Piano Technicians

Journal

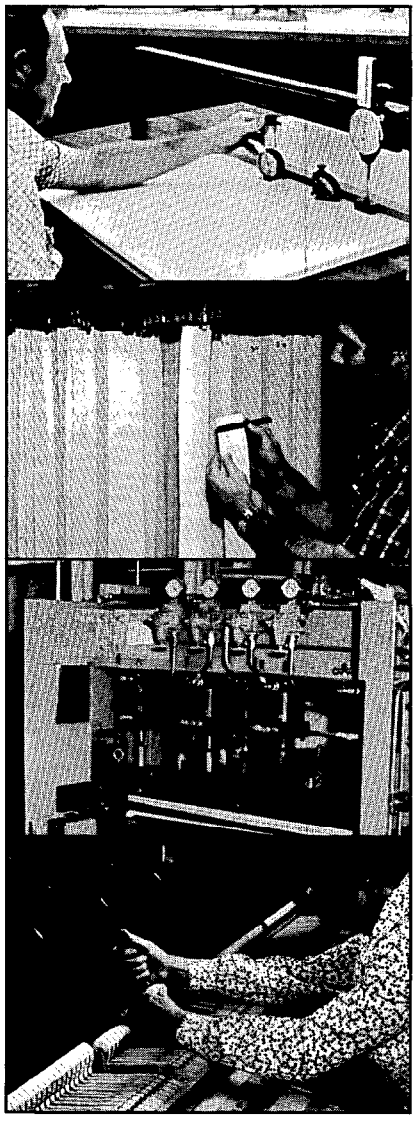
April 1987

The Baldwin Piano...

You can see why it sounds better

We firmly believe that hammer making is one of the most critical of all piano building processes. That's why we spend significant extra dollars in materials and time in the manufacture of all of our own hammers for both vertical and grand pianos.

Our special concern starts with materials. We pay a premium price for 100% virgin wool felt made to our standards for weight, thickness, taper, size and hardness. To guarantee that all hammer felt meets our standards, we subject every sheet we receive to stringent testing before accepting it for production.



The same extra concern continues in our exclusive construction procedures. First felt is treated in our moisture-conditioning chamber until it reaches a prescribed moisture content. Then the felt is placed in a special hammer press, designed and built by our engineers. This press has preset closing pressure and automatic cycling for consistency. We use a special thermosetting glue to secure the felt to the moldings. And we check throughout the process to insure that the proper felt hardness is retained.

The object of all this extra care in design and construction of hammers is tone quality...and tone quality that is consistent from note to note.

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

Baldwin. – *Leading the way through research*

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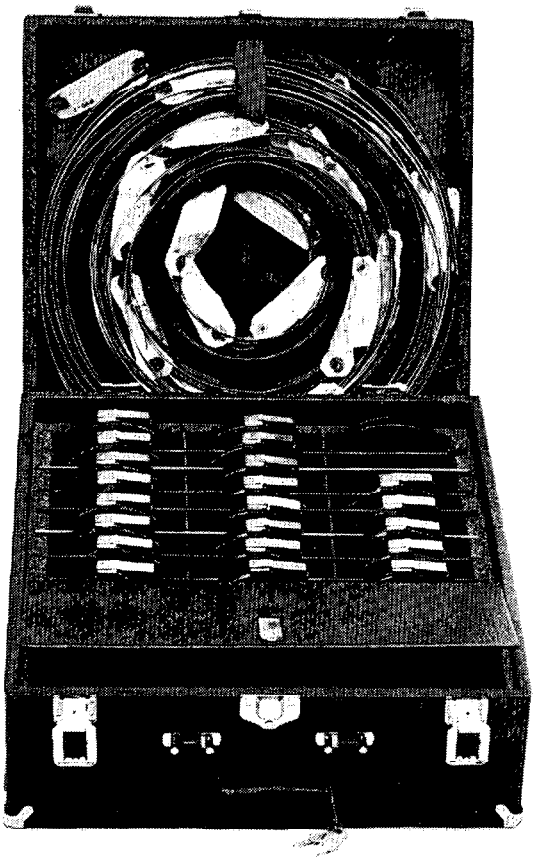
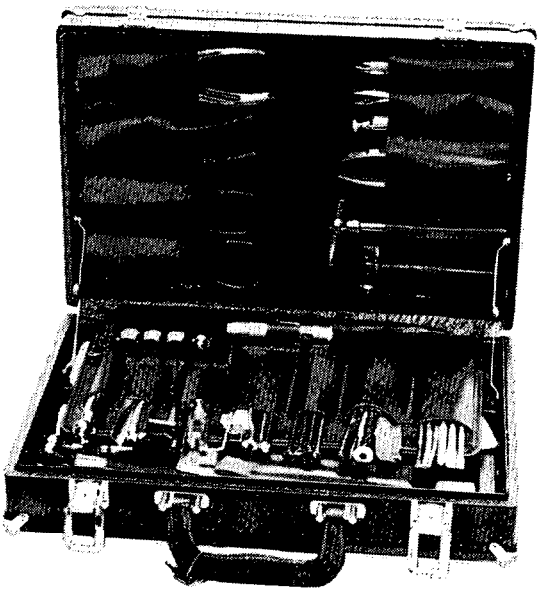
For the professional technician who demands the finest!

