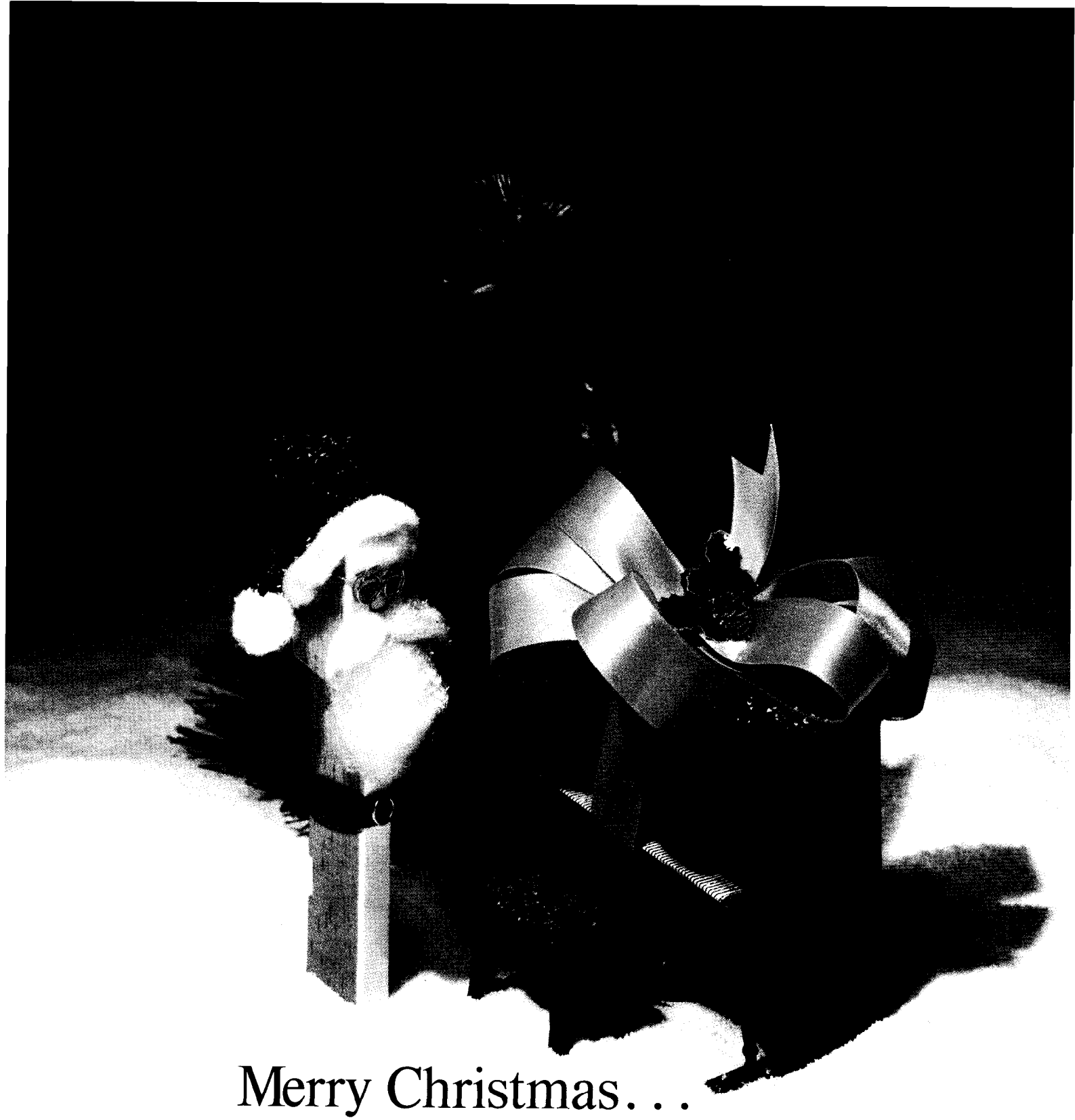
PIANO TECHNICIANS JOURNAL

December 1981

"Wrapped Up In Christmas"

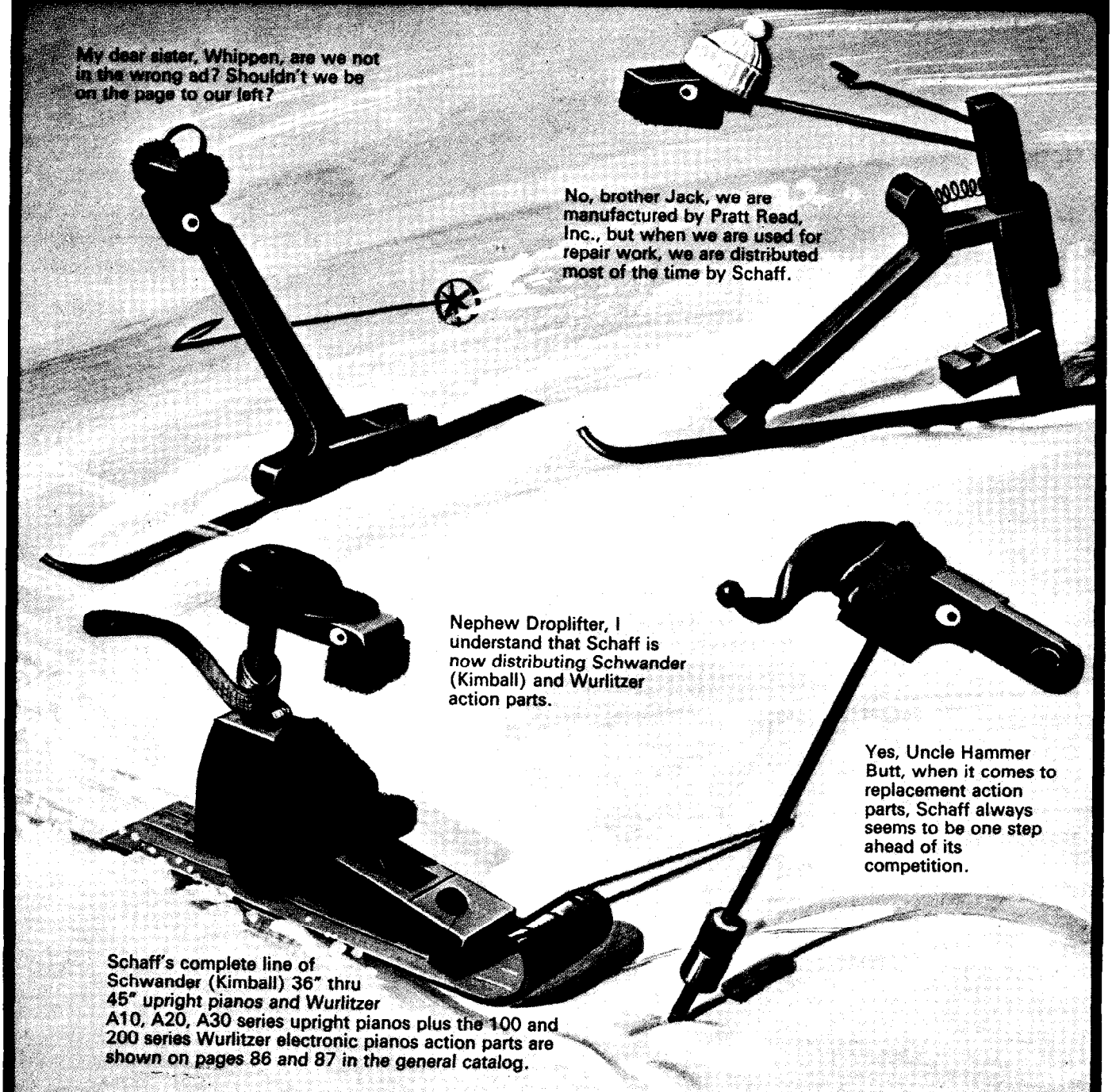


Merry Christmas. . .

Merry Christmas and Season's Greetings
to all our friends and neighbors, customers and suppliers,
and to our competitors throughout the world.
Gather 'round and rejoice
and may the New Year bring peace and prosperity
to all of us.

Pratt, Read & Co., Ivoryton, CT 06442

why is **SCHAFF** considered the action company?



***IF YOU WANT "ACTION"—WHETHER IT BE PARTS, TOOLS OR OTHER SUPPLIES—FOLLOW THE LEADER AND SELECT* SCHAFF!**

THE HOUSE DEDICATED TO SERVICE

Schaff PIANO SUPPLY COMPANY
451 OAKWOOD ROAD, LAKE ZURICH, IL 60047

Prices Subject To Usual Discount
For Same Day Service Try Our 24 Hour Phone
(312) 438-4556

Official Publication of the Piano Technicians Guild/December 1981 Volume 24, Number 12

Piano Technicians Journal

CONTENTS

COVER..."Wrapped Up In Christmas", a 1981 Norman Rockwell Collectors plate depicts the nostalgic "simpler era" of American art. It shows a young boy attempting to balance a load of gifts while his dog wraps him up with the leash.
Reprinted with permission from The Bradford Exchange

THE PIANO TECHNICIANS GUILD, INC.
113 Dexter Avenue North
Seattle, Washington 98109

Telephone: (206) 283-7440
682-9700

Office Hours: (Pacific Time)
8 am-5 pm
Monday-Thursday

8 30 am - 3:00 pm
Friday

Messages may be left after office hours by calling (206) 682-9700. Your call will be answered by a tape recording machine.

PIANO TECHNICIANS JOURNAL, the official publication of the Piano Technicians Guild, is published monthly and issued to members. Annual subscription price: $60 per year; $108 for two years; $5.50 per single copy. *Editorial Offices:* 113 Dexter Avenue North, Seattle, WA 98109. Telephone (206) 283-7440 or 682-9700. **Closing date for copy and advertising is six weeks prior to date of publication.** Advertising rates are furnished on request.

Reprints of most articles are available from the Guild home office, 113 Dexter Avenue North, Seattle, WA 98109. Price per page (plus postage): $1.25 for the first page of each *Journal* article researched, $1.00 for additional pages of the same article.

Second Class postage paid at Seattle. US ISSn 0031 9562 Foreign and Domestic.

ANNOUNCING THE HALE ELECTRO FORK

Unmatched for accuracy and stability. Small enough to fit your pocket . . . and easy on your pocketbook.

The Hale Electro Fork is the most accurate, stable and compact pitch standard ever made. It's the perfect alternative to pitch pipes and other outdated pitch determining instruments because it becomes your third hand.

It offers remarkable accuracy never achieved before. This pinpoint accuracy is guaranteed because the Hale Electro Fork uses a high frequency crystal. The unit is checked for accuracy after 100 hours of "burn in" time, then its exact frequency is measured and printed out on a certificate which is enclosed with each Hale Electro Fork.

The Hale Electro Fork also insures maximum stability under a wide range of operating conditions such as temperature, component aging and battery voltage.

Its pocket size allows you to take it anywhere. And it's designed to fit your pocket in more ways than one. And it represents a significant savings of $100 or more over many conventional pitch standards on the market today.

This easy-to-use unit is equipped with an on/off button, a three (3-4-5) octave range setting from C to B, continuous/intermittent sound and a volume control.

Now that you've read our pitch . . . get the pitch right with the Hale Electro Fork.

$89.95 Net

Patent Pending

Piano Tools Hale and Supplies

Make it a Rule — Use a Hale Tool

TUNERS SUPPLY COMPANY

Serving the Music Industry Since 1884

EASTERN BRANCH: 94 Wheatland Street, Somerville, MA 02145 (617) 666-4550
WESTERN BRANCH: 190 South Murphy Avenue, Sunnyvale, CA 94086 (408) 736-2355

THE NEW ENGLAND SCHOOL OF

STRINGED KEYBOARD INSTRUMENT TECHNOLOGY

Department of
North Bennet Street Industrial School

PIANOFORTE HARPSICHORD CLAVICHORD

TWO-YEAR COURSE

Instructors: William E. Garlick
David C. Betts

FIRST YEAR — In Tuning, Regulating, Repair and Maintenance, Acoustics, History, Business Practice and Promotion.
SECOND ADVANCED ELECTIVE YEAR — Comprehensive piano rebuilding, advanced tuning, regulating and voicing. Harpsichord and Clavichord maintenance.

N.B.I.S. admits students of any race, color, religion, sex, national or ethnic origin. For further information write: William E. Garlick, Program Director, Dept. Piano Tech., 39 North Bennet Street, Boston, Mass. 02113 or telephone (617) 227-2357.

HOW TO BUY A GOOD USED PIANO

A unique book that lets the buyer beware of potential pitfalls in choosing a used piano. The layman is aided by 40 photos identifying problem areas.

Many technicians use the book to hold adult education classes on buying reposed pianos. Repair and rebuilding work is obtained from these classes.

$3.95 single copy Quantity Discounts

Willard Leverett
8206 Yarrow Court
Arvada, Colorado 80005

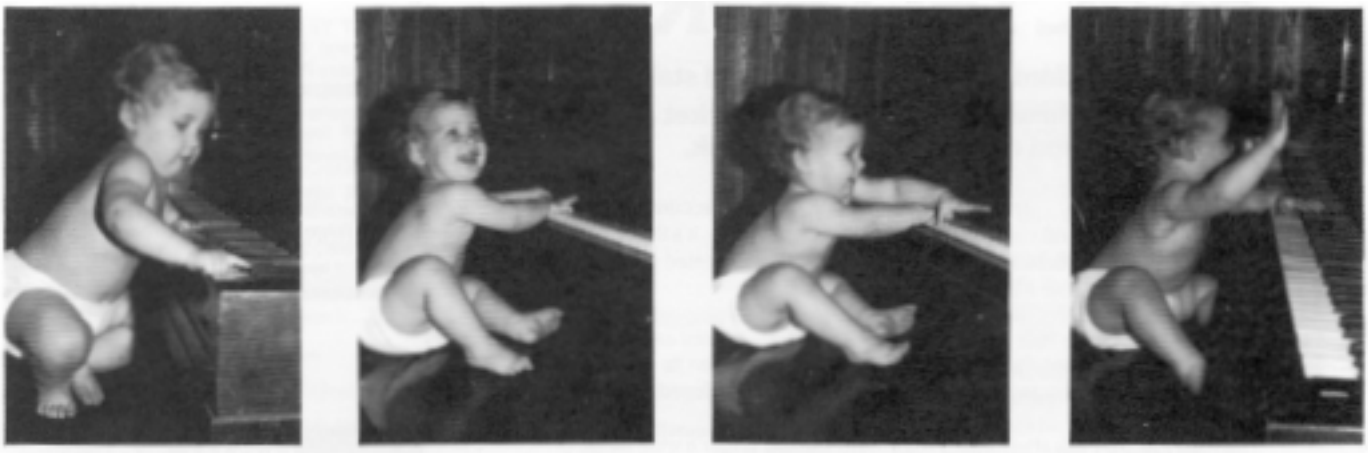
Quality Instruction Utilizing:
State-of-the Art Equipment
Low In-State Tuition for U.S. Citizens
Equal Opportunity Institution
Male, Female, Handicapped

GCC

Write for our brochure
Grayson County College
Piano Tuning and Repair
6101 Grayson Drive
Denison, Texas 75020

EDITORIAL

Don L. Santy,
Executive Editor



Appearing on the inside cover of a superb new book on the piano is a statement worth noting, "The Piano holds an unrivalled place in Western music. It's range, rich sound, and versatility have endeared it to music lovers everywhere, and it's value to performers, teachers and composers is immense." This excellent volume, appropriately titled, *The Book Of The Piano*, is published by Cornell University Press.

Another quote worth repeating and quite appropriate to the piano is one by the German Musician Schiller, "Amongst all things which cannot be described, the most indescribable is Beauty and it's effect. Not only can the piano be a thing of grace and beauty but sound eminating from this magnificent instrument has had an important role in civilizing, soothing and entertaining most of the cultures of the world. Since it's invention and development in the 17th century, following the harpsichord and clavichord, it has taken it's place among family treasures throughout the West".

The piano has been the source of inspiration and musical education to millions down through the years due to it's unique qualities of sound and versatility. No instrument has the capacity to teach, to enjoy, to produce fine music as does the Pianoforte, (it's full name).

How young is too young to learn to play the piano? Contemporary English musician and composer, Clifford Curzon, a self proclaimed "slow starter" said, "I've know people who, at age three, just toddled up to a piano and never left it, so to speak."

Many of the great masters of the 1700's and 1800's were known to have been protege's at the tender ages of three and four. They began performing at five and six and several became famous throughout Europe at seven and eight. Mozart was written up in the English publication, *Public Advertiser* in London in 1765 and was the "rage of all of Europe". He was featured playing the harpsichord with a handerchief over the keys. He performed from twelve to three daily in the great room at the Swan and Hoop in Cornhill. The article extolled the "Little German Boy, Wolfgang Mozart" as the piano protege of his time. He was just eight years old.

Schubert, Liszt, Mendelssohn and Beethoven all started very early in life. Carl Philipp Emanual Bach published his first set of sonatas as a child. Anton Rubenstein, who studied under Chopin and Liszt, was only five when he began to perform publicly.

Where was the source of this mysterious genius which lay in the minds of these children? Who first nurtured the enormous talents lying dormant in their infancy? When did this genius first manifest itself and what enabled it to blossom into such a powerful, long lasting force for civilization to savor forever?

Someone made it possible. Masters before them, parents who recognized the signs of genius early. Factors such as money, influence, available instruments, friends of the family, opportunity to travel and learn, teachers; perhaps any combination of these would increase that possibility. In any event, it would behoove all who are interested in and live around the piano to encourage it's use and mastery to the fullest extent possible - especially among the young.

The piano has "the most popular instrument rating" before both guitar and the organ, in that order. An evaluation of musical instruments which appeared in the September 1977, issue of *Changing Times* magazine rated musical instruments in terms of their "difficulty" and "easiness" to master. Interestingly enough, the piano was about average, along with the saxaphone, the trumpet and the tuba. Considered hardest were, clarinet, harp, piccolo, cello, french horn and oboe.

Marian Clinton, Executive Director of the National Association of Piano Teachers, sent me a re-print from *Better Homes and Gardens* magazine which discussed the age a child should start a music education. The

article reads: "You can introduce your child to music while he's still a baby. Sing to him, play records, or perform for him if you play an instrument. As he grows older, encourage him to make music himself by giving him musical toys such as a xylophone, drum, tambourine, or rhythm bells..A small phonograph that he can operate himself is a great way to whet his appetite for music."

"Find out if preschool music classes are available in your community. Such classes offer children a chance to sing simple songs, play rhythmic and melodic instruments, and participate in musical games."

"Music teachers say most children are ready to begin learning to play an instrument such as the piano between ages six and nine. (Of course, some youngsters are ready for lessons at an earlier age.) By then children know left from right, can read and count fairly well, and they have the muscular and neurological development as well as the self-discipline necessary to play a musical instrument."

Also brought out in the same article were such educational methods as the Pace and Suzuki systems. Both have been effective for both groups and individual instruction. The Pace system emphasizes improvisations, ear training, movement, blackboard activities and musical games. According to Suzuki, a child should learn music the same way he/she learns a language - through repetition and imitation before learning to read it, (remember the movie "Music Man" a few years ago).

Personalities and physical structures also play an important part in a childs ability to master a musical instrument. Persistance and patience are paramount. A cellist needs long fingers, a trumpet player strong lips and good lung power. Length of arms, size of hands, shape of jaws all enter the picture in the learning of a musical instrument.

Experts agree that some important considerations should be taken when a child starts his or her musical education.

*Lessons from a fully qualified teacher with a personality which will blend well with the childs.

