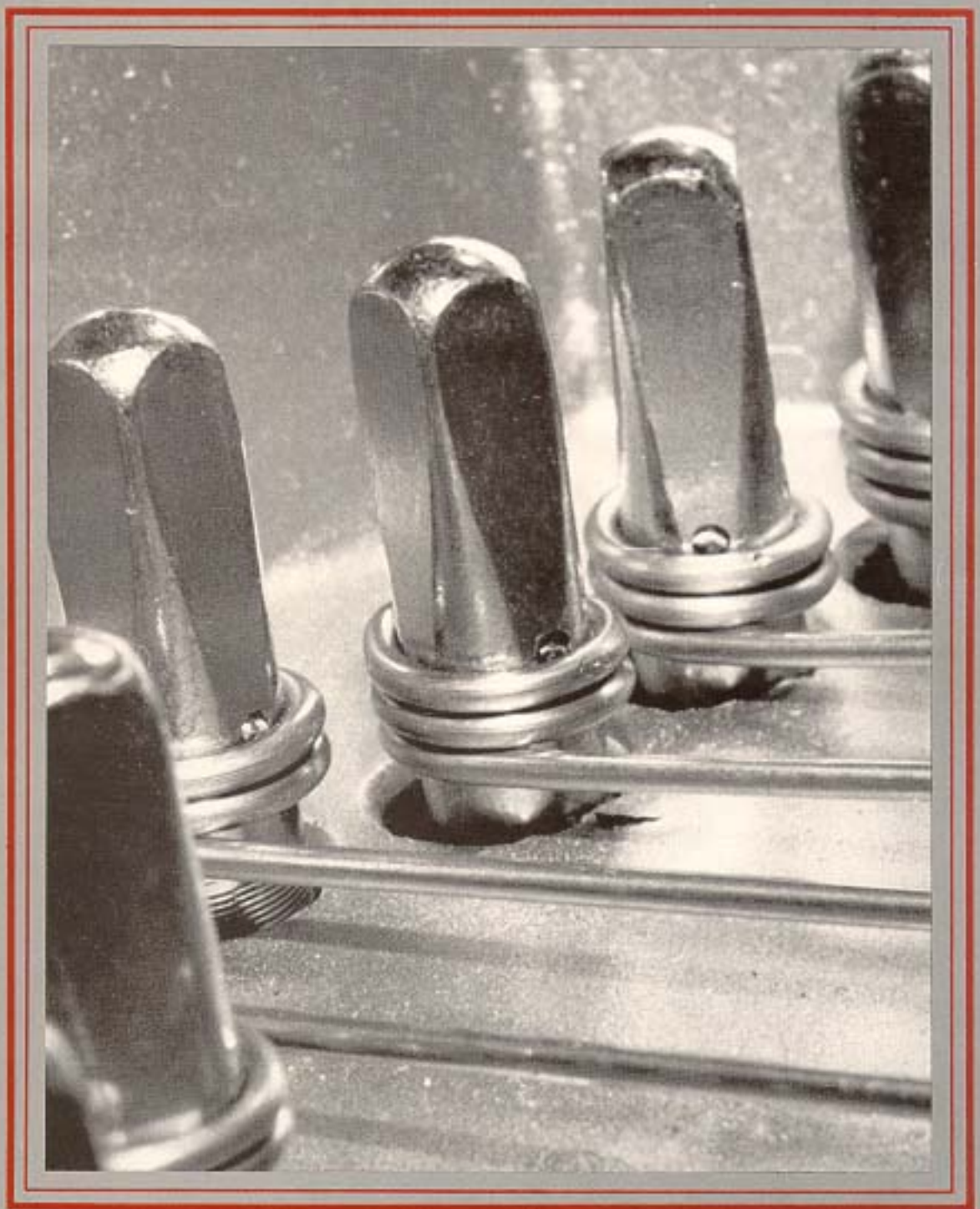
Piano Technicians Journal

February 1984



The Baldwin Piano...

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At Baldwin we believe that perfect piano tone is an ideal shared with all those who design, build, play and service pianos. That's why continuous research in piano tone has always been one of our major commitments. And that's why our piano engineering and research department is one of the largest in the industry. And that's why you'll often find in every Baldwin piano innovations to improve piano tone introduced in our SD-10 concert grand.

RESEARCH shows us why, as well as how, some things work better because we've taken a pioneering approach to piano improvement. We've substituted scientific testing and analysis for the unquestioning acceptance of traditional solutions. Some of the achievements that have resulted are treble termination bars (U.S. Pat. No. 3,477,331), the Acu-Just™ plate suspension system (U.S. Pat. Nos. 3,437,000 and 3,478,635), and vertically laminated bridges. Our patents are the most significant ones awarded for tonal improvements in grand piano tone in recent years.

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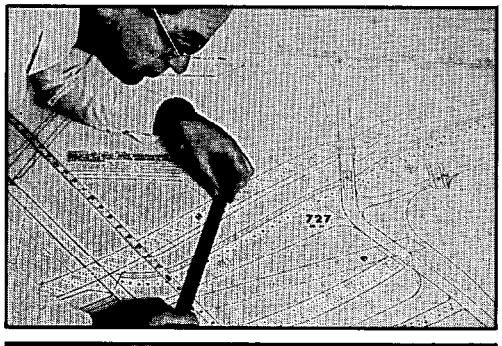

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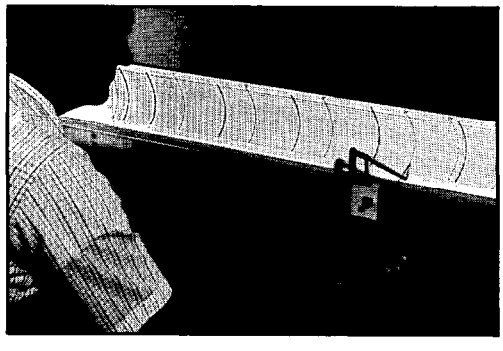

First in a series of informative ads on piano tone published by Baldwin Piano & Organ Company exclusively for the benefit of piano technicians.

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Cover: "Tension," a photograph by Priscilla and Joel Rappaport.

PIANO TECHNICIANS JOURNAL (ISSN 0031 9562) is the official monthly publication of the Piano Technicians Guild, Inc., 9140 Ward Parkway, Kansas City, MO 64114. Second class postage paid at Kansas City, MO. US ISSN 0031 9562 foreign and domestic. POSTMASTER: send address changes to **PIANO TECHNICIANS JOURNAL,** 9140 Ward Parkway, Kansas City, MO 64114.

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President's Message

Ernie Preuitt
President

Developing Trust And Respect

We are now in our new home, and by the time you read these few words we should be well on our way to a well-regulated and smooth-running organization. This has by no means been a piece of cake. It has been accomplished only because many people were dedicated to the cause and were cooperative in what had to be done. Because of respect and trust in each other, the task was completed in a relatively short time.

It is my desire now to get on with the business of our organization in an efficient and trusting manner. I believe that with our present officers and our new management firm, the former is at hand. I would like now to address the latter.

A motorist pulled into the auto shop and asked, "How much will it cost to fix my car?" The mechanic replied, "What's the matter with it?" The motorist replied, "I haven't the slightest idea." "In that case," said the mechanic, "It will cost at least $200."

Would you trust a person like that?

This afternoon a lady called to tell me that a key was struck on her piano. "How much would it cost to fix it?" she asked. Maybe I should have asked her what was making it stick, for I knew she would have said, "I have no idea." Maybe I could have gotten a $200 fee! I will get a tuning fee, for her record shows she is way past tuning time, and because she trusts me, she will call again when something malfunctions on her piano.

What we need now in our organization is to trust and respect each other and work as if our success depends on each of us as an individual.

We are told to love our neighbor as ourself. The trouble is, we think of it in terms of affection, of the kind of feeling we hold for our families or others who are especially dear to us. We forget we are supposed to love our neighbor, not as we love such persons, but as we love ourselves.

How do we "love" ourselves? First of all, we must respect ourselves. We are willing to give ourselves a break, to forget our shortcomings, to glow a bit over our accomplishments. That is the kind of love we ought to give our associates – our "neighbor," if you will. Such love involves: an inclination to be understanding and helpful, overflowing good will, an appreciation of fine qualities, and a recognition of the right of our neighbor to be different from us.

Wouldn't it be great if everyone in the world would adopt these principles? Little chance of that happening, though, until we can change the thinking of many of our world leaders. But it is possible with the Piano Technicians Guild, for there is little we want except to make a decent living and to be contented. The decent living is possible by the individual's perseverance, but even if one makes an abundance of dollars, how can one possibly be contented without respecting his or her neighbor, and the neighbor trusting in return?

What's wrong with a little brotherly love?

An encore from three of the best.

Few American pianos have influenced the world of music as much as Mason and Hamlin, Knabe, and Chickering. They are among the oldest, most respected names in the business.

These fine instruments are again being built with old-world craftsmanship. They surpass their excellent reputation for beauty and resonance.

We urge you to see these superb pianos at your dealer's showroom. Or, write us for more information about them.

They're a repeat performance you won't want to miss.

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Executive Director's Message

Barbara Parks
Executive Director

A Bank Robber's Business Philosophy

Willie Sutton was a man who knew what he wanted. He also knew how to get it.

One of the most famous bank robbers of years past, Sutton's trademark was the polite, often whimsical way with which he parted bank tellers from their cash drawers.

"I've always discovered that I can get more with a kind word and a gun than I can with just a kind word," Sutton once said.

This is not meant as advice to purchase a gun and start robbing banks. Sutton did his share of time as a guest of the government because he made several missteps on the path of life. However, his philosophy of backing a pleasant smile with a little steel is one that each of us can carry over into our business lives.

We're all in business, whether we punch a time clock, set up a workbench in our garage or direct a corporation. We're all selling what we produce to one or more clients and we all depend on our labors to feed ourselves and our families. Certain principles apply throughout the spectrum from small businessmen to corporate executives.

To carry Sutton's comment a little further, look at his gun as a metaphor for power, which also has been defined as knowledge. Put simply, you can get where you want in any business or profession by knowing how to deal with people (Sutton's kind word), backed by a thorough knowledge of both the technical and the management aspects of your business (his gun).

It's not so much that you use your knowledge as a weapon to bend people to your will as it is a tool that you carry in your kit whenver you deal with a customer or a client. For those of us in the service professions, piano technicians or association managers, for example, our knowledge is the very foundation on which we build our careers. Our expertise is what we sell in the marketplace.

Where does this knowledge come from? We're living in what has been called the "age of information." With a home computer, you can tap into a data base which will give you everything from the exchange rate in kopeks to the latest stock market tips. More magazines are now being published than ever before. The nation's business schools are churning out scores of MBAs who yearn to share their newfound knowledge. And the nightly news tells us about the latest brush war even before the bodies are buried. The main problem with the information age is that there's simply too much there for anyone to digest.

That's the advantage in belonging to a group like the Piano Technicians Guild. Whatever technical challenge you may tackle, chances are good that someone else already has faced the same problem. If nothing else, belonging to groups like the Guild gives us a chance to learn from others' mistakes. The information you get from the *Journal* and from Guild-sponsored conventions and regional seminars simply can't be purchased anywhere else at any price. And that includes information unique to a piano technician's business as well as technical knowledge.

As for the "kind word" part of our bank robber analogy, well, that's a matter of simple logic. Those we serve, our customers, clients or bosses, are the basis of our business success. We must always put forward a friendly, professional face.

So keep smiling.

Coming Events

DATE	EVENT	SITE	CONTACT
March 21-24	Music Educators National Conference	Conrad Hilton Hotel Chicago, IL	PTG Headquarters 9140 Ward Parkway Kansas City, MO 64114 (816) 444-3500
March 25-30	Music Teachers National Association Convention	Galt House & Hyatt Regency, Louisville, KY	PTG Headquarters (816) 444-3500
March 29-April1	Pennsylvania State Convention Erie Chapter	Ramada Inn Erie, PA	David D. First RD 1 Meadville, PA 16335 (814) 724-5221
March 30-April 2	N.Illinois Regional Seminar Chicago & Waukegan Chapters	N. Illinois U. of Music DeKalb, IL	Jack Greenfield 259 Riverside Drive Northfield, IL 60093
April 6-8	Central West Regional Seminar Nebraska Chapter	Westbrook Music Bldg. Lincoln, NE	Richard E. West Westbrook Music Bldg. University of Nebraska Lincoln, NE 68588 (403) 483-6770 (H) 472-2568 (B)
April 12-14	Pacific Northwest Conference Vancouver, BC Chapter	Coquitlam Motor Inn Coquitlam, BC	Karl Verhnjak 20939 - 117 Avenue Maple Ridge, BC Canada V2X 2G4 (604) 467-2225
April 28	Los Angeles Chapter PTG Seminar	El Camino College Torrance, CA	Allan Cate 5307 Cortolane Dr. La Crescenta, CA 91214
May 4-6	New England Conference Seminar Montreal Chapter	Hotel Du Parc Montreal, Quebec	Marcel Carey C.P. 374 Cookshire Quebec, Canada JOB 1MO
May 11-12	PTG Intermountain Convention	Brigham Young University, Provo, Utah	Jack Reeves 486 N. 300 W., Orem, Utah 84057
May 17-19	Piano Tuners Association Convention	Royal Clifton Hotel Southport, England	Dan Evans 4100 Beck Ave. Studio City, CA 91604
June 23-26	NAMM Summer Expo	McCormick Place, Chicago, IL	Bob Russell 1414 Lander Rd. Mayfield Heights, OH 44124
June 28-29	PTG Executive Board Meeting	Indianapolis, IN	PTG Headquarters (816) 444-3500
June 30-July 1	1984 Council Session	Indianapolis, IN	PTG Headquarters (816) 444-3500
July 2-6	1984 PTG Convention	Indianapolis, IN	PTG Headquarters (816) 444-3500

Indy Institute Has More in '84

Dick Bittinger
Institute Director

There have been many requests for a special class on rebuilding this year. Hold on to your seat, because we have a pleasant surprise for you. There will be two separate rebuilding classes.

The first class will be called "Bridge Construction." The instructor will be Ed Trefz, formerly associated with and head of the rebuilding department of Trefz Piano Supply in Philadelphia, PA. This class will include bridge recapping on a grand piano, which of course is the same principle used on vertical pianos. There will be *hands on training* in drilling bridge pin holes, planing bevels, notching, tool repair and sharpening and much more. So here is your chance to master all types of bridge construction. Assisting Ed in this class will be his son, John, and Ralph Onesti, both from the Philadelphia area. I might add that this class is the first of its kind at an Annual Convention.

The second special class is "Pin-Block Installation and Restringing." Willis Snyder will be the instructor for this special class. Many extras will be included, such as record making, valuation, appraisal, pinblock construction, plate construction, stress factors, plate suspension system, and much more. Assisting Willis will be his son, Dave, from the Reading-Lancaster Chapter, and Ken Sloane of the Cleveland Chapter.

These two special classes will be held across the street from the Hyatt Regency Hotel on the third floor of the Indianapolis Repertory Theatre. The rooms are quite adequate for this type of class, with everything necessary to set up a rebuilding shop and equipment. There will be a limit of 40 per class, with an extra charge of $35. The classes are scheduled for three days, with the last day (which is a half-day) consisting of a summation and tear-down.

Everybody knows how that last day goes — asking the questions you forgot the day before, trying that tool with the instructor's guidance one more time, etc. Sound exciting, doesn't it? So, when you get your convention registration, you'd better get your name on the list for either one of these special classes. First come, first served.

The International Scene

Fred Odenheimer, Chairman
International Relations Committee

Last call for the PTG British tour! Your money must be ready for transferal to Phelps Travel in England not later than April 1, 1984. If you still want to go aboard contact: Dan Evans, 4100 Beck Ave., Studio City, CA 91604; phone (818) 762-7544.

The high point of the tour is the PTA convention and technical institute, with some classes that are entirely new for us. Piano factories to be visited are Bentley and Welmar. There are also visits to the Herrburger Brooks Action Factory, Naish Felts and Crown Foundry.

A visit to the Royal College for the Blind, Piano Department, should also prove to be very interesting. Two of their students garnered first prizes in a tuning competition a few years back which was sponsored by *Europiano*. We may get some good pointers on tuning there.

And while we are on tuning, here is some advice by Mr. Armin Jacobi, Zurich, Switzerland. I hope he and *Europiano* magazine where it is published do not mind if I pass on his words of wisdom:

"Don't forget those long, deep breaths! I am just in the process of tuning a rather tricky instrument and can feel increasing pressure coming from underneath the skull, accompanied by a buzzing sound ringing in my ears. The situation is getting more and more unbearable and listening is quite an effort. Now is the time for me to put down the hammer, get up and take a number of deep, slow breaths. I can sense the relief. The symptoms just described have now gone; I am myself again.

Diagnosis: shortage of oxygen caused by holding the breath for too long and breathing intermittently instead of regularly. We tuners need to get accustomed to abdominal breathing on a routine basis. It is not easy but it works."

Business Books

The business world can be a dizzying place! What with new technologies coming on the market all the time, ever-changing governmental regulations and a complex economic climate, it's hard to stay on top of things.

These books can help. They are among the latest titles from McGraw-Hill, and they're available to *Journal* readers at a significant discount. These books are offered in addition to regular Piano Technicians Guild books and pamphlets, which are still available. More titles will be announced in the months to come.