• ORGANIZED • COMPACT • LIGHT • DURABLE

Never before has a case been available to store both universal string sets and all of the common sizes of piano wire. A complete restringing case that is professional looking, organized and protects the strings and wire from moisture in the air. There are 24 compartments to hold wire, a top section that stores over 30 universal strings and a large open compartment, with inside dimensions 14"L x 5"W x 4½"D, for restringing tools and supplies. The empty case weighs 6 lbs., measures 16½"L x 15"W x 6½"D and is constructed with 3/8" thick hardwood covered with a black, leather looking high grade vinyl material. The case should last a lifetime. Patent pending. Wire not included.



No. 276 — Genck Universal String and Wire Case Only. Each Net.....$175.00



To our knowledge, this is the only case that has been completely organized and designed specifically for the piano technician. Genck case can hold over 100 different tools and supplies. Pouches are made to accommodate the standard tools of the trade. Case should last a lifetime. Tools not included.

This ultimate professional tool case is made of the highest quality materials. Case weighs 4 lbs. empty, measures 15"L x 10½"W x 4"D and is covered with a black, leather looking high grade vinyl material. Patent pending.

No. 275 — Genck Professional Case Only. Each Net $145.00

These cases created much enthusiasm and received overwhelming approval at the latest national P.T.G. convention. Many orders were placed after seeing the quality and attention to detail that the cases presented. Order now, you will not be disappointed.

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The Piano Technicians Journal **April 1987**

Official Publication Of The Piano Technicians Guild, Inc.

Volume 30
Number 4

IN THIS ISSUE...

PLUS...

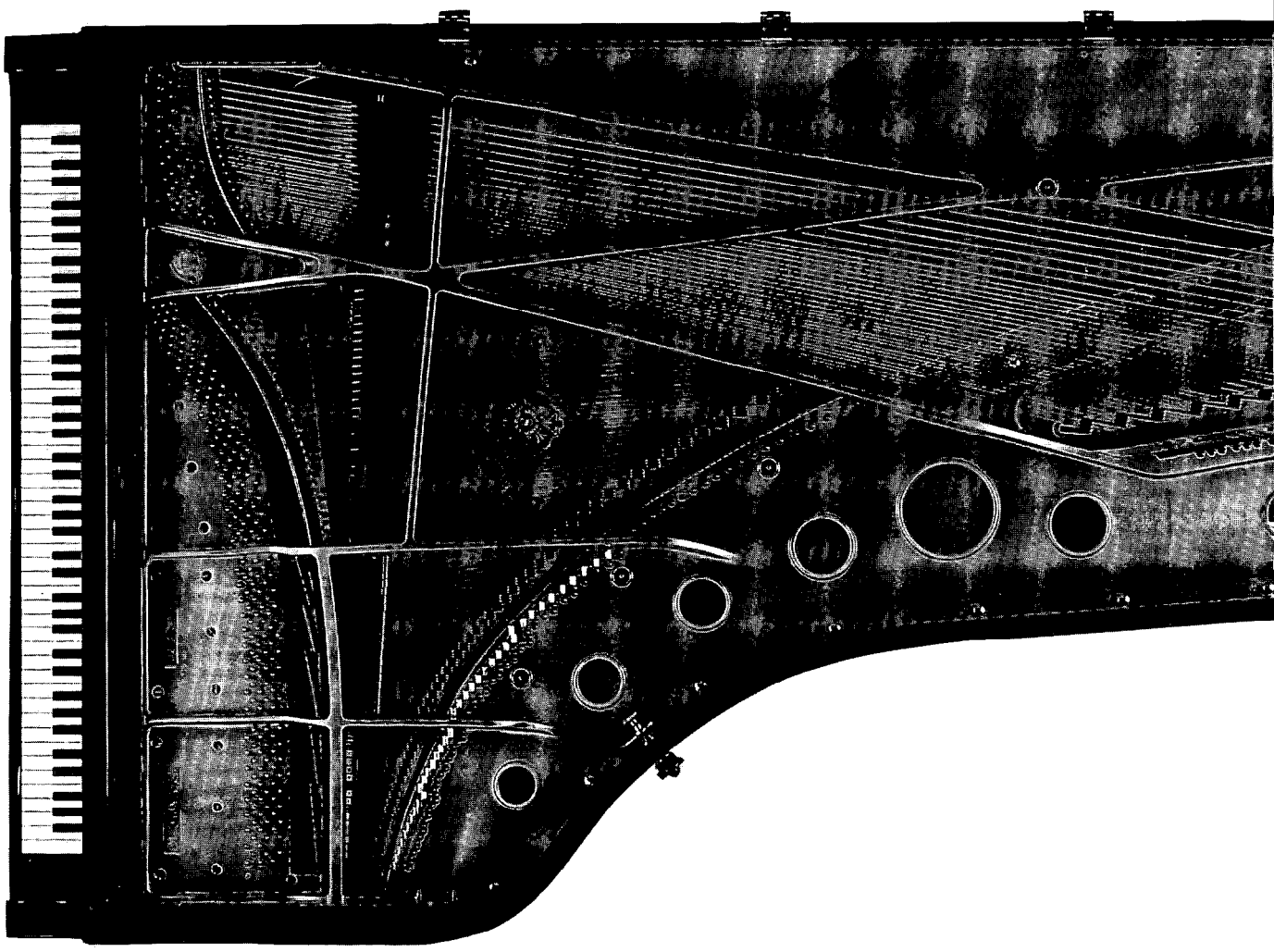
THE COVER . . .