*A high quality instrument. The piano should be properly tuned and maintained and the bench adjusted to fit the torso of the student.

*A quiet place, away from other children, television or other distractions which will take childrens minds off of what they are doing.

*Listen to the child play, encourage them and take an interest in their progress.

*Don't put the child on display unless he or she wants to be.

*Expose the child to as much music as possible both in and out of the home.

*Let the child play the kind of music he or she enjoys. Try to keep lessons from becoming a "drag".

The Tuner-Technician has a great opportunity to educate the parents on not only the quality and condition of their pianos but on the use of them as well. It should be explained at every opportunity that learning to play the piano will become a social asset. Even though a child may not become a virtuoso or even a performer, the continual enjoyment of music and it's overall enhancement of life will be worth the time, effort and money invested. Extoll also the side benefits such as the development of self discipline, persistance and music appreciation.

The Piano. A thing of incomparable tone and beauty. "It can lend discreet support to the shyest chamber soloist, and it can hold it's own against the forces of a full symphony orchestra. It is the range, the extent, the capacity of the piano in every one of it's many capabilities that make it unique among musical instruments of the world".

---DLS

Reader Feedback

In his letter concerning the viability of the new tuning test, Ben McKlveen mentions a variation of 20 percentage points that he has personally experienced when taking this test. I found this very interesting and wondered why this might be so. My own reservations about the new testing procedure might be related to Ben's experience.

Although I do not question the accuracy of the Sight-O-Tuner that is used for this test. I do question its validity. Under the best circumstances a piano is a very unstable instrument. Very minor variations in either air temperature or air moisture content will have an effect, not only on the pitch of the strings, but on the characteristics of the tone itself.

I would not argue for one minute that a sophisticated electronic device such as a Sight-O-Tuner cannot detect these variables. I sincerely believe that it can. My contention is that these variables are constantly changing and that the circumstances under which the tuning of a piano can be measured are relevant only to that particular day.

Piano figurations are not constant. Each day, after use, the hammers are more flattened and more grooved. The sound board will have either absorbed more moisture or lost some. The fatigue factor in the string is changed. Gluing will have weakened. (Whether these changes are significant can be argued.) In addition, we as individuals have changed. We are older by one day, one week, one month or one year since last tuning a particular piano.

In my opinion, if it has never been done before, a series of tests relative to its own constancy should have been made of the new testing procedure. As is now the case, a certain piano should have been given super tunings by three top technicians, graded electronically, and then had attempts made at duplication. Then the entire sequence should have been repeated using the same participants but conducting the experiment first in a weekly, then a monthly and finally in a one year time frame. After this, the entire process should be repeated but using different personnel.

It will be said that in effect this is what we are doing now. The difference is that at the moment everyone involved in turning out to be a guinea pig and stigmas are resulting because of it. Under the current testing process, someone is being asked to attempt to duplicate tunings that may have taken place a week, a month or perhaps many months ago. This may account for the 20% variance mentioned by Ben.

To really be fair to any applicant, I believe that the super tunings should be done immediately prior to the applicant taking his or her test. A horrendous thought, of course.

Jim Coleman and Dr. Sanderson are to be commended for their attempt to produce a more uniform and objective mode in testing potential members to PTG. But this testing procedure is truly cumbersome, time consuming and expensive and I will continue to question its role in the examination process until the factors I mentioned have been full resolved in my mind.

Dennis Kurk

PRESIDENT'S MESSAGE

Sid Stone, President

Report On China

Editor's Note:

We have received a report from President Sid Stone regarding his recent trip to China. Sid travelled there with his wife Alice, her daughter and his son, (who are also man and wife). In one of his letters to the home office he stated "Alice hasn't stopped talking since we got here". She is a native of China and has many friends and relatives living there. I enjoyed the article so much I would like to share it with the members of the Guild.

---DLS

The trip to China was so overwhelming that in writing about it I find myself in the predicament of the mosquito who flew into a nudist colony. After surveying the territory he uttered, "Where do I begin?"

The beginning of this article is the most difficult. I could start with the problems facing China, or the sites we visited, or our visit to piano factories and meetings with two piano technician groups, or the reunion of Alice and her family after 20 years separation. A logical beginning might be the most interesting thing about China: the Chinese people. I saw only a small fraction of the one billion people living in China. However, those few million I did see impressed me quite favorably. They are a hard working people, friendly, surprisingly happy and better dressed and fed than I expected. I remarked to one Chinese who spoke impeccable English, "I have not seen one Chinese child or adult who looked undernourished--on the other hand, I have not see a fat Chinese." He replied, "How can we get fat on a monthly allowance of six ounces of sugar, 15 kilo rice, five ounces cooking oil, one kilo meat?" These food items are purchased by coupons, with government price regulations; but many items may be purchased on the "free market" at prices considerably higher. It is apparent that the coupon system is holding down China's rate of inflation.

All drinking water has to be boiled. Every household and hotel room has thermos bottles of hot water. Some of the most fabulous meals I have ever eaten were on this trip; yet with all the delicious courses served came the sobering fact that every time one of Alice's relatives entertained us at a restaurant, that meant a month's salary on the part of the host. Their pleasure and desire to entertain us in such fashion would have me convinced that is is "better to give than to receive".

Two meals stand out in my memory: (1) The twenty course dinner given by Alice's classmates of some 30 years ago at the home of one of her first boy friends. (2) The all vegetable dinner hosted by the Bureau of Foreign Affairs in Shanghai. The dishes were prepared to look and even taste like a dozen or more different meats and fishes. I am not a vegetarian, but that was one of the best meals I have ever eaten.

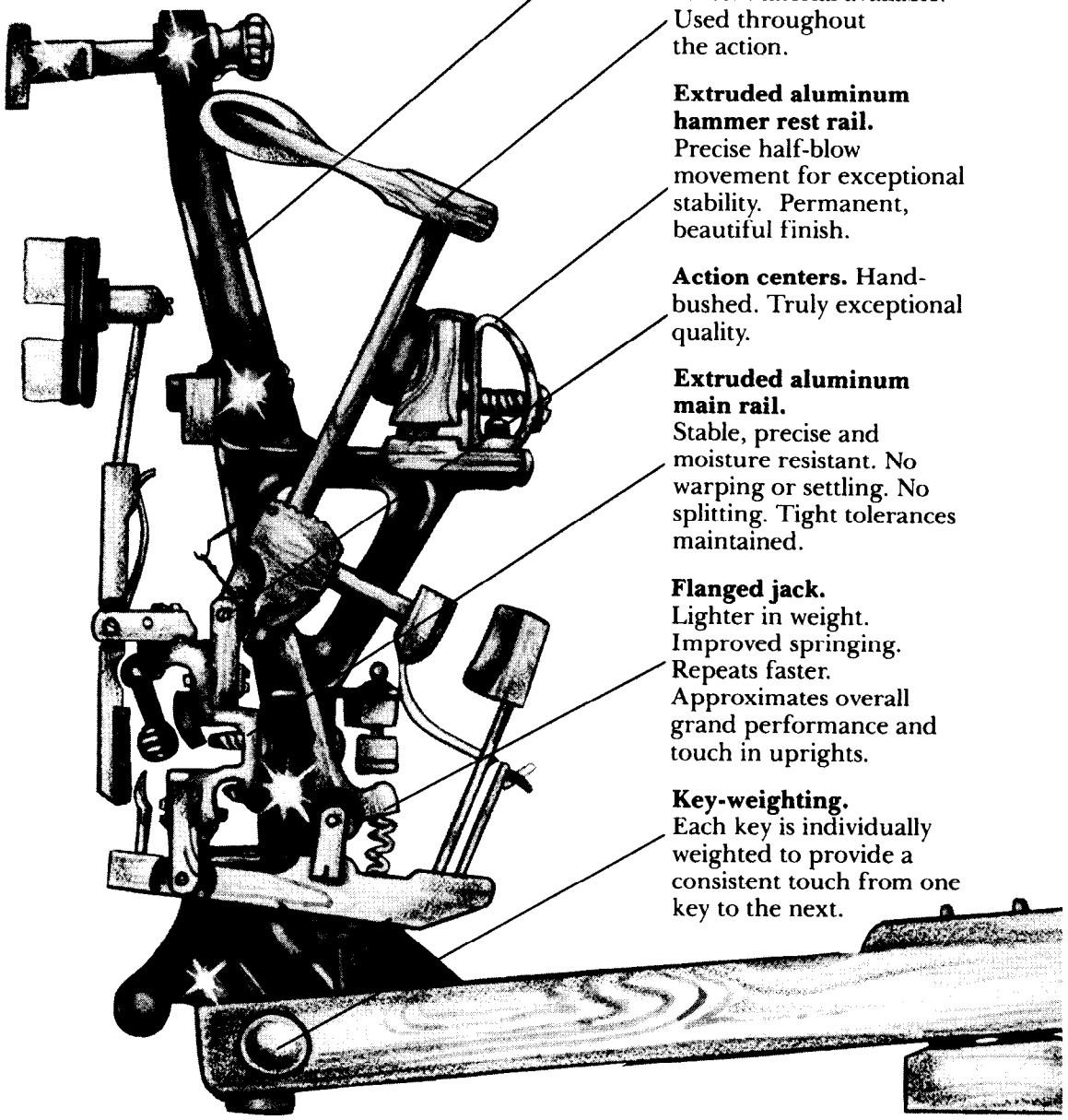
Before we took this trip we were told, "You will be disappointed", referring to (1) the living conditions, (2) the lack of "creature comforts" for the visitor, and (3) the awareness of China's unique and immense problems. This trip definitely was not a disappointment. (1) The living conditions are being improved; (2) the inconveniences experienced by visitors was of little importance to one who well remembers the Great Depression; (3) the government is taking steps to feed, house and clothe nearly one-fourth of the world's population--and I believe their programs will work if they have not interruption from within or without.

One interruption from within, 1966-1976, had a devastating effect on the life and economy of China. It was the so called "Cultural Revolution" with the notorious "Gang of Four". The injury wrought during those ten catastrophic years was brought to my attention more than a few times.

When travelling to the Capitol of China, Beijing (Peking), one is impressed with the amount of construction going on. I would be surprised if there is a city in the world with as

Continued on page 31

Schwander Actions. The key to Kimball's great sound.



Action brackets. Aluminum. Three instead of four. Space saving. More room for the performance parts.

Hard rock Maple. Finest material available. Used throughout the action.

Extruded aluminum hammer rest rail. Precise half-blow movement for exceptional stability. Permanent, beautiful finish.

Action centers. Hand-bushed. Truly exceptional quality.

Extruded aluminum main rail. Stable, precise and moisture resistant. No warping or settling. No splitting. Tight tolerances maintained.

Flanged jack. Lighter in weight. Improved springing. Repeats faster. Approximates overall grand performance and touch in uprights.

Key-weighting. Each key is individually weighted to provide a consistent touch from one key to the next.

You know the importance of a piano's touch, and so does Kimball. That's why we manufacture Schwander actions ourselves...to the strictest of standards...to be the very finest made anywhere. At Kimball, we put as much care into our pianos as you do.

kimball®

The key to sounding great.

Kimball Piano & Organ Co.
1549 Royal Street • Jasper, Indiana 47546
A Division of Kimball International, Inc.

THE TECHNICAL FORUM

Jack Krefting, Technical Editor

We have all seen butchered pianos out there — horrible examples of lousy workmansip are not hard to find — and most of the time these were the result of lack of experience and knowledge. The beginning technician just couldn't resist the challenge of getting in there and taking things apart, making up in enthusiasm what he lacked in expertise, and the result was a poor job. Inexcusable? Well, certainly, but in all candor most of us would have to say that we'd like to have a lot of those early rebuild jobs back; at least we did the best we could.

From an ethical standpoint, I think it is far worse when an experienced technician makes an error in judgment; partly because it shouldn't happen at all, and partly because his fees are much higher so the mistake is more costly. One example of this would be the technician who is called to appraise an old piano late in the day. The technician is tired, and his initial impression of the piano is favorable. He remembers a number of fine pianos of the same make, and although the treble tone is terrible on this one, he notes that the hammers are worn to the underfelt. So he makes his appraisal based on the fact that a new set of hammers will be needed, together with shanks, flanges, keyframe felt and regulating. His client buys the piano, and the technician removes the action. When the work is completed, the tone is still terrible because the soundboard had lost its crown, a fact that had escaped the earlier notice of the exhausted technician.

Probably the riskiest and least supportable position, though, is that taken by the technician who thinks that it is possible to improve the design of even the finest grand; and, armed with some theories and a calculator, proceeds to make unalterable or radical changes in a fine instrument owned by a customer. I have heard stories of every possible mutilation of hammers, or at least I think so until I hear the next story. One technician reportedly cuts half-moon-shaped holes in soundboards, another adds lead to the back side of grand keys, and still another forces plates to bend to match the contour of the bridges. The most common pitfall in recent years, though, is the idea that when restringing a piano the technician ought to change wire sizes so that certain ideal criteria are met on paper.

There is no doubt that many pianos were poorly scaled, and could certainly benefit from modern thinking and techniques, a far cry from the empirical environment in which they were designed. But many other pianos, exhibiting seemingly inordinate unevenness in, say, tension measurements from note to note, were designed that way deliberately. Someone else figured out the "ideal" scale and tried it on the piano, only to find that it didn't work as it should have; so empirical changes were made until the design worked, regardless of what effect such changes might have on the "paper" scale.

Some technicians are making invaluable contributions to the state of the art by experimenting, as the best piano engineers and technicians have always done; others are simply making changes for the sake of change, hoping and eventually believing that the instrument sounds better because of the change. There is seldom a way to evaluate the results of any one change because most technicians will not go to all the trouble of tearing a piano down and reassembling it without making several changes at once. If more than one change was made, it is likely that there will be a difference in the result, but unlikely that the experimenter will know precisely which change had the greater influence.

I get a surprising number of letters from technicians who say, usually in passing, that they are doing a lot of experimenting. "I was going to write you last night," wrote one, "but I had to rescale a piano...". Another mentioned in a postscript that he had six rescalings to do in the next three weeks, in addition to his other work. Can so many pianos have been designed so poorly, one wonders, or is the technician adorning the truth just a little? Possibly there is some ego satisfaction in the knowledge that one has the ability to decipher the equations involved, but there is no guarantee that the result of arbitrary changes will be beneficial, even if they look better on paper. I don't want to diminish the fervor of the experimenters among us, because in many ways they represent the cutting edge of the state of the art, but I would appeal to those with lesser experience to confine their experiments to pianos of their own, rather than learning expensive lessons on a customer's piano.

THINNED TREBLE SHANKS

QUESTION: *"...I have noticed that some old grands have hammershanks that are carved down to a much thinner cross-section in the high*

Open For Business!

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

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

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

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

WURLITZER®

The Music People

DeKalb, Illinois 60115

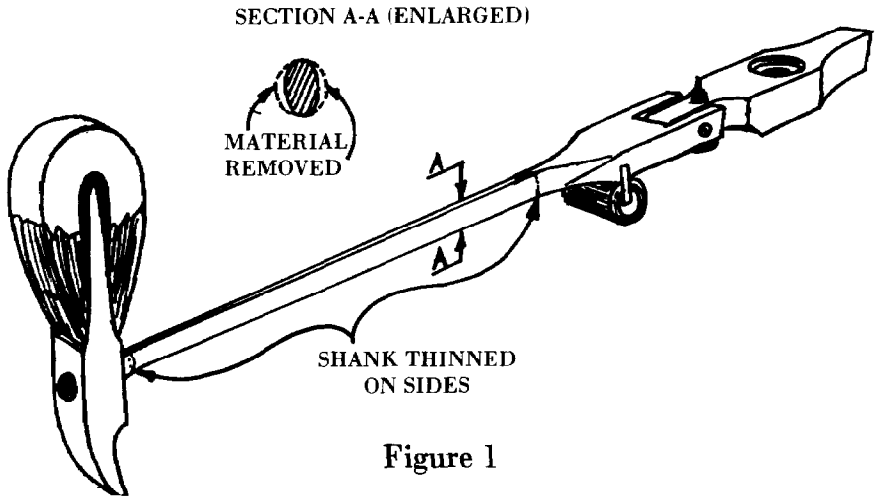


Figure 1

treble. If the idea here was to reduce the weight of the action for faster repetition, why not do that throughout the scale?..."

ANSWER: The reason for thinner shanks is that this reduces the woody sound that can develop in the top of the scale. It is almost a knocking or slapping sound, created by the mass of the shank and hammer molding. Depending on how the rest of the piano is designed, the sound can be objectionable and the cure is to thin the treble shanks as shown in **Figure 1.** This will naturally have an effect on the weight of the action, but the designer would compensate for that with lead in the keys.

Thinned shanks aren't seen much anymore, although it is common to see shanks which are round for a greater portion of their length in the treble section, as illustrated in **Figure 2.** The first shank pictured is square or octagonal for most of its length, which gives it the strength to whip a heavy bass hammer around without breaking. The second shank is less massive, and the third is more round than square, intended for use in the high treble.

Ideally, one might suppose that the designed downweight would prevail throughout the scale, as indeed it sometimes does. More often than not, though, it is uneven and gets heavier in the bass. I don't think anyone can lucidly defend unevenness among neighboring keys, but maybe there is some basis for the argument that the bass can be heavier than the treble. Certainly the repetition rates which would be customarily expected in the treble would be rarely if ever demanded from the bass, if only because of the nature of piano music as we know it; the rapid trills, triplet figures and other sparkling effects that seem to dominate piano works of the Romantic period, for example, apply principally to the treble. Most piano compositions would tolerate single escapement in the lower part of the scale, in my opinion. Perhaps for this reason, rapid repetition rates are considered less important in the bass.

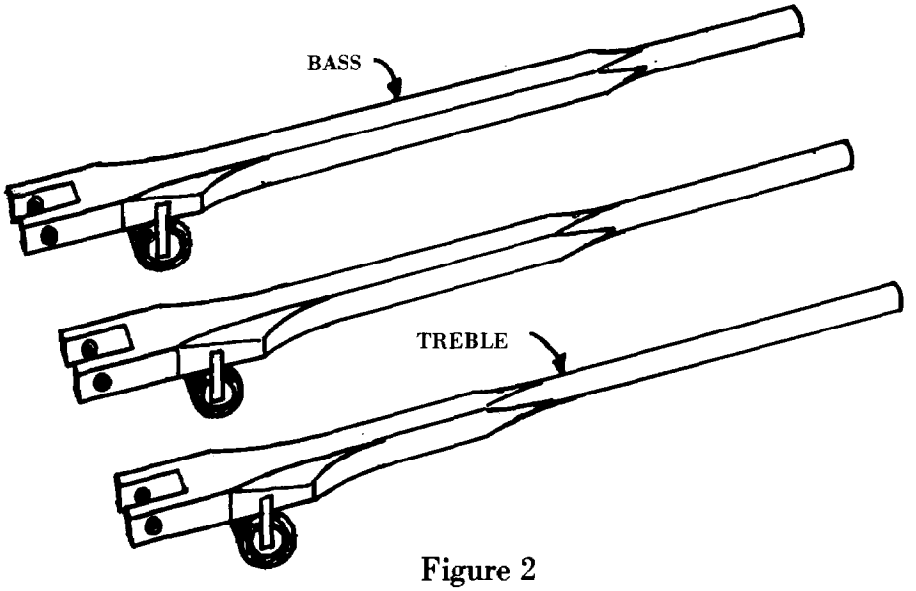


Figure 2

PIANO WIRE

QUESTION: *"Dear Mr. Krefting:*

I've noticed that in the lower priced pianos, strings are extremely rusty in a matter of two or three years, therefore, I must conclude that there would be different grades of piano wire. I have read that this type of wire must have special properties not found in any other wire, yet there must be something in the manufacturing process that contributes to an inferior grade. Its very hard to get answers to these questions.

