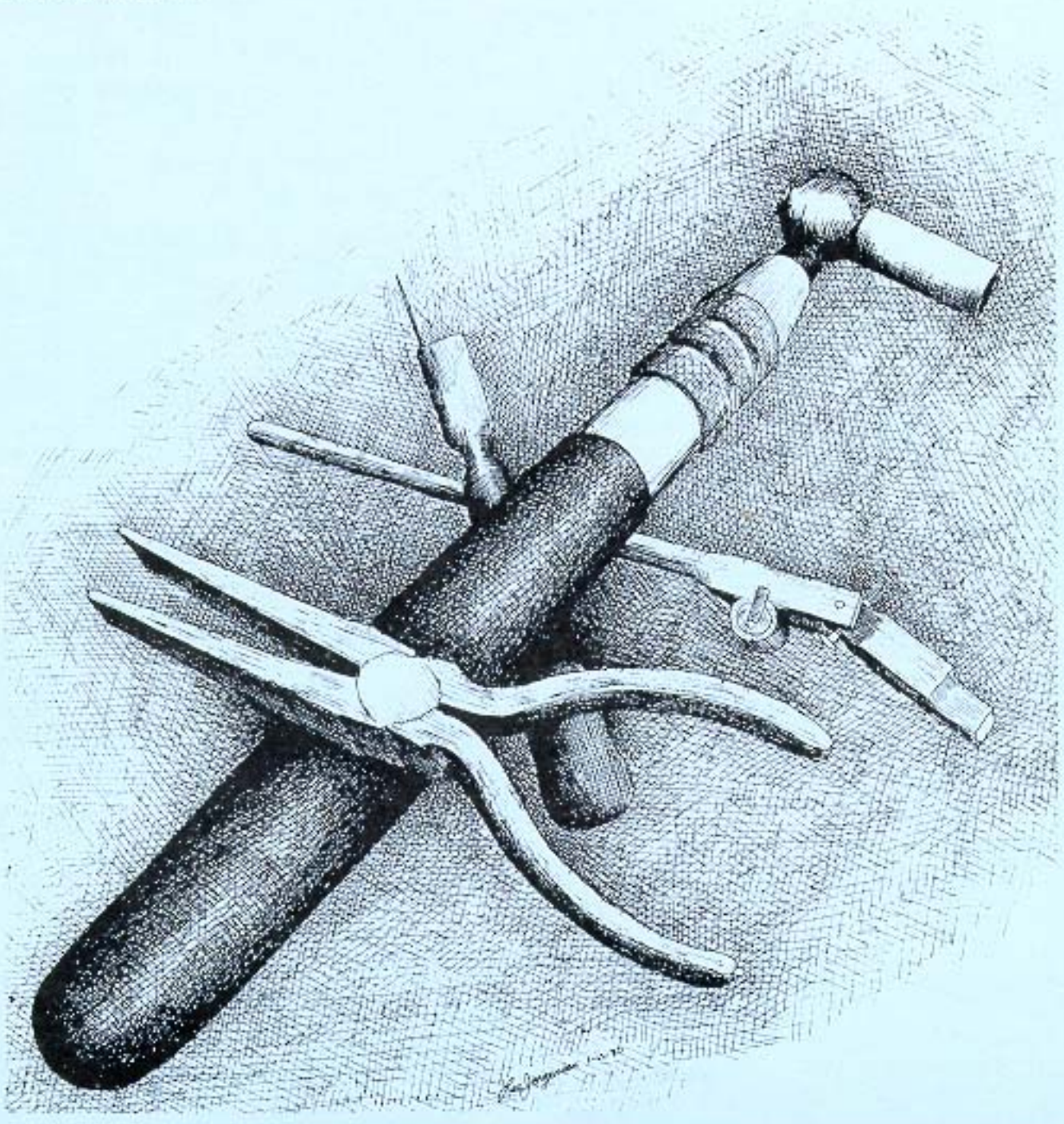
Piano Technicians Journal

January 1982



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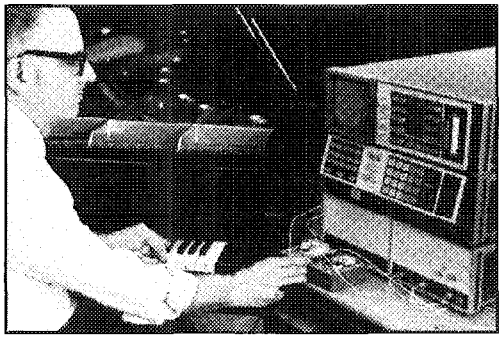

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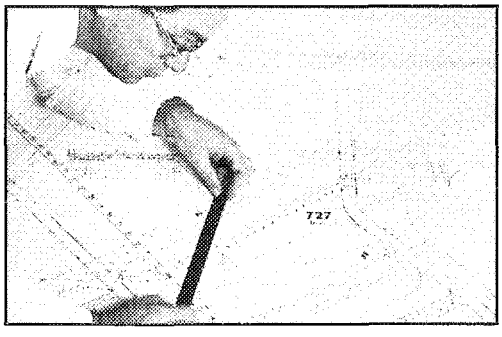

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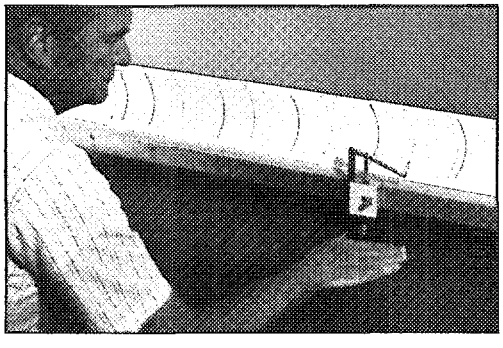

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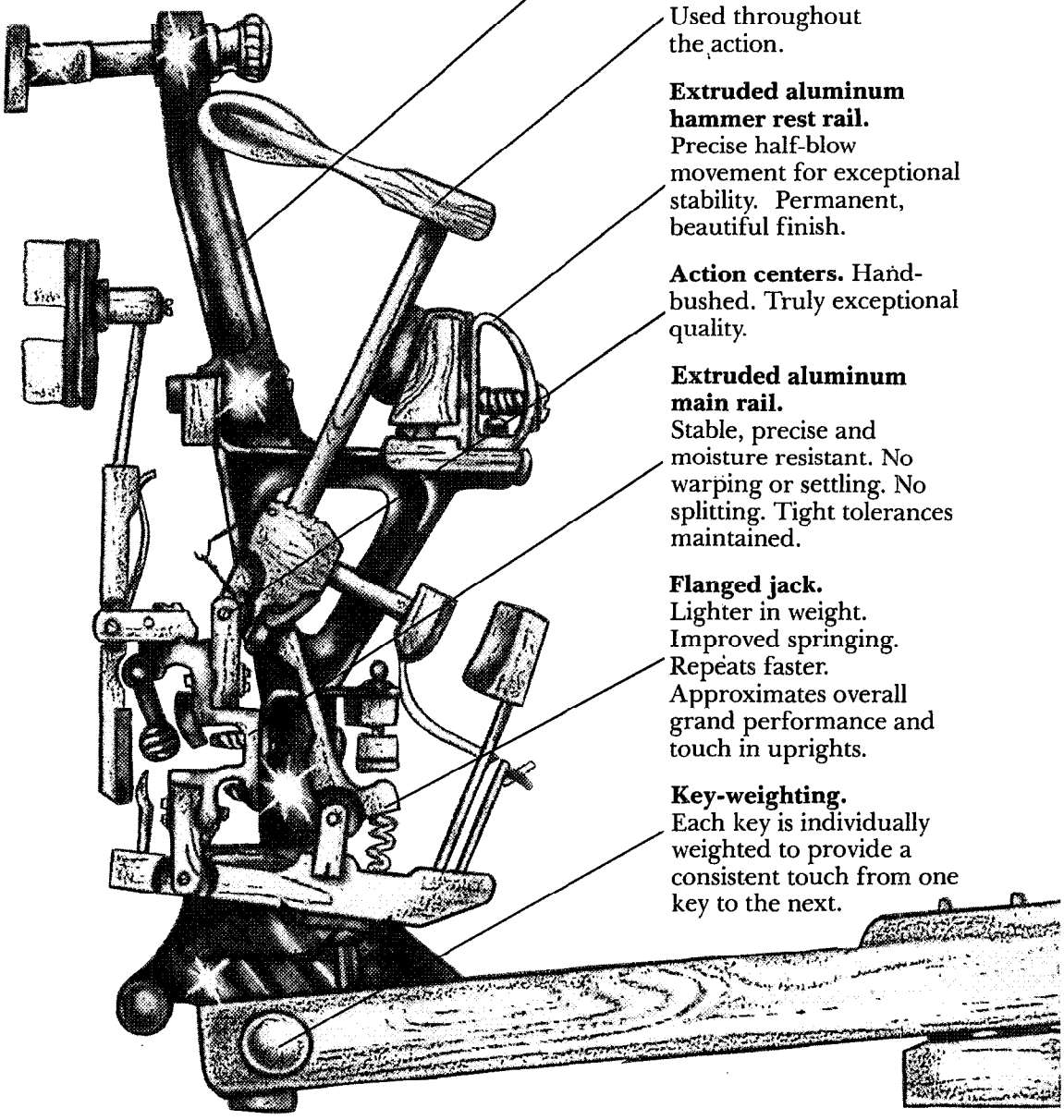

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Piano Technicians Journal

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Cover...The excellent illustration of various tools used by Piano Tuners was reprinted with permission from Les Jorgenson, RTT, East Lansing, MI., from a series of his original prints. We took the liberty of arranging the picture vertically, to better fit the magazine format.

THE PIANO TECHNICIANS GUILD, INC.
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Editorial

Don L. Santy
Executive Editor

An article written in the Connecticut Chapter Newsletter, THE KEYBOARD, by Lee Fox reflects some of the mail we have been receiving in the home office of late. It pertains to "The Professional Look" and the image of the craft in the eyes of the consuming public. I reprint herewith to illustrate an often overlooked situation in not only this profession but others as well.

MINDING YOUR OWN BUSINESS

BY Lee Fox

"Picture in your mind for a moment two baby grand pianos, side by side. One has dirty, cracked ivories, a scratched, "alligator", finish covered with a layer of dust — dull, tarnished brass. The piano beside it is the same make. However, this one has a gleaming set of ivories, sparkling brass and the well-cared for finish allows the beautiful grain of the wood to catch your eye. Now imagine yourself as a prospective piano buyer. Which one would you want to find out more about? Which one would you want to play?

As technicians we are held up to the same scrutiny by our customers. Our appearance is our opening statement to them. A pleasing appearance sets the stage for acceptance. This can be very important in the overall impression they have of our service and competance.

A professional image fosters the customer's confidence in us as well as strengthens our own self confidence (which also comes across positively to the customer). The customer expects more from us and we in turn expect more from ourselves. Isn't it interesting how much difference a seemingly minor point like our appearance can make in our business?"

An *extreme* example of Lee's point comes to mind. This is certainly no comparison to our industry but many years ago I managed an association of "auto wrecking" yard owners as one of our client organizations. They were called "junk yards" and were considered a blight on their communities. They were not only eyesores but they burned the upholstering and grease and paint of their hulks and contaminated the air. Everybody hated them and as a result they had an industrial inferiority complex.

The members were made up of the owners and their sons and a rough lot they were. They would come to the meetings with dirty T-shirts and greasy hands. They would fight and argue all evening long and it wasn't uncommon for the meeting to end in a free-for-all. If they didn't like the speaker they would just throw him out of the room. It became more difficult to get restaurants to accept us — so we had to meet in their shops and yards and it soon got ridiculous. Many a time I had to duck a hammer or dish as it sailed through the room.

Under their rough exteriors they were a great bunch of guys however, and some of them are my friends to this day. I had the opportunity, after a year or so, to meet with some of the sons of the "old timers" and held a blunt discussion about their image. Somehow I caught their attention and we embarked on a program of external relations that resulted in the whole industry doing a turn-about.

Instead of fighting the environmentalist, I convinced them to contribute money to those causes, particularly clean air groups. We encouraged them to stop burning and skirt their yards with high fences. We began to romance the media and held hosted receptions for members of the press, T.V. and radio in high-class hotel suites. We did the same thing for the government officials with whom they were usually fighting. We even invited public safety and law enforcement officials to their meetings as speakers which led to tense situations to say the least.

I got them to establish scholarships for their "Yard Boys" who were mostly kids who dropped out of school. We gave prizes for "junk sculpture" and sponsored "back to school" programs. The publicity around these events, their exposure to segments of society they had hitherto avoided, began to take its effect. Pretty soon they began to operate out of cash registers instead of hip pockets. Some of them actually began to keep records and follow the rules. We soon began holding their meetings in "first class restaurants" and at the end of the year the "Auto Wreckers Ball" was an almost formal affair held in the best hotel in town. The effect was awesome. They began to take pride in their businesses and they became "salvage pools" and "used auto parts distributors." Some called themselves "auto recyclers", "auto dismantlers", "auto surplus emporiums" and other fancy titles. They were no longer junk yards. They dressed up when they came to meetings and I encouraged them to bring their wives which proved to have a civilizing effect and their manners improved considerably. Now their businesses are respectable, methodical, valuable parts of the communities in which they reside (in most cases) and the members have a pride and direction in the operation of their industry and in their personal appearance as well.

Now, of course, our profession is made up of well educated, cultured and scholarly people involved in a clean, neat and highly skilled craft. While there may be disagreements in chapter meetings, I'm sure they are always gentlemanly and well controlled. Intelligent, open-minded people can always solve their problems no matter how grave or emotional they may become.

According to the mail we receive there are spotty and rare problems involving appearance and manners of our members. I suppose there are in every profession. One member wrote recently that he is no longer attending his chapter meetings because he is disgusted with some members appearance and manners, fortunately, this type of member is rare indeed.

A high school counselor and career advisor who you may know (Frank Mace who helps us with our conventions in the summer), told me that he tells his students when they apply for jobs they can look any way they want — including long straggly hair, unkept beards, dirty clothes and all — but

why bother to apply. THEY WON'T GET HIRED. Employees, he tells them, make 80% of their decision on "first appearance." Neat, well-groomed, confident kids have a much better chance at landing a job.

So it is with seasoned professionals as well. First appearance often sets the tone and image of the craft or industry the person represents. This is especially important in "personal services." A technician is entering a home. His/her service and presence becomes critical to the resident and this appearance can be most important. Not only at that particular time but in terms of the whole professional image as well.

Many technicians around the country take great care to maintain a professional demeanor. Many wear frocks, coats and coveralls on the job with logos denoting a pride in their work and their guild. Members should go to meetings and other affairs neatly groomed and dressed. This is particularly important when representing the Guild to the consuming public. Service trucks, stores and shop fronts are also vital in terms of protecting our image. Some have suggested we launch a vast (and expensive) public relations program. I maintain that the best public relations program we can possibly launch would be a cooperative and concerted effort on the part of every member and chapter throughout the fabric of our Guild involving themselves in a personal effort to upgrade and improve our image in their respective communities.

PROFESSIONALISM is MORE THAN EDUCATION, MORE THAN EXPERIENCE, MORE THAN TRAINING — it is a state of mind.

EVERYTHING we do will not be noticed but each act will add to the others before it and mount up to a mighty effort with a profound effect.

Like the lady who was stopped by a traffic cop and given a ticket for going through a red light. Her response, "yes, that's true, I have gone through several red lights — but — I have also stopped at several green lights for which I have never been given any credit."

LETTERS TO THE EDITOR

Dear Don,

I just found out from the andiologist here at the school (where I teach Piano Tuning), that the following list of commonly administered drugs can cause damage to the auditory nerves, in some cases destroying them completely overnight. I think everyone in the Guild should know about this and take the necessary precautions. The list follows:

Streptomycin - Dihydrostreptomycin
Neomycin - Kanamycin
Capreomycin - Chloroquine
Gentammicin - Ethiomanide
Paromomycin - Quinine
Vancomyein - Viomycin

I will try to follow this up and get more details but for now I think we should get the information out.

--Leonard R. Hanitchak, RTT
The West Virginia Schools for the Deaf and the Blind
Romney, West Virginia

CONVENTION

"A CAPITOL VIEW IN 82"

HELLO EVERYBODY!! Greetings from the Washington, D.C. Chapter. We are all hard at work here making preparations for your comfort and pleasure at our 25th Anniversary Convention. This article is designed to let you know right away some of the things you can plan ahead for and also other activities which we hope to have arranged.

First of all, we know everyone is concerned about costs, especially when it comes to staying in the hotel. Please be assured that the best possible price is being offered to us by the Capital Hilton for a hotel in the White House area. There is no better price anywhere around — actually it would be much more expensive in nearby hotels unless you were to go into very undesirable areas which we would discourage you from doing for your own safety. We have arranged for dormitory housing at a nearby university on a weekly fee basis for students and those of you who are working or on restricted funds. I will have more information on this in February or March.

For those of you who wish to camp or drive recreational vehicles here we have complete information on a number of campsites in Maryland and Virginia. This has all been thoroughly researched by Chapter member Carol Beigel who is an experienced family camper. Because this area is so popular in the summertime, especially around the 4th, we suggest campers get their reservations in very early. Please write the Home Office at 113 Dexter Avenue North, Seattle, WA 98109 (Attention Marilyn) and she will forward a copy of a map showing locations of campsites and a sheet giving all particulars. By the way, all registrants will receive an excellent map which will guide you in if you are driving to D.C. (that's what we call the city here) and also shows you every-popular sightseeing area and map of the subway system (METRO).

Now for the piece de resistance! We have arranged for a Champagne Tour of D.C. by night which will end at the Lincoln Memorial for a viewing of the FOURTH OF JULY FIREWORKS. Moms, Dads, Kids, this is no ordinary fireworks — this is the Fourth of July in your Nation's Capital. Imagine, hundreds of colorful fireworks exploding above the Washington Monument while you sit, stand, or jump up and down in front of the Lincoln Memorial. It can't be beat!! More information will be included in the official registration form coming to you in early '82 so plan on something really special by coming a day early. For other special events going on in D.C. during that week, you will have a guide called the "Sights and Sounds of Washington" that will let you plan on doing any number of things that are of particular interest to you.