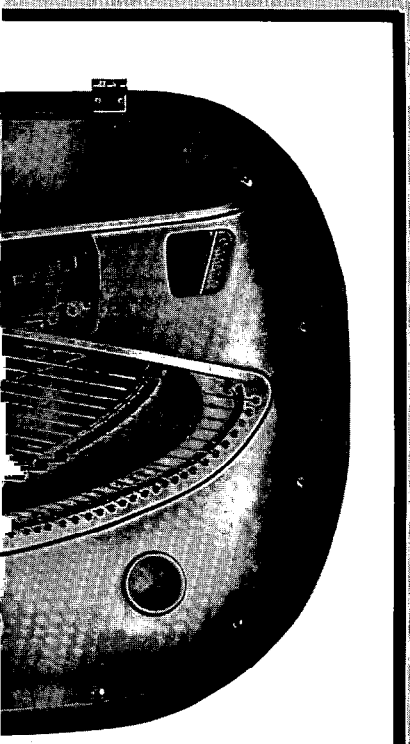
This Steinway Piano in Toronto's Parkwood Estates was manufactured in Hamburg, Germany, in 1930. Its giltwood cabinet and 18th century Austo-Hungarian design also were done in Hamburg.

The *Piano Technicians Journal* (ISSN 0031 9562) is the official publication of The Piano Technicians Guild, Inc., 9140 Ward Parkway, Kansas City, MO 64114. The *Journal* is published monthly, with two issues in December. Second class postage paid at Kansas City, MO., US ISSN 0031 9562 foreign and domestic. POSTMASTER: send address changes to: *Piano Technicians Journal*, 9140 Ward Parkway, Kansas City, MO 64114.

Annual subscription price: $85 (US) for one year; $155 (US) for two years; $7.50 (US) per single copy. Piano Technicians Guild members receive the *Piano Technicians Journal* for $45 per year as part of their membership dues.

German Scale Design The Heart Of The World's Greatest Pianos





For over two hundred years, German pianomakers have been perfecting the fine art of scale design. The results of this ongoing quest for perfection can be heard in the pure, rich, resonant tone of renowned German pianos like the Bechstein, the Bosendorfer, and the Grotrian-Steinweg. With the introduction of the "Imperial German" scales, the Samick piano joins the elite ranks of these legendary German instruments.

Klaus Fenner, the world's preeminent scale designer, labored for the past five years to create a unique scale that would endow each Samick piano with a tone quality and response capable of satisfying the most discerning musician. The result was the now acclaimed Imperial German Scale. (These Fenner Scales are available only in Samick Pianos).

Samick's skilled manufacturing engineers then took this design and put it into production, using the finest materials and an unsurpassed manufacturing process. Samick's seven factories blend a 4000 year old tradition of skilled handwork with the world's most sophisticated automated machinery. This unique combination of skilled handwork, advanced manufacturing methods, and German scale design has resulted in one of the finest pianos in the world, regardless of price.

Accomplished pianists throughout the world are acknowledging the remarkable quality and performance of the Samick piano. Which is one reason why Samick enjoys the distinction of being the world's fastest growing piano company.

For more information on Samick pianos, we invite you to write for a copy of the Samick Technical Manual. Samick Music Corp., 14235 Lomitas, La Puente, CA. 91746. Or call:(800) 592-9393.

Samick

PRESIDENT'S MESSAGE

M.B. Hawkins
President

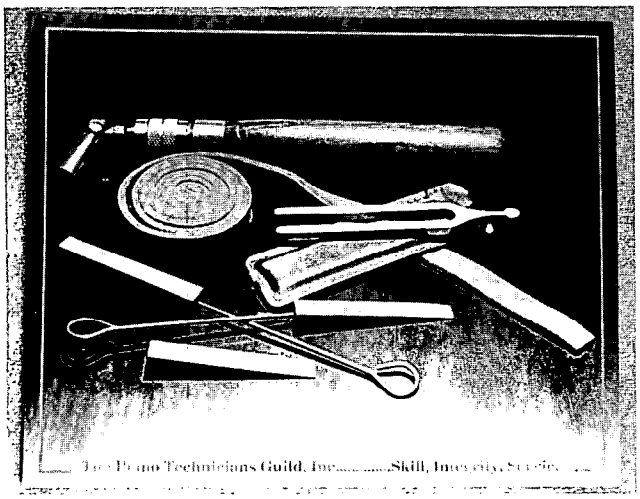
Preparing For Toronto

In Las Vegas the Central East Region with 67 percent of its chapters represented and the Western Region with 71 percent of its chapters represented make up the largest regional representation at Council. The Northeast and Central West were just over 50 percent. We had no region with less than 30 percent of its chapters represented in Council. All of these are excellent percentages but I'll bet we can outdo that for our 30th Anniversary celebration in Toronto this year. Surely we would not want our percentages to fall less than last year. Not only delegates' presence but member participation in the Institute as well.