"Are there different grades of wire and usually how many? Do we have a previous article in the Journal *dealing with this question. If not, it would be nice to have information dealing with piano wire."* — **Harry H. Ritchie, Elizabethton, Tennessee**

ANSWER: There is basically only one grade of wire that is strong enough for our purpose; however, within that very high set of standards there is room for variation. Depending on the way the wire is drawn, it can be made somewhat higher or lower in surface hardness and tensile strength. Wire makers will offer a standard product to the industry which, because of high volume, can be sold at a reasonable price. If the piano maker is able to use a standard wire in his instruments, he can get it at a lower cost than if he orders a special wire made to other specifications. This does not mean that it is an inferior grade, nor that special order wire would be any better; but it would have different properties that would make it perform differently.

Suppose, for example, that a piano maker had designed a scale with a counterbearing angle that was unusually high, and that the plate utilized an integral capo bearing surface. Hard wire would be a poor choice for this design, because it would have a tendency to cut grooves in the capo bar. On the other hand, suppose the capo surface is hardened steel, in the form of some sort of insert. Hard wire would be advantageous in this instance because it would have less tendency to flatten at the capo bar.

Similar variations in the tensile strength may explain why certain old

pianos with long-legged treble scaling simply will not accept standard replacement wire. The wire reaches its elastic limit just as it is reaching its correct pitch, and changing wire sizes won't help enough to make the difference. Wire is harder on the surface than it is inside, because of the extreme pressure exerted on it by the die during the drawing process. And the more times the wire is drawn, the harder it becomes; this is the most probable explanation for the fact that changing to a smaller wire size will reduce the incidence of string breakage caused by excessive tension.

The reason that strings on some pianos become rusty much sooner than on others has a lot more to do with processing methods than wire quality. Some piano makers apply a rust inhibitor to the strings, and others do not; some have air-conditioned stringing rooms, some must ship their instruments over water to market, and some require gloved hands during stringing. Some factories are more humid than others, and the variation among piano showrooms is even greater.

I have noticed that fresh wire has quite a bit of preservative on it, which seems to dissipate or evaporate with time, whether or not the wire is installed in a piano. When the wire sits around the shop, it loses this bit of protection and can even be rusty on the coil. It would seem to be sensible to keep steel supplies, like wire and tuning pins, in a dry room; whether this hastens the dissipation of the preservative, I don't know, but at least the stuff won't rust on the coil. Once installed, you can always add a film of petrolatum.

If this is used the technician should be careful to keep it a very thin coat, to avoid discoloration of hammers and dampers, and to prevent false beats which can occur when a blob of Vaseline is in one spot on the wire. Also, be sure not to get any on the wound strings, as it will surely deaden them.

Plated wire is available from Roslau, which sells to technicians in this country through Pacific Piano Supply Co. I have never used plated wire and therefore have no opinion as to its tonal properties, but I'm sure we would all be interested in the opinions of those who have tried it.

GERMAN SILVER

QUESTION: *"What is German silver, and why is it used for centerpins?"*

ANSWER: It is an alloy of copper, nickel and zinc. It is favored for centerpins because it is tough, malleable and highly resistant to corrosion. It is essentially the same as nickel silver, which is used to make some of the more expensive brass-wind instruments.

STAPLING HAMMERS

QUESTION: *"Just how effective are the staples in piano hammers? I can't believe they would hold a bad glue joint, can you?"*

ANSWER: I can't, either, but that isn't the worst of it. When the staples are driven in, there is always the possibility that the wood molding will split. The process is presumably an economical alternative to wiring the hammers, a common reinforcement when moisture-sensitive hide glue was all that was available. Even wiring would be ineffective in holding the tension once the glue joint failed, but the wire probably took some of the stress off the glue joint, which kept it from failing in humid weather.

At least that was the theory. With modern glues, wiring is really not necessary as a reinforcement. In fact, hammer makers who use metal reinforcement nowadays probably do so at the request of the piano maker who fears a possible disadvantage on the sales floor if his competition had it and he did not.

TECH TIPS

"Repairing a broken hammer shank in either the hammer or the butt can be a problem when it is necessary to drill them, especially when the hammer is drilled at an angle. The following has worked well for me:

"Make the broken shank flat at the surface of the hole by sawing or filing flush. Use a prick punch to mark the center of the remaining shank, then drill a small pilot hole in the shank. Turn a small screw into the pilot hole; then apply heat as you would to remove a hammer from a shank. Pull steadily on the screw and most always the remaining shank will come free, leaving an undamaged hole. It is faster and easier but, more importantly, gives a better finished job." — **Jack Phillips, Pittsford, Vermont**

"Several of my fellow technicians have suggested that I submit a couple of piano rebuilding techniques which I have used successfully. I have rebuilt many grands of various makes including replacing pin blocks. After a pin-block has been correctly fitted to the plate and it is solidly fastened to the plate, before inserting the tuning pin bushings, I take a drill which will barely clear the plate and quickly notch the pin plank and will automatically center the drill (.257 or .272 or whatever) for quick and accurate drilling of the pin plank. I do the drilling before I put in the tuning pin bushings..." — **Glenn Erickson, Clear Lake, Iowa**

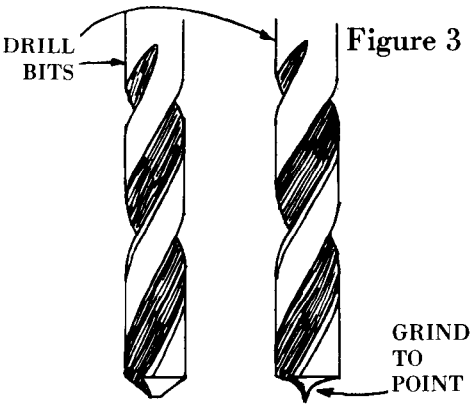


Figure 3

Our thanks to Jack and Glenn for these tips. The second tip brings to mind a special drill bit I once saw in Cliff Geers' shop. This was orginally an ordinary chisel-point high-speed steel jobbers' bit that had been modified as shown in **Figure 3** by grinding it until the tip was almost flat except for a point in the center. This design makes it possible to very accurately center the point of the drill to make a mark. The actual drilling of the tuning pin holes is done with a drill press and a pinblock bit, of course.

IN CONCLUSION

This month I have good news and bad news for our readers. The bad news is that Part II of Susan Graham's fine article on hammer hanging will not appear until next month, due to scheduling difficulties. The good news is that, after a four-month hiatus, the Rappaports are back with us in this issue.

Please send all articles, comments, questions and tips for publication to me at this address:

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

You will note that this is a new address, as I recently remarried and moved across the Ohio River. Ruth and I send you our warmest regards in this holiday season, and best wishes for a prosperous and happy new year. □

GREEK MUSIC AND SCALES

From "Golden Age" to End of Hellenistic Era

Jack Greenfield ,RTT
Chicago Chapter

MUSIC IN THE "GOLDEN AGE"

When the fifth century B.C. started, the Greeks were seriously threatened by Persian conquest. Although the Persian war continued until 450 B.C., the menace of the Persians was reduced after their defeat by Athens in a major naval battle in 480 B.C. During the next fifty years, the "Golden Age" of Athens," Athens was the political and cultural leader of Greece.

Athens became the main center for poet-musicians who created productions that combined poetry, drama, dancing and music. The music was primarily vocal, sung unaccompanied or with music mainly improvised on the aulos or kithara. Other types of plucked string instruments also came into use. The *magadis,* described as a type of harp with a trumpet-like tone had twenty strings that may have been tuned as ten pairs of bichords or spaced octaves apart. The music of the middle half of the fifth century B.C. is considered the classical music of Greece.

CHANGE IN POPULAR TASTE IN MUSIC

In the final decades of the 400's B.C., political conditions in Greece became unstable with internal conflict among the city-states. The public taste in musical entertainment began to change. The performance of drama deteriorated and was replaced by vaudeville-type entertainment featuring parodies, comic scenes, acrobatics and ballet. Musicians no longer considered themselves composers and devoted their efforts toward increasing their virtuosity. While musical performance dropped in social status, the interest of scholars and intellectuals in music theory continued.

THEORY STUDIES CONTINUE

The Pythagoreans continued their philosophical studies in spite of the antagonism they aroused by their efforts to gain local political control. In the early 300's B.C. their main center was at Tarentum in South Italy "on the instep of the Italian boot". One of the most noted Pythagorean mathematicians and philosophers of the time, Archytas introduced simplifications of Pythagoras' ratios including the ratio 5:4 (386¢) to replace Pythagoras' 81:64 (408¢) for the major third. Many of the details of Archytas' life and work have been lost, but some of this information was recorded in books by later Greek writers.

Archytas was a friend of Plato and no doubt influenced his views on music. Plato may have spent several years studying Pythagorean philosophy in Italy before he opened his school in Athens in 387 B.C. Plato discussed musical scales, modes, and tuning from the standpoint of a philosopher.

Timotheus, a contemporary poet-musician, also active in Athens public affairs, was responsible for some practical advancements in music — he is credited with enlarging the kithara to twelve strings, introducing chromaticism, and writing more purely instrumental music. Chromaticism was not considered favorably by all. Aristophanes, the great satirist, also a capable composer, wrote music that parodied the effect on classical style by chromatic tuning and modulation.

Aristotle, whose education included studies with Plato in Athens expressed generally similar views as his teacher in writings on music later in the mid-300's B.C.

Aristotle had two students that became prominent — Alexander the Great, in political history and Aristoxenus, in musical history. Aristotle was a tutor to Alexander the Great in 343-340 B.C. Two years later, Phillip II, Alexander's father defeated the Greeks and became ruler of a union of the Greeks and Macedonians.

THE STUDIES OF ARISTOXENUS

Aristoxenus was about 35-40 when he arrived in Athens from his home in Tarentum sometime during 336-333 B.C. to study with Aristotle of the Lyceum. His previous education had included training by his father, a musician, and studies with at least one Pythagorean teacher.

Aristoxenus' writings dealt with music, history, philosophy and education. He wrote many books, 453 separate works according to one authority. All that remains today are portions of two or three books combined by someone, unknown, under the title *Harmonic Elements.* (An English translation, *The Harmonics of Aristoxenus* by Henry J. Macran was published in 1902) Aristoxenus included results of his work as well as knowledge gained from predecessors. Fortunately, additional studies by Aristoxenus have appeared in books written by his students or later Greek scholars who repeated some of the material in Aristoxenus' lost writings.

Aristoxenus was the first scholar who studied music theory from the standpoint of a practicing musician. Using methods he learned from Aristotle, he assembled theoretical, historical, and biographical information into an orderly coherent system. His

writings cover pitch, intervals, scales, keys, modulations and melody and give details on tuning of tetrachords and the Greek modal system. In contrast with Pythagoreans who focused their attention on intervals, he produced a comprehensive theory of scales.

Aristoxenus presented the concept of dividing the Pythagorean intervals into smaller units, — the whole tone, the semitone and even smaller fractions. The tone was the difference between the fourth and fifth, the octave was divided into six whole tones.

He differed with the Pythagoreans in taking a fundamentally different view that the trained ear, not use of the monochord based on mathematical calculations was the best judge of musical materials — beginning the first controversy in history between aural versus theoretical tuning with a tuning aid.

All of his ideas have not been accepted however. For example, instead of numerical ratios he used a less accurate system of approximation. In spite of some weaknesses in his doctrines, Aristoxenus' work is considered among the foremost expositions of Greek music theory. It had great influence on later musicologists. There was little change in ancient Greek music composition, performance, and teaching after him. Aristoxenus continued his work into the last quarter of the 300's B.C. The year of his death is unknown.

GREECE DECLINES, ALEXANDRIA BECOMES THE LEADER IN MUSIC

By the late 300's, Alexandria started to rise to prominence as the main center of Greek culture while Athens began to fade. Alexandria was founded in 332 B.C. as the capital after Alexander's conquest of Egypt. Its early population consisted largely of discharged Greek and Macedonian veterans and other Greek immigrants. After Alexander died in 323, his empire soon broke up. Egypt became an independent kingdom under the rule of Ptolemy, one of Alexanders generals. Alexandria attracted the stronger and more enterprising Greeks. It remained a great center of learning during the Ptolemaic period which lasted for three centuries and under Roman rule to several centuries more.

GREECE COMES UNDER ROMAN RULE

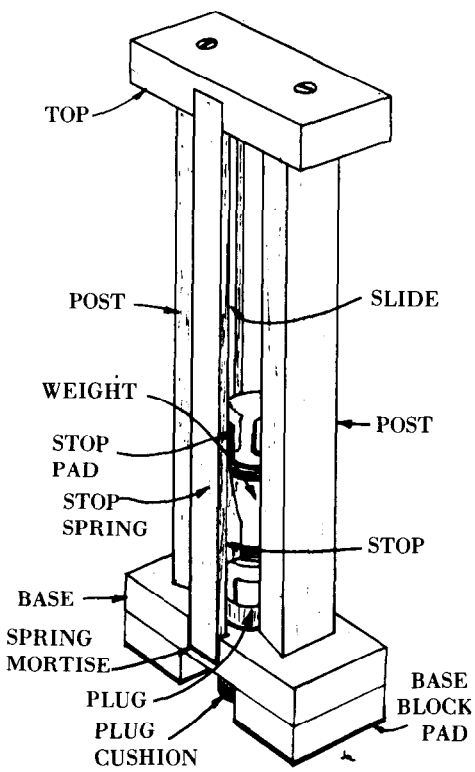
In Greece, after Alexander's death, Macedonian rule weakened and the Greek city states organized themselves in self-governing independent leagues. When the Greek cities in southern Italy came under the pressure of the Roman campaigns for control of the entire Italian peninsula, Tarentum obtained the aid of the military leader, Pyrrhus, a relative of Alexander, and a force of Macedonian mercenary soldiers. After winning several "Pyrrhic" victories in battles from 280-275 B.C. Pyrrhus withdrew and Rome took control of all of Italy. In 197 B.C. Rome first conquered Macedonia and Greece. Greece became a Roman province in 147-146 B.C.

THE EARLIEST WRITTEN GREEK MUSIC

The Greeks began to use a system of notation for writing music down during the 300's B.C. Unfortunately, by then classical Greek music had passed from memory and was lost. Several brief papyrus fragments of Greek music from about 250-200 B.C. have been found. An epitaph on a gravestone, possibly dating from as early as the second century B.C., found in Turkey contains a brief but intact diatonic melody. Although incomplete, the most extensive examples of ancient Greek music are from about 130-110 B.C., inscribed on stone found near Delphi in 1893. This music consists of two hymns showing definite tetrachordal structure, Aristoxenian scale patterns and chromaticism. □

TEST BLOW DEVICE

by Clair Davies RTT
Blue Grass Chapter



The Test Blow Device (TBD) is designed for use in the new tuning examination. It delivers a standard blow to the key when testing stability. Although not mandatory, its use has been approved by the Examinations and Test Standards Committee.

In my own view, every examiner should use the TBD, or something like it, so our procedures can be just that much more objective and consistent. When the test blow depends on the judgement or the mood of the individual examiner, there is too much variation in the strength of the blow, and we fail to have a standardized test. In extreme cases, lack of control can result in a very unfair test. Nearly anyone's tuning can be destroyed by unthinkingly vicious blows.

On the other hand, we can't risk going too lightly. Stability is the most important aspect of tuning. It far outweighs everything else. The finest, cleanest tuning on earth is entirely without value if it won't last through five minutes of normal playing. An otherwise mediocre but stable tuning would indeed be a better one. In testing, we need to have some evidence that the examinee has the skill to make the tuning last. So we must be sure to strike hard enough.

The Test Blow Device gives a uniform test. The blow is the same every time no matter who administers it, no matter what his/her state of mind. The standard, by the way, has been changed to 8 ounces dropped from a height of 6 inches. That's half a pound from half a foot. Any future changes can be accommodated by unscrewing the pipe caps and adding nails, or removing some of those already inside.

A lot of thought has gone into the design of the Test Blow Device. Every feature has been carefully considered and has a purpose. The simplicity of construction will hopefully keep it from breaking down at critical times. All the metal parts are placed so that the danger of accidental damage to the piano is minimized. The frame is made of wood for the same reason. Buckskin pads also are used to prevent trouble and to keep down the noise of operation. The pads on the stops themselves keep the springs from chattering, thereby increasing the sureness of their effect. The stops, of course, keep the weight from bouncing.

Metal springs were thought of but rejected. Wooden springs are used. They can't be bent out of shape and won't tear your clothing. Further, the springs are nested into mortises to protect them and to protect the examiner and the piano. The mortises in the top ensure a solid glue joint. Beveled posts allow extra room for the fingers.

The only deficiency of which I'm aware is that the TBD doesn't work well on vertical pianos. It does work well on grands, however, and that's all we need for now.

Anyone with good shop skills can build this device, although it will take some time. I've built quite a number and it still takes me about 3½ hours to do one. It should be no surprise if your first attempt takes all day. Looking at it differently, I would encourage even the unskilled to try it as a worthwhile manual arts exercise. Many of us making our living in piano service have appalling gaps in our knowledge of elementary handiwork. So I say, take on this project. There couldn't be a better opportunity to learn some basic things about craftsmanship. With yourself as the sole witness, you're free to make an unending, unembarrassed succession of instructive mistakes. The potential gain is enormous.

If you louse up the first one, throw it out and make another. I made six before I got the one that satisfied me. But I was thinking it up as I went along and that part won't have to be done again. You needn't plan to make six.

But go ahead and make one (or two) especially if you're already a CTE. Examiners are also technicians, and as technicians we're expected to be good with our hands. We should grasp every chance to extend our abilities as craftsmen. In fact, I think it's not unreasonable to aim at building a reservoir of skills, a reserve beyond what we normally expect to need, so that all those "easy repairs" really are easy, a reserve with which we can handle the unexpected with confidence.

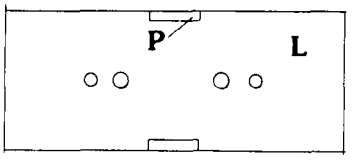
Access to a drill press and a tablesaw will make the job easier, but hand tools are all that are really necessary, tools that any good technician should have already or be planning to acquire.

I recognize that some people will decide not to make a TBD for themselves, yet may feel they need one, and I stand ready to do the job for them when asked.