"Straight Talk About Small Business," by K. Albert. This candid guide explains the pros and cons of owning a small business. Retail price: $18.95; ***Journal*** **price: $17.05.**

"The Technique of Clear Writing, Revised Edition," by R. Gunning. Concise, effective writing made easy in this invaluable source book. Retail price, $14.95; ***Journal*** **price, $13.45.**

"Professional Service Management," by William Joseph. Here is an effective, down-to-earth guide which shows how to incorporate today's sophisticated management techniques into those highly people-oriented service businesses. Retail price, $24.95; ***Journal*** **price, $22.45.**

"The Business Guide to Small Computers," by L. Calmus. Targeted at business people who are not computer professionals, this basic guide explains how to choose, set up and operate a small computer that's compatible with your business. It also shows how to realistically determine costs and benefits before the purchase. Retail price, $19.95; ***Journal*** **price, $17.95.**

Orders should be addressed to *Piano Technicians Journal*, 9140 Ward Parkway, Kansas City, MO 64114. Please include $1.50 per order for mailing and handling. Allow six to eight weeks for delivery.

CENTRAL-WEST REGIONAL SEMINAR

April 5–8, 1984
University of Nebraska
Lincoln, Nebraska

13 Instructors
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Contact Person: Richard West, Westbrook Music Bldg., University of Nebraska, Lincoln, NE 68588-0100

The Technical Forum

by Jack Krefting
Technical Editor

Multi-Purpose Tool Contest

Last month we featured a claw tuning hammer by Ron Nossaman and a notched screwdriver by Joe Meehan as our first entries. This month we take a somewhat more serious tone with the third entry by Michael Tocquigny, RTT, from Spiro, Oklahoma:

"This simple homemade gadget does four things: 1. Removes and replaces springs; 2. Adjusts repetition spring tension; 3. Hooks grand shanks to hold hammer against strings; 4. Sets hammer blow distance in piano once guide hammers are set, as pictured. ***(see Fig. 1 ...Ed.).***

Our fourth entry is a variation on Joe Meehan's notched screwdriver, but this one has two notches as shown in **Fig. 2**, and was entered by L.E. Minton of Clayton, North Carolina. Minton's added notch would make it possible to use the tool for adjusting repetition springs, as well as any other operation requiring a hook or means of pulling, in addition to the things that the single notched screwdriver can do.

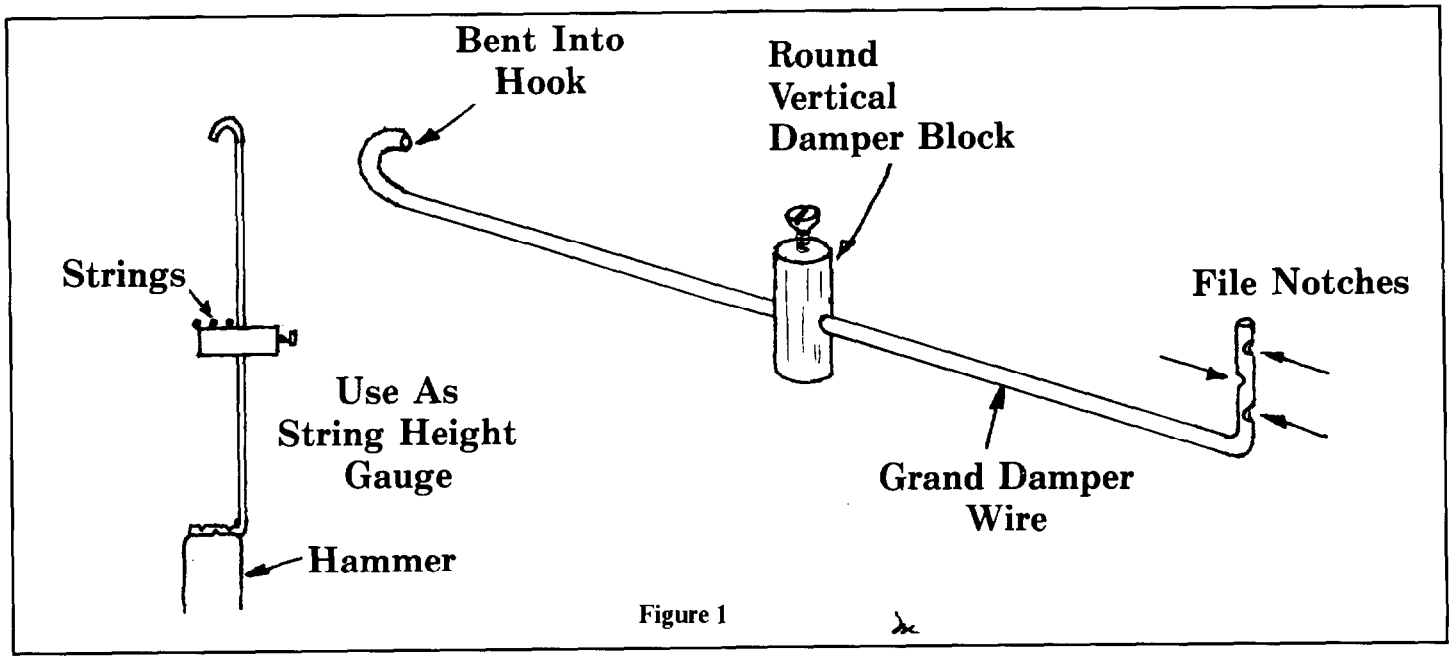

Figure 1

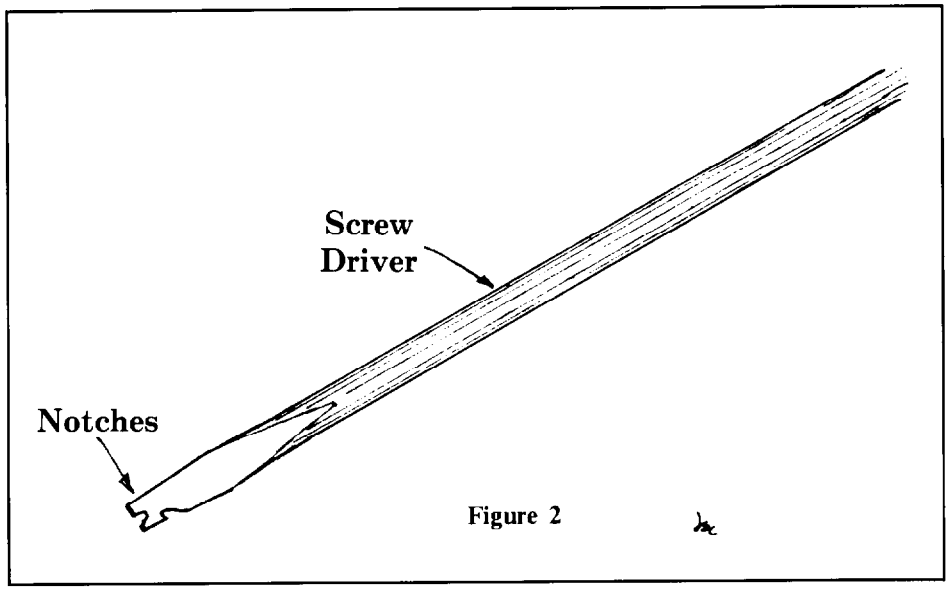

Figure 2

Vertical Rebuilding

Two types of continuous brass rails were in common use in the early part of the century, some examples of which are still in service. The Wessell, Nickel & Gross type is a vertically mounted rail for hammer butts only, dampers being mounted with standard wooden flanges. The butt screw goes through a clearance hole in the tongue and threads into the butt plate. The Kimball design features a horizontally mounted rail which mounts butts and dampers. The screws go through clearance holes in the plates and thread into the tongues. With either design, it is possible to correct a walking centerpin or a wobbling hammer simply by tightening a screw, so long as the bushings are in good condition and metal fatigue has not affected the plates or tongues.

But there were other problems with this design, too. Any attempt to correct hammer spacing by bending centerpins, or to travel hammers by twisting tongues, is likely to result in broken parts. Spacing should really be done only by burning shanks, and traveling only by shimming the grooves or rebushing the butts, whichever seems appropriate in a given instance. If the holes in the butt are not straight, or not perfectly perpendicular to the arc of hammer travel, the butt will have to be replaced.

Butt plates are weakest across the screw hole, and will break at that point from metal fatigue, overtightening of screws, or both. The butt plate inserter sold by supply houses works very well in our experience, but some technicians prefer other means. Bill Pealer's favorite method, as we may recall from a previous issue, is to imbed a butt plate screw into the end of a spinet shank so that just two or three threads project from the end of the shank, or about half the thickness of the butt plate. He then threads the new plate to this tool and places it into position. Once the screw is started into the other side of the plate, he twists off the tool and finishes tightening the butt plate screw. An even simpler method, suggested more recently by Nancy Hazzard, involves holding the plate in place with the finger, having first glued the plate to the finger. This method undoubtedly works better for those with small hands. Of course the glue should not be the new "crazy glue" type that instantly and permanently bonds anything to anything.

Unfortunately, the tongues sometimes break, also, and they have two weak spots instead of just one. If they break at the V-groove, a Type A repair clip — the kind that uses half the old groove — may be used to make the repair. If they break at the screw hole, a Type B clip is required. In either case, the biggest problem is that it is virtually impossible to tighten the screw enough to keep the butt from tilting out of line under hard use without stripping or breaking the repair clip. This has been the topic of discussion in these pages before, so we checked some earlier issues to see what was recommended by others.

L.W. Levi of the Indiana Chapter suggested in our March 1970 issue, page 13, that two 0.040" holes be drilled through the clip and into the rail. Two brads were then driven into the holes and bent over. On page 9 of our December 1971 issue, former Technical Editor Don Galt suggested the use of epoxy to hold the clip. On page 15 of the August-September 1972 issue, Jesse Lyons reiterates his preference for a piece of sandpaper between clip and rail, and Robert Bobst suggested in November 1976 that cold solder or epoxy could be used. Other related references, less complete but still worth reviewing, will be found in our issues of June 1949, February 1950, December 1951, December 1960, and July 1968.

Our final comment on the brass rail is that if more than two or three tongues are broken, it would be best to send a pattern, scale stick or the old rail to a supplier for duplication. Many pianos needing new rails aren't worth the effort and expense, but if the piano will be used regularly or played hard at all, this is the only good solution to the problem of breaking tongues.

Another design that utilizes bushed butts is the Billings brass flange, illustrated in **Fig. 3.** These are, in my opinion, much easier to work with because no matter what breaks, only one note is affected and spot replacement of parts is easily accomplished. If one tries to use too large a centerpin, however, the flange is strained and may break across the top when the flange screw is tightened.

If the butts are traveling out, this can easily be corrected with a piece of sandpaper or tape behind one side of the flange. Cut 120 or 150 garnet or aluminum oxide paper into thin strips which are inserted from the front. Fold the last eighth of an inch of the strip so it is at a 90-degree angle to the strip,

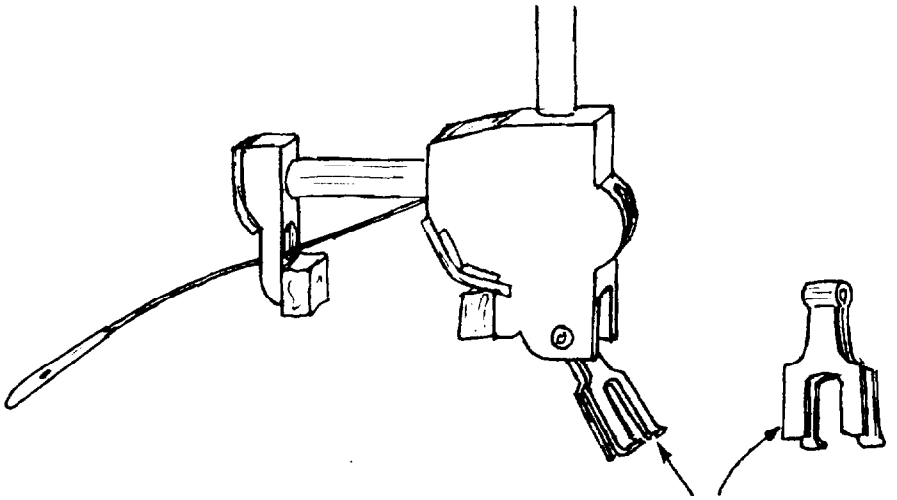

Figure 3

loosen the screw and insert the sandpaper. Tighten the screw, check the travel, and if it is all right, pull on the strip to tear off the paper. If it still travels to one side, loosen the screw and change to a thinner or thicker strip of sandpaper as required.

Another unusual flange is the old Steinway double flange, illustrated in **Fig. 4.** When Steinway used the "tubular metallic action frame" in vertical pianos, there was so little rail material available that a separate damper flange simply could not be mounted to the same rail. The solution was the much-maligned double flange, which mounted hammer and damper with a single screw.

This is probably the least rigid design of all. It is troublesome to service because, among other things, any traveling or spacing of the butt also moves the damper, requiring subsequent adjustment of the wires and spoons. This would have been unnecessary with a conventional design. Another problem is that, because both hammer and damper are pinned to the same flange, one cannot remove a hammer butt assembly — or a damper assembly, for that matter — without removing either the action or the hammer spring rail.

When rebuilding the double-flange Steinway, it is very important to achieve a firm pinning of the hammer butt center because, since the action of the jack is pushing the butt against side grain instead of end grain in the flange, there will always be a hint of flexibility that is not present in a vertically-mounted flange. Once the butt center is correctly pinned, the damper center easily follows; easily because the pin can be fitted to the flange bushings without regard to the diameter of the birdseye. This action has no damper lever birdseyes, just plates which tighten from behind to bind the centerpin into a groove in the lever.

Next, we must decide whether to mount the flange for best alignment and travel of the hammer, the damper, or a compromise between the two. In my opinion, the only inviolable rule is that the flange must be placed so that the hammer does not travel from side to side, whatever else may be wrong. To do this, place a tiny bit of sandpaper, travel paper, tape, etc., behind the front part of the scallop where the flange meets the rail, sticking the material to the flange so it will stay there even if the assembly is subsequently removed from the rail for service. If the hammer is traveling toward the bass, place the travel paper behind the treble front edge and vice versa, in the same manner as Steinway grand shanks are spaced. In a vertical, this travels the butt rather than spacing it because of the position of the hammer.

Spacing comes next. We can accomplish this either by shimming under one side of the flange with travel paper or by heating and bending the shanks. The method selected will depend to a large extent on whether shimming will so grossly misspace the damper as to make its alignment a problem, either above or below. One way or the other, center the hammers to the strings and then align the dampers by bending the wires first and spoons last. From this point on, servicing the old Steinway is similar to that of other pianos, and we will continue with the dampers next month.

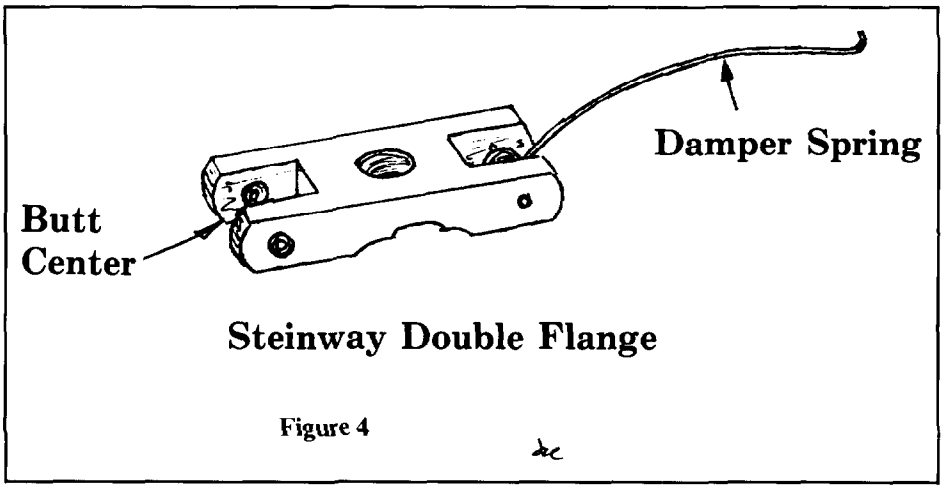

Figure 4

Soundboard Crown

QUESTION: I am thinking about restringing an older 6'3" Weber grand made in the 1880s. This piano has ribs that run parallel to the length of the piano and the grain of the soundboard runs parallel to the long bridge. The

strings and hammers are in terrible shape but the structure of the piano looks good and it has a beautiful ornate case. My question is, how can I judge the condition of the soundboard? When measuring downbearing with the three-footed gauge I get plenty of rock on both sides of the bridge throughout the scale, but when using the string test between the longest ribs I can't see any gaps indicating crown. A chord played will take 20 seconds or more to decay...

---Kent Galloway
Ripon, Wisconsin

ANSWER: If it will sustain that well throughout the scale, allowing of course for the naturally shorter ring time in the treble, it is probably fine. Just don't increase tension or bearing by using larger wire or lowering the plate. The fact that it now has bearing indicates there is quite a bit of downpressure on the bridges, so if there were a total loss of crown the board would surely have bellied downward. It may appear flat now, but once the strings are removed it is my guess that the board will show some crown. If it doesn't, then I would raise the plate about 0.020" with veneer shims at all support points, including the pinblock.

When estimating a rebuild on such an old instrument, remember that the pinblock will most likely be mortised into the case, making it impossible to replace in one piece without butchering the rim. The block probably has no more than three or four plies, so simply repinning it would be too risky in my opinion. Plugging is a possibility (see Oct. 1980 *Piano Technicians Journal*, p. 12), but a better alternative would be to rout out each section and inlay new material (see the Sept. 1982 *Piano Technicians Journal*, pp. 9-11), veneering over the entire surface if it is an open-block piano.

One final comment, getting back to the soundboard, is that because the ribs were laid up at about 45 degrees to the grain of the board rather than 90 degrees as is now customary, we would not expect as much crown. If the old board sings, keep it; too many new ones don't.

Gadget Of The Month

Luther Minton, who recently shared with us his favorite method of removing grand knuckles, now demonstrates a procedure for replacing them: **(see Fig. 5)**

I use an adjustable base vise, with about four-inch jaws. Turn the jaws parallel to your stomach or frontside, for better later alignment. Fasten the block to jaws nearest you, using wide rubber bands, or you could tie it in place with twine. Slide the new barrel into place from the top, which is slightly beveled. Apply a small

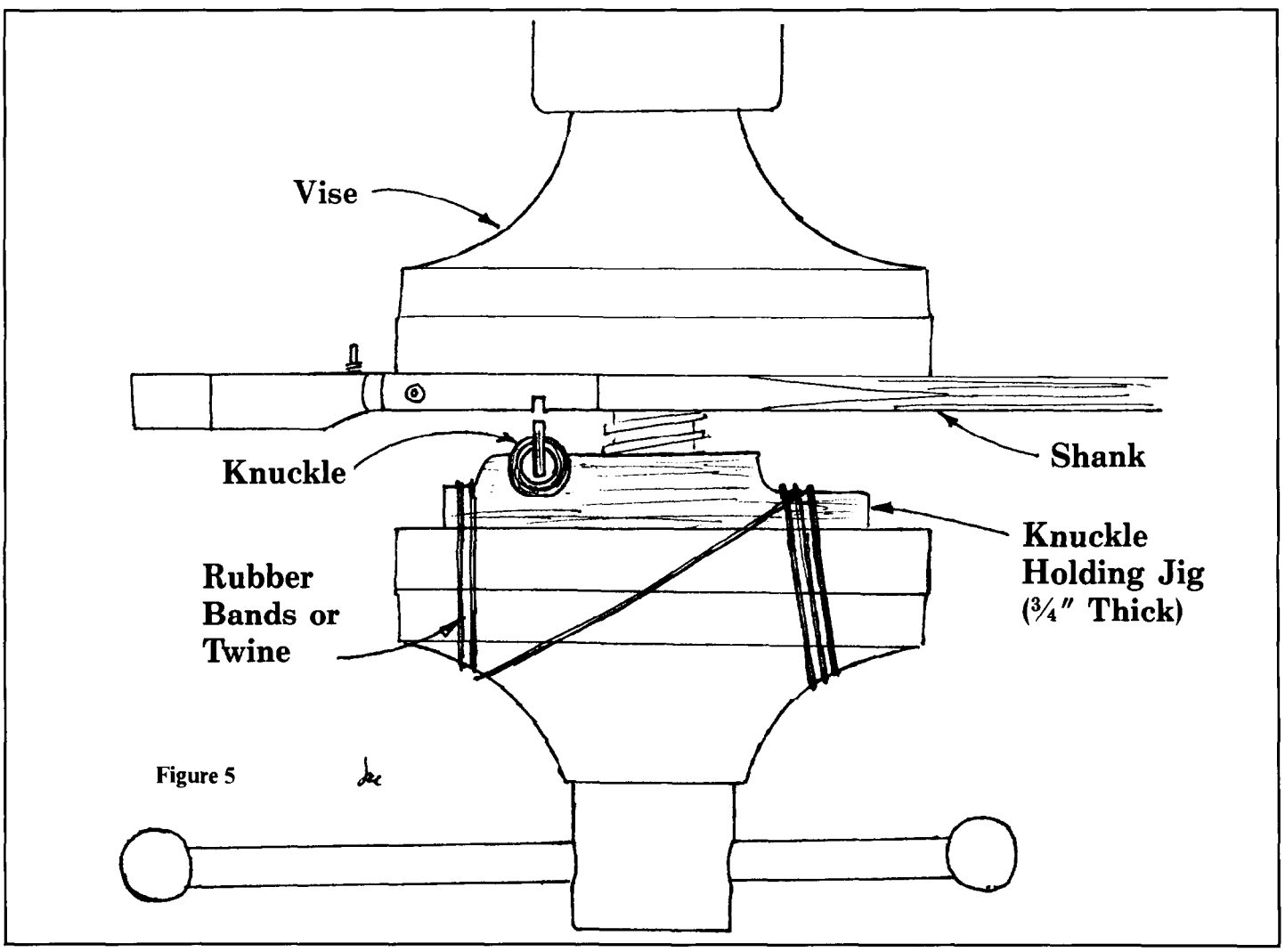

Figure 5

amount of glue to the core, using small end of flat toothpick. Apply a very small amount also to slot in shank. Align the shank on far jaw of vise, simply turn vise handle until barrel is forced into slot in the shank. You'll get the idea when you try this, as it's easier to see than to describe.

After pressing the barrel into proper place, simply lift shank upward so that the barrel comes out of the socket in the block. Very simple. I have replaced entire sets in this manner with success, and if you get everything set up as needed, it is a fairly fast and effective job.

L.E. Minton
Clayton, North Carolina

Key Level — Straight or Crowned?

QUESTION: To quote from a recent Steinway service manual, under grand action regulation:

"Step 11: Check the two end keys for height with the action in place in the piano. The height should be 2 21/32" from the keybed surface where the keyslip rests to the top of the key covering. Level all the other keys with a straightedge slightly hollow (about 1/32") in the center."

Is there an engineering reason for using the hollowed straightedge? I've heard this instruction both disparaged as an unnecessary detail (it presumably being easier to level keys in a straight line), and also praised, even to the extent of applying it to all other makes of pianos. What are the "true facts" please?

Michael Travis
Greenbelt, Maryland

ANSWER: The first reason commonly given for crowning a keyboard is that, since pianos are played mostly in the middle of the keyboard, the added compression and wear of parts causes the keyboard to sag in the middle. If a slight crown is induced, this normal wear would result in a flat keyboard rather than a sagging one.

The second reason is that a perfectly flat surface tends to look slightly concave, while a slightly convex surface looks flat. In any case, I think everyone would agree that it matters little if it is crowned, so long as it doesn't appear to sag and so long as the crown is so slight as not to be noticeable.

Reader Comment

Just opened my October issue and, lo and behold!! there it was, a Staib-Abendschein action. But didn't help us very much. I would like to add a few cents worth.

If you will dig out your volume "Piano Tone Building" and look on page 90, you will find Mr. Abendschein explaining what a wonderful action it is.

However, you can't get parts as you stated. But I found in my limited experience that you can substitute a regular butt and wippen and find that things work well. In fact, the wippens in the actions I saw were regular wippens with the backcheck wires and bridle strap wires removed. The holes were drilled. I was able to put the necessary backchecks and bridles in place and with the new butt things were working again. The action wound up with a mix of action parts, mostly the original construction but with the broken ones substituted by the conventional arrangement.

This was done to be a limited repair; that is, to cost as little as possible. The idea of replacing all the parts was out of the question. The piano did not warrant the cost nor was the customer willing to consider anything but the minimum.

So much for Staib-Abendschein. RIP.

—Charles P. Huether
Vice President, PTG

Actually, the Staib-Abendschein action was one of the better designs conceived for quick repetition. It failed primarily because dealers and technicians refused to take the trouble to regulate it properly, electing instead to adjust the spring very tightly so it wouldn't do its job at all. Apparently it stayed in a relatively stable state of regulation that way. That's to say it remained reliably out of regulation and therefore wouldn't cause trouble even though it also then would not repeat any better than any other upright action.

Dear Jack:

In reference to page 14, September Journal, on the Black & Decker Shopmate Bench. Would it not be easier to load the gang of hammers, have the stop go the full length of the gang, and then apply extensions, one to each jaw?

In regards to the agraffe repair, I never use an easy out. I have been using a Herman Koford Fish Tail to back out the broken agraffe. Never a problem here.

Bob Nichols

In response to your query, let's go for the metric system.

The change still has to go slowly, and sometimes both systems used. Consider regulation. We are doing just fine using metric measurements on Yamahas.

Steinway calls for a key height of 2-21/32". How much simpler it would be at 67mm. The action spread on their grands is about 4-13/32". I find it easier to measure 112mm.

Let's go metric!

Dan Evans
Los Angeles, California

In Conclusion

Our thanks to all of this month's contributors. Regarding metrication, we received a full article on the topic from Jim Ellis of Powell, Tenn. It will appear in an upcoming issue.

Please send all technical material for publication to me at this address:

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Cincinnati, OH 45202

Are We Getting What We Want Out Of Our Soundboards?

Bob Hohf
Madison, Wis. Chapter

Now that modern technology has put the power of sixteen decimal places into the hands of virtually every man, woman, and child, there has been a revivial of interest in rehashing the complex and repetitious calculations associated with piano scaling. In the late night and early morning hours when most home computers are cooling off between bouts with video games, piano technicians have programmed their machines in the hope that modern equipment will produce new revelations in scale design. What has been discovered is exactly what has been known for generations. First, our fine pianos have essentially perfect scaling. And second, mediocre instruments will never be anything but mediocre regardless of the way they are scaled.

Considering the thoroughness with which piano design has been refined over the centuries, it is tempting to conclude that there is little to be improved upon in our modern instruments. However, not all aspects of piano design lend themselves as easily to mathematical analysis as does scaling. In fact, some aspects are very poorly understood and seem to be surrounded by tradition, taboo and mysticism. It is likely that, if the enthusiasm of the scientific method could be directed toward these areas, mystery could be eliminated and pianos improved.

So, now what?

For those who have an interest in the how and the why of soundboards, it does not take long to come to the realization that questions are much more plentiful than answers. Even the most fundamental questions — for instance, "What shape do we want them?" — are surrounded by confusion. With reference to the degree of curvature built into the system of soundboard and ribs, one often hears a 60′ radius mentioned. This 60′ apparently refers to the predominant practice of pressing ribs onto the back of a soundboard in a spherical caul with a 60′ radius.

However, it is one thing to utter the phrase, "60′ radius" and quite another to produce something which actually is spherical and has a 60′ radius. The remainder of this article will be devoted to the description of a simple device which will give reasonably accurate direct measurements of the radius of curvature in cauls, soundboards, and anything else possessing circular sections.

Some circle geometry

It is common practice to determine whether or not a soundboard has any curvature at all by holding a straightedge against the underside (or backside in a vertical) to see if there is any space between the straightedge and the board. If there is, the board has curvature; if not, the board does not. If the length of the straightedge and the amount of deflection between the midpoint of the straightedge and the soundboard are both known, a simple calculation will give the radius of curvature of the soundboard over the section being measured.

The property of circles being used here is: given any three non-colinear points, there is only one circle which contains all three points. The three non-colinear points in question are the two ends of the straightedge touching the soundboard and the point on the board directly opposite the middle of the straightedge.

In **fig. 1** these three points are labeled B, D, and E. The only circle which contains all three of

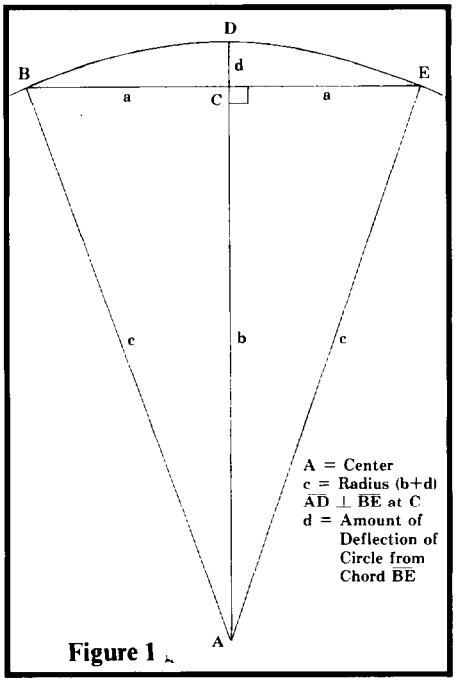


Figure 1

these points has center A. AB, AD and AE are all radii with radius AD perpendicular to our straightedge BE. DC represents the maximum deflection and point C is the centerpoint of the straightedge. This produces two identical right triangles, △ACB and △ACE, to which the Pythagorean Theorem may be applied. The lower case letters represent the lengths of these lines. Since all radii of the same circle have the same lengths, c=b+d.

There are two questions we would like to be able to answer about this two-dimensional model of a three-dimensional soundboard. First, for a particular radius, c, and a known straightedge length, 2a, what will be the deflection, d? Second, with a known deflection, d, and a known straightedge length, 2a, what will be the radius, c?

Case 1: Given radius, c, find deflection, d

Applying the Pythagorean Theorem to **fig. 1**, we know:

1. $a^2 + b^2 = c^2$

and 2. $b^2 = c^2 - a^2$

therefore 3. $b = \sqrt{c^2 - a^2}$

We already know that $c = b + d$

and 4. $d = c - b$

Now we can substitute $\sqrt{c^2 - a^2}$ from step 3 for b in step 4 and get

5. $d = c - \sqrt{c^2 - a^2}$

This is the formula that we want since it expresses the deflection, d, in terms of the radius, c, and the straightedge length, 2a. We know the values of both of these.

Let us try the formula to find how much deflection a 60′ radius sphere will register on a 2′ straightedge.

$c = 60'$, $a = 1'$

6. $d = 60 - \sqrt{60^2 - 1^2}$
$= 60 - \sqrt{3600 - 1}$
$= 60 - \sqrt{3599}$
$= 60 - 59.9917$
7. $d = .008334'$
8. $d = .100''$

This calculation indicates that any spherical surface with a 60′ radius will deflect .100″ when measured with a 2′ straightedge. But this calculation is of limited use when measuring existing soundboards and cauls. Much more useful is Case 2, which will allow us to use a measurement taken directly from a soundboard and calculate that board's radius of curvature.

Case 2: Given deflection, d, find radius, c

We start again with the Pythagorean Theorem:

1. $a^2 + b^2 = c^2$
2. $b^2 = c^2 - a^2$

We know 3. $c = b + d$

Substitute b + d from step 3 for c in step 2:

4. $b^2 = (b + d)^2 - a^2$
$= b^2 + 2bd + d^2 - a^2$

Subtract b^2 from both sides of the equation:

5. $0 = 2bd + d^2 - a^2$
6. $2bd = a^2 - d^2$

Divide both sides of the equation by 2d:

7. $b = \frac{a^2 - d^2}{2d}$

Substituting $\frac{a^2 - d^2}{2d}$ from step 7 for b in step 3, we get:

8. $c = \frac{a^2 - d^2}{2d} + d$

Step 8 is a formula we can use since the radius, c, which is unknown, is expressed in terms of the straightedge length, 2a, which is known, and the deflection, d, which we can measure.

Let us see what happens when we measure a .100″ deflection with a 2′ straightedge.

$d = .100'' = .008334'$, $a = 1'$

9. $c = \frac{1^2 - (.008334)^2}{2(.008334)} + .008334$
$= \frac{.9999305}{.016668} + .008334$
$= 59.99103 + .008334$

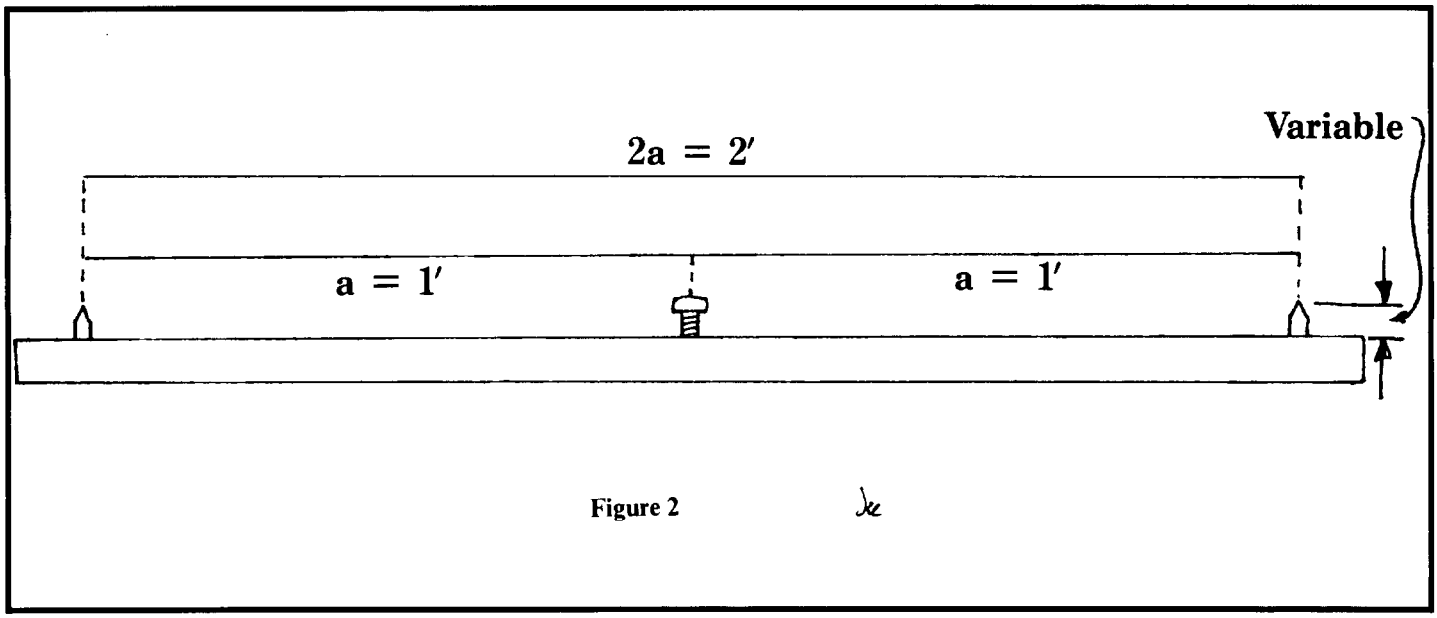


Figure 2

10. c = 59.999364'

The exact answer will vary slightly depending on how the decimals are rounded off, but in my book a .100" deflection measured with a 2' straightedge indicates a 60' radius.

A deflection measuring gauge

A simple rocker gauge may be constructed which can measure deflection of either a concave surface (a caul or the bottom of a soundboard)or a convex surface. The gauge (**fig. 2**) is essentially a straightedge with two fixed endpoints corresponding to points B and E in **fig. 1**, and an adjustable center point corresponding to point D. The height of the dowel endpoints may be varied according to the application of the particular gauge. A gauge with short dowels can measure deflection parallel to and between ribs, while longer dowels are necessary to take measurements across ribs. The adjustable center point may be anything with a head and a threaded body. A dropscrew works well with shorter dowels, while a capstan screw mounted on a center post is suitable for a gauge with longer end dowels.

An overall gauge length of 26" is convenient since it allows the three points to be mounted on 12" centers. These dimensions make a gauge which is long enough to take accurate measurements, and a = 1' simplifies calculation. Longer or shorter gauges can be constucted to accommodate special cases.

Fig. 3 illustrates the position of a gauge measuring both a concave and a convex deflection. The dimensions are exaggerated for clarity.

Calibrating the gauge

Once the gauge has been constructed, the first step before use is to take a reading from the gauge on a flat surface or straightedge. With the two endpoints in contact with the flat surface, adjust the center point until it also is in contact. Using calipers, measure the height of the center screw. This measurement may be considered the zero reading and is the reference to which all subsequent measurements will be compared. A reading greater than this reference indicates a concave surface and a lesser reading indicates convex. The absolute deviation from the zero reading will be the same for a given radius of curvature whether the surface being measured is concave or convex.

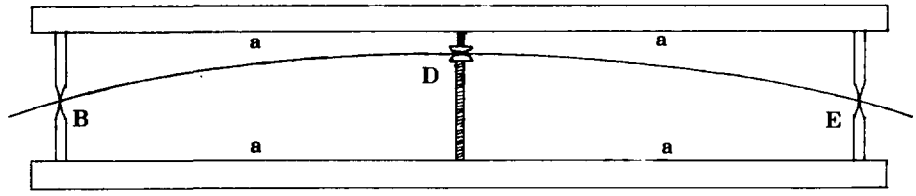


Figure 3

A chart can be prepared listing sample radii of curvature and their corresponding readings on a particular gauge. This enables the user to make quick approximate determinations of radius by taking a reading from a surface and seeing where this reading falls on the chart.

Table 1 lists deflections, d, using any standard 2' gauge, for a sampling of radii. Figures were calculated there using the formula in **Case 1**. To prepare a chart using this table, add the deflections to the zero gauge reading to get concave measurements, and subtract the deflections to get convex measurement. For example, for a gauge that has .734" as its zero reading, .734" + .100" + .834" is the reading the gauge will give for a concave 60' radius; .734' − .100" = .634" is the reading the gauge will give for a convex 60' radius. Each individual gauge will have its own zero reading and, therefore, its own calibration and chart of sample measurements.

To arrive at a more precise determination for a particular surface, a reading must first be taken with the gauge. The difference between this reading and the zero reading for the gauge is the deflection, d. Once the deflection has been determined, the radius for the surface may be calculated using the formula derived in **Case 2**.

For anyone interested enough to pursue this investigation using the procedures outlined here or any other procedures of your own derivation, you are in for some surprises. Certainly, shape is of critical importance for a properly functioning soundboard. However, it is my feeling that it is not known what shape we want our soundboards to be. Perhaps the first step in unravelling this mysterious aspect of piano design is to determine what shape we have.

Table 1

Radius of curvature (c in Fig. 1) (in feet)	Deflection using standard 2' gauge (d in Fig. 1) in inches
45	.133
50	.120
55	.109
60	.100
65	.092
70	.086
75	.080
80	.075
90	.067
100	.060
110	.055
120	.050
130	.046
140	.043
150	.040

The Eclectic's Notebook

Christopher S. Robinson
Connecticut Chapter

This article begins with the writer sitting at his desk remembering Steve Jellen. It'll be about seven years now since he died, leaving this consciousness for the next. Life was very different for him and his contemporaries than it has turned out to be for us. He had to start from scratch; had to, in a sense, reinvent the wheel. Younger piano people won't ever have to do that again, thanks to Steve's foresightedness and the similar vision of others like him. Their commitment to excellence and dedication to this trade has built a library of knowledge and established highways upon which we all can walk in the confidence of that experience. This is the legacy of our "parents," those who built the trade that gives us our living today. I wonder if we can do as much in our lives as that which has been so generously bequeathed to us by those in the past.

Much of my own thinking about piano hammers was formulated using Steve's point of view. Some of this material, then, was the result of his investigations.

As you will recall back in article two we plucked the piano string to determine whether the voicing problem occurred in the instrument's superstructure or whether it was to be found in the behavior of the hammer. Having assumed for the time being that the problem occurred in the music wires or belly, we have spent the last six articles examining voicing procedures which did not relate in any way to the *exciter* in our sound transmission chain. Now let's proceed on the assumption that, after having once again plucked our piano string, the sound has noticably more volume and a perceptibly longer period of decay than when the same note is struck with the piano hammer. Obviously, our problem is connected to the hammer and its characteristics. The very first thing to look for at this stage of the game is the actual *position,* or striking point of the hammer. The hammers from number one to number 57 are remarkably insensitive to small changes in striking position. Deficiencies in this area are probably due to other causes. However, the hammers from 58 to 88 are responsive to their relative positioning along the striking line. The higher we ascend into the piano scale, the more critical the accurate positioning of our treble hammers will be.

Sportin' Life in Gershwin's "Porgy and Bess" relates in one of his songs that "the things you're liable to read in the Bible, they ain't necessarily so." *Do not assume that a hammerline produced in any piano, grand or upright, is always a straight line!!!* Yes, the scale draftsmen drew a straight line when the original working print for the piano was being produced. But no one listens to a sonata produced by graphite being moved over tracing paper. In the course of building the instrument that the engineer designed, adjustments were made in order to render the instrument in its most advantageous working and sounding condition. Please look at the lines drawn in **fig. 1.**

The first line is straight; a fine theoretical striking line for a modern piano. The second line has a slight inward curve, typical of pianos which originally were equipped with German taper hammers, and a premium domestic piano of almost seven-foot length. The third line has a curve that occurs at the top of the scale, and is typical of two domestic medium-grade makers.

"But no one listens to a sonata produced by graphite being moved over tracing paper."

All of us have been taught to establish a striking line for hammers by mounting the number one bass hammer at its correct theoretical distance from the hammershank axial center. Then we have been instructed to mount hammer 88 along its shank at the point where it produces the best tone. A straight line is then marked from these two hammers and the balance of the set mounted accordingly. The problem emerges when the striking-line thus produced does not match the best actual striking point for the piano superstructure! Please note that even manufacturers are making this same error at the identical moment that you are reading this article, so don't assume that this problem won't surface in a brand-new instrument. (*Warning:* don't touch an instrument under warranty unless you have been specifically authorized by the manufacturer to do so!)

If the tonal output problem you are addressing occurs in the piano scale at note 58 or above, and most particularly in the area of notes 67 to 70, the first thing you should do is to slide the entire action frame in and out of the piano to determine whether the tone can be improved by positioning the hammers at a new striking point along the strings in question. Do not be afraid to move it in and out by what might seem to be

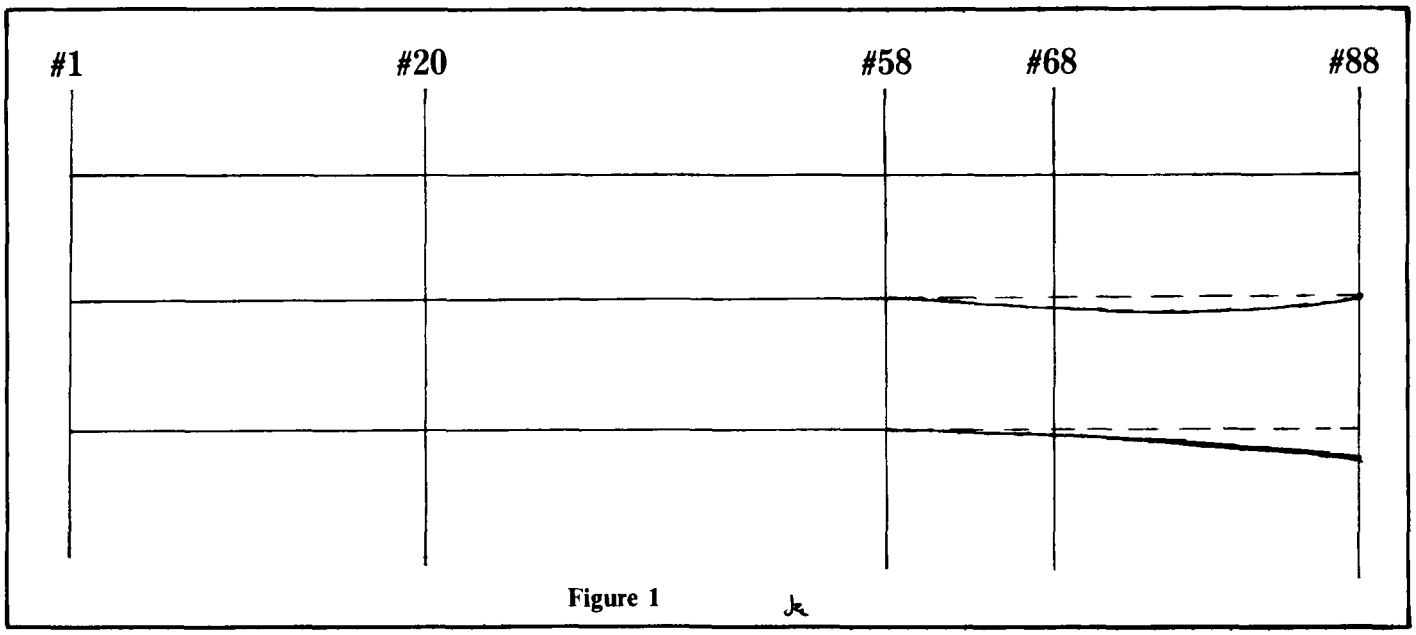


Figure 1

ridiculous amounts in your search for a better striking position. If the action will not go in any further, try lifting the front or guide rail of the key frame upwards a little. This will pitch the entire action toward the tail of the piano, thereby effectively moving the strike point further towards the center of the string.

Now, here's a common dilemma that often is encountered when using this process: let's say that the piano sounds pretty well on notes 82 through 88. The weakness is worst at note 67. When the action is pulled forward by one-eighth inch, the D# immediately springs into life. But at the same time, the highest C in the scale is hitting in front of the capo bar! The solution is really quite simple. Leave hammer #88 where it is and move hammer #67 inward by the indicated amount! The hammers connected with these positions should be moved so that they form a gentle curve connecting the established guides along the entire line of glued-up hammers. You will be astonished by the number of pianos which do not in fact have absolutely straight hammerlines! Next step, next month.

Meantone Temperament Variations: Marin Mersenne

Sound Background

Jack Greenfield
Chicago Chapter

Regular Meantone Temperaments

As discovery of basic principles of the physics of music during the 17th century by Galileo Galilei, Marin Mersenne, Christian Huygens and other scientists put an end to the numerological beliefs of the past, music theorists began to catch up with music of performance. There was now more interest in designing scales for musical improvement than for demonstration of mathematical hypotheses.

The most widely used intonation of the period for practical music was the meantone temperament formed by a continuous sequence of fifths reduced ¼-comma (5.5¢). The pure major thirds that resulted were a full comma (22¢) narrower than the rapid-beating major thirds of a tuning sequence of pure fifths. In contrast to just temperaments with pure major thirds but with whole tones of different sizes, meantone major thirds are divided into two equal or *mean* whole tones. However, meantone temperament diatonic and chromatic semitones differ in size.

Other forms of meantone temperament that came into more limited use were based on regular sequences of fifths of some other size. With the fifths reduced more than ¼-comma, the thirds became smaller than pure. Such meantone temperaments disappeared by the start of the 17th century but temperaments with wider major thirds gained importance. Among the earliest instructions for keyboard tuning specifying thirds larger than pure were those of LanFranco, which appeared in 1533. The writing is vague, however, and has been interpreted as 1/5- or 1/6-comma as well as equal temperament by different authorities. A 1590 book by the mathemetician Cyriac Schneegas containing his geometrical method for determing monochord string lengths for 2/9-comma meantone temperament gave more specific data.

An even more informative early source of information on a number of different meantone as well as other temperaments is a manuscript assembled by Simon Stevin (or Stevinus) between 1596 and 1600 but published in 1884. It contained papers he and a colleague, Abraham Verheigen, had written while they carried on a discussion of tuning and temperament. Stevins gave his method for calculating equal temperament ratios and data for monochord string lengths, the earliest of these figures known to have been determined by a European. Verheigen's contribution consisted of monochord ratio figures for regular 1/3-, 2/7-, 1/4-, and 1/5-comma meantone temperaments, the earliest known documentation of this data. The previous writings of Zarlino and Salinas on these temperaments did not contain such specific figures.

"In contrast to just temperaments with pure major thirds but with whole tones of different sizes, meantone major thirds are divided into two equal or mean whole tones."

References appearing after 1600 show a continuing interest in regular meantone temperaments with wider major thirds. A 1613 book by Dom Pietro Cerone, an Italian priest, contains a section on instruments and tuning giving a temperament system similar to LanFranco's with larger major thirds. Lemmi Rossi wrote a book published in 1666 containing considerable mathematical theory including data for 2/9- and 1/5-comma meantone

temperaments and for 1/4-comma meantone extended to a 19-note octave. Wolfgang Printz, author of the first historical treatise on music written in German, discussed the use of 1/4-, 5/9-, 1/5-, and 1/6-comma meantone temperaments in a 1696 publication.

In 1707 and 1711, the acoustician Joseph Saveur reported he found that harpsichords were more often tuned in 1/5-comma than in 1/4- or 1/6-comma in tests he made with a specially designed monochord. Saveur is the one who discovered that the frequency of beating of a pair of notes is equal to their frequency difference. Gottfried Silbermann, builder of the finest organs in the first half of the eighteenth century, tuned with fifths tempered by 1/6-comma, according to a 1748 book by Georg Andreas Sorge.

The remaining regular meantone temperaments with fifths less tempered and even larger major thirds appear to have been more of theoretical interest than for practical use. Meantone temperaments of 1/7-, 1/8-, 1/9-, and 1/10-commas were discussed in a paper Jean Baptiste Romieux wrote giving a survey of regular tuning systems. The paper appeared in "Memoirs of Academie Royale Des Sciences" (1758). Romeiux was not a musician but had a scientific interest in music. In 1751, he had published a paper on his discovery of the production of difference tones by wind instruments.

The accompanying table gives the difference in size of intervals in the temperaments discussed. Equal temperament can also be considered as a 1/11-syntonic or 1/12-ditonic comma temperament.

The meantone temperaments that give especially sonorous minor triads composed of major and minor thirds and fifths that are beatless or beat proportionately in simple ratios are 1/3-, 2/7-, 1/4-, and 1/5-comma. Pythagorian tuning also gives such triads but with considerably higher beat rates. **Table 2** contains examples of such intervals selected from Jorgensen's complete series for each in "Tuning The Historical Temperaments By Ear."

The 1/4-comma meantone diatonic semitones (for example, C#D) are 117¢ wide. Chromatic semitones (for example, DD#) are only 76¢ wide. According to Lindley in "Meantone" in the 1980 "Grove Dictionary of Music," musicians of the 17th century considered the sound of the large diatonic semitones pleasing. However, modern listeners accustomed to the smaller uniform semitones of equal temperament may prefer the compromise of 1/5- or 1/6-comma meantone with 112¢ or 105¢ chromatic semitones. **Table 3** gives figures for intonation of 1/4-, 1/5-, and 1/6-comma meantone temperaments.

Table 1

Meantone Temperament Interval Size

Figures for cents (¢) difference from just intervals

	Major Thirds	Minor Thirds	Fifths	Wolf Fifth
1/3-comma meantone	-7	0	-7	56
2/7-comma meantone	-3	-3	-6	44
1/4-comma meantone	0	-5.5	-5.5	36
2/9-comma meantone	2	-7	-5	29
1/5-comma meantone	4.5	-9	-4.5	24
1/6-comma meantone	6	-10	-4	19.5
1/8-comma meantone	11	-13	-1	6
Equal temperament	14	-16	-2	no wolf
Pythagorian tuning	21.5	-21.5	0	-23.5

Table 2

Comparison Of Interval Beat Rate (per second, C^4=261.63Hz)
Meantone And Pythagorian Intonation

Interval	1/3-comma	2/7-comma	1/4-comma	1/5-comma	Pythagorian
G_3B^b3	0	2.1	3.6	5.8	14.5
$B^b{}_3D_4$	4.8	2.1	0	2.9	14.5
G_3D_4	2.4	2.1	1.8	1.45	0

Table 3

Intonation Of Regular Meantone Temperaments
(cents from low C as shown by Barbour)

	C	C'	D	E♭	E	F	F'	G	G'	A	B♭	B	C
1/4-comma	0	76	193	310	386	503	579	697	773	890	1007	1083	1200
1/5-comma	0	83	195	307	390	502	586	698	781	893	1005	1088	1200
1/6-comma	0	89	197	305	394	502	590	698	787	895	1003	1092	1200

Irregular Meantone Modifications

Irregular modifications of meantone temperaments; that is, with a sequence of fifths of several different sizes, were another type of variation made for the purpose of improving musical qualities. The simplest change was the reduction of the 738¢ G′(A♭) E♭ 1/4-comma meantone wolf fifth to 717¢ with the difference added to the 696¢ C′ G′, making it 717¢ also. The single large wolf was replaced by two smaller ones. Even though inferior in musical qualities, such a temperament could be found in use in England until the early 19th century.

Beginning in 1636, modified meantone temperaments of considerably greater importance, especially in France, were published by Marin Mersenne, a Catholic priest who was one of the leaders in 17th century musical research. In one Mersenne temperament, E♭-B♭-F are tuned in pure fifths (E♭-299¢, B♭-1001¢ in Table 3) and the remaining notes are tuned in the usual 1/4-comma meantone sequence resulting in a reduction of the wolf fifth G′E♭ to 726¢. In another Mersenne temperament, the fifths formed by the flats are even wider. According to Barbour's estimation, the interval figures are E♭B♭-712¢ and B♭F-70¢ (E♭-288¢, B♭-996¢ in **Table 3**). Completing the remaining sequence as above gives a wolf fifth G′(A♭)E♭ 715¢ wide.

Such irregular tuning chains such as these by Mersenne, Ramean and other theorists, with a combination of wider, pure, and smaller fifths, became popular in France in music written for the harpsichord. Such tuning gave thirds with a pronounced difference in size and quality. Some listeners could identify keys by the sound of the inequalities.

Marin Mersenne Biographical Notes

Mersenne's studies on tuning were only one phase of his wide range of interests in music theory and the physics of sound and acoustics. His work in these fields as well as in mathematics and astronomy has had enormous influence on these sciences of today. He was born in 1588 in Maine, France. His father was a laborer. After an intensive education that included study of logic, physics, metaphysics, mathematics and theology, he became a priest in 1614. Five years later he took a post in Paris where he conducted his work in theology and science until his death in 1648.

Range of Mersenne's Studies

Mersenne followed scientific methods in his research and conducted experiments based on principles of mechanics. He believed in theory based on practice and communicated often with leading contemporary musicians, secular as well as those in the church, to obtain their views.

Unfortunately he was not as good a writer as he was a scientist. His vague, rambling literary style, which often depended on theological and other analogies for explanation, made some of his points difficult to interpret. Some of his observations were based on incomplete knowledge and faulty premises, but most of his conclusions are accepted as valid and serve as a base for modern science.

His important work related to music includes:

1. *Physics of sound and acoustics:*
   stated basic principles of the nature of sound transmission by waves; established mathematical formulas showing relationship between pitch and length, diameter, mass, and tension of vibrating strings; discovered relations of a partial to a fundamental.
2. *Tuning and temperament:*
   wrote extensively on theory of tuning based on his knowledge of earlier systems; considered just intonation the theoretical basis of musical scales but favored equal temperament as a practical necessity; wrote step-by-step tuning procedures and mentioned using the "number of tremblings or beats which other consonances make" as a check for accuracy when tuning in equal temperament.
3. *Musical Instruments:*
   gave descriptions of contemporary harpsichords and spinets and discussed their builders; gave details of construction such as wood use, cutting, tools, strings, and assembly; pointed out influence of soundboard ribbing on tone quality.

Mersenne had a high regard for Galileo's work. When the Inquisition condemned and suppressed Galileo's astronomical studies indicating the true nature of the solar system, Mersenne offered to publish them in France but Galileo did not respond to Mersenne's correspondence. Mersenne did write a translation of Galileo's book on mechanics. He also prepared an edition of the writings of Greek mathematicians. Mersenne's studies were published in 24 volumes. Six were devoted either completely or largely to music. None have been published in English translation.

It's the Little Things That Count!

GERALD F. FOYE
San Diego Chapter

For those brave tuner-technicians foolhardy enough to tune and service player pianos, here are a few pointers to make the job easier.

First of all, a player technician must, as a matter of survival, be an innovative type; therefore, the following tools shouldn't be difficult to make. (Some of these have appeared in past issues of the *Piano Technicians Journal!*) Also, the methods of fabrication and the lengths may be varied to suit your abilities and requirements.

An 11/32" nut driver, with handle removed, can be welded to a length of 1/4" diameter round stock. (The overall length of mine is 14.") Notch the handle end to fit your combination handle and you have an extension tool to easily remove the nuts from the keystrip of Aeolian players from above the player tray and mechanism. Slip out the keystrip and you have access for key removal.

To remove the four sheet metal screws that hold the top tray in those very popular Kimball players, purchase a 1/4" nut driver with a 6" long shank. Again, remove the handle and turn down and notch the handle end to fit your combination handle. This same tool is used for the screws holding the power supply chassis. If you're wondering why you might be expected to remove the power supply unit, then get a service manual from those nice people at Kimball and you will find out why—there's a very important adjustment available there. Also, carry a few spare sheet metal screws, #6 x 1/2" hex head. And, don't forget to carry a few spare 1/2-amp fuses (see manual for correct fuse).

Back to the Aeolians as well as the Universal players; the capstans aren't so easy to get at; therefore, a 13/64" open end wrench attached to an extension handle about 10" overall sure saves time. I made mine using 1/8" x 1/4" rectangular brass tubing found in a hobby shop. I hacksawed one end off the open end wrench and jammed it into the rectangular tube. The addition of a rivet (or possibly epoxy) will anchor it in place. With some gnashing of teeth you can even manipulate some of those elusive capstans behind the tubing on the Universals although it is generally easier to regulate these by removing the keys one at a time.

A 10" long tweezers is very useful for under the key punchings. And, of course, if you are serious about working on Universals you will have to include an assortment of small hex and open end wrenches for set screws, drive motor belts, etc.

I have a vacuum pressure gauge which I don't use much. However, I have found the large, half-round adaptor plug to be very useful. Insert a length of 3/16" metal tubing through the hole in the plug. With vacuum cleaner in "blow" position, cup the rounded plug face over end of vacuum hose; and, with metal tube adjusted to depth, blow out freshly drilled tuning pin holes. Use eye protection since I assure you the chips will fly to the ceiling!

Naturally you have already learned to run a test roll *before* doing anything to the player. That test roll has an important function which is *tempo* check. The rest of the test roll is nice but it's best that the owner not be present since there are always a few notes that won't work quite right.

Aeolian has a terrific service manual; couple it with the manuals from the other player manufacturers and you're in business.

Concert Preparation
Part 2 (Conclusion)

CONTINUING EDUCATION

Stephen H. Brady, RTT
Seattle Chapter

The primary concerns in concert voicing are evenness (funny how often that word comes up in piano work, isn't it?) and color flexibility. By evenness, of course, I mean that notes should not stand out from their neighbors by being either too powerful and brilliant or too soft and mellow. By color flexibility, I mean that the tone should be able to change to meet the artist's needs. For instance, a note should sound mellow or "pearly" when played pianissimo, but should sound brighter and have more "bite" when played at louder levels. The best way to achieve these results in voicing is to start out with good quality hammers and a solid regulation, then follow the tried-and-true methods laid out in Franz Rudolf Dietz's "Grand Voicing"[1] and taught at conventions by Norman Neblett and others. Short-cut voicing methods may make a quick and obvious difference in a piano's sound, and may be fine for some home pianos, but I prefer the slower and more controllable traditional voicing techniques, especially when dealing with fine concert instruments.

Because pianists do not all have the same preference as to piano tone, no one piano and no one voicing are going to keep everyone totally happy. I recall attending a piano recital where a faculty friend approached me at intermission and said, "Steve, I think your piano is too bright." Another friend, overhearing, said, "I think it sounds gorgeous. It's perfect!" A few minutes later, I ran into a technician friend who thought the piano sounded nice, "but it could stand to be a bit brighter." Three different people, three different opinions. That incident taught me not to take any one person's opinion too seriously.

Naturally, the best approach to voicing pianos that are used by a wide variety of performers is to keep the hammers in good shape (some technicians file the hammers after every performance!) and keep the sound as even as possible. I try to make the overall tone quality match *my* conception of what a piano should sound like, always remembering that it's generally better to err in the direction of "too brilliant" rather than "too dull" where a concert piano is concerned. If a particular artist requests changes in a piano's voicing, I will usually attempt to meet that request, but now we're entering the realm of "working with people."

"Because pianists do not all have the same preference as to piano tone, no one piano and no one voicing is going to keep everyone totally happy."

The Artist

Whenever possible, I like to meet with the pianist during the piano-selection process. If the artist has chosen the piano prior to coming to the hall (some choose a piano solely by brand name), or if there is no choice available, I try to meet the artist at the beginning of rehearsal time, when the pianist is first trying the instrument. I introduce myself, ask the performer if there are any problems with the piano, and after any necessary

discussion, I leave.

Where voicing is requested, I prefer to have the pianist present while I voice the piano. This approach helps eliminate misunderstandings, especially when I can get the pianist to participate with me in the process by trying the piano after each stint of needling or filing. If for some reason the pianist can't be on hand for this type of work or to try the piano after the voicing is done, I've found he or she is usually reluctant to have any work done besides tuning. That's for a good reason: they would rather know exactly what to expect when they sit down to play at concert time.[2]

Other People

Besides the artist, we often deal with promoters, stage managers and stage hands. The rule with all these people is the same: respect their needs and their problems, and make a real effort to help them. Where their needs conflict with yours, seek a compromise.

Promoters appreciate a technician who will be at the hall on time and who, if there is a delay on stage once he arrives (which happens often), doesn't fuss and fume and threaten, but waits patiently and does the best possible job with the time remaining. Most promoters don't mind if you spell out initially how and when you want to be paid. I like to be paid immediately after doing the work, and I ask, before even scheduling the appointment, if this is possible. I also ask to be scheduled in when the stage will be quietest.

A major stumbling block to many technicians is the fact that we must frequently deal with a certain amount of noise while trying to tune for performances. This noise comes most often either from stage hands setting things up or from musicians who want to warm up in the stage area while you tune. Again, the best way to minimize this problem is to request a time for tuning when the stage will be quiet. Since this is not always possible, I try to cultivate a friendly relationship with the stage crew, always remembering that a little humor can help a lot. Personally, I find it hardest to compete with other musical instruments when I'm trying to tune. While I sometimes will ask the musician (politely) if the green room might not be available for warming up, I find that even newly acquired friends on the stage crew can be a big help in keeping musicians out of earshot until I finish. Realistically, however, there are still times when we have to tune around or through more noise than we would like, and I suppose that each technician has to decide his or her own tolerances and limitations in this area.

The tuning and preparation of concert pianos does hold special frustrations, but for me, the rewards outweigh them. Beyond the obvious and superficial benefit of "fame by association," a concert piano technician has the heady challenge of preparing some of the world's best pianos for some of the world's best pianists. In this sphere of our craft, we sometimes find ordinary limits removed, and we have a chance to see (and hear) what we can really do. When that happens, and when we succeed in responding to the challenge, we can enjoy a measure of true satisfaction. Although music critics don't make mention when a piano is exceptionally well tuned, voiced or regulated (however, they will mention anything they think is *not* right about the piano!), the artists sometimes do. When they do, I feel that I've done something really worthwhile. And to me, that's success.

Notes

[1] Franz Rudolph Dietz, "Das Intonieren von Flugeln" (Grand Voicing), (Frankfurt: Verlag das Musikinstrument, 1968). The book is available from American Piano Supply Co., and the text is written out in German, English, French, Swedish and Italian.

[2] Speaking of pianists needing to know what to expect at concert time, consider seemingly small details as the height of the bench — don't adjust it when you tune after rehearsal. Also, don't clean the keys after tuning (unless specifically requested to do so); clean keys are sometimes slippery!

Another Shattering Experience

SHOPTALK

Susan Graham, RTT
San Francisco Chapter

We are familiar with the plastic elbows which are a feature of some spinet pianos from the 40s and 50s. They are made of an early plastic that contains a catalyst which has continued to harden, resulting in an extremely brittle part. Thus, the "elbow job." This hardening is accelerated by heat; elbows will be worst in pianos with damp-chasers.

Did it ever occur to you to be glad that entire actions weren't made of this material? In that case, I have bad news: there are such actions. The hammer flange, wippen flange, jack, backcheck and damper lever and flange are made of this same yellow plastic (not to be confused with the modern plastic currently being used for some action parts).

These actions are found in console pianos from the same era as the "elbow" pianos. Unfortunately, the action parts are faring no better than the elbows, and require the same cure — complete replacement. There may be a few more tedious jobs, but there is no viable alternative. Not only are parts breaking, but problems such as sluggish centers are virtually untreatable.

Action treatment solutions are based on naptha, dry-cleaning fluid, or methanol. These will melt the plastic (check with manufacturers before treating new plastics with chemicals). Removing parts for repair usually results in more breakage. For instance, inserting a screwdriver to remove a hammer butt will break the neighboring jack. When parts can be extricated, wooden parts can be pinned on, but more breakage usually occurs as these are reinstalled.

Obviously, this is an instance when it is best to sell a complete job — replace the wippens, butt flanges, and damper lever assembly, re-regulate the action, and be done with it. If the customer feels the cost is prohibitive (it's about a week's worth of time) you can continue to spot-replace parts as they break, but doing so creates a nickel-and-dime situation of repeated service calls and the annoyance of a piano which rarely performs well. Encourage a complete repair for everyone's sake; provided, of course, that the rest of the piano is sound. The customer should also explore the option of replacing the piano. Most will decide to have work done, since the cost of new pianos is so high, but they should be informed on the point to their own satisfaction.

"Did it ever occur to you to be glad that entire actions weren't made of this material? In that case, I have bad news..."

If the job is contracted, the first step (after obtaining a down payment) is to get parts. This is simple: call or write Pratt, Read and tell them you have an action with plastic parts and the name, serial number, and model number of the piano. They will supply parts. Replace the butt flanges, saving the old butts and hammers, and the damper levers and flanges, reinstalling the old heads and felt. Their advice is to replace the entire wippen. Current cost for all the parts is around $200, which would hardly pay for the hours of repinning to rebuild the old wippens instead.

After the parts have arrived, bring the action to the shop. Number both the hammers and the damper heads. To preserve alignment and simplify regulation, the job is done in two stages. Remove every other old part, replace them, and space and align with the undisturbed parts; then repeat the process to finish replacement. This can get confusing if parts are not numbered. You

may have the equipment or the expertise to remove parts wholesale as in a grand action rebuilding, but otherwise the "alternating" method saves time and can be quite accurate.

Work with the action in a cradle so it can be tilted for easier access to particular areas. Begin by removing every other damper lever (keep all action screws in order so they are replaced in the same hole) and removing the heads from the wires (be sure they are numbered). When the dampers are removed, it is easy to remove the corresponding wippens since the screws are exposed. With the wippens removed it is easy to get at the hammer butt screws; remove the corresponding butts. This should result in an action with a complete note assembly — damper lever, wippen, and butt — next to a completely empty hole, next to a complete assembly, etc.

Pin the new flanges on the hammer butt. Flanges come with the centers bushed and sized around a fairly small center pin. Decide whether this pin is tight enough in the butt to restore the action to a like-new condition which will not become loose in a few years. The pin should fit so tightly in the wood that it cannot be pushed in with the fingers, and should offer noticeable (but not excessive) resistance when inserted with a tool.

I've found that this usually requires installing a larger pin than that which comes in the flange. Reaming the bushing is necessary. There are several methods for this.

"You may have the equipment or the expertise to remove parts wholesale...but otherwise the 'alternating' method saves time and can be quite accurate."

Some prefer the tapered, 4-sided reamer; others roughen a center pin by rolling it between two files and put it in a pin vise for a reamer. Some use the same size center pin as the one to be installed; some use a half size smaller. The roughened-pin reamers must be replaced often as they clog with felt; the tapered reamer must be inserted from each side and requires good judgement for even results. Different cloths respond best to different techniques, probably according to age, wear, and

"Different cloths respond best to different technologies, probably according to age, wear and contamination..."

contamination, but I've always done fine with the tapered reamer.

However the bushing is reamed, it should be burnished afterward with a smooth, needle-like tool. This is important; it packs the fibers so an accurate reading of pin tightness can be made immediately. However, the pinning becomes too loose as soon as the action is in use. After each bushing is reamed and burnished, test it with the center pin to be used. The pin should meet with resistance but should be able to be pushed in by hand. How much resistance is a matter of feel, which experience will yield. I like a butt which swings three or four times with the hammer on. Vertical butt flanges can be tap-tested like grand shank flanges: hold the butt with the spring groove up and the flange tilted down at a 45° angle and tap the butt just above the birdseye to see if the flange will "walk" up.

Pinning is tedious but it must be done uniformly, so put yourself in a sedentary frame of mind and become a pinning machine. Consistency in pinning affects alignment and touchweight and will show up in regulation discrepancies if not done uniformly. If you can't stand it, job it out.

Reinstall the butts with new flanges and space them carefully between the butts still in place. The screw hole in the flange is slightly oversized, so there is some allowance to move the entire flange from side to side, rather than to just tip it. The flanges should be evenly spaced, although, of course, hammer head spacing is the most important. Use a small, thin-bladed screwdriver wedged against a neighboring flange to hold the new flange in place as the screw is tightened. The screw will indent the wood slightly and the flange tends to return to the same spacing, so get it correct before tightening the screw. Paper the flange if needed to align and travel the butt, using the neighbors for reference. Tip the flange to align the shank so it is parallel (in some cases this may require a shim under one corner of the flange). "Burn" (heat, using a heat gun, and twist) the shank to align the hammer head so it contacts the string squarely. In other words, space the butt and the head, then travel the butt, and then adjust the hammer head to strike the string squarely. Later this will be checked in the piano.

Proceed by removing the remaining original butts, re-flanging, and reinstalling them in the same manner.

It may appear that there is only one wippen, but there are five variations: spoon right, spoon left, no spoon, jack relieved right, and jack relieved left. Usually bass and upper treble wippens have spoons leaning left (observed from the back) and the mid-section spoons lean right; there are, of course, no spoons where there are no dampers. The jack-relieving (a semi-circular piece of wood is removed from one side of the jack) is to accommodate let-off rail supports, which extend between the wippens at four or five places in the action.

Count and sort the wippens for each section according to spoon direction, and match up pairs of the jack-relieved style where needed. It may be necessary to change jacks or spoons around and will be

"Pinning is tedious but it must be done uniformly, so put yourself in a sedentary frame of mind and become a pinning machine."

less confusing if done before any wippens are installed. I usually install both jack-relieved wippens at all the rail supports first, and then proceed with the alternating method. Installation is easiest with the action upside down in the cradle so the jack drops readily on

the correct side of the let-off rail and the flange is toward you so it can be finessed around the spoons. Alignment is easy to detect since the bottom surface of the wippen is visible. The flanges can be papered to keep the wippens parallel, and the flange tipped if needed to keep the wippen square. A screwdriver blade is used to hold the flange to counteract a tendency for the wippen to rotate as the screw is tightened. Later, the jack-to-butt alignment is checked; compromises may be needed but should also be made in accordance with the capstans.

Slip the action right side up to install half the new damper levers. In some sections, the wire will need one quick bend, just at the top of the lever, to align it roughly. Otherwise, the old and new wires will cross and prevent installation. When the levers are on, block up the lifter rod so the levers are off the spoons. Tighten the rod hanger screws and lubricate and/or rebush them. With the rod wedged up supporting the levers, bend the wires to match the spacing between the old wires, and to align them forward and back as accurately as possible. Clip the wires to the correct length and remount the heads, levelling them according to what is still intact. Readjust the wire bending to align the head; this too will need refining in the piano but you can get them close. Vertical damper lift is regulated by bending the *wires* to create uniform pedal lift *first*. Spoons are bent afterwards to set lift with the key. This is why wires are now bent with the rod blocked up. Align by the wooden heads, since the felt surfaces fall to different levels according to type. This sequence of lift regulation is the opposite of grand dampers, for which lift with the key is set first and pedal lift adjusted accordingly.

When the remaining damper levers and wippens are removed and replaced, and everything is in place, hemostats (locking tweezers) are the perfect tools to fasten bridle straps and position springs. Trip the jack out with the tip of the hemostat, support the wippen with the other hand, and use the hemostat to grab the strap and twist the tab in place. Align the hammer, jack, and damper return springs.

You might as well reshape the hammers, blow out dirt, polish the rest rail, and otherwise clean up before reinstalling the action.

When such extensive replacement is done it is unlikely that good regulation can be achieved in just one go-through, and I wouldn't even attempt a bench regulation. Instead, take the action cradle and a work table (a long folding table is an invaluable tool) and warn the customer that you must move in for the day.

Check alignment first: hammer to string, wippen to butt, wippen to key, and damper to string. Damper alignment is difficult to detect if the spoons are holding them up off the strings, so a quick action pull and rough spoon bending may be needed. Usually, two bends are required to space dampers—one to move the whole head over, and another to re-square it to the string. Until the regulation has proceeded to a point when pedal lift is set, don't concern yourself with more forward and back bending of wires. Get all the side spacing correct and then proceed with a standard vertical regulation. Remember to check things such as key easing even if you haven't worked on those parts.

Finish out a job like this by tuning the piano, replacing missing knobs and buttons and touching up scratches in the case. After the customer has seen you spend the time of regulation, they will be aware of having received their money's worth, but it never hurts to put a little icing on the cake. If you have done good work, they now have a piano working better than it ever has. You can continue to service the instrument without fear of flying shards of action parts accompanying every test blow!

ON PITCH

Sixth in a Series of Articles Dealing With the Integration and Equation of Aural and Electronic Tuning Techniques

Rick L. Baldassin, RTT
Utah Valley Chapter

Last month our discussion presented aural tests and electronic setting instructions for two types of double octaves used in tuning the piano, the 4:1 and 8:2 double octaves. The different types of octaves and double octaves with their respective aural tests and classifications, electronic setting instructions and areas of general use in the piano were then reviewed.

This month we will discuss why we need to compromise between the various types of octaves and double octaves, and where to compromise between the various types.

Before a discussion on compromise can begin, it must first be stated that all octaves are stretched; that is, the fundamental frequency of the upper note is always greater than twice the fundamental frequency of the lower note. This is of course due to inharmonicity in the piano.

We previously discussed matching pairs of partials in tuning octaves. When the first partial of one note is matched to the second partial of another note, a 2:1 octave has been tuned. Although the octave is "stretched" in the theoretical sense, it is *not* stretched as far as a 2:1 octave is concerned, but is a *pure* 2:1 octave. Testing aurally, the M10 beats at the same rate as the M17, and the P5 beats at the same rate as the P12. Testing electronically with the tuner set on the upper note, when the display is stopped for the lower note, it stops when the upper note is played as well.

If the first partial of the upper note were tuned sharper than the second partial of the lower note, such that the M17 beat faster than the M10, the P12 beat slower than the P5 and, with the tuner set on the upper note, the display stopped on the lower note but rotated sharp the upper note, a "stretched" 2:1 octave was tuned.

If we continue to stretch the 2:1 octave, at some point the fourth partial of the lower note will match the second partial of the upper note. At this point we have tuned a pure 4:2 octave, which obviously is also a stretched 2:1 octave. This is proved by the fact that the M3 and M10 are equal beating, the P4 and P5 are equal beating and, when the tuner is set an octave above the upper note, when the display is stopped on the lower note, it stops on the upper note as well. At the same time, the M17 beats faster than the M10, the P12 beats slower than the P5 and, when the tuner is set on the upper note and the display stopped when the lower note is played, the display rotates sharp when the upper note is played.

With this goundwork laid, three important questions must be answered: 1. If we can tune pure 2:1, 4:2, etc., octaves why must we compromise between the types? 2. If we must compromise between types, how do we know where to compromise? and 3. Once we know why and where, how do we execute these compromises?

Let us first answer why we must compromise between types. The most obvious reason would seem to be that in some cases none of the above types would sound good. Say for instance we were tuning in the upper midrange of the piano and we chose to tune a 4:2 octave. The octave was tuned such that the 4:2 aural and electronic tests checked out perfectly. When the octave was played, however, there was an obvious beat at the 2:1 level which was unacceptable. The upper note was then lowered to the point where a 2:1 octave was tuned, and all of the 2:1 tests checked out perfectly. When the octave was played, there was an obvious beat at the 4:2 level which was unacceptable. The note would then be raised to the point where

the octave tested flat to the 4:2 tests and sharp to the 2:1 tests but, more importantly, sounded good, or in some cases as good as possible.

Another reason to compromise between the types is to preserve the even progression of parallel intervals. Let us take the above example and assume that when the upper note was lowered, creating a 2:1 octave, the octave sounded acceptable. Let us also assume that several previous octaves were tuned 4:2. When parallel tenths are played, we might discover that the tenth which included the top note of the first 2:1 octave beat more slowly than the previous tenth. In this case we would raise the note, creating a stretched 2:1 (narrow 4:2) octave, which sounds acceptable as an octave and preserves the progression of parallel intervals.

Another reason is to satisfy the demands of the octave and double octave at the same time. If we tune a pure 4:2 octave from F4 to F5, and tune a pure 2:1 octave from F5 to F6, we have also tuned a pure 4:1 double octave in the process.

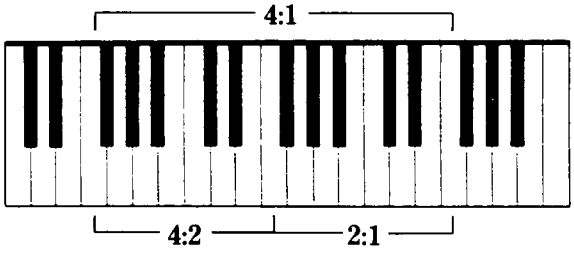
If we then tune another pure 2:1 octave from F6 to F7, the double octave from F5 to F7 will probably be quite flat. If we tune a pure 4:1 double octave from F5 to F7, the F6 - F7 octave will likely beat too much. If we leave the F5 - F7 double octave where it is and raise F6 until F5 to F6 is a 4:2 octave, the F5 - F6 octave will likely beat too much.

The best solution would be to tune the F5 to F6 octave as a stretched 2:1 (narrow 4:2) octave, tune the F6 to F7 octave as a stretched 2:1 octave, and hopefully the resultant 4:1 double octave will be pure to just slightly flat. In each case, the 2:1 octaves are stretched beyond 2:1 as much as possible without an offensive beat. If the resultant 4:1 double octave is wide, the 2:1 octaves need not have been stretched as much.

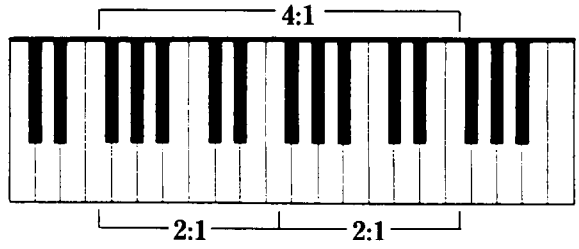
In well scaled pianos, when F5 to F6 is tuned as a 2:1 octave plus about one cent (about .8 BPS), when measured as a 4:2 octave it may be pure to minus about one cent (about 1.6 BPS). This being the case, another slightly stretched 2:1 octave from F6 to F7 may be tuned on top, with a resultant 4:1 double octave F5 to F7 that is pure or nearly so. This allows the tuning of good-sounding single and double octaves clear to the top of the piano.

Knowing why we must compromise, where do we compromise? It would probably be fairly accurate to say almost everywhere. That being rather general, I have created a chart showing where the different types of octaves are most often tuned. The dotted lines between the different types are the most common areas for compromise.

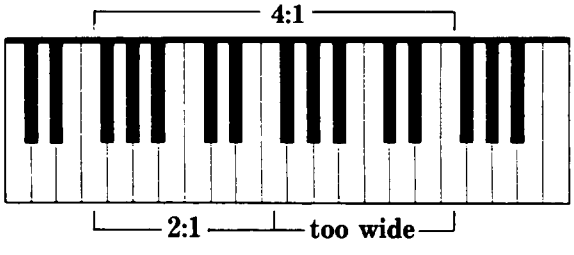
Next month we will discuss in detail why different types of octaves are tuned in particular areas of the piano, and answer question 3, how to execute compromise between the various types.



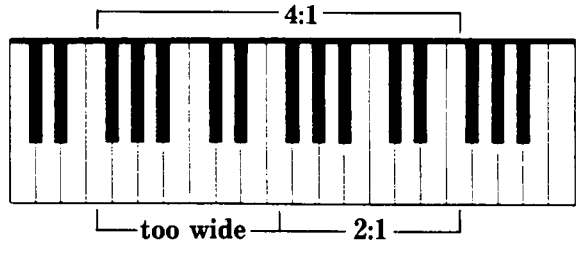
The above example illustrates a pure 4:2 octave F4 to F5, and a pure 2:1 octave F5 to F6, which yields a 4:1 double octave which is pure as well.



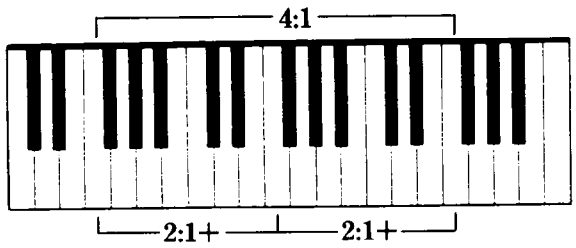
The above example illustrates a pure 2:1 octave F5 to F6, and a pure 2:1 octave F6 to F7, which yields a 4:1 double octave which is probably quite flat.



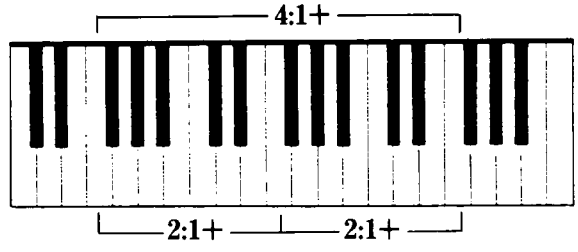
The above example illustrates a pure 2:1 octave F5 to F6, and a pure 4:1 double octave F5 to F7, which yields a 2:1 octave F6 to F7 that is stretched beyond acceptability.



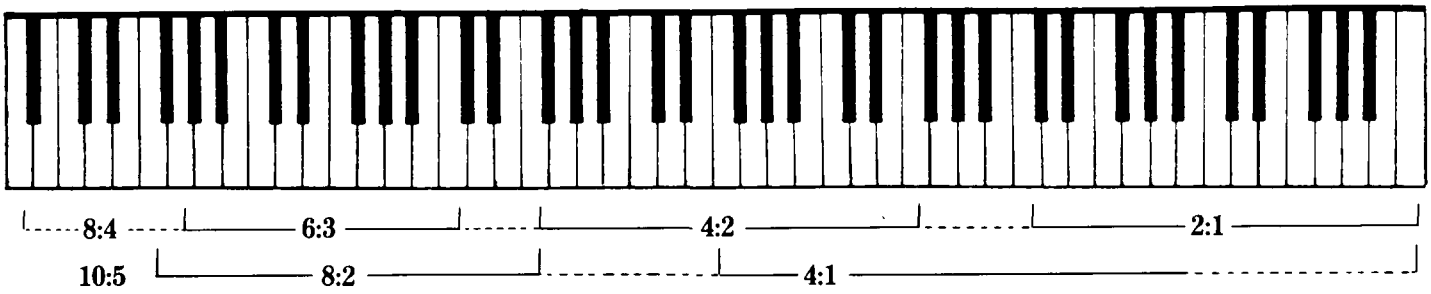
The above example illustrates a pure 2:1 octave F6 to F7, and a pure 4:1 double octave F5 to F7, which yields a 4:2 octave F5 to F6 that beats unacceptably.



The above example illustrates a stretched 2:1 octave F5 to F6, and a stretched 2:1 octave F6 to F7, with a resultant 4:1 double octave which is pure to just slightly flat.



The above example illustrates a stretched 2:1 octave F5 to F6, and a stretched 2:1 octave F6 to F7, with a resultant 4:1 double octave which is wide. The octaves were over-stretched.



The above example illustrates where the different types of octaves and double octaves are most often used. The dotted lines indicate the most common areas for transition or compromise.

Management Team To Purchase Baldwin

Baldwin-United Corporation announced January 16 that its indirect subsidiary, Baldwin Piano & Organ Company, has entered into an agreement to sell substantially all of its assets to a group of senior management officials headed by R.S. Harrison and Harold Smith. Harrison, chairmain of the piano and organ company, and Smith, president, will continue in their current posts.

Industry News

Harrison and Smith announced that the new company will continue to operate under the name Baldwin Piano & Organ Company. General Electric Credit Corporation and Security Pacific Business Credit, Inc., will finance the acquisition.

Harrison, a Baldwin employee for 28 years, and Smith, with the Company since 1972, explained: "We have purchased Baldwin Piano & Organ Company because we believe in the keyboard industry and in Baldwin's potential to provide even greater leadership to it.

"This purchase reflects our confidence in the more than 2,000 employees in our Cincinnati, Ohio home office, in our retail stores throughout the country, and in our manufacturing plants in Greenwood, Mississippi; Conway, Fayetteville and Trumann, Arkansas; and Juarez, Mexico."

Harrison and Smith indicated that staffing of the company would remain essentially the same.

Each One – Reach One!

Charles P. Huether
Vice President

1984 begins a new chapter in the history of the Piano Technicians Guild. It is the hope of everyone that it will be one that will see new levels of achievement in every aspect of our organization. Fundamental to all organizational life is growth in membership, both in numbers and in quality. This membership page focuses on this aspect of our organization's growth and development.

As has been said before, the Piano Technicians Guild relies not on scatter-shot recruitment, but on individual membership recruitment — hence our theme, "Each One Reach One." Be aware and alert to the needs of our organization as it grows stronger, more influential and more important in our profession, our industry and in the greater areas of music and the arts.

Make sure that what you hold in such high esteem, what has been so valuable to your work skills, remains a priority. Industry acceptance will continue to flourish as new generations of skilled technicians take our place in the line helping to make sure that music, the universal language, continues to be heard and understood.

New Members

Registered Technician

Baltimore Chapter

BEHLER, Paul J.
313 Waveland Road
Catonsville, MD 21228

Boston Chapter

DAVIS, Neil C.
17 J Street
Hull, MA 02045

LINCOLN, Charles F. III
81 Pine Grove Ave.
Newton, MA 02162

METH, Rodger R.
39 Greenwich Park #3
Boston, MA 02118

PARRY, Nancy Walker
125 Hartford Street
W. Natick, MA 01760

SNOW, Martin
465 Falmouth Road
Hyannis, MA 02601

Forth Worth Chapter

PARSONS, Cecil D.
4505 Aspen Way
Fort Worth, TX 76137

Houston Chapter

ESCOBAR, Roy
2710 Durban
Houston, TX 77043

Memphis Chapter

CARMICHAEL, William R.
3294 Keeshond
Bartlett, TN 38134

Modesto Chapter

ERWIN, Dale S.
624 West Roseburg
Modesto, CA 95350

Northwest Florida Chapter

BROADSHEAD, Naman T.
P.O. Box 191
Wagarville, AL 36585

Portland Chapter

COOKE, John W.
1812 Columbia
Vancouver, WA 98660

San Antonio Chapter

JEFFERY, Llewellyn E.
10377 Highway 87 E., Lot 13
Adkins, TX 78101

San Francisco Chapter

HALE, Kenneth L.
421 49th Street
Oakland, CA 94609

Southeastern Massachusetts Chapter

BROWN, Christopher M.
23 Depot Street
E. Wareham, MA 02538

Twin Cities Chapter

JOHNSON, Dennis H.
1019 East 21st Street, #4
Minneapolis, MN 55404

Allied Tradesman

Cleveland Chapter

STEINER, Stephen M.
501 Woodland Avenue
Wooster, OH 44691

Connecticut Chapter

GREEN, Gary M.
Pratt-Read Corp.
Main Street
Ivoryton, CT 06442

Portland Chapter

UNIS, Maurice
4412 S.E. Woodstock Boulevard
Portland, OR 97206

Rochester Chapter
BAILER, William D.
302 Laburnum Crescent
Rochester, NY 14620

Twin Cities Chapter

SCHROEDER, Steven L.
9333 96th Street North
White Bear Lake, MN 55110

Vancouver, B.C.

VAN PRATTENBURG, Marinus J.
8217 164th Street
Surrey, B.C., Canada V3S 3W5

Apprentice

Boston Chapter

TAYLOR, Kristina I.
129 Endicott Street
Boston, MA 02113

Chicago Chapter

BEE, Donald F.
14 Marquette Place
Park Forest, IL 60466

FITZGERALD, Arthur F.
1918 Camp McDonald Road
Mt. Prospect, IL 60056

STEVENS, Don A.
285 S. Wolf Road
Des Plaines, IL 60016

Detroit-Windsor Chapter

BOYD, Gregory
1213 Second
Royal Oak, MI 48067

Eugene Chapter

BAKER, Eual W.
P.O. Box 4034
Marquam, OR 97362

Golden Gate Chapter

BUTTERFIELD, James C.
5068 Hawley Court
San Jose, CA 95118

GARDNER, Lawrence A.
917 Elgin Street
San Lorenzo, CA 94580

New Hampshire Chapter

ELDREDGE, Arthur S., Jr.
105 Elm Hill Road
Petersborough, NH 03438

North Central Florida Chapter

GLENN, Charles R.
3214 Del Rio Terrace
Tallahassee, FL 32312

STEPHENS, Roger D.
Route 4, Box 464, Lot C
Tallahassee, FL 32304

Pittsburgh Chapter

DOTY, Lawrence E.
744 Laurel
Bridgeville, PA 15017

Portland Chapter

DINEEN, Cynthia L.
14713 N.E. 81st Street
Vancouver, WA 98662

Raleigh-Durham Chapter

JOHNSTON, Christian B.
127 West Park Drive
Raleigh, NC 27605

Roanoke Chapter

BALILES, Larry W.
Route 2, Box 220
Stuart, VA 24171

DUNHAM, David C.
928 Stone Wall Court
Martinsville, VA 24112

Student

Atlanta Chapter

BLACK, Rita M.
3469 Cedar Valley Court
Smyrna, GA 30080

Blue Grass Chapter

CHRISTMAN, Doug C.
Route 2
Sheperdsville, KY 40165

Calgary, AB, Canada Chapter

BOOTH, Clare M.
Box 158
Spiritwood, Sask., Canada S0J 2M0

Capital Area Chapter

DUBOIS, John C.
206 Union St., Apt. 9
Schenectady, NY 12305

Central Illinois Chapter

TRAUTH, Vincent B.
208 W. John Street, 1st Floor
Champaign, IL

Western Michigan Chapter

CLARK, Ralph S.
1613 Johnson
Benton Harbor, MI 49022

Indianapolis Chapter

LOVEALL, Benjamin E.
66 Sherman Drive
Carmel, IN 46032

Minnesota-North Iowa Chapter

BANDEROB, Michael D.
126 N. Fourth St.
River Falls, WI 54022

Nebraska Chapter

STICKNEY, Jeffrey P.
1116 So. 9th
Lincoln, NE 68502

TUREK, William M.
1244 Jackson
Geneva, NE 68361

North Central Louisiana Chapter

BEEMAN, Richard Lee
221 West Alabama Avenue
Vivian, LA 71082

VAUGHN, E. Gardner
Route 3, Box 311A
Leesville, LA 71446

Northeast Florida Chapter

COOK, Mary G.
3231 River Road
Green Core Springs, FL 32043

MARKUM, Olen R.
1329 Park Avenue
Orange Park, FL 32073

The Auxiliary Exchange

President's Message

February is one of my favorite months. Without question, I spend more money on Valentine's Day cards than for any other holiday throughout the year. There is no way I could settle for just one for my husband, so I get him several. My children...my grandchildren...my friends...all get one (or more) cards telling them how much I love them. We don't have to have a special day to tell people we love them, but it is important that one day a year is set aside...for *love!* It's a reminder to take time out and say "*I love you.*" Those three words seem to say it all, yet, many people have a hard time saying aloud "I love you."

It is imperative that I tell my family daily that I love them. They know I do, but they need to hear it again and again. I'm reminded of the delightful show, "Fiddler on the Roof." How many times Tevye asked Golda, "Do you love me...?" Each time she tried to avoid the question, reminding him of all she had done for him for the past twenty-five years — such as washing his clothes, cooking his meals, cleaning his house, milking cows — and she says, "After twenty-five years why talk about love right now?" Finally, Tevye says, "So you love me?" Golda responds, "I suppose I do." Tevye then gets the courage to say, "I suppose I love you, too."

Sometimes it is harder just to say it, especially if you aren't used to saying it. It is very healing; it is like a wave that washes away ill feelings, because love is not based on circumstances — *love is so wonderful.* When you give love you always get love in return. We reap what we sow...and you can't beat sowing *love.* Did you know it is possible to love someone who is not easy to love — we can even love those who would be unkind to us. It starts in the heart — a heart of forgiveness. *Loving* is the answer to many illnesses. *Forgiving* is the path that makes *loving possible.*

Fill your home with *love* this February. Get those red hearts out and decorate the dining area, the kitchen area...make it a part of your day to tell those around you how much you love them — at least that you do love them, even though you might find it hard to tell them how much. It's a wonderful feeling. By the way, since this is Valentine's month, it is my reminder to tell you that I love you...each and every one of you. *Loving* is *rewarding*...Make this month special!

Belva Flegle, President
P.T.G. Auxiliary

Keeping Your Image Sharp

We all know that a piano sounds best when it is tuned with precision and attention to the smallest details. Sometimes we and the technicians forget to apply the same precision and attention to detail to the other parts of our business. No matter how well a person can tune a piano, if he or she wants to make a living tuning pianos as an independent technician, somebody must handle the small details of doing business. If the technician is not inclined to follow up on these details, perhaps the task will fall to you. Assuming that to be the case, let's go into your office and look around at some of the small details and precision work.

Let's start with the typewriter. Are you still using the portable you had in high school or college for your business typing? Your bills and letters will command more attention if they are typed on an electric typewriter with a carbon ribbon. You will also find the new typewriters correct errors more quickly and cleanly than the older models. It may seem like a big investment to go buy a new typewriter — you might end up spending $500 or $600 — but

perhaps the image your business presents could use a little tax-deductible sprucing up. Larger accounts will be impressed by your businesslike appearance on the bills and communications you send them.

Speaking of things you send out in the mail, what about your letterhead? You do have letterhead, don't you? Have you taken a close look at it lately? Is it still the page with the little cartoon of the man and his tools sitting on top of the piano that you thought was cute when you started the business part-time fifteen years ago? Maybe you should change to a textured paper or a pastel color instead of using the 16-pound white mimeo-quality bond you used in 1979 when the business was only netting $3500 a year. Maybe you should even splurge and talk to a graphic artist about having a logo designed for your business.

How about the business cards? Are they as clean and clear as the tuner's unisons or have they gotten a little frayed around the edges? Perhaps there is a new service you have added since the cards were printed. Maybe you would prefer the look of colored ink or a different typestyle. Little things say a lot about a person's business, and those little cards are leaving their message all around town.

While we are sprucing things up, let's go out to the trunk of the business car and take an objective look at the technician's tool bag. Is he or she still carrying tools around in a plastic milk jug with the top cut off? Is the tool kit looking scuffed as if perhaps it had been thrown in the cage with the gorilla who attacks Samsonite luggage? Maybe you can persuade the technician to take a damp cloth and clean it up a bit. Maybe you and the technician should select a new tool case for his or her ever-expanding business.

These things don't take long to accomplish, but they are easy to overlook. Someone — at least one person, and preferably more than one — in every business should be always aware of the small details which tell a lot. People feel confident when they hire a technician who projects a successful image.

Julie Berry

Suncatchers For Sale

If you would like something tasteful, appropriate, unique, and nifty to brighten up your outlook and delight the sunbeams which shine through your windows, then you should buy yourself a suncatcher. The suncatcher you should buy is the one the Auxiliary commissioned to resemble the Piano Technicians Guild insignia. They are just $5.50 apiece (which includes mailing costs...check payable to P.T.G.A.) and can be ordered from Louise Strong at One Knollwood Drive, Rome, GA 30161.

Did You Pay Your Dues?

If you didn't pay your 1984 Auxiliary dues yet, please send a check for $5 (yes, that's all!) to Kathryn Snyder, the Auxiliary's treasurer. If you think about it for a moment, you will realize that we can hardly afford to send you a second notice with dues only being $5; we would use up the total amount of your dues money just trying to collect the five dollars from you. The Auxiliary is a great organization and well worth the cost of annual dues. Thank you.

Thank You For Your Interest

People tend to drift apart from each other when they don't keep in touch. This even happens to people in the same family. You are working to keep that from happening because you are taking an interest in the Piano Technicians Guild and its Auxiliary. The Auxiliary exists because twenty-seven years ago some people realized the technicians were going to be committed to their organization and their trade, and it would be a good idea for their families to take an interest also. People who keep in touch by being interested in the things that are important to the other person tend to widen their own horizons in the process. Thanks for widening your horizons through the Piano Technicians Guild Auxiliary.

Even Without A Local Auxiliary Chapter

Even without a local Auxiliary chapter you can enjoy the friendship and fellowship of other technicians' spouses. Why don't you call a couple of the other spouses and agree to meet while the technicians are meeting? You can plan an activity to do together or you can simply agree to meet and enjoy each other's company. Maybe you won't want to meet every month, but you surely would enjoy a get-together once every few months. You could plan a social function with the Guild members — a banquet or a picnic. Maybe you could work together on a fund-raising project if you are so inclined. Just be sure you don't rule out getting together even if you don't have a bona fide Auxiliary chapter. The fellowship and friendship are the important parts.

Nominating Committee

Norma Lamb, as chairman of the Auxiliary's nominating committee, will welcome your suggestions for Auxiliary officers for the coming year. If you submit your suggestions to Norma after the committee's work has been completed, you could still nominate people from the floor during the 1984 Council meeting in Indianapolis. If all of us are constantly looking for new leaders to cultivate, our organization will enjoy continued growth and vitality.

Bylaws Changes

Please remember, any bylaws changes you would like to propose need to be submitted right away (to the president, the parliamentarian, and the recording secretary) so they can be published in the *Journal* before the Council convenes.

Classified Advertising

CLASSIFIED ADVERTISING RATES are 25 cents per word with a $7.50 minimum. Full payment must accompany insertion request. Closing date for ads is six weeks prior to the month of publication.

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

Send check or money order (U.S. funds), made payable to the Piano Technicians Guild, to Classified Ads, THE JOURNAL, 9140 Ward Parkway, Kansas City, MO 64114.

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

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

FOR SALE

Replacement stacks for old players. Will fit Angelus, Gubransen, etc. $450.00 Guaranteed tight and easy to pump. Best suited for two tier stacks. May be slightly harder to pump with some 3 tier. **Ragtime 1320C Angie, Modesto, CA 95351 (209) 538-2330.**

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

NEW SOUNDBOARDS MADE FOR YOU. Ship old board. New board comes to you ready for installation. Send for instruction on: **Victor Video Tape, $94.75. Victor A. Benvenuto, 6825 Germantown Avenue, Philadelphia, PA 19119. (215) 438-7038.**

COMPLETE HOME STUDY COURSE IN Piano Tuning, Regulating and Repairing. Write or call for free brochure. **Aubrey Willis School of Piano Tuning, P.O. Drawer 15190, Orlando, FL 32858. Phone: (305) 299-3690.**

Player piano **CONVERSION KITS** for any piano. 88 note and Orchestrion. Over 200 built. Turn worthless uprights into valuable heirlooms. **Ragtime 1320C Angie, Modesto, CA 95351 (209) 538-2330.**

GRAND PIANO ACTION REBUILDING. Revive the life of your Steinway grand Hammer Actions by having them rebuilt by specialists. Steinway Whippens rebuilt and modernized. Custom-built replacement hammer Actions for other fine makes. For more information & prices, call or write. **NEW ENGLAND PIANO ACTION CO., Box 441192, West Somerville, MA 02144. (617) 628-1591.**

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

KEY RECOVERING MACHINES for sale. Prices on request. Send self-addressed envelope. Or build your own—send $15.00 for plans, photos, instructions (refund w/purchase of machine). **Solenberger Piano Service, 1551 Lynn Court, Santa Rosa, CA 95405.**

KORG AT-12 AUTOCHROMATIC TUNER. New, improved tuner replaces WT-12 model. Play any note on your instrument and the AT-12 instantly indicates the note and octave (by LED) and how many cents sharp or flat (by V-U meter) in 7 octaves: C1 to B7. Generates 4 octaves: C2 to B5 at 2 volumes. Calibrate tuner A-430 Hz to 450 Hz. Quartz Crystal. Case, stand, AC adapter, batteries, earphone. One lb. One year warranty. Introductory Offer: $125 ppd. ($180 list). **Song of the Sea, 47 West Street, Bar Harbor, Maine 04609. (207) 288-5653.**

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

KNABE UPRIGHT. rosewood — refinished — restrung and new oversized pins — action built — excellent condition. $2,480 — will trade. **Contact Bradshaw Piano Sales and Service, 708 W. 23rd, Ada, OK 74820, (405) 332-5678. Ask for Max Davis.**

WANTED

WILL PAY $2.00/lb. for Ivories. Heads, Tails, chipped OK. Send 25lb. boxes to **Ragtime, 1320C Angie, Modesto, CA 95351 (209) 538-2330.**

UPRIGHT PIANOS WANTED, any quantity. Especially Oak and Walnut. Must be double fallboard and have fluted or carved legs. Pinblocks must be tight and hammers and soundboafrds fair. Will pay close to the retail price. Rebuilt or as is but not refinished. **Ragtime 1320C Angie, Modesto, CA 95351 (209) 538-2330.**

WANTED: MASON & HAMLIN OR STEINWAY. Want one that was a player. Have mechanism to install. **BRADY, 4609 Cranbrook, Indianapolis, IN 46250. (317) 259-4305, after 5:00 pm (317) 849-1469.**

PIANO TECHNICIAN. Experienced piano tuner for sunny So. Fl. company. Benefits, paid vacation. Call 305-456-7800 or write **Bobb's Pianos & Organs, 2512 So. 30 Ave., Hallandale, FL 33009.**

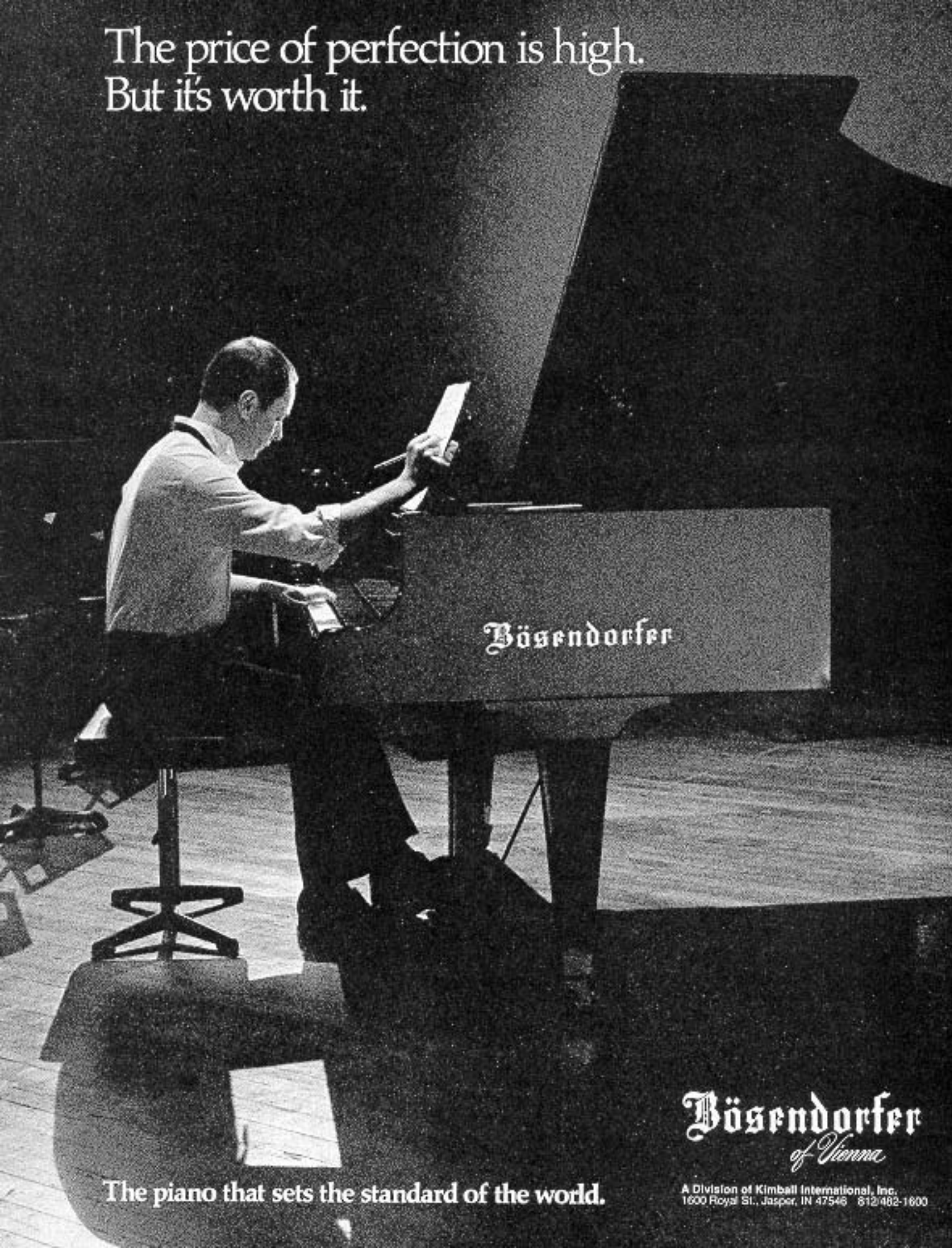
WANTED: 9 ft. Steinway Grand any condition 88 note call collect—**Douglas Wurz 804-358-1929.**

HELP WANTED — artist piano-rental company seeks head technician. Work with the greatest pianos and artists in the world. A head technician is sought for long-term employment in New York City. Electronic and aural tuning expected. Must be willing to embrace with equal zeal the folloiwng: tuning, rebuilding, 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.

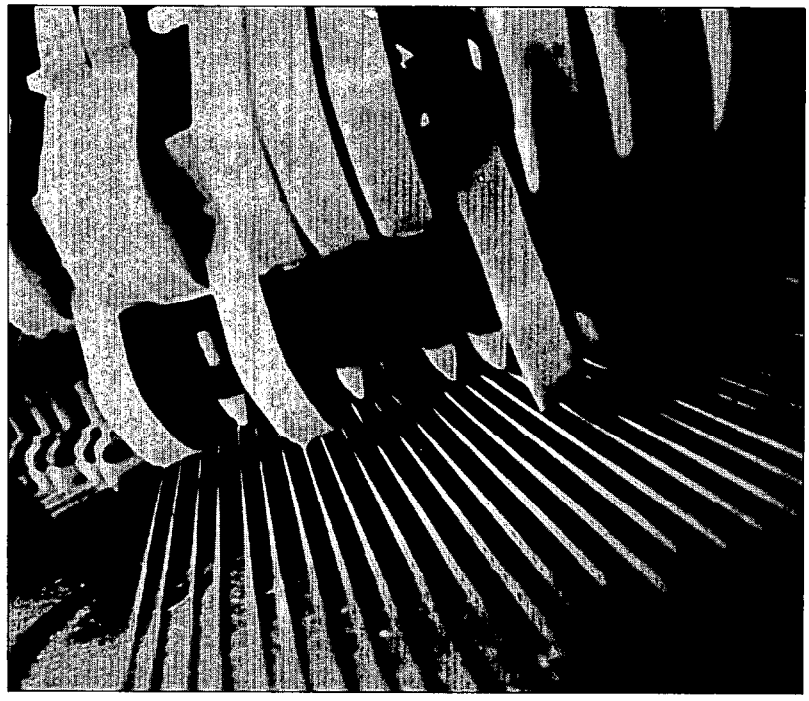
WANTED TO BUY, Yamaha PT-3 or PT-4 tuning scopes. Call anytime day or night (212) 582-6798.

MISCELLANEOUS

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


The price of perfection is high.
But it's worth it.
Bösendorfer
Bösendorfer
of Vienna
The piano that sets the standard of the world.
A Division of Kimball International, Inc.
1600 Royal St., Jasper, IN 47546 812/482-1600

The Consistent Hammer



Wurlitzer understands your frustration in voic- an instrument with hammers that are not of form density. That's why we have new hammer sses that control both vertical and horizontal ssure on the hammer. They allow us to produce ammer with more uniform density, one that will uire less voicing and care, one that will be more ısistent, from piano to piano. And the shanks are with such precision that the striking point on a rlitzer Piano is consistent within each model.

Wurlitzer goes to great effort, too, to make e all hammer shanks are positioned so the grain he right way to provide the best blow to the ngs. (Just as a baseball bat will crack if you hit the against the grain incorrectly, if the shank is not alled correctly it will not give as it strikes the string.)

All of this, of course, provides a more unifc and dependable piano that can make your job a li less frustrating.

Our continuing commitment to you, the te nician, is apparent in our ongoing willingness teach and train. Our key technical people atte PTG meetings and conventions and conduct tr ing sessions. Our service department continues seminars. Our technical staff is at your service provide any assistance you might need, just 800/435-2930 toll-free between 8:00 a.m. and 4 p.m. For parts call Code-A-Phone 800/435-69 In Illinois call 815/756-2771.

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UPDATE

Barbara Parks Named PTG Executive Director

Barbara Parks of Martin Fromm & Associates, Inc., the Piano Technicians Guild's new management firm, has been officially named executive director of the Guild. Park's appointment was unanimously confirmed during a Jan. 7 meeting of the Guild's board of directors in Kansas City.

Barbara Parks

The Guild recently contracted with MF&A to provide management services. The contract, which was effective Jan. 1, includes membership administration, communications programs, convention planning and other headquarters services.

Parks served as acting executive director of the Guild while its records were being moved from Seattle to new offices at 9140 Ward Parkway in Kansas City, Mo. She also served as head of the MF&A transition team which accomplished the move.

Guild President Ernie Preuitt, Independence, Mo., praised Parks' work. "Barbara has been very helpful during this transition period," he said. "She has worked very hard, and I'm convinced that she will be a real asset to the Guild."

Parks, an MF&A employee for the past 15 years, also serves as executive director of the Paint, Body and Equipment Association. She will be assisted in her Guild activities by Janine McPhee. Larry Goldsmith, PTG communications director, also will serve as editor of the Piano Technicians *Journal*.

A complete report on the board's activities during its winter meeting will be published in an upcoming issue of the *Journal*.

New Member Applications

New members, eager to receive their official proof of PTG membership, often experience a delay due to the application not being mailed to the home office immediately following official approval by the chapters.

Chapters are urged to send completed applications as soon as possible so that the new member will receive proof of Guild membership promptly.

1. Please be sure the top right hand corner of the application form shows the approved classification and the chapter officer's signature.

2. Please send the correct amount of membership fees as follows: Registered Technicians, Apprentices and Allied Tradesmen; new member fee, $30. Chapters should send $15 to the headquarters office and keep $15. New members will be billed for prorated dues through the end of the year.

In the case of student members, dues of $60 cover a 12-month term from the month of entry. Student members' applications must be reviewed by their chapters each year at time of renewal. Membership can be renewed only if the student member is still a student as defined in the PTG Bylaws, article III, section 2.

Members who want Booster Club points should be sure to print their names on application forms on the line marked "recommended by."

Membership Directory To Be Mailed

A new Piano Technicians Guild membership directory is now being printed and will be distributed as the March issue of the *Piano Technicians Journal*. The directory will be similar in format to those produced in earlier years.

The directory was scheduled to be produced as the November issue of the *Journal*. Due to the change in management companies, however, a November issue was not printed.

In its meeting at the Hyatt Regency Kansas City Jan. 6 and 7, the Guild's board of directors voted to go ahead with production of the directory, using listings from Oct. 31, 1983. When all membership billings have been returned and tabulated, a supplement to the directory will be printed in a subsequent issue of the *Journal*.

In the future, the directory will be produced on a regular basis.

Business Aids, Other Items Available

Most pamphlets, billing pads and other business aids to be used by Registered Technicians are again available through the Guild's offices in Kansas City.

In most cases, items have been reprinted to show the Guild's new home address, 9140 Ward Parkway, Kansas City, Mo., 64114.

The list of items available includes: two-part billing statements in pads of 50, six-part piano service appointment forms, service stickers, teacher recital program covers, logo rubber stamps, and logo stickers. Stickers, printed in blue, gold and white with a peel-off backing, are available in three sizes.

Business aid pamphlets which have been reprinted include "A-440 and Your Piano," "Care of Your Piano," "Piano Pointers," reminder cards and "The Tuner To Turn To." These are available for $11 per 100 or $50 for 500.

Also available for use by registered technicians are logo emblem patches, three-inch sew-on patches in blue/white, blue/gold and black/gold. Pocket protectors, bumper stickers, deluxe portfolio/briefcase sets, meeting and sales portfolios, PTG notebooks, coffee mugs, dash cash emergency coin dispensers, key rings and ballpoint pens also are for sale.

Some back issues of the *Piano Technicians Journal* are still available, although the stock has been depleted and some issues are completely gone. Copies of Merle Mason's "Piano Parts & Their Functions" are for sale, although the softcover "Classified Index of *Journal* Articles" is sold out. If more copies of that publication becomes available, they will be advertised through the *Journal*.

Most films and tapes from the PTG lending library have been loaned out. If you have a film or tape that you will not be able to use for some time, please return it; requests for these important items are piling up.

Chapter Notes

"Now that I am a newly certified craftsman of the Piano Technicians Guild, I consider myself to be a graduate of the PTG School of Piano Technology," writes Editor **Kent Swafford** in the **Wichita Chapter's** newsletter, The Voicing Tool.

"You may say to yourself that there is no such school — but there is. There is no campus, no set curriculum and no permanent faculty, but a very good education in piano technology is available from the PTG. I know, because I just went through it and now continue as a graduate student.

"To receive this education, you must use your own initiative. You must read the PTG *Journal* and attend the meetings of the local PTG chapter. You must search out and attend the regional technical seminars and attend the national convention and choose classes that fill gaps in your knowledge. You must search out a good teacher to give you individual tuning instruction. You must ask questions everywhere and, yes, you must sort out the good information from the bad.

"It is a good education and it is a bargain to boot. A partial list of the piano technicians from whom I have learned some vital information about pianos follows: Mary Hess, Tony Novinski, Chuck Burbach, Jake Schmidt, Ron Nossaman, Newton Hunt, George Defebaugh, Leon Levitch, Steve Fairchild, Virgil Smith, Albert Sanderson and LaRoy Edwards. No school, let alone any single student, could bring together these people to teach piano technology — and yet, thanks to the PTG, I have been a student of each of these persons.

"Finally, who could afford to pay three PTG craftsmen to sit around for half a day evaluating his or her tuning ability, verifying strengths and identifying areas of weakness? Not I, but that is exactly what happened when I took the PTG tuning exam. I am grateful and hope I can be of some small service to the Guild in the future."

In California, **Los Angeles Chapter** members gave up sending Christmas cards to each other this year, writes Editor **Harry Berg** in their chapter newsletter. While that may not make the folks at Hallmark Cards very happy, it did a lot for another group of people who need the money more.

Chapter members contributed the money they would have spent on cards to a fund for the Salvation Army. By adding it to an earlier collection in November, they were able to donate more than $100.

The **St. Louis Chapter** celebrated Christmas with a Dec. 10 banquet at the Holiday Inn Clayton Plaza. A highlight of the program was the installation of new officers for the coming year.

New chapter officers are Willim Blees, president; Rohnn Kostalecky, vice president; Leroy Fritz, secretary; and **Ken Gerler**, treasurer. Gerler wears two hats. He also is editor of the Gateway Tuner, the chapter's newsletter.

Down in Baton Rouge, La., ethics plays a role in chapter meetings. **Baton Rouge Chapter** Editor **Michael Mattison** writes that the chapter's Image and Code of Ethics Committee has designed a series of dramatized ethical dilemmas to help members "meet the psychological demands of dealing with the public."

On tap for the January meeting was a taped exchange between a piano service technician and a client concerning a perplexing business issue. A discussion was to follow, with the best response winning a steak dinner.

New officers also were elected by the **Central Iowa Chapter** in their Dec. 3 Christmas party and business meeting. New officers are Harold Marling, president; Rob Espenscheid, vice president; Paul Riedel, secretary; and Homer "Bud" Stutters, treasurer. **Riedel** reported on the meeting, the chapter's 203rd.

In Respectful Memory

Former Connecticut chapter member **Samuel Nock** died suddenly of natural causes on October 2, 1983, in Phoenix, Arizona, just after he had celebrated his 80th birthday.

He came to our chapter in 1969 and was accepted as a Craftsman in 1971. A complete account of his distinguished career in the architectural field before he retired to piano service can be found in the *Keybed* issue of April 1975.

Sam was an active and dedicated PTG member. He served as chapter treasurer for three years, delegate to the National Council in 1974 through 1976 and was our vice president at the time he moved to Sun City, Arizona. There, he served as vice president of the Phoenix chapter, in addition to years of active participation on several national committees.

The expertise that Samuel Nock brought to PTG will be sorely missed. We express our deep feeling of sympathy to his wife, Audrey, and family.

T. Scott Welton,
Connecticut Chapter

Charles Cronkhite died on Jan. 5, 1984, at the age of 74. He was an excellent piano technician and was a member of our PTG chapter since its formation in 1964. He had tuned pianos many years before that.

Charlie Cronkhite was a life member of the Los Angeles musicians union and of the Kansas City musicians union. He taught string bass at the conservatory and played string bass in the Kansas City Philharmonic.

Leroy Sturdevant summed up our feelings about Charlie Cronkhite by saying, "He was a fine gentleman. You can't find them any better."

Lucy Urlacher
Kansas City Chapter

Chapter Notes...

Things have been busy in San Francisco.

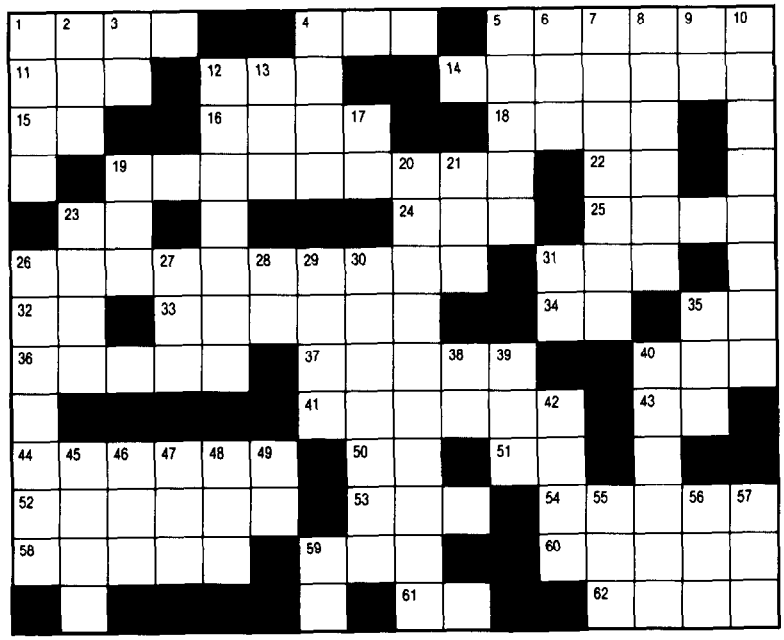
In November, the **Golden Gate Chapter** sponsored a tuning seminar to prepare apprentices and students for the new PTG tuning examination. The coordinated effort by the three Certified Tuning Examiners in the Bay Area — Michael Kimbell of the San Francisco Chapter, Tom Gorley of the Santa Clara Valley Chapter and Sid Stone of the Golden Gate Chapter — drew 23 participants who came to learn about the test and how to prepare for it mentally and technically.

Points discussed included the improvement of the new test over the former one in accuracy, uniformity and fairness, with the new test serving as an opportunity to show weaknesses as well as strengths in a tuning. It was suggested that those looking forward to taking the test might do well to imagine every piano they tune as the test piano.

In December, a total of 53 Golden Gate members and guests met at Sid Stone's store for the chapter's annual Christmas dinner and party. Entertainers included Gary Bailey on the clarinet, accompanied by his daughter, Evalyn; Larry Gardner on the bassoon, accompanied by Carol Keeney; and guest artist Ed Solenberger on the musical saw. Christmas carolling was accompanied simultaneously by five pianists: Denzil Whaley, Murray Wilson, Evalyn Bailey, Tony Roach and Dennis Zaro, with Stone, Don Bourdon and Ralph Nelson as song leaders.

A highlight of the evening was a crossword puzzle contest. We've reproduced the puzzle here, with the solutions to be published in a future issue. If you get stuck on the puzzle, call Catherine Lamm. She was the winner in the contest.

Denzil Whaley



ACROSS

1. Pedal _____
4. By way of
5. Pin _____ s
11. Tuning by _____
12. A little
14. In Duplex Scales
15. Alaska
16. Man's name
18. Metal
19. W.R.V.P.
22. Degree
23. North America
24. Tuning charge
25. Tree
26. Best PTG Chapter
31. A title
32. After Christ
33. A color
34. A state (abbr)
35. Either- _____
36. Don't put in piano
37. Straight as an _____
40. Affirmation
41. Skin design
43. Arkansas
44. What PTGers have that some don't
50. Foreign Office
51. No answer
52. Regulating _____ need to be smooth
53. We have _____
54. Customers sometimes get _____ by non-PTG members
58. Piano design
59. Received
60. Holy
61. Hertz
62. Behind

DOWN

1. Key weight
2. Wild Ox
3. Railroad
4. End of speaking length
5. Heavy part of piano
6. Girl's nickname
7. Growing in water
8. A symbol
9. Knock out
10. Abstracts
12. Can give us headaches
13. Albania
17. State (abbr)
19. Foreign airline
20. Key movement after let-off
21. Born
23. Latin for knot
26. Herman Koford's _____
27. Tiny spot
28. North America
29. Small insect
30. String positioner
31. Social Security
35. Over (abbr)
38. Overtime
39. The best team _____ the Super Bowl
40. Native of the U.S.
42. Assertion
45. Short nail
46. His best attempt
47. Sick
48. Shaped like a C
49. Position in baseball
55. Come up for _____
56. Political Issue
57. Neither- _____
59. Concerning