We should have started planning for this event months ago but it is not too late to begin. This is a "happening" you don't want to miss. Not only is it going to be outstanding technically, but fantastic in so many other ways. The city of Toronto is a gorgeous place to visit anytime, winter or summer.

If you are a family person, by all means make your plans to include the entire family. As I have said previously, chapters can really do some interesting things relative to travel to Toronto so don't let down on the creative juices. Keep them alive and we are looking forward to seeing and being together with you in Toronto this July to "Discover the Feeling" of togetherness during our 30th Anniversary celebration.

Take advantage of the Super Saver airfares and plan to stay over Friday night and Saturday to be a part of the gala IAPBT meeting which begins Friday at P.T.G.'s closing luncheon. This will allow more time to visit internationally with piano people from all over the world as well as see more of Toronto on Sunday before departing. *Try and capture the big picture of what it is you are a part of.* Your conclusions, I'm sure, will strongly support your decision to *BE THERE.*■



The Poster...

This photo of a technician's tools appeared on the cover of the recent directory. It also is available as a 16" by 20" poster. Printed in color on heavy enameled stock, it's suitable for framing or great for a gift — a must for all Guild members.

To order yours, send check or money order for $9.95 U.S. plus $2.00 per poster shipping and handling to: **Piano Technicians Guild, 9140 Ward Parkway, Kansas City, MO 64114.**

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FROM THE HOME OFFICE

Larry Goldsmith
Executive Director

Market Forces At Work

Several weeks ago, our newspaper carried a photograph of a local man who had invented a new gadget that makes it much more difficult to steal certain kinds of expensive new cars. For a trained car thief, it takes only a few minutes to get into the car, bypass the ignition locks, start it up and drive away. The device is simplicity itself, relatively inexpensive and easy to install, although it takes some training to do so. The photo caption indicated that the inventor was beginning to manufacture and market the product through two local high-end car dealerships.

About a week later, I was riding with a friend who proudly displayed one of the new gadgets. He said that he knew someone whose car had been stolen and when the car was recovered, it had cost approximately $150 to replace parts broken by the thieves. My friend said that he had called one of the two dealerships, who told him that it would cost $70 to install the inventor's device, and that it would take several days to schedule it and complete the work.

He then called the inventor himself, who said that he would do it immediately for $40. My friend had taken the time to drive across town, no small distance, and wait while the device was installed. He is a man who spends a fair amount of time in his car and his normal travels would have taken him near both of the dealerships that originally had agreed to do the installations.

The next chapter came a few days after that. I was waiting in a service station while my own car was undergoing some routine service. A well-dressed young man came into the station and asked to speak to the owner. He said that he represented the inventor and asked if this service station owner would be interested in installing the man's invention.

He recounted the history of the gadget, noting that although they had originally promised exclusivity to the two dealerships, those companies had insisted on taking such a high markup that the devices weren't selling. Furthermore, nothing had been done to promote them after the initial newspaper article, which had generated a lot of interest.

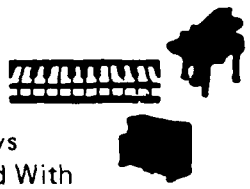
Therefore, the representative said, they were looking for new installation outlets. An arrangement which would guarantee a fair profit to both the installer and the manufacturer could be worked out, and there was plenty of demand.

I'm still waiting for the final chapter. This particular station owner turned him down, even though the traffic through his station would seem to have generated a reasonable, steady income from this sideline.

However, it was interesting to look at this as an economics laboratory and analyze the choices that were made. The inventor might have taken a better look at his market before bringing his product out. Someone, either the inventor or the original installers, might have capitalized on the early, favorable free publicity by advertising the product. The dealers might have made better use of their initial marketing advantage. And the service station owner might have taken the time to study the gadget and look at his own market before turning down the opportunity out of hand.

Maybe everyone made the right decision. Maybe someone will make a lot of money from this product, or maybe it will join the hundreds of thousands of products that come to the market, fail for one reason or another, and wind up gathering dust. Either way, it's interesting to speculate about what might have been.■

TORONTO! *Discover The Feeling!*



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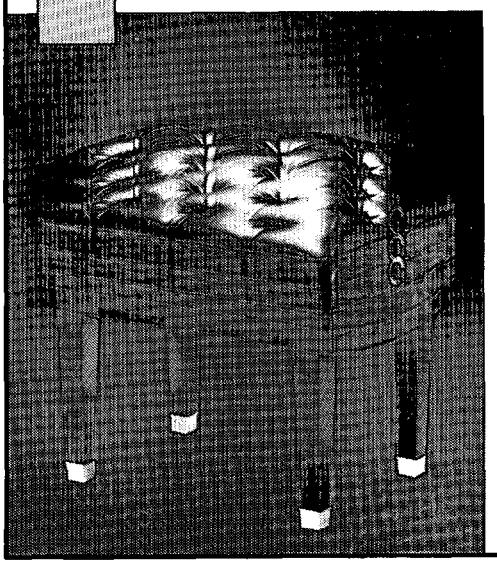

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Economic Affairs

Janet Leary
Economic Affairs Committee

Management And The Small Business

The small business is an extremely important business unit in today's economy. As manufacturing employment continues to shrink in the U.S., the service-sector continues to increase, helping to stabilize our country's overall employment picture. This in turn helps to stabilize our economy, since these jobs are relatively safe by comparison from business cycle slumps and layoffs. As we reminisce about the last recession (1981-82), you may recall that piano service continued to be in demand. Some sections of the country were a bit "tighter" than others, and the new technician may have had some rough times, but there was still work.