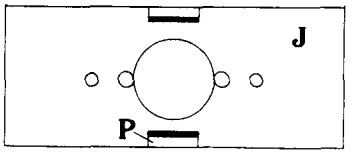
Drawing Code:

A. weight
B. plug
C. plug cushion
D. plug gluing pad
E. slide
F. slide groove
G. post
H. stop
I. stop spring
J. base

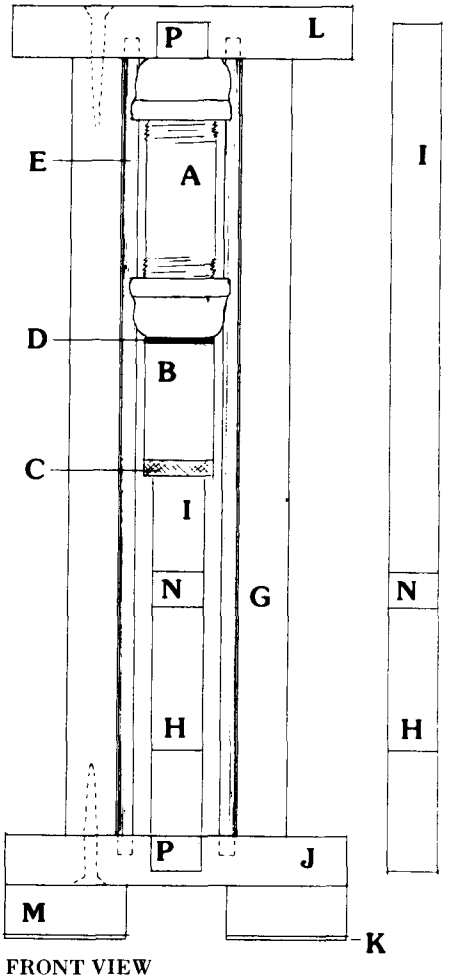
TEST BLOW DEVICE



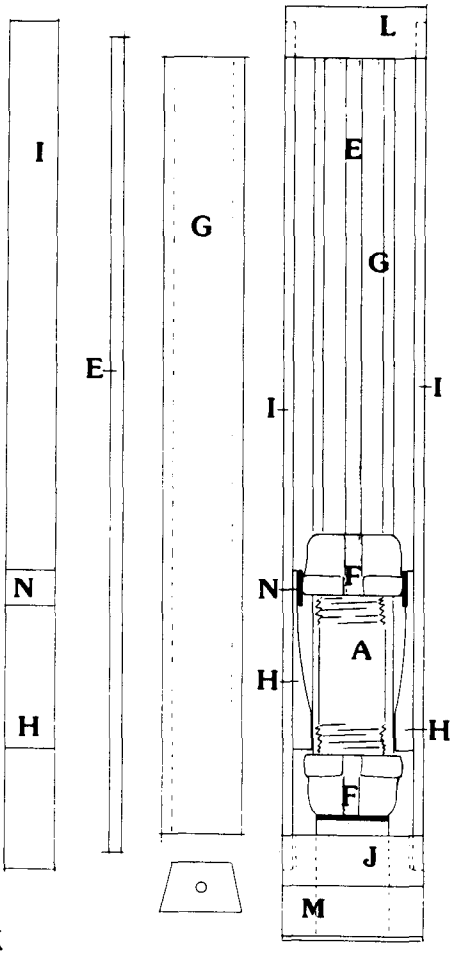
UNDERSIDE VIEW OF TOP



TOP VIEW OF BASE



FRONT VIEW
(WITH SPRING REMOVED)



SIDE VIEW
(WITH POST & SLIDE REMOVED)

K. base block pad
L. top
M. base block
N. stop pad
P. spring mortise

Fabrication Procedure:

1. Assemble the weight using two ½" galvanized pipe caps and one ½" pipe nipple, 2½" in length. The pipe size is called one-half inch although it actually measures larger. Grind or file the cap tops so that the overall length of the weight is 3½ inches. One end must be perfectly flat for gluing on the plug. Don't weigh the weight until step 15.
2. Clamp the assembled weight in a vise and cut slide grooves on both sides of the caps 3/32" deep. Start with a hacksaw, then enlarge them with a 7/32" rattail file. Be sure the grooves are parallel.
3. Cut the two slides 10¼" long from 3/16" steel rod. Square the ends and chamfer slightly with a flat file.
4. Cut the frame parts from ⅝" thick hardwood. (I've used the mahogany top of an old square grand with undiluted success):
   a. Two posts, 9¾" long with two 12 degree bevels. The end view will be an isoceles trapezoid, the longest side measuring one inch.
   b. One top and one base, each 1¾" wide and 4¼" long.
   c. Two base blocks, each 1¾" wide and 1½" long.
   d. Two stop springs, ⅛" thick, ⅝" wide and 10⅝" long.
   e. Two stops, 9/32" thick, ⅝" wide and 2¼" long.
5. Drill and mortise the base:
   a. Two slide holes ¼" deep and 1 3/16" apart, measured from the centers of the holes. Use a 3/16" drill bit.
   b. Two 1/64" screw holes, 2 1/16" apart.
   c. Mortises for the springs, 3/16" deep, 11/16" wide and ½" long. Use a ½ wood chisel and mallet. Keep the chisel sharp and be careful. (I have a scar on my thumb that would make you blanch and grow ill.) Glue buckskin pads in the bottoms of the mortises.
   d. A one inch hole through the center. For a clean cut use a hole saw instead of a drill bit.
6. Drill and mortise the top:
   a. Two 3/16" slide holes, ¼" deep and 1 3/16" apart.
   b. Two 1/16" screw holes, 2 1/16" apart.
   c. Mortises for gluing the springs, ⅛" deep, ⅝" wide and 7/16" long. Use the end of the spring as a template.
7. Drill the posts for the screws one inch deep in the middle of each end. Use ⅛" drill bit.
8. Glue and screw the posts to the base with #8 1½" flathead steel screws.
9. Glue the base blocks to the base. Clamp for a good joint.
10. Sand all surfaces and edges.
11. Glue on buckskin base block pads.
12. Cut the plug from a broom handle or ⅞" dowel, 1⅞" long. Apply ⅞" buckskin pad to the weight end of the plug and 3/16" thick keycloth cushion to the key end, using rubber cement.
13. Assemble the frame, slides and weight. The weight should move freely enough to eliminate the

Continued on page 21

A Half Century Of Progress

by Virgil E. Smith
M. Mus. & RTT.
Chicago Chapter

Continued from last issue

It must be pointed out that in the present approach to tuning we are not ignoring beat speed tables and traditional tuning checks completely, but simply modifying them to adjust to the effects of inharmonicity on tuning. We are substituting relative beat speeds for absolute beat speeds.

In tuning upper octaves the stretch begins immediately rather than waiting until two octaves from the top. The result is a straight line of stretched octaves from the temperament octave to the top C that allows everything to fall into place easily. The octave is stretched to the very top of the beatless area, either matching the fundamental of the top note with its corresponding harmonic or matching higher coincidental harmonics. The 4th is kept consistently faster than the 5th with a common top note, the 10th is slightly faster than the 3rd, and the 17th is slightly faster than the 10th. Too much stretch produces a beat in the octave, but too little stretch can only be detected by the checks.

The success of treble octave tuning is dependent on tuning every octave to its full stretch. Any slippage can affect everything above the note that slipped. One slow 4th means that every "stacked" 4th above that one would be flat unless the "stacked" 4th above would be expanded with too much beat to compensate. If everything is kept in full stretch the double and triple octaves are much easier to match. A note in the top octave is flat if it is only in tune with the single octave. Tune is slightly higher and it will also be in tune with the double octave, still a little higher and it will be in tune with the triple octave. If raising the note high enough to match the double, and triple octave makes beats in the single octave, the single octave note has either slipped or was not tuned high enough in the first place.

In tuning down from the temperament the octaves are stretched immediately just as in the treble, in a straight line down to the bottom of the piano. Because we are tuning down the octave is stretched to the very bottom of the beatless area. Just below the temperament the best checks are the major and minor 3rd with the same bottom note as the bottom note of the octave, and the inversion of the minor 3rd, the major 6th. The minor 3rd must beat faster than the major 3rd, but not faster than the major 6th. If the octave is well stretched, the minor 3rd may be slower than the major 6th, but it still should remain faster than the major 3rd. This should insure a consistent pattern of descending 10ths that can be continued when the major and minor 3rds are too muddy to hear. As the speed of the 10ths gets slower there is less difference in speed from one 10th to the next. In trying to make the descending pattern get slower it is easy to make the 10ths too slow and not really stretch the octave enough. This can be avoided by stretching each octave as far as possible without leaving a beat in the octave or making the 10th faster than the one above. As 10ths become difficult to hear the switch can be made to 17ths where the same principles apply.

Yes, the past fifty years have seen tremendous advances in our understanding of what is involved in fine piano tuning. However, we haven't always made the same advancement in developing techniques for easily achieving the high standard of tuning we now understand. It might be said that we are trying to achieve space-age technology with horse and buggy techniques. The new approach to temperament tuning makes most current temperaments obsolete. Many of us have learned to adjust our temperaments to meet these latest tuning standards, but they are not the best approach to the situation. Any temperament that involves tuning a major 3rd or perfect 5th after the pitch note is unsatisfactory because we do not know the exact speed of these intervals, and if we did it would be most difficult to duplicate that speed. Temperaments that begin with the octave are difficult first of all because of the range. Temperaments in the octave above A or C will involve beats that are too rapid for accurate measurement, and temperaments in the octave below A or C often run into problems with the break. Secondly, it is difficult to measure the exact stretch of an octave without other supporting intervals. Any temperament based on exact beat speeds will present many problems.

The real need of the hour is a temperament based on relative rather than fixed beat speeds, and that can adjust to the amount of inharmonicity and related octave stretch of the particular piano being tuned. This temperament should have three basic elements: (1) a reliable and measurable starting interval, (2) a method for achieving a correctly stretched temperament octave early in the temperament foundation, and (3) a procedure for determining early the speed of 3rds that will work best for the particular piano being tuned. I submit a temperament designed with these three principles in mind. It is not the last word in temperaments, and

improvements are sure to be made in years to come, but it does address the problems of the stretched octave temperament. Several of my students use it successfully, but I have had little or no response from others who have heard about it, probably because of my poor previous presentation. Here is an attempt to present it more thoroughly and more clearly.

The temperament comes in two forms, one beginning with C and the other beginning with A. The one is an exact transposition of the other. The temperament beginning with C uses the F3 to F4 octave, and is better for small pianos with a high break. It is impossible to begin on A and have an F to F temperament when the exact speed of the F3 to A3 3rd is not available. Since I prefer starting with A whenever possible I must use the D3 to D4 octave for the temperament. This works fine for the larger pianos, in fact I much prefer it as the minor 3rds are slower and therefore much easier to evaluate.

The starting interval, the first interval after the pitch note is tuned, is a problem since we do not know the exact speed of any interval within the temperament. This eliminates the faster beating 3rds and 6ths which change considerably with the slightest bit of contraction or expansion. We have already indicated the two problems with beginning with the octave, range and difficulty of measuring accurately the amount of stretch without supporting intervals. It will be remembered that we no longer have the octave checks, the minor 3rd and its inversion the major 6th and the perfect 4th and its inversion the perfect 5th, since the relationship of the intervals change when the octave is expanded. This leaves only the 4th and 5th. Expanding these intervals slightly would not drastically change their speed, but measuring the 5th at an unknown speed less than 3 beats in 5 seconds would seem to present more problems than the faster beating 4th. By process of elimination we are then left with the 4th as the best starting interval. We are not completely without problems with the 4th, since its slightly faster speed will vary from piano to piano, but there are more helps for determining that speed. The 3rd 6th check is available to insure that we have enough expansion in the 4th, and the 4th itself will keep us from expanding it too far. It is amazing how far the 4th can be expanded without noticeably changing that slow, roughly one per second beat, but as expansion continues it seems to suddenly jump into a more rapid beat. The object is to stop just before the change into the more rapid beat. The 4th is not expanded enough unless there is a decided difference between the 3rd and 6th in the 3rd 6th check, of course the 6th beating faster than the 3rd.

Establishing the correct pitch for the A when the temperament begins on A can present a little problem. Tuning A3 at exactly 220 may make it necessary to tune A4 higher than 440

Temperament beginning with C

TUNE		CHECK NOTE	CHECK
1. C4 to fork		Ab2	Ab10th with Ab & fork
2. F4 to C4	(4th)	Ab3	Ab3rd with Ab6th
3 G3 to C4	(4th)	Eb3	Eb3rd with Eb6th
4. F3 to C4	(5th)	Ab3	Fm3rd with Ab6th & Ab3rd
5. Bb3 to F3	(4th)	Db3	Db3rd with Db6th Gm3rd with Fm3rd
6. F#3 to A#3 & B3	(3rd & 4th)	D3	D3rd with D6th &
& B3 to G3 & F#3	(3rd & 4th)		F#3rd with G3rd
7. A3 to F3	(3rd)		F3rd with F#3rd
8. Ab3 to C4	(3rd)		Ab3rd with G3rd
9. C#4 to F#3 & G#3	(5th & 4th)	E3	E3rd — E6th & A3rd — Ab3rd
10. D4 to G3 & A3	(5th & 4th)	F3	F3rd — F6th & Bb3rd — A3rd
11. D#4 to G#3 & A#3	(5th & 4th)	F#3	F#3rd — F#6th & B3rd — Bb3rd
12. E4 to A3 & B3	(5th & 4th)	G3	G3rd — G6th & C3rd — B3rd

Temperament beginning on A

TUNE		CHECK NOTE	CHECK
1. A3 to fork		F2	F10th with F & fork
2. D4 to A3	(4th)	F3	F3rd — F6th
3. E3 to A3	(4th)	C3	C3rd — C6th
4. D3 to A3	(5th)	F3	Dm 3rd — F3rd & F6th
5. G3 to D3	(4th)	Bb2	Bb3rd — Bb6th Em 3rd with Dm 3rd
6. Eb3 to G3 & Ab3	(3rd & 4th)	B2	B3rd — B6th
& Ab3 to E3 & Eb3	(3rd & 4th)		Eb3rd — E3rd
7. F#3 to D3	(3rd)		D3rd — Eb3rd
8. F3 to A3	(3rd)		F3rd — E3rd
9. Bb3 to Eb3 & F3	(5th & 4th)	Db3	Db3rd — Db6th & Gb3rd — F3rd
10. B3 to E3 & F#3	(5th & 4th)	D3	D3rd — D6th & G3rd — F#3rd
11. C4 to F3 & G3	(5th & 4th)	Eb3	Eb3rd — Eb6th & Ab3rd — G3rd
12. C#4 to F#3 & G#3	(5th & 4th)	E3	E3rd — E6th & A3rd — Ab3rd

in order to carry out the pattern of stretched octaves. If A4 at exactly 440 is essential then A3 must be flatted accordingly. As soon as the pitch is established for A3 the 4th above (D4) and the 4th below (E3) can be tuned. The check notes for the 4ths, (F3 for the A4th and C3 for the E4th) should be tuned to a convenient beat speed if necessary. Especially is it helpful to have the F-A 3rd tuned at close to 7 bps. The 4ths are expanded as explained above using their respective 3rd 6th checks.

Obviously at this point no more 4ths are possible without going outside the temperament octave. The next step then is to establish the expanded D3 to D4 octave. Since there seems to be a wider beatless area when tuning an octave, stretching the octave would involve finding the extreme of that beatless area. When tuning the upper note of the octave it would mean tuning to the highest point of the beatless area, and when tuning the bottom note it would mean tuning to the lowest part of the beatless area. Some may prefer establishing the proper stretch by matching coincidental upper partials for the most resonance. In any case D3 should be tuned to D4 as flat as possible to activate the most resonance without leaving a beat in the octave. The D minor 3rd can be compared with the F major 6th, but the octave is not stretched if they are exactly the same speed. The greater the stretch the greater the difference in speed between the two intervals. Comparing the D minor 3rd with the F-A major 3rd will help evaluate the D 5th. The slower the beat of the 5th the closer to the same speed will be the minor 3rd and major 3rd.

With D3 tuned another 4th is available, the D3 to G3 4th. This 4th is expanded like the other 4ths with the check note B flat 2 providing the basis for the 3rd 6th check. The tuning of G3 makes available a very important check for checking the accuracy of the speed of the D-G and E-A 4ths. It involves the E3-G3 minor 3rd. If the 4ths are the correct speed the E minor 3rd will beat slightly faster than the D minor 3rd. True, we do not know the correct speed for these minor 3rds yet, but the check is valid if the F-A major 3rd is beating at approximately 7 bps. The minor 3rd is so sensitive that the slightest change affects its speed drastically. Therefore, if the E minor 3rd is the same speed or slower than the D minor 3rd we know that the E and G are too far apart which means that the D and E 4ths are too expanding or beating too rapidly. On the other hand if the E minor 3rd is too much faster than the D minor 3rd then the E and G are too close together indicating that the 4ths are not expanded enough or beating too slowly. If a correction is necessary it should be made at this time. The foundation of the temperament is now complete.

Now we are ready for the third element of the temperament, the establishing of the correct beat speed for the major 3rds. This is the most difficult aspect of the temperament to grasp. It involves expanding the E flat 3-A flat 3 4th to match the D-G and E-A 4ths, then moving the E flat 4th up or down as necessary until the E-G# 3rd beats slightly faster than the E flat-G 3rd. Obviously only one of the notes of the E flat 4th can be tuned at a time, but when one of the notes is moved up or down the other is then moved similarly to maintain the same relationship. There is only one place where the E flat 4th will allow the correct relationship of the 3rds. If it is too low the E flat-G 3rd will be too fast and the E-G# 3rd will be too slow, and if it is too high the E flat 3rd will be too slow and the E 3rd too fast. The speed of the 3rds is not important, the only requirement is that the E 3rd beat slightly faster than the E flat 3rd and the E flat 4th be correctly expanded.

Now everything should fall easily into place. Tune F# 3 to D3 so that the D 3rd is slightly slower than the E flat 3rd. Then retune F3 to A3 if necessary so that the F 3rd is slightly faster than the E 3rd. Every note is now tuned from D3 up through A3. Before continuing it would be helpful to check the beat relationship of the 3rds, especially the minor 3rds, and make any necessary adjustments. The temperament is completed by tuning up chromatically beginning with B flat 3, tuning each note so that the 5th, 4th, major 3rd and minor 3rd all fit into their respective patterns. It is most important to maintain the fast 4th slow 5th relationship, a pattern that will be continued to the top of the piano. B flat 3 is tuned between E flat

Continued on page 25

PIANO TECHNICIANS GUILD

1981

December Update

Report From The Executive Director

As 1981 slips slowly into the past, it is time to reflect on our progress - as well as our blessings.

It would appear at this time that we will end up the year in the black. Last year, if you remember, it was a year of frantic financial scrambling to off-set the ravages of inflation and the extra two budget months from the change in our fiscal year, plus the development of some new unbudgeted projects. This year everyone has practiced frugal financial controls and it looks good. Past members of the Board and Council can be thanked for their astute business sense in setting up the emergency fund which bailed us out of that crisis. Now is the time to begin building that emergency fund back up again.

The Testing program is a reality and the initial costs are behind us. Now we would like to see some income from testing fees coming in to off-set the money spent to get the program under way. The Guild has succeeded in establishing "high standards" in the industry and a tangible criteria for excellence with this program. As I see it, one of it's most valuable assets is the protection the craft will receive if the Government starts looking into the licensing of Piano Technicians. Having established acceptable standards in this field and a logical entity to control them, this process would be the Guild's and not political bodies or government officials. I have seen it happen in other fields and unless the Association representing the trade has developed an acceptable, high quality method of accreditation, you would be amazed at who undertakes the task and the disastrous results which can come about. Our program may not be perfect or even acceptable to all members yet, but real progress is being made.

After months of painstaking work, we believe we have the data processing system under control at last. Complaints have been reduced to a mere trickle but our depending on an outside source for this service still has it's problems. We invite members whose records are wrong to contact us IMMEDIATELY to get them straightened out. The time lapse in bringing about address changes is still cumbersome but we are working on it. The billing system has been simplified and will no longer be dragged out all year long thanks to Council action this summer.

Our conventions may be getting too cumbersome, too long and too expensive but they are getting better content each and every year. More and more members are returning from a convention giving rave reviews to their chapter members. According to all predictions we will be hitting an all time high in attendance in Washington D.C. this next summer. A truly exciting program is being planned. PTG has almost 20% of it's membership participating in it's convention. This is a very high ratio compared to other organizations. Much can be attributed to the excellence of the INSTITUTE and the fine fellowship which has been generated over the years. We are working on the logistic problems but there is little that can be done about the constantly escalating cost. We will simply have to adjust to this trend.

