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August 1981



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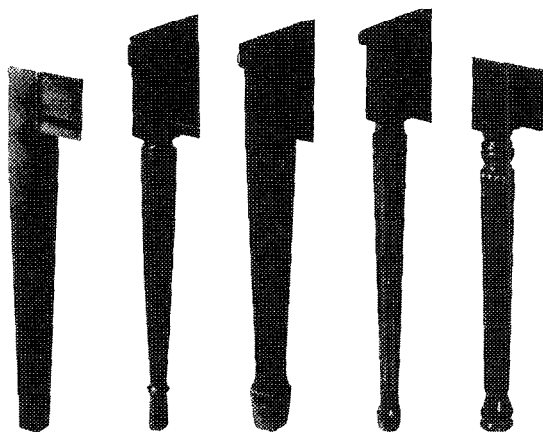


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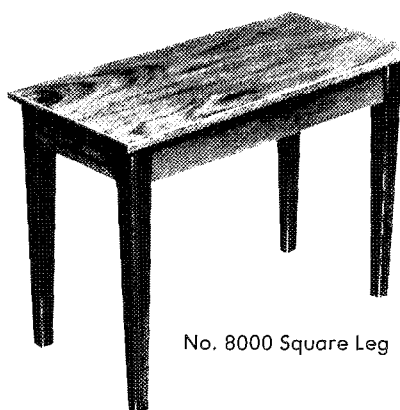
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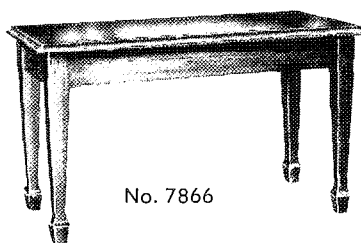


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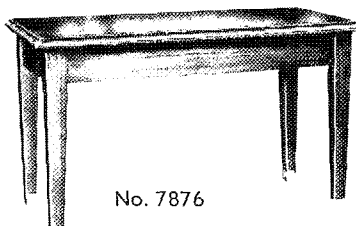
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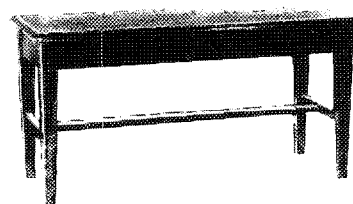
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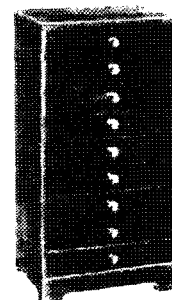


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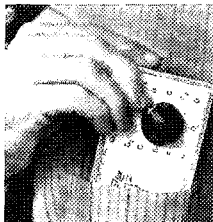
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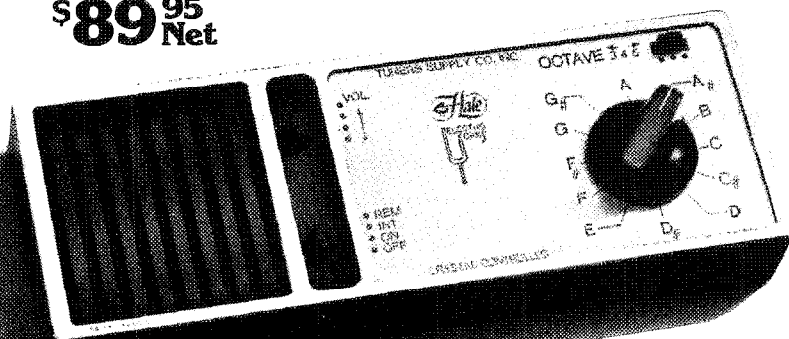
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# EDITORIAL

Don L. Santy,  
Executive Editor

This whole matter of ethics in the market place has become a vexing one. What may be totally reprehensible to one may be perfectly acceptable to another. What one may consider "just good business" another may view as dishonest or totally unwarranted. What one technician may consider actions perfectly within the bounds of fair business practices, the tuner down the street may take offense at and complain bitterly about to all within reach, and the Home Office in particular. We get lots of mail like this. Like morality, it sometimes looks like ethics have become a matter of opinion.

Ethics and morality are close cousins. Ethics could simply be defined as those actions that are only right and proper. Webster goes a little farther and defines ethics as "in accordance with rules or standards for right conduct or practice." Morality, as traditionally based on Judeo/Christian concepts, has somehow slipped through the cracks of time. One has only to go to a movie, watch TV or raise kids to realize this trend.

We get letters from technicians decrying the lack of ethics in the industry. The tuner who runs down another's work. The tuner who destroys another's reputation. The tuner who places "business promotion" above honest, direct, fair and equal competition with his peers. How do they do this? Well, according to the letters I receive, sometimes very subtly. They explain to the customer that "so and so really doesn't have the experience, background and qualifications that I have. I can understand the shabbiness of his work; after all, he is a newcomer to the business."

He might be even more subtle by saying, "Well, I don't use so much lubricant, especially on the key bushing felts and strings. That is a mark of inexperience, etc." Perhaps he uses the approach, when confronted with a disgruntled customer of another tuner, "Well, I know good old Joe, and his work used to be quite good, BUT . . ." Then there is the technician who simply says, "Yes, I talked with him not so long ago and he really doesn't want to work on your piano."

It seems to me that when one is confronted with a situation like this and the other person is a good member of the Guild, the member would assure the customer that something must have gone wrong. "I will contact the technician on your behalf and get to the root of the problem, and together we will correct the situation one way or another." Having done that, the technician should then contact his fellow Guild member and solve the problem through their joint effort and wisdom. This would be good for the customer, good for the Guild, good for the technicians involved and good for the industry. Ethics in action, isn't this what the Guild is all about?

FAITH in and cooperation with fellow Guild members, regardless of the competitive climate, is a must in a highly regarded professional society. NOT to the detriment of the cus-

tomer, NOT for the protection of a fellow technician, NOT to hide poor workmanship BUT to protect the good name of the Guild, the integrity of the profession and the ultimate welfare of the customer.

One must just ASSUME that a good member of the Guild will make good his work and maintain his reputation and integrity with customers. The technician doesn't always know when a customer is unhappy. It should be up to the receiver of the complaint to make it right with the customer and the member technician who did the job in the first place.

I am not referring, of course to the non-Guild member over whom we have no control and little communication. In this case running down the person will do no good and will just cast a poor reflection on the craft. The less said, the better. Just competent, skillful and expedient correction will say it all, especially if the customer knows you are a registered, qualified member of the Guild.

If a Guild member technician has overlooked something, failed to correct something or done a less than satisfactory job and requesting that technician's cooperation fails, then it should come to the attention of the Chapter, where local control belongs and is the most effective. It seems to me that the local reputation of the Guild should be held paramount in any Chapter. Members often state that public relations is a number one concern to them. NOTHING beats good customer relations and satisfaction in terms of good public relations.

Sometimes these complaints on "lost business" or "lack of professional ethics" take on the tone of a "sore loser" or they often depend on "whose ox is being gored." Even the government is getting in on the act in trying to regulate "codes of ethics" and the anti-trust laws are explicit in this regard. All codes of ethics are scrutinized for "restraint of trade" and "stifling of competition" elements.

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Another ETHICS question which has come to the Home Office attention is member misconduct at meetings. It is beyond me how a member can be openly critical of a speaker when he or she is simply trying to contribute something to your meeting, almost always at their own expense. Members who treat speakers—or each other, for that matter—with hostility and discourtesy should be brought under quick control by the chair through the liberal use of the gavel.

Unfortunately, some people just have to be negative and unpleasant in order to be happy. These people tend to destroy organizations, disrupt meetings, waste time, drive good people away and are terribly hard on your public relations image. This is certainly contrary to good ethics and should be dealt with accordingly.

I have even heard of one technician who claimed, "I only go to seminars to find out what these guys don't know." How sad. He is wasting his money, his time and usually contributes nothing to the organization. People who ill-treat others especially when they have the advantage of being part of an audience should just ask themselves one question—how would they like to be in that spot? They won't ask, however. They generally seldom practice the fine art of introspection. It can really be all wrapped up in that old homily

So many Gods, so many creeds,

So many paths that wind and wind,

When all this sad old world really needs

Is just the act of being kind!"

## Reader Feedback

Dear Mr. Santy:

Please convey my sincere appreciation to Mr. Carl Root for his article, "Evaluating Temperament Sequences" in the March 1981 *Journal*. Mr. Root put together the several methods we are exposed to in a comprehensive, clearly evaluated and well-spoken article. The unbiased presentation of the merits of each method and the consolidation of all into a progressively improved temperament is to be applauded.

John F. Lynch  
Clearwater, FL

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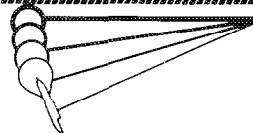
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# THE TECHNICAL FORUM

Jack Krefting, Technical Editor

We have received a request from Bob Musser of Grand Junction, Colorado, to publish more articles on tuning. I'm sure that Bob is looking for advanced material, but we also get occasional requests from students and apprentices for basic tuning articles. In response to the latter, I have asked Paul Monroe, a Craftsman from Orange County, California, to write a series of basic tuning and maintenance articles. The second article in that series appears in this issue.

Advanced tuning is more difficult to discuss in the print medium, as anyone who has ever attempted to write such an article will attest. I mean, what can one really say about unisons without sounding silly or patronizing? And since stretch ratios are so controversial and subjective, it is difficult to authoritatively state much about them beyond the obvious fact that they should be complementary to the temperament and as even as possible. That brings us to the temperament, which is a lot easier to talk about.

I would like to publish, with your help, either a major article or a series on temperaments. We might possibly get into historical temperaments at some point, but at least for now I would like to concentrate on the various ways to achieve equal temperament. Please send me a description of your favorite, and/or an unusual method which you might use under special circumstances. Most tuners use the F33 - F45 octave most of the time, but there are A temperaments and even C temperaments which work better for some tuners on certain instruments; I believe that this information would be beneficial to many of our readers. If you know who

invented the temperament, include that information so that we may give credit where it is due.

## BROKEN RIBS

QUESTION: "I have run into a vertical (40 years old, console) with broken ribs; not separated from the soundboard but broken along a soundboard crack. I can find no other evidence of stress. The plate seems O.K. The block has not separated from the back.

The crack runs along the bass side near the top of the piano. It (the edges of the crack) has separated close to 1/2 inch and the edges of the crack are no longer level. (If you continued the plane of 1/2 the board it would not

meet the plane of the other 1/2 for quite a while.) Three ribs are broken in this manner.

The customer says she was in the kitchen cooking when she heard a loud crack and eventually traced it to the piano. This happened 15 years ago.

Both the broken ribs and the way it happened suggest a great deal of stress somewhere, yet I am at a loss to find it. I don't feel I should repair it before finding the cause for it could rebreak.

I am the third technician to look at it in 15 years. So far, nothing has been done, not even tuning (for fear it would not hold). I have spoken to two technicians with more experience and gotten no fresh ideas.

Could you comment or suggest

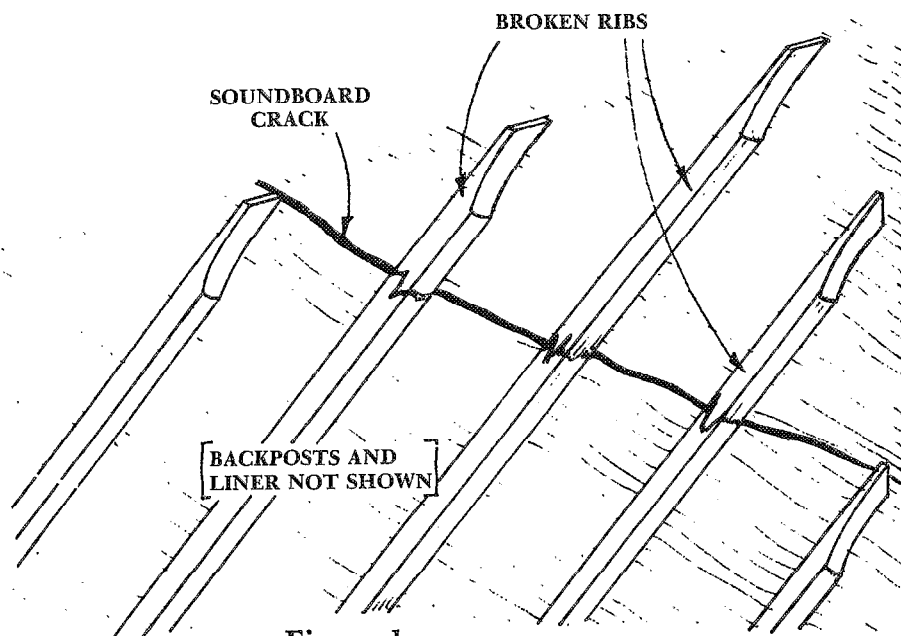


Figure 1



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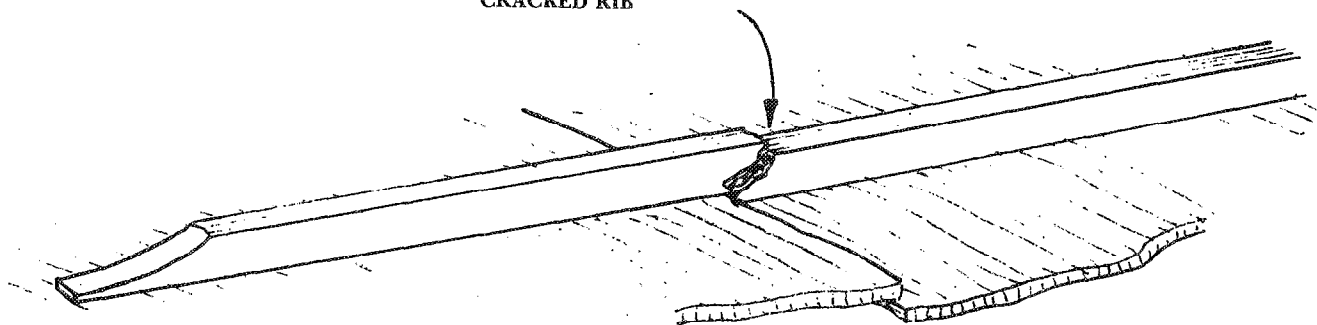


Figure 2

*something I may have missed. If I can locate the cause do you think a glue and dowel or screw job would be sufficient to repair the board and ribs?"*  
— Nancy M. Salmon, RTT, Hyndman, Pennsylvania.

**ANSWER:** The problem, as illustrated in **Figures 1 and 2**, does indeed appear to have been caused by unusual stress, possibly in the way the board was made and installed. The ribs could have been further weakened when the piano was moved, even though they didn't break at that time. The piano could have been dropped or racked (twisted), and the resultant shock or deformation snapped some of the wood fibers in the ribs. As the soundboard moved in and out with the seasons, more fibers gave way. We don't know just what the customer was cooking in the kitchen (steamed clams?) but the break probably occurred in a period of high relative humidity when the stress would be greater.

This piano may have contoured soundboard liner strips as shown in **Figure 3**. The purpose of this type of construction is to maintain the crown

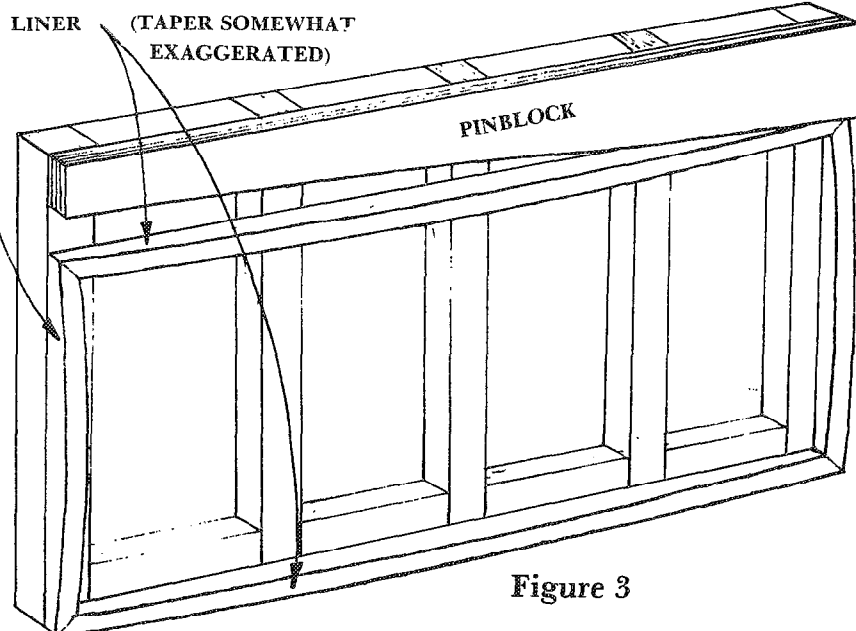


Figure 3

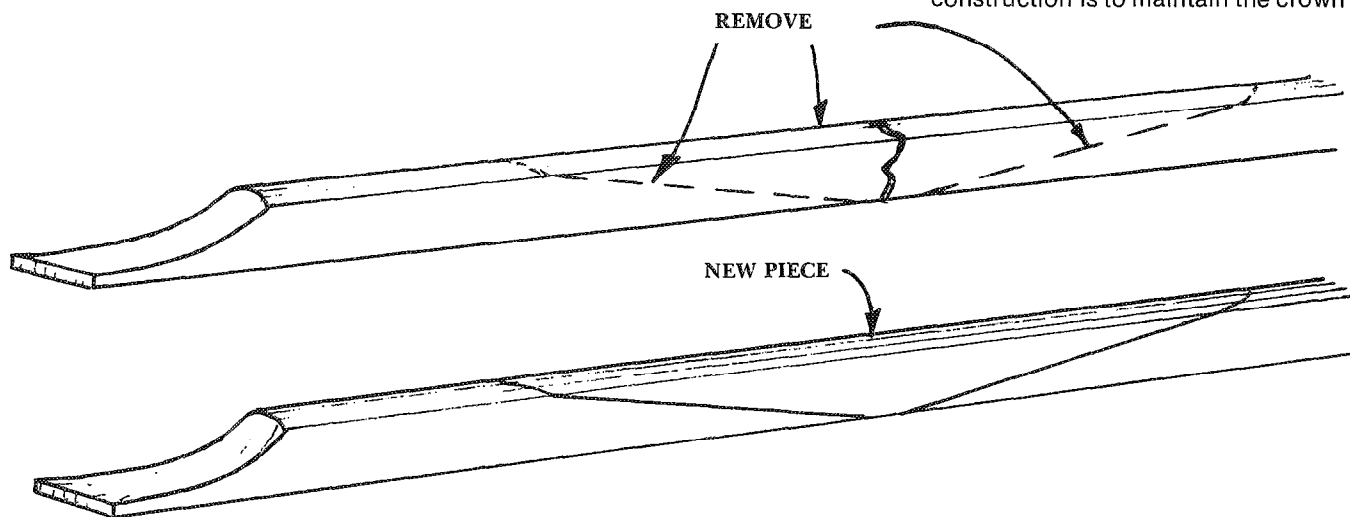


Figure 4



of the board, which it helps to do; unfortunately, regardless of the angle at which these strips are planed, the soundboard assembly is under constant stress. The exact amount of stress varies with the seasons, the amount of downbearing, and the contour of the liner as it relates to the shape of the board at a given time. A floating soundboard would be stressed far less, and might be considered ideal if its other problems could be solved.

The only good thing about this situation is that the crack is in the upper bass corner where the board is virtually dead anyway. This means that the technician has two options instead of one—she can scarf a new piece of wood into each rib as shown in **Figure 4**, or she can build a cutoff bar and install it along the length of the crack behind the board. The former method would restore the instrument essentially as it was designed, while the latter would change the design. Either way, the repair will require unusual woodworking skills and a thorough knowledge of piano design and construction.

Depending on the arrangement of the backposts and whether the ribs are notched into the liner, it just might be possible to remove and replace the three broken ribs. If this is done, however, the board must be dried down just like a new one before the ribs are installed or there will be no crown in that area of the board. I wouldn't really recommend this procedure because of all the problems involved, but it is a remote possibility.

#### HAMMER CHANGE WITH HUMIDITY

**QUESTION:** "... I wonder if you could discuss the other changes in a piano which take place with the humid, dry cycle. I have noticed remarkable changes in voicing, tone quality and overall stability from day to day with the changes of the seasons. I maintain some quality grands used for recital in a nearby College Music Dept. and they are tuned for each recital. Some times the change which can take place almost overnight is unbelievable. In addition to whatever happens to the soundboard and its effect on the tonal quality and resonance, the hammers are affected, I am sure. I have found, through the years, that long winters in dry locations produces a shrill brittle tone. Voicing helps, but it isn't the whole answer. As

*conditions change, whatever was done to the hammers shows up later as a detriment. The need to voice to counter these dramatic changes hastens the deterioration of the hammer and you can wind up with a set needing replacement long before normal wear and tear would require it.*

*A hammer should be resilient. Does a dried out hammer become more resilient? Or does it just get hard. And what about when the climate is humid?"* — **Charles Huether, RTT, Clifton, New Jersey.**

**ANSWER:** Moisture causes felt to swell, so that the hammers will produce a somewhat more mellow tone in a wet environment. Unfortunately, when hammers swell up they lose some of their tension because the felt fibers are partially pulled apart. They will brighten up again when the weather gets dry, partly because they shrink and partly because the mushy felt on top tends to pack into the hammer more readily than solid tension felt would under the same playing conditions. This sound is, as Charlie points out, shrill and brittle. The hammer must then be filed to restore the tone quality to something approaching the original sound; but there are limits to what can be done. The cycle of swelling, shrinking and filing is destructive to the hammer, and the damage is progressive — every year, the tone gets worse. Complaints about this generally come from owners of fine grands, probably because they tend to be more critical of tone quality, but all pianos are affected by fluctuations in humidity. There are literally thousands of clanging spinets out there, some of which are virtually never played or serviced.

Charlie makes another valid point in saying that the use of needles in dry weather hastens the demise of the hammers. In an attempt to achieve a decent sound from a hard hammer, the technician quite logically will voice it down. There is nothing wrong with that, but the next time the hammers swell up they will be even weaker and less resistant to fiber separation because of the needling which was previously necessary. After a few cycles of that, the hammers lose much of their tension and become mushy. There is nothing to be done for such a hammer except to throw it away. Hardening agents will make it hard, but will not produce a good sound.

I like to use the analogy of a golf ball when discussing hammer construction and voicing. Golf balls are hard on the outside and resilient on the inside, a condition which enables them to bounce much higher than, say, a tennis ball which is resilient inside and out. A nerf ball is even more resilient, inside and out, than a tennis ball; it bounces even less. A billiard ball, which is hard inside and out, might be loosely analogous to a lacquered hammer. It doesn't change its shape much on impact, and therefore won't bounce very well. A simple demonstration can be used to show how this affects piano hammers: Take two large hammers from a good set and lacquer one of them. Hold them together, tails up, and drop them onto a hard surface and observe which one bounces higher. The unlacquered one is sure to win.

The reason for this seemingly mindless digression into ball-bouncing is that the shape, hardness, texture and resiliency of the hammer have a profound effect on the tone produced. At the point of impact, the hammer flattens slightly, momentarily impressing its shape into the string. This slight flattening, which is greatly reduced in a lacquered hammer, does two things: it damps some of the higher partials which would otherwise dominate to an unpleasant degree, and it makes the hammer escape from the string faster. A hammer that has been needled too much will be too resilient at the crown, causing it to escape too slowly and damp too many partials, so volume,

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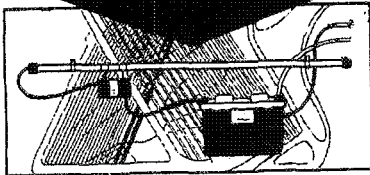
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clarity and carrying power are all reduced.

Conversely, a heavily lacquered hammer cannot flatten and rebound normally because the felt fibers have been glued together. If the choice had to be made between a mushy hammer and a lacquered one, I would opt for the latter in most instances; but there is no real substitute for the proper balance of tension and compression which is present in a good hammer.

**TERMINATION NOISE,  
TUNING INSTABILITY**

We have an interesting letter from E. Franklin Dukes of the Blue Ridge Chapter:

Dear Mr. Krefting,

*"I recently wrote to you about problems with tuning instability and undesired noises in certain sections of several pianos. Since that time I have some new information which might be important.*

*"One of the pianos, a Baldwin concert grand, is no longer a problem thanks to a small change in the position of the counterbearing bar in the offending section. I lowered the pitch about one whole tone in that section and gently tapped the bar closer to the pressure bar. A move of only approximately 1/16 of an inch was enough to eliminate the high-pitched buzzing sounds that formerly occurred when any note in that section was played. I could hardly believe that the change in counterbearing angle caused by such a small movement could be responsible for so dramatic a change, but I cannot think of any other explanation. Let me emphasize that the sounds were not harmonics from the strings of the front duplex scale; although those harmonics obviously were changed, they were not part of the original problem. I can only hope now that the tuning instability in this section has also been corrected.*

*"The other piano I recently tuned again, the Bosendorfer grand. Its problem, pitch instability in the highest treble section, was again obvious — the pitch was consistently sharper by as much as a quarter tone than the rest of the piano except for the last three or four notes, which were not sharp at all. I had thought that the downbearing was normal in this section, and indeed upon remeasurement it was — .010" in the middle of the section as measured by a Fowler downbearing instrument. But at the highest end of the treble it was .035" and at the beginning of the section it*

*was zero. The bridge does seem to cant slightly towards the tuning pins at its highest end (that section of the bridge over which the strings of the highest notes pass) but not enough for me to say positively that it is abnormal." — Frank Dukes, RTT, Keswick, Virginia.*

The old Baldwin was equipped with counterbearing bars made of brass, stamped out and folded into an inverted V shape. It is always possible that these were incorrectly placed by the factory or subsequently by a technician, but it seems more likely that something else has happened to the piano. If the capo bar had developed string grooves, the counterbearing would be reduced; when Frank moved the bar, the angle was restored and the pinging noise disappeared. This also changed the tuning of the aliquot, though, which could affect the structure of the tone reinforcement from the front duplex. That could be good or bad, depending on whether the bar was correctly positioned before it was moved. **Figure 5** illustrates two ways to increase counterbearing on this instrument. If the tone is lively and the duplex tuned, it might be preferable to raise the counterbearing bar with brass shim stock to preserve the aliquot length.

Another possibility also comes to mind when considering this particular design. Once in a while a brass counterbearing bar will be weak at the apex, causing the inverted V to spread. The symptoms will be termination noise and tuning instability; the former because of reduced counterbearing angle, and the latter because of lack of firm support. The cure involves removing the offending bar, bending it back to its original shape in a vise, and reinforcing the joint by brazing it from the underside. The entire cavity may be filled with brazing, as a matter of fact, and I have known rebuilders who do this routinely when restringing older Baldwins whether the bars are weak or not.

I am frankly puzzled by the problem with the Bosendorfer, because the downbearing readings would seem to indicate a loss of crown. This should have caused the pitch to drop, which apparently didn't happen. It is possible that the soundboard is fine but the bridge has canted, which would bring the back side of the bridge up and induce sharpness, but that still



doesn't explain the bearing readings. I am not familiar with the Fowler instrument, but would assume that it makes no distinction between front and back bearing, measuring only the total deflection angle. If these assumptions are correct, the down-bearing readings will vary quite a bit according to the placement of the middle foot of the gauge. If the bridge is canted and the middle foot of the gauge is placed near the speaking length pin, the reading would be significantly smaller than if the middle foot had been placed near the rear pin.

The speaking length side of the bridge should be equal in height or, preferably, higher than the waste end side. If the opposite seems to be the case, I would suggest the application of a short troubleshooting procedure which will pinpoint the problem. First, visually inspect the glue joint between bridge and board just behind the bridge. If it is open, the bridge has canted and must be refastened. If it is tight, crawl under the piano and check the uniformity of the crown by placing a straightedge on the underside of the board between the ribs. A wave in the board would indicate that the bridge has rolled, pulling the soundboard with it.

While this piano may have an adjustable or bolt-in capo bar which could be moving, there are a number of other things which should also be checked when the complaint is tuning instability: How much does the humidity vary? Is an amateur trying to tune the piano? Has there been a recent pitch change? Is the plate cracked? Is the pinblock tightly in position? Are the beams or backposts solidly glued and in place? Are the plate screws tight? Are the strings firmly seated around the hitchpins? Could the becketts be slipping? Is there excessive sidebearing or other friction at bearing points? Is the torque on the tuning pins high enough? The list can go on and on. Temperature can be a factor too, as the plate and strings will vary in dimension depending on how hot it is in the room. A simple thing like sunshine through a window can affect stability if the rays are directed at the plate and strings. Technical knowledge is important in troubleshooting, but so is common sense.

#### TECH TIPS

Our first tip comes from a familiar correspondent from Merritt Island, Florida:

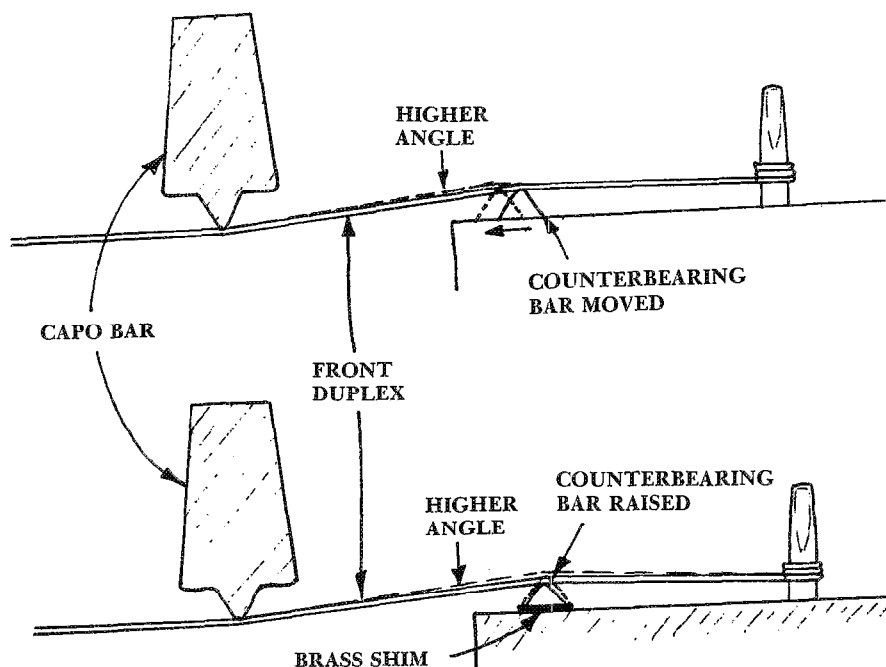


Figure 5

*"Occasionally a simple solution is the answer to a seemingly troublesome problem. Recently I have responded to several service calls from new console piano customers (of a particular brand) with a complaint of lack of repetition on several keyboard notes following a soft blow. Checking the action I found it did not happen consistently but perhaps 30% of the time. Key action seemed fairly normal otherwise.*

*"Suspecting a possible tight action center in the whippens, I removed the action and whippens only to find the centers normal. After replacing the action I finally noticed the bridle strap sometimes was hanging up on the wire loop of the regulating button, which was positioned parallel to the hammer line, preventing the jack from returning completely under the hammer butt.*

*"A simple quarter-turn of the regulating wire loop making it perpendicular to the hammer line and minor adjustment of the bridle wire solved the problem. . ."* — **Alan R. Caswell, R.T.T.**

Another member who has contributed in the past writes:

*"This may be common knowledge, but a new discovery for me. A well-sharpened spokeshave enabled me to fit a Falconwood pinblock in far less time than the large rasps I used to use. It takes a good strong draw, but definitely does the job. The final fittings are done with the rasp."* — **Elizabeth Wheeler, RTT, New York, New York.**

From the Alpha News, the newsletter of the Washington D.C. Chapter, comes the following tip:

*"When you find a set of grand knuckles that are disgustingly cruddy, messed up, filthy, ugly, yukky, and blech, but otherwise OK, try this: Put the action on the bench, and cover the whippens with some towels, to protect them from what is to come. Lean as many hammers back against your hand as you can support at one time, keeping the knuckles aligned. Put a bit of Renuzit in a suitable small container, and swab the knuckles with it using the brush. With some terrycloth rub the knuckles vigorously, constantly changing to a clean dry area of the cloth until the dirt has been removed. In the same manner, proceed to do the remaining knuckles. It may take a bit of elbow-grease to get rid of caked-in knuckle-grease, so more than one application may be necessary for the most desirable result.*

*"Graphite grease may have its place: I think it's on the shelf far away from any piano action. And as a safety precaution, use rubber gloves and adequate ventilation when working with Renuzit or similar solvents."* — **Libby Blatt.**

And finally, an interesting letter from a tuner in South Carolina:

*"Hello Jack! Reading from the Journal, December, 1980, and the Braille Piano Tuners Journal, March, 1981 I have an item to relay to you on string replacing. It may be of some*



benefit to others who must change strings occasionally. I didn't learn it this way, but, it does work much better for me.

"When you insert the new string up through the hole in the tuning pin, then you pull it up so you can get an idea where to cut it off, usually about 3 inches above the pin, right? Here is where I deviate from my training. Before cutting the wire to the proper length, I bend a sharp angle, 90 or 100 degrees and make the cut so there is about 1/16 of an inch like a small hook that will prevent the wire from slipping back through the pin when I start the coil. With my left hand I pull the wire down below the V-bar and hold it firm and taut while I turn the T-hammer with the right hand. It works very nicely and makes a fine coil most of the time.

"Question: Is there any reason that the end of the wire must be flush with the becket home and does it really look so bad when the wire has that tiny bend showing?

"Thanks for all the good and very helpful reading in the magazine. I'm not a member, although I would like to be. Just a friend and fellow tuner."  
— **Vince Reed, Greenville, South Carolina.**

#### READER COMMENT

Dear Mr. Krefting:

"Serendipity. Stumbling on a good idea. I just looked up your address in the April 1980 PTJ and found a bit

from a fellow who uses heat shrink tubing to repair a broken hammer shank. The fellow has a better idea than I do.

"But first my idea: It could be titled, "Grasping at straws?" The other day I pulled out a screwdriver to remove a grand fall board retainer screw. I thought of Harry Hughes and his reminders to use strips of plastic to avoid damaging the finish. As I looked at the piece of clear plastic drinking straw I had stored on the screwdriver shank, it suddenly dawned on me I had a screw slot finder and finish protector.

"As I think about the old way and the better way, perhaps it would be worthwhile to think about organizing these little ideas so they can be found under a better title than "Tip of the Month." My drinking straw is nearly a year out of date for its intended purpose, yet publishing my first idea could leave the impression I, with my great knowledge and expertise, still use obsolete methods. Or worse, that somebody might copy them. Oh, well . . .

"Some time ago, you kindly published an exchange of letters with the Franklin Glue Company. At another time I wrote requesting a bridge repair glue. I received a curt reply that they make the strongest glue possible. I feel the glue used in pianos should be rated for ease of UNglueing. I got some Steinway jacks to repair an old Knabe grand and found the angle could not be changed

because Steinway went to Urea glue. Having repaired jacks shattered into half a dozen pieces in other make grands, I appreciated a manufacturer who did not make the joint stronger than the wood and let you repair his piano just a half hour before the concert. Now why they don't make a bridge that can be removed in less than an hour . . . ???

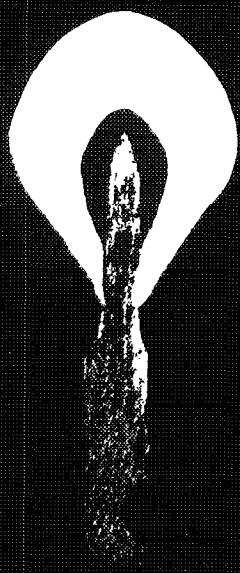
"And why doesn't somebody market a glue for cracked bridges that would seep down and fill and not set so the job can't be redone with solvents years later after the inevitable further damage occurs? Perhaps it's because we don't ask. I'm asking . . ."

—**William L. Bock, RTT, Los Angeles, California.**

#### IN CONCLUSION

As always, we need technical questions, comments, tips and articles from our readers. Please don't forget to send me your favorite temperament even if you think you may be duplicating what someone else has done, because I will also record and report the number of temperaments of each type so that all of us will know what most of us are using. Send all technical material to me at this address.

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# SOUND BACKGROUND

## Equal Temperament and Other Musical Scales of China

By Jack Greenfield

### Introduction

Although it had little influence on Western music, study of Chinese music theory is relevant for several reasons:

1. The early scales of China and Europe were derived by use of pure fifths and fourths.
2. Chinese music theorists studied equal-temperament and developed it at the same time or a little in advance of introduction in Europe.
3. The Chinese and the Greeks considered music to have philosophical and metaphysical significance and to be an important facet of education rather than an activity for providing pleasure—thoughts expressed first by Confucius and later by Plato. The ancient Chinese associated different notes of the scale with different periods of time. Transposition of melody was a form of ritual. They believed music was a force with power to influence people, objects, and phenomena of nature for good or evil. Ideas similar to some extent prevail today. We still believe music can influence people but we associate different keys with different moods.

Chinese music spread over a large area of eastern Asia and it became the foundation of the music of many neighboring countries such as Mongolia, Tibet, Korea, Indo-China and Malaya.

### Origin of Ancient Chinese Scale

The earliest Chinese documents mentioning some musical activity date back to about 1300 - 1000 B.C. The earliest reference to music theory was dated about 400 B.C. A book later in 239 B.C. by Lin Pu-wei, contained the legend telling of the traditional method of preparing a set of bamboo pitch pipes. In this account, in the

second or third century after 3000 B.C., the Emperor Huang-Ti asked Ling Lun to find suitable bamboo canes and make up a set of pitch pipes cut according to a formula calculated by a committee of musicians and astrologers. After the longest tube for the fundamental tone, the *huang-chung* (translated as *yellow bell*), most other tubes were cut to lengths in alternate ratios of 2:3 and 4:3 giving intervals of pure fifths and fourths. The first five tubes produced the basic pentatonic scale, which can be represented approximately by the series of black keys on the piano starting on F# (or comparable series from any other note). Lu Pu-wei then completed a cycle of twelve to give sufficient notes for transposition to any other key.

### Ancient Chinese Instruments

Information of Chinese music theory has also been obtained by examination of ancient musical instruments. The earliest Chinese stringed instrument was the ch'in, a type of long zither usually with seven strings and small inlaid discs to indicate stop positions. There is no evidence to verify the legend that the ch'in was invented even earlier than the pitch pipes of Lu Pu-wei. The oldest existing documents mentioning the ch'in were dated about 1100 B.C. Since the earliest ch'ins were made of wood, none have survived but a sculptured bronze ch'in dating from before the third century B.C. has been found with markings indicating its intonation. Modern ch'ins are strung with strings of equal length but with thickness varying the proportions at 48-54-64-72-81-96-108 strands of silk. This gives interval ratios of 9:8 (204 cents) and 27:32 (294 cents). The Koto of Japan was derived from the ch'in. The she, a long zither with no stop markings, originally with 50 strings, later reduced to 25 strings in pentatonic tuning, is another ancient Chinese stringed instrument.

The oldest Chinese musical instruments discovered are stone chimes—series of tuned L-shaped slabs identical in size except for thickness, hung from a frame and struck with a padded stick, and a hollow bone flute. These are believed to have originated in the 14th - 12th centuries B.C. Other ancient instruments still in existence originating a little later were bell chimes—series of bells comparable to the stone chimes, and the sheng—a "free reed" mouth organ containing a series of bamboo pipes with cane reeds mounted on a gourd wind chest supplied with air through a lateral mouthpiece. The sheng was the ancestor of the harmonica, accordion and reed organ which also produce tone by the "free reed" principle as opposed to the "beating reed" of the clarinet.

### Chinese Music Matures

Chinese civilization reached a high level during the Chou Dynasty (1050 - 255 B.C.) when the pattern was set for customs, culture and institutions which lasted into modern times. Many of the other Chinese musical instru-

(continued next page)

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## SOUND BACKGROUND

(continued from page 13)

ments besides those previously listed were developed during this era. During the last few centuries of this period musical development was hampered by political turmoil. Emperor Shin-huang-ti (221 - 206 B.C.) ordered destruction of all books, music and musical instruments. Some of this material survived, however, and music flourished again after the start of the Han dynasty (206 B.C. - 220 A.D.)

An Imperial Bureau of Music was founded under Emperor Wu (141 - 87 B.C.) responsible for standardizing pitch, maintaining archives of national music and supervising musical activities of all kinds. Several important advances had now occurred:

1. The pentatonic scale had been expanded and a seven-note scale is known to have been in use by the second or first century B.C.
2. Theorists had studied the problem of the unequal intervals in scales based on pure fourths and fifths and tried to devise a system which would give constant interval size in melodies transposed to different keys.

3. The Chinese placed great importance on absolute pitch and undertook extensive studies to establish their basic pitch note - the *huang-chung*, comparable to modern establishment of A-440. From then until the beginning of the modern era, there were at least 35 changes with the standard pitch note fluctuating within the present frequency range of C<sub>3</sub> to A<sub>3</sub>.

(To be continued next month).

## Eckburg is New Wurlitzer Manager

Dick Eckburg has been named Manager, Piano Quality Assurance, responsible for quality at Wurlitzer's Holly Springs, Miss. plant. In addition, Eckburg replaces the retiring Cliff Andersen at various seminars and Guild conventions throughout the country.

## New Northeast Regional Chapter

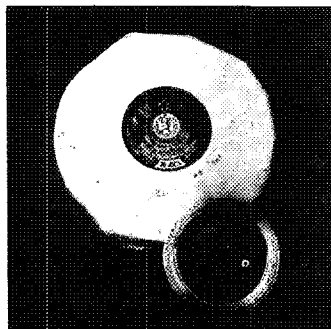
The few Boston Chapter members got together recently to form a new Chapter, called the "Southeastern Mass. Chapter." The Northeast Regional Vice President appointed temporary officers as follows:

President - Walter J. Woitasek; Vice President - John A. McDonald; Secretary - Patricia Selemon; Treasurer - Charles Downing. Other members of this new chapter include Nancy Packard, John Swett, Frank Topa, Harold Standing and Daniel Vodola.

Their first meeting will be held at the chapter president's home in Brockton, Mass. One advantage of this new chapter will be closer meeting sites. In this day and age, that means a savings of time and money. Hopefully some of the non-members of this new area will take advantage of the new chapter's immediate locale.

Good luck to the new chapter and its members. It was great working with you to get this chapter organized. The future of the Piano Technicians Guild looks much brighter in this section of Massachusetts, with plenty of room to grow.

—Dick Bittinger, NERVP



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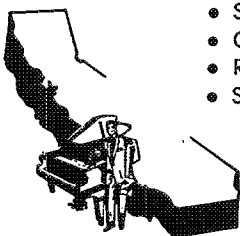
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# THE TUNER

## Paul Monroe, RTT

*(A continuing series directed to the beginning student and apprentice members of the Piano Technicians Guild.)*

The last article ended with a checklist for the purpose of establishing a routine that will help you service a piano. This article will begin with a detailed description of these items. But first there is one thing I want to mention briefly—your tool kit.

As you open your tool kit to service a piano, it should be neat, clean, compact and impressive. If you want to learn how to accomplish this monumental task, attend one of the seminars given by Mr. Jim Harvey, called "The Care and Feeding of Tools". This is another one of those tangible benefits of attending a Guild sponsored seminar or convention.

Now on to the checklist. First you should observe the appearance of the piano. Is it cared for in a proper manner, is there any veneer missing, is it clean, is it a new piano? I mention these items only to motivate you to give a complete and thorough visual examination of the instrument.

Observe the pedals. If the sustain pedal is shiny and the others are dull, the piano probably is used a great deal. Record this in your memory, "used a lot".

Moving to the vertical, if it is a new piano the lid hinge may be on your left and not on the back edge of the lid. Do you have a prop to hold up the lid, and will the lid touch the ceiling? You may find pianos located underneath stairs where you have about one foot of clearance. When I find this style of lid, I usually remove the lid hinge pin very carefully and remove the lid for clear access to the tuning pins and action.

When the lid is hinged on the back edge, there are several types of lid props available from supply houses. If you are creative you can design your own. However, if you do not have a lid prop and elect to lean the lid against a wall, be sure to pad it with a thick cloth or felt.

When you are inspecting a grand, lift the lid about two inches and move gently from left to right (or right to left). This will tell you if the lid hinge pins are in place. If they had been removed and you lifted the lid with gusto you can imagine the results. Next remove the music desk and observe how clean the piano is. If the soundboard can't be seen due to layers of dust, you have an opportunity to sell a cleaning job. You know the action will need cleaning if the soundboard is in this condition. Have you ever cleaned a soundboard

before? Later on I will give you a list of tools you will need plus a little procedure you can use.

While you are looking at the soundboard, is it cracked? If it is, check to see if there is space between the ribs and the board which is large enough to slip in your business card. This is not an advertising gimmick. If you can slip your card between the board and any of the ribs, the piano has a major problem. (**See Figure 1.**) Your tuning will not be stable, and the tone production will be poor. The technical reasons are interesting and there are ways to solve this problem; however, it is not the intent of this column to cover that deep a technical item. Read past issues of the *Journal* that cover this problem in complete detail or attend a soundboard seminar and learn all you can about this subject. The intent of this column is to apprise you that these conditions do exist and that they do cause you problems in tuning, especially with stability.

In my opinion, a cracked soundboard isn't all that bad as long as the ribs have not separated from the board and you do not have any buzzing due to the crack. When you do find a crack, don't immediately tell your client "your soundboard is cracked" until you really know if it is a

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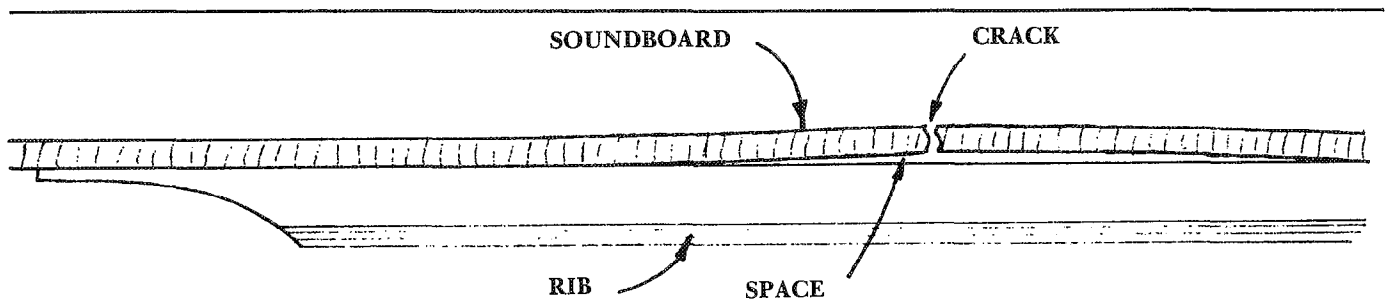


Figure 1

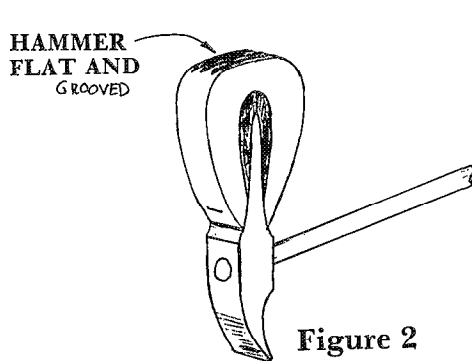


Figure 2

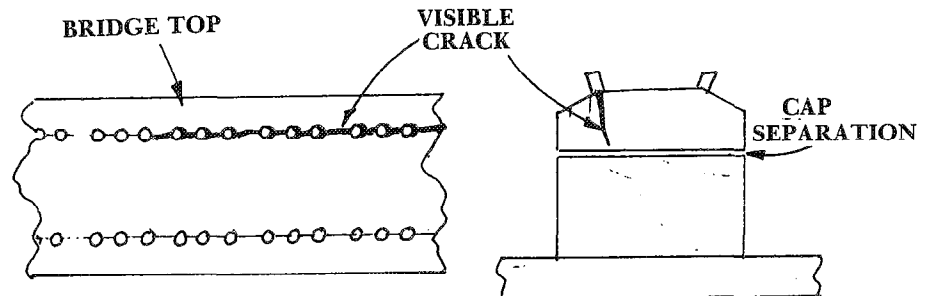


Figure 3

structural problem or just cosmetic.

As you inspect either the grand or the vertical you should observe the condition of the hammers. They may be flat faced and grooved. (See Figure 2.) I'll describe later on what this condition will do to tone and how it affects beat rates.

At this point you have observed the piano and played all the notes. Did they all work? Any rattle such as pencils on top of the keys you may find in a grand? Any unusual sounds or feelings? If you find any hammers missing you must be prepared either to put back what is there or replace with new ones out of your stock. Again, refer to past issues of the *Journal* for details on what to do when you find this condition or contact a fellow technician from your local chapter to give you help or advice. The point here is that you should be prepared to make the piano playable. If you can't play it, you can't tune it.

When you played all of the notes did you listen? After you have been tuning for any length of time you will become familiar with what the different sounds are telling you. For example, if the trichord unisons are more than an eighth tone apart it may be telling you the pinblock is in bad shape. Beware when you start to turn pins. If the pinblock is bad, most likely the pins are relatively loose. If you aren't careful, you can easily break a string.

Another discovery you may make from "running" the keyboard is that the rim plate screws are loose. After some experience you will be able to tell which plate screws need tightening. At this point check all the plate screws using a heavy duty screwdriver with a squared shank to fit your tuning hammer (available from one piano supply house) for the plate screws with slotted heads. Use a socket wrench for those pianos with hex head screws such as you will find on Steinway or Kawai. Be especially cautious on some of the American-made grands that have the acorn nut to hold down the plate. The threads on this type of nut strip very easily.

You will find other screws in the middle of the plate. **DO NOT TOUCH.** They are the nose bolt nuts and you should have no need to be concerned at this point if they are tight or not.

Rim plate screws should be snug. You shouldn't be able to turn them more than one degree. If any of them can be turned more than five degrees, I suggest you work your way around the perimeter, turning each screw about five degrees at a time. Continue around the perimeter until all of the screws are snug. The plate is made of iron and will move a small amount but it may break if you turn the screws more than five degrees at a time.

If you haven't guessed by this time,

the piano will not hold a tuning if these screws aren't snug. If you do a pitch raise it will not hold, and my feeling is that if you do a pitch raise without checking the plate screws you may cause the plate to break.

For the plate screws on the bottom of a vertical piano you will notice in most cases your tuning hammer will not fit with the screwdriver due to the lack of space between the plate and the toe board. For this you can use a small pair of vise grips to grip the screwdriver in a convenient place.

While you are looking at the bottom of the vertical or the end of the grand, observe the condition of the bridge. Look for cracks along the bridge pin line in both the tenor and the bass bridges. (See Figure 3.) Have any of the pins moved out of position? If they have there is little chance you will be able to tune the piano without doing repair work on the bridge. Look further. Is the bridge securely glued to the sound board? Your tuning will not hold if it isn't, and you will be able to notice a reduction in volume of the piano as you play through that section of the piano.

To give yourself better visibility of the bass bridge in the vertical, brush off the dust and dirt with a soft nylon bristle brush. This tool is also handy when you want to clean around the tuning pins on the grand.

In the next issue we will begin to mute and tune the piano.



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# Intentional Non-consonant Tuning — Why and How?

---

By Gerald E. Leob, M.D.

*About the author: Dr. Leob is not a full-time practicing technician, but has taught himself to tune as an avocation. Professionally, he is a neuro-physiologist working on developing an understanding of the brain's mechanisms for hearing pitch and ways of restoring this capability in the deaf through a functional artificial ear. He is with the National Institutes of Health in Bethesda, Maryland.*

—Jack Krefting

## Introduction

The development of the even temperament early in the history of keyboard instruments established controlled dissonance as a major sourf their distinctive voice quality, and was an almost necessary consequence of the physical existence of a keyboard. Much of the art and science of piano tuning relates to producing this even distribution of the dissonance. However, the modern piano incorporates three other physical features besides the fixed scale which also produce dissonances requiring control by the tuner.

First, the great dynamic range available to a hammer strike mechanism implies that strings will often be vibrating in non-ideal modes with non-integral overtone ratios. Second, the extension of the range into the upper and lower registers generates a range of relative pitch sensations not related to the frequency of the fundamental alone. Third, and less generally recognized, the doubling and tripling of strings struck simultaneously generates subtle but pervasive voicing effects dependent on small inequalities among "consonant" strings.

It is interesting to note that even as electronic devices are lessening the need for a subjectively well-trained ear for the setting of scales, we have little systematic understanding of the objective physics responsible for

these other important subjective effects. While every good tuner eventually devises subjective personal strategies to cope with them, this lack of understanding can only hamper both the training of new tuners and the design of aids to improve speed and accuracy. Tuning textbooks stress elegant methods for the setting of scales, then dismiss the remainder of the job as the establishment of mere consonances, with grudging mention of the desirability of sharpening-up the two treble octaves a beat or so. I would like to explore methods by which an ear well-trained to hear beats can discover these effects and then systematically optimize them for each instrument and its environment.

The usual "textbook" string is shown as a standing wave with a fixed, even number of cycles ending at fixed nodes at either end. In a string struck off center, as in the piano, multiple patterns are simultaneously superimposed on the string, each pattern corresponding to a different integral number of such cycles present on the string. The audible perception is of multiple, independent sources of pure (sinusoidal) tones starting at a lowest frequency present (fundamental) and including, with various amplitudes, all integral multiples of that frequency (overtones). The frequency of the fundamental (and hence the overtones) is determined by the string's mass, tension, and

length, all assumed to be fixed by the construction of the piano and the last visit of the tuner. In fact, the latter two vary continuously with each hammer blow.

## The Dynamics of String Tension

The change in the tension of each string when struck is fairly easy to understand. The impact of the hammer stretches and stresses the string by a factor of perhaps 10 to 20% of its resting tension. Since the shortest distance between two points (e.g. bridge and agraffe) is a straight line, and since a vibrating string is actually describing a complex serpentine course between those points, the tension in a loudly vibrating string will be considerably higher than it was at rest. This increased tension drives the resonant frequency of the whole harmonic series of vibrations perceptibly higher, much as a violinist anticipates sharpening of a hard-bowed string.

The effect is best appreciated in the bass, since the relative amplitude of the vibrations is greater and the higher overtones where the effect is most noticeable are more audible. When tuning the octave CCC to CC, you may have noticed that the beats never disappear completely and that they tend to change in character as the notes are held. Strike a single undamped CC string lightly and listen to the beats at that fundamental during the decay of a sharply struck

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CCC string. If you adjust the tension of the CCC string so that no beats are audible as both strings fade to inaudibility, you will note perhaps one beat per second of sharpening when the string is sharply struck. If you listen to the higher harmonics shared by the strings, they will be beating much faster, although not necessarily at even multiples of the CC fundamental beat rate. If both strings are sharply struck together, the waxing and waning of all these beats can become quite complex, as the decay of the various modes of vibration in each string proceeds independently and contributes less "added tension" to each.

Rather than throwing up one's hands at the impossibility of properly tuning such an unstable system, we can adopt two useful strategies from the invention of even temperament. First, make it even, and second, make it sound pleasant in the context in which it is actually used. To make it even, one simply follows the usual practice of making the final tension adjustment on the bass strings when they have decayed to near imperceptibility. At this point, the "added tension" effect is minimal. For the lowest bass notes, however, it is never absent, and the tuner should pay some attention to making sure that the particular set of beats to which he is listening and which he is eliminating are always the same (usually the first) overtone.

Making it sound pleasant is a more complex task. The voice of the piano is the product of the complex resonances of all the undamped strings, struck or unstruck, at any instant. The tone of any note derives from the distribution of its harmonics, and this is strongly influenced by the resonances which the higher harmonics evoke in the undamped strings of the treble octaves plus simultaneously struck or held notes resonating with the lower harmonics. If the amplitude of vibration of this string has driven its fundamental even a half beat sharp, its tenth harmonic will be five beats sharp, perhaps more so because of the stiffness of the string for short wavelength vibrations. These higher overtones, which contain as much or more energy than the fundamental, are located three to four octaves above the fundamental, namely, right where those undamped strings we so cautiously sharpen upwards reside. It seems likely that sharpening the treble could have at least as much to do

with some of the tenor and bass ranges as it has to do with the "brilliance" of the treble. Certainly, this explains why an unsharpened treble sounds flat against a fortissimo base - it is!

At this point, I solicit the experience of the readers. How much do you really sharpen up and where in the scale do you start? Do you sharpen the same for a piano to be used for quiet chamber music as for one to be assaulted by a virtuoso performing a concerto? Do you "flatten" the far bass to compensate for its sharpening at louder levels or do you adjust the bass during such loud keystrokes, thus accomplishing the same thing? The above discussion suggests that a rather graduated sharpening upwards might be ideal, with an accelerating number of beats per second as one proceeds upward in the treble (and more than the usual textbooks advise) and perhaps an accelerating flattening in the far bass to compensate for the greater "added tension" effect in strings which are not increasing in length at the same rate at which their fundamental frequency is decreasing.

### The Dynamics of String Length

At first glance, it would seem impossible for the length of the freely vibrating string to change. However, the length which governs the resonant frequency of a vibrating string is not the measured length between its points of tethering, but the distance between the nodes, the points where the string is motionless. If the string is tethered between rigid objects, these ends define the nodes of the fundamental, but this is not the case in a piano. In fact, the whole idea of vibrating a string is to get one of its tethering points - the bridge on the soundboard - vibrating as well. If the bridge moves up and down out of phase with the string, the point on the string which is actually standing still is some distance in from the end, and the string "thinks" it's shorter. When the vibrations are in phase, the node point moves past the bridge and the string acts longer (the node is actually a virtual one, having only theoretical existence). A struck string gradually imparts its motion to the bridge, and the bridge imparts motion to the struck string and to all other undamped strings attached to it. This is the basis for one of the most distinctive characteristics of the piano, its attack and decay curve of loudness. When this is interfered with (e.g.

loose bridge or lack of bearing), the instrument ceases to sing. The interested reader is directed to an excellent discussion of the interactions among strings and the bridge by Gabriel Weinreich ("The Coupled Motions of Piano Strings," *Scientific American*, January, 1979, pp. 118-127).

How can the tuner have any effect on this physical process? Consider what happens when tuning two strings of a unison. If the tuning hammer is brought slowly and smoothly through the point of consonance, one would expect to hear a gradual decrease followed by a gradual increase in the beat rate. If you perform the experiment, you will discover that the beating disappears abruptly at about one beat per second flat and reappears as abruptly at one beat per second sharp. No matter how smoothly you adjust the tuning hammer, it is always the same. However, if you estimate about where you would have expected a 0.5 beat per second rate and restrike the strings, you will hear such a rate, but only for about two cycles (four seconds), whereupon it dies out even though the loudness of the strings should still be perfectly adequate to hear these beats. What is happening? The two strings are trying to move the same bridge, but they do not agree about the rate. It takes 4-6 seconds for the bridge movement to come to equilibrium, during which time the "prompt sound" brilliance of the attack gives way to the "after sound" sustained singing. If the strings are individually tuned to pitches differing by less than about one cycle per second, the induced movement of the bridge will be such as to "lengthen" the string which is too sharp and "shorten" the string which is too flat, and they will both then be vibrating at precisely the same frequency.

The fact that they are both somewhat out of phase with the bridge motion causes a constructive interaction which sustains the after-sound period much longer than would occur if their motion was in phase. The quality of the tone changes significantly if the two strings are tuned perfectly consonantly, which can be done only by repeatedly striking the note to listen to the very low beat rates which appear only during the prompt sound phase (higher harmonics will, of course, beat faster). Many tuners will repeatedly strike a note after tuning it "consonant" during the after sound period. Small adjustments of



the hammer (on the order of setting the pin) give rise to quite noticeable changes in the timbre of the prompt sound tone, particularly in the treble, even though the note continues to be "in tune." In fact, if one very carefully tunes a piano so that there is complete beatless consonance in each unison during both attack and sustained tone phases, the effect is very lifeless indeed. Of course, the piano is unlikely to stay this precisely in tune for long, particularly if played loudly as we are wont to do after finishing a job to "show it off." Still, there may be more than untutored criticism at work when a client tells you that his newly tuned piano sounds "dull."

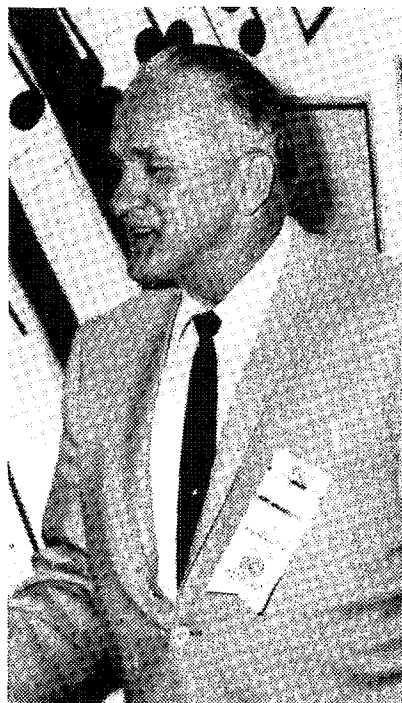
I have devised a method to systematically exploit dissonance in the trichords, which I find can have remarkable effects on the "voice" of a piano, an aspect more usually associated with hammer felt. First, complete the tuning of all the center strings of each trichord, including octaves around the pattern scale and their sharpening up as previously discussed. Then tune the left strings (the una corda string in the grand) just under one beat per second sharp. The precise amount is more easily determined than one might think, since you can pull the string sharp to the point where after sound beats reappear, and then "set the pin" to the point where these beats disappear and only the prompt sound beats are present. (The una corda string is selected for this treatment since, with this pedal depressed, it normally vibrates sympathetically with the two struck strings, which are likely to be somewhat sharpened by the force of the blow.) The right string of the trichord presents an interesting dilemma which I prefer to think of as an opportunity. I have found that by adjusting it within the range defined by the first two strings, one can significantly influence the tone quality of both the prompt and after sound phases. This is probably because slight inequalities always exist in the string bearing, hammer contact, and even elasticity through the effects of time, wear, and corrosion. With careful listening during those repeated key strikes while you're setting the pin, you can even out the harsh notes and enliven the dull ones considerably.

At this point, I again solicit the readers' experience. What are you listening for when you make these final adjustments to each string? What order do you tune in and why? What

distinguishes the tuning job of a master from an apprentice? Do you take any special pains when tuning a piano prior to voicing the hammers?

The ability of even the untrained human ear to detect effects as subtle as the above puts a great burden on the ears and hands of the master tuner. The physical origins of these effects are second and third order processes which we can barely measure, much less model and fully understand. On the one hand, the tuner can hope that years of training and subjective experience will, by trial and error, lead him to a strategy for tuning which satisfies his most discerning clients. On the other, he can try to use available physical theory to devise strategies which guarantee that his appreciation of the state of tuning of an instrument is at least better than his clients'. The evolution of the beat systems for setting the pattern scale and the advent of successful electronic instruments to aid tuners are testimony to the power of objectively understanding the basis of the subjective experience we seek. □

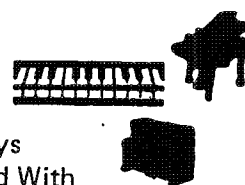
## In Memory



HENRY F. MacCONAGHY died June 3, 1981 in San Diego of a lung infection. Born in Philadelphia, he went to San Diego in 1920 and trained with the well-known craftsman, Rene Pupois. He joined the Guild as a craftsman member in 1959.

He served the San Diego chapter as president and came to the executive board in 1965. He was also local chairman of the annual convention held in San Diego. His many awards include Man of Note and the Hall of Fame (1977). In writing for the Hall of Fame book in 1976, past president Erwin Otto said, "Henry MacConaghy, a never failing, devoted Piano Technicians Guild member and friend, office holder, teacher and champion of the blind. Henry, your efforts for the sightless will always be an example and be remembered by all members . . ."

(Information contributed by Jess C. Cunningham)



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# In the Field

BEN McKLVEEN

Prehistoric man used his ears as an early warning device. Situated as they are, on either side of the head, they functioned as the original stereophonic device that gave clues to such questions as "Who's out there?", "What's out there?", "How far away?", "Moving in what direction?", "How fast?", etc., thus calming tendencies toward stone age paranoia, especially at night when the eyes of man are less effective.

Modern man uses his ears in much the same way and also has added to the list of duties ears must perform. With the coming of civilization man has added the aural arts of music and theater to his list of pleasures. But industrialization has also brought us aural pollution, excessive noise and ear damage.

A recent meeting of the Cincinnati Chapter was held at Mercy Hospital in nearby Hamilton, Ohio. Our program for the evening was a lecture, demonstration, and testing by two members of the Department of Audiology. The program was fascinating. I will share with you some of the information and

impressions that I received, with the hope that it might be helpful to you.

Ears are remarkable organs. While there is a great deal that medical science knows about ears, there is still much that is not known. For the purpose of this discussion, I will stick to a non-pathological layman's approach and try to deal with things that will be useful to our understanding as tuners and helpful in preventing ear damage.

As you remember from your fifth grade "Science and Health" class, the ear is composed of three sections: The outer ear, that flap of tissue on each side of the head, acts as a very sophisticated sound collector. The ear drum separates the outer ear and the middle ear. Sound waves striking the ear drum set it in motion. The three little bones of the middle ear pick up the vibrations and move them to the inner ear where they move some tissue above a tiny group of hairs that transform the mechanical sound waves into electrical impulses which are then fed along the auditory nerve to the brain. (The middle ear

also contains the fluid filled semicircular canals that control our sense of balance and give us a sense of where we are in space.)

Hearing loss can be caused by a variety of things - congenital deformities, infection and disease, injury or abuse. Abuse is something over which you and I have some control. Damage to hearing, caused by noise pollution, occurs in the inner ear. The mechanical assault to the tiny hairs, if repeated often enough, begins to cause a bruising of the underlying tissue which causes swelling and blood congestion. If the noise is continued, the tiny hairs begin to lie down and when they do, they die. They do not regenerate. Hearing loss is sustained at this point. The audiologists drew this analogy: Two boys on a playground are banging on each others' arms. They can take a jab or two in a spirit of fun, but if the jabbing continues long enough, sooner or later there will be some bruised arms!

The really damaging sounds are high frequency, particularly devastating because of their short wave



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lengths. Therefore, damage to the ear from noise abuse shows itself as a loss of high frequency hearing. As the human body ages, there is a corresponding drop in the ability to hear in the high ranges. For those of us who are over 40 this becomes a problem to think about. I hasten to add, however, that the hearing loss from abuse or age is described as a loss of acuity which means keenness of perception or sharpness of hearing. Simply stated, it means you don't hear things as loudly as you did. It doesn't necessarily mean that you can no longer distinguish a pitch or beats, unless the loss is really great. Incidentally, one's sex offers no advantages in hearing. Women do not hear better in the high range and men in the low range. The human ear does not recognize the gender of its owner.

In the past few years hearing aids to offset hearing loss have undergone incredible development and sophistication. It is very important that proper testing and evaluation of hearing be done by a doctor or audiologist before a patient who has suffered loss buys a hearing aid.

What about the rest of us - those of us whose hearing is OK? What we can do to prevent or postpone hearing loss? If you want to preserve your hearing, audiologists recommend a program of regular testing, avoidance of noise if possible, or protection for your ears if exposure is unavoidable. Get your hearing checked every two years at a speech and hearing clinic or by an audiologist. After you reach 40, get it checked every year. Regular ear checks are

valuable to establish a profile of your hearing much like an EKG does for your heart. It allows doctors to see minute changes and perhaps make recommendations before any loss becomes debilitating.

Avoid loud noises. Some ear killers are: private aircraft, motorcycles, big trucks, gasoline lawnmowers, chain saws, industrial tools, rock concerts. Would you believe performing as a musician in the middle of a band or orchestra can sometimes be hazardous to your hearing? If you fly a plane or ride a cycle or must mow the lawn, then protect your ears. Use ear muffs or plugs. But be careful! See that they are effective and properly

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*"The problem of excessive noise and hearing loss is too important to us as tuners to ignore. . ."*

---

fitted, otherwise they are useless.

It is paradoxical that our eyes have pupils that dilate and contract to control the amount of light that strikes the retina and yet millions of dollars are spent every year for sunglasses. The ears have no such control for the amount of sound entering them, but ear protectors are not in widespread use by the general public.

Here are some rules-of-thumb that can serve as guidelines to determine when sounds are damaging.

1. You are in too much noise if you have to raise your voice greatly to be understood. You are approaching the danger zone.
2. After being exposed to a lot of noise you experience a temporary loss of hearing.
3. Your ears ring after noise exposure.

In preparation for this chapter program on ears and hearing our Chapter President, Bob Mollard, tuned a rather obstreperous and obstinate six-foot grand. The volume ranged from 90 to 110 decibels for a little more than an hour and he recorded over 1500 key strikes. The threshold of damage is 90 decibels. Piano tuning can be hazardous to your hearing. It might be wise for all of us to consider the use of ear protection from time to time. Remember, ear protection cuts down the volume not the ability to hear beats.

This program on ears and hearing was most informative and helpful. I recommend that each Guild Chapter, large and small, try to schedule a program like it in your own area. Call your local hospital or speech and hearing clinic and see what you can arrange. The problem of excessive noise and hearing loss is too important to us as tuners to ignore. Programs of this sort might do wonders to change attitudes and habits and save or prolong the hearing of many of our members. After all, when hearing goes, it's gone! There is no road back. Prevention of loss is a much better alternative. □

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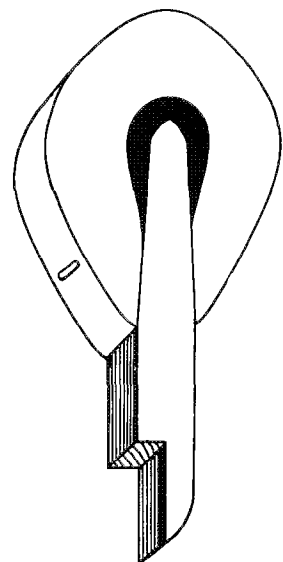
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# After Touch

David W. Pitsch

## 50-Point Guide To Grand Regulation Part XI August 1981

### 32) The Blow

Step #12 was adjusting the key height and leveling all 88 keys. Last month we discussed step #31, regulating the jack height. These are the only steps that directly affect the blow distance, or hammer line. Indirectly the repetition springs will also affect the hammer line if the springs are weak. However, we had to make sure the springs were strong enough to support the hammers before the jack height was set. Therefore, we should now be ready to set the hammer blow distance. Once set, there should be no need in doubling back to readjust this distance.

Remember that before all of the jack heights were set, a number of sample keys were regulated for jack height, blow, let-off, drop, and then the regulation was proven to be correct with proper after-touch. I always use the end keys in each section as my samples. First, this allows for any irregularities in the string height going from section to section. Second, it gives me a hammer at the end of each section which has been set to the correct blow distance. Doing step #32 The Blow then becomes a simple matter of drawing a line between the tops of these two end hammers and setting the remaining hammers in each section level to this line.

This, of course, is accomplished by raising or lowering the capstans. If the hammers do not return consistently back to the same height when a test blow is given to the keys, check for weak repetition springs, too much lost motion in the jack height, tight hammershank flange centers, or tight key bushings. Any time that the capstan is changed, it is a good rule to give the key a test blow to see where the hammer will settle in its height.

During this test, watch the rebound of the hammer as it comes up off of the hammer rest rail/felt. All 88 hammers should rebound with the same freedom. If they do not, stop and check for nonuniformity in the centers, as this will make the action play unevenly no matter how well the action was regulated.

When all of the hammers in each section have been made level to the samples, install the action back into the piano and play each note vigorously. *At no time should any one hammer be higher or lower than its neighbors in a section.* Any unevenness should be corrected. Incidentally, the practice of raising one hammer to give the proper after-

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*"A good rebuilder can take an old piano and make it better than it ever used to be!"*

---

touch to that one key is wrong. In order to have perfect evenness of touch, uniformity of tone (i.e. power), and a uniform repetition, all hammers *must* be the same distance from the strings. More will be said on this subject at a later time.

In selecting the proper blow distance, look at the tangent relationship between the jack and the knuckle. Ideally, the knuckle should be glued on at 90° to the hammer-shank, and the jack should be in a straight line with the knuckle core. This would give the ideal of a jack at 90° to the hammershank. The shank should be about a shanks height off the rest felt. If it is a great deal more above the rest felt, make sure that this angle between the jack and shank is checked. An angle of more than 90° will result in a loss of power. What we

want is the maximum acceleration of the hammer without destroying this tangent relationship. As has been mentioned before, altering the blow distance or altering the key dip are the only two steps which can be changed to compensate for action wear. Never set the blow distance without also considering the dip. If it is unacceptable to change the dip, and if this tangent relationship of the jack to shank has to be compromised, perhaps you should think in terms of installing a new set of hammers/shanks/flanges.

In the past I have stated that altering the blow distance directly affects the let-off and drop. This is true, but the amount it affects them is very slight. A technician can certainly set the escapement and then alter the blow without noticing much of a change in the escapement. It is only when the painstaking process of trying to get extremely uniform dip with a block is matched with trying to get extremely uniform aftertouch that one needs to nitpick so closely.

On a new piano, where the hammer line has become uneven due to the balance rail and whippen cushion felt compacting along with the flattening of the knuckle, it is relatively easy to get the instrument back into regulation. One only needs to relevel the keys using precut balance rail punchings, check for strength in the repetition springs, check for correct jack height, and then raise the hammer line back to the original blow distance.

On an older piano, I would caution against making quick evaluations by telling the customer that all it needs is a complete action regulation. Do take the time to check the above mentioned 90° angle between the jack and shank. Will that angle be retained? Next try checking the strike point of hammer #88. Is it good or does the action need to be moved to get good tone? Are the hammers really worn?



As a guide, remember that if the hammers have worn  $3/32$ " you can expect the hammer strike line to change about  $1/32$ " forward.

This brings up another question. Are the hammers overcentering? Were the hammers properly bored in the first place for this piano? What do all of these things have to do with setting the blow distance? Remember that the blow distance can be decreased to compensate for the action wearing. I stated in the April 1981 After Touch article that I would never alter the blow by more than  $1/8$ " to  $3/16$ ". The reason is that good results would be hard to obtain if the blow is that far out of regulation.

Let us talk for a moment about how the manufacturer should have installed the hammers when the piano was made. From there we can talk about such things as strike point and overcentering. First of all, the hammer should have been glued on at  $90^\circ$  to the shank. If it isn't, then poor workmanship is to blame. Perhaps the

shanks were "burned" in the top treble at the factory. That is, the shanks were heated and purposely warped to cause the hammers to have a different striking point. Thus, two wrongs were supposed to equal a right. Poor math is to blame here, for it never will.

Two factors create the striking point for a hammer. Assuming that the hammer glue joint is  $90^\circ$  on the shank, the two factors are: 1) the distance from the hammer shank center pin to the center of the hammer molding (i.e. where on the shank the hammer is glued), and 2) the position of the hole in the hammer molding, more commonly known as the hammer bore distance. These two placements can or rather should vary

a little to match the specific piano. I don't mean a standard model size, but that very piano right in front of you! You and I out in the field should be able to do this, and in fact, we need to be able to trouble shoot to be able to find whether these distances were correct when the piano was made.

Nothing can be taken for granted any more. No matter who made the piano, there is always the possibility that an error was made during manufacturing. This is one reason why I believe that a good rebuilder can take an old piano and make it better than it ever used to be!

Next month we will get into specifics about how to determine what these distances should be.

#### CORRECTION

The advertisement for C.A. Geers Piano Company, Inc. in our May Directory Issue carries an outdated listing for Geers' West Coast Supplier. The *correct* supplier is Superior Imports, 2152 W. Washington Blvd., Los Angeles, CA 90018.



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TWEET



# TUNING WITH A BIRD ON MY HEAD

By Gerald F. Foye



Back home, after another hard day of tuning pianos, I was relating the day's events to my wife as we sat at the dinner table. I was explaining about the cockatoo that insisted on making a landing platform of my head, practicing take-offs and landings while making terrible noises like a disabled jet trying to keep from crashing into the control tower. All this, while I was attempting to tune a console piano for a young lady.

"Between all that racket and fluttering around, I had a terrible time tuning."

My wife was half listening as she crunched on the last of a cold, soggy taco.

"The owner sure thought it was hilarious," I continued. "That is, until it settled on the floor near my left foot and I didn't know it was there."

My wife stopped chewing and stared at me. "You mean. . .?"

"Yep! Stepped right on it. Wasn't much thicker than a quarter. That stopped her from laughing. She didn't think that was funny at all."

My wife slapped her hand against her forehead, momentarily forgetting that was the hand in which she held the taco. As the taco juice ran down her nose she asked: "How much is this going to cost us?"

"Lady said she paid \$250.00," I replied.

"That means another insurance claim Foye." She always calls me Foye when she is upset. "That's the fourth claim in the last two months."

"Can I help it if all these crazy things happen to me?"

My wife promptly reminded me that we had just received the paperwork showing that a previous claim had been settled with a customer — the one with the white carpet that got stained by the graphite that I was applying to the windmotor of their player piano.

After a lengthy silence, my wife decided it was time to change the subject.

"How's your hand doing today?" She asked sympathetically.

Raising my right hand, I rotated it and flexed my fingers. "Feels pretty good today. That sure was a nasty one though."

"Yeah! That was a \$60.00 doctor's fee to patch it up."

"Accidents happen, you know!" I reminded her.

"Long as there isn't anything else to talk about, tell me again, how that happened — Foye."

"Oh, you know the story. I was trying to do a tuning on Saturday when everyone in the family was home. This little kid was a real pain-in-the-neck. For one thing, when I was filing the hammers on their up-right, the little devil crawled between my legs and gave the hammer rail pedal a sharp whack. Well, that flipped the hammer rest rail forward smartly and bashed my hand against the tuning pins. Scared the daylights out of me but didn't really hurt anything. So I said, 'Get out of here, you little twerp. Go play with my felt cutting knife or something!'"



"Then what?" My wife asked, pretending to be in suspense.

"Hang on! One thing at a time. He left for a while then returned munching on a porkchop. I was tuning away when I heard some extra notes sounding. Sure enough, the little monster is banging on the keys with that greasy porkchop. That was bad enough, but then he started dragging it up and down the keyboard, getting grease all over everything."

"I'd have punched him!" sounded the wife.

"I felt like it but I contained myself. Anyway, that grease got all over everything including my tuning hammer. I was really working hard, with real tight tuning pins, when the slippery hammer caused my hand to slip and I jammed my knuckles right into the tuning pins. The impact removed a lot of much-needed epidermis and a whole bunch of red leaks sprang out all over the place."

I paused to look at my hand, then continued: "I immediately searched through my tool box for some band-aids I had stashed for such emergencies. Sure enough, I found them — all nicely soaked with center pin lubricant that leaked from the applicator bottle. Let me tell you, silicone and naphtha sure does sting. Curled my toes even."

"That's what caused the infection! And, that, Foye," snarled the wife, "cost four days of lost work, besides the doctor bill."

"I can't help it if all those crazy things happen to me!"

"By the way, Foye, the court date for that one is set for next month. Just thought I would remind you."

"Well, a guy can be pushed just so far, you know," I told her.

"Maybe, Foye. But I really don't think you should have stuck that porkchop up the kid's nose!"

"I guess that's the way things are when you're self employed," I mused.

"But, somewhere, Foye, aren't we supposed to make a profit?"

"Oh, we're doing all right!" I replied.

"I don't know about us," said the wife, "but I do know the doctor is doing well."

"At least I didn't have to pay for the grand piano lid incident, and I'm sure glad of that."

"Whew!" spurted the wife. "That was an expensive one."

"How was I to know the pins were missing from the hinges in the lid of that grand piano? I raised the lid, and POW — down it went, right through the sliding glass door, over the



balcony and into the swimming pool below."

"By the way," asked the wife, "have you ever heard from Mr. Grandy since that incident?"

"No, I haven't. It was quite unfortunate, him being in the pool at the time. Nasty blow that was! They tell me he was unconscious for three days. Maybe I should give him a call."

"I don't know why all these things happen to you," my wife said. "It's always something. Two months ago, for example. You took your piano tipper so you could install casters on that old upright belonging to Mrs. Snuffle. You were supposed to collect \$40 for that job. But what happened? Our insurance company has a claim pending for \$1,200 to replace that section of living room wall where the piano went through."

"It slipped!" I could feel redness creeping up the nape of my neck.

"Look, the mailman's coming up the walk," I said. I was glad to get away from the conversation; it was beginning to annoy me.

My wife went out to retrieve the mail and returned in short order.

"Well, what's new in the mail?" I asked, hoping for some refreshing comments.

My wife opened an envelope and studied it. Finally she said "This one's from the insurance company."

"Oh, good," I remarked. "Is it the settlement for the broken music rack?"

My wife looked up. "What broken music rack?"

"Never mind," I stammered. "What's in the envelope?"

"Well," muttered the wife, "I knew it had to happen sooner or later."

"What?" I questioned anxiously.

"Our accident and liability insurance has been cancelled."

I moaned and turned away sheepishly while my wife fumbled with a second envelope.

"Oh!" She exclaimed. "Now wait 'till you hear the bad news!"

"What?" I exclaimed in anxiety. "Bad news?"

"Yeah! It's from Mr. Grandy. You know, the grand lid in the swimming pool incident. He's suing you!" □



## BOOKS

**Artist Beware**  
by **Michael McCann, Ph.D.**  
Watson-Guption Publications

We who concern ourselves with caring for fine and sometimes not so fine musical instruments often abuse the finest, grandest and most irreplaceable instrument of them all — our bodies. We subject them to toxic solvents, fumes, and skin irritants. We subject ourselves to the stresses of heavy lifting. We use machines which may be dangerously loud. And sometimes we pay the price.

We are by no means alone in this. There are possibly 20,000 known toxic chemicals in use, thousands of new chemicals introduced every year, most of them untested for long term effects. In 1970 the government stated that over 14,000 workers are killed annually in work accidents, 2.2 million more injured. I'm sure it wasn't a banner year. These statistics almost certainly understate the case. The US Labor Department has stated that at least 25 million serious work-related injuries and deaths go unreported each year\*. If this seems like a horror story, it is.

\* statistics from *Artist Beware and Work is Hazardous to Your Health*, Stellman & Davis.

What can we do? We can educate ourselves about the hazards of our trade and develop work habits which will protect us. This publication is a good place to start — or to continue.

*Artist Beware* is written for the artist or craftsman working in a small studio. It's written in two parts. Part One is a general discussion of safety hazards. It gives good information on fire safety and first aid (no substitute for a Red Cross course) but its main concern is with toxic chemicals and dusts. It discusses how toxins enter the body: through the skin, by ingestion, and by breathing — and what they can do when they get there. It discusses groups of people that may be more at hazard than average. There are ratings of many chemicals' toxicity and good discussions of safety and housekeeping procedures. The author is to be commended both for his command of the academic information and his good shop sense.

Part Two lists much of the same information organized by craft and process rather than by chemical. This is helpful because we often don't know what chemicals are in the preparations we use. This part covers woodworking, stripping and finishing. For example, paint strippers contain methylene chloride which breaks down to carbon monoxide inside the body and has caused fatal heart attacks.

If you work in a shop where there is wood or fiber dust, if you do stripping or refinishing, if you use lacquer thinners or other organic solvents, if you use epoxy or resorcinol glues, if you lubricate with graphite or talc or use any of a host of other potential harmful processes — you owe it to yourself to be aware of the information in this book. It may make you think twice before saying, "Oh, a little won't hurt me."

— Michael Shapiro



# NOW!

## A Map to the Treasures In Your Old Journals

| Author and Title                        |                                    |              |
|---|------------------------------------|--------------|
| <b>Epoxies</b>                          |                                    |              |
| — J. Arnold                             | Epoxies - W                        |              |
| — James I.                              | Epoxies and T                      |              |
| — Ch. Delwin                            | Epoxy Gluing of L                  |              |
| — Don                                   | Quick 4-6 Minute E                 |              |
| — John                                  | Epoxy Bridge Repair                |              |
| — Harry W.                              | Epoxy Glue                         |              |
| — Robert W.                             | Epoxy Cement on Loose P            |              |
| — John E.                               | Epoxy Soundboard Repairs           |              |
| <b>Spreaders</b>                        |                                    |              |
| — James                                 | Electric Glue Gun                  |              |
| — Wald S                                | Heat Gun Source                    |              |
|   | Gluing with the Grease Gun         |              |
| — Jan                                   | Buzzes in Soundboard               |              |
| — John                                  | Glue Spreader                      |              |
| — John                                  | Electric Glue Gun                  |              |
| <b>360 Waters &amp; Ivoryine Cement</b> |                                    |              |
| — Hoskins, Leslie                       | Mussel Glue                        | PTJ          |
| — Ramsay, John                          | Ivory Glue Formula                 | TPT 00       |
| <b>370 Tapes</b>                        |                                    |              |
| <b>380 Softening Glues</b>              |                                    |              |
| — Krefting, Jack                        | Replacing Upright Shanks           | PTJ 11/7     |
|   | Separating Glue Joints             | PTJ 06/7     |
| — Johnson, James L.                     | Glues and Solvents                 | PTJ 01/72    |
| — Overdorff, Anson                      | Softening Glue                     | PTJ 12/70    |
| — Scheer, John                          | Disappearing Acetone               | PTJ 05/66    |
| — Kegley, Paul                          | Softening Glue in Heated Sand      | PTJ 08/59 33 |
| — Koford, H O                           | Loosening Soundboard Glue          | PTJ 03/58 9  |
| <b>390 Glue Removal</b>                 |                                    |              |
| — Scheer, Larry                         | Removing Glue from Uneven Surfaces | PTJ 09/77    |
| — Scheer, Larry                         | Squeeze Out                        | PTJ 09/77    |
| — Scheer, John                          | Remove Glue Uneven Surface         | PTJ 02/71    |
| — Overdorff, Anson                      | Softening Glue                     | PTJ 12/70    |
| — John                                  | White Glue                         | PTJ 01/71    |
| — John                                  | Glue Removal                       | PTJ 09/77    |
| — Joe                                   | Gluing Ivory Replacements          | PTJ 08/59    |
| — Charles                               | Remove Old Key-Top Glue            | PTJ 06/77    |
| — James L.                              | Lubricant WD40 Tested              | PTJ 08/59    |
| — John                                  | Lubricants                         | PTJ 04/71    |
| — Bernard                               | Emralon in Piano Actions           | PTJ 04/71    |

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# CROSS OVER THE BRIDGE

## All New for 1980-1981

This year the booster club has a new format.

1. **POINTS** The point system for bringing in a new member has been changed to give members a simpler, fairer system. Three points will be credited for bringing in a registered technician, apprentice or allied tradesman and one point for sponsoring a member of any other classification. In this way, the point spread recognizes the fact that all who sponsor a new member are actively supporting the Guild.

Members who achieve fifteen points will be honored in the 1981 President's Club. Those who help bring a former member back into the Guild will be honored in the 1981 Restorer's Club.

2. **PRIZES** This year as a special feature every member who brings in three members will receive a flashlight pen and every member who brings in seven new members will receive a Journal binder as a gift.

To be sure all points are properly recorded, please check all new member applications carefully.

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. The **Journal** goes to print some weeks ahead of mailing.

5. The first figure after each name represents the number of points earned. The second figure shows the number of new members brought into the Guild for the year 1980-81.

### Presidents Club

|                   |           |
|-------------------|-----------|
| BITTINGER, Dick   | 17 ... 7  |
| DRAINE, Robert    | 31 ... 11 |
| MARCIANO, William | 15 ... 5  |
| SMIT, Robert      | 18 ... 6  |
| WAGNER, Robert    | 15 ... 5  |

### Restorer's Club

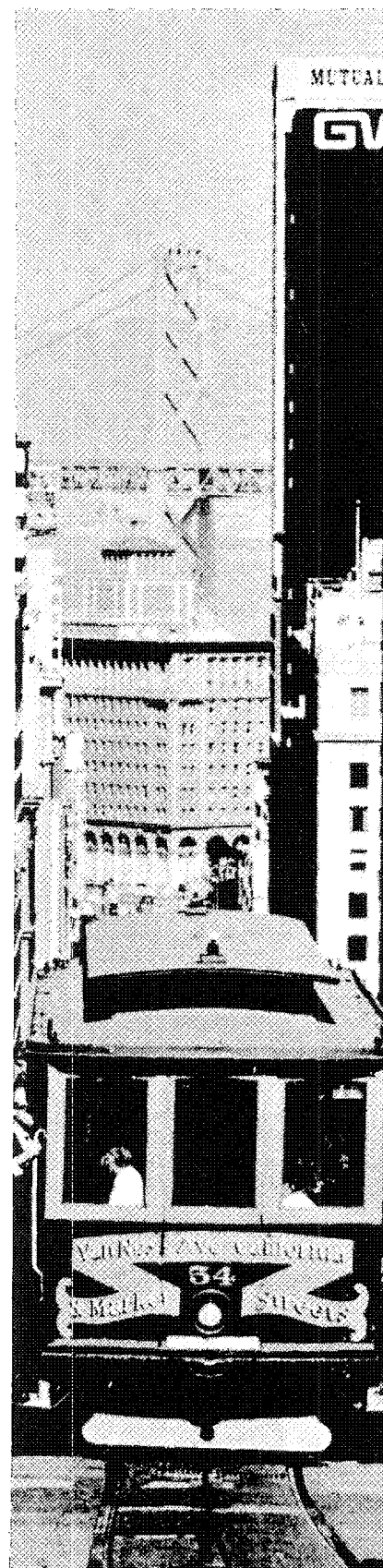
|                   |
|-------------------|
| BITTINGER, Dick   |
| COLEMAN, Sr., Jim |
| DeTAR, Brian      |
| DUNCAN, David     |
| FANNING, William  |
| GOLD, Jimmy       |
| MENSCHING, Dale   |
| PREUITT, Ernie    |
| SPRINKLE, Jack    |
| WALKUP, Ken       |
| WEEKS, George     |
| WILLIAMS, Kenneth |

Pts Mbrs

Pts Mbrs

### Booster Club

|                      |          |
|----------------------|----------|
| ACKMAN, W. H.        | 5 ... 3  |
| AFFLECK, Don         | 1 ... 1  |
| ALLEN, Jon           | 1 ... 1  |
| ANDERSON, Albert     | 7 ... 3  |
| ANDERSON, Mark       | 3 ... 3  |
| ASHMORE, Yvonne      | 1 ... 1  |
| ATHERTON, Olan       | 1 ... 1  |
| BACH, Philip F.      | 1 ... 1  |
| BAIRD, John          | 5 ... 5  |
| BARRUS, Ralph        | 3 ... 1  |
| BAUM, Patrick        | 3 ... 1  |
| BECK, Jacqueline     | 5 ... 5  |
| BENNETT, Wallace     | 3 ... 1  |
| BERG, Harry          | 4 ... 2  |
| BITTINGER, Dick      | 17 ... 7 |
| BLANTON, Tom         | 2 ... 2  |
| BRADY, Stephen       | 6 ... 4  |
| BRATTON, Donald      | 1 ... 1  |
| BROOKSHIRE, Jerry    | 1 ... 1  |
| BROWN, Anson J.      | 1 ... 1  |
| BROWNFIELD, Gary     | 4 ... 2  |
| BURBACH, Charles     | 2 ... 2  |
| BURTON, Robert       | 1 ... 1  |
| BUYCE, Harold        | 7 ... 5  |
| CALLAHAN, James      | 1 ... 1  |
| CAUNTER, Gerry       | 2 ... 2  |
| CHESEBOROUGH, Connie | 1 ... 1  |
| CLARK, Peter         | 1 ... 1  |
| CLEVENGER, Wayne     | 4 ... 2  |
| COLEMAN, Sr., Jim    | 7 ... 3  |
| COLLINS, James A.    | 3 ... 1  |
| CONOVER, Lester      | 3 ... 1  |
| COX, Merril          | 9 ... 3  |
| CRABB, Larry         | 3 ... 3  |
| CRAW, Stephen        | 1 ... 1  |
| CUNNINGHAM, Jess     | 12 ... 4 |
| DANTE, Richard       | 3 ... 1  |
| DAVENPORT, Richard   | 1 ... 1  |
| DeARMOND, C.E.       | 6 ... 2  |
| DEFEBAGH, George     | 6 ... 2  |
| DELPIT, John         | 4 ... 2  |





DESENS, Marlyn ..... 9 ... 3  
 DeTAR, Brian ..... 4 ... 2  
 DORLEY, William ..... 5 ... 5  
 DRAINE, Robert ..... 31 ... 11  
 DROST, Michael ..... 9 ... 3  
 DUNCAN, David ..... 3 ... 1  
 DYE, William J. .... 3 ... 1  
 EATON, Wendell ..... 6 ... 2  
 EDWARDS, Laroy ..... 3 ... 1  
 EDWARDS, William E. .... 4 ... 2  
 ERDMAN, James ..... 1 ... 1  
 ESMONDE-WHITE, Oliver ... 6 ... 2  
 EVANS, Dan ..... 4 ... 2  
 FANNING, William ..... 6 ... 2  
 FELTON, Hilbert ..... 10 ... 4  
 FINGER, Chris ..... 12 ... 4  
 FLEGLE, Sr., Richard ..... 1 ... 1  
 FOSTER, Elmo ..... 3 ... 1  
 FREIDIN, Irving ..... 1 ... 1  
 FRITZ, Lloyd ..... 3 ... 1  
 FROST, Jack ..... 6 ... 2  
 GARLICK, William ..... 3 ... 1  
 GARMAN, Dale ..... 3 ... 1  
 GARRETT, Joseph ..... 4 ... 2  
 GEIGER, James ..... 3 ... 1  
 GENTRY, Kenneth ..... 3 ... 1  
 GEORGE, M.J. .... 1 ... 1  
 GILLER, Evan ..... 7 ... 3  
 GOLD, Jimmy ..... 3 ... 1  
 GOYA, Emily ..... 4 ... 2  
 GRENNING, Albert ..... 1 ... 1  
 GULLIXSON, Elisha ..... 3 ... 1  
 GUY, John ..... 4 ... 2  
 HAMILTON, Roger ..... 1 ... 1  
 HANSON, Frank ..... 9 ... 3  
 HARMON, Clayton ..... 3 ... 1  
 HARVEY, Jim ..... 3 ... 1  
 HAUCK, Jack ..... 1 ... 1  
 HEDRICK, Ralph ..... 4 ... 2  
 HEINDELMAN, Lois ..... 3 ... 1  
 HENRY, Fern ..... 1 ... 1  
 HERBERT, Curtis ..... 4 ... 4  
 HERSHBERGER, Ben ..... 3 ... 1  
 HESS, Mark ..... 3 ... 1  
 HIGBY, James ..... 3 ... 1  
 HIPKINS, David ..... 3 ... 1  
 HODGSON, Bryant ..... 1 ... 1  
 INGLES, Bob ..... 1 ... 1  
 JACKSON, George ..... 3 ... 1  
 JACKSON, Steve ..... 1 ... 1  
 JOHNSON, Eric ..... 3 ... 1  
 JORDAN, Wayne ..... 3 ... 1  
 KELLEY, Allen ..... 1 ... 1  
 KIMBALL, Michael ..... 1 ... 1  
 KINGSBURY, Richard ..... 3 ... 1  
 KOKTON, Paul ..... 3 ... 1  
 KREITZER, Mark ..... 3 ... 1  
 LAWRENCE, Paul A. U. .... 3 ... 1  
 LEVITCH, Leon ..... 1 ... 1  
 LILLICO, John ..... 13 ... 5  
 LOEFFLER, W. J. .... 3 ... 1  
 LURIE, Mordecai ..... 6 ... 2  
 LYNN, Frederick ..... 6 ... 2  
 McCLURE, Wallace ..... 1 ... 1  
 McGUIRE, Michael ..... 7 ... 3  
 McKAY, Jim ..... 1 ... 1  
 McKINNON, Karl ..... 1 ... 1  
 MARCIANO, William ..... 15 ... 5  
 MARTEN, Gil ..... 3 ... 1  
 MATHESON, Duncan ..... 1 ... 1

MATTHEWS, John ..... 3 ... 1  
 MEEKINS, Joyce ..... 3 ... 1  
 MEHAFFEY, Francis ..... 1 ... 1  
 MENSCHING, Dale ..... 6 ... 2  
 MENSING, H. Daniel ..... 3 ... 1  
 MERANDO, Joseph A. .... 1 ... 1  
 METZ, Al ..... 2 ... 2  
 MILLER, Donald ..... 1 ... 1  
 MOORE, Robert J. .... 1 ... 1  
 NEIE, Gary ..... 3 ... 1  
 NICOLAI, Jay ..... 3 ... 1  
 ODENHEIMER, Fred ..... 6 ... 2  
 OSBORNE, James ..... 9 ... 3  
 OSBORNE, Joseph ..... 3 ... 1  
 PERKINS, Robert ..... 4 ... 2  
 PERSON, Donald ..... 1 ... 1  
 PETERS, George ..... 6 ... 2  
 PETERSON, Gerald ..... 3 ... 1  
 PHILLIPS, J. .... 3 ... 1  
 PREUITT, Ernest ..... 13 ... 5  
 RADD, Dorothy ..... 3 ... 1  
 RAPPAPORT, Joel ..... 3 ... 1  
 REITER, Michael ..... 1 ... 1  
 REQUE, Stycke ..... 1 ... 1  
 RICHARDSON, James ..... 6 ... 2  
 RITCHIE, Mark ..... 3 ... 1  
 ROE, Eugene ..... 3 ... 1  
 RUSSELL, Bob, Sr. .... 13 ... 11  
 SAAH, Joseph ..... 3 ... 1  
 SCHMITT, Paul ..... 6 ... 2  
 SCHOPPERT, Robert ..... 12 ... 4  
 SEITZ, Al ..... 4 ... 2  
 SEYMOUR, Ed ..... 1 ... 1  
 SIEROTA, Walter ..... 4 ... 2  
 SKOLNIK, David ..... 3 ... 1  
 SMIT, Robert ..... 18 ... 6  
 SNYDER, Willis ..... 3 ... 1  
 SPEIR, Leon ..... 3 ... 1  
 STARES, J. H. .... 1 ... 1  
 STEELE, Joe ..... 10 ... 4  
 STONE, Patrick ..... 6 ... 2  
 STRONG, Douglas ..... 3 ... 1  
 SVEC, John ..... 1 ... 1  
 THILE, Scott ..... 1 ... 1  
 UPHAM, Russ ..... 3 ... 1  
 VARNADO, James P. .... 3 ... 1  
 WAGNER, Lloyd ..... 9 ... 3  
 WAGNER, Robert ..... 15 ... 5  
 WALKUP, Ken ..... 6 ... 2  
 WEEKS, George ..... 4 ... 2  
 WEST, Richard ..... 5 ... 5  
 WHITAKER, Harry ..... 1 ... 1  
 WICKSELL, Larry ..... 1 ... 1  
 WILEY, John ..... 1 ... 1  
 WILLIAMS, Kenneth ..... 6 ... 2  
 WILLIS, Aubrey ..... 1 ... 1  
 WISENBAKER, Martin ..... 1 ... 1  
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 ZEISEMER, Bruce ..... 3 ... 1  
 ZELLMAN, Adelaide ..... 2 ... 2

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Evans, Eliot D.  
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# 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.

**October 9-11, 1981**  
OHIO STATE CONFERENCE  
Dayton, Ohio

**Contact:** Francis Hollingsworth  
2271 E. SV Paintersville Rd.  
Xenia, OH 45385

**October 11-13, 1981**  
FLORIDA STATE CONVENTION  
Daytona Beach, Florida

**Contact:** Walter T. Pearson  
c/o Community Piano Service  
2366 So. Ridgewood Ave.  
South Daytona, FL 32019

**October 16-17, 1981**  
NEW YORK STATE CONVENTION  
Howard Johnson's  
Plainview, New York

**Contact:** Richard Dante  
12 Magnolia Drive  
Kings Park, NY 11754  
(516) 724-8720

**October 16-18, 1981**  
TEXAS STATE CONVENTION & SEMINAR  
Space Center Inn  
Houston, Texas

**Contact:** Martin Wisenbaker  
808 Cordell Street  
Houston, TX 77009  
(713) 864-6935

**November 7-8, 1981**  
BALDWIN/STEINWAY SEMINAR  
Sponsored by Baltimore Chapter  
Towson State University  
Baltimore, Maryland

**Contact:** Morris Millman  
8326 Scotts Level Rd.  
Baltimore, MD 21208  
(301) 655-6527 or  
(703) 442-6165

**January 8-9, 1982**  
ARIZONA STATE SEMINAR

**Contact:** John Allen  
Mesa, Arizona  
(602) 839-6078

**March 26-28, 1982**  
PENNSYLVANIA STATE CONVENTION  
Pittsburgh, Pennsylvania

**Contact:** Robert W. Wagner  
1225 Saxonwald Ave.  
Pittsburgh, PA 15234  
(412) 884-8222

## UPCOMING CONVENTIONS OF THE PIANO TECHNICIANS GUILD

**1982** July 4-9  
Washington, D.C.  
Capitol Hilton

**1983** July 4-8  
New Orleans  
New Orleans Hilton & Towers



# THE AUXILIARY EXCHANGE

Luellyn Preuitt

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### Editor, Auxiliary Exchange

**LUELLYN PREUITT**  
4022 South Fuller  
Independence, Missouri 64052

A Message from Jewell Sprinkle -  
"As Immediate Past President of the Auxiliary, I wish to express my thanks to all of you in allowing me to serve you the past two years as president. It has been an honor.

"Of course, the president does not serve alone. There are many others, without whose assistance the work would not have been possible. The Board has been an excellent one in fulfilling its commitments and duties. There is no way for me to express my deep appreciation to those involved in planning and hostessing the last two national conventions. All of the many facets of such an event, the entertainment, classes, refreshments, and many other duties which are necessary but rarely seen, have been provided for in a thoughtful and efficient manner.

"Not only are Auxiliary members to be recognized, but also the Guild President and Board, the Executive Director and Home Office personnel, hotel managements and staff, and JOE, whose assistance has been immeasurable! To all of you I humbly submit my gratitude.

—Jewell"

As this is the last time this writer will address you in her capacity as Auxiliary editor, she also wishes to express her thanks and appreciation for the many articles sent, the news items submitted for use in the column, and most of all her pleasure in the many friends she has made in the organization.

Life would have been so much poorer had she not become involved in the activities of the Auxiliary. Sometimes, it is true, we feel we are walking a tightrope between quality and quantity when we get into helping to run an organization, and sometimes see the "seamy" side of it. But remember, we ourselves are in control of whether we allow certain irritations and annoyances to become the greater part of the matter.

There is also a time when we need to get away from an activity and reflect on its meaning to us, and what value it may have been. That time has come for me. Other activities and interests beckon, but this does not mean that I am any less interested in the Auxiliary or less concerned about its future.

I hope you will all give the same loyal support to the new editor, Julie Berry, as you have to me these past 11 months. She will welcome and need your contributions if the column is to continue to serve as our line of communication.

This is indeed a short farewell message, but I do not wish to prolong the moment. To all of you, my dear friends, who have been so supportive and loyal, a heartfelt, sincere, and humble "Thank You".



# SALES ORDER FORM

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| <b>BUSINESS AIDS</b>  |                  |               | <b>JEWELRY</b>   |                  |              |               |                 |                 |              |      |        |        |        |        |        |  |  |
| <b>Ballpoint Pens</b> – gold, writes blue and red-1/\$3.50-2/\$6 .....  |                  |               | * <b>Membership Pin</b> – lapel-type, gold with blue and white logo-1/\$3-3/\$6-12/\$18  |                  |              |               |                 |                 |              |      |        |        |        |        |        |  |  |
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|   |                  |               | "How Often Should My Piano Be Tuned?" .....  |                  |              |               |                 |                 |              |      |        |        |        |        |        |  |  |
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## HELP WANTED

**GOOD OPPORTUNITY** available now for technician/tuner to develop own private business for base with extra benefit of affiliation with reputable music store/Baldwin dealer. Present technician willing to share abundance of business plus discuss opportunities in related fields of player piano/reed organ/pipe organ craft. Write to: **Ken Kajkowski, P.O. Box 1029, Great Falls, MT 59403.**

**MASTER TUNER-TECHNICIAN.** Artist piano-rental company seeks master tuner-technician. Must have positive self-image of his professionalism. Work with the greatest pianos and artists in the world. Master technician is sought for long-term 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, piano moving, regulating, 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.**

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## 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**

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## MISCELLANEOUS

**AT LAST!** Tuning, technician courses at The Piano Shoppe, Inc. Evening sessions. **Victor A. Benvenuto, 6825 Germantown Ave., Philadelphia, PA 19119, (215) 438-7038.** Call or write.

**PIANO TUNING & REPAIR.** Well equipped shop. Top qualified teachers. **Steve Fairchild, Director. Piano Rebuilding by Dante, 2294 Locust Ave., Ronkonkoma, NY 11779. (516) 588-6446**

**ATTENTION PIANO RETAILERS AND TECHNICIANS.** Do you need a quality piano rebuilder and refinisher? Reasonable wholesale prices. Write for brochure listing prices and qualifications. **Dante Piano Rebuilders, 2294 Locust Ave., Ronkonkoma, NY 11779. (516) 588-6446.**



# The Baldwin Piano...

## *You can see why it sounds better*

The bridge is a critical component of the tone-producing system. It must precisely terminate the speaking length of the strings, and it must transmit vibration efficiently to the soundboard. In addition, it must be extremely strong to withstand the force of sidebearing and to resist splitting.

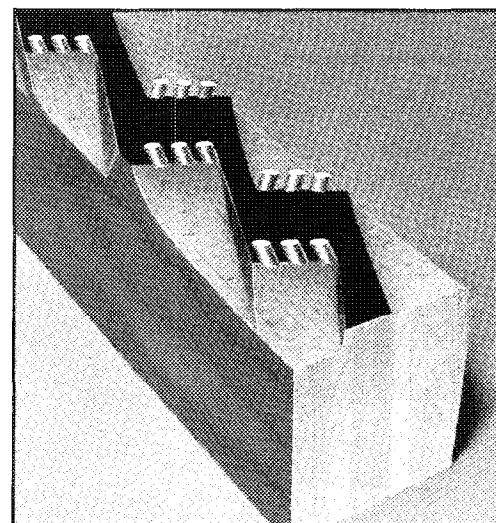
Traditionally, bridges have been capped so that they can be notched easily and the height altered for downbearing by planing. Our patented AcuJust™ plate suspension and hitch pin design gives us complete accuracy in setting downbearing, so we no longer need to plane our bridges down after installation. And we now notch all bridges by machine to gain increased precision and consistency.

In addition, our research showed that eliminating the capping, in combination with the above changes, gave us a definite improvement in tone. We gained maximum tone quality, greater efficiency in transmission of vibration, and improved reliability. At the same time we eliminated problems previously associated with capping: (1) occasional loose capping, (2) checking and splitting of the cap, (3) grain direction which was not always parallel to the line of the bridge, and (4) the potential tone barrier of a horizontal glue joint in the bridge.

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THE BALDWIN GRAND BRIDGE: Thin vertical laminations are bent for continuity of grain from one end of the bridge to the other without horizontal glue joints. Baldwin researchers have found this design contributes significantly to outstanding tone quality.

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Third in a series of informative ads on piano tone published by Baldwin Piano & Organ Company exclusively for the benefit of piano technicians.

**Baldwin®** - *Leading the way through research*

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



# Open For Business!



We didn't forget the technician when we designed our newest school and chapel pianos, Conservatoire 2960 and the Chapel 2962.

Tops, fronts and fallboards detach without tools. The entire action slips out with ease. However, most mechanisms, including a sostenuto system, can be serviced *without* removing the action!

These new pianos also offer a new all-spruce Duraphonic Multi-radial™ Soundboard which dramatically improves tuning stability. Laboratory tests prove that in environments with up to 90% relative humidity, solid spruce soundboards expand over 5 times more than the new Wurlitzer design, causing more serious changes in string tension.

It costs more to build pianos this way, but we believe that a quality instrument must be well maintained. Recognizing the importance of your work, we try to do ours just a bit better.

**WURLITZER®**  
The Music People  
DeKalb, Illinois 60115



PIANO TECHNICIANS GUILD

# AUGUST 1981 UPDATE



## Colorado State Convention

Fifty-six technicians attended the April 3-5 Colorado State Convention at the Hilton Harvest House in Boulder. Art Reblitz and Joe Cossolini gave classes on player piano servicing in the home and rebuilding in the shop. Cliff Anderson and Dick Eckburg of Wur-litzer, in addition to their classes in the servicing and regulation of verticals, taught tuning and troubleshooting of electric pianos. Jack Krefting gave an interesting slideshow of the Baldwin factory and taught pinblock installation and piano troubleshooting. Newton Hunt's unique series of classes covered grand piano servicing, starting with regulation and continuing with tuning and, finally, voicing.

In addition to the classes, three films were shown: Sid Stone's "Upright Action Restoration Procedures"; "Casualties of Stress", new from PTG; and "The City of St. Francis", in anticipation of the National Convention.

Several membership applications were received and the groundwork laid for the formation of a new chapter in western Colorado.

Thanks to Ernie Previtt, the instructors, and the Denver Chapter Board for making this convention a success.

—Chuck Lowrie

*Photos by John Bloch*





# Considering a Newsletter?

At this time of year many chapters elect officers and plan activities for the coming year. One question every chapter should consider is whether to initiate or continue a newsletter. Since producing a newsletter involves considerable expenditure of time and money, it is an effort which should be well thought out in advance and undertaken only when the chapter feels it is necessary and will support the efforts of the newsletter editor or committee. However, since a regular newsletter offers both a sense of cohesion and an easy means of communication, it is a project well worth the effort, and, once begun, may become an honored and valuable part of the life of the chapter.

Communication is the most important function of any newsletter. Even a simple postcard notifying members of meeting time, place, and technical subject performs this function, and chapters which as yet have no newsletter may wish to begin this way. As with any newsletter, a postcard must contain accurate information, and it must be *regular*. Once the membership comes to expect written notification of meetings it is important that the notice continue to go out regularly or confusion will descend. Postcard stock (perforated sheets of six cards each) is available for mimeograph machines, or any instant-print shop can supply pre-printed cards. If using a printer, it is most economical to have a large supply of cards printed at one time, with appropriate blank spaces into which the monthly (or whatever) particulars can be handwritten. Another obvious advantage of post cards is that they require less postage.

Any of the labels designed for letter use can be used on cards. Stationery stores sell boxes of labels for use in Xerox and similar machines—check the machine first to see which type it requires. Once the mailing list is typed on a master sheet, labels can be easily reproduced as needed. Although it may seem more convenient to duplicate a year's supply at once, it may not be advisable since, if any changes are necessary, they must then be made many times over instead of just on the master sheet. There are also carbon-set labels which produce four sets of labels as the top sheet is typed, but these tend to be messy and of poor quality on the last sheet. Fortunately chapters may have a member with

access to computerized word processing equipment which will produce not only labels but print the entire newsletter as well.

Sending a postcard notice requires the chapter to set up some sort of system for getting it printed, addressed, and mailed. From here, it is a small step to graduate to a single-sheet newsletter. A single sheet has the return address and space for a label and stamp on one side, usually placed in the middle third of the sheet or just below halfway. The sheet is folded with the technical and meeting information inside and no envelope is required. Use of tape or a small gummed sticker instead of staples will prevent tearing a hole in the middle of the text when the newsletter is unfolded. The return address can be pre-printed (again, if commercially done, having a large quantity done at once is most economical). If the newsletter has a name or a heading (and it should), this can be printed on the blank side either in advance or at the same time as the text. In addition to the return address, every issue of the newsletter should contain the editor's name, chapter name, and the date of the newsletter. If there is notification of a meeting, the details of time and place are important, and, if possible, a description of the program for the evening. This last is gratifying to whoever is giving the program, and will stimulate chapter interest and attendance.

With the "nuts and bolts" taken care of, the next consideration is whether to include articles and tips of technical or general interest. If the chapter has budding or experienced writers, it is fortunate indeed; but if not, it is still quite possible to provide at least occasional articles. Back issues of the *Journal* are an excellent source for these and surely every chapter has someone who hasn't thrown away a *Journal* yet. Newspaper and magazine articles about music and related topics are of interest, as are reprints from technical books and other chapter newsletters. Another possibility is to present a fairly detailed report on an interesting technical program given at a chapter meeting, although this should be done with the permission if not supervision of the presenter. Quite often hand-out sheets from seminar and convention classes make interesting reading. With all non-original sources it is important to give credit to the original source, and to obtain permission whenever necessary.

If an article is already in type and the chapter is using offset printing, then assembling the text is a simple matter of cut and paste. If not, or in the case of original material, the text should be typed neatly and legibly. Columns are easier to read than full-page material, but what is most important is not to tire the reader with a lot of small, close-together print; either double space or break up the text with illustrations.

Obviously, the cleaner the type and newer the ribbon the better the quality of offset copies. Material for offset should not be typed on erasable paper—use a heavier paper and white correction fluid. Drawings or handwritten items should be done in black or red ink—blue reproduces very poorly. If the chapter has access to a mimeograph or duplicating machine, the newsletter must be typed onto masters. This is best done on an electric typewriter, and can be jobbed out if the chapter can afford it. If you choose to hire a typist, remember that the copy must be ready even more in advance and should be completely edited and organized. Typists will do some layout but it is time-consuming and the chances of getting what you want are better if the editor or committee does it.

You may notice the phrase "editor or committee". Experience suggests that newsletters produced as a cooperative effort by several interested chapter members tend to remain more interesting and live longer than one-technician efforts. Sending out a postcard is something the chapter secretary or one individual can usually handle; once the decision is made to attempt something more, however, it is best to set up a committee or appoint an editor. With a committee, the separate phases of production—writing, typing, mailing, etc.—can be divided among the members with either one person as editor to coordinate efforts, or with a rotating editorship. Certainly there are fine newsletters put out by a solitary editor, and smaller chapters may simply not have enough volunteers for this, but there is a limit to how much one person can do and some assistance may lead to an even better product. In addition, with reliability so important, a committee offers back-up in case something prevents the editor from meeting a deadline. Holding a committee meeting is also an excellent way to generate technical tips and

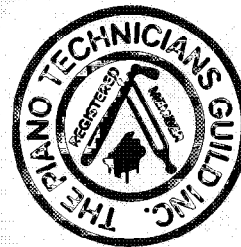


# "Is Membership a Service to Itself or an Obligation to Itself?"

*These two paragraphs are from an article written by U.G. Jeffers, Vice-President of the National Association of Piano Tuners. It appeared in the May 1957 Tuners Journal:*

The service of your officers for years have been largely donated. We do not have anything like the necessary machinery and equipment to properly handle our duties. Aside from this, every officer has been acting in your behalf on time sacrificed from his own livelihood. Except for chance, any one of us might be any one of you. The solution will always lie with every member doing his share to assist growth, develop promotional ideas, and use them, supplying the means to make them effective.

If we want our organization to measure up with the times we must see to it that we are willing to pay the price, in money, time, effort and thought. The best craftsman is but a joke without his tools. An elected staff of officers equipped with the best constitution in the world, and appointed by the best craftsmen in the business, will be like a study in still life unless they are supplied with the necessary tools and material to do their job. Let us awake to our possibilities, galvanize ourselves into action and achieve the results so long sought by our predecessors.



articles (out of the inevitable shop talk); the solitary editor may talk to him or herself, but it just isn't the same without another point of view! The final argument in favor of a committee is continuity. Even the most interested editors tire after a few years, and if a committee has been established, someone is usually available and experienced to take over.

In closing, let me say that there is no such thing as a bad chapter newsletter. Any and all attempts have good things to offer and add to the life of the organization. I commend all of you wordsmiths out there and appreciate receiving copies of your work. I encourage you all to continue and hope to see even more interesting newsletters starting up in the future. Good luck!

Susan Graham,  
Chapter Newsletter Committee

## Dues—

This is the final round-up of all dues. Delinquent date for all unpaid dues is July 31, 1981. Drop date is August 31, 1981. Please send in your money in time to save yourself the \$30.00 reinstatement fee.

Some members are sending their second payment with their third billing. The second and third partial payments are due now, and we request that one lump sum payment be mailed to the Home Office. There will be no fourth billing, so it will be the responsibility of each member to send the balance of their dues by July 31, 1981.

Guild dues for new student members and renewals are \$60.00. Please send \$60.00 with each Student application. If a chapter wishes to retain \$15.00 for each Student application and renewal, the Chapter must assess another \$15.00, or \$75.00 for each Student. The Home Office does not collect Chapter dues for Students, but Chapters are authorized to assess Chapter dues up to \$20.00.

## Chapter Dues

The Home Office is not collecting any Chapter dues for the balance of 1981, since all Chapter refunds were made in April 1981, as required by Guild Bylaws.

## JUNE CHAPTER MAILING

Convention Flea Market notice  
Progress Report of International  
Association of Piano Builders and  
Technicians

University Technicians annual committee report

Report of the Treasurer-Recording Secretary

Report on any local chapter members dropped for non-payment of dues

Notices of transferred members for affected chapters



## Booster Club Points

Recently some members have not been credited with the Booster Club points they have earned because the Home Office was not able to decipher the signature.

For full Booster Club credit, please write the name of the sponsor in capital letters beside the signature.

### IN MEMORIAM

Franklin M. Biskey  
Lenoir, NC



## Sending Checks

**Please — Please — Please** enclose copy of the dues billing or invoice for supplies when making a payment. If the dues billing or invoice is lost, please attach a note with your name and a statement showing what the payment you are enclosing is to cover.

The Home Office receives some checks without any information attached and we are then unable to apply the credit for payment and do not even know whether the funds are to pay membership dues or to purchase supplies.

## Chapter Notes

The April and May meetings of the Los Angeles Chapter both featured strong technical sessions. In April Ernest Dege discussed a variety of problems: On a Mason & Hamlin screw stringer, how do you repair a guide tooth that has broken off? Answer: Drill a hole where the tooth is broken and drive in a bridge pin. How should one restring a square grand? The rule of thumb is that on pianos built before 1900, restring with one half size smaller strings than the original. On pianos built before 1875, restring one whole size smaller. On a Bluthner, do not ignore the fourth string (above the triads). Tune them one octave higher than the regular note and pluck them when tuning. If some cannot be tuned an octave higher, tune them in harmony but do not neglect them. If the section behind the bridge interferes with tuning, mask it off or cover with cloth while tuning and remove tape when tuning is finished.

Veteran Herman Kohford spoke at the May meeting on types of wood used in pianos. Kohford says spruce is best for soundboards, rock maple for pin blocks. Mahogany is sometimes used in soundboards, too. Red oak is strong but has open pores easily seen on the grain end of a board; white oak is not as strong. Beech, rock maple and white birch are all hardwoods. Yellow and black birch are harder than white birch, but the white birch looks better. For case work, rosewood and jacaranda are quite similar and both are beautiful for this purpose. Walnut is also popular.

## 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¢ remaining 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!

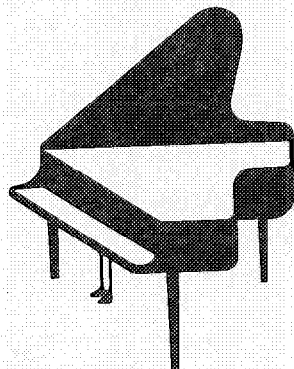
1. Please ask the Post Office to forward your *Journal* to you when you move.

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*.

The Board of Directors has adopted a new policy:

"The Home Office is to charge a postage and handling fee for mailing duplicate *Journal* issues to replace missing issues due to a change of address."



## Notes on Billings & Correspondence

Please do not write messages on your billing dues. If you wish to notify us of a change of address, change of classification or have any other message, please send it on a separate piece of paper. This will avoid the possibility of delay or confusion in giving you proper action on your message.

## Merchandise Orders

When placing an order to the Home office for merchandise, please use your home or business address instead of a post office box number. Your order will arrive faster by United Parcel Service, but UPS does not accept post office box addresses.

## Can Your Idea Pass the Test?

Like any large organization, the U.S. Navy is on constant alert for new ideas. Try their check list on your bright idea.

Will it increase production or improve quality?

Is it a more efficient utilization of people?

Does it improve operation, maintenance or construction?

Is it an improvement over present tools or equipment?

Does it improve safety?

Does it reduce waste?

Does it eliminate unnecessary work?

Does it improve present office methods?

Will it improve working conditions?

If your idea rates at least one "yes", then you probably have a constructive idea, according to the Navy.

## Home Office Address

Please address all mail to 113 Dexter Avenue North, Seattle, WA 98109. The post office box was closed November 1980.