In our line of work I would venture to guess that 70 percent of technicians are sole proprietors, 5 percent partnerships, and the remaining 25 percent — employees of universities and larger piano shops. This means that you the technician must be the spokesperson, entrepreneur, leader, negotiator, disturbance handler, nerve center, disseminator of information to your employees and clients, and figurehead of your business. Successfully managing your own business can be an awesome challenge.

Of the 57,067 businesses in the U.S. that failed in 1985, the liability size is as follows:

Over $1 Million	16,634
$100,000 to $1 Million	19,519
$25,000 to $100,000	7,348
$5,000 to $25,000	2,688
Under $5,000	19,878

Age of companies that failed in 1985:

Over 10 yrs.	20.2%
6-10 yrs.	23.5%
4-5 yrs.	16.7%
3 yrs.	11%
2 yrs.	14.1%
1 yr.	14.5%

(The above statistics are taken from the *Wall Street Journal*, pg. 25, 12/15/86)

In order to successfully operate a small business, you the technician must be cognizant of your managerial responsibility. What is your managerial responsibility?

To work with and through others to achieve organizational objectives in a changing environment by the effective and efficient use of limited resources. The small business person is continually interacting with clients, suppliers, and manufacturers. Managing is a social process. If you're going to succeed, you must be able to interact well with others. Since time is our commodity — or limited resource, we must *effectively and efficiently* use our time in a frugal manner to achieve our objectives. The actual functions of the management process are:

1. planning
2. decision making
3. organizing
4. staffing
5. communicating
6. motivating
7. leading
8. control

Again, we see that the small business persons' work is cut out for them. All these functions may not be particularly pertinent to your business format — such as staffing and leading, but the others are.

Motivation can entail reading books about entrepreneurs like yourself, going to state and national conventions, taking courses at your local college to learn how to integrate the computer into your business, getting involved in your chapter functions and interacting with other technicians.

Planning is an important aspect of business development and maintenance. There are three levels of planning: 1. The first level is operational planning, which is planning for the short term — generally one week to one year. 2. The second is intermediate planning — six months to two years. 3. The third is strategic planning — one year to 10 years.

In a large corporation each of these levels would be handled by a separate layer of management: operational — lower management, intermediate — middle

management, and strategic planning — top management. In a small business you are all these management layers performing all these functions simultaneously.

Only one-third of small businesses write strategic plans defining their long-term objectives. If objectives are not defined, the business has no real direction, and in a continually changing environment this could lead to disaster. In our particular interest — pianos, the following are some questions everyone should contemplate when forming their long range plans. Who will be the piano manufacturers of the future? Will products sales increase or decrease in the short run? Will sales increase or decrease in the long run? How will sales affect our service sector? Who will supply the technician with quality parts? How will the changing tastes of the public affect demand for pianos?

Rather than creating a set plan for the future, and possibly being disappointed if your goals are not reached in a timely fashion, your plan should be of a flexible nature. Messrs. Block and MacMillan, professors of management at the Center for Entrepreneurial Studies at the New York Universities Graduate School of Business, suggest identifying milestones over the projects or plans life, enabling you as the manager to learn from experience about the viability of your plan and setting new goals and strategies accordingly.

Control as a management function is the process of taking the necessary corrective action to ensure that organizational objectives are accomplished. The purpose of the control function is to get the job done despite obstacles and uncertainties that get in the way. The control function entails: 1. Analyzing your company's position in reference to your direct competition — this could involve pricing decisions, standards of quality workmanship, services offered, etc. 2. Creating long range financial projections. 3. Creating annual operating budgets that estimate profit, and expenses, and financial indicators. 4. Statistical reports — weekly, monthly, or quarterly summaries of services most often requested, the effectiveness of present advertising methods, percentage of new clients from referrals versus print or phone advertising, etc. 5. Performance appraisals — an objective look at the value you are giving your clients. 6. Policies and procedures — creating standard operating procedures and policies that are consistently applied for all clients.

Decision making is the actual process of identifying and choosing alternative courses of action.

Many business people seem to have a knack for doing the right thing at the right time, and don't "seem" to need a structure, as this article would have you believe. I, however, think that we can all improve upon ourselves and our businesses, providing better value to ourselves and our customers. The concepts in this article are a means to provoke thought as to the complexities of managing every business, even the small business. With this in mind, let us now create a hypothetical business model and apply some of these management processes.