The JOURNAL will take on a slightly different "look" next year but the Technical portion of the publication will remain the same. The Piano Technicians Journal remains the only purely technical monthly publication in the world dedicated to the craft of Piano Technology. It is one of the Guild's greatest assets and the single most important benefit of Guild membership. We shall continue to guard it's integrity. We note from our mail that the Journal is being increasingly recognized by allied crafts and trades throughout the world.

Our Foundation is in the process of being formed and will serve as a repository for funds for distribution to worthwhile projects, causes and benefits within the Guild structure. It will require a separate board of directors, separate financial controls and budgets, separate administration and function and can be an invaluable aid in carrying out some of the long and short range goals of the Guild.

We are in the process of dropping some of the "resale" items traditionally available to Guild members. They cost too much to buy, to store and to handle. Members are reluctant to purchase them for the amount we are forced to charge to enable us to break even. We will concentrate on the best selling items and create some to meet the special requests ACTUALLY received in the office. Business cards seem to be one. We have designed and are printing a new business card for members. Cards ordered back East are more wrong than right and we have no control over their production. The new card samples will be mailed to members through their chapters for their perusal and orders.

The Board of Directors are coming to the Home Office late in January to hold their mid-year board meeting and we are delighted to have them. This

will be their second meeting here and it is always great to have them come to the Pacific Northwest and the "home base".

Like all businesses, the Home Office is structured for efficiency. Members who have questions, requests, comments and/or corrections for the Journal should address their letters and phone calls to the JOURNAL DEPARTMENT AND IT WILL BRING QUICK RESPONSE. Members who are making inquiries about their dues should indicate the DUES DEPARTMENT, likewise SUPPLIES and BOOKKEEPING. Incoming mail can then be dispatched DIRECTLY to the department and save time routing through other hands.

All members are cordially invited to make their feelings known, we are fully aware that a happy and satisfied membership assures a successful organization.

-Don L. Santy

1982 Billing Statements

Billing statements for 1982 have been mailed to all members (except students) and are payable upon receipt.

1982 GUILD DUES MUST BE MADE IN ONE PAYMENT

Delegates in the 1981 Council session adopted the new rule to eliminate partial payments of dues for 1982.

Please return the original copy of the statement with your full payment as shown on the billing.

Chapter Dues

The billing statement will show chapter dues ONLY for those whose chapters have already arranged for collection of chapter dues by the Home Office. If your statement does not show chapter dues - do not send your chapter dues to the Home Office.

If your statement shows chapter dues payable then chapter dues and Guild dues must be paid at the same time. This is a Guild Bylaws requirement.

Messages

Please do not write messages on the billing statement. To ensure fast accurate action, please write messages on separate sheet, for different departments handle changes or additions on your membership status.

Membership Cards

The new 1982 membership cards will be mailed after the full annual dues have been recorded. The cards are prepared by the computer company in the month following receipt of the full payment.

Change Of Address Cards

A new Change of Address card is enclosed for your convenience. Help us keep your address current to keep your Journals coming regularly.

We can no longer guarantee mailing duplicate issues not delivered due to a change of address and we must charge postage on all Journals mailed separately after the regular monthly delivery.

Business Aid Orders

Thank you all for sending your payment with your orders. The Home Office appreciates your cooperation in sending a check with each order.

Nominations For The Board

In compliance with the PTG bylaws, the PTG nominating committee is requesting nominations for all 1982-1983 elective position on the Piano Technicians Guild Executive Board: president, vice president, treasurer-secretary and all regional vice presidents.

A chapter many submit a nomination and any member in good standing may offer his or her own name for consideration by the committee.

When nominee suggestions are received by this committee, the proposed member will be sent a consent-to-serve form and information on the duties of the office. Each nominee may submit no more than 15 lines of typed qualifications to the nominating committee for consideration together with the signed, consent-to-serve form.

The committee will prepare a list of nominees showing the commmitee's selections for president, vice president and treasurer-secretary. All nominations received for the three offices, and for the offices of the six regional vice presidents will appear in the May 1982 issue of the *Journal* together with the committee's selection. In this way, the membership will be given information on every nomination received by the committee.

Please read the Guild bylaws, pages 7 and 8, for full information on the required nominations procedure.

Nominations *must* be submitted *no later than March 10* to: Ernie Juhn, chairman, Nominating Committee, 109-01 72nd Road, Forest Hills, N.Y. 11375 (212) 268-7263.

PTG CALENDAR

1981

December 15	Current PTG officers and committee reports due into the Home Office for inserting in the midwinter board meeting agenda.
December 31	Deadline for nominations to the Hall of Fame to be sent to Dick Bittinger, Committee Chairman.

1982

January 23-24	Midwinter Board meeting in Seattle, Washington.
February 9	Deadline for submitting proposed amendments to the PTG Bylaws, Regulations and Codes. Send copy to Charlie Huether, Bylaws Committee Chairman.
March 10	Deadline for submitting nominations for Guild Office to Ernie Juhn, Committee Chairman.

Chapter Notes

The **Utah Valley Chapter** October meeting was held at President Jack Reeves' home and shop on October 14th. We discussed possible instructors for our Intermountain convention that we will be hosting this spring, after which Dave Pitsch presented his report on the convention. He was able to attend the unscheduled class taught by Klaus Fenner, and learned some facts about piano wire that has put to rest some "old wives tales", if you will, that have been kicking around in our trade.

After Dave, Rick Baldassin explained Steve Fairchilds' method of tuning the last eight or so treble notes of a piano. We then convened to Jack's shop for each to try his hand at tuning a note or two that way.

--Vincent Mrykalo, Secretary/Treasurer

Because the State Convention was scheduled to be held on the second Monday, the **Southwest Florida Chapter** meeting was held on October 5, a week early. We opened the evening at Morrison's, as usual, with ten of us at supper. At the Business Meeting, Al Hirsch opened the meeting with a prayer. We are still looking for suitable pianos to be used for the Tuning Test. Hopefully we can arrange for three, one in Tampa, one in Pinellas County, and one in Sarasota. Our RVP has suggested that we remember to send cards to any PTG members who are sick, in other chapters as well as our own.

The Chapter Banquet will be held in Sarasota this year. Members will be notified by mail where and how to get there. It was voted to have some sort of entertainment, and to spend up to $75.00 for this if it is necessary. It was suggested that our Annual Chapter Seminar be held in March. Copies of the proposed Chapter ByLaws were given to Board Members and it was suggested that there be classified ads in the newsletter for anyone wanting to buy and sell parts or tools or for other reasons.

At the Technical Session, Dan Gullett and John Phillips tuned a temperment octave on a Yamaha Grand, using a Sight-O-Tuner. After it had been accepted by everyone, the octave was checked aurally. The two were quite close and made an interesting comparison.

The evening ended over coffee at the Country Kitchen.

--Duncan S. Ritchie, Chapter Secretary

The **Atlanta Chapter's** October 6th meeting at Southern Keyboard was well attended by 24 members and guests who enjoyed a lively and most informative presentation by Sally Jameson of the Central North Carolina Chapter. Sally had some new insights into not only voicing itself, but the approach of voicing.

In a short business meeting the Chapter approved membership applications for John Harriman, Harry Tolhurst, Paul Wellborn, and reinstatement for Johnny Wislon. Welcome Aboard!

Our "get well quick" wishes go out to Charlie Pritchett who broke his right arm several weeks ago. But you can't keep a good man down. If you ever wondered what it is like to tune left handed, ask Charlie.

The **Buffalo Chapter** of PTG met, as usual, at Popenbergs' Music Store in Amherst, New York, for our monthly meeting and technical session. We might be represented by one of our members at either the Syracuse (New York State) Convention or maybe the Cleveland one, the week prior. One of our members is also talking of going to the National Session of PTG Convention in Washington, D.C., next July. We may very well already have a Convention Delegate.

There were about a half-dozen of us regular vital-working members present today, along with 3 visitors. All three are doing at least some part-time tuning already; one also from Chataqua summer school.

Todays work continued on the Schulz Baby Grand. We completed the plain wire stringing, put on the double-wound single note bass strings, adapted the new letoff rail to the piano, and bent the spoons at the ends of the jacks - some to get better letoff (even for it to work anywhere near right, if at all). We then repaired a jack which broke in bending the spoon, brought near to pitch, tightened string coils, set the tuning pins, and spaced about half of the piano wire strings. We also took off the damper felts from the damper levers to be replaced. Next month the stringing will be completed, and action regulating started.

-Marty Turkiewicz, Jr., Chapter Reporter

The first meeting of the **Cincinnati Chapter**, after vacation, was held on September 29, at Ben McKlveen's residence. President Connie Chesebrough announced her plan to move to Central New Hampshire immediately, thus alerting our Vice President, Ben McKlveen, that his responsibilities have been increased somewhat for the rest of the year.

The chapter voted to accept applications of six technicians into student classification. During the summer vacation, our chapter purchased four pianos declared surplus by the Princeton School District. These pianos will be refurbished by our students and apprentices and ultimately sold for the benefit of our chapter treasury. Refreshments, consisting of "tuning pin punch" were enjoyed by all.

-Willard Sims, Corresponding Secretary

The **Los Angeles Chapter** gives scholarship awards to award winning piano students. Concerto awards to college contestants went to Judith Sandaval, first place; second place to Jung Lee Kim. High school level went to Rosemary O'Connor, second place to Diana Kong. Edris C. Leonetti was accepted as a student member. Technical questions and answers sparked a lively 15 minute period.

Randy Morton of Pacific Piano Supply, Co., spoke on "PRACTICAL GUIDE TO REBUILDING". He emphasized that only you the tuner is in complete control of that rebuilding job. Therfore, there must be complete explanations, good rapport, clear understanding of what will be included in the job. Be sure of what THEY want, and what YOU want. Then put everything in WRITING with copies to the customer and for yourself. Other things to be considered are: refuse some jobs if not worthwhile; if too difficult for you, say so and recommend someone who can do it, be sure the right parts are available for this piano,

have all the right tools needed. Include UNKNOWN factors in estimate.

--Harry Berg

After everyone in the **L.I. Nassau Chapter** exchanged post-summer greetings, President Bruce Coffy chaired a discussion about phasing out the rental of the store for chapter use. After four years, this successful project achieved the aim of raising money for the treasury, which we may then invest and use the interest to pay for a concerted advertising and public relations program to promote PTG in our area. Special thanks to Ernie Juhn for his dedicated leadership in the rebuilding program and to Jerry Wolf, John Billera, Treasurer Arlene Manfedi, Nick Fann and Jerry Lewin for their active participation. Vice President Jerome Heischober raised the question of student membership and it was voted down.

Arrangements are being made for an October tour of the Steinway Factory. Michael Slavin gave a fascinating account of his summer adventure in Egypt, where he was involved in Bureaucratic red tape resulting from the stealing of his passport by a black market passport operation in that country. He was very thankful to get safely back to the good old U.S.A.!

--Marilyn Heischober

PTG Correct Address

For the past year we have not been using the old post office box number. Mail addressed to the box number will be returned to sender. The Home Office is located at 113 Dexter Avenue North, Seattle, WA 98109.

October Chapter Mailing

1. A computer printout of chapter officers to be checked for accuracy. Any changes to be reported to the Home Office.
2. Paper showing membership dues and procedures for 1982.
3. Hall of Fame Nominations request by Dick Bittinger, committee chairman.
4. Full list of new Tuning Test Centers.
5. New procedures for requesting seminar date approval.
6. Chapter Achievement Report Forms for the remaining months of 1981. New forms will be distributed for 1982 before the end of this year.

MEETING PREPARATION

Frequency of Meetings

To begin with, we will assume that the chapter is formed and the necessary slate of officers have been duly installed, and that the proper facilities for conducting a meeting have been provided. Chapters are most effective if they meet monthly, and are required to meet at least three (3) times per year in stated meetings. Proper notice (ten days) must be given to all franchised members of time and place of called meetings, and any alteration in time or place of stated meeting.

Meeting Format

A PTG chapter meeting consists of two major parts: (1) Business, and (2) Special Events. The special events may range from Technical Instruction and Discussion to Social Activities and Guild Membership Promotions. Which part precedes the other is left to the discretion of the chapter. With either arrangement, it is a MUST that the time and place as agreed upon be adhered to, and that both parts of the meeting be given just consideration.

It now becomes most essential for the chapter to establish certain tools or devices by which its meetings will serve the best interests of the membership, and create due respect for both the meeting and those who are authorized to officiate. The first such device is a "Meeting Agenda."

Meeting Agenda

An agenda should be the membership's guarantee that all topics will be covered, and through which the presiding officer is able to keep speeches and discussions within limits. It is also a device through which the presiding officer prepares himself toward the maintenance of an interesting meeting, and not just another "ho-hum" routine affair.

It is not our intention to recommend becoming overly formal in conducting a chapter meeting; however, certain formalities must be held to if we are to gain respect for the business at hand and to accomplish those things for which the meeting is held.

Robert's Rules of Order, Newly Revised, is the parliamentary authority for the chapter. (The presiding officer at any meeting, if he deems it necessary, may appoint a member to act as parliamentarian.)

Donations To The Steve Jellen Memorial Library

Special thanks for the following new items, two sets of each:
From DENNIS E. KURK...PIANO TUNING, A Practical Guide and audio supplement record.

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 Journal. 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.

For The Update

The revised edition of the PTG Bylaws will be printed shortly. In view of the high cost of paper and printing the Board of Directors has decided that one copy will be sent to each chapter and individual members may obtain a copy on request for a nominal fee of $2.00

The printing will be a short run and orders will be filled until the supply is exhausted.

In Memorium

Wesley Kihnlein
H.J. Coolen
Merlin Lewis
Michael Cecerelli
Glenn Ferguson
Denes Barany
Bernard Berman
Weldon Heath
Gus Hantelman
Hyman Ludman

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 _____

In the Field

Ben McKlveen, RTT
Cincinnati Chapter

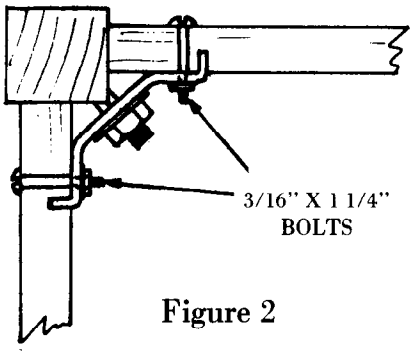


Figure 2

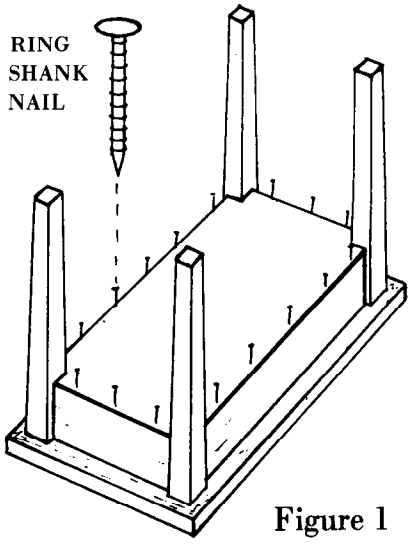


Figure 1

Nothing drives me to distraction quite as quickly as having to tune and service a piano while seated on an insecure bench, chair or stool. As a result, I carry a group of items that allows me to service and/or repair these necessary adjuncts to the piano. I do so as much for my own convenience as for the customer's well being. This means that some of these things I do as a courtesy and I make no charge for doing them.

For example, at this season of the year, when the heat is on and homes are dry, bench legs tend to loosen because of contraction of the wooden parts. It is no trick to take a pair of pliers or a wrench, open the top of the bench, and tighten the nuts that hold the legs in place by means of the corner brackets. If I observe that the bottom is pulling away either because of overloading the storage compartment or because the bench bottom was poorly mounted with staples, I turn the bench over and refasten the bottom board - drawing from the supply of 1¼" ring-shank nails that I carry in my tuning case. (These nails are generally used to fasten thin plywood to a wooden floor to make a smooth surface on which new tile or vinyl floor covering is laid.) **See Fig. 1.** These simple repairs take very little time. I consider them a helpful good will gesture and I make a point of mentioning to my client that I did a little bench repair.

In cases where the problems are more severe I do the repairs and I do charge for them. Several years ago a utility piano bench could be bought for considerably less than $25.00, but today, the same bench costs twice as much and the better "matching" benches are priced between $50.00 and $100.00. It makes good economic sense to repair them, if possible.

When use has been heavy or abusive, as in school situations, there are several things one can do to make the bench solid and secure again. Often the corner brackets will be tightened excessively and bent so that the edges pull out of the slots in the side and end rails, stripping the small screws out of the wood. I try to reform the bracket by hammering it back to shape and re-installing it in it's corner using a 3/16" X 1 1/4" round head bolt to fasten the corner back in the side and end slots. **(See Fig. 2)** The bolt heads can be colored using a black or brown marking pen, or a dab of paint so they won't show on the outside of the bench. The nut and lock washer should be placed inside the bench. In the event that the corner brackets are beyond repair, new ones can be bought from some of the supply houses or from Manual Arts here in Cincinnati.

Some older benches are dowelled together. When glue joints have broken, it is easy to regule and reinforce the corners with a wooden bracket. **(See Fig. 3)** These can be made up of scrap hardwood on a table saw and kept around the shop for just such repairs.

In cases where use and abuse are very heavy and appearance is not important, I have secured the corners of the bench as best I could and then screwed the top to the frame using eight or more flathead screws, countersinking them so they will not catch and tear clothing **(see Fig. 4)**. In rough institutional use this repair will hold the bench together until it is destroyed by breaking the legs. Then you shoot it and sell the school a new

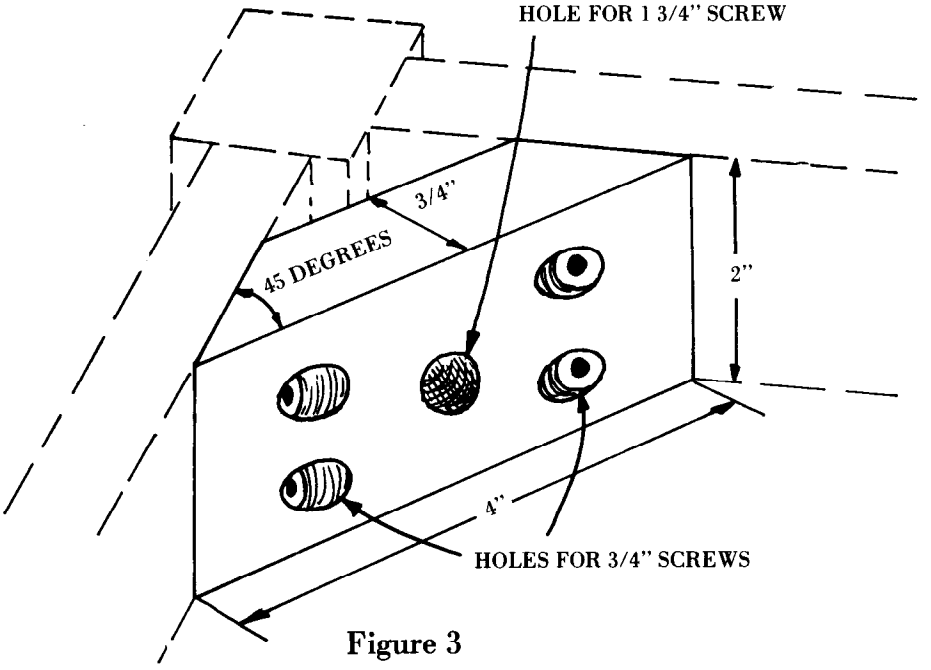


Figure 3

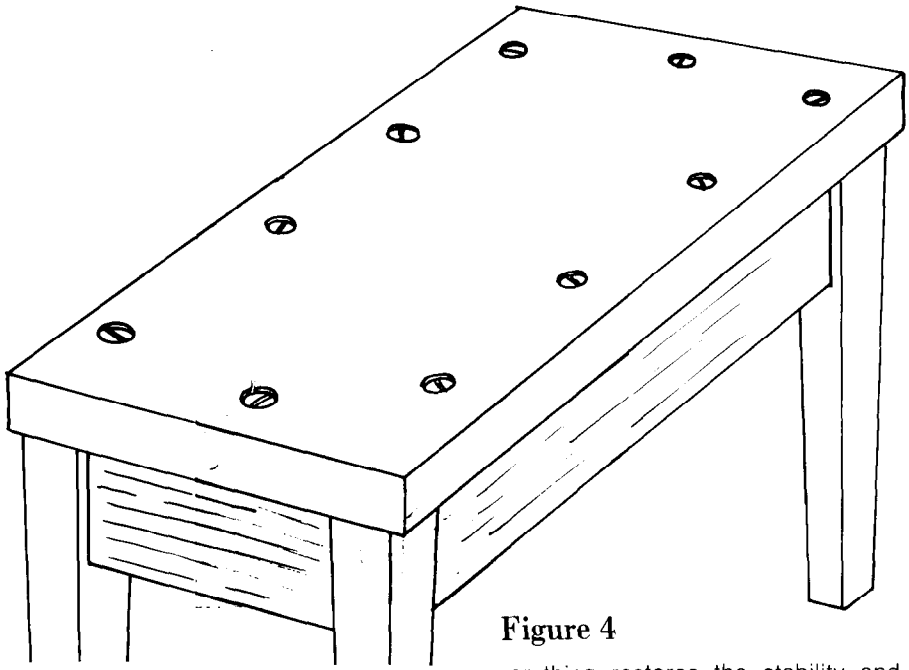


Figure 4

one.

Don't overlook artist benches. Most of us don't see these benches everyday, so their working parts and the problems they develop may be strange to us.

The next time you encounter an artist bench, take the time to turn it upside down and study the working parts. Basically, the mechanism has levers that raise or lower the seat through a worm gear to which rotating handles are connected on each side of the bench.

Changes of season cause the bolts and screws to loosen, just as on a conventional bench. Tightening everything restores the stability and firmness of the seat again. One problem that creeps in to some models is the tendency of the seat to rock from side to side even when everything is tight. A close examination shows that the mounting blocks that hold the worm gear are set too far apart. Adding additional washers to take up this slack solves the problem but is difficult to do on the spur-of-the-moment. An effective shim can be made from heavy copper bass string wrapping. A solid firm bench is very important to a performing artist, and if you can make a wobbly bench steady again, you will be considered a genius! □

Test Blow Device
continued from page 15

effects of friction. The top is screwed but not glued to the posts.

14. With the TBD assembled, glue the plug to the weight using rubber cement, being sure the plug centers in the hole in the base.
15. Disassemble the TBD and weigh the weight. Add #8 finishing nails to the inside until you reach a total 8 ounces.
16. Dry fit the springs into the mortises with the device re-assembled. Glue the stops to the springs, leaving ⅛" clearance above the bottom pipe cap when the weight is down.
17. Remove the springs and sculpt the stops to the contour shown in the diagram. Glue on pads where they will contact the top cap when the weight is down.
18. Glue springs in the top mortises. They should nest in the base without touching the sides of the mortises.
19. Rub wooden parts with a 50/50 mixture of turpentine and boiled linseed oil. This finish is simple, looks good, protects well and can be easily renewed.

Operation:

With one hand on the top to steady and position the TBD, insert the thumb and middle finger of the other hand under the top cap of the weight. The springs, bearing on the fingernails, will be pushed outwards thereby clearing the stops. The weight can then be raised to the top with the same two fingers and dropped. When properly co-ordinated the operation is quite easy. A reasonable goal for proficiency is 10 blows in 10 seconds. □

After Touch

David Pitsch, RTT
Utah Valley Chapter

Part XV 33) Let-off continued

For those technicians who find it difficult to set the let-off in the piano by watching the space between the top of the hammer compared to the thickness of the corresponding string, there is another method. Find someone in your area who sells magnetic signs such as those found on the sides of cars or trucks. The magnetic backing for these signs comes in 1/8" and 1/16" thicknesses, which are perfect for use as let-off gauges

Purchase at least two strips of this material, one of each thickness, about one inch wide by around twelve inches long. The one inch width is sufficient to place the strips against the under sides of the strings without having to worry a lot about whether the strips will cover the hammer strike line. The twelve inch length is variable with the piano. The lengths should be no longer than the sections between the plate struts or else the strips will be too long to adhere. The larger the piano, the more sections are created by the struts, and the smaller the widths are of these sections. You may want to carry an assortment of lengths of this magnetic material.

To use, remove the action and set it aside. Take something such as a felt wedge and block up the sustaining pedal to left the dampers away from the strings. Otherwise, if there are bichord or trichord damper wedges in the area where the magnetic strips are to go, they will prevent the strips from adhering. Position the strips against the undersides of the strings, being careful to place them directly at the hammer strike line. Reinstall the action and check to see if the strips are positioned correctly. If not, carefully reposition the strip with a small tool.

Now comes the easy part. Seat yourself at a comfortable height so that you can see and work on the let-off rail. There is no need to see what is happening at the string level. Depress the keys one at a time and adjust the corresponding let-off button until a very slight resistance is felt as the hammer lets-off against the magnetic strip. When regulating in this manner is is important to remember to continuously depress the key and feel how the hammer lets-off. Try to get each key regulated so that exactly the same amount of resistance is felt at the point of let-off.

Use the 1/8" thickness for the tenor and low treble sections, the 1/16" thickness for the top treble. After all are adjusted, remove the magnetic strips and *check the point of let-off visually.* This step must not be overlooked! Invariably there are slight corrections which must be made. Despite the fact that the resistance which was felt was uniform, the actual point of let-off will vary a little.

There are both pros and cons to regulating in this manner. The pros are that it is by far easier and faster to set the let-off with a magnetic strip, especially if the regulation was way off from where it should be. However, the cons are important. Obviously, these magnetic strips will not adhere to the bass strings, so approximately ¼ to ⅓ of the let-off must still be set by eye! As was mentioned above, those which can be set with the strips must be double checked by eye for accuracy. Most importantly, as was stated in the Oct. 81 After Touch article, the best let-off is one that is tapered uniformly from note 1 all the way up to note 88. The magnetic strips do not give a tapered let-off. Instead they give a noticable break where the change was made between the 1/8" thickness strip to the 1/16".

Despite these drawbacks, I still like to use these magnetic strips. When the let-off is way out of the ballpark as it often is, I find it far easier and faster to use the strips to get the let-off close and then refine it by eye than for me to completely adjust the let-off by eye. I believe it impossible to perfectly regulate the let-off in a uniformly tapered line the first time through no matter what method is used. Therefore, being somewhat reluctant to work harder than I have to, using these magnetic strips gives me a known setting for the let-off according to the thickness of strip used, and from this I can easily achieve what I want.

There are two exceptions to the rule. One is where the let-off is nearly correct as on a fairly new piano. For such instances I simply regulate by eye. The other exception is when I have help available. Using another person relieves the strain of constantly looking above at the point of let-off and then bending down to turn the let-off screws. While I depress the keys and watch the hammer let-off, my assistant (usually my wife) turns the let-off button up or down at my instruction.

One piece of helpful advice when watching the point of let-off in the top treble sections is to use an old mirror. Normally the plate obstructs the view to directly see the hammer let-off. By using a mirror set at about a 45° angle to the strings, the hammer can be seen to rise against the string from the side and clearly show how far the hammer is letting-off.

Before ending our discussion on step#33 of the 50 point checklist, I would like to caution technicians on a few things. Be sure that the let-off rail screws are securely tightened. It takes only a slight movement of that rail to cause the hammers to block upon the strings. Secondly, if the let-off button felt has been worn, replace

it! It is very frustrating to try to regulate the let-off when this felt is worn. You all know what I mean. You turn the let-off screw ¾ of a turn without getting the hammer to let-off close enough. Then with a slight additional turn of the screw the hammer now blocks! You back the screw off a little and it goes back to being too far. Gradually you ease the screw to the right until the let-off is correct. You know darn well that the jack tender is riding half-in, half-out of the old groove in the button felt.

How stable is this kind of regulation? How long before the felt wears again and causes the hammer to block? How much time does it take to replace this felt? I doubt that it takes me a whole hour to remove the old felt and glue on new ones, and the time spent is almost made up in the ease of regulating with new button felt!

Finally, pursuing this worn felt problem a little further, do not assume that even a new piano is in perfect regulation. I have frequently found new pianos where the hammers were blocking, or almost blocking. There seems to be two main reasons for this problem. One is pure negligence on the manufacturer's part. The action was regulated on a bench at the factory and the strings of the piano did not match the height of the let-off rack. If the strings were a little lower than the let-off rack, the hammers will block because the let-off is too high. The other, somewhat more subtle reason, is that the let-off button felt was not of sufficent quality for the job. It compacted too easily and after a little playing the let-off became too high. If the let-off were quite close before this felt compacted, it will cause a blocking hammer.

I realized a long time ago that no matter how old or new a piano is, or how prestigious the manufacturer, the piano invariably needs some refinement of the regulation. After a while a pattern even starts developing. Name me a manufacturer and show me a new piano from that factory and I'll tell you what points to look at that probably need refining. One piano always need work on the action centers and voicing. Another always has tight center holes on the keys and too little aftertouch. A third usually has problems with the bichord bass dampers. And so on. A good craftsman who knows his art can pretty well know in advance what a certain piano will need before he sees it for the first time. □

THE TUNER

Paul Monroe, RTT
Orange County Chapter

The last article ended with the first three intervals tuned in the F3-F4 temperament and this article will pick up with the M3rd, C#4-A3. If this issue of the JOURNAL is the first copy you have received or read, you should obtain a copy of last months issue to read and study. It is a must as you will have little or no understanding of what follows in this article if you have not taken the time to acquaint yourself with what we are talking about.

The next note to tune is C#4. Tune it to A3 so the beat rate is .5bps slower than M3rd, A#3-D4 and approximately. .5bps faster than M6th, F3-D4. If you can place the beat rate of the M3rd, A3-C4 in between that of M6th, F3-D4 and M3rd, A#3-D4, you will be acheiving a high degree of accuracy.

To hear the M3rd beat rate clearly, hold down A3-C#4 to release the dampers from the strings and strike C#6 in staccato fashion. Listen for the true beat rate created by the differential in the frequencies of the 5/4 coincidental partials. Remember that a M3rd interval is an expanded interval.

Another experience you will have about now is the intervals you have previously tuned will stray a little which means their beat rates have changed from where you had originally set them. This is due in part to your inexperience in handling the tuning hammer. (Hammer technique). This very important subject will be discussed in future articles.

The next note to tune is G#3. I usually start tuning it by using the 4th, G#3-C#4 and tuning it to a slow roll. If you have difficulty in hearing the 4th clearly, hold down G#3 & C#4, releasing the dampers from the strings and strike G#5 in staccato fashion.

After you have satisfied your ears with the 4th, check the m3rd, F3-G#3 to make sure it is beating slightly faster than the M3rd, A#3-D4. You are now at the great moment of decision. If the m3rd-M3rd test is a long way from being correct while the 4th is correct, you may have the original M3rd, F3-A3 beat rate incorrect for the piano. You now say "what do I do now".

I suggest you set the m3rd, F3-G#3 slightly faster that the M3rd, A#3-D4. Check the 4th, G#3-C#4. If the 4th is tolerable proceed. If it is not tolerable, start over with your temperament.

When you do go back to reset the temperament, do not change your original beat rates a large amount. Change them a very small amount. You will see what I mean after you try it many times.

The next interval is M3rd, C4-G#3. This beat rate should be slightly faster than M6th, F3-D4 and slightly slower than M3rd, A3-C#4. Also the 5th, F3-C4 should be contracted and have a slight roll.

The coincidental partials in a 5th are 3/2, the third partial of the bottom note and the second partial of the top note. Therefore, to hear the roll in the 5th better, hold down F3-C4 and strike C5.

Another test to check if the 5th is contracted or expanded, (it is supposed to be contracted), is the 6th-10th test. I recently learned this at the

PTG National Convention held at San Francisco.

To check the 5th, F3-C4 in this manner, play M6th, G#2-F3 and M10th, G#2-C4. The beat rate of the M6th should be faster than the M10th if the 5th is contracted as it should be.

You are now at the half way point of setting the temperament. The rest is downhill. In my experiences, the more accurate the intervals are to this point, the easier it is to tune the rest of the temperament, primarily because you have many more test intervals to help you.

Next, tune M3rd, F#3-A#3 slightly faster than M3rd, F3-A3. use the procedure of exciting the 5/4 coincidental partials as you have done before to hear a clear beat rate. The note to strike is A#5.

Another check I suggest you use at this point is to compare m3rd, F3-G#3 and F#3-A3. The latter should feel slightly faster. If the beat rate is a little faster or even the same, you are proceeding with a good temperament. Conversely, if the m3rd, F#3-A3 is slower than m3rd, F3-G#3, you have a problem and you should start trying to find it.

One place to start is with the 5th, F#3-C#4. It may give you a clue. If the 5th is accurate, try moving A#3 a little. I assure you that as you start to compensate in this manner for the first time, you will wonder what happened. If you do get several intervals over compensated, don't hesitate to start at the beginning. You will save yourself time and frustration.

Moving on to the next interval, M6th, D#4-F#3. The beat rate of this interval should be slightly faster than the M6th, F3-D4 and M3rd, G#3-C4. It should be slower than M3rd, A3-C#4.

You should note the convenience in using the outside M6th, F#3-D#4 and the inside M3rds, G#3-C4. When you play this M6th interval with your thumb and 5th finger the M3rds lie directly under your three middle fingers which allows your hand to stay in one position as you play all three intervals. With practice you will be able to use this routine in both directions as long as you can distinguish the beats.

I will leave you at this point and continue the temperament in the next issue of the JOURNAL. Before closing there is something very important I want to leave with you and that is the value of putting into practice what you have read. Place the JOURNAL on the music rack of your piano and work out what you are reading. Until you actually start doing the things you have read, you will have gained nothing. You can not learn how to set temperament without trying it many times. For some it may take a hundred attempts, others it may take only a few. The secret is to sit at your piano and work at it until you are working out of your sub-conscious mind.

Good luck and remember rule #3.

A Half Century of Progress
continued from page 18

3 and F3 so that the 4th is faster than the 5th and the F# 3rd is slightly faster than the F 3rd. Occasionally the G flat major 3rd will not beat fast enough even with a faster beating F 4th. This usually means that the D octave was not stretched quite enough. Simply lower D3 and F3 slightly to correct the situation. Then tune B3 between E3 and F#3 checking the 5th, 4th, and thirds; C4 between F3 and G3 checking the 5th, 4th, and 3rds.; and C#4 between F#3 and G#3 checking the 5th, 4th, and thirds.

The temperament is now ready for a final check and refinement if necessary. I like to check the temperament by playing up chromatically by 5ths, then by 4ths, followed by major 3rds, minor 3rds, and major 6ths. Any irregularity in beat speed progression is easily detected with this procedure, but not always easily corrected. However, it is well worth the effort to make a final refinement, for a completely accurate temperament makes tuning the rest of the piano so much easier. The object is to eliminate the possibility of having to choose between smooth beat progressions and clean, beatless octaves. Refining can only be successful when there is a complete understanding of each interval relationship. If a given interval beats too fast or too slow, determine first which note of the interval is at fault by checking the other intervals that each note is a part of. Be certain that every interval involved will be improved when the offending note is changed, otherwise moving the note simply makes more problems. It may be necessary to move two or three notes to correct a situation, but again no note should be moved until all the results of moving that note have been carefully considered.

Truly, we have witnessed much progress in tuning skills in the last fifty years. One can only speculate as to what the next fifty years will bring forth. Many of us will not be around then, but it is possible that some present young tuner will be writing a similar article fifty years from now. We can be quite certain that there will be as much progress and change in the next fifty years as there has been in the past fifty.

Finally, I must say a word of deep appreciation to the Guild, not only for the important part it has played in the development of tuning skills, but in the many ways it has sought to make this knowledge available to us out in the field. Tuning is still exciting after fifty years because there are always new things to learn. I eagerly read each issue of the *Journal* for the latest thinking on tuning and the other phases of piano technology. Were it not for the Guild I could still be spending an hour on a temperament that wouldn't work out because the first F 5th was on the wrong side. My present concern, and one of the reasons for writing this article, is that there may be some readers who have not kept up with the latest developments, and may be tuning to standards of twenty or thirty years ago. □

VON DER WERKSTATT

by Priscilla & Joel Rappaport ,RTT's
Austin Chapter

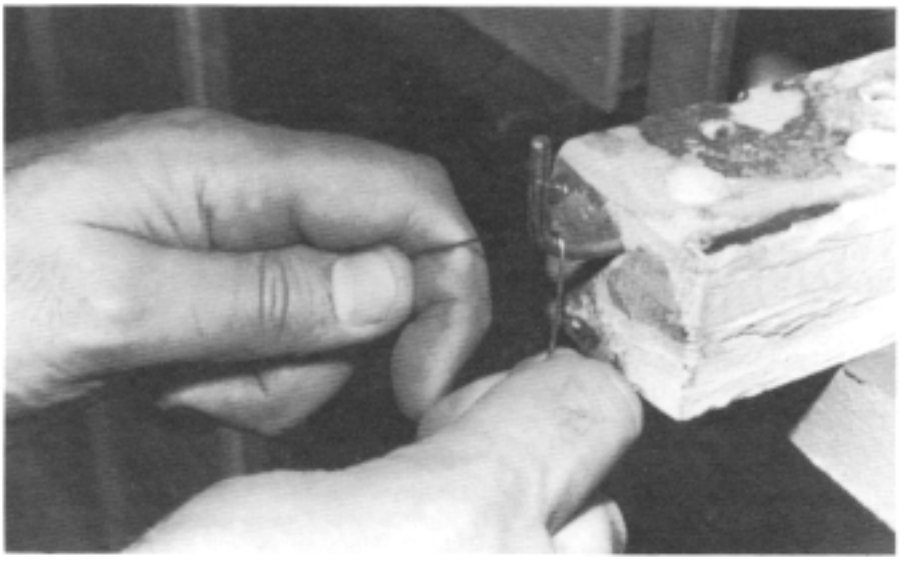


Photo 1:

A handle is made on our "eyelet maker" which is clamped to the work bench.

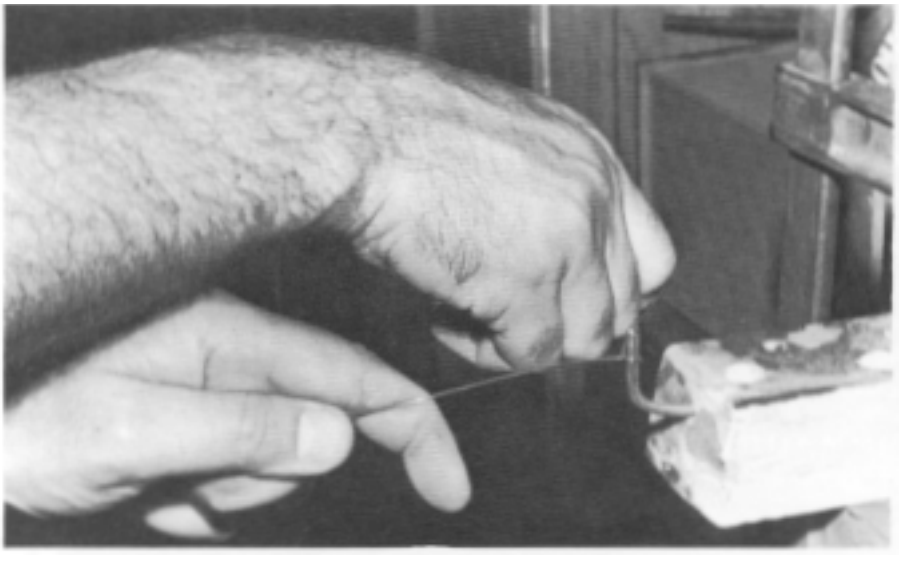


Photo 2:

A little further down the wire from the handle, the eyelet is started.

It has been a while since we have been able to find time to write anything other than a rebuilding estimate. Last spring we were involved in the complete rebuilding of a Steinway Concert Grand to be used at the Sixth International Van Cliburn Piano Competition. Then practically the whole month of May was spent in Fort Worth, Texas providing concert services for the Bechstein, Bosendorfer, American and Hamburg Steinway Concert Grands used in the competition. We had the distinct pleasure of working with (and learning from) Stewart Cole, the Chief Concert Technician from Baldwin who was also on hand to work his magic on the Baldwin Concert Grand. The Yamaha Concert Grand was serviced by various tuners from the local dealership.

The long hours put in by everyone involved paid off in compliments from contestants, jury and audience to all the technicians on how well the pianos were maintained. There was only one broken string during the whole event and that was on the second violin of the Tokyo String Quartet! The pianos all behaved themselves and there were no technical mishaps. More will be written about the Competition later.

When we arrived back home in Round Rock, we were just overwhelmed by the amount of work that had piled up and was waiting for us. It has taken us some time to get out of the "shock" mode and get back to the normal routine of panic.

On the far side of the bridge, there are two routes for a piano wire to take. Either it can loop around the hitch pin and continue over the bridge to form another speaking length or it winds around the hitch pin in an eyelet and ends. Sooner or later each of us will probably be called upon to make an eyelet and we should really do our best to match the neat factory-original style that was there.

The occasional eyelet is caused by an uneven number of unisons of any one wire size. Each two unisons (six speaking lengths) will need three hitch pins and the wires will loop around those pins. An uneven number of unisons using a wire size results in one unison consisting of a loop and an eyelet. Usually this occurs near a plate brace, but it can also happen in the middle of a section if a scale calls for it.

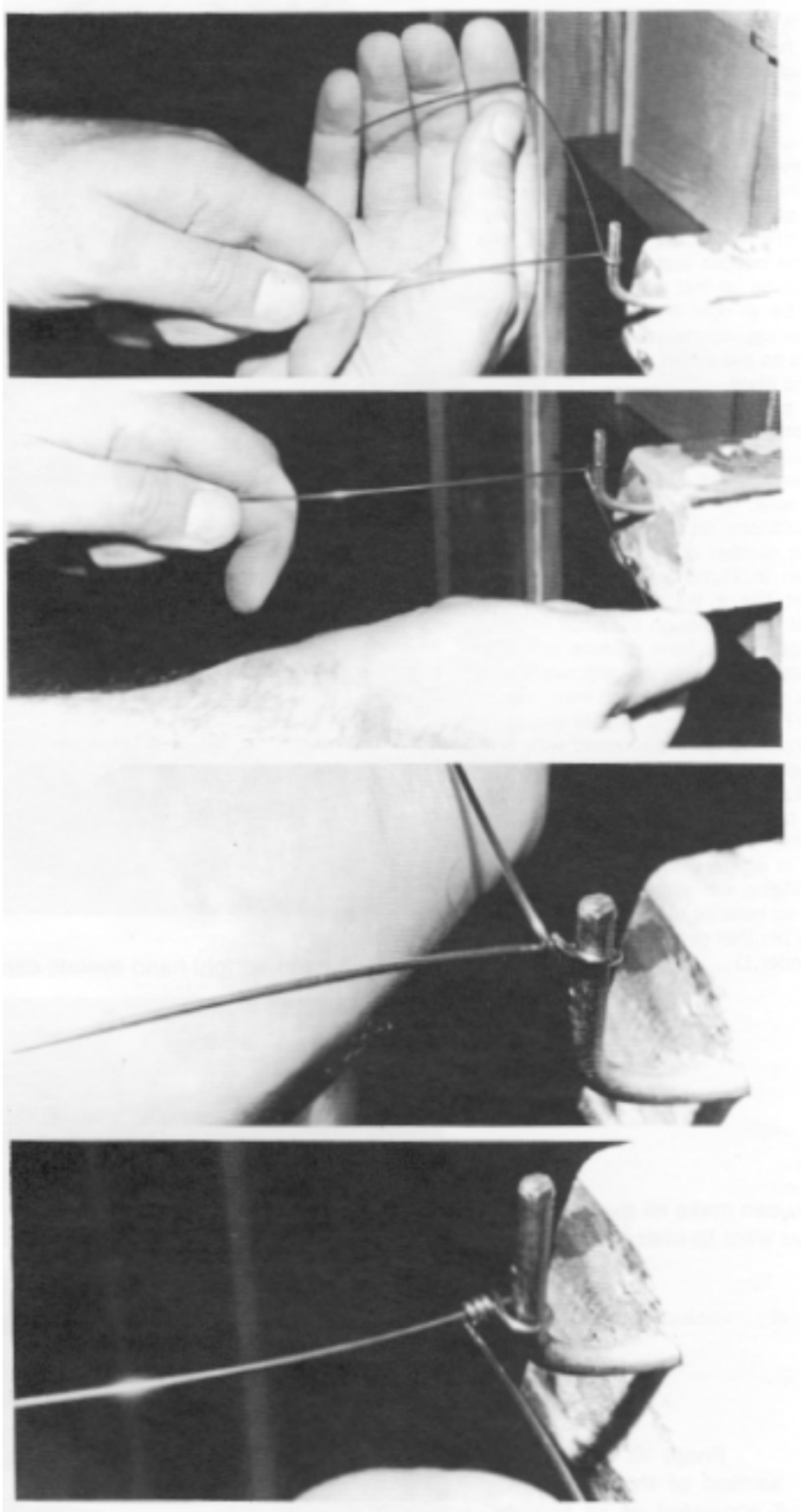
There are designs which use an

eyelet for each plain wire. Examples are the Bechstein concert grand or any Bosendorfer grand. The old school of thought taught two reasons for this: 1) a broken string effected only one speaking length, and 2) if hitch pins and tuning pins had a similar configuration, all overall string lengths (tuning pin to hitch pin) in a unison would be about the same and tuning stability would be improved. The next best layout would be one wire looping around a hitch pin plus one eyelet for each three-string unison. However, newer trends of design have decided that tuning stability is severely hampered by the tendency of an eyelet to continue to tighten in spite of the help we give it by tapping those eyelet coils together during installation.

When a string with an eyelet breaks, however, we must still replace it and when we restring a piano, the old configuration should be followed to maintain adequate side bearing as the string comes off the bridge and to make the number of hitch pins coincide with the number of strings used. In the shop, we have constructed a useful aid on which to make eyelets. In the home, the L-shaped hinge pin of a grand lid can be used. If there is someone to help you, a round capstan wrench held very steadily can be used. Our shop contraption is a small piece of an old pinblock with a nail driven into it. The nail head is sawn off with a hacksaw and the nail is bent at a right angle. Also keep in mind that the nail is driven into a long grain section of the pinblock. An end grain section will probably split when a large nail is driven into it. The diameter of anything you use to make an eyelet should be big enough so that the finished eyelet slips easily over the hitch pin.

Double check the wire size with a micrometer when replacing any broken string. The first step we do is to make a little handle by making a 90° bend in the wire. Using this handle, you will start the eyelet with a nice, neat circle. Hold the music wire with both hands, the handle in your right hand. Slip the wire behind the nail. Holding the wire in your left hand taut, make a smooth arc to the left with your other hand, going over the taut wire and form the beginning of the eyelet.

Reach under the taut wire and grab the handle. Trying to keep the coils forming at right angles to the taut part of the wire, wrap the short end around as many times as the number of coils



Photos 3-6:

The coils are started. The handle makes it easier to make tight coils. Holding the wire taut in the left hand is important.

you want to have. You will find that the handle helps. When you have enough coils - typically there are three - take the eyelet off the nail, slide the wire cutter along the short length of wire until the tool touches the circle of the eyelet. This leaves just enough of a tail sticking out. Snip off the handle end of the wire and you are finished. The little tail should come off the coils on the bottom and the eyelet should be strung up that way. The tail should also be at right angles to the rest of the string, normally, and in the same plane as the eyelet so that it rests flat on the plate.

It is possible to make a left-hand eyelet, if that is what you must replace, by initially crossing the handle end of the wire under the tautly held wire.

Variations on the eyelet may be a larger number of coils on the wire as shown in Photo 9. The Bosendorfer eyelet has a tail that is bent up at about 45°. Although the ends of bass strings usually have a more substantial and intricate eyelet with twists and coils, some older German instruments have had bass string eyelets similar to the kind we have discussed with one added feature. Instead of circling the hitch pin once, it will go around twice, then continues with coils and a tail.

When destringing a piano, make a note of where the eyelets are. During restringing we usually put a brightly colored balance rail punching on each hitch pin that gets an eyelet just as a reminder. □

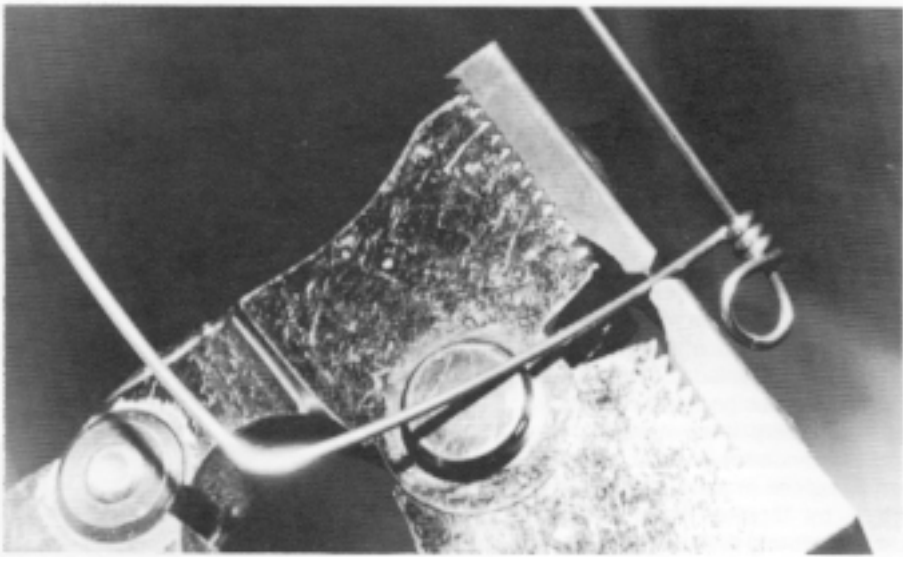


Photo 7:

Leave enough wire to form a tail and snip off the excess.

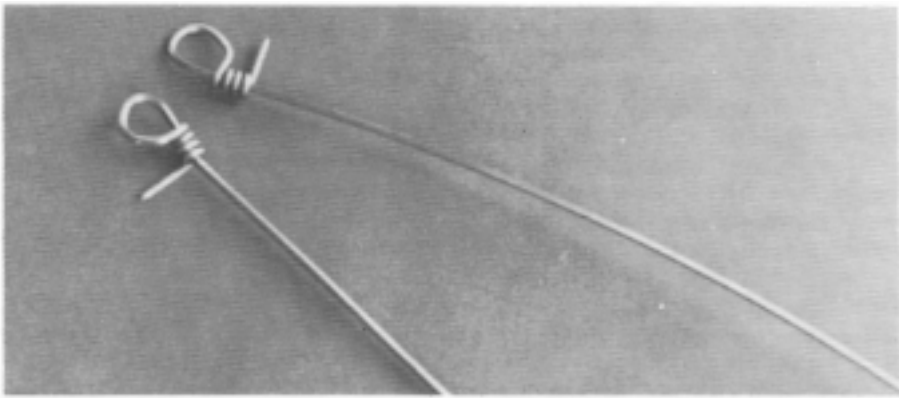


Photo 8:

Either left-hand or right-hand eyelets can be made with this method.

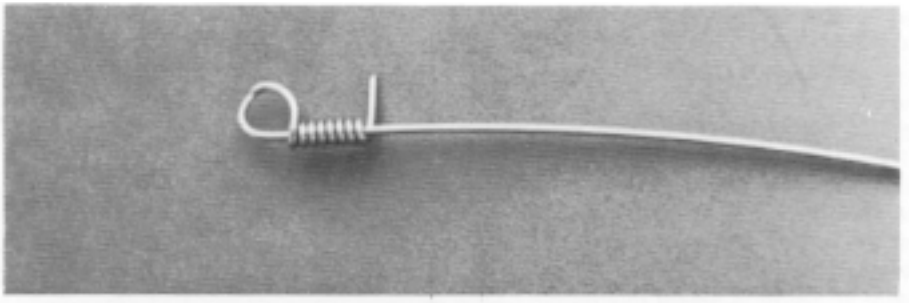


Photo 9:

You can make as many coils as you want to match the original.

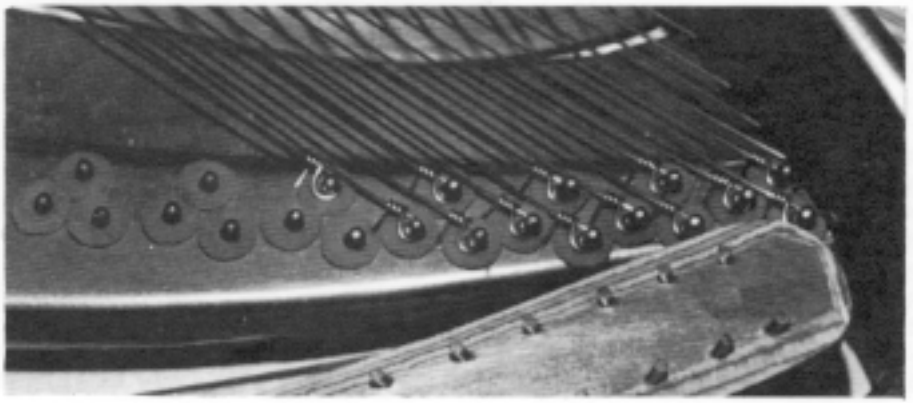


Photo 10: The tenor section of this Chickering grand consisted of all eyelets. They will be snugged up to the hitch pin later by tapping the coils with a screwdriver.

We would like to thank the following companies for advertising in the Piano Technicians Journal in 1981. We wish them a very Merry Christmas and a warm and prosperous 1982.

Aeolian Corporation
Baldwin Piano
Dampits Inc.
Dampp-Chaser Electronics
Everett Piano
C.A. Geers Piano Co., Inc.
A. Isaac Pianos
Willard Leverett
Masters Piano Shop, Inc.
New England Conservatory of Music
North Bennett Street Industrial School
Pacific Piano Supply
Piano Tech Supply
Pratt Read & Company
Pro Piano
Ronsen Piano Hammer
San Francisco School of Piano Technology
Schaff Piano Supply
O.E. Schuler Co., Inc.
Shenandoah College
Steinway & Sons
Thatcher Chemical Co.
Tuners Supply Co.
Vestal Press
Western Iowa Technical Community College
Aubrey Willis School of Piano Tuning
The Wurlitzer Company

Santa Clara Valley Chapter Honors Bob Burton

(The following is a reprint of a letter describing the Santa Clara Valley Chapter's annual picnic which featured a "Once-in-a-lifetime celebration" in honor of Bob Burton.)

Well folks, here it is. It's August 25, 1981, and there are at least 60 adults plus 15 kids here. We're having a heartwarming gathering to give our love to a very down-to-earth, sincere, warm man, and a friend to all of us. We are the Santa Clara Chapter of the P.T.G. here in California — and our man of honor is Bob Burton. Bob has given every member here whatever knowledge was asked of him, so how can you not love this kind of a man?

This gathering is in a beautiful park in Mountain View called Cuesta Park. Acres of gorgeous lawns, rolling hills, barbeque tables, benches, tennis courts, and lots of spaces for car parking.

It's a beautiful warm day, not a cloud in the sky. Everyone has brought food, mostly home cooked. So, while we're getting ready to eat by 7:00 p.m., I hand out to all a surprise,my book of the old sing-a-long favorites of the '20s, '30s, and '40s. Then I take out my Hohner Harmonica and tell everyone to sing. What with the singing, smiling and nodding of all heads, it was a great unrehearsed success. And did you know that Bob had a great singing talent years ago? Anyway, this singing went on for an hour or so, after which it was chow time.

Then, Chris Jensen, the young man who was the leader of this event, jumped up on a bench and yelled for our attention. "The main reason for our being here is to show our praise to Bob Burton upon his being given the honor as a member in the P.T.G. Hall of Fame," so spoke Chris. Then came a great big yell and applause. Bob got up, went to the table, and there was a gorgeous cake, 36" square, upon which was written, "TO MR. BOB BURTON — HALL OF FAME — 1981." What can he do? He looked at it and was deeply moved. The place was very quiet. A wonderful moment. Then he started to speak. "This is a complete surprise. Thank you all." Imagine, him thanking us!!! We applauded his sincerity and he began telling us what life was in the 1920's when he began tuning...and of the stores he worked, and the owner who got angry at Bob for helping tuners in other piano stores.

After a few more words and picture taking, he began cutting the cake with the help of his beautiful wife, Betty Jean. In a little while, the cake disappeared. Darkness had fallen — the children are tired — going home — and the talk goes on. A wonderful day; never to be forgotten.

— Mike Bennett
Santa Clara Valley Chapter

Everett Guarantees Parts Shipments In 2 Days

We made a typesetting error in an advertisement for the Everett Piano Company which appeared in our October edition.

In fact, Everett guarantees shipment of "bass strings and other critically needed hardware items "within two working days, not 21 days as we originally provided.

To a company as devoted to prompt service for Guild members as the Everett Piano Company, that was quite a mistake to make!

Sorry about that

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

January 8-9, 1982
ARIZONA STATE SEMINAR
Arizona State University
Tempe, Arizona

Contact: Jon K. Allen
3025 S. Stewart
Mesa, Arizona 85202
602-839-6078/839-8570

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

many construction projects undertaken. It is interesting to see bamboo scaffolding several stories high. The bamboo ladders appear to be as strong as our aluminum ones.

Most of the buildings I saw were made of brick and had tile roofs. The streets are continually being cleaned: by broom, bicycle with brushes, three wheelers, and on one occasion I saw a modern street-cleaning truck. You see no dogs or cats in the cities. A dog or cat in China is a rare as a well-regulated square grand in the States.

With the problem of population control some courageous but necessary steps are being taken. Last year a campaign was launched for "One couple-one child". Previously, the ideal couple had two children, but that wouldn't solve the population explosion. Now, if a couple has one child, there are some interesting benefits: (1) a monthly bonus of five dollars. This doesn't seem much to us, but to the worker who receives no more for one month's work than we do for one piano tuning, this is quite an incentive; (2) free education through high school; (3) better health care; (4) better job opportunities; (5) better retirement. If a couple has a second child, not only are these benefits taken away, but also all monthly bonuses received must be paid back through deductions from their salary. This campaign is being advanced by poster, billboards, radio, television, and peer pressure. It is working better in the cities than in the country where peasants cling to the tradition of having many children to help on the farm--and having children until a son is born to care for his parents in their old age and carry on the family name.

China now has four goals (which I am sure all Chinese from the youngest to the oldest can recite): agriculture, industry, defense, and science. These are called the Four Modernizations. To achieve these goals there is a surprising number of women and young people in high places. Everyone I met was courteous but energetic and most of them could speak English.

There is a widespread desire, especially among the young people to learn the English language. From time to time as we walked down the street someone would yell out "Hallo"--We could tell by the way he said "Hello" if that were the only English word he knew. Some, however, would stop us for the purpose of rehearsing their English.

From the day we met Alice's relatives it was my charge to give English names to Chinese people (whose names seem all alike to me). It was to my advantage to give a name to someone who reminded me of an acquaintance back home. This was not limited to relatives, however. We had a waitress for three days in Guilin whom I named "Wendy", because she had a smile like our guide to the Great Wall whom I named "Wendell", whose smile resembled that of my friend Wendell Heal of Livermore, California.

On one occasion I witnessed a heated argument between a young girl selling ice cream and a man in his 60's. He was determined to take the wrappers off the ice cream (similar to our popsicles) and she was just as determined that he did not do that. After a few hundred heated words hurled back and forth, he turned to me and said in perfectly sarcastic English, "That's just wonderful! I want to pick my own ice cream and she won't let me!"

Speaking of arguments, we witnessed some exchanges that would certainly lead to blows in the U.S.--but not in China. Who wants to spend the next fifteen days in jail? Who wants to pay for someone's hospital bill and lost wages if that person is injured?

If you are ever in need of a thrill, I recommend a taxi ride down the streets of Shanghai or any other large city in China. On the first day of our arrival we had this privilege. The taxi driver straddled the white line in the middle of the road and whenever he saw a possible opening in the hoardes of bicycles and pedestrians on either side of the line, he would bear down on both horn and accelerator and we were in for a thrilling ride. It made little difference if a truck or bus was coming right at us. It reminded me of those machines in amusement places where you try to avoid oncoming cars and the walls on each side. Then at night it is even more thrilling--they all drive without headlights on.

The honking of horns reminded me of a post-wedding procession in the U.S., except it was continuous. The first morning I was awakened at 5 o'clock by two noises--(1) the honking of horns in the street and (2) the crowing of the rooster below our window. The rooster stopped his crowing when he was satisfied I would not go back to sleep, but the horns were blowing until 9:00 P.M., when everyone was supposed to be home and in bed.

One other disturbing noise was the untuned piano across the hall. Pianos are so scarce in Chinese homes that I just had to check it out. The young man, Samuel Kong, who practiced on that piano several hours a day, played quite well considering the condition of the instrument. In fact, when he was four years old, he played for President Nixon on his visit to China. He still remembers being embraced by Mrs. Nixon. As bad as this Strauss upright sounded its greatest need was an action overhaul. Samuel was staying with his grandfather, Brother Tom, a member of one of the Christian Churches in Shanghai.

It would have been a disappointment to me if I could not have attended a church service in China. This came about on the last Sunday we were there. Alice's sister and her daughter are Christians, and they made the arrangements. We selected the 9:00 A.M. service, arriving at 8:45 to find the place packed, with people sitting or standing outside. Every one of the 2000 seats inside were taken except the six reserved for us. This was somewhat embarrassing to me but the members accepted it graciously. It was a service similar to a Baptist service in the States; in fact, it used to be a Baptist Church, but now is non-denominational. Familiar hymns were sung as "O Happy Day", "Abide With Me", and "More Love To Thee". The church had been closed during the Cultural Revolution and reopened only last December. The government even provided some of the needed materials for repair and renovation.

Space will not allow me to describe the beautiful scenery and site-seeing places we visited. We have several colored slides and they may be shown in my room (or another room) at the Washington D.C. Convention if anyone is interested.

Alice and I will be talking about this trip the rest of our lives and we will always be grateful to Mike and Dorothy Silva of the San Francisco Chapter of their gift of $5000 to make this trip possible. This was done in appreciation for my sponsoring Mike seventeen years ago to come from Ceylon. An account of this was given in the June, 1974 issue (page 23) of the Piano Technicians Journal. Thank you, Mike and Dorothy. If it is better to give than to receive, your joy must be unbounded.□

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 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
FOX, Lee	5	1
GARRETT, Joseph A.	1	1
GILLER, Evan	10	2
GOODWIN, Garland	5	1
HARRIS, Dale	5	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
METZ, Al	1	1
NELSON, Robert	4	1
ODENHEIMER, Fred	1	1
RAUDENBUSH, Fred R.	5	1
RUSSELL, Bob	1	1
SCHULTZ, Gary H.	10	2
SCOTT, Dennis	1	1
STONE, Sid	1	1
THILE, Scott E.	1	1
WHATMOUGH, Alan	5	1
YAKABOSKY, Walter	4	1

1981-1982 RECLASSIFICATIONS

RECLASSIFICATIONS TO REGISTERED TECHNICIANS

CALLAGHAN, Robert J.
CASTRONOVO, Thomas
COX, Elizabeth G.
FORMAN, David A.
JUSTICE, Jack M.
PATTINGALE, Kenneth G.
SILVER, Barbara

NEW MEMBERS

REGISTERED TECHNICIANS

Connecticut Chapter

CARVETTE, John Jr.
14 Olcott Way
Ridgefield, CT 06877

Ernie Preuitt
Vice President

Hampton Chapter

CONNER, John S.
Star Route, Box 359
Gloucester Pt., VA 23062

New York Chapter

AZUMA, Mitsuo
537 West 49th St. #11
New York, NY 10019

CALABRESE, Philip
160 East 38th Street
New York, NY 10016

GREIG, James Bruce
15 West 74th
New York, NY 10023

Ottawa Chapter

DUPLANTIE, Gillis F.
119 Hamilton Ave. No.
Ottawa, ON K1Y 1C1

APPRENTICES

Connecticut Chapter

HANSELL, David L.
139 Pumpkin Hill Road
New Milford, CT 06776

Dayton Chapter

KELLY, Paul
200 So. Fostoria
Springfield, OH 45505

Ottawa Chapter

GREYLING, Owen J.
RR #1 Elginburg
Kingston, ON K0H 1M0

HUTCHISON, Peter J.
RR #2
Portland, ON K0G 1V0

Rhode Island Chapter

SMITH, Steven P.
33 Arnold St.
Providence, RI 02906

ALLIED TRADESMEN

New York Chapter

CALABRESE, Sylvia
160 East 38th St.
New York, NY 10016

STUDENTS

Cleveland Chapter

CAMPESINO, Jeanette
205 Cass Street
Swanton, ON 43558

AFFILIATES

Members at Large

HOE, Willy C.K.
112 113, Peace Centre
Sophia Road
Singapore 0922

NIJHOF, Ben
AM Eichwald 36
6350 Bad Nauheim 5
West Germany

McSPADDEN, Bernard D.
Calle Mayor 66 40
Madrid 13, Spain

On Membership...

By Dick Flegle
Central West Regional
Vice President

MEMBERSHIP IN THE PTG — is it for me? Does it require special education on my part to become a member? Will a better living be made — tuning pianos? How does it relate to appreciation of music? Is it worthwhile from a monetary standpoint? These are but a few of the many searching questions I should ask myself before considering membership with an organization such as The Piano Technicians Guild.

It goes without saying that education is the key to success in any endeavor. Reading, Writing and Arithmetic are basic. PTG Conventions, Seminars, Regional and Local Workshops and miscellaneous individual instruction support the fact that I never cease to learn. Of course I will make a better living with membership in the PTG. My feeling of self-worth and having the know-how through education will inspire motivation and setting of new goals for myself and for my business.

Appreciation, comprehension and sheer enjoyment are the result of attending concerts and recitals, with the realization that I, the "unseen artist" made the music sound superb. I receive a hundred-fold in education and fellowship and will experience that intangible delight of helping someone else climb that proverbial mountain. All of this because I caught a glimpse of why I should join The Piano Technicians Guild.

It has been said: Reading, Writing and Arithmetic are for MAKING A LIVING — MUSIC AND THE ARTS ARE FOR MAKING LIVING WORTHWHILE!

THE AUXILIARY EXCHANGE

JULIE BERRY

1981/82 Auxiliary Board

Officers

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

BELVA (Mrs. Richard) FLEGLE,
1st Vice President
2070 Roth Place
St. Paul, Minnesota 55110

SHIRLEY (Mrs. Richard) TRUAX,
2nd Vice President
R.D. #8, Box 40-E Heather Drive
York, PA 17403

BERT (Mrs. Walt) SIEROTA
Recording Secretary
5201 Whitaker Avenue
Philadelphia, PA 19124

AGNES (Mrs. Charles) HUETHER,
Corresponding Secretary
34 Jacklin Court
Clifton, NJ 07012

GINNY (Mrs. Bob) RUSSELL,
Treasurer
1414 Lander Road
Mayfield Heights, OH 44124

JEWELL (Mrs. Jack) SPRINKLE,
Immediate Past President
6033 North 19th Road
Arlington, VA 22205

♪ ♪ ♪ ♪ ♪

Editor, Auxiliary Exchange

JULIE BERRY
6520 Parker Lane
Indianapolis, IN 46220

PRESIDENTS MESSAGE

Dear Members and
Friends of the Auxiliary,

On behalf of my family and myself and the national Auxiliary Board I want to wish you each a very happy holiday season. There are many things we can be pleased about at this special time of the year because piano service businesses bring happier holidays to many people. Because of all the tuner-technicians, pianos in concert halls and churches all over the United States and Canada are put into their best possible condition at Christmastime. Isn't it a nice thought to realize that Christmas programs and holiday gatherings everywhere sound just a little bit better because piano technicians were working behind the scene to prepare the piano? We can all be happy at this time of year because families are gathering around pianos in their homes to sing familiar carols and enjoy spending time together; in anticipation of these family events people contact the piano technician to make the occasion a little more rewarding. And aren't we glad the holiday season brings in more work which brings in more money which helps some of the long hours worth the effort; while people in the construction business are bracing for a winter dry spell 'and many other businesspeople are entering their slow season, the piano technician receives extra income at a time of year when it is most handy. I hope all the nice parts of being related to a piano technician will come to mind for you this Christmas and make your holiday lots of fun. Have a nice one!

Julie Berry

Seasons greetings and best wishes for a happy and prosperous 1982

Here it is once again, the busy season. There is at least one piano that must be ready by Christmas, the extra tunings to fit in somewhere, the shopping lists you are working on, the housecleaning and decorating, the cooking and baking, THE PARTIES! Such a happy time this month of December.

Then come the quieter times, a quieter time in our Auxiliary calendar, too, and perhaps a good time to think about our Auxiliary organization. I hear questions about our purpose, our reason for being organized, our goals and our function. Looking in the little blue book (bylaws) for the answer was most informative. As they say, when all else fails, read the instructions.

Article II, page 1, entitled "Object" states the Auxiliary objectives, but with the exception of twelve words, those objectives could be those of the Firemen's Auxiliary of the V.F.W. Auxiliary. It's these twelve words that answer the questions: "to promote friendship, education, understanding and goodwill in the world of music."

More specifically, we are organized in association with The Piano Technicians Guild. Our purpose is to help the technicians promote the Guild technician to the folks in the piano music world, to help our technicians inform the public about piano technology, to help our technicians conduct their business in an efficient, ethical, professional and friendly manner, to help our technicians have pleasant and enlightening social encounters. The organization is the efficient way to achieve these objectives.

If we do our job as stated in our bylaws then every PTG Chapter will feel the need for an Auxiliary.

Shirley Truax
Second Vice President

NORMAN ROCKWELL PRINTS

Eight by ten inch prints of Norman Rockwell's "The Piano Tuner" can be purchased from the Piano Technicians Guild Auxiliary. If you have tried to find this print in stores which carry other Rockwells you will appreciate how difficult it is to find copies of this print. Thanks to the Norman Rockwell Museum in

Philadelphia, the Auxiliary has been allowed to purchase a limited supply of these prints and makes them available to you at just $3.50 each. Make your checks payable to the Piano Technicians Guild Auxiliary, and send your orders to the Auxiliary's Second Vice President, Shirley Truax. Her address appears at the beginning of this "Auxiliary Exchange" column.

CHAPTER PROGRAM IDEAS FROM GINNY RUSSELL

How about a PLANT EXCHANGE? Two months before you plan to have your plant exchange, explain to everyone that a plant exchange is an interesting way to share different house plants with one another. Everyone should begin by "starting" as many plants as they can from the plants in their houses. Start these cuttings in water, using about 6 cuttings from each plant (the number depends on how large your chapter is). Let them root about 2 weeks before the plant exchange, plant the rooted cuttings in decorated empty "soup" cans (or any other size can or container). Make them as pretty as possible. Bring them to the meeting and be prepared to explain to the others the care they like and deserve.Following this most interesting and informative program about house plants, everyone is free to take the plants they desire. (If your treasury is low you can sell them, but it is more fun just to exchange plants with one another.)

At the San Francisco convention Marian Damon from Milwaukee and some of the rest of us were talking over some aspects of piano tuning businesses relating to good communication. Marian shared this insight with us: "In July 1963, when Walter went into the piano tuning business I left my YWCA job after 17 years. My adjustment to being at home was not easy. At first when he came home from a job he was absorbed with the problems he had encountered, and I didn't have much of interest to offer, so I started asking, 'Did the lady have a cat or a dog or a child?' since we both like all three, although not necessarily in that order. From the beginning I shared in the business end of his work, but knowing the names of said cats and dogs gave us something funny to think and talk about."

HAVE YOU BEEN THINKING ABOUT JOINING THE AUXILIARY, BUT YOU DON'T KNOW HOW TO GO ABOUT IT? - If that's your situation why don't you contact Belva Flegle, the Auxiliary's First Vice President and Membership Chairman. It's very simple to join the Auxiliary. The price is right - just $6. And you do not need to belong to a local chapter in order to be a member. Belva's address is listed in the box at the beginning of this column.

If you are looking for a wise way to spend all that Christmas money which Santa will bring you because you have been so good, why don't you put it in your Washington convention fund? The 1982 convention will be a special one because it celebrates the Guild's (and Auxiliary's) Silver Anniversary. It will be a great one for you to attend as a family because it is going to be in Washington, D.C. our Nation's Capital. You can combine an educational, tax-deductible business trip for the technician with a splendid educational opportunity for your family and really enjoy yourselves. Now is the time to start saving to make it one of your best excursions ever.

HAPPY NEW YEAR

Classified Advertising

CLASSIFIED ADVERTISING RATES are 20 cents per word with a $5.00 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.**

Miscellaneous

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.**

ATTENTION: PIANO RETAILERS AND TECHNICIANS. We are the authorized service center for "Pianocorder Reproducing System". This "Pianocorder" can be installed into any make and model piano. For further information, please call or write to: **David & Sons Int'l Pianos, P.O. Box 1413, Carson City, NV 89701, (702) 882-8233.**

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

For Sale

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.**

NEPAC KEY BUTTONS. The finest basswood key buttons available made in traditional design. KB-1, for Steinway grands, $39.95/set; KB-2, standard size for grands, $39.95/set; KB-3 for uprights, $37.50/set. Prices do not include shipping. Order direct from the manufacturer. **New England Piano Action Co., 6 Vernon St., Somerville, MA 02145. (617) 628-1591.**

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.**

PIANO SERVICE BUSINESS. Includes tools, many supplies and listing of large clientele. Terms available. **Mrs. Harvey Coolen, 2020 Federal Ave. E., Seattle, WA 98102.**

PIANO, GRAND, BOSENDORFER. Full size, not concert. Ebony finish, new condition. Twenty-five thousand. **Chas. White, 17870 S.W. 264th St., Homestead, FL 33031.**

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.**

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.**

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.**

JOURNAL SUBSCRIBER SERVICE

Change of Address? Please give us 4 weeks' advance notice. Attach the label for your old address, write in your new address below.

Entering a new subscription? Check the box and fill in your name below.

Renewing? Check the box below and be sure your mailing label address is correct.

PLEASE SEND THE JOURNAL FOR 1 YEAR AT $60

☐ New subscription ☐ Renewal

☐ Payment enclosed

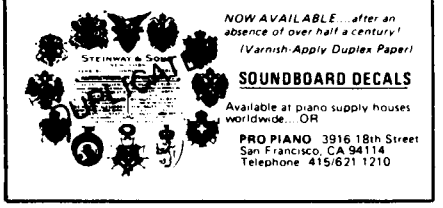
Name

Address Apt. No.

City State/Province Zip/Postcode

Telephone

THE PIANO TECHNICIANS GUILD INC. REGISTERED MEMBER ®



Toll-free troubleshooting: 1-800-253-3416.

There are times when it's a good idea to remember that help is only a phone call away.

A toll-free phone call to Bill Brandom, customer service administrator at the Everett factory.

He's the man to talk to when you need something fast – whether it's technical literature or parts or just plain answers.

Right now, Bill is ready to send you our new Everett service manual. Just send your name, address, and Guild membership number to him and he'll promptly send your personal copy to you *free*.

As for cabinet parts, Bill *guarantees* shipment to you within 10 working days in almost all cases. On bass strings and other critically needed hardware items shipment is made within 2 working days, insuring prompt service to your valued customers.

And when you need answers fast, Bill can give them to you straight away or call in engineers, designers, or production people to help solve your problems.

Save this advertisement to help you remember to call Bill Brandom at 1-800-253-3416 when you need action, not excuses. At Everett, we're ready to help.

Noteworthy pianos since 1883.

EVERETT

Everett Piano Company • 900 Indiana Avenue, South Haven, MI 49090 • Toll free 800-253-3416 • A division of Yamaha International Corporation.

The Baldwin Piano...

You can see why it sounds better

Baldwin grand piano standards are set in the ultimate testing laboratory, the concert stage, by the final judges of piano performance, the artists who can afford to consider nothing less than the finest.

We pay particular attention to the comments of our artist pianists. The constant critical evaluation of these artists, some of the country's most distinguished pianists, contributes substantially to piano design.

One unique way in which we utilize our artists is in the tone tests that we regularly schedule. This important "behind-the-scenes" activity plays a major role in maintaining and improving the quality of the Baldwin concert grand, and ultimately, other pianos in our line.

The highly respected artists who participate in these tone tests provide constructive input both tonally and functionally on Baldwin concert grand pianos. The visiting artist compares tone test pianos on the relative desirability not just of tone, but also of various elements such as touch, repetition, and level of sound. Pianos typically used in tone tests include production models, prototypes, pianos representing a previously established standard, and competitive instruments. Baldwin staff members from research and engineering, manufacturing, merchandising, and top management participate to hear first-hand the artist's evaluation.

In addition to analysis of potential refinements in piano design, tone tests help establish tonal standards for pianos in current production. To insure tonal consistency from piano to piano, we have a tonal standard piano at our factory for every size of grand we make. A tonal standard instrument is used until a production piano is judged in a tone test to be better, at which time that piano becomes the new tonal standard.

Seventh in a series of informative ads on piano tone published by Baldwin exclusively for the benefit of piano technicians.

Baldwin® - *Leading the way through research*

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

Baldwin Piano & Organ Company