In the works are a lecture-recital program on ancient pianos and harpsichords at the Smithsonian Museum, a special surprise for opening night ceremonies, a photographic memento for your attendance at the 25th Anniversary Convention, a guide for finding good eating places with quick service and others for moderate or elegant dining, plus a host of people from the Washington, D.C. and surrounding Chapters anxious to make your time here the most enjoyable you have ever had at a National Convention Don't Miss It!

THE CONVENTION DATES ARE July 5-9, 1982 at The Capital Hilton Hotel, Washington, D.C.

Ruth Ann Jordan
Local Host Chairperson

CHINA REPORT

Part II, as seen by PTG President Sid Stone

A few days before we left for China I heard a speaker who had just been there on a tour. While in China he was asked by a rather embarrassed Chinese history teacher, "Just how did Abraham Lincoln die?" After informing him, the American visitor asked him if he wanted a picture of Abraham Lincoln. He then reached into his pocket and handed him a penny.

The day before our own departure I went to the local bank and bought $10.00 worth of uncirculated pennies — 1000 shiny new coins to be given to the children of China with the thought of fostering good relations. I was in for a bit of a surprise. The Chinese do not accept gifts (or tips). However with Alice there to explain to the parents that the pennies were souvenirs and not gifts their response changed from skepticism to smiles.

Giving a penny to a child always brought a crowd — but so did changing film in a camera, or looking at a map, or just sitting in a car. In no time at all there would be a crowd of people gathered around. This was not at all embarrassing to us, as the Chinese people are so innocently curious. Of special interest were the braces on my daughter-in-law's (Shirley) teeth. Dental neglect was the only obvious physical deficiency we saw in China.

My son, Dave, was especially interested in the health care of the Chinese people; and he was able to visit two hospitals there. While in Southern China he found a "cure all" for any and all ailments. It was a weasel's pelt, about 4" x 6", stretched out on a board. This remedy is soaked in rice wine for one week and then the wine is drunk and the pelt eaten, thereby curing any ailment the partaker might have. It looked so hideous that Shirley would not alllow Dave to buy it — so I bought it for him and he will share it with his colleagues at the University of California Medical School in Irvine.

The improvement of body and mind is encouraged by the government in such activities as *tai-ji-quan,* a slow motion, dance-like exercise. In the early mornings we could see groups participating in this. Also, it was done individually. Each day in the courtyard below us I could see a middle-aged woman doing her thing. If I were to practice tai-ji-quan in the street, I would soon have a free ride to the hospital; but in China this goes unnoticed.

Other advancements being made in China include the performing arts. Isaac Stern went to China in 1979 and found an amazing interest in music which had developed in the three years since the Cultural Revolution ended. If you saw the movie, "From Mao to Mozart" you will remember the extraordinary talent displayed by Chinese young people on the violin, cello, and piano — as well as on the traditional Chinese instruments. Nor can one forget the interview with the director of the Shanghai Music Conservatory. Because he had taught the classical music of great masters such as Beethoven and Mozart, he was for fourteen months "imprisoned" in a dark closet over a septic tank. Especially touching was his account of the five minute interview he was allowed with his daughter and grandchild. This director mentioned that the humiliation was worse than the physical torture he and others suffered. He was able to endure the criminal and animal treatment given but then of his colleagues were not, and they committed suicide. Suicides during this regrettable period of Chinese history was also evident in other areas. Alice's uncle was among the doctors who chose this way out after the Red Guard burst into his office, broke all his equipment, destroyed all his research and records, and physically abused him.

During the Cultural Revolution the Red Guard smashed all the pianos they could find. Many famous musicians were sent to labor in the fields, among whom was Long Yeh Siu, a noted singer in the 1950's and early 60's and a close friend of Alice's sister-in-law's family. We had the privilege of hearing her in concert; and her voice was mellow and sweet but seemingly subdued and not strong after being forbidden to sing during the nine years she worked as a common laborer in the fields. Pianists sent to work in the fields would secretly practice on pieces of paper or cardboard on which were sketched crude outlines of a keyboard.

Whereas music is making a strong comeback, two other forms of entertainment are now among the finest in the world: acrobatics and magic. On the boat trip we took in Shanghai there was a magic and comic show equal to any seen in this country. In Hangzhow we had a show down the street featuring a man sticking a snake up his nose and trying to get it to come out his mouth. We chose what you would have chosen and in no way regretted it.

One of the highlights to our China trip was the visit to the piano factories in Shanghai and Beijing (Peking) and meeting with the technicians from both factories. I was told that I was the first piano technician to visit these factories and only the second foreign visitor. I had taken with me some gifts from piano supply houses and individuals. Shanghai is very humid, so I left them the two dampchasers donated by Allen Foote. Also both groups were delighted to receive tools and supplies donated by the American Supply Co., Pacific Piano Supply, Schaff Piano Supply, Francis Mehaffee with his usual generous donations, Raye McCall's samples of glues and epoxies, and an impact tuning lever by Lola Wondra, RTT from the San Francisco Chapter.

A pleasant surprise was their interest in the Piano Technicians Guild in the 1982 Convention in Washington, D.C. One of the few technicians who spoke English was Miro Long Gie. He

has been receiving the *Journal* for several years through the Foreign Book Store in Shanghai.

A better interpreter could never be found in Alice. She knows enough about pianos, the Guild, our Conventions, and our members that once I was introduced, all attention was focused on her for the next hour or so. Many questions were asked and apparently answered to their satisfaction. In Beijing she somehow negotiated for transportation to the Great Wall the following day for the four of us and four others in our party. This saved us $150.

The piano factory in Beijing started in 1949, but the one in Shanghai is 100 years old. There are about 600 employees in each factory, with only three or four percent being what we call piano technicians. Almost half of the workers are women. Each factory makes 4000 to 5000 pianos a year, almost all being verticals. All parts, except piano wire from Sweden and hammer felt from England, are made at the factory. Plates are made at a nearby foundry. Most of the action parts are made by hand. However there were a few machines imported from East Germany and some interesting equipment built in China.

The quality of their pianos was surprising, considering they are being made under unfavorable and antiquated conditions. The full sized upright (130cm) has a better tone than many grands in this country. The finish is similar to the pianos made in Japan and Korea. There is no pressed wood used. In one factory the re-stringer of a vertical was driving the tuning pins all the way in, bottoming them in two or three whacks of a 2# hammer, and no driving punch. I was told that the factory technician spends three years in sales, and then two years in tuning.

After our meeting with the Shanghai technicians the head technician had a problem: a slight difference of tone in two adjacent notes. Norm Neblett would have had a field day! All I could do was to point out a few things and tell them about our classes at PTG Conventions and recommend the *Journal* to them. It so happened that I had the October issue with me, in which is an article by Jack Krefting on voicing. The head technician took the magazine, and I doubt if the whole Red Army could have wrenched it from him. I have since sent the Beijing technicians a copy of the October issue, as well as Mason's book on "Piano Parts" and Reblitz's book on "Piano Repairing".

Another problem in piano manufacturing was the correct amount of downbearing on the bridges. I suggested a downbearing gauge, such as sold in piano supply houses. The Chinese technicians and builders are anxious to learn everything they can, and we may see two or three of them at the Washington, D.C. Convention. Any invitation and all arrangements must be made through the government.

While I was in China, preliminary plans were made for a tour of China to coincide with the International Association of Piano Builders and Technicians' meeting in Japan in May of 1983. If you are interested in going on such a tour, please write to me so I might have an idea of the response which will be helpful in furthering arrangements.

BACK ISSUES OF THE PIANO TECHNICIANS JOURNAL AVAILABLE

One or more copies of the following issues of *The Piano Technicians Journal* are available in the Home Office. Requests will be filled in the order they are received. If you wish to complete your library, you may order issues by circling the issue and sending your request to the Piano Technicians Guild, 113 Dexter Avenue N., Seattle WA 98109. Send $3 for each issue requested:

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1981	x	x	x		x	x	x	x	x	x	x	x
1980	x	x	x	x	x	x		x		x	x	x
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THE TECHNICAL FORUM

Jack Krefting,
Technical Editor

UNISON TUNING

How clean should a unison be? And, maybe more to the point, even if it is perfect, how long will it stay that way? If a perfect unison lacks interest, does it follow that a terrible unison is as good, the only thing better being a unison that is almost perfect? These and similar questions keep coming up, and we have decided to print two recent letters on the topic to let an old controversy start off a new year. The first is written by Philip Jones of Bethesda, Maryland:

The Piano Technicians Guild:

"Recently I have come across several articles on the acoustics of piano sound, all saying that to attain finest tone quality, three string unisons should not be tuned precisely to the same frequency. They also say that fine tuners know about this phenomenon and deliberately do not tune to exact unison. What is the opinion of the PTG on this, and what in actual practice do fine tuners do? I would also like to know the maximum frequency difference among strings of a 3 string unison considered acceptable to the PTG. But please note that this is not the same as asking whether it is considered possible to tune unison groups so closely as to dampen the sound.

"References to the importance of mistuning unisons can be found in the New Grove's Musical Dictionary, 1980, Vol. I, p. 76-77 and in an article "The Coupled Motion of Piano Strings" in the January 1979 Scientific American. Both articles refer back to what seems to have been basic research done in the 1950s by Roger Kirk of the Baldwin Piano Co. and published in the Journal of the Acoustical Society of America, under the title "Tuning Preferences for Piano Unison Groups" (Vol. 31, No. 12, Dec. 1959).

"Kirk reported that piano tuners he talked to said that unison groups tuned too closely lack interest and diminish too quickly. Kirk researched the matter and published some interesting oscillographs showing recorded tone of the note B3, both for the "zero cent" condition, and for when the outer strings were detuned ½, 1, 2 and 3 cents. The graph of the "zero cent" condition showed absence of the characteristic dual diminution slope of piano tone, and also short duration..." - - - **Philip P. Jones, Bethesda, Maryland**

After this letter was received, a follow-up letter arrived from Mr. Jones, acknowledging Dr. Daniel Martin as the author of the *New Grove's* article. We should credit Dr. Martin with much of the research done in the forties and fifties on this and related topics also, particularly since the heralded January 1979 *Scientific American* article failed to do so. In any case, Philip would like to know whether the findings in these research projects are still considered valid, and what approach is actually taken by artist tuners to achieve the seemingly wide spread of 1½ cents within a single three-string unison.

Probably I am the wrong person to ask, since I am not now preparing concert instruments on a regular basis; but I am willing to admit when I was doing so, I tried my hardest to make my unisons as clean as possible. If there are any technicians out there (not academicians, now, but real workaday tuners) who can honestly say that they tune perfectly and then deliberately detune the piano for a more interesting tone, I will be very surprised. It's just not that easy, in the real world of jumping pins and frazzled nerves, to set a perfect unison. I know I'm not alone, because I've listened to a lot of tuning concerts and heard very few really clean unisons.

Let's hear what another technician has to say:

"What a contradiction I see in the August 1981 issue! On page 6 Jack asks, "...what can one really say about unisons...?" implying that there is so little to be said. On pp. 17-19 appears the provoking article by Gerald Loeb which has all the potential for making unisons the subject of a great deal of talk and probably endless controversy.

"Traditionally, unison tuning has been viewed as a very straightforward thing. Tune for zero beat! What's to talk about? Practical tuners haven't questioned the basic assumption that zero beat is the only acceptable way to do it. I haven't questioned it. And I admit to having been offended on first reading of Dr. Loeb's article. I thought, now here's something that's going to forgive an awful lot of sloppy tuning!

"Of course, its not a new notion that a slightly detuned unison will sing better, but Loeb goes beyond academics and suggests we go ahead and do it on purpose, as a regular thing. That really upset me. I've spent over 20 years honing my "dead" unisons and now he tells me dead unisons are out. Preposterous! I was ready to fight.

"However, in preparing to write an indignant letter to the Journal, I read the thing again and began exploring my own tuning a bit, in light of Loeb's ideas. I still think he's all wet, but perhaps not entirely. The subject had better be discussed than fought about, I decided.

"Firstly, I observed in my ordinary commercial tuning that although I aim at zero beat I rarely end up with truly pure unisons. Soundboard flex alone on these little pianos will defeat my best efforts. So the acceptability of pure unisons doesn't become a question in my everyday work. As long as I finish within a one-half cent deviation, which gives no objectionable whine, I figure I've done well.

"I further observe that when the unison has too much life in it the customers complain, especially if I've spoiled them with relatively clean tuning. Many of the tuners I follow have lost the work because they don't get the whine out of their unisons. You don't dare underestimate the public.

"I have many additional thoughts on this subject, but it's enough for now to say that based on these two observations, I think it's better to continue aiming at zero beat. If you intentionally put something in the unison, the insidious instability of the piano is

bound to leave you with more "life" than you want by the time you're finished.

"In deference to Dr. Loeb (and others), it may be all right to go back after you're done and put a little life into the few unisons that have accidentally stayed perfectly without beat. It may be all right, I say, because I haven't really decided. I think I'm morally incapable of such a thing. Even if it sounds better, it seems a desecration." --- **Clair Davies, Lexington, Kentucky**

Well, there it is, and I trust this issue won't become the proverbial horse, to be flogged endlessly after it has died. That happened once before, as Guild old-timers will recall; still, if you have fresh ideas to share on this, please do so, as briefly as possible. We will publish all of the short responses in a subsequent issue.

GRAND JACK REPLACEMENT

QUESTION: "I know we've been over this again and again, but what are the symptoms of incorrect jack placement in the grand action?"

ANSWER: If the jack is too far under the knuckle, escapement will begin too soon and take too much time, resulting in a lot of friction and a heavy feel to the action. If it is not far enough under, it will slip out on a hard blow even though it still plays perfectly on a softer blow. If it is too high in the repetition lever, it will not repeat reliably after a slow release of the key; if it is too low, the hammerline will be unstable. If it is way too low, there will be a feeling of lost motion and premature knuckle wear. If it is left or right of center, there will be a corresponding off-center mark on the knuckle. If it is off center so much as to rub the repetition lever, there will be friction far in excess of the normal amount, together with a reluctance for the jack to return reliably. It acts like a tight center, but is easier to diagnose because it is visible.

The side-to-side position is evaluated visually and adjusted by bending the centerpin slightly as described in our July, 1979 issue.

The fore-and-aft position is best determined by adjusting it forward until it will just skip out on a hard blow, or when retarding the hammers with one hand and pounding the keys with the other, and then adjusting it back just a bit for power and speed. **Figure 1** illustrates that the hand should be held just above the hammers while the other hand plays the keys forcefully. Keep adjusting the jack for-

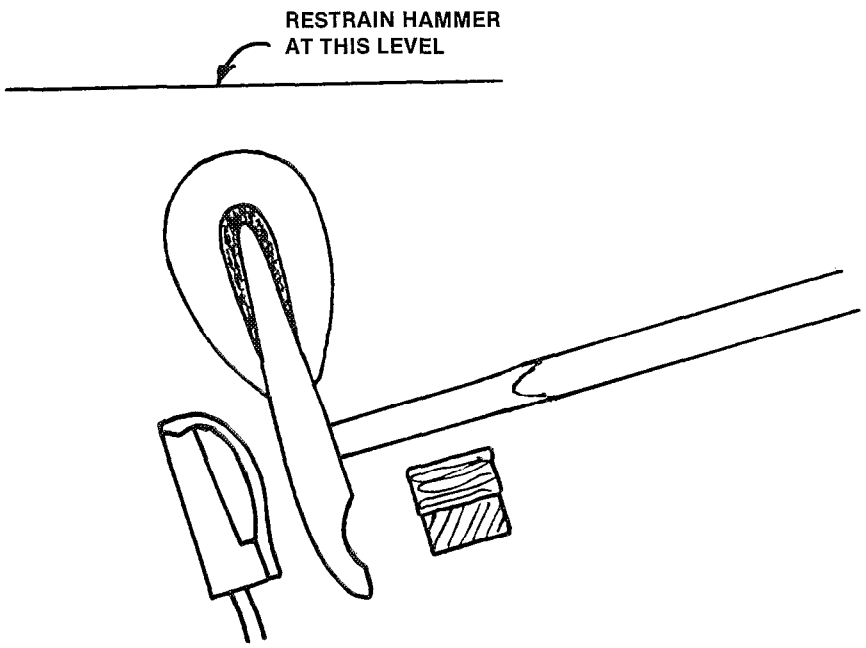

Figure 1

ward (toward the keyboard) until it will just skip out as shown in **Figure 2**. Then turn the screw counter-clockwise to let the jack just a bit further under the knuckle, but no more than necessary. To be certain, test again for skip-out as before. This method may not produce a perfectly straight line of jacks, but that's because the knuckles aren't perfectly uniform; and in this instance performance is more important than appearance anyway, because who is going to see that line of jacks?

fishline in place, as shown in **Figure 4**. If this method is used, be sure to place a weight along the back ends of the keys to hold them down, otherwise the adjustment cannot be precise.

This second method, which I have illustrated only for the sake of completeness, is like an old six-cylinder pickup truck --- it will always work, no matter what, but from a performance standpoint it's no racing machine. The first method is far superior, especially in consistency from note to note. The sensitive pianist can feel the difference, without question.

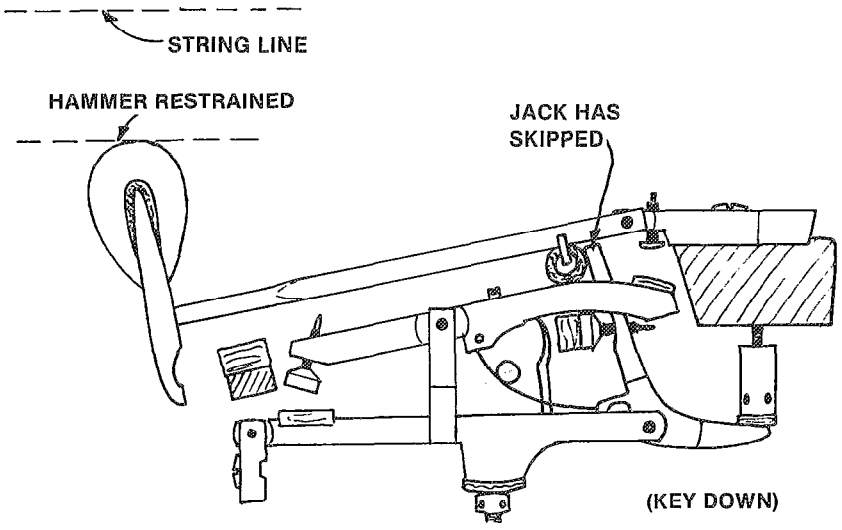

Figure 2

The other common method of setting jacks is to line up the back edge of the jack with the back edge of the knuckle insert as shown in **Figure 3**, and after doing this to the end whippens of each section, a fishline is stretched along the repetition levers. A very slight notch is filed in the end levers of the section to keep the

The vertical position of the jack with respect to the repetition lever has been the subject of much controversy and misunderstanding, mostly because of confusion over whether lost motion should exist in the grand action. I have always like Kenzo Utsunomiya's statement that there

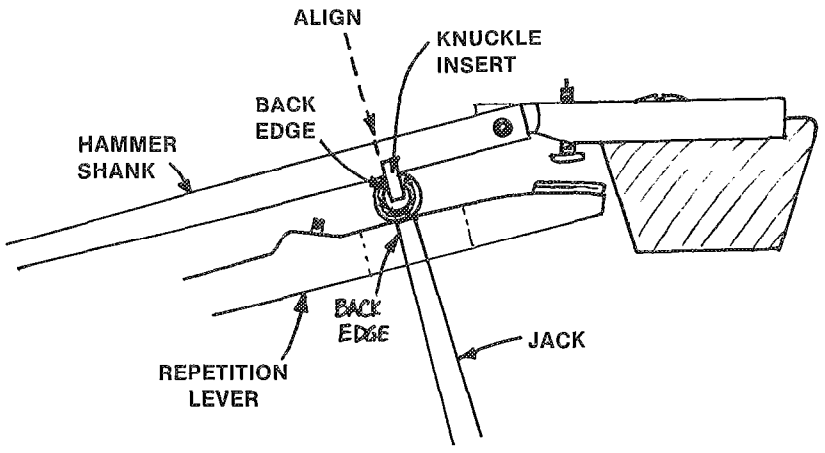

Figure 3

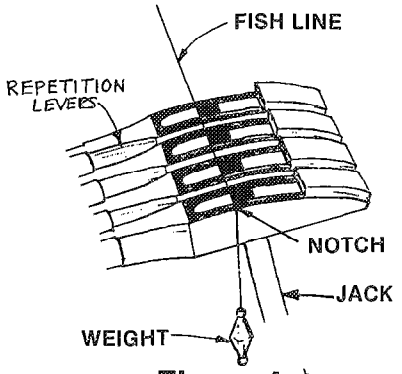

Figure 4

should be *virtually no lost motion*. There is literally none in the traditional definition of the term --- lack of movement of the second part when the first part begins to move --- because if the action is regulated correctly the slightest downward motion of the key results in an upward motion of its hammer. On the other hand, the virtue of the double escapement action lies in the fact that the jack can recycle under the knuckle before the key has fully returned to rest. So the repetition spring is lifting the knuckle enough to allow the jack to reset, which means there must be some lost motion, right?

Not necessarily. The repetition spring, at its correct tension, will lift the knuckle all right, but not quite as high as when the jack is there also. The two must work as a team, and this is commonly proven by the winking test: Gently depress the tender while watching the top of the hammer, observing whether it dips and whether it returns to its original height after the tender is released. If it does both, two things are proven; optimum jack height, and no lost motion. I would not argue with results like that.

Ordinarily, if the hammer does not wink it means that the jack is too low or the repetition spring is inordinately strong, or both. If the hammer winks but does not return, one usually assumes that the jack is too high, although this could also be caused by a weak spring.

There are any number of things that could skew the results of the wink test, including a rough jack tip, a backward knuckle (it should feel smooth toward the hammer tail, rough toward the drop screw), a gummy knuckle, a jack center that is too tight, or a repetition lever center that is too loose. We are also assuming that the repetition spring is strong enough to support its share of the weight of the

hammer, but not so strong that it compresses its stop felt more than usually, which would certainly increase lost motion. We should also observe the application of the spring, especially if it is not in a silk loop; the loop minimizes friction and grooving of the wood, as well as eliminating most problems occasioned by bent springs, but that's another story. In any case, if the above possibilities are taken into account, the wink test can be one of the most important indices of performance.

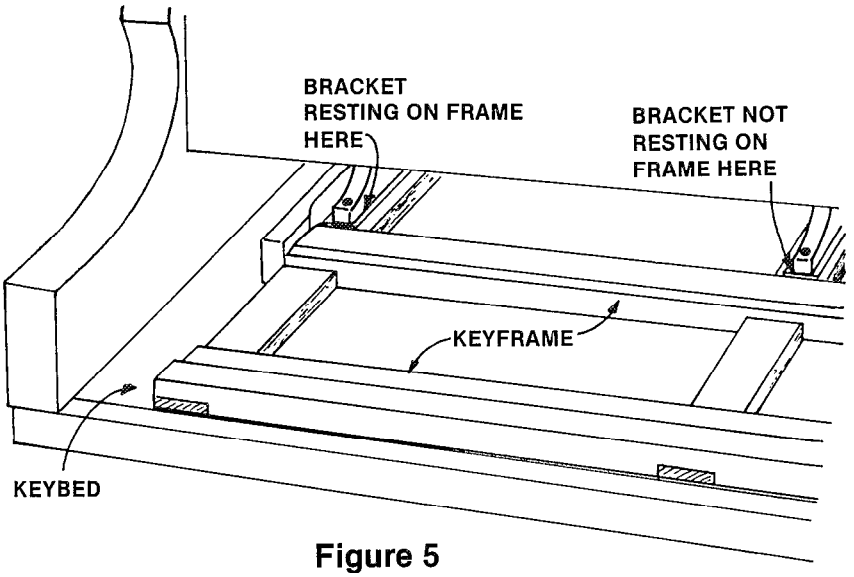

Figure 5

SHIMMING ACTION BRACKETS

QUESTION: "On numerous occasions I have found front rail punchings or other shimming material under the feet of the grand action brackets. Inadvertently some of these will get swept away. My question is, how can I know what thickness I have to put back under the brackets? Is there a way I can figure this out, or do I have to be sure not to lose what I've got? - - - Wim Blees, Webster Groves, Missouri

ANSWER: In general, it is a mistake to assume that the existing shimming is correct. The fact that such material exists is usually a good sign, indicative of careful work earlier by a good technician, but check it anyway to be sure.

We usually assume that shim material here is to make all bracket feet touch the keyframe at the same time; but if all of the feet have been shimmed up, the previous technician must have had a different reason. Possibly he was trying to raise the action because the hammers were overcentering, either because of extreme wear and filing or a too-short boring distance on a replacement set of hammers. Look for possible parts substitution, especially if the piano is very old or has obsolete parts. Old Chickerings, Brambachs and Kranich & Bachs are frequently modified with modern parts, and only rarely are these modifications successful. The average technician simply doesn't know enough about action geometry to make it work right, so the result is often a brand new action that plays like a truck and can't be regulated.

But I digress. We were talking about shimming bracket feet up so that all of them touch the frame simultaneously. **Figure 5** shows that there can be a gap between bracket and keyframe at one or more points. If the bracket is simply screwed down to the frame, the frame will become distorted and the bedding will be destroyed, at least in part. Observe the relationship between bracket feet and keyframe when the action is sitting on the frame and the frame is in the piano, with the keys out of the way. Insert pieces of veneer or paper to completely close the gap so that it will not distort under the pressure of the screw, and then glue the shims to the frame as shown in **Figure 6**. With the shims glued in place, the action can be removed and replaced any number of times in the future without fear of losing shims, and the bedding will not be altered simply because the second technician tightened the bracket screws tighter than the first. If there is no gap, there is no problem.

TECH TIPS

Dear Sirs,

"I recently developed a short cut for re-installing hammer butts in drop action spinets. I mentioned it to a number of our St. Louis Chapter of PTG, and they suggested that I write it to your office.

"It is difficult to hold the hammer head in place with the left hand from the top, and put the screw into the flange of the butt from under the key bed. If you will take a rubber band, hold the hammer & butt assembly in place, and wrap several loops of a rubber band around the loose hammer head and the adjacent two hammer heads on each side.

"The above will hold the hammer butt assembly in good alignment to

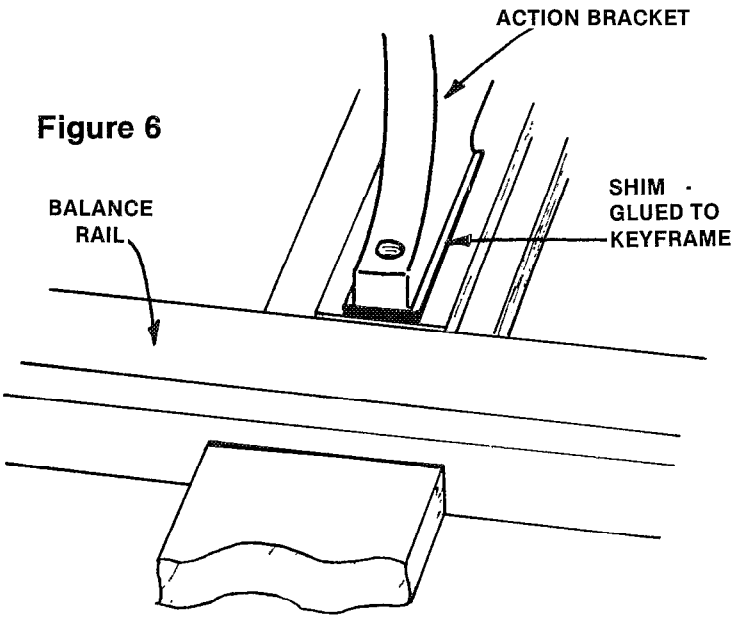

Figure 6

work from below the key bed to replace the flange screw. By holding the adjacent hammer heads against the one being installed, it also gives proper spacing to the hammer being installed when the rubber band is removed..." - - - Leroy Fritz, Alton, Illinois

Dear Jack,

"Now and then we old timers read a technical article that reminds us of something long forgotten. The tech article on broken ribs (Aug. '81, PTJ) did just this to me.

"Church, Institutional and School pianos are many times placed so the choir director or school teacher can sit at the piano and look over it at the choir or school class. This exposes the back of the piano to the group. Pushed-over or falling chairs etc., can do damage to soundboards and ribs. People grouped around a piano very often put their feet on the bottom binder board, their toes and/or knees pressed against the soundboard. This also happens at chapter tech sessions.

"Having found such damaged boards and broken ribs when servicing (particularly school) pianos, I recommended covering these piano backs with peg board with the edges held in place with metal edging.

"Results - - - Soundboard and rib damage ZERO and costing much less than expensive extensive repairs." - - - William E. Pealer, Alexandria, Virginia

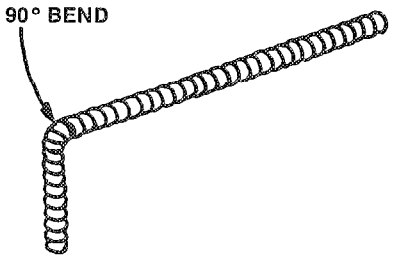

Figure 7

TIP OF THE MONTH

Our correspondent prefers anonymity, but the idea offered is good enough even though it has been considered before: Technicians who service school pianos often find hinge pins missing, and hinges that have been wrenched to the point that a new pin is almost impossible to install. A simple solution to both problems is to use a piece of an old bass string, bent like a hinge pin. It will work because of the stiffness of the core; it will be quiet because of the copper winding, which can be forced a bit; and it will be flexible enough to wiggle through a bent hinge, as shown in **Figure 7.**

Incidentally, another solution to the problem of fitting a hinge pin to a wrenched or twisted hinge is to loosen the screws that fasten the upper portion of the hinge to the lid. Remove the screws entirely if necessary to get both pieces of the hinge back to the position where the wrenching took place, and drive the pin back into position. Use a hammer if necessary, hitting a plier which grasps the bent portion of the pin. When the pin is back in place, replace and/or tighten the screws which hold the upper hinge to the lid.

IN CONCLUSION

One thing that has been missing from the PTJ, at least on a regular basis, since the death of Bob Hayward is a column on business building. I would like to explore the idea of starting another series, and as a matter of fact several members have been prodding me to do so. This might be something for one person to do each month, or it might be as well to get a different viewpoint with each issue. In any case, if you have ideas and wish to share them, on this or any technical topic, please send them to me at this address:

Jack Krefting, Technical Editor
Piano Technicians Journal
3802 Narrows Road
Erlanger, KY 41018

THE TUNER

Paul Monroe, RTT
Orange County Chapter

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

The subject of the last two articles has been "setting the temperament". If you haven't read these articles you will probably be confused and I suggest you obtain the two previous copies of the JOURNAL and make a study of what was written.

The last article ended with the M6th interval D#4-F#3. The next note to tune is B3. Tune it to D#4, a M3rd interval. It should have a beat rate approximately .5bps faster than the M3rd, A#3-D4. The F#3-B3 fourth should have a slight roll.

Move on to the next interval G3-B3, a M3rd. The beat rate of this interval is in between that of its neighbors. It should be slower than G#3-C4 (8.2bps), faster than F#3-A#3 (7.3bps), slower than F3-D4 M6th (8.0bps). The G3-C4 interval, a 4th, should be slower than the G#3-C#4 4th but faster than the F#3-B3 4th.

The next interval to tune is a M6th. Tune E4 to G3. The beat rate should be approximately 9bps. Slightly faster than M6th F#3-D#4. Check the B3-E4 4th comparing it to its neighbors A#3-D#4 and A3-D4. There should be no objectionable difference in their beat rates, remembering that as you progress up the keyboard the beat rates should increase evenly and as you progress down the keyboard they should decrease evenly.

Check E4-A3 5th comparing it to it's neighbors below, G#3-C#4, G3-C4 etc. For a little bit of advanced tuning at this point, use the 6th-10th test discussed in the last article for each of the intervals of a 5th and compare one to the other. It will help you learn how accurate (or inaccurate) you are in setting your temperament.

For the inexperienced tuner, I believe you are at the most critical point before completing the temperament. Check the M3rd, C4-E4. Is it in line with its neighbors, M3rds, B3-D#4 and A#3-D4? Is the M6th, G3-E4 beat rate in between M3rds, A#3-D4 and A3-C#4? If it is you are lucky. It usually takes a number of attempts before you can do it on a regular basis. Part of the reason of course is hammer technique. Another subject planned to be covered in future articles.

To complete the temperament, tune Octave F4 to F3. Compare M6th, M3rd, 4th and 5th intervals to be sure the progressing beat rates are even. Check the outside M6th and inside M3rds to see if the M6th beat rate is in between the M3rds, C4-E4 and B3-D#4.

You may think my next statement is facetious; it isn't. It is meant to be real serious. The statement is -- Don't let yourself get confused --. Read, re-read and start tuning, constantly referring to these articles and the added notes I am sure you have written by now.

An observation you should have made at this point is that you are constantly comparing beat rates of neighboring intervals. The more mature you become in your tuning, the more intervals you will use for comparison. One of these will be the minor third (m3rd). ie: F3-G#3, F#3-A3, G3-A#3 etc. Check the beat rate progression up and down the temperament. If they are uneven it is an indication that one or more of the intervals you have tuned is incorrect. Check and recheck what you have tuned. It will probably save you time later on. A word of caution here too and that is don't be in a hurry to change one note before you have exhausted all the checks and tests you have learned. Sometimes you will be surprised which note(s) it is that needs to be changed.

With all that said, I want to introduce you to one more checking and test interval that will be useful in octave tuning. (Octave tuning will be the topic of the next article). This is the 3rd-10th test.

In the octave you have just tuned, the beat rate of the M10th should be slightly faster than the M3rd. In detail this means that the M10th, C#3-F4 should beat slightly faster than M3rd, C#3-F3. The technical reason for this is complex and not an absolute must to know at this stage of your tuning maturity. Attend seminars and conventions where you will learn more and more each time you attend.

Up to this point you have been concentrating on beat rates, comparisons, etc.; let's have a little fun now with chords. The one that follows I learned by reading the JOURNAL. I use it as a test that may be of help to you, if not now, in the future.

Play notes F3-G#3-A#3-D4 as a chord. You will note there is a m3rd, F3-G#3; a 4th, F3-A#3; M3rd, A#3-D4; M6th, F3-D4. For you musicians you will note also that there is a m2nd and an augmented 4th.

Play this chord and progress chromatically through the temperament. The next chord will be F#3-A3-B3-D#4. You should be listening for an even progression of all the intervals, the m3rds, M3rds, 4ths and M6ths. It won't take much practice for you to hear when one of the intervals is out of line. When you do find one out of line, re-check your temperament using all the other test intervals. If it is close, I suggest you continue on with the octave tuning.

After you have completed your octave tuning, use this chord to check the middle of the keyboard where the beat rates are easy to discern. As usual, the more you practice it, the faster you will improve in hearing all of the intervals at one time. One added suggestion and that is to play each of the intervals within the chord separately and then play the whole chord. You will be amazed at how much better your hearing becomes.

I want to thank you for your favorable comments. I sincerely hope these beginning steps to tuning have been helpful. See you next month tuning octaves. □

SOUND BACKGROUND

Jack Greenfield, RTT
Chicago Chapter

ALEXANDRIA--MUSICAL SCALES AND INSTRUMENTS; ANCIENT THEATER ACOUSTICS

THE LIBRARY OF ALEXANDRIA

When Alexander the Great founded Alexandria in 332 B.C., he intended it to be a purely Greek settlement. It expanded rapidly as a leading commercial and cultural center and it acquired a cosmopolitan atmosphere. Soon after Ptolemy I took the title of King of Egypt in 306 B.C. he founded the great library of Alexandria. He and his successors built up a collection of over 500,000 papyrus scrolls representing literature of all of the known world, as far away as India. Among these was the famous collection of scrolls assembled by Aristotle which no doubt included much material on ancient Greek music theory. It has also been speculated that the library contained writings, now lost, on Egyptian music theory dating from before Pythigoras.

The Egyptians developed papyrus as a writing material early in their history. The papyrus plant is a tall grass-like plant which thrives in Northern Africa. Papyrus became the standard writing material also in ancient Greece and elsewhere around the Mediterranean Sea. Unfortunately, papyrus decays rapidly unless stored under special conditions. This is the reason for the disappearance of many important ancient writings.

The Ptolemeic rulers of Egypt restricted or prohibited exports of papyrus but their monopoly was broken during the second century B.C. be development of parchment, derived from the skins of sheep, goats, and other animals. Parchment was a much more durable material. Sheets could not be joined to form scrolls, but were sewed together along one side, this was the origin of the bound book.

EARLY STUDIES ON TUNING IN ALEXANDRIA

Adding further to the cultural leadership of Alexandria was the founding of a school of mathematics during the reign of Ptolemy I by the Greek mathemetician, Euclid. Euclid, better known for his work in geometry, also wrote on the mathematics of musical intervals. He was the first one to define consonance of intervals as the ability to *blend* and dissonance as the *inability to blend*, producing *roughness* in the ear.

Later, during the third century B.C., one of the leading scholars of the time, a director of the library, Eratosthenes (276-196 B.C.) prepared mathematical studies also considered of particular importance in theory of tuning. Eratosthenes, a native of Cyrene (Africa) was educated in Athens. He became a geographer and astronomer as well as a music philosopher and is regarded highly in all of these fields. His estimate of the circumference of the earth is believed to be accurate to within 5%, if the present assumed value of his unit of distance is correct.

MUSICAL PERFORMANCE IN ALEXANDRIA

The atmosphere of Alexandria, a thriving, prosperous, international trade center, fostered interest in all types of musical entertainment. Music continued to be important in the temples also. One historical account mentions a large musical group including 300 men playing harps. The lyra and kithara were brought to Egypt by the Greeks -- these intruments spread to other parts of northeastern Africa where they are still in use in modern times. Other popular instruments included several different types of flutes and reed pipes.

INVENTION OF THE ORGAN

The invention of the organ occurred in this favorable musical environment. The organ may have been derived from two earlier or contemporary instruments:

1. Sets of tuned tubes or panpipes operated by bellows,
2. The *magrepha*, a small assembly of bellows-blown tubes used to signal calls for worship at the ancient Hebrew Temple.

Neither of these instruments are considered to have been true organs since they did not include keyboards.

Historians agree in crediting the invention of the first organ -- the *hydraulis*, to Ctesibius (or Ktesibius) of Alexandria during the second half of the third century B.C. Ctesibius was an outstanding engineer in hydraulics and invented or improved other devices operating on air or water pressure. There is no existing information written by Ctesibius on the hydraulis, but details of design are given in the writings of Hero of Alexandria and Vitruvius of Rome, both were engineers around the first century B.C.-A.D. Besides some later writers, other reference sources include about 40 pictorial representations of the hydraulis on mosaics, vases, coins, sculptures and archeollogical objects. Some of the most important archeological finds are:

1. A 7 inch high clay model of a hydraulis, found in Carthage in 1885.
2. Major remnants of a small organ with a metal plaque containing the date 228 found in Hungary in 1932. Since no parts of the air supply mechanism were recovered, it cannot be determined if the instrument was a hydraulis or bellows-organ.

DESIGN OF THE HYDRAULIS

The hydraulis, also called the "water organ" differed from the so-called "pneumatic" organ only in the mechanism for air pressure. In the hydraulis, the air supply came from a cylindrical, octagonal, or rectangular reservoir or container half-filled with water above the dome-shaped top of thin air chamber just above the bottom. Air pressure was built up by one or two lever-operated air piston pum-

ps forcing air through a conduit connected to the top of the air chamber. The pressure in the wind chest was kept steady between pump strokes by the weight of the water against the air at the open apertures at the bottom of the air chamber.

The tone pipes were mounted on a rectangular wind chest placed on top of the base containing the air/water reservoir enclosed in an ornamental wood case, often octagonal in shape. Overall dimensions ranged from 7-10 feet in height by 3½-5 feet in width.

Hero described the instrument of Ctesibius as having one row of pipes. Vitruvius described other instruments with four, five or even eight rows of pipes. The pictorial representations of the hydraulis show no more than four rows with four to eighteen pipes, eight being the average. The Carthage clay model has three ranks, each with nineteen pipes played by nineteen keys. The Hungarian organ parts include the bronze lid of the wind chest bored with 52 holes in four rows of thirteen each.

The Hungarian organ was quite small. The biggest pipe measured only 18 inches high. The windchest with attached keyboard was 7 inches high by 14 inches long. The chest itself was 4 inches wide, the projecting keyboard was 7 inches long. The thirteen keys of wood covered by thin bronze were about 3/8 inches by 5 1/2 inches. They were the sliding type pulled out to sound a pipe and returned by a metal spring.

Vitruvius' sliding keys were also returned by metal springs but Hero's used flexible pieces of horn. Literary and pictorial evidence indicates that the keys could be readily moved by the fingers.

TUNING OF THE HYDRAULIS

Vitruvius and Hero were technical writers who gave mechanical details but omitted such basic musical information as pitch and timbre. The tuning of the hydraulis has been the subject of much speculation and debate among the scholars specializing in this field. One school of thought believes that tuning of the pipes was diatonic with each row giving a different tonality or model series of intervals. Another school believes that tuning was chromatic. Researchers have analyzed pictorial representations and archeological remains and have experimented with reconstructed models but no firm conclusions can be reached. Literary sources indicate that although timbre capabilities were limited, the hydraulis had a wide dynamic range.

GREEK STUDIES IN THEATER ACOUSTICS

The description of the hydraulis by Vitruvius is included in books he wrote devoted largely to architecture -- now considered among the most important references on Roman structures. He also covered a phase related to musical performances -- the application of the principles of acoustics to theater design. He based his writings on doctrines formulated in Greece and passed on by the Pythagoreans, Aristoxenus, and the followers of Aristotle. The ancient Greek knowledge of acoustics is exemplified by the design of theaters built as early as the fifth century B.C. as well as later Greek and Roman theaters built in accordance with these principles.

One of the finest examples in the open-air theater at Epidouros in Greece built during the fourth century B.C. and used through the Roman period. The stone seats and the foundations and stage of the stage building are still standing. Although it was built to accomodate at least 16,000 people, a person speaking at normal loudness from the stage can be heard perfectly well from all parts of the auditorium. □

SHOP TALK

Susan Graham, RTT
San Francisco Chapter

GRAND HAMMER HANGING
(Part II)

The first part of this article described the steps preparatory to gluing on hammers. You may have not noticed that is is a rather lengthy thing written out in detail; similarly, the actual work of preparing the action and supplies takes longer and is more detailed than gluing them together. Now, however, with the preparation done, we're finally at the fun part.

First, let's talk about glue. I use hot hide glue for hammer-hanging: it sets up quickly, makes a nice collar, has the right strength, is traditional, and is considered of the poor dummy (who might be me) who absentmindedly snaps a shank and has to remove the hammer to repair the mistake. Not having a glue pot is what stops some of us from using hide glue; while a commercially made pot is the most professional, it is possible to improvise. I have used an old electric fondue pot, and know several technicians who use old coffee percolators: anything large enough which will keep water at just below the boiling point will do. Put the glue crystals in a small jar or can or in the inner pot of the glue pot, add just enough cold water to cover, and let it soak (overnight, if possible). When you are ready to use the glue, place the inner post in the heating unit and turn it on or fill your improvised pot with water so the small can is partially immersed but not floating (it will tip). Determine the just-below-boiling setting, and leave the glue until it melts completely. Cover the whole pot with aluminum foil with a small hole punched for the brush; an advantage of the waterbath pots is that the steam keeps the brush handle clean. If, when thoroughly heated, the glue is too thin, remove the cover, stirring the glue occasionally until it thickens. If it is too thick add a little hot water. The correct glue consistency for hammer hanging is quite thick; slightly runnier than honey. If I have to leave the glue for a while I add a little extra water, seal the lid on well, and leave the pot running. Hide glue loses strength if you allow it to cool and then attempt to reheat and reconstitute it, so either leave it like this or make a new batch.

If you want to use aliphatic resin glue, let it sit out overnight so it will thicken somewhat and cure faster. White glue or cold hide glue isn't strong enough; never use epoxy or other irreversible glues - they simply aren't appropriate.

You must be able to satisfy three requirements in your set-up for hammer hanging; keeping a straight line, providing a firm support, and getting a good glue joint. A jig is helpful but if you are skilled and patient it is possible to do a good job without an elaborate set-up. The shanks can be supported on a true-edged piece of stock (placed so it will no move or collapse in the middle of a job) and alignment can be done with straight-edges (they must be long enough to span an entire section). If is useful to have two straight-edges; one to hold one part of the hammer, say they tail, in line, and another to push the shoulders into place. Thus equipped you can do a good job; the main disadvantage is having to set down and pick up the tools frequently. The hammers may also tend to wander since they are unsupported but the quick-set ability of hide glue helps counteract this.

The next logical step in a gluing fixture is to fasten the straight-edges to legs or supports so that they are free-standing, leaving your hands free to work. A simple version of this used in some factories is what I would call a "tail rail" - a long piece of stock with legs at either end which butts up against the tails of the new hammers as they are hung. It is heavy enough so that it will stay in place; it provides a reliable straight edge and is square to the action rails so it can be used as a reference in judging side-to-side tilt. Since keeping the tails in line is usually what gives hammer-hangers trouble, such a rail is a great aid and yet quite simple to make. Once the guide hammers are correctly installed the rail is moved into place to keep the tails aligned so the operator can concentrate on lining up the shoulders with a straight-edge. Obviously, for the tail rail to work the tails must be uniformly shaped, which means either shaping them later (as I do) or using extreme care in shaping them before they are hung.

Many technicians have devised gluing jigs using this same idea and adding another rail to hold the shoulders in line, adding a sliding mechanism to the legs (screws working in long slotted holes) to make each rail adjustable, and a hook and spring or some means of anchoring the jig to the action brackets. Probably the most elaborate jig available is the one I have, which is the aluminum Jaras jig. When this first came on the market we saw it at a convention and were made an offer we couldn't refuse, so we brought it home. I use and like it, but do feel there is a danger is relying too heavily on a fancy set-up instead of developing a good eye and understanding for the work. If a jig will help your confidence, or if you plan to do a number of these jobs and are aiming for speed and efficiency, you can investigate sharing the cost of obtaining a jig. Or contact a local technician who has a good homemade fixture to see if you can copy it. With any arrangement which is square, straight and solid, and a normal technicians' patience for detail, you should be able to do a good job; the point is to plan in advance, understand what you are doing, and not just start randomly sticking on hammers. In outlining the procedure I follow I will try to make minimal references to the particular features of the jig I have and to concentrate on general guidelines which apply to every situation.

All the old hammers are removed except the necessary guides; the shanks are installed (or inspected and cleaned) and travelled **(fig. 1)**. I have the second-to-the-end of each section

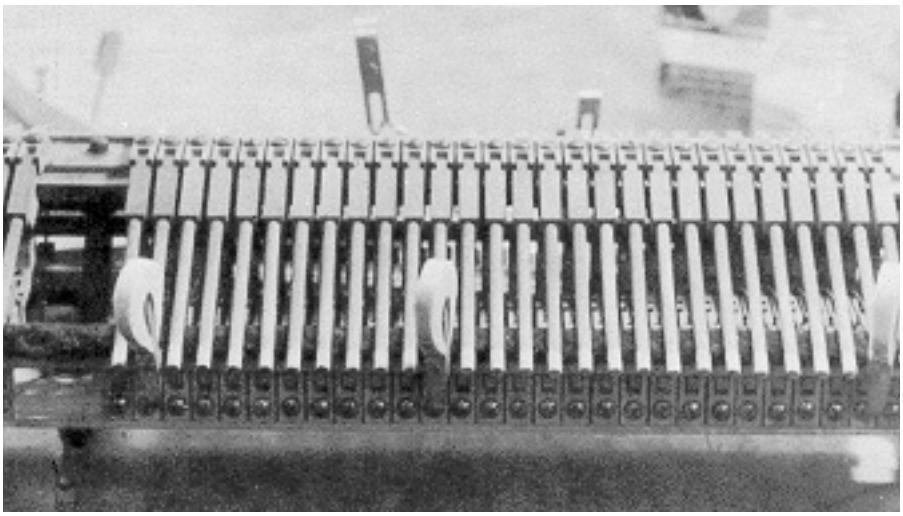

Fig. 1 Action ready for new hammers. Extra sample in bass is to help align tilted hammers.

as old sample hammers, so I first hang the new end hammers and use them as guides for the remainder. The Jaras jig has a pointer which is used to indicate the striking point of the old hammer. When this is set I ream and dry-fit the new end hammer and glue it in place so the striking point (or the midline) lines up with the indicator, keeping the tail in such a position to create a 90° angle from hammer midline to shank. If I were doing this without a strike point indicator, I would have midpoint lines on both sides and top of the old and new guide hammers, and would use a string or straight-edge to be sure all the striking points are lined up. It is easy to be fooled if you try to line up a hammer only judging from one next to it (as they taught us in a geometry, you can always line up two points but three are necessary for accuracy) so use a straight-edge and the guides at both ends of the section. When both new guide hammers are in place, I set the tail-alignment bar; it is important that all the tails are in line because this assures that the hammers will be at 90° to the shank. While it is true that we see pianos in the field which may not adhere to this configuration, it seems that this is how hammers work best. Therefore, this is one place where I will vary from the original design. It is simple to do if you will just keep the strike point lined up with the old and move the tail in or out to achieve the 90°.

If you need to change the striking point, you must now transfer the measurement of the difference in action position (which was determined in the piano) to an equal amount of change in the new hammer position. If you found that moving the action 1/32" towards you produced a better tone, hang the hammers so the striking point is 1/32" closer to the flange. (If the tone improved when the action was tipped or shoved back, hange the hammer farther from the flange.) Carefully measure from the center of the old hammer-flange centerpin to the midpoint line of the old hammer **(fig. 2)**. Then add or subtract to that measurement when positioning the new hammer on its shank; change it by the amount you moved the action. Use the square to be sure the hammer is square to the shank.

When both guide hammers are in place, hand the remainder to match. Although my jig has a straight-edge mounted to hold the shoulders in line, I found that having it fixed across the shoulders interfered with my ability to detect any side-to-side tilt, so I prefer to use it hand-held **(fig. 3)**. If the old hammer shoulders are wider than the new ones (as often occurs) I raise

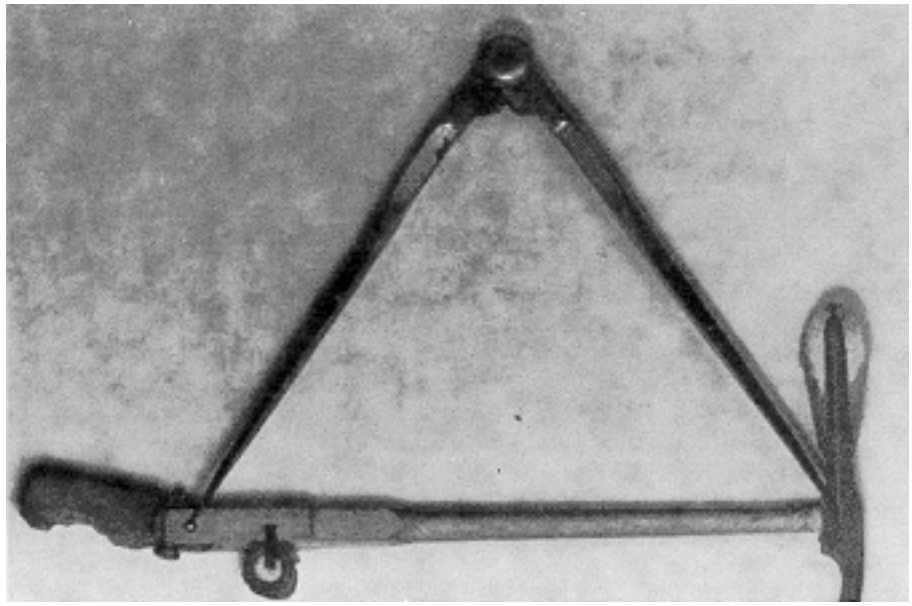

Fig. 2 Determining distance from centerpin to hammer midline

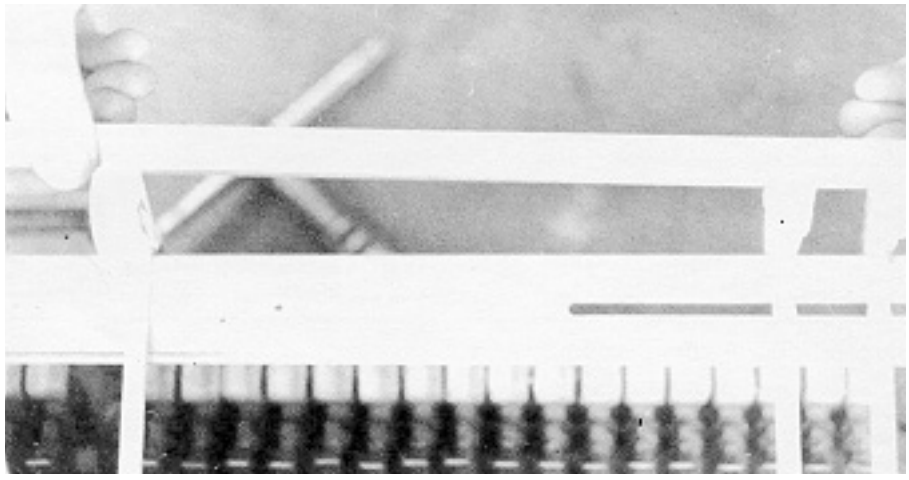

Fig. 3 Hanging new hammers to new guides (old guides are raised out of the way)

them out of the way but do not remove them at this time. In using the straight-edge to check the shoulders, I tap them slightly, which causes any which are misaligned to "wink" (much the same as tapping keys with a straight-edge detects any which are too high).

Once the striking point and the tails are in line, side-to-side tilt is the last variable to consider. Hammers are generally straight-up in the treble and tenor (although some may tilt in the lowest tenor) and there is usually some tilt in the bass. The tilt of the new hammers should be matched to the old; I often leave an extra sample in the bass to help do this. The small square can be used to keep the straight ones aligned, referencing from the support bar or tail rail (providing it is square and parallel to the hammer-flange rail) **(fig. 4)**. Once you become accustomed to the work

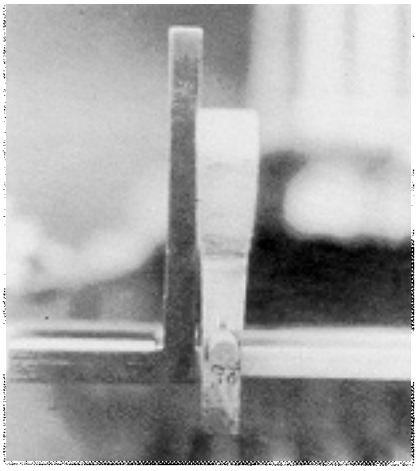

Fig. 4 Checking straightness of hammer with square

this can usually be done by eye, making an occasional check with the square. Another hint to keeping hammers straight is to raise the hammer so you can sight along the top at the flange rail beyond - even if the surface is cupped you can get a good indication of any lean.

Ream the hammers with a #3 or 4 straight fluted reamer; usually a #3 will do but shanks seem to be larger these days so you may need the #4. Pay attention to how you hold the reamer and the hammer; remember the 90° you want to achieve **(fig. 5)**. Turn this reamer in one direction only; turn it rather slowly to produce a rounder hole and a better fit. The ideal fit is difficult to describe, but I think of it as fitting the hammer to the shank exactly and then leaving a little room for glue. Other technicians refer to a slight amount of rock at the crown of the hammer as it sits on the shank -

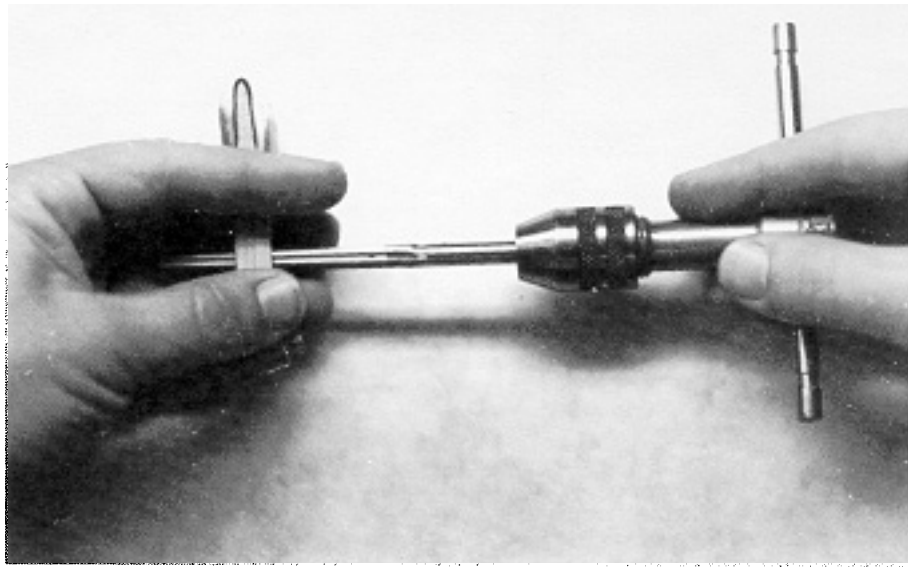

Fig. 5 Holding the hammer firmly while reaming it.

you must have enough play to make slight adjustments. I first ream the hammer just enough to get it on the shank to quickly check the boring angle; slight improvements can be made if you have left enough wood. Getting the hammer too loose on the shank makes for a weak glue joint and creates difficulty in maintaining alignment, so go cautiously until you get the feel of it. Draw a stop-mark on the reamer if you want.

When the hammer is fit, apply the glue to the shank and the hole and spin the hammer onto the shank - turning it to get the glue to collar up nicely **(fig. 6)**. Keep a damp rag handy and make it a habit to always use one hand to wipe away excess glue from the back of the tail and the OTHER hand to hold the crown to make any to make any adjustments. Quickly check the shoulders and tails with the straight-edge, shoving the tails against the support and tapping the shoulders with the straight-edge. Eyeball the hammer or check with the square, referencing from its neighbors and the support to see if it is in line. About every octave or so I like to get up, walk around the bench, and look at what I'm doing from a different perspective. Look sometime in an elementary psychology book at examples of eyefooling illusions created by slightly tilted lines - it's easy to get gradually off and not see it. If you prefer (or if your bench is against the wall) set up a mirror so you can check the back continuously. As I hang hammers, I try to sit and keep my head at the same height so I am referencing off the same surface of each hammer and strike point; avoid sitting and standing and sitting and getting all mixed up. I try to work quickly and carefully but not too fussily, or else I get slow and cross-eyed.

Since the fixture isn't long enough to accomodate the whole action at once , I leave all the old samples in place until I am completely done; I want them as a final reference when I check the overall line with a string. After I am satisfied that everything is in place, I replace the samples.

With all the new hammers in place, stand back and look at the overall alignment. If any hammers seem slightly astray, use the heat gun (or an alcohol lamp) to fix them by heating and twisting the shank. This must be done with discretion, for it is not a method to correct gross misalignment; it is a way to take advantage of viewing the action as a whole with nothing to consider but very fine adjustments. Major changes (particularly

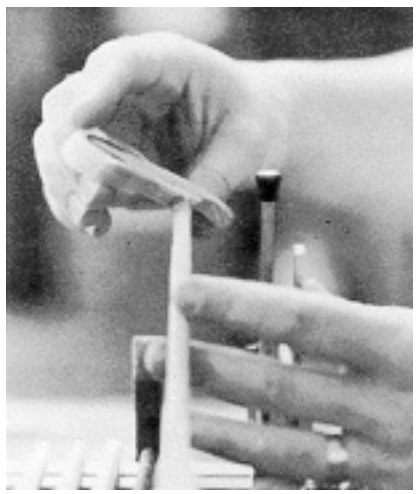

Fig. 6 Turning the hammer to get glue collar

front-to-back) must be done by removing and regluing the hammer(s). Heat the shank and tilt the hammer slightly past where you want it to to, hold it until it cools, and then release it. A little practice will show you how; keep the heat moving and don't scorch the shanks. It is possible to "rubberize" shanks overdoing this, so try to get them right the first time. An area of particular trouble is in the bass, usually in smaller pianos with sharply angled strings and hammers; the tails rub against the neighboring hammers on the way up. In this case, tilt the crown of the hammer toward the hammer it rubs, and then space back. This sounds contradictory but it works, for it will swing the tail so it is more nearly parallel the adjacent hammer as it travels.

FINISHING

Once the hammers have dried overnight, all that remains is to trim the shanks and shape the tails. Here again it is important to avoid stressing the centers. One method is to clamp the shanks in a long clamp (the aluminum one available from supply houses or something devised from two boards padded with backrail cloth and screwed together at 4" intervals) and cut them off with a tiny circular saw blade on a motor-tool. This works well although it can be difficult to get a flush cut. If you have a motor-tool you may want to try this, but be sure to wear safety glasses. The tool goes so fast it can be hard to control and it is dangerously easy to slip and gouge the molding, the shoulder, or worst, your thumb. Holding the hammers individually while cutting with the tool is more dangerous still, and I don't recommend it. The blades tend to dull quickly so keep a spare since they can be difficult to find and impossible to sharpen.

Although not as fast, a very nice job can be done with a small sharp saw such as an x-acto saw, jewelers' backsaws, or the wire-handled hacksaws most of us carry in our tool kits. The point is to have a sharp blade which will cut with a minimum of pressure. You can do the shanks this way either clamped in the long clamp or held by hank in a groove in a block of wood (glue sandpaper or rubber on the bottom of the block so it won't slip). Roll the action over on the flange rail **(fig. 7)** so the shanks will fall forward on the block or clamp.

When the shanks are cut as closely as possible, I use a disc sander in an

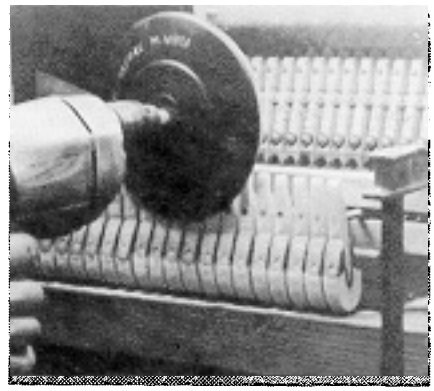

Fig. 7 Shaping tails; action rolled over on flange rail

electric drill to finish them and to shape the tails. To do this you must have a long clamp, and I clamp the clamp to the bench as well. Shape the tails to match the curve of the old as closely as possible, but do not get them too thin or they may break. If the design of the molding is very different, it may not be possible to match the curve, and some backcheck bevelling may be necessary. After the tails are shaped I clean them up by hand with a lighter paper, and then rough the tails. Believe it or not, I've spent time worrying about the best way to rough tails, and finally this summer learned about a file available from supplyhouses for this purpose. It's called a Swiss gun checkering file; I went right out and bought one and can finally do the job the way I want. It makes neat parallel grooves with rounded edges which grip well but don't chew up the backchecks. There are countless other methods; using extremely coarse sandpaper on a block, scoring with a knife, etc. The object is to avoid a slick wood surface on the tail without getting it so jagged it is destructive or noisy.

While the stack is there on the bench, you should do some preliminary tone regulation. Don't assume that just because the hammers are new they are ready to play; good hammers improve dramatically with the first voicing. Usually there is a layer of dead felt on the striking surface and the hammer will be slightly cupped across the top; a result of a release of tension in the felt at the sides of the hammers as they are sliced apart. The surface of the hammer must be squared to contact all three (or two) strings at once, or you will never get good tone. If time permits, or if I remember before I even hang the hammers, I needle the center of the shoulders several times to equalize the tension **(fig. 8)**. After enough time has elapsed for this to have its effect (over a week) I file the surface to remove any remaining dead felt. If time is short and/or if any cup remains I file until the surface of the hammer is correct. At this point I try the action in the piano to see what sort of basic tone I get. Usually I file again in the treble, preferring to get to the harder felt underneath than to add chemical hardeners. This depends on

Fig. 8 Needling hammer to equalize tension before first filing

what kind of hammer is used, of course; some are already so hard you want to keep filing to a minimum, some so soft in places they are meant to be lacquered. When I am satisfied with the basic volume, I do some judicious needling in the shoulders to even out breaks and eliminate random harsh notes. I keep all voicing to a minimum, since the tone will change the hammers are played, and since final voicing must be done with the customer's consultation. All I am working for here is the first blossoming of tone brought out in good hammers by equalizing the tension and compression in the felt.

The final step to a good hammer job is a complete action regulation; at this point I refer you to my learned colleagues who have written extensively on the subject, and hope you have learned something useful from me about grand hammer-hanging.□

VACUUM LINE

Raye McCall, RTT
Pomona Valley Chapter

Since this column made its debut in the *Journal* the main topic of discussion has been the player piano. A number of instruments, most of which are self players, are in an existence which operates on reduced air pressure or vacuum. Some requests have come to do an article on one of these — the Reed Organ. Most of these organs were manufactured around 1890. They have suffered a lot of abuse through the years but in spite of all that many are still in existence today.

Perhaps fewer technicians work on the reed organs than on player pianos. However by comparison the reed organ is a very simple instrument. Before terminology is used which may be a bit unfamiliar to some, maybe a brief discussion would be in order about what the reed organ and the piano have in common.

It is, of course, a keyboard instrument. It has a soundboard and it is tunable. When it is being restored, some regulation is necessary so that it plays as it should and everything works properly. However the only part of the regulation which is the same is key leveling and that in name only. Because the leveling is accomplished in a different manner on the reed organ.

When you start to restore one, the final step is to remove the mechanism from the case. In most of them this is very simple. The mechanism (everything required to make it produce music) was usually assembled outside the case, slid in from the back, secured with four screws (two at each end), the pedals connected, and the final assembly of the case. This last item involves the installation of the upper pedal panel, the cheekblocks, keyslip, fallboard, and back panel. The same is true with reed organs as with pianos — different manufacturers had different ideas. For instance, you may find that it is impossible to remove the cheekblocks until the mechanism has been removed. There are also some of these organs in which you must disassemble the mechanism in order to get it out. In any event, take off the case parts in the reverse order of that shown above. Then do a bit of careful study and it will become evident which procedure you can use. For purposes of this paper, I will assume the mechanism slid out in one piece and that is the point from which we will proceed.

From now until disassembly is complete, it is somewhat of a monster to handle. Not big, just awkward. The best thing you can do is prepare a very solid prop about twenty to twenty-four inches high. Let the large reservoir sit on the flow and rest the check on the aforementioned prop (small stool, etc.). This will keep it supported very solidly in an upright position and allow you to work around it.

Next, you need to know how this "monster" will come apart. There are four assemblies which make up the reed organ mechanism and they come apart from the top down by the removal of screws. You will observe that there is linkage at the bass and treble ends which connect the stop rods to funny looking and odd shaped doors. This linkage was originally thin strips of wood but you can expect to find it has been replaced by almost anything. The final step in disassembly is to disconnect the linkage. Devise a system to keep track of where it came from so that re-assembly will be simplified. At this point it does not matter what that linkage is made of. Now back to those four assemblies and a word about their removal. They are as follows:

1. *Stop board assembly:* Remove two screws — one at each end — located behind stop board which go into the keyframe ends.
2. *Keys and keyframe:* Remove six screws — two at each end, one buried under the keys in the center through the backrail, and a small one in the center front rail. To get at the buried screw, there is a strip along the back of the keys which must be removed — six to eight small screws.
3. *Reed chamber — check assembly:* Remove fifteen to twenty screws all the way around the edge. The screws around the backs go in from the top. Around the front you will find them underneath the check. Of the four assemblies, this one is the most complete. It contains the reeds, valves, pallet rods, soundboard, and all of the expression producing capabilities of the organ.
4. *Reservoir with attached exhausters:* This is what is left after the foregoing three have been removed.

Clean-up and restoration can now begin!

The reservoir and exhausters were originally made from ½" or ⅝" three-ply plywood. In almost every case the plies will be found to be separating. Since the same thickness plywood is available today, it takes much less time to cut out new parts rather than repair the old. Either way, the wood must be sealed, so why not start off with new wood? Everything that has been previously written on the subject of pump restoration is applicable here so I will not go through all that again. When one of these units has been completed in our shop, we "pump it up" (draw the reservoir all the way closed) and it usually takes about four hours for it to completely reopen. This test needs to be done as soon as the exhausters and reservoir assembly is all back together. Place a piece of gasket material over the opening at the top and hand operate the exhausters until the reservoir is drawn closed to its maximum. Now watch and listen very carefully. If your work has been done correctly, there will be hardly any movement but if there is the slightest leak, it will immediately start to open.

The reed chamber — chest assembly is next and there is a lot of detail involved here. Disassembly is done from the top down with the pallet rods being removed first. Stretch a piece of masking tape just taut along the back of the little rods near the top from one end of the unit to the other, around the end one, and back along the front side to the starting point. Squeeze the tape together between

each pallet rod and mark which is the base end. You can now lift all of them out and they will be kept in order. Next, remove the Vox Humana, and the coupler trays with all the little coupler rods mounted thereto. You now have access to and can remove all of the little expression shutters. Be sure you have a system of keeping track from whence they were removed. This idea will pay off when you begin to put the puzzle back together. You are now ready to remove the reeds. IT IS VERY IMPORTANT that they be kept in order all the way through the cleaning process until they are eventually replaced in their slots from which you removed them. To pull and reinstall the reeds, you need a reed puller. Please do not try to use anything else. Usually the note name is stamped into the outer or square end of the reed frame. This can be helpful in keeping them in order within their own sets. DO NOT mix sets because the voicing is probably different. Looking at it from the top, all you should have left is the reed chamber which is attached firmly to the soundboard. By turning it upside down you will expose the inside of the chest and all the valves which are held inplace on their guide pins by springs. Starting at the bass, number the valves and then remove them along with their springs. The guide pins can be left in place as long as they are tight.

Whatever repair work is necessary can now begin. The soundboard usually has some cracks which need repairing. We normally "vee" out the crack and fill it with Thermaset 100. If the crack goes into a reed chamber, be sure you repair it all the way. Be sure that the rim is in good repair all the way around and that the soundboard is very securely glued to it. Before starting to work on the soundboard, we scrape the finish off inside the chest as well as outside. When repairs are all completed, you need to sand and seal all inside and outside surfaces of the chest. Cosmetics is of secondary importance. Airtightness is the obvious reason for sealing the wood.

In our shop, reed cleaning is done by soaking them in clock cleaning solution. This does a nice job of cleaning them and since it is not a petroleum base, no residue is left on the reed to attract dust. The cleaning can be going on simultaneously with the repairs, the pallett valves need to be given careful attention. Remove all the old leather and felt from them. By replacing the felt and installing new leather, you will keep your cipher problems to minimum. The felt which we use is 1/16" thick by 7/16" wide. It has its own adhesive backing. This makes for very fast and easy installation. When gluing the new felt to the valves, do not use a glue which is hard when dry. PVCE is an excellent adhesive for attaching the felt and leather to the valves. You should use a very thin bead of glue along the center of the valve. The leather which is used for the valves is pnuematic leather. It should be cut with care so that it is exactly the same width as the valve. The dimension for the length can be obtained by observing that which you took off. There are many causes for ciphers. If your workmanship is meticulous several of these causes can be eliminated. A cipher is a note (sometimes several) sounding without any stops being pulled or keys being depressed. There is one more step to the completion of a good valve job. That is to retension the springs. The "good news" part of this is that this makes the valves seal better. The "bad news" is that it makes the touch heavier. The new springs which are available today are weaker than the old ones so retensioning is best.

Some of the expression shutters are triangular in shape. They have hinges on one side by which they are attached to and close over the reed chambers. The side which closes against the chambers has leather on it which needs to be replaced. Before installing the new leather, make sure there is no warp in the wood to which the leather will be glued. White alum valve leather is used here. The other expression shutters may be fabric hinged with felt along the opposite edge. Both materials should be replaced.

The Vox Humana is also an expression device. It has a leather valve on top of it and a leather gasket underneath where it mounts to the soundboard. Both of these must be replaced. When the Vox Humana stop is pulled, the fibre paddle spins and simulates a vibrato because it operates on the Woppler principle. Examine it to be sure that it spins very freely and stops when it is supposed to.

Before you remove any keys, they should be numbered beginning in the bass, the same as in a piano. The front and back rail pins on the keyframe need to be polished and lubricated with McLube 1708. The front rail cloth will need to be replaced. The cloth used here determines the key dip. The point of which the key contacts the pallett rod is cushioned by a small piece of felt. Remove all this old felt from the keys and install new pieces of felt which may be a bit longer. When putting it on the keys, apply glue only to the ends of each piece leaving a small place in the middle which is not glued. Key leveling is done using center rail paper punchings which have been cut in half. These "half punchings" can be inserted between the felt and the where the felt was not glued. If you installed the felt so it is just taut between the glued ends, the paper will be held in place and the under side of the keys in the center position of the keyboard. They have screw adjustments. These are the coupler buttons which will need regulating a little later. The cloth punching on these buttons need to be replaced. Most reed organ keys are not cloth bushed so do not be surprised when you find that it has been working that way all these years. Another interesting note — most keyboards were covered with plastic, not ivory.

The last assembly to be dealt with is the stop board. The stop rods can all be disassembled and removed. All the steel coupler rods need to be taken out, cleaned, lubricated with McLube 1708 and rebushed. The stop board should be stripped and refinished. CAUTION: Before you remove the black paint and the gold lettering, be sure you have someone waiting in the wings who can replace the gold lettering as well as whatever else may be there. Also that that person has been given opportunity to trace off that which he (or she) wants to. After the refinishing and lettering of the stopboard, you can rebush the stop rod holes and then put it all back together.

Restoration of the individual assemblies is now complete. You can now begin to put it all back together. The pump-reservoir, reed chamber-chest, and keyframe assemblies can all be brought together and secured but I would suggest that the stopboard be left off until the necessary regulation has been done. When the assemblies are all back together, you once again have one unit. Just before you slide it into the case, cut and install two new pedal straps. The exhausters are very accessible and installation is easy. As soon as you

Continued on page 23

AFTER TOUCH

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50 Point Guide To Grand Regulation Part XVI Jan. 1982

34) The Drop

The modern grand action compared to the old type of action that was used for instance in the square grands show one great difference. Absent in the square grand mechanism is the repetition lever and the auxillary features which go with it. Namely the drop screw, the repetition lever support spring, and the repetition lever height adjustment screw. The purpose of installing the repetition lever was to gain more positive and faster ability to repeat notes.

The technician who regulates this old style action has an easier job than if he were regulating a modern action, for there are fewer adjustments to make. This is especially true when regulating the escapement. He would only need to regulate the let-off screw. If he were regulating a modern "double escapement" action, he would have to regulate both the let-off and the drop.

Picture how the modern action works in the escapement process. At rest the hammer is supported at the knuckle mostly by the balancier. As the key is depressed and the whippen rises, the balancier compresses slightly and lets the jack carry the hammer upwards. Somewhere near the time that the hammer approaches the string, the jack tender engages at the let-off button. Eventually the jack trips out fully from under the knuckle. Likewise, the drop screw must be withholding the upward rise of the balancier as the jack trips or else the balancier would take over the thrust of the hammer and cause it to "block"upon the string. Hence the name "double escapement" action.

Most technicians have experienced "blocking" hammers, expecially if it is the let-off that is faulty. Not only will the hammer "block" upon the string, but as long as the key is depressed, the hammer will stay at the string, completely dampening the sound. In the event that the drop screw is too high, the hammer will only momentarily "block" upon the string. Because the balancier is supported by a spring, the hammer will rebound from the string and the knuckle will cause the balancier to compress. In this case some dampening has occurred, but the string will continue to speak.

Almost as critical to the performance of the action would be the maladjustment of the escapement too low. Where the drop is set correctly but the let-off is too far from the string, a loss of power and control would be evident. Removing the jack from it's duty too early results in the thrust of the hammer being turned over to the balancier for the remainder of the distance. Just how far from the string the hammer lets-off too early and how strong the repetition spring is would determine how great the power loss.

In the case where the let-off is the correct distance from the string but the drop is too far, a very slight power loss could be evident. More important would be the lack of "surefootedness" as I call it that the pianist would feel. When the drop screw engages the balancier too early, again the balancier compresses, robbing some energy from the hammer's thrust (however so small the amount, it does exist). The greater the amount that the hammer drops, the more the pianist will feel it as he plays. He won't be able to explain just what it is, rather the fact that something does not feel correct as he plays.

I should probably explain that during normal playing, the hammer never really "drops". A technician must depress the key slowly in order to see this. What I am talking about when I say drop is actually the point of escapement for the balancier. Under ideal conditions "double escapement" of our modern piano should be felt as one occurance by the pianist. At the same instant that the jack tender is engaged by the let-off button, so should the balancier be engaged by the bottom of the drop screw. Providing that the let-off is the correct distance, this escapement happening at the same time would give the correct amount of drop.

Two points of resistance rather than one will be felt by the pianist if the escapements do not occur together. A sensitive pianist will surely complain about this. Unfortunately, we do not always regulate the ideal piano. Sometimes the drop must be regulated so that the points of escapement do not occur together. The rule of thumb is for the drop to be about ½ the let-off distance. If the let-off is at $^1/_8$" from the string, then the hammer should drop to about $^3/_{16}$" from the string. I hasten to add that in fine regulation, the actual distances are second in importance to the way the action *feels*.

A technician who expects to perform concert level regulation must develop a touch almost as sensitive as the concert artist's. How can a technician do really fine regulating or voicing if he can not play the piano? A craftsman who has a sensitive touch and a knowledge of how the piano is suppose to play can easily run his fingers up and down the keyboard and tell *without pulling the action out* whether the escapement is properly regulated. There is a certain feeling which is hard to describe when the action is in proper regulation.

The dynamic range is the widest and the control is the finest when the let-off is as close as is permissible. The already mentioned "surefootedness" is only possible when the drop is correct. And, most important of all, there is the heavenly exquisite touch when all of the keys play uniformly. Often I have heard pianists say that they would rather play on an action that is uniformly out of regulation that to play on one where some notes are correct and others are not.

I have mentioned my feelings about how well a technician must play the piano in order to do fine regulating and voicing to other technicians. Some agree, some don't. Isn't it interesting how the customers of those technicians who do not play end up calling me when the first technician couldn't solve a problem? Time and again I have sat down to a piano that I have never seen nor heard before, and taking a few minutes to play it I have correctly identified not only the complaints that the customer had, but

also the solutions!

The list of problems that can be identified in this manner is almost endless. Obviously, tuning and voicing should be included along with faulty escapement, faulty repetition, incorrect aftertouch, flat knuckles, worn key bushings, improper damper lift and seating, too tight action centers, too high damper stop rail, too strong repetition springs, etc. The real art of regulating a grand action is to know by feel how the action is working.

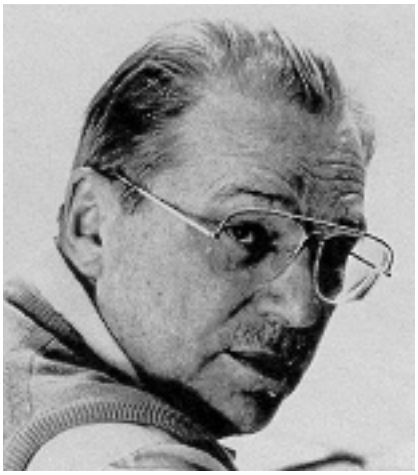
A good habit to develop while tuning pianos is to try to determine what needs fixing on the instrument. Besides sharpening your troubleshooting skills, you will impress the customer with your knowledge and run a good chance of picking up additional work. All too common is the "tuner" who does nothing except tune the piano unless the customer makes a complaint. A true "craftsman" should be able to tell his customer what ails the piano, rather than relying on the owner to complain to him! Our discussion on step #34 the drop will continue next month.

Vacuum Line —
continued from page 21

return springs. You are now ready to troubleshoot this project after which it probably needs some tuning.

Reeds get out of tune. Even though they have been well cleaned, this will not make the corrections in tuning which are needful. I never alter the pitch level. Wherever I find it to be, I put it in tune with itself. Whether I am tuning a piano or reed organ, the temperament setting precedures are the same as are all the test intervals. They work somewhat better on an organ because the notes sustain at full volume as long as you keep your feel going. When you get into tuning reeds, you will notice minute differences in the way the tongues are shaped from one set to another. That has to do with voicing. Be careful not to change the shape. The tools necessary are a reed hook, a locksmith's file, and a small sandpaper file made from a popsicle stick with 120 and 320 sandpaper on it. Reeds are tuned as follows: to sharp the note, file at a 45 degree angle across the vibrating end of the tongue. To flat a note, file straight across (90 degrees to the tongue) very near the anchored end. While you are tuning a reed, you must obviously hold it in your hand. This causes body heat to be absorbed into the reed which changes its pitch. Therefore when you replace it into its slot, allow it to sound a bit before you make any decision about tuning it further. It takes quite a bit of filing to change the pitch of a bass reed but a reed in the high treble will change very quickly with the slightest effort. On the higher reeds I would suggest nothing more harsh than 320 sandpaper be used. The front set of reeds are tuned first because I can operate the fast pedals and sound all the tests I need to. Tuning the back set is for the most part unison tuning and requires two people — one person is at the keyboard while the technician is tuning. Most of the reed organs were manufactured with just two sets of reed. Once in a while you may come across an instrument having four or five sets of reeds plus some large sub-base reeds. Obviously the more sets of reeds you have demands more accuracy in tuning. In some areas of this article the information presented is noticeably brief. It is hoped that enough has been said to be of help. Also possibly some questions will be generated and sent my way.

KNOW YOUR OFFICERS



Charles P. Huether
Secretary-Treasurer

Charles P. Huether, currently serving his seventh term as Secretary-Treasurer, was born in New York City in 1918. He grew up, went to school, worked, married and started a family and lived in the city until 1953, when he ventured into the nearby suburbs of New Jersey where he is currently residing. He lives in Clifton but is quick to point out that, although it is better known as the location of a famous piano supply company, he got there first.

The years covered above included three and one half in the United States Army, serving in the Pacific in the Signal Corps., and extended career at the Emigrant Savings Bank in N.Y.C. and a good many years of evening courses at the American Institute of Banking and City College School of Business Administration. In 1950 he married Agnes Connelly and they have three children; Anne, Sara and Joseph.

An interest in the piano and a curiosity regarding its mysteries led him, in 1947, to the Brandt School of Scientific Piano Tuning in N.Y.C. There he was introduced into it's complications and a modest beginning was made toward understanding the Queen of Musical Instruments. Through the PTG Journal he was led to the New Jersey Chapter. Here he was helped to grow in skill and confidence to the point where he left his position in business and opted for a full time career in piano service.

An RTT since 1966, Huether served, at chapter level, as President for two years and for many years as program chairman. On the national level he served on the Long Range Planning Committee, the Bylaws Committee and the Chapter Program Development Committee. During his tenure as Chairman of the Bylaw Committee, a position he still holds, he spearheaded the rewriting of the PTG Constitution. This work was completed in four years of intensive work including collating a drawer full of correspondence and other input from the committee, advisors, membership and Council delegates until the present document was developed and carried through Council to acceptance.

During the seventies he was a regular contributor to "PTM World of Music" and "New Jersey Music and Arts" Magazines, some of which articles were reprinted in the PTG Journal. This period was also the beginning of his interest in the history of piano manufacturers and manufacturing in the late 19th and early 20th centuries. He feels there is at least one book in the volume of material he has collected and hopes some day to write it.

Service to PTG has made demands on his free time, but he considers the time and effort spent doing organizational work the most rewarding in his life. Regardless of the effort involved, it in no way compares with the personal satisfaction and benefits derived from serving the organization. He is forever grateful to everyone, great and small, who he has met through PTG and who have helped him so immeasurably to achieve skill and satisfaction in this most rewarding of professions. □

FROM BAND INSTRUMENT REPAIR TECHNICIANS

ARTICLE IN PART

By Bernd Vollers

Vollers Band Instrument Repair
Tampa, Florida

WHY CERTIFICATION

A long sought after goal, of many individuals, in the craft of repairing and restoring band instruments, has been the attainment of professionalism, not only in the acquired knowledge that professionalism implies, but to gain recognition by our peers in other facets of the music industry, or in other professions. A profession has been defined as:

"A field of human endeavor with a well-defined body of knowledge, containing basic principles common to all applications and techniques unique and to the field, with practitioners skilled and experienced in applying these techniques, dedicated to the public interest."

We can say then that a well-defined body of knowledge exists and we can say it with a great amount of authority and pride. And certainly, in a broad sense, we also work in the public intrest, at least to the extent that the result of our efforts fills customer's needs, at reduced costs and reduced investments. Band instrument repairing and restoration fits this definition standpoint, we work in a professional field.

There is a medical professional, but to say that all people working in medicine, or the medical field, or the health field are professionals, would be erroneous. Certainly the same can be said about the men and women in the craft of band instrument restoration. There are many in the general field. Only some will meet the criteria of being professionals today. To establish the craft as a recognized profession, we must first recognize our own professionals. This does not mean that our association becomes an exclusive society of professionals. We must still be a broad-based association, including novices, practitioners, managers, consultants, some meeting the professional standards.

The Steve Jellen Memorial Library

Year	In Memory Of	Donation From
1980	Stephen S. Jellen	Wendell Eaton
	Paul Cheatham	Piano Technicians Guild Ernest S. Preuitt
	Walter Stevens	Dallas, Texas Chapter
1981	Carl Wicksell	Piano Technicians Guild Ernest S. Preuitt Charles Huether Brian Scott Faith Lutheran Church
1981	Reginald Moore	Ernest S. Preuitt
	Aubrey Willis	Piano Technicians Guild Ernest S. Preuitt
	Henry MacConaghy	Piano Technicians Guild Ernest S. Preuitt
	Floyd Qualls	Piano Technicians Guild Ernest S. Preuitt Jesse Lyons

Coming Events

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

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

UPCOMING CONVENTIONS OF THE PIANO TECHNICIANS GUILD

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

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

February 19-21, 1982
CALIFORNIA STATE CONVENTION
Pasadena Hilton
Contact: Raye McCall
1078 East Third Street
Pomona, CA 91766
(714) 622-8826

March 26-28, 1982
PENNSYLVANIA STATE CONVENTION
Pittsburgh, Pennsylvania
Contact: Robert W. Wagner
1225 Saxonwald Ave.
Pittsburgh, PA 15234
(412) 884-8222

May 1-2, 1982
MICHIGAN STATE CONFERENCE
Holiday Inn Expressway
Kalamazoo, MI
Contact: Harold Buyce
825 Bacon Road
Kalamazoo, MI 49002
(616) 327-1871

May 21-22
INTERMOUNTAIN SEMINAR
Holiday Inn
Provo, Utah
Contact: M. Jack Reeves
486 N. 300 W
Orem, Utah 84057
(801) 225-1757

April 22-24
PACIFIC NORTHWEST CONFERENCE
Travelodge Tower
Portland, Oregon
Contact: Don Person
5545 SW Taylor's Ferry Rd.
Portland, Oregon 97219
(503) 245-3424

The Piano Technicians Guild Foundation

The board of directors has authorized legal action to establish THE PIANO TECHNICIANS GUILD FOUNDATION to which members, family, friends, chapters and other supporters can make donations.

Donations may be sent in memory of one who is deceased, or in honor of a person who has been a special inspiration or made a significant contribution to the profession and/or to the Guild.

The new Foundation will have 3 categories:

The Steve Jellen Memorial Library
The PTG Fund for Tech Research and Development
The Piano Technicians Guild Scholarship Fund

All donations to the Foundation will be published in the Journal showing the name of the donor, the person honored and the category specified for the donation.

A memory book, maintained at the Home Office, will be available for review at the annual conventions and will show the names of those honored and the donors.

Donations should be made out in the name of the Piano Technicians Guild Foundation and sent to the Home Office at 113 Dexter Avenue North, Seattle, WA 98109. Please send the form below with your donation or a letter giving the same information.

The Piano Technicians Guild Foundation

I wish to honor _____

by making this donation $ _____

to the _____ category

of the PIANO TECHNICIANS GUILD FOUNDATION

signed _____

address _____

date _____

1981 - 1982 MEMBERSHIP BOOSTER CLUB

Booster Club	Pts.	Mbrs.
ASHEN, J.G.	1	1
BALIGIAN, Agnooni	4	1
BITTINGER, Dick	1	1
BULLOCK, William	5	1
CALLAHAN, James J.	1	1
CRABB, Larry	3	3
EVANS, Daniel A.	1	1
FARRELL, John	5	1
FOX, Lee	5	1
GARRETT, Joseph A.	1	1
GILLER, Evan	10	2
GOODWIN, Garland	5	1
GREENWAY, Alton William	5	1
HAINES, Roy	1	1
HARRIS, Dale	5	1
HAUSMAN, Donald	1	1
HENRY, Fern L.	5	1
HERWIG, Lewis	3	1
HESS, James	5	1
HIGBY, James H.	5	1
HUNT, Newton	8	2
KEAN, Kerry	4	1
KOKTAN, Paul	8	2
LAFON, William I.	5	1
MASTAGNI, Angelo	1	1
McANINCH, Daniel	1	1
McKLVEEN, Ben	3	3
MEEHAN, Joseph	1	1
MEHAFFEY, Francis	1	1
METZ, Al	1	1
NELSON, Robert	4	1
ODENHEIMER, Fred	1	1
OUSLEY, Robert	5	1
RAUDENBUSH, Fred R.	5	1
ROBINSON, Marion	4	1
RUSSELL, Bob	1	1
SCHULTZ, Gary H.	10	2
SCOTT, Dennis	1	1
SEWELL, Arnold M.	4	1
STONE, Sid	1	1
SYLVESTER, David E	1	1
THILE, Scott E.	1	1
WALKER, William H.	1	1
WALKUP, Kenneth.	5	1
WHATMOUGH, Alan	5	1
WILEY, John	1	1
WINSLOW, Allyn S.	1	1
WOLF, Robert	5	1
YAKABOSKY, Walter	4	1

Restorer's Club
CRABB, Larry B.
GREENWAY, Alton William
OUSLEY, Robert
WOLF, Robert

Ernie Preuitt **Vice President**

MEMBERSHIP POINTS

Five (5) points will be credited for bringing in a new registered technician, four (4) for an apprentice, three (3) for an allied tradesman and one (1) for all other memberships.

PRESIDENT'S CLUB

Those who achieve 15 points will receive the President's Club ribbon. At the Awards Banquet each will be presented with the 1982 President's Club pin, and the member who has the most points will be announced and honored.

RESTORER'S CLUB

Those who bring in a former member will receive the Restorer's Club award ribbon in addition to the point credits.

BOOSTER CLUB

Everyone who brings in a new member will receive the Booster Club ribbon at the convention.

NOTE:

Your name and your own chapter should be shown IN PRINT on the candidate's application on the line "recommended by", for your guaranteed full point credit. (Sometimes credit cannot be applied because the sponsor's name cannot be deciphered).

CORRECTIONS

Should there be a need for correction on the Booster Club or other lists, please notify the Home Office promptly. We want you all to receive full credit at all times.

1981 - 1982 RECLASSIFICATIONS

RECLASSIFICATIONS TO REGISTERED TECHNICIANS

KELLY, Paul
WRIGHT, Neal A.

NEW MEMBERS

REGISTERED TECHNICIANS

Atlanta Chapter

WELLBORN, Paul E.
2035 Idlewood Road 12
Tucker, GA 30084

WILSON, Johnny L.
3614 Canadian Way
Tucker, GA 30084

Baltimore Chapter

HUTT, Preston R.
Box 11 Long Green Pike
Baldwin, MD 21013

Kansas City Chapter

HULME, Gregory N.
8417 Hillcrest
Kansas City, MO 64138

New York City Chapter

FORD, Johnny P. Jr.
304 E. 85th St.
New York, NY 10028

Southern Tier Chapter

VAN VOLKINBURG, Franklin D.
5269 Stillwell Rd.
Trumansburg, NY 14886

APPRENTICES

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HARRIMAN, John C.
5098 Edgemoor Drive
Norcross, GA 30071

Baltimore Chapter

HUGHES, David G.
13228 Old Hanover Road
Reisterstown, MD 21136

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Capital Area Chapter

LAMKIN, Michael T.
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1814 Jefferson Avenue
Covington, KY 41014

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308 Maple Street, Apt. 33
Trenton, OH 45067

SQUIRE, Daniel J.
204 Fulton Ln
Middletown, OH 45042

WELCH, Paul W.
947 Patricia Lane
Cincinnati, OH 45230

Connecticut Chapter

TOWNE, Christine S.
47 Kirtland St.
Deep River, CT 06417

Falls City Chapter

BURGE, Lucinda K.
4822 Sebree LN, Apt. 1
Louisville, KY 40218

Los Angeles Chapter

BAUER, Xenia A.
9241 Steel St.
Rosemead, CA 91770

CIPRIANI-LEONETTI, Edris L.
c/o Cadoo
4714 Rosita Pl.
Tarzana, CA 91356

Maine Chapter

PENNINGTON, John B.
21 Juniper Lane
Portsmouth, NH 03801

ON MEMBERSHIP...

Robert Smit
Northeast Regional Vice President — Ontario, Canada

In talking to my fellow piano technicians in the United States and Canada, I found many to be uninformed as to what P.T.G. is and what it does. So, as a result of this, I would like to explain that the P.T.G. was formed in recognition of the need for a united, piano technician's organization who's goal was to achieve the highest possible service standards, and to effectively promote the technical, economic and social interests of piano technicians.

P.T.G. is a non-profit organization. It's Board of Directors is voted in by democratic means by the members attending the annual convention as delegates. No member of the P.T.G. receives payment for his/her services. The instructors at seminars, the Board of Directors, chapter officers, etc., are all volunteers.

Our organization is strong and getting stronger because our membership is growing. As our membership increases, it brings the cost of administration proportionately lower. So, you can see the benefits in belonging to a large organization.

In Canada, technicians often ask why they should pay dues to an American organization so only Americans can benefit. Wrong. P.T.G. is an international non-profit organization and the reason we pay dues to Seattle is because this is the established location of our administrative office. This is very practical in that administration is kept down, so more money is available for those things which directly benefit the members, namely, the raising of service standards through effective technical promotion.

A great deal of our dues goes towards publishing this monthly Journal full of technical, social and historical information. It is available in Braille and on cassette tape, as are most of our membership services.

The rest of the dues are spent on:

- The Testing Program
- Chapter Program Development
- Insurance for Members
- Industry Promotion
- Educational and Promotional Literature
- Film and Tape Distribution

In Canada, 20% of the dues are returned to Canadian Chapters to be used for P.T.G. promotion in Canada.

It is very important to point out that P.T.G. has an excellent education program. We hold classes on piano building, rebuilding, repairs, regulation and tuning. This is done at chapter meetings, regional seminars and at the National Convention each year.

P.T.G. boasts some of the best instructors in the world. Most service representatives of piano manufacturers belong to P.T.G. and willingly teach at our conventions and seminars.

On a personal note, P.T.G. has given me learning, friendship and self-confidence. This has helped me to better serve my customers and ultimately improve my business. Write in today for information. We will be happy to send it. There is a place for you in P.T.G.

Regards,
Bob Smit

Rhode Island Chapter

JOHNSON, Wade C.
10 Grant Street
Providence, RI 02909

San Diego Chapter

WRIGHT, Norman C.
P.O. Box 1347
Borrego Springs, CA 92004

Vancouver Chapter

WALKINSHAW, John G.
#8 2225 West 6th Ave.
Vancouver, B.C. V6K 1V7

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Members-At-Large

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Onerahi
Whangarei, New Zealand

TSANG MANG KIN, David
10 Enniskillen St.
Port-Louis, Mauritius

CORRECTION

Stuart I. Fischer was incorrectly listed under the Boston Chapter in the November issue, his listing should read:

Long Island Nassau
FISCHER, Stuart I.
1300 Midland Ave., Apt. C-26
Yonkers, NY 10704

AUXILIARY EXCHANGE

1981/82 Auxiliary Board

Officers

JULIE (Mrs. Ronald) BERRY,
President
6520 Parker Lane
Indianapolis, IN 46220

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Minneapolis, MN 55403

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Clifton, NJ 07012

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Mayfield Heights, OH 44124

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6033 North 19th Road
Arlington, VA 22205

♪ ♪ ♪ ♪ ♪

Editor, Auxiliary Exchange

JULIE BERRY
6520 Parker Lane
Indianapolis, IN 46220

PRESIDENT'S MESSAGE

Dear Members and Friends of the Auxiliary,

Happy New Year. I hope the coming year will be both properous and fulfilling for you. I hope your association with the Piano Technicians Guild will become more meaningful and rewarding for you during the coming year. In return, I hope you will commit yourself to an increased understanding of the person in your family who is a piano technician. Perhaps you will make time in your own busy schedule to come with the technician to a local seminar or to the national convention in Washington, D.C., so you can learn more about the Piano Technicians Guild and its Auxiliary.

Members of the Auxiliary's Board and members of the Auxiliary in several chapters of the Southeast Region will be working hard during the coming months to attend to many, many small details, all designed to make your stay in the nation's capital more enjoyable. Many of the plans have already been finalized, so we can say with assurance that lots of nice surprises and interesting activities are in store for you if you come to the Washington convention and participate in the Auxiliary Program of activities. So if you come to Washington, in addition to showing support for your technician, you will be treating yourself to a good time and an enriching experience. As you make your plans for 1982, please include some time for the Silver Anniversary convention in July.

I hope to see you all there!
Julie Berry, President

FROM THE FIRST VICE PRESIDENT

GREETINGS FROM MINNESOTA! This past year has been one of ENRICHMENT for your First Vice President. The PTG Auxiliary has opened up a new world to me -- of friends -- of involvement -- of purpose. My "reign" of one year as your treasurer made it possible to meet many of our PTG Auxiliary people through letters, phone calls and the San Francisco Convention. It was so exciting! For several years it was my choice to stand or sit on the sidelines, wondering what was going on, what the Auxiliary was all about and what contribution I could make to the Auxiliary if I would choose to become involved. Yes, my husband always wanted me to accompany him to the conventions. They were great sightseeing experiences and a chance to get away and stay in a hotel. That wasn't all bad, you'll agree, but somehow I did not have the same excitement about the conventions as that of my dear husband. Today -- that story has changed. I am one of the most enthusiastic Auxiliary members you will ever meet. You will be anxious to hear what made the difference. Now, the conventions are a great anticipation because I chose to become *involved* and therefore have found *purpose*. Every woman has a contribution to make to the Auxiliary. It was only after the initial thrust of getting in there, meeting new people and finding out what the Auxiliary was all about that I could possibly know what my involvement could be. My first acquisition was a group of beautiful friends from all over the world. These new and dear friends are precious gems - priceless and valuable to me. The Auxiliary needed me, not because of any special talent or gifts - just because I was me and the wife of a piano technician! It was an eye opener to me to see the value and purpose of our Auxiliary and it gave me the desire to make whatever contribution possible, that our Auxiliary might be bigger and better. Becoming a part and being involved automatically give purpose. Have you ever noticed that happy people are involved people with a purpose? You will find many, many happy people in the PTG and the PTG Auxiliary. I love them - they are *wonderful, wonderful* people.

Let me encourage each of you reading this article who has a spouse

in the PTG (men or women) to become involved in our Auxiliary. Share my new found friends and find new purpose. Yes, conventions are still a big part of my summer, but what a difference. It's hard to know who is more excited, my husband or me! We still do sightseeing, and lots of it, but it's more fun. We still get to stay in the hotel, but I know the people we meet in the halls -- and each year we meet more new people! Now it's easy to understand why my husband looked forward to convention time with such excitement.

FRIENDS - INVOLVEMENT - PURPOSE!!! We are simply a marvelous addition, as an Auxiliary, to the prestigious Piano Technicians Guild. It makes us ONE, working together for the same cause.

Throughout the year we identify with those across our land in our profession through the *Journal*, letters and regional and local seminars. Take it from one who watched from the sidelines *too* long; let me encourage you to join our forces and get on our team. *YOU'LL LOVE IT!!* Let me hear from you. If you have any questions about how you can become involved, write to me *today*.

Belva Fiegle (Mrs. Richard)
First Vice President

Mr. Guy McKay, an R.T.T. from the Indianapolis Chapter, composed the following poem about the way people decide when to have their pianos tuned:

October days are here again;
The summer's come and gone.
I think I'll have the piano tuned
When we turn the furnace on.

January swept right in.
The air is dry and cold.
A tuning now would never last;
At least that's what I'm told.

April's here. It's spring at last.
The piano's off a mile.
I'm really going to get it tuned -
When the heat's been off a while.

July's arrived, with muggy heat.
The piano's worse, I fear.
I'll get it tuned; I really will;
As soon as fall gets here.
October days are here again...

CHAPTER PROGRAM IDEAS
from Ginny Russell

Does anyone in your Auxiliary chapter decorate cakes? Not necessarily professionally, just a working knowledge. If not, perhaps you have a friend who would help. Have a CUPCAKE DECORATING program. One or two members bake cupcakes and one cake (enough to feed the Guild and Auxiliary members at the meeting). Ice them and bring them to the meeting. The cake decorator explains and demonstrates different kinds of decorating on the large cake, decorating such as roses, leaves, borders, etc. Following the demonstration, everyone gets a cupcake or two to decorate for the Guild refreshments later in the evening. The end result is most interesting!! It makes a good "something to talk about" dessert!

ARE YOU STILL LOOKING FOR THE ROCKWELL PRINT?

In case you have not yet ordered your copies of Norman Rockwell's print called "The Piano Tuner," please note: there are fewer than one hundred prints left. When they are gone we will probably not be able to get more of them. Several hundred have already been sold by the Auxiliary. Order prints from Shirley Truax, the Auxiliary's Second Vice President. (Her address appears at the beginning of this column.) Make your checks payable to the Piano Technicians Guild Auxiliary. Each print costs $3.50 by mail.

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 the first of the month prior to publication.

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

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

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

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

WANTED

REPRODUCER/PLAYER TECHNICIAN desires wholesale customers for restored instruments and/or wholesale restorations. Registered Technician. **M. Lynn Reid Pianos, 110 Highland Drive, Union, SC 29379 (803) 427-4714.**

WANTED: MASON & HAMLIN GRAND. Want one that was a player. Have player mechanism to install. Maybe interested in Steinway, Chickering or Knabe X player. **Brady, 4609 Cranbrook, Indianapolis, IN 46250, (317) 259-4305, after 5 PM (317) 849-1469.**

COMPLETE LID FOR 1903 CHICKERING 116. Approximately 62 x 70½. Anything restorable or adaptable. **RFD 1, Box 191, Hillsboro, NH 03244. (603) 529-2651.**

KEY BUTTONS FOR STEINWAYS. The finest basswood Key Buttons available for older Steinways grands and other makes with 0.162" Balance Rail Pins. $49.95 plus shipping & handling. Order direct from the manufacturer. **New England Piano Action Co., 6 Vernon St., Dept. T, Somerville, MA (617) 628-1591.**

WANTED: PLAYER STACK ONLY FOR 1921 Knabe/Ampico Upright. I could also use the pump and motor but have the rest. Please call or write: **The Piano Works, 2962 North Ave., Grand Junction, CO 81501 (303) 243-3003.**

HELP! I need the Damper Assembly for a square grand. **O.H. Petty, Box 443, Petal, MS 39465.**

MISCELLANEOUS

SIGHT-O-TUNER MODIFICATION AND REPAIR. Improve the accuracy of your machine from ± .5¢ to ± .1¢ by installing ten-turn Knobpot potentiometers. Save time, start setting perfect temperaments and super tune every piano you work on. A must when giving the new tuning exam. Package deals include two potentiometers, rechargeable battery system, oscillator and filter outputs, magnetic pickup and electric piano inputs. All repairs and modifications made within one week. **David Pitsch, (801) 225-0156.**

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

More Classifieds on following page

CLASSIFIED ADVERTISING

SIGHT-O-TUNER REPAIR AND CALIBRATION SERVICE. Like all electronic instruments, the Sight-O-Tuner can and does get out of alignment. Recalibration can make a difference in your tuning. All work fully guaranteed. Includes retuning of active filter, cleaning rotary switch contacts and checking and adjusting power supply voltage. Am also equipped to do Steve Fairchild-type Sight-O-Tuner modifications. Write or call: **Richard Weinberger, 14130 Alta Vista, Saratoga, CA 95070. Phone, (408) 867-4513.**

HELP WANTED

PIANO/TUNER TECHNICIAN. Highly skilled tuner/technician wanted who desires to live near the Rockies and work for a small, rapidly growing company housing one of the country's most complete remanufacturing facilities. Should be equal in qualifications to PTG craftsman. Strong musical background preferred. Interested in long-term association. Salary open, based on expertise. Please send resume and salary expectations to **Chris Finger Pianos, P.O. Box 356, Niwot, CO 80544. (303) 652-3110.**

FOR SALE

YAMAHA PT-4 Electronic tuner in mint condition, $500.00. Contact **Leopold Holder, 12 East 31st Street, New York, NY 10016, or call (212) 446-0985.**

TWO MATCHED 1928 BALDWIN CONCERT GRANDS. Professionally prepared by Cliff Geers and Ben McKlveen. Ideal for college or performers. Artist benches included. Generous commission paid for information or assistance leading to sale. $27,000 the pair or $14,000 sold separately. **Ben McKlveen, 6448 Graceland, Cincinnati, OH 45237(513) 531-3758.**

1903 STEINWAY B, Victorian legs. New soundboard, ebony finish, pinblock by Geers. New hammers, shanks, strings and pins by Ozark chapter. For pictures and info, **call Ken Carter, (816) 886-3034.**

P.T.J. BACK ISSUES, 1968 to present. $3.00 each; also piano technical books. Write for list, **Alan Preston, Box 16282, Greensboro, NC, (919) 697-7900.**

FOR SALE: Pre 1900 Steinway music rack. Lyre and vine cutout design. Original dark rosewood finish. 32¼" from hinge pin to hinge pin. $150.00 **ALSO**, D-100 Pianocorder unit, $950.00, and DP-100 Maintenance kit, $995.00. Contact: **Gingrich Piano Service, 614 W. Michigan Ave., Oscoda, MI 48750, (517) 739-5301.**

HALE ELECTRONIC SIGHT-O-TUNER. Serial No. 233, perfect condition. Factory checked and calibrated. $200.00 **4020 Regent, Duluth, MN 55804. (218) 525-5310.**

KNABE CONCERT GRAND For rebuilding. $3500 firm. **(607) 754-0057.**

CUSTOMER'S QUESTIONS? The Piano Owner's Guide will answer them between tunings! Inquiries welcome. Hardbound, $6.95; Softbound, $3.95. Trade discounts, terms. **Apex Piano Publishers, 1014 Kentwood Drive, Mountain Home, AR 72653, (501) 425-7057.**

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.**

NEW TOOLS. Precision, highest quality imported technician's regulating and tuning equipment. Send for free catalog and price list. **Stegler Pianos, Technical Division, 12 First Ave. S.W. Oelwein, IA 50662. (319) 283-3691.**

THE BUSINESS OF PIANO TUNING AND REPAIR. A comprehensive text written exclusively for your piano tuning business and finances. "A must for every tuners library." $12.50 ELREC INT., **3905 ARTIC No. 512 ANCHORAGE, AK. 99503.**

PIANO TUNERS ARE GRAND AND UPRIGHT PEOPLE. Send $3 for this special 3½" x 15" bumper sticker in attractive calligraphy: **Jacky Briggs, 1013 Fairmont Ave., W.E., Jamestown, NY 14701.**

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.**

NEW SOUNDBOARDS. Sounding board replacement, pin block installation, downbearing adjustment, restringing, action rebuilding and excellent refinishing. All work approached with careful consideration given to both the scientific and musical aspects of the piano in our care. Price sheet upon request. **Southwest Piano Reconstructors, Kelly Anderson, 607 E. Main, Lancaster (Dallas) TX 75146. (214) 223-1439.**

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

1888 BALDWIN GRAND Ser. #1951. Solid rosewood. Picture and copy of appraisal on request. $10,000 min. Write: **George Sizemore, PO Box 11462, Phoenix, AZ 85061.**

LEARN HOW TO REMOVE AND REPLACE SOUNDBOARDS YOURSELF. New handcrafted soundboards supplied by: **Victor A. Benvenuto, The Piano Shoppe, Inc., 6825 Germantown Avenue, Philadelphia, PA 19119. (215) 438-7038.**

WHIPPEN REBUILDING. Revive the "feel" of Steinway grand piano action. The piano action specialists at New England Piano Action Co. can completely rebuild and modernize Steinway Whippens at a cost far less than that of a new set. Other action rebuilding services available. Please write or call for more information and prices. **New England Piano Action Co., 6 Vernon St., Somerville, MA 02145. (617) 628-1591.**

THINK Schaff AS YOUR SUPPLY HOUSE FOR:

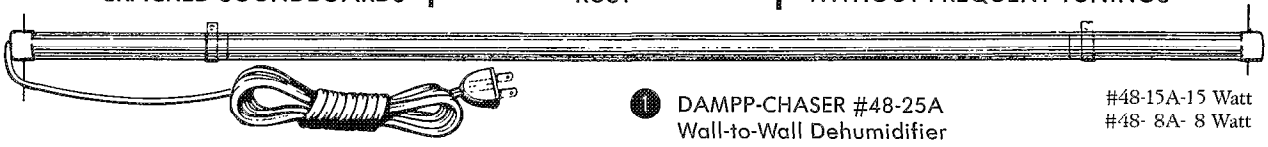
DAMPP-CHASER®
FourSeasons™
PIANO PROTECTION SYSTEM

YEAR 'ROUND DUAL-AUTOMATIC HUMIDITY CONTROL SYSTEM™ FOR ALL PIANOS

ENDS "DRY" PROBLEMS
LOOSE TUNING PINS
LOOSE ACTION
CRACKED SOUNDBOARDS

ENDS "DAMP" PROBLEMS
STICKING KEYS
SLUGGISH ACTION
RUST

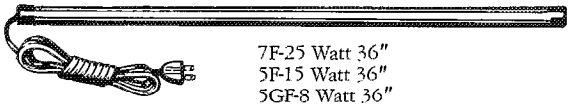
STABILIZES TUNINGS
TUNING WILL NOT HOLD
OR STAY ON PITCH
WITHOUT FREQUENT TUNINGS



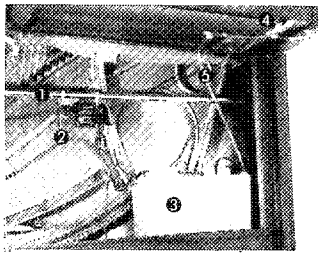
1 DAMPP-CHASER #48-25A
Wall-to-Wall Dehumidifier

#48-15A-15 Watt
#48- 8A- 8 Watt

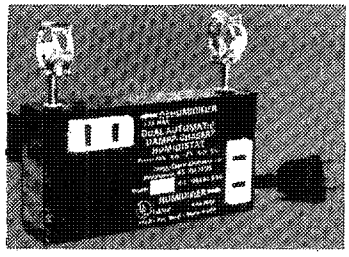
The wall-to-wall dehumidifier—provides a gentle heat which rids the piano of excessive humidity. Goes on automatically as needed when used with Humidistat. Simple "Pin-Peg"® installation.



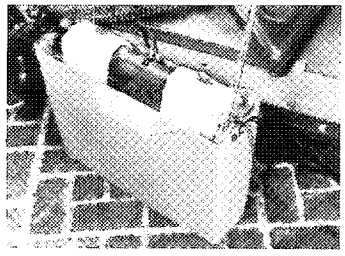
7F-25 Watt 36"
5F-15 Watt 36"
5GF-8 Watt 36"



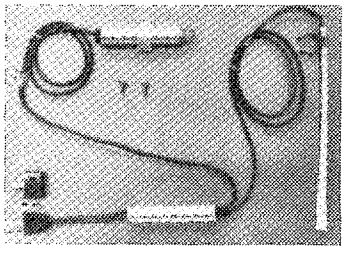
5-YEAR GUARANTEE



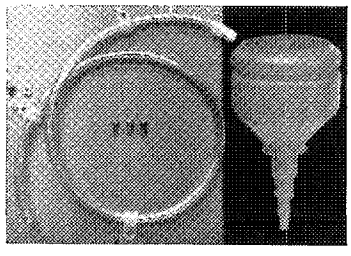
2 DUAL-AUTOMATIC HUMIDISTAT #H-1
The Humidistat—is a dual-automatic control which cycles the humidifier and the dehumidifier on and off as needed to maintain ideal piano humidity conditions.



3 1½ GALLON HUMIDIFIER #HM-IST
The Humidifier—automatically adds humidity to the piano during dry spells especially during winter heating season. Self-contained reservoir.



4 NEW AUTOMATIC LOW WATER WARNING LIGHT #LWL
Automatic Low Water Warning Light, fits all piano humidifiers and all pianos. Simple 10 minute installation.



5 NEW "EASY-WATERING" KIT #WK
"Easy-Watering" Kit makes it safe and easy to add water to humidifier when warning light indicates level is one gal. low.

OUR LARGER PLANT ALLOWS US TO BE THE LARGEST DISTRIBUTOR OF THE COMPLETE 5 PART DAMPP-CHASER SYSTEM FOR YEAR 'ROUND PROTECTION

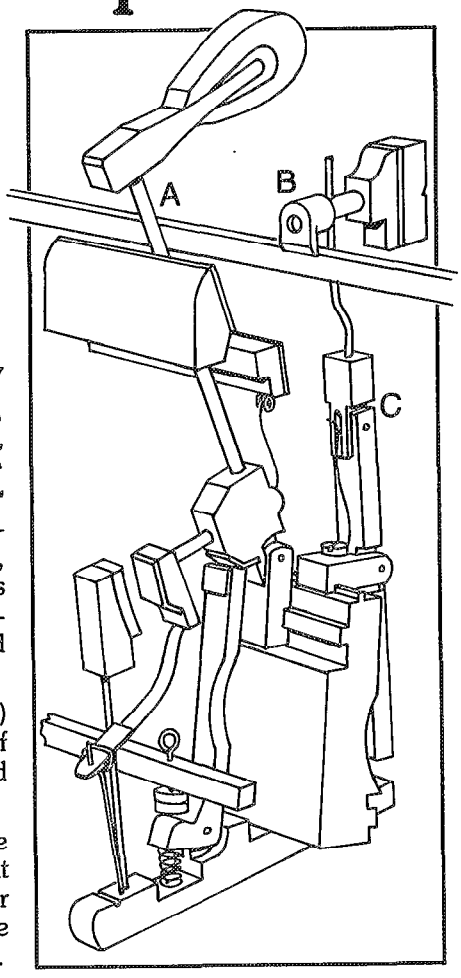
THE HOUSE DEDICATED TO SERVICE

Schaff PIANO SUPPLY COMPANY

(312) 438-4556

451 OAKWOOD ROAD, LAKE ZURICH, IL 60047

The Wurlitzer sostenuto system —so simple to service



INSTANTLY ACCESSIBLE FOR SERVICE

The sostenuto feature, a popular option on all current Wurlitzer studio, school and chapel pianos (Models 2962 and 2960), follows the principles proved in fine grand pianos and is even easier to service.

Operated from a sostenuto bar (A) actuated by the center pedal, any of 68 dampers may be picked up and held for sustained tones.

A Neoprene sleeve (B) on the damper block shaft has a lip that catches behind the sostenuto bar blade to hold the damper. Neoprene is a virtually indestructible material.

NO NEED TO REMOVE THE ACTION

Technicians will be pleased to know that all adjustments may be made from the *top* of the piano. It is not necessary to pull out the action.

Another fine point is our unique damper lever (C) which is made in two pieces, hinged and sprung to provide flexibility and make adjustments easier.

A new all-spruce Duraphonic Multiradial™ Soundboard improves tuning stability. In tests with up to 90% relative humidity, solid spruce expanded 5 times more than the new Wurlitzer design, causing more serious changes in string tension.

Wurlitzer Conservatoire Model 2960 with optional sostenuto meets all known school specifications. Maximum string length is 48½ inches.

As you continue to service our pianos, your comments will always be welcomed.

WURLITZER®
The Music People
DeKalb, Illinois 60115

Piano Technicians Guild
1982
January Update

Two New Films Now Available - "Action Centers" and "Herman Koford"

Two new films that were shown at the 1981 National Convention in San Francisco are now available for chapter programs. They are, "ACTION CENTERS" and "FIFTY MINUTES WITH HERMAN KOFORD".

"ACTION CENTERS" explores the various methods of repairing the center pin and bushing. The film covers liquid treatment, Heat and repinning. But best of all, there are exciting microscope close-ups of a cut center pin turning in a bushing magnigied several thousand times. This has never been seen before and is the result of special optical equipment built by Randy Woltz who also wrote, photographed and narrated the film. "ACTION CENTERS" is about 20 minutes long and is available in 16mm color-sound or a Super-8 version on a 400 ft. reel.

"FIFTY MINUTES WITH HERMAN KOFORD" is not only a film but a tribute to a long time craftsman and legendary member of the PTG. Herman is eighty-two years young, a member of the South Bay Chapter in California, a life member of the Guild, and was given the Man of Note award at the 1981 National Convention in San Francisco. In this film he shows you his "tricks of the trade", many interesting and useful tools gadgets, and ideas that have been copied over the years. "FIFTY MINUTES WITH HERMAN KOFORD" is a Super-8 color, sound film available in two versions: Mounted on one 800 ft. reel or divided into two parts (two 400 ft. reels). Both films were made by Randy Woltz (Orange County Chapter) at cost.

This Year All Guild Dues Must Be Paid In One Payment

By vote of the delegates at the 1980 Council partial payment of annual dues was cancelled. Dues must now be paid in one sum.

THANKS TO ALL FOR YOUR PROMPT PAYMENT OF DUES NOW BEING RECEIVED.

Statements for 1982 annual dues for all members (except students) were mailed the last week of November. If you have not received your 1982 dues statement please contact the Home Office.

HAVE YOU CHANGED YOUR ADDRESS? For your convenience, a Change of Address card was enclosed with every dues statement. Please notify the Home Office immediately if your address changes.

New Procedure For Seminar/Convention Date Approval

Make requests to your Regional Vice President who will check the date against a master list of approved and pending dates and refer the request with recommendation to Vice President Ernie Preuitt. The RVP will notify the chapter or seminar chairman whether the date has been approved. The Home Office will also be notified and the date will be entered in *Coming Events* section as soon as possible.

Please remember that the journals are now completed and into the printers hands six weeks before the date of the Jounal e.g. October 12 is cutoff date for all material for the December Journal. So please plan ahead for advertisements and to ensure the full period of publicity under the *Coming Events* section.

Democracy In Action

Who chooses the PTG officers who make up our board of directors?

Is it the delegates who vote in the elections at annual council meetings? The members when they vote for their RVPs in the regional caucuses? The answer is yes - and no!

The choice of who will hold the top positions for PTG during the following term is made not so much by those who vote as it is by *those who make the nominations*. The voters make their choice solely from the list of those nominated.

This is why it is so important for all members to take a deep interest in nominations. Whether you plan to attend the council elections or the regional caucuses, whether you will be a delegate or not, you still can take part in determining who will be considered as a PTG officer next July.

Our bylaws show that any chapter may submit a nomination and any member in good standing may offer his or her name for consideration. Think about it ....

The nominating committee selects one or more candidates for the offices of president, vice president and treasurer-secretary from the names submitted. Re-election to the same office for another term is not automatic. A nomination is required for every office including regional vice president.

The Guild needs the best qualified members as candidates for office. The choice of the best for our top PTG offices could be up to YOU.

Send nominations no later than March 10, 1982 to:

Ernie Juhn, Chairman, Nominating Committee, 109-01 72nd Road, Forest Hills, NY 11375 (212) 268-7263

Chapter Notes

The October meeting of the **San Diego** chapter featured an out-of-town guest, Paul Monroe, a regular contributor to the *Piano Technicians Journal*. Paul's talk was on his favorite subject, tuning.

The chapter held a promotional event at the Del Mar Fairground's "Home and Garden Show", the purpose being to promote the chapter and the Guild. The event was a success with much being learned and future events are sure to be more effective as a result. Many of the reactions were surprise and delight that such an organization existed.

--Gerald F. Foye
Secretary

The **Los Angeles** Chapter received Xenia Bauer as a new member, student class at the October monthly meeting.

The chapter decided to pay for labor as well as materials for the monthly notices of meetings. Paul Seaburn has been doing a terrific job printing and mailing a combined group of notices of chapter meetings.

Ed Schroeder gave a technical lesson on Torque, Twist, Stress and Strain. After defining each term, he showed how much a tuning pin will twist at one end before the bottom end will begin to turn. Likewise he showed how the stress and strain will affect different segments of the string before the end segments will change. It was a very unique demonstration and well worth serious consideration for each tuner in his understanding of the business. Student member Terry Powell gave a very delightful ten minute inspirational talk

--Harry Berg

After a sumptious repast served up by the Red Wheel, members of the **Central Illinois** chapter converged on Smith Music Hall on the campus of the University of Illinois.

When the regular business meeting was adjourned and the lights dimmed, Craftsmen member Dean Shank commenced with our regularly scheduled program: a slide presentation of historical pianos. After a short course on historical temperaments, Dean played a tape of piano music performed on instruments tuned to different temperaments. Thanks for a very interesting and informative program. Thanks also to Dean's U. of I. associate, Ken Drake, who worked up the program.

--Jerry Eagle

November Chapter Mailing

Anti-Trust Guide for Members giving 12 important area members should know about to avoid the possibility of an anti-trust action.

Notice of dropped members and transfers, etc. to affected chapters.

Bylaws Printing

The revised edition of the PTG Bylaws, Regulations and Codes has been printed and one copy is included in the December 15th chapter mailing.

Individual members may obtain a personal copy by sending a request to the Home Office. The printing is a short run and orders will be filled until the supply is exhausted.

PTG Copyright

All PTG pamphlets are now in process of receiving U.S. Copyright approval and unauthorized reproduction is therefore prohibited.

October 30, 1981

Mr. Don Santy
Executive Director
Piano Technicians Guild
113 Dexter Avenue N.
Seattle, WA 98109

Dear Mr. Santy:

Many of our students were able to attend the Texas State Seminar at Clear Lake City. They all returned very excited and anxious to resume their studies. I have always admired how piano technicians are generally anxious to learn new procedures and techniques as contrasted to educators, who too often feel like they *know it all!*

Regards,
Dr. David Petrash, Coordinator
Piano Tuning and Repair Program
Grayson County College
Denison, Texas

Agenda Book For July Council Session

The regular agenda books for the July Council session will be printed and distributed, as usual, in late Spring. One copy will be mailed to each chapter for review by any interested chapter member and then passed to the elected chapter delegate to the council session.

Now is the time for members who want a personal copy of the 1982 Council Agenda Book to make a prior order. The books may be ordered now and the fee is only $2.00 plus postage. By ordering now you can ensure receiving a copy.

PTG Calendar

1981

December 15	Committee reports due into the Home Office for midwinter board meeting.
21	Officer reports due into Home Office for midwinter board meeting.
31	Deadline for Hall of Fame nominations.

1982

January 1	1982 annual dues are due.
23-24	Midwinter board meeting in Seattle, Washington.
February 15	Deadline for submitting proposed amendments to the PTG Bylaws, Regulations and Codes.
March 10	Deadline for nominations for office.