XYZ Piano Company:

XYZ is a Sole Proprietorship. Eighty percent of business income is piano tuning, while 20 percent is regulation and minor repairs. Mr. XYZ would like to add to the type of services he offers by limiting piano tuning to 50 percent of his work load, and spending the remaining 50 percent of his time doing more comprehensive repairs and restoration. As a long-range strategic goal, he may decide to take on a partner, and build a larger shop to take on an increasing work load.

Step 1: Create a plan. A plan consists of an objective and an action statement. A good objective must tell us what the intended result is, when the intended result is to be accomplished, and must be measurable.

XYZ's objective or mission statement is: "To offer the highest quality of piano service possible to all clients, decreasing the amount of piano tuning to 50 percent of total revenue within a three year period, and increasing shop work (restoration and repairs) to 50 percent of total revenue. At the end of the three year period, total demand will be evaluated, and a decision will be made as to the possibility of taking on a partner and building a larger shop."

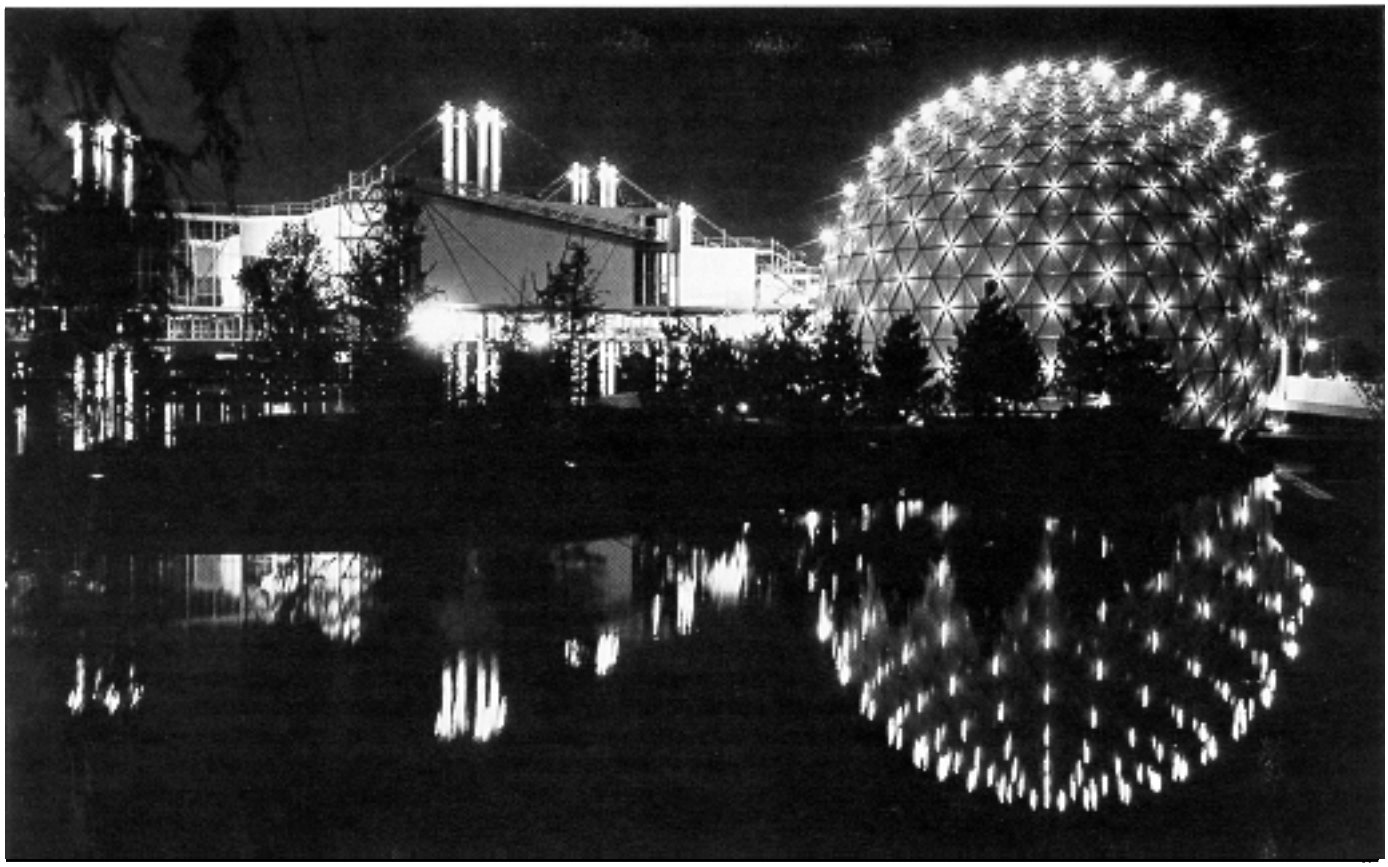
Step 2: Develop the Action Plans. In order to properly execute the plan Mr. XYZ must make a financial commitment to increase spending for shop tools. He must also set short range targets to strive for. They are as follows: 1. Decrease revenue from piano tuning 10 percent per year for the next three years, while increasing revenue from repairs 10 percent per year. 2. Increasing work hours spent per week by 10 hours to compensate for lost revenue due to time spent building jigs, investigating tools and supplies that need to be purchased, and allowing time to develop more efficient work processes. 3. Setting aside one-third of all net income from repair and restoration work into a special savings account for tools and supplies (net income is total revenue minus expenses for parts etc.).

Step 3: Periodic Review. Periodically reevaluate objectives and plans and monitor performance.

Mr. XYZ does his books once a month. At that time he totals revenue from tuning and repairs and checks to make sure he is meeting his goals. If he is not, he then reevaluates his advertising and looks for methods to improve his performance. As far as tool purchases are concerned, at the point of his monthly review he makes plans for the next major tool purchase, and sets a target "buy" date depending on total saved and projected savings. He also evaluates how many "callbacks" or complaints he received during the month, if any, and creates methods to minimize these problems.

Step 4: Conduct Annual Performance Appraisals. At the end of a year, final performance is matched with previously agreed-

Continued on page 15



ONTARIO PLACE — Reflected by the calm, summer waters of Lake Ontario is the six-story Cinesphere.

Toronto — Discover The Feeling!

Will You Remember Toronto?

John Lillico
Host Chapter Chairman

Do you remember Calgary?

The year was 1968. Close to 400 registrants attended the only Guild annual convention ever to be held outside the USA. To this very day you will hear convention talk comparing subsequent conventions with that wonderful classic held in Calgary, Alberta.

I have attended six of these annual affairs — St. Louis ('73), New York ('74), Philadelphia ('80), Indianapolis ('84), Las Vegas ('86) and, of course Calgary. With fond memories from all, none compare quite with the camaraderie and hospitality of Calgary.

Will you remember Toronto?

You can bet your tuning hammer on it. You'll just fall in love with our clean, friendly city. We in the Toronto Chapter are going all out to make this, the Guild's 30th anniversary convention, the most memorable event of your career.

More Canadians will attend this year than ever have before. From Vancouver to St. John's, reservations are pouring in. Newfoundland technicians have even chartered an aircraft to come to Toronto.

A favorable U.S. dollar exchange rate assures record-breaking numbers of American technicians attending Toronto. Attendance will be three times greater than that memorable Calgary convention.

Crossing the Canada-U.S. border is a cinch. Just ask Dick Bittinger. By now, he can almost qualify for Canadian citizenship!

Passports are *not* required for U.S. citizens. A birth or baptismal certificate or voter registration card is all that's usually required for proof of citizenship. Naturalized citizens should carry their naturalization papers and U.S. resident aliens are required to have their Alien Registration Receipt Card. Persons under 18, unaccompanied by an adult, require a letter from a parent or guardian authorizing their visit to Canada.

Drivers of motor vehicles (and trailers) not exceeding nine feet in width will generally find entry procedures quick and routine.

Toronto Institute 1987

Dick Bittinger
1987 Institute Director

Things are moving right along now for the Institute and shaping up very well. Next month we will have pictures of the instructors plus the class titles and a brief description of each class. I'm sure you won't be undecided about attending the Toronto convention after you get this Institute information. It will be a go for sure!

The "Past Presidents' Mini-Classes" were mentioned in a previous article. I'm sure you will agree there is much to learn from these piano technicians guild past presidents. This will be a regular 1 1/2-hour class each day with three past presidents doing a 28-minute mini-technical. Here is an update on the class titles so far:

Earl (Putt) Crowl ('57-'58) — "Hammer Techniques and Simplified Octave Stretching"
John Travis ('57-'58) — "Restringing"
Wendell Eaton ('65-'67) — "Reconditioning The Steinway Grand Lyre and Trap Work"
Ralph Kingsbury ('68-'70) — "Tools You Use in Tuning"
Jess Cunningham ('70-'72) — "Mannerism of Piano Tuners"
George Morgan ('72-'73) — "How to Build a Piano Pyramid!"
Kelly Ward ('73-'75) —
Ken Kadwell ('75-'77) — "Estimating Work to be Done on a Piano"
Don Morton ('61-'63) — "You and Your Supplier"
Bob Russell ('79-'81) — "Pin Block Drilling Jig"
Sid Stone ('81-'82) — "Chapter Programs"
Ernie Preuitt ('82-'84) — "All About Hammers"
Charlie Huether ('84-'86) — "Tuning Tips and a Different Temperament"

Doesn't this mini-class line up sound great? We will try to have a complete schedule of times and room for the mini class in the July *Journal*, then you can plan ahead.

Private tutoring will be offered this year and will include rebuilding, regulating and of course tuning. The cost will be $30.00 (U.S.) and $43.00 (Can.) for a regular 1½ hour period. Sign up now, first come first served!

There will be a visually impaired special day ahead of the technical institute classes Monday July 20 from 10:00 a.m. to 4:30 p.m. in parlor "G" with Emil Fries, Ernie Juhn and Ben McKlveen. Also throughout the week, parlor "G" will be used as a drop-in center along with mini-technicals from many successful visually impaired technicians. So please make a note of this extra event. If you need any more information contact: Stanley Oliver, (313) 891-9226, monitor of this class and other activities throughout the week.

Now are you beginning to *"DISCOVER THE FEELING?"*

Toronto . . .

Carry your vehicle registration card and, if the vehicle isn't yours, written permission from the owner permitting use in Canada. A rental contract is required for hired cars.

Your insurance broker will be able to provide you with a "Non-resident Inter-Province Vehicle Liability Card." This yellow card insures you against financial responsibility, at least in accordance with the minimum amount required in every province of Canada.

Personal baggage including wearing apparel, personal effects, sporting goods, cameras, automobiles, trailers and other effects which are considered appropriate for the purpose and duration of your visit to Canada, may enter on a duty and tax-free basis. Consumable items are limited to 50 cigars, 200 cigarettes, two pounds of tobacco, 40 ounces of liquor or wine (288 ounces of beer as substitute) and two days' supply of food, on a per person basis.

Firearms are prohibited in Canada and any gun-totin' tuner will be turned around at the border.

Dogs and cats must have vaccination certificates against rabies in the past 36 months. Seeing-eye dogs are exempt from this rule.

If you're traveling by air from a U.S. departure point, you might want to compare the cost of flying to Buffalo from whence you could rent a car or board a bus to Pearson International in Toronto.

However you travel, you will be a part of Piano Technicians Guild by being counted amongst the record-breaking throng who will be descending upon Toronto just three short months from now. Toronto *will* be remembered and *you* will be a part of that memory.

Should you have special needs or further questions, please drop me a line — 46 Lakeshore Rd. W., Oakville, ON Canada, L6K 1C7 or telephone 416-844-4927 (days) or 416-842-3891 (evenings). ■

THE INTERNATIONAL SCENE

Fred Odenheimer
Chairman, International Relations Committee

The NAMM Winter Market

The NAMM Winter Market has passed and from our understanding it was a great success from both a business and attendance point of view. There were visitors from all parts of the United States as well as other parts of the world.

Naturally the piano exhibits held our main interest. As indicated last month there were some makes we had not seen out here, and some other ones that brought memories back from the recent or not- so-recent past.

Weber, Schumann and Gulbransen are imports from Korea. We also found that Hyundai is manufactured at the Samick factory there. In addition, there was Petrof from Czechoslovakia which was exhibited on the West Coast for the first time. They had quite a nice display. There was also Sojin, made by Dae-Woo, the other Korean piano manufacturer.

Tadashi had a smaller exhibit this time, showing their consoles from Canada, the larger uprights from Taiwan and not showing their grands which are still made in Japan.

American piano manufacturers were well represented. The "Big three," Baldwin, Kimball and Wurlitzer had nice displays although one would wish that piano displays in general would be in less noisy surroundings, so one could get an idea of sound, especially on new models. At Wurlitzer (only piano companies, the PTG display and Lyon and Healy harps in that room) we saw Chickering, a name they have acquired in the demise of Aeolian, with Aeolian scales and in their best console with a Chickering scale. The Sohmer display included a Mason & Hamlin grand and upright which, together with Knabe pianos should be available from them in the future. We naturally stopped at the Guild booth and found them quite busy. We must not forget Walter, Astin-Weight and Story & Clark, a factory owned by its personnel.

Yamaha and Kawai had large displays, however in the case of Yamaha their pianos were displayed in various suites of the Hilton Hotel where one could listen to the instruments in quietness. Two C3s with midi attachments played together gave a dazzling arrangements of sounds. A U3 was also fitted with a player mechanism of their own design.

Steinway had a closed-in display and again it was wonderful to listen to fine instruments away from all the noise and amplifications of various instruments.

The California State Convention at the Sheraton Palace Hotel in San Francisco was well attended with a total count of well over 300. A number of outstanding classes were offered and everything seemed to be running smoothly. After his surgery, it was good to see Norm Neblett giving a class on "Grand Dampers;" however, Martha made sure that Norm did not overdo it.

There were a number of displays, and we got a first glimpse of the Falcone piano, a new American entry and a builder of large grand pianos exclusively. These instruments are indeed first-class.■

Economic Affairs . . .

upon objectives. Corrective measures are taken into account, and the four step process starts over again for the next year.

This process is called "Management by Objectives" or "MBO." It's a simple and systematic plan for achieving goals. Remember, all goals and objectives must be measurable, and the more statistical information you can come up with to substantiate your progress the better. This yearly step by step plan should be incorporated within a 10- and 20- year plan that encompasses retirement goals, increasing revenue gains, major expansion and investments.

Every business is a dynamic, ever-changing, living thing that should serve your financial and personal aspirations. If it is not, you must evaluate your particular situation and set up a list of priorities and act upon them. I hope this article has provoked some thought. I would like to close with a quote from the management sage, Peter F. Drucker: *Most small businesses believe they need management less; they need management more. A large business can hire a lot of specialists; a small business cannot and, therefore, has to be better at what it is doing. Second, they need objectives much more than do large businesses. They need realization of what they are really trying to do. They need much more concentration, as they have fewer energies.*

Peter F. Drucker References: "Management" by Kreitner, Houghton Mifflin Co., copyright 1980. "Milestones for Successful Planning" by Block & MacMillan, *Harvard Business Review,* Sept/Oct 1985, pg. 184. "Toward the Next Economics and other Essays" Drