ladies did a great job of planning a most enjoyable time for the spouses. **Mel Wheeler**, **Nancy Howe**, **Roberta Soule**, and **Lydia Johnson** planned the entire weekend. We had an auxiliary sharing time. At this time all kinds of auxiliary programs and crafts were shared, and we talked about the fun times auxiliaries have together. Our 'tour guides' drove us to Quechee Gorge, which was very pretty with its white birch trees and fast moving water. We then proceeded to Woodstock, Vermont, a quaint, historic village. After lunching at the Woodstock Inn we were free to browse in the quaint shops. What fun! Do you know that you can even walk in front of a moving vehicle and they have to stop! (**Celia Bittinger** said we'd better be sure they had Vermont plates.) On our return trip we went through two covered bridges and toured some delightful countryside. The next morning we had a quilt demonstration, and we purchased quilt pot holder kits and sewed! They are really fun to do. In the afternoon we enjoyed a business class. It is fun to exchange business experiences with one another. The ladies in Vermont showed us warm, wonderful Vermont hospitality and we thank them!"

And thanks again to Ginny.

April also contained the Missouri State Conference in Fayette, Missouri. This writer attended and will attempt to review some of the happenings for you. The Missouri Conference experimented this year with a concept which has been talked about for some time. This idea is to hold smaller seminars and conferences in a college campus setting. Central Methodist College was the site chosen for this experiment. Of course, the advantage for technicians' classes is obvious. And the pianos! If technicians can't get experience enough from the average classroom piano, where else is there to go? This writer was looking forward to the "dormitory experience" with a little trepidation (she's one of those whose idea of roughing it is to spend the weekend in a Holiday Inn), but this particular instance turned out very well. Central Methodist is a private college, and we discovered that it is upgrading its facilities as quickly as possible. The room to which we were assigned contained a half bath and adequate closet space for a two-day visit. Even the somewhat recalcitrant radiator brought back nostalgic memories of her college days.

Following a get-together party Friday evening in the downstairs lounge of the parish hall, we retired to our dorms. Friday is the students' "night to howl", so don't expect to get too much sleep if you didn't bring ear plugs. (This

writer forgot — that tells you something about how long it's been!).

The conference was hosted this year by Ozark chapter, and Liz Rooks of the auxiliary planned well for the ladies.

On Saturday morning, and again on Sunday, everyone assembled in the parish hall for a continental breakfast. Following breakfast on Saturday, the auxiliary was taken on a tour of the college museum. The curator opened the room for us, and was very gracious and friendly in her explanations of the different exhibits. Some naturally centered around the history of the Methodist Church in Missouri, but there was also a large and fascinating collection of stuffed birds of Missouri which had been prepared by a former curator. We learned much local lore from our guide, including the inevitable tale of the "haunted house". We also learned that two country estates in the area are for sale for the modest price of only one million dollars each!

After lunching in the college cafeteria, the auxiliary assembled in the lounge of one of the larger halls for a tea and program. The college mime group, an energetic and enterprising collection of half a dozen students, presented skits complete with stereo background music and effects. They were well rehearsed and managed to get the point across every time! After that we remained for a "buzz session" and exchanged business ideas and information about our personal activities. It was an interesting afternoon.

In the evening, we again assembled in the college dining room for a buffet banquet, after which we were entertained by the college Sinfonia. The sound of a well rehearsed, all male chorus is like no other.

Sunday morning was reserved for church going by those who so desired, and the last round of technicians' classes was given. All in all, it was a most interesting experience.

★★★★★

The Phoenix auxiliary chapter met recently at the home of **Rose Zena Siewert** in Sun City, for a salad luncheon and chapter meeting. They have decided to meet three or four times a year and are really working hard at keeping their chapter functioning! Nine ladies attended and enjoyed the salad luncheon and social exchange on the patio. Rose Zena tells us, "Our president, **Pat Coleman**, briefed us on the upcoming Philadelphia convention, hoping that some one will represent our group. — We also had as guests two young boys (possible future technicians), **Aaron and Matthew Brown**, sons of Glann and Ellen Brown, and **Mrs. Young** of Sun City, a sister-in-law of Mrs. Shireman." □

Calculating Technician

Part XI

Dave Roberts

Last month, we began a discussion of piano inharmonicity as part of our recent series of articles on formulas for piano scale evaluation or modification. Nearly a dozen sources of inharmonicity were mentioned, most of which are unpredictable and random in their upward or downward alterations of the various partial frequencies in a piano tone. For instance, one such source of inharmonicity is soundboard resonances. Because the ability to tune and voice a piano smoothly depends on a smooth progression of frequencies from partial to partial and from note to note along the keyboard, these random sources of inharmonicity are to be minimized or avoided whenever possible by careful design, manufacture and maintenance of the piano. Soundboard resonances, unfortunately, can only be minimized effectively by increasing the size of the soundboard, which is one reason concert grands tune up more smoothly than the smaller pianos.

Fortunately, the major source of piano inharmonicity, wire stiffness, is something that can be controlled by careful design, regardless of the size of the piano, although a larger piano allows more freedom of design in this respect than does a smaller piano. This source of inharmonicity is not necessarily to be minimized, only controlled in a proper fashion, for it is an integral part of the 'piano sound' and has the additional virtue of partially disguising or 'fuzzing out' the errors inherent in equal temperament. Only in the bass is it frequently desirable to minimize wire stiffness inharmonicity. This is because a nearly harmonic sequence of partials in bass notes will 'create' in our ears the low fundamentals which soundboards (especially the smaller ones) are inefficient in amplifying. This psychoacoustic reinforcement of weak partials is sometimes referred to as 'heterodyning' or 'mixing' of the (stronger) partials. This phenomenon is made possible by the way in which our ears actually distort the sounds we hear. Again, the concert grand is best able to take advantage of this effect because of the very low inharmonicity in its long wound strings.

There is another source of inharmonicity which is sometimes important in wound strings and that is the unwound segments present between the wrap ends and the agraffe and bridge terminations. Last month, we presented a formula for inharmonicity in plain and wound strings which takes into account wire stiffness and these unwound end segments, but space limitations did not permit us to discuss the formula much beyond a sample calculation. Since I'm sure some of you have a number of questions about this formula, let's restate it here and discuss a little about where it came from and what its limitations are.

The formula for the inharmonicity (in cents) of any partial number **n** in a piano string was given last month as shown below, where **a** and **b** represent the lengths (in inches) of the unwrapped portions of a wound string at the agraffe and bridge ends, respectively, **L** is the total speaking length (in inches) and **S** denotes a quantity which is closely related to the mathematical 'stiffness' of the steel wire and can be calculated from string tension **T** (in lbs.), speaking length **L** (in inches) and steel wire diameter **d** (in mils) as follows

$$S = d^4/139430\,L^2T$$

Finally, the letter **B** denotes the weighting factor due to wrap on a wound string:

$$B = A\left(\frac{D^2}{d^2} - 1\right)$$

where **d** and **D** are the steel wire diameter and overall diameter, respectively, and **A** is 0.89, 0.79, 0.27 or 0, depending on whether the string is wrapped with copper, iron, aluminum or is not wrapped at all.

There are a number of things I want to say about this formula. First, although it may appear to be written only for wound strings, a little head scratching reveals that it simplifies to

$$I_n = 1731(n^2-1)S$$

in the case of a plain string because the weighting factor **B** is just zero when there is no wrap (i.e., when **D=d**).

Secondly, you may wonder why the inharmonicity is given as proportional to (n^2-1) instead of just n^2 as I know you've seen occasionally in other references. There is no conflict here, really. What you have seen before is an expression for the inharmonicity in an idealized version of a real piano string, the actual value being virtually impossible to calculate due to the complicated nature of real piano string terminations. However, it is possible in a real string to calculate the inharmonicity in a partial **relative to** that of the fundamental (**n=1**), whatever that may be. This latter definition is the

$$I_n = 1731(n^2-1)\left\{S\left(1+\frac{B}{8}\right) + \frac{3B}{1+B}\left[\left|\frac{a}{L} - \sqrt{S}\right|^3 + \left|\frac{b}{L} - \sqrt{S}\right|^3\right]\right\}$$

one I have used and is more meaningful to piano technicians because it nicely sidesteps the concept of inharmonicity in the fundamental. If you use an electronic tuning aid to find the number of cents by which some partial number **n** is 'sharp' of its corresponding harmonic value, you measure the cents deviation for both the fundamental and the **n**th partial and then subtract one from the other to get the **relative** inharmonicity. Let me remind you, however, that this result may have to be corrected for the equal temperament normalization of your electronic aid; for instance, subtract 2.0¢ if **n** = 3, 6, 12, 24, etc. or add 13.7¢ if **n** = 5, 10, 20, etc. Octave partials need no correction.

Thirdly, you should know that the inharmonicity formula is a slightly doctored-up version of the theoretical formulations of Fletcher (1963) and Miller (1949). Fletcher is essentially responsible for the first term in the curly brackets { }, although I have introduced the 'fudge factor' $(1 + B_8)$ to bring the theoretical formulation more into line with actual measurements on wound strings performed by Lou Day (Denver PTG) and myself. Physically, the factor $(1 + B_8)$ accounts for an additional resistance to flexing in wound strings (and hence an increased inharmonicity) due to the flexural inertia of the winding plus its own stiffness and perhaps other factors. Miller is essentially responsible for the second expression in the curly brackets, although I introduced the subtractive terms $\sqrt{S}$ to account in an approximate way for the bending that occurs in piano strings near the terminations. Fletcher alluded to this effect and, in fact, calculated its approximate magnitude, but Miller ignored it. The physical significance of the second expression in the curly brackets is that there are two additional contributions to inharmonicity in wound strings which are proportional to the **cube** of the respective length ratios **a**/**L** and **b**/**L**. The physical consequence of the $\sqrt{S}$ terms is that, once you've reduced the unwound lengths **a** and **b** to an amount $L\sqrt{S}$, then a further reduction in these unwound lengths will **increase** inharmonicity, as described qualitatively in last month's article. In other words, there is an optimum length for the unwound ends on wrapped strings which gives minimum inharmonicity. If the unwound lengths are either shorter or longer than this, the inharmonicity will increase, although for physically different reasons. Although I have indicated that this optimum length is $L\sqrt{S}$, I want to emphasize that this is only an approximate value because the exact theoretical solution to this problem is virtually impossible due to the complicated nature of the string termination geometry. The best way to determine this optimum length for a given string is still the good, old-fashioned trial and error method but, just for fun, let's do the approximate calculation of this length for two typical wound strings: (1) a short upper bass string in a small grand having **L** = 35", **T** = 170 lbs. and **d** = 42 mils and (2) a long bass string in a concert grand having **L** = 80", **T** = 360 lbs. and **d** = 63 mils. In the first case, $S = (42 \times 42 \times 42 \times 42) \div (139430 \times 35 \times 35 \times 170) = 0.000107$, so $L\sqrt{S} = 35 \times (0.01035) = 0.36$", i.e., about 3/8". In the second case, $S = (63 \times 63 \times 63 \times 63) \div (139430 \times 80 \times 80 \times 360) = 0.000049$, so $L\sqrt{S} = 80 \times (0.007) = 0.56$", i.e., about 9/16". These lengths are comparable to the shortest unwound lengths that we are accustomed to seeing in pianos and hint that perhaps the heavier wound bass strings should have longer unwrapped ends than the shorter, lightly wound strings.

Next month, we'll continue this discussion of inharmonicity and also wound strings, so stay tuned to this column. . . . □

Reference: *Fundamentals of Musical Acoustics*, A. H. Benade, Oxford University Press, N.Y. (1976). The Fletcher and Miller references (JASA) are given in this book along with many other good articles on piano acoustics.

The International Scene

Don Morton, Immediate Past President
and
Fred Odenheimer, Chairman,
International Relations Committee

INTERNATIONAL SCENE

The month of May was a very busy, constructive time for the International Association of Piano Builders and Technicians. Here are a few important events involving our members:

DATE LINE MAY 8

Fred and Dorcia Odenheimer and Jewell and Priscella Rappaport left for Hamburg, Germany to attend the annual meeting of Euro-Piano Technicians and the 100th anniversary of Steinway in Hamburg.

DATELINE MAY 11TH

A telephone call from London confirmed arrangements for the officers of the British Pianoforte Tuners Association to attend the 23rd Annual Piano Technicians Guild Convention July 14-18 in Philadelphia, PA. The three officers attending were Ralph E. T. Long, president, W. James Smith, secretary, and William U. Kreis, treasurer.

DATELINE MAY 12TH

A letter from John York of the Knight Pianoforte, Ltd., of England, requested exhibit space at our national convention.

DATELINE MAY 19TH

Dan Evans, western regional vice president, and Don Morton, immediate past president of The Piano Technicians Guild, left for Tokyo, Japan as guests of the Japanese Piano Technicians Association (JPTA). May 22nd and 23rd were the dates of the annual convention of JPTA, marking its 50th anniversary.

Perhaps some of you who read the May column forgot about International Association of Piano Builders and Technicians, or may never have heard about it. Possibly you are asking "another organization – what do we have to do to join?" More dues? More exams? — is it not true that PTG is international? To answer the last question first: Yes, PTG is international and for the first question, the answer is No. As a member of the Piano Technicians Guild, you are automatically a member of our IAPBT, since our organization is a member.

Don Morton and Mr. Tanaka are serving as co-presidents with no other officials elected for the time being. IAPBT is and is not an organization in the true sense. It aspires to be a world-wide brotherhood of piano technicians and builders with the chief purpose of not only improving piano service all over the world, but also to help the manufacturers give us and the public a better product.

In order to accomplish this, we need to communicate – we have to exchange ideas – explore new concepts and possibly discard some traditions that have served us well in the past but cannot stand up in the light of new science. But in disregarding traditions, we should not close our eyes for future improvements – wherever in the world they occur.

VON DER WERKSTATT

Priscilla and Joel Rappaport

CHIPPING

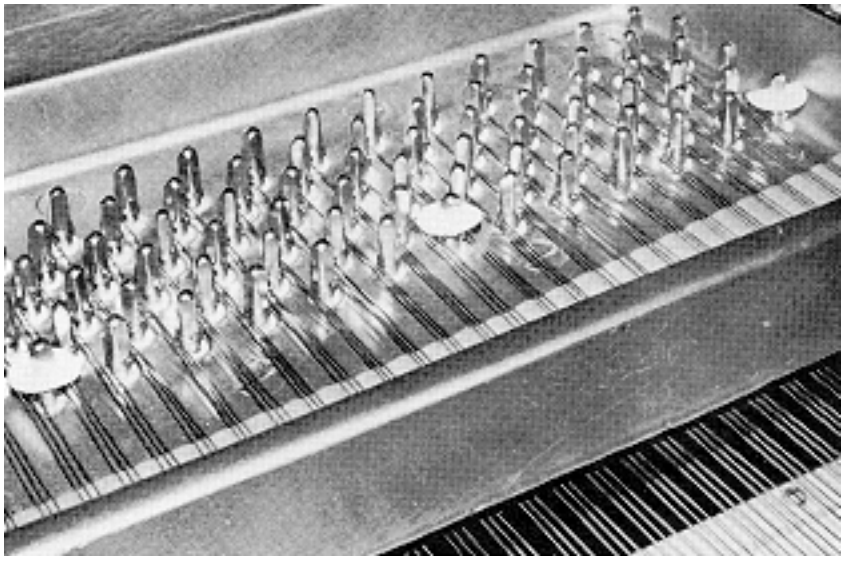
After a piano is strung or restrung, comes a job many people dread: chipping. Chippings are the first rough tunings for the piano and are intended to put the approximately correct tension on the strings in a hurry. Before the piano is strung, it is just a case. When the plate and strings are added, it starts to take shape as a musical instrument. The first chipping represents the first sounds of the "newborn" instrument and is indeed music to the piano maker's ears.

The operation gets its name from the fact that the worker chips away at the string with an implement or fingernail to make the string vibrate since the action is not yet built into the piano. In rebuilding, hammers are usually not glued on yet at this stage. It is assumed that stringing is complete: coils are lifted and set, strings spaced and tapped onto the bridge and hitch pins, the pressure bar is set in uprights, and the pinblock support is removed in grands.

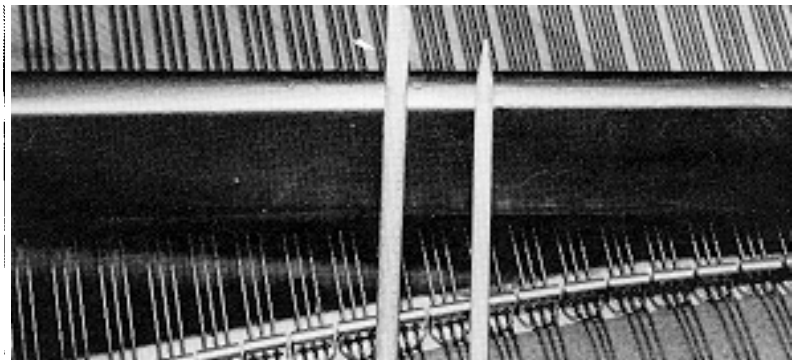
There must be many methods of chipping. If you are new to it, this discussion may give you a good start. Those who have done it before may pick up a hint or two adaptable to your procedure. The first thing to do is mark all the *A*'s on the piano by placing brightly colored front rail punchings on the *A* tuning pins as shown in **Picture 1.** Aside from the fingernail, two commonly used chipping implements are a flattened upright hammer shank (simply file one end of the shank flat) or one that has been sharpened in a pencil sharpener to a point — **Picture 2.**

The first tone is usually A440 and is taken from a fork or tuning bar. Using a tuning bar gives a strong tone that lasts some seconds, making it possible to easily set the first pitch. Using a tuning fork is also common, but could be awkward or time-consuming when the fork is sounded and held, the string chipped and the tuning hammer manipulated, all with two hands. Setting a temperament can be done one of two ways. Commonly, the chipper will first tune the *A* to 440, drop down an octave and return to A440 chromatically, checking certain intervals such as the third and the fifth along the way. The other method is the **Circle of Fifths** pattern which generally runs up a fourth (inversion of a fifth), down a fifth, up a fourth, down a fifth, etc., until all chromatic tones are covered and you return to *A*. We use both methods: a rough chromatic approximation for the first chipping, a more refined temperament using fourths and fifths for the second. A big help in finding the right notes while setting the temperament (remember — there are no hammers and there is no keyboard to help) is a cardboard pattern cut to fit right by the tuning pins and indicate the note names. **Picture 4** shows this pattern.

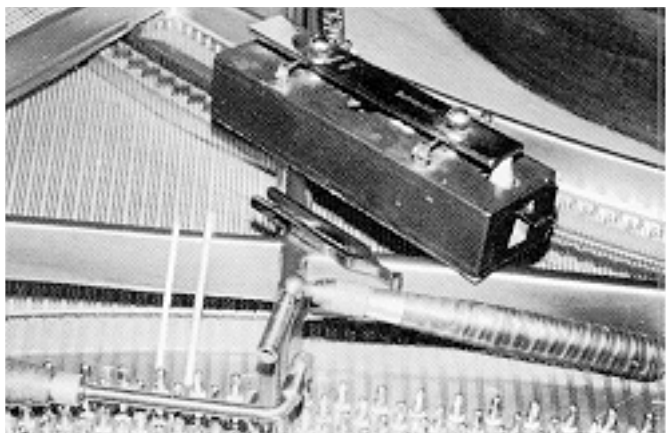
While setting the temperament, all three strings of each unison should be tuned together. This practice should continue throughout the chipping. Right-handed tuners will hold the tuning hammer in the right hand and pluck the strings with the left hand. The choice of tuning hammer makes little difference; some people prefer a light shop hammer while others like a heavier hammer with a long head which allows maneuvering of the hammer over plate and case parts. First the left string is plucked with an upward motion — **Picture 5.** Then the middle and



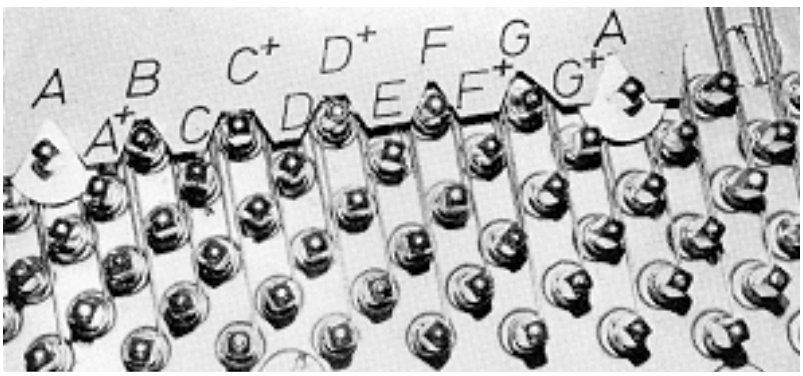
#1. Middle section of grand: **A**'s are marked with front rail punchings.



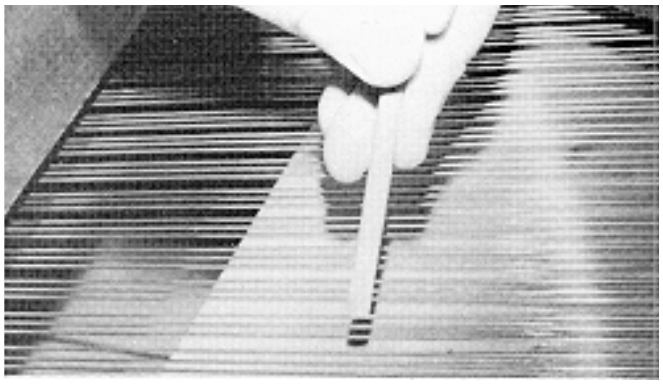
#2. Two hammer shanks tapered for use in chipping.



#3. Tools needed for chipping. Fork or tuning bar, a choice of hammers and a choice of sticks.



#4. Pattern marking notes to help set temperament.



#5. Illustration of a chipping technique. Flat stick plucks left string in upward motion.

left strings are strummed together as the middle string is tuned. Finally all three strings are sounded while the right string is tuned.

After a temperament section is set, the tenor and bass sections are tuned, then the treble. Chipping continues into the bass by half steps comparing each new note to the octave above, and when tuning the treble, the note being tuned is compared with the note an octave below. To keep track of the reference (already tuned) note, a mute can be used to mark the reference as shown in **Pictures 6 & 7.** There are three things that are happening as so much tension is added: the strings are stretching, the board is being pressed down, and the bridge tips forward. All cause the pitch of the instrument to drop as the chipping progresses. Several chippings and tunings are usually necessary to bring the instrument up to pitch where it will begin to stabilize. One procedure is to start one half step high, but we must be sure that the construction of the plate and case can take the additional stress. Chipping pianos one half step sharp was used successfully in one factory in which we worked. However, informal tests on several of the same model instruments indicated that if several chippings were done, none of which were above the pitch level of A443, the treble had fewer wild strings. This may be because a severely stretched wire gets closer to its elastic limit and is altered somewhat. It would be interesting to experiment along these lines. At any rate, we do not do any chipping that is too much above A440. Under no circumstances should wound strings be severely stretched. Even the factory procedure that started one half step high specified that the bass notes were to be chipped no higher than the A440 pitch level. It was explained that too much tension could stretch the copper winding, causing rattles in the bass strings.

During the first chipping, it is advisable to wear goggles to protect the eyes against breaking strings and hitch pins that may snap. Also, protect yourself against bass string eyelets that may break by placing a length of 2 x 4 over the plate in the bass section about half way down the speaking length.

In conclusion, chipping gets the correct tension on the instrument in a hurry so that the case, board and plate begin to adjust to the stresses imposed. A concert quality tuning for the chipping is not expected. Indeed, the chipping should take 20 minutes or less, depending on experience. It really is a lot of fun as the piano starts to talk back when the strings are pulled up to pitch. □

#6. Mute used as reference for chipping. Chipping is progressing into the treble using the mute as a reference for the note an octave lower than that which is being pulled to pitch.

#7. Unisons are pulled in to match left string.

Ring the Bell

Bell Ringers Club **Points**

Everyone wants a chance to receive the prestigious President's Club award or to sport a Bell Ringers or a Restorers Club ribbon at the annual convention. To insure that every Bell Ringer point is credited to your "account," and that every Restorer of a former member is recognized, the Membership Department requests the following:

1. Please PRINT your name after your signature on the line "recommended by" when you wish to receive credit for bringing a new member into the Guild. Some signatures are difficult to read and we regret having to omit a name for this reason.

2. Please show your own chapter after your name. Some members sponsor a new member into a chapter other than their own.

3. If you wish credit for a RESTORED MEMBER, please write this fact on the application form. It is not always possible to trace a former member after a lapse of time.

4. If corrections should be needed in the records, please notify the Home Office promptly, as The Journal goes to print some weeks ahead of receipt.

The following points are scored for signing up the various ratings:

Craftsman — six points. Apprentice — five points. Allied Tradesman — four points. Associate — three points. Affiliate — two points. Student — one point.

When you have a total of 24 points you become a member of the President's Club; all others are Bell Ringers.

Sponsor a new member and win points in the Bell Ringers Club. Join the celebration at the 1980 convention in Philadelphia.

BELL RINGERS!

The last date for recording new members for points in the BELL RINGERS, RESTORERS, and PRESIDENT'S CLUB will be June 30th this year. Please be sure to notify the Home Office of all new and restored members by that date, so that everyone will receive full credit at the convention.

New members recorded in July will be credited to the 1980 Booster Club.

President's Club

DRAINE, Robert 28
LILLICO, John 71

Restorers Club

BITTINGER, Dick
HAWKINS, Marshall
KERBER, Walter
MANWILLER, Ralph
SCHEER, Bob

ABBOTT, William Jr. 6
ACH, Philip 3
ACKMAN, Harold W. 6
ASHMORE, Yvonne M. 1
ATHERTON, Olan M. 6
BAILEY, D. Nelson 5
BAIRD, John 18
BAKER, Dean 6
BALIGIAN, Agnooni 22
BALZER, Fred 6
BARRETT, Bruce 1
BARRUS, Ralph 11
BERRY, Ronald 5
BIBLE, Dana 1
BITTINGER, Dick 41
BLAND, Robert R. 6
BLANTON, Tom 6
BLOCH, John F. 1
BOOTH, F. Darrell 4
BRATTON, Donald W. 5
BROOKSHIRE, Jerry 3
BROWN, Glen 4
BROWNFIELD, Gary 18
BROWN, Walter 1
CALLAHAN, John C. 7
CATE, Allan 2
CAUETTE, Louis 5
CAUNTER, Gerry 15
CLARK, Peter M. 1
CLOPTON, John 12
COHEN, Bruce 5
COLEMAN, Jim, Jr. 2
COX, Merrill 3
CRAW, Stephen D. 3
CROY, Ronald 12
CUNNINGHAM, Jess C. 7
DANIEL, Pat 6
DANTE, Richard 6
DeTAR, Brian S. 4
DOERFLER, Richard 1
DONELSON, James H. 1
DROST, Michael 24
DRAINE, Robert 28
EDWARDS, William E. 3
ERBSMEHL, Charles 1
ERLANDSON, Robert W. 6
FAIRCHILD, Steven 1
FARES, Jr., Charles A. 4
FISHER, Allen 6
FISHER, Leroy 6
FOSTER, David M. 6
FRANZ, Dennis L. 1
FRANZ, Earl M. 6
GARRETT, Joseph A. 1
GARTEN, H. Dean 5
GERLER, Kenneth 1
GILLER, Evan 12
GOETSCH, Lawrence 12
GULLIXSON, Elisha 6
HANCOCK, William 6
HANITCHAK, Leonard R. 1
HARMON, Clayton 8
HARRIS, Vaughn 6
HART, W. D. 6
HAWKINS, Marshall 11
HEINDSELMAN, Lois 17
HERBERT, Curtis 3
HESS, James 9
HILBERT, Felton, Jr. 3
HOHF, Robert 5
HOLLOWAY, Jim 6
JAMISON III, Philip D. 6
JOHNS, Barney 2
JONES, Joel A. 5
KADWELL, Kenneth A. 6
KAST, Frank 10
KERBER, Walter 15
KINGSBURY, Richard 12
KLEIN, William N. 5
KOFORD, Lyn 5
KREITZ, Richard C. 5
LAMB, Elwyn D. 1
LEARY, Janet S. 1
LEWIS, Max E. 6
LICHT, Kenneth B. 6
LILLICO, John 71
LINDEMAN, Doug 23
LURIE, Mordecai H. 6
MACCONAGHY, Henry 7
MACKINNON, Karl 1
MANWILLER, Ralph 6
MARCIANO, William 4
MARKS, James M. 1
MARLING, Harold 5
MARTIN, Barbar 2
MATTHEWS, John 1
McCOLLOM, M. A. 5
McKAY, C. Guy 2
McANINCH, Daniel 1
MEEHAN, Joseph 18
MEHAFFEY, Francis 12
MEISSNER, Walter, Jr. 6
METZ, Albert J. 7
MOONAN, William 1
NICHOLSON, Steve 1
OLIVER, Stanley 1
OSBORN, Ralph 5
OVENTROP, Edward 6
OWENS, Bruce 1
PAULOZ, Richard 6
PEARSON, Walter 6
PEARLMAN, Sam 1
PERKINS, Robert 24
PETERS, George 27
PETERSON, Gerald 1
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POTTER, Randal F. 5
PRATT, Orman D. 6
PREUITT, Ernest 16
REITER, Michael 6
REQUE, Styrk 1
RICHARDSON, James 11
RILEY, Martha 1
RODGERS, Thomas A. 6
ROE, Eugene 6
RUSSELL, Bob 3
SANDERS, John 6
SEABERN, Paul 4
SCHEER, Bob 6
SCHMITT, Paul 1
SCHNEIDER, William 6
SCOTT, Dennis 1
SELLER, Marion 18
SERVISS, Kenneth 6
SEVERANCE, Davie 7
SIEROTA, Walter 25
SHANK, Dean 5
SHELL, Roger 6
SHROYER, Al 1
SMITH, Arthur 1
SMIT, Robert 6
SNELL, Marvin 1
SNYDER, Cecil 5
SNYDER, Willis 8
SORG, Herbert 6
SPEIR, Leon 6
STATON, Rocker 1
STONE, Sid 7

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A PAGE FROM THE PAST

LITTLE KNOWN "FIRSTS"
by Jack Greenfield,
Chicago Chapter
Piano Technicians Guild

In 1757, the first known instruction book on tuning keyboard instruments, was published in Leipzig, Germany. Written by Fritz Barthold, the book was entitled *Answisung wie man Claviere Clavecins und Orgeln in allen zwolf tonen gleich rein stimmen konne*, which in English is "Instructions on how to tune Claviers, Clavecins, and Organs according to a mechanical method in all twelve keys equally cleanly."

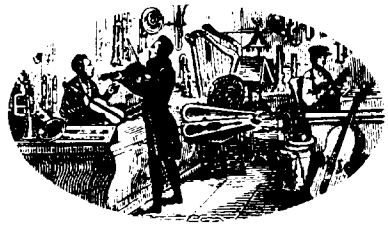
The first female technician was Nanette (Stein) Streicher. She was trained by her father Johann Andreas Stein, who was primarily responsible for adoption of the German or Viennese action. Nanette opened a shop in Vienna in 1793 and was a good friend of and did work for Mozart and Beethoven.

The first American firm to advertise that their pianos were built to stand the effects of our climate and to point out the adverse effects that climate has on imported pianos was Dodds and Claus of New York City in 1792.

In 1828, in Paris, Henri Pape patented overstringing and used it in 39" vertical pianos he called "console" models. Another manufacturer of this period built a portable piano 42" x 39" x 7" weighing about 100 pounds. It had a folding keyboard and was designed to be moved around like a trunk.

During the later part of the 19th century, reed organs, known as melodeons or harmoniums, were the competition for pianos in the home that electronic organs are today. About 120 years ago, fairly good melodeons could be bought for $100 while $300 bought a cheap piano. Several prominent firms including Mason and Hamlin and Yamaha made reed organs first and went into piano manufacturing later. At one time Mason and Hamlin was the leading manufacturer producing 25% of the reed organs being sold annually in the United States. □

ACKNOWLEDGMENT *"Lavish praise is due those who serve music well."*
– William Teasdale Armstrong



In the Field

BEN McKLVEEN

Some years ago **Bob Russell** and I worked together at conventions and seminars presenting a class about repairs and regulating procedures for vertical pianos. Early in our discussion we would speak of the "klutz factor", abbreviated *kf*, a disease that affects all of us from time to time. What we were implying was that some of us found certain ways of doing more disagreeable things ineffectively or inefficiently because of individual differences in our skills and abilities. This month I would like to explore the "klutz factor" in more detail.

What do I mean by "klutz"? It could be anything from heavy handedness to ineptitude in some phase of our work. It includes thoughtlessness, wandering attention, "wool gathering" or daydreaming on the job which sets up accidents or undesired results. Who of us has not heard that sickening cracking sound as we withdrew a grand action from a piano?! Examination shows that we have broken a shank at A1 or C88 because a misplaced part of our hand depressed the key and raised the hammer to block and break as the action was being withdrawn. That's one kind of klutz, but there are a lot more.

One of the first things we are called upon to do as we enter a home is to clear the piano so we can open it. This means moving music, lamps, pictures, plants — any number of things — the list is endless. I try to organize the material so it can be placed out of the way on a coffee table or end table or in a protected corner on the floor. The key to success here is undivided attention. Don't try to carry on a conversation and move valuables at the same time. For over a decade I tuned for an old gentleman who covered the lid of his Steinway with artifacts from the Holy Land, some of which were over 3500 years old. They were priceless! I gave them my full attention and always asked for help from the housekeeper.

Next in the order of klutz possibilities comes the disassembling of the piano for tuning or service. A lid prop prevents damage to walls and picture frames. If the piano is tight against the wall, move it out. If the case is one of those furniture designer "mystery cases" that defies routine opening, study it before acting. Store the case parts on the floor and out of the way. Always look at the back side of case parts to be sure that you are not carrying thirty years of soot and cobwebs to the lady's beige carpet. This is particularly important with the lower panels of vertical pianos which may not have been removed in years and are filthy even though the top part of the piano would give no hint of the dirt in the bottom.

Protection of pianos and home furnishings during piano service includes such things as drop cloths, pads, plastic covering, etc. I carry my basic tuning tools in a soft flannel bag with a large flap. This keeps them together and permits me to place them on the piano without danger to the finish. **Newton Hunt** carries two 3" by 5" squares of Dr. Scholl's "footsaver" pads to place on the end blocks of vertical pianos. He got tired of looking for old Reader's Digests to put there to support the action out of the piano. The pads are small, easily carried and last forever. **Norman Neblett** wears a shop apron while doing repair work, not only to keep his clothes presentable, but to keep his tools close by and to prevent damage.

Cleaning, and the disposal of dirt and scrap material, requires some planning and perhaps household cooperation. Ask for waste baskets or paper bags for the disposal of debris. If you have boxes or packing that would be a problem in a house or apartment,

take them with you when you leave.

Having the right tools and keeping them in good order vastly simplifies piano work and helps prevent "klutz" accidents. The proper size screwdriver with a square, well-dressed tip may mean the difference between removing a troublesome screw and an accident which would burr the screw slot and perhaps damage the surrounding finish. Sharp drills, good pliers, the proper tip on the tuning hammer all contribute to better quality work and cut down the possibility of an accident.

Suppose misfortune strikes? Broken shanks can be repaired and dirt can be cleaned up. Finish problems can be hidden with furniture scratch sticks. But sometimes we must devise extraordinary remedies for problems that arise. The late Bob Hayward told a story of cleaning a grand piano in the home of a very wealthy and fussy client. As he was cleaning up to leave, he noticed to his horror that some dirt and water had dripped through the nose bolt holes of the sound board and left ugly spots on the white carpet. The maid came to his rescue. She thought for a moment, then went to the kitchen and brought in the lady's pet poodle. Rubbing his feet in the dirt, she turned him loose to make "tracks" and the lady blamed the dog for the mess.

I wasn't so lucky. Several months ago I placed a screwdriver on the top of a vertical piano. As I reached for another tool I bumped the screwdriver which then slipped off the top and clattered down over the fallboard, across the keys and onto the floor. As I retrieved it I noticed that it had hit one key and had broken a small half moon chip out of the plastic key covering. This had to happen on a flawless keyboard! What to do? To change the whole plastic top would have been an impossible matching job. To ignore it would mean the loss of the fee and the customer. I took the key home and using some plastic material of the same type, I dissolved it in acetone. This I painted in to the nick in the key until it built up the edge. With a file and some polishing compound I dressed the patch down to match the edge. While not entirely invisible, it was successful enough to camouflage the nick and get me off the hook.

Klutz is something that we all have to fight from time to time. Ignored, it can lead to sloppy work and lost customers. Challenged, it can provide the necessary impetus for a change to a more agreeable procedure, a new jig or a new process for doing things. It all depends on how we handle it. □

Your Security Blanket

Eloise Ross Sunset Insurance Associates

Insurance policies offered by the Guild insurance broker are made available as a membership service and are neither endorsed nor recommended by the Guild in preference to other similar plans.

We moved about a month ago — still not settled, still don't have all the furniture and filing cabinets we ordered. Have you moved recently, what a chore! There is a 'fun' side, though — going through files (it's been twelve years since the last one, you can imagine the conglomeration!). Why we keep some of the items is a mystery but we kept some most interesting data. May I share one with you now?

Insurance seems to be a term that most people don't understand, they develop a mental block, but it really isn't complicated at all! Read on and find out how it all began!

'Insurance exists because most people don't like to take chances' They are willing to pay a small amount of money as a hedge against, for example, the 56 in 100,000 chance they will die an accidental death this year.

Nowadays, you can buy insurance to cover almost anything. It has been used throughout recorded history.

About 6,000 years ago in Babylon, some enterprising merchants issued 'bottomry contracts', the earliest form of insurance. The contracts stated that loans made to the merchants for transporting goods were nullified if the shipment was lost at sea. In ancient Rome, societies were started that provided burial for members as well as old-age pensions and disability insurance!

Fire insurance began in England a year after the Great Fire of London in 1666. A home builder named Nicholas Barbon came up with a revolutionary sales gimmick. For an added fee he promised to rebuild a buyer's home if it was destroyed in a fire.

A century later the insurance technique of underwriting (assuming responsibility against loss) was started in Lloyd's of London, the famous international insurance market. Lloyd's was originally a coffeehouse that was a gathering place for business entrepreneurs. Edward Lloyd, the owner, supplied his customers with shipping information he got from the docks and other places. It became known as the most likely place to find underwriters for marine insurance.

In the United States, the first insurance company was started by that great American, Benjamin Franklin.

In 1752 he organized the 'Philadelphia Contributionship for the Insurance of Houses from Loss of Fire'. A fire marker was mounted on a wooden plaque outside the home. By giving cash donations to volunteer fire companies in the colonies, Franklin's insurance company got better service for policyholders displaying the firm's fire mark — even though the fire companies were pledged to respond equally to every fire. In 1757 Franklin also helped to start the country's first life insurance company, The Presbyterian Ministers' Fund. Both insurance firms he began are still operating.

A century later, in 1863, the first accident policy was sold in the United States to a man named James Bolton. For some reason, Bolton paid a 2-cent premium to insure a two-block walk from his home to the Hartford, Conn., post office!

So — that's how it all began, think of it, today we can't afford to be without it!

Aren't you glad you live NOW, not 6,000 years ago? Aren't you glad that you are a member of the Piano Technician's Guild, Inc. That you have insurance plans from which to choose — to select your very own protection!

There is the Comprehensive Health and Dental Plan (no illness or injury can cost you more than the deductible you choose and $400). Accidental Death and Dismemberment for you and your family (hope you have it now for all the vacation driving). Supplemental Group Life, $10,000 at very low premiums. The most popular — Tool and Bailees' Customer, all these are available!

If you want to know more, give us a call, we have a new telephone number (206) 932-0203. If you prefer writing, the address for now is the same, 510 NE 65th Street, Seattle, WA 98115.

The Old Piano Tipper Blues

By G. F. Foye
San Diego Chapter
Piano Technicians Guild

Trying to hustle around a busy city performing your piano servicing duties is tough enough. But, when you have to do it with your leg in a cast, it certainly is a lot tougher. I know of one technician who has had firsthand experience with this matter, and I have had a close call myself. As you have probably guessed, the above is the result of one of the hazards of piano work — using a piano tipper.

To clarify matters, it isn't necessarily the equipment that is unsafe but rather the way we use it. Let's face it, some people can cut themselves with a butter knife. As with any of our shop tools, the tipper must be used with logic and respect.

One of the major problems in using the tipper is having the tipper and the piano part company at the wrong time. The critical point is roughly 15 degrees from the vertical position when the weight of the instrument is on the rear casters. At this point, the tipper and piano tend to separate, and if they do, a disaster will occur.

Using a strap around the piano and tipper is one way to avoid this hazard; another method is by clamping, the latter being the most effective. When working in my shop I use a strap clamp which is a board with several holes in it. It is long enough to fit across the tipper. Holes are drilled in the back posts using a number two drill (or a 7/32) to accept ¼ inch lag bolts. When finished the holes can be filled or plugged.

Another problem area is the gap between the tipper prongs and the bottom board. This space should be taken up with spacer blocks so the tipper makes immediate contact. (Illustrations will clarify this procedure.)

A modification to the tipper is the addition of spikes to dig into the bottom board. Hardened bolts with points ground on the tips serve the purpose. They can be mounted by drilling and tapping to accept the thread or by drilling a hole large enough for the bolt and using a nut on each side to adjust and secure the bolts.

Align the tipper with the center of the piano rather than the back posts since the posts are not necessarily centered. When in the down position the weight of the piano should be centered on the tipper to avoid having it topple to one side.

The next important consideration is the amount of room to allow for the tipping operation. Due to the geometry of the tipping radius, the tipper and piano tend to walk backwards as it is dropped down, thus taking more space to the rear. It is quite easy to miscalculate and find yourself up against a wall and the piano isn't all the way down yet. At this point you are off balance, and unless you are unusually strong physically, you are going to have a difficult time trying to get a heavy upright back up.

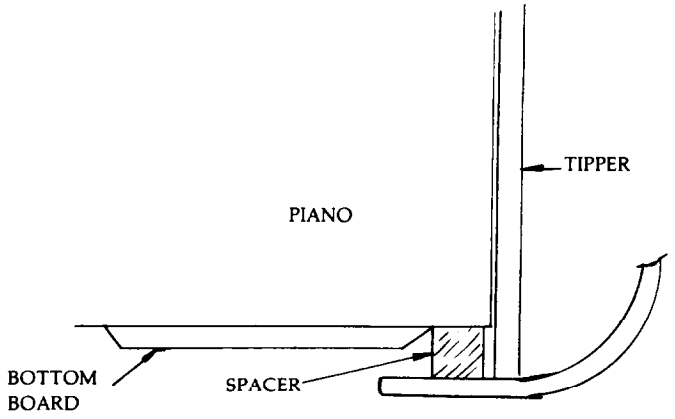
Another reason for allowing plenty of room, especially in the rear, is to have an escape route in the event of an accident. When a piano comes loose from the tipper, the piano slides forward and the tipper is forced backwards. In a small room, keeping your back to an open doorway offers a safety factor.

Working on a floor such as concrete or tile provides an additional hazard since the piano can skate on smooth surfaces. Anti-skid materials, such as throw rugs under the casters, offer a simple solution to this problem.

As for the tipper, there are excellent units available through piano-supply companies. A folding unit provides portability to provide services right in a customer's home. Non-folding units are suited to strictly in-shop use.

Having a background in machine shop work enabled me to design and build my own tipper. But, it requires some real engineering to construct a portable tipper that is compact and still strong enough to carry the weight of an old upright; which means it's a job best left to the professionals.

A tipper is a real asset to an enterprising technician who wants



to expand technology by installing casters, doping pin blocks, re-stringing uprights, refinishing and other possibilities. As with many other necessary pieces of shop equipment, it must be given respect and used with common sense. □

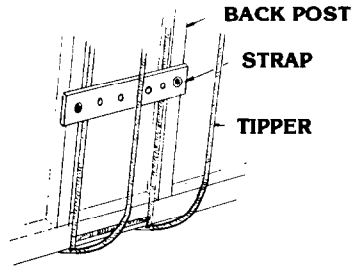
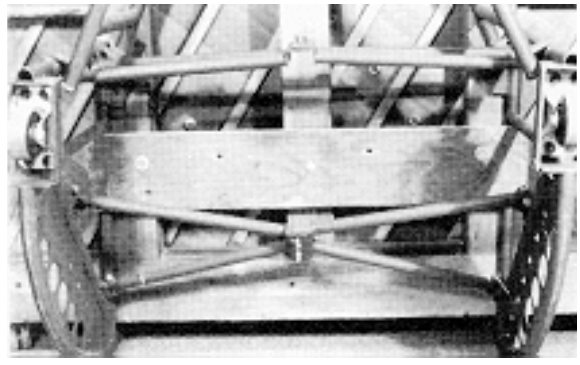
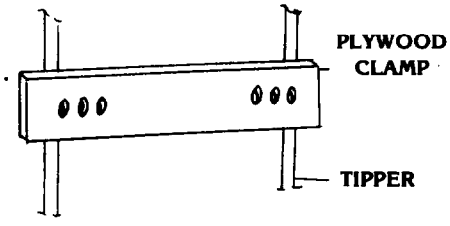


Illustration shows use of plywood strap clamp attached to back posts with ¼ inch lag bolts. Use flat washers under heads. The addition of a length of 1x1 angle iron would provide greater strength to strap.



Strap clamp bolted in place. Arrow is pointing to spacer to compensate for gap between tipper prongs and bottom of piano.



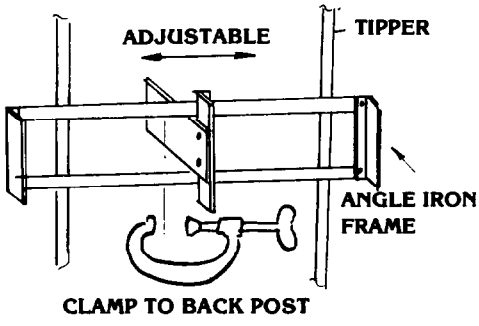
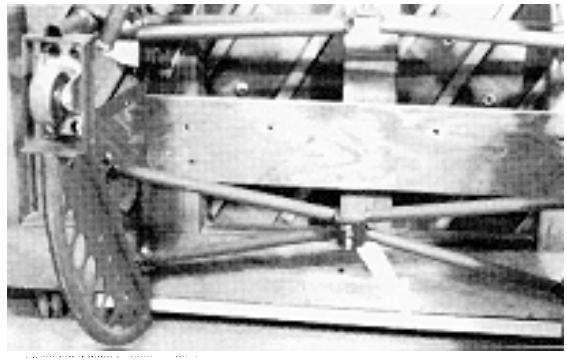


Illustration shows two types of strap clamps which are ideal in shop use where piano will be tipped several times. Basic plate is ¾-inch plywood. Clamp with adjustable center piece is angle iron frame bolted or welded together. Center piece can be metal or wood attached to angle iron. This can be adjusted in either direction to attach to back post with sturdy "C" clamp. In lieu of above, nylon straps are good but sometimes in the way for certain work operations.



Strap clamp mounted in position. Drill with 7/32 or #2 drill. Use long ¼" lag bolts with flat washers. Holes can be filled or plugged.

Hold piano firmly against tipper to maintain contact between the two until weight of piano is on tipper. This is absolutely necessary if some form of clamp is not used.

MUSICAL INSTRUMENT EXPORTS UP 16 PERCENT

The dollar value of exports of musical instruments surpassed the value of imports for the first time in 1979. Exports totaled more than $195 million while imports fell to $190 million, according to an analysis of government figures by the American Music Conference.

There was a small increase in pianos exported last year, but the value of the category rose to nearly $18 million due to price increases. The value of the average piano exported was up from $734 in 1978 to $865 in 1979.

Exports of electric guitars rose 25 percent in units and had a dollar value of almost $12 million. American-made electric guitars were shipped to some 60 countries in 1979 including the U.S.S.R., but the largest quantity was received by the United Kingdom and Japan.

Brasswind instruments shipped abroad were up 32 percent in units, and about the same in dollars since the average unit price rose only marginally. The total of the brasswinds category was about $9.5 million.

Exports of percussion instruments were ahead 53 percent; synthesizers and electric pianos were up 24 percent over 1978, bringing the total dollar value to over $20 million.

The number of acoustic guitars exported dropped 19 percent but the dollar value rose substantially since the typical guitar exported in 1979 cost $166 compared with $104 the previous year.

Also registering declines in exports were all types of organs, other plucked and bowed instruments (excluding guitars), which fell 42 percent in units against 1978, and woodwinds, which dropped in number of units but rose in value. Electronic organs are still the largest export category in dollars: more than 53,000 organs were exported in 1979 for a value of nearly $55 million. Dollars were only slightly lower than 1978, but units were down 13 percent. Australia and The Netherlands joined Canada as the major purchasers of electronic organs in 1979.

IMPORTS DROP 5 PERCENT

After steady increases in imports during the 1970's, the total value of musical instruments and parts purchased by American buyers fell 5 percent in 1979. Significant declines in units were registered by all types of organs, accordions and concertinas, mouth organs, brasswind instruments, clarinets and saxophones.

Imported electric guitars were up 13 percent in units but the dollar value rose only 9 percent, reflecting larger shipments of less expensive units from Korea, and a decline in units from Japan.

Imports of violins, violas and other bowed strings continued on an upward swing in 1979; units rose 9 percent and dollars were up 17 percent.

In response to a request by the American Music Conference, for the first time the Department of Commerce has broken out the units and dollars involved in imports of electric pianos and synthesizers. Almost 13,000 electric pianos were imported in 1979 with a value of almost $5 million. About two-thirds of all the units came from Italy. Six thousand synthesizers were imported with a value of just over $2 million; the principal supplier was Japan.

Brasswinds had a 34 percent decline, while clarinets were down 3 percent, and 13 percent fewer saxophones were imported.

The average piano imported in 1979 was valued at $1,284, an increase of 15 percent over 1978, but units were down marginally to just over 27,000. Unamplified guitars, always the largest category in units, dropped slightly. More than one million guitars imported from Korea and Taiwan during 1979 were all valued at about $19. The average value of a Korean-made guitar rose over 40 percent, while the value of a guitar made in Taiwan dropped about $3. The result was that the average value of the one million guitars imported from Korea and Taiwan in 1979 was about the same: $19.

Units and dollars in the electronic organ category were sharply down in 1979 due to a decrease in imports from Italy, and shipments of much lower-priced units from Japan. The landed value of an average imported organ (with a U.S. retail value of more than $1,000) was $593 as compared to nearly $1,000 in 1978.

The value of Japanese imports ranged from more than $700 to less than $50; almost 6,000 units were imported with a value of less than $50 from Japan. In all, the electronic organ category was down 54 percent in dollars, from $18 million in 1978 to $8 million in 1979.

Accordions and concertinas are at their lowest import level since AMC has been compiling import-export data: they dropped 41 percent in units for a total of 10,215, with a value of $1.7 million. □

Classified Advertising

CLASSIFIED ADVERTISING RATES are 15 cents per word with a $3.00 minimum. Full payment should accompany insertion request. Closing date for ads is the first of the month prior to publication.

Box numbers and zip codes count as one word each. Telephone numbers count as two words. Names of cities and states count as one word each.

Send check or money order (U.S. funds), made payable to the Piano Technicians Guild, to Classified Ads, THE JOURNAL, 113 Dexter Avenue North, Seattle, WA 98109.

The Journal does NOT provide blind box service. Please include a mailing address and/or telephone number with your ad.

Ads appearing in this journal are not necessarily an official endorsement of the services or products listed.

FOR SALE

TUNING BUSINESS FOR SALE — Midwest. $20,000 to $28,000 profit. 1660 customers, mostly repeat. Want $2500. Write: **Averitt Piano Service, 406 S. 16th St., Richmond, IN 47374**

KEY RECOVERING MACHINE — Build your own key recovering machine. All parts and/or completed machines now available. Send $10 pp. for accurate machine drawing instructions, photos to: **Solenberger Piano Service, 1551 Lynn Court, Santa Rosa, CA 95405 or (707) 542-1756**

PIANOS FOR SALE — Always on hand, 150 to 300 uprights! Plain case, art case, and players. Also 50 to 150 grands at all times, as is or rebuilt. Excellent brand names — no junk! All set up for inspection. Lowest possible prices. **Call for quotes: Owen Piano Wholesalers, 2152 W. Washington Blvd., Los Angeles, CA 90018. Telephone: (213) 883-9643**

For Sale: "Tecniklavier", circa 1930, mint condition. Techniklavier: a practice keyboard or technical device of the New York Virgil Piano School. Photographs and other information available to interested buyers. **Contact: Roland Edmunton, P.O. Box 5106, San Francisco, CA 94101.**

QUARTERSAWN 5-PLY Vermont rock maple pin blocks. Resorcinol glue. **Call or write: George H. Wheeler, R.T.T. 11 Cherry Hill, Springfield, Vermont 05156 (802) 885-5325**

REPLACEMENT REEDS available for use in Parlour Reed Organs. Send inquiry to **Paul W. Toelken, Box 5017, Prescott Valley, AZ 86312**

HELP WANTED

EXPERIENCED TECHNICIAN wanted by Yamaha-Wurlitzer dealer who understands and values quality service. **Privette Music Company, Inc., 1302 West Evans Street, Florence, SC 29501. Telephone (803) 662-3089**

PIANO TUNER - TECHNICIAN - REBUILDER desired. Experience preferred; however, recent graduates considered. We offer a full-time piano shop, specializing in rebuilding grands. Established customers in community and schools. We offer a full-time salary and benefits depending on experience. Please send resume to: **Henri's Music, P.O. Box 3589, Green Bay, Wisconsin 54303**

TIRED of the cold? Move South to Houston. Our Tuners make $22,000 per year, plus benefits. Call **Freeman: (713) 683-9221**

POSITION AVAILABLE — Technician teacher desired at Conservatory of Music — tune pianos and assist in the instruction of the Piano Technology curriculum. Contact: **Dr. Charlotte A. Collins, Shenandoah College and Conservatory of Music, Winchester, Virginia 22601**

HELP WANTED — Artist piano-rental company seeks trainee. Work with the greatest pianos and artists in the world. An apprentice or novice technician is sought for long-term training and employment in New York City, with possible relocation to San Francisco or Los Angeles. Must be willing to embrace with equal zeal the following: tuning, rebuilding, truck driving, refinishing, piano moving, regulating, shop remodeling, voicing, road touring and sometimes long and unusual hours. Benefits: work with the world leader in concert piano preparation and provision, all types of artists, all types of music. As a reward for long-term loyalty, profit sharing or other bonus could apply. **(212) 582-6798**

FULL-TIME FLOOR TUNER needed in Houston, Texas. No travel. Approximately $1,000 per month. Call **Freeman: (713) 683-9221**

PIANO TUNER & TECHNICIAN, full time salary and benefits negotiable depending on experience. Excellent opportunity for advancement with progressive full-line store. Send resume to: **Henri's Music, P.O. Box 3589, Green Bay, WI 54303**

STOLEN: Baldwin Spinet #9209675 Style 322 Colonial Pine. Call Ed Pettengill 607-669-4151 or Larkin Music 607-722-3933. Reward.

WANTED

PIANO TECHNICIAN seeking job opportunities; willing to relocate; registered craftsman member. Please write: **Walter F. Gramza, Jr., P.O. Box 201, East Rochester, New York 14445**

WANT TO BUY — Top player piano stack for Story-Clark #89825. B-49 casted on piano plate. Stack has 28 bass notes, 30 tenor, 30 treble. **Eddie Oliver, Box 4604, Bisbee, AZ 85603. Phone (602) 432-4154.**

QUALIFIED TECHNICIAN wanted to purchase established business in sunny California. Write for details, state qualifications. **Walt Eckstein, 1020 West Las Flores Way, Santa Maria, CA 93454**

WANTED — One used Sight-O-Tuner, in respectable condition. **Contact David Diaman, 6405 E. Indian School Rd. #9, Scottsdale, AZ 85251 (602) 945-3614**

PIANO TECHNICIAN desires full-time employment with music school department or retail store. **Contact William Haggerty, 242 West Filbert Street, East Rochester, N.Y. 14445. Phone (716) 381-5649**

WANTED TO BUY — Mason & Hamlin Grand Piano. Want one that was a player. I have a player mechanism to install. Will pay handsome reward. **Brady, 4609 Crankbrook, Indianapolis, IN 46250 — (317) 259-4305 after 5 p.m. (317) 849-1469**

Highly qualified **MASTER PIANOMAKER** seeking position. Young 32, highly experienced piano master moving to the States. 7 years' experience through manufacturers in managing positions. Experienced in all aspects of piano manufacturing, design, product development, tool and machinery design, industrial engineering, quality control, customer service and also 1 year experience in international operations. Speaks 5 languages and familiar with the piano and allied industries. Arriving to the States June 10, 1980, and will be available for personal interview upon request. For further information, please call: **Z. Ronai (305) 653-0325**

WANTED TO BUY — Ampico, Duo-Art and Welte piano rolls. Any rolls other than regular 88-note rolls. Also want parts for Ampico or Duo-Art players. **Brady, 4609 Cranbrook, Indianapolis, IN 46250; (317) 259-4305. After 5 p.m. 849-1469**

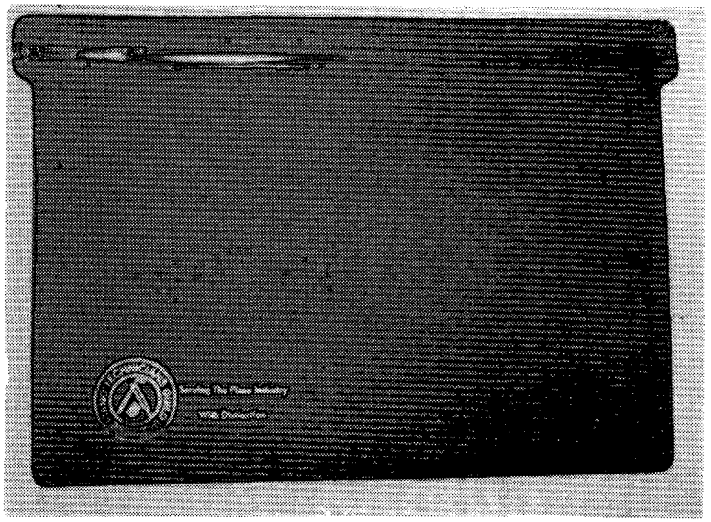
I AM NO longer able to continue with my piano tuning business and wish to sell my tools and piano parts. **Lewis M. Watson: phone 916-343-7193**

MISCELLANEOUS

TUNERDATA: (1) Mail reminders make money for you; (2) geographical files make money for you; (3) we'll do them both for you. **Write Ed Fesler, 11315 Rich Circle, Minneapolis, MN 55437**

NEW!

New from your Piano Technicians Guild Sales Department



Meeting and Sales Portfolio

In response to popular demand, we now have available these navy blue, zippered, vinyl portfolios. They measure 16"x12" and have the Guild logo in gold stamped on them. Quantity discounts!

Quantity	Price
1–25	$2.50 each
26–99	$2.25 each
100 & over	$1.95 each

(Don't forget to include handling and shipping costs with your order.)

Piano Technicians Guild, Inc.

PLEASE SEND:	Quantity	Price	Total
		SUBTOTAL	

ADD SHIPPING AND HANDLING

If order totals:	Below $5.00	$5 to $9.99	$10 to $14.99	$15 to $24.99	$25 or More
Add:	$1.00	$1.50	$2.00	$2.50	None

Washington State residents only add 5.3% sales tax

Enclose check or money order for this amount **TOTAL U.S. FUNDS**

ORDERS UNDER $10 MUST BE PAID IN ADVANCE.

Name _____

Address _____

City/State or Province _____

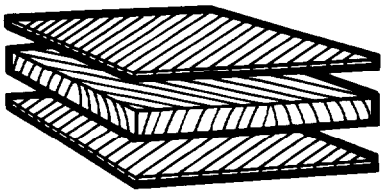
Zip/Postal Code _____ Phone _____

Chapter _____ Nonmember _____

MAIL TO: PIANO TECHNICIANS GUILD
113 DEXTER AVENUE NORTH
SEATTLE, WASHINGTON 98109

PLEASE FEEL FREE TO PHOTOCOPY THIS ORDER FORM

Pencil point proves performance of new Wurlitzer Soundboard

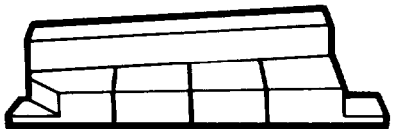


The grain of the wood in both top and bottom layers of the new soundboard runs parallel to the general direction of the treble bridge. The fine grain of the inside layer runs in the direction of the ribs.

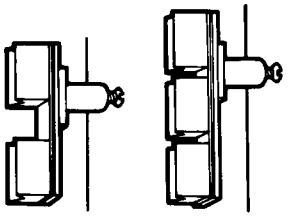
Picture below shows relationship of crowned rib to soundboard. Putting a crown into the underside of the ribs holds a crown in the soundboard. This soundboard is of uniform thickness throughout.

Wurlitzer's new all-spruce Duraphonic Multi-radial™ Soundboard transmits string vibrations more efficiently than any other.
To prove its responsiveness, touch the point of a sharp pencil to any area of the board and strike a note as you hold the pencil gently against the surface. Test it top, bottom, sides and center. You will feel vibrations that are both strong and evenly distributed.

Further enhancing tone production is a new Quadrasonic™ bass bridge built in four sections. Low notes do not oscillate the whole bridge, but transmit more directly into the soundboard.



Dynamic response of the new soundboard is so much greater, Wurlitzer has increased the damper size by 30% to control the greater tonal output.

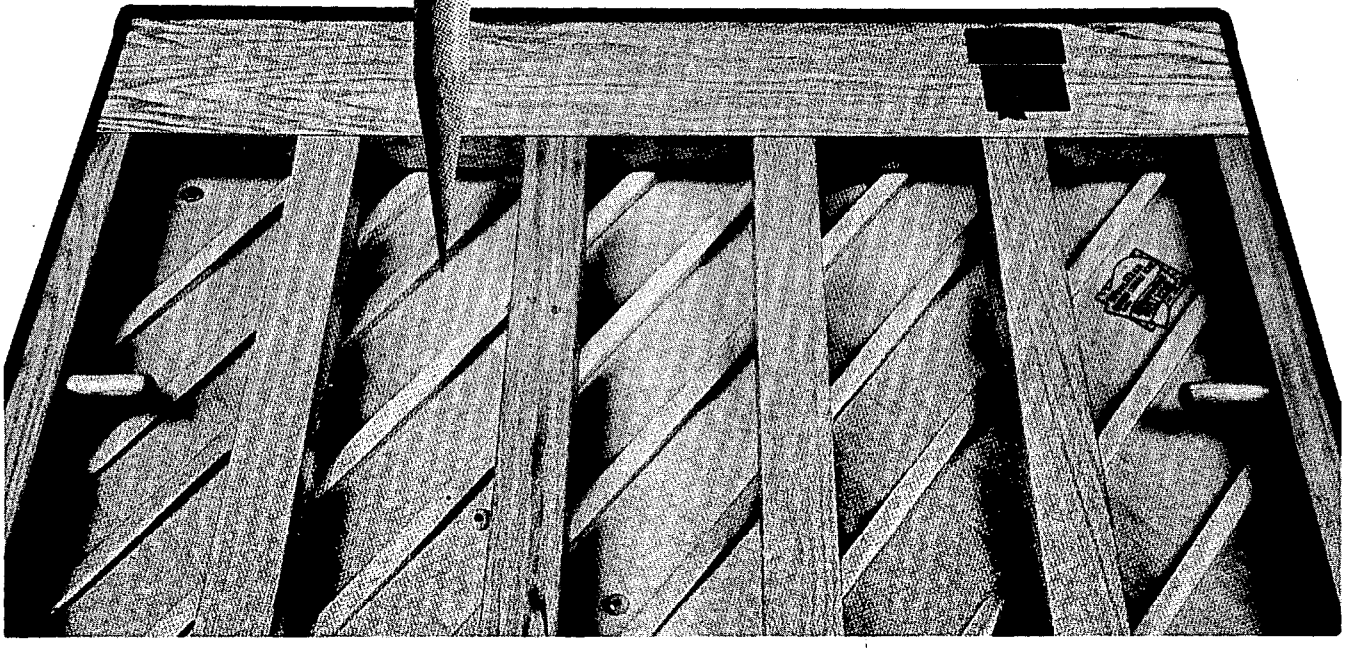


That is because Wurlitzer now uses three separate layers of mountain-grown spruce in all of its finer pianos. These layers are placed at scientific angles so they transmit string vibrations (which travel mostly with the grain) to all corners of the board. The result is more volume, richer tone, and greater dynamic range. Crowning of the soundboard is achieved by crowning both ribs and soundboard liners. The soundboard itself is of equal thickness throughout and is therefore more capable of equal response in all areas.

Of still greater interest to technicians, this new soundboard is more stable, with a coefficient of expansion/contraction that is 80% lower than that of solid spruce. This means truer tuning and fewer problems caused by moisture or temperature variations.

If you would like assistance from Wurlitzer technical staff, call 800/435-2930 toll-free between 8:00 AM and 4:30 PM. For parts, call Code-A-Phone 800/435-6954. In Illinois call 815/756-2771.

WURLITZER®
The Music People
DeKalb, Illinois 60115



PIANO TECHNICIANS GUILD
JULY 1980 UPDATE

Your Board In Action

George Peters, C.P.R.V.P.

In a recent conversation with Immediate Past President Don Morton, he pointed out the misconception some members have of the approach to, and implementation of, increasing the membership of our organization, the helter skelter "recruiting" of any warm body instead of concentrating on qualified practicing piano technicians.

I concur with this observation. We should be striving for increased quality, not quantity, with the resultant public recognition of our high standard of membership. Then, and only then, will the non-member piano technician rap on our front door with increasing frequency.

During a recent program for a chapter, one of the members asked me how they could convince the hold out non-member of the value of the membership card when a large segment of the piano owning public isn't aware of our organization.

I pointed out to him that it is his fault and mentioned various ways to correct this deficiency. As a chapter president I had appeared on T.V. in a question and answer type program, regarding care of the piano, selecting a piano technician you can trust, etc. Also, I was the subject of a full-page newspaper article of the interview type, consisting of the same format, with accompanying photos. This type of exposure afforded an excellent opportunity to get in some plugs for the Piano Technicians Guild and I did so, advantageously. I continue to do so as an R.V.P.

One of the officers of that chapter later sent me a letter, with a newspaper clipping enclosed. He had listened to my suggestions and his efforts had resulted in some nice publicity for his chapter and the Guild.

I'll wager some of the piano owners in that area will start asking their piano technicians if they belong to the Piano Technicians Guild.

By adhering to our entrance examinations, observing and enforcing our code of ethics and not deviating from the guidance of our bylaws, within this framework lies the quality to build our membership, then ballyhoo our pride of the Piano Technicians Guild with all the ingenuity we are capable of. □

Nomination For Guild Office

William S. Brandom, Jr., who was nominated for Central West Regional Vice President, has withdrawn his name because he will be moving out of Central West Region. Ernie Preuitt's chapter has proposed his name for the position and Ernie has said that he is willing to be nominated again for CWRVP.
— Charles Burbach, Chairman, Nominating Committee

Membership Cards

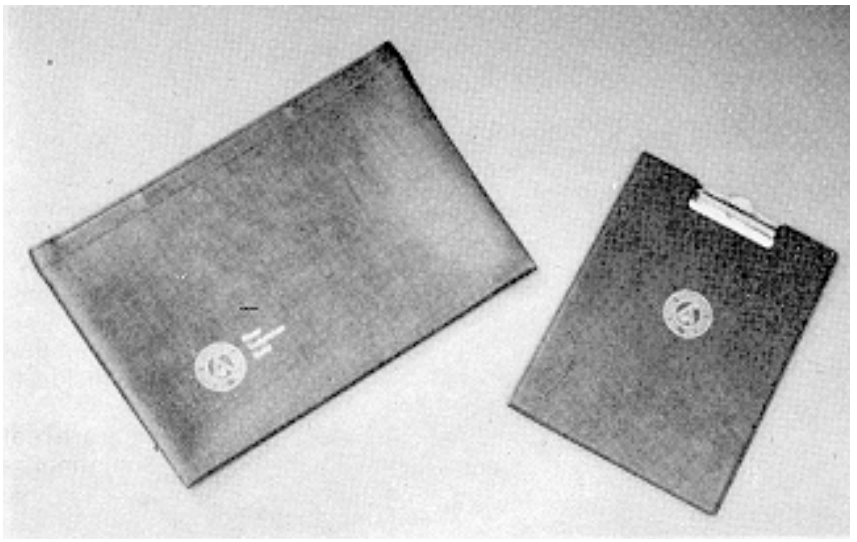
Membership cards are mailed to members once a month after the dues payment for 1980 has been recorded in the accounting department.

Registered Technician Certificates

All Registered Technicians on the Guild membership rolls through May 15th should now have received the engraved Registered Technician Certificate. Those who received the 1979 certificate have been mailed the small gold seal marked "1980" which can be placed over the 1979 or alongside to show that the member is in good standing for the year.

May Chapter Mailing

... was the 1980 Agenda Book mailed to each chapter president. The Agenda Book is to be displayed at a chapter meeting so that any member may examine the agenda items before the book is handed to the chapter delegate to bring to the Council business session.



Something new for the discriminating technician — deluxe simulated soft dark brown leather portfolio-briefcase with gold embossed Piano Technicians Guild logo. Large enough to hold three-ring binder and 11x14 inch papers. Every member registered for the convention will receive the matching hard cover clipboard folder with 8½x11 note pad. Order your complete set while we still have them in stock. The portfolio-briefcase is $8; the clipboard-folder and notepad is $5.

June Chapter Mailing

. . . is a letter to chapters from the Chapter Achievement Committee encouraging all chapters to take part in the new chapter achievement program.

Special Note

Mary Schwendeman is not a Registered Technician in the Boston Chapter as stated in an earlier issue. She completed her examinations and was accepted as a Registered Technician in the New Jersey Chapter.

JOURNAL BINDERS

We have had some enquiry for Journal binders to fit the old larger size Journals. The binder we have in stock fit the new 8½x11 Journal. If you or your chapter need the larger size binders please write or call the Home Office. If we have enough orders we will have them made for you at approximately the same price as the smaller ones.

Donations To The Guild Library

Special thanks to six of our members for donations to the Guild Library of the following:

ROBERT E. MORRIS — *Piano Tuning, Regulating and Repairing.* Book by J. Cree Fisher. First edition 1907; *Scientific Piano Tuning and Servicing.* Book by Alfred H. Howe. First edition 1941;

DONALD U. KRESGE — *What is your Piano All About and Allied Subjects* by Don U. Kresge. First edition 1974. (Two copies);

ARTHUR H. BYERLY, HIRAM HARDING — Many years' back issues of the Piano Technicians Journal;

ELOISE ROSS — Several years' back issues of the Piano Technicians Journal; and

FRIEDA HOSKINS (Mrs. Leslie Hoskins) — Many years' back issues of the Journal.

Moving? Changing Your Address?

Be sure of your regular Journal delivery by asking the Post Office to forward your Journal to your new address. Journals that cannot be delivered because the addressee has moved are not returned to us. We are sent a notice only and must pay .25¢ for each non-delivery notice.

To mail a duplicate copy means double Journal costs plus the return postage notice cost plus around .60¢ remailing charges plus office overhead. The Home Office has done this whenever possible but we are finding that it is becoming more difficult to do so now that we no longer have so large an overrun of the Journal printing each month.

BECAUSE WE WANT TO BE SURE YOU RECEIVE YOUR REGULAR JOURNAL EACH MONTH!

1. Please ask the Post Office to forward your Journal to you when you move.
2. Please notify the Home Office as soon as possible, 5-6 weeks before you change your address.
3. Should you not receive a Journal, please advise us immediately. On such prompt notification we can usually send a duplicate. When notified after any delay, we are not able to promise a duplicate Journal.

In Memoriam

GUILD MEMBERS

HAROLD T. BRUNDIN, Twin Cities Chapter Sustaining Member

WILLARD GARDNER, Indianapolis Chapter Sustaining Member

AUXILIARY MEMBERS

WANDA ROKOS, San Diego

FLORENCE BALDWIN, San Diego

A NICE WAY TO START THE NEW YEAR

Not because we're located near the White House or the Capitol, but because of our proximity to Andrews Air Force Base, the Washington, D.C. chapter was indeed fortunate to have Ruth & Raye McCall take a day off from their visit to their son and his family to do an all-day technical session for us. The day, January 6, started with Raye presenting his class on "Glues & Epoxies". The rest of the day was devoted to "Restoring the Old Player Piano" and included vertical regulation and repairs & renovation of player parts. This part of the program was shared with Ruth McCall, a recognized expert in restoring player mechanisms. There were visual aids such as slide projections and our own Dick Dahlberg brought various player parts plus a Gordon & Son double valve standard action player piano (1912) restored by and belonging to John Grant. Although we had our first "real" snowstorm the day before, the attendance was very good, with people traveling (over icy roads) from Richmond and Winchester, Virginia, and Baltimore and Frederick, Maryland. Ruth and Raye McCall are delightful and knowledgeable people and we all spent a most interesting day together.

Libby Blatt
Journal Correspondent

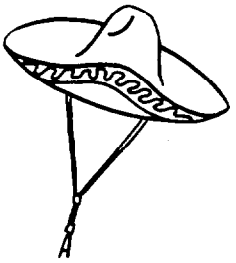
Cassettes Too!

UPDATE: 1980 TECHNICAL TAPES

Education cassettes of the Technical Institute sessions of the Philadelphia Piano Technicians Guild Convention are available at a cost of $6.50 each, tax included, covering programs up to 1½ hours in length.

The order form and a list of the subject matter of tapes are available from the Home Office, 113 Dexter Avenue North, Seattle, WA 98109.

Brazil



(Editor's note: Jack Krefting, technical editor of the **Piano Technicians Journal**, *recently traveled to Brazil where he had a chance to observe Brazilian piano technicians and piano dealers.)*

by Jack Krefting
Journal Technical Editor

Brazil is an enormous country, as big as the 48 contiguous states of the U.S.A. and every bit as beautiful in its own way. They have a corrupt military government and an 80 per cent inflation rate, and everything is horribly expensive except filet mignon, which sells at lunch counters for the price of a hamburger here.

Piano technicians in Brazil have had a different kind of training, too. Many of the ones I met couldn't set a decent temperament to save their lives, and they had lousy tools, but they were equipped with string-winding machines and hammer presses. It was kind of like a frontier community, where anything that had to be done could be done; but nothing was done with any notable finesse.

There are apparently no supply houses in the country; all the supplies and tools I saw had been imported from Europe or the U.S. There are no training schools either, which means that technicians are trained either by factory experience or as apprentices.

The leading Brazilian piano maker is Fritz Dobbert, who builds four styles of verticals on two basic backs, plus one small grand. The verticals are old-style uprights with beautiful cabinetry and not much else. The grand I inspected was very pretty, too, but definitely lacking in performance. The emphasis seems to follow the European mold — no design research or development to speak of, but a lot of attention paid to cosmetics, even down to the smallest details inside the piano.

Brazilian piano dealers are really confused when evaluating an American piano because they are accustomed to using Brazilian standards. When compared side by side with a Brazilian piano, the American instrument just isn't as pretty, especially on the inside. That seemed like a sure indication of poor quality to the dealers, and they couldn't understand why the American pianos sounded so much better.

The scuttlebutt from the technicians is that the Brazilian pinblocks don't hold up well, even though they are made of Marfim, a local hardwood that is stronger than maple. But they use a few fat laminations and probably don't orient the grain to its best advantage, so the pins are loose.

Easily the best part of the trip was the terrific hospitality and friendliness of the Brazilian people. I encountered not a single instance of hostility, even though I was an American coming in to tell them how to run their own business. The language difficulty could have been really formidable, but they good-naturedly put up with my fractured Spanish while I tried to figure out their Portuguese. We ended up doing a lot of charades and sign language, to the amusement of all. I'm still unsure whether they were laughing with me or at me, but I prefer to believe it was the former.

The plane ride back home was so bad because of the fat lady next to me who had three bags of home-cooked food and a big guitar as carry-on luggage and kept accusing everyone of trying to steal her bracelet and wouldn't let anyone sleep and was so generally disgusting that I'm not even going to tell you about it.

Chapter Notes

... **The Sacramento Valley Chapter** has been making progress in an effort to complete their Ellington piano. Member Phil Frankenburg recently spent an afternoon doing some regulating and troubleshooting on it, and member John Fuller has arranged to have the piano sold on consignment by the Organ and Piano Center. That firm has told chapter members that there should be no difficulty selling the piano, and the chapter should make around $1500 from the sale.

... **The Connecticut Chapter**, meanwhile, is continuing its work rebuilding a Sterling grand. After the chapter work session on May 21, the members had completed enough work to begin stringing.

The chapter also named Scotty Welton as its man of the year at the chapter's annual spring banquet and presented Clayton F. Shufelt with a plaque for his work on the chapter newsletter.

... The first seminar of the newly formed **Vancouver Island Chapter** was held in late May. Technical instruction was given on dampers by Don Galt and on tools by Francis Mehaffey.

... **The Montana Chapter** is applying for a transfer from the central to the western region of the Guild.

... **The Twin Cities Chapter** (Minneapolis-St. Paul) put the cost of pianos in perspective in an article in its June newsletter. Written by Phil Bach, the article said in part:

"Prior to World War II, a good, medium-grade spinet or console sold for about $295. A new Chevrolet was about $650; and a new Pontiac was about $800. In 1980, a good, medium-grade piano is still less than half the price of a standard car, perhaps even less."

That article also placed piano tuning in a comparable context.

"In 1907, piano tuning was $2.50 (in Rochester, Minnesota). A good lunch was 25¢, and a new suit cost $15 with vest and second trousers. In 1980, a piano tuning still buys 10 lunches, and it still takes six tunings to buy a new suit. In reality, nothing much has changed. It's all relative."

... **The Connecticut Chapter** received an honor recently when Connecticut Governor Ella Grasso designated May 11 as Piano Technicians' Day in that state. In her proclamation, the governor praised the Piano Technicians' Guild generally and the Connecticut Chapter in particular.

"The Connecticut Chapter of the Guild has exemplified this fine organization's commitment to quality, having won the Chapter of the Year Award on several occasions in recognition of its members' expertise and skill in piano construction and technology. Their dedication and skill was especially evident in their painstaking construction of a duplicate of the first piano built in the United States," Grasso said.

... **The San Francisco Chapter** pointed out in its June newsletter the problems many members had crossing over into Canada to attend the Pacific Northwest Conference Convention in April. Jim Coleman of the **Phoenix Chapter** was unable to bring the electronic equipment used for the Guild tuning examinations into Canada without paying a duty of $350. After obtaining a receipt, he left his equipment at the customs station. Don Morton, immediate past president of the Guild, had to pay $18 duty on a gift he brought to be given away at the convention banquet. Francis Mehaffey of the **Pomona Valley Chapter**, though, had no trouble bringing his tools. Mehaffey is a Canadian citizen. □

About The 1980 Membership Roster

The new format for the 1980 Membership Roster uses production methods from our computer records. This eliminates much costly preparation, but does have some problems:

The 'classification code' for each member, as ordered and indicated in the Roster on the page HOW TO USE THIS NEW ROSTER, was omitted. The computer company has, therefore, prepared a supplement which lists every member by classification. Each classification is shown separately and each member in that class listed alphabetically.

This supplement will be available at the convention in Philadelphia for those attending and will be mailed to all other members after the convention.

In a few cases we have found duplication of names. This occurred on member transfers between chapters, and the computer company is working to eliminate this problem.

Please note that the Roster shows membership as of the end of May. Transfers, reinstatements, address changes, etc., received after that date, are not included.

We hope you are pleased to have the Roster this year. We plan to make the next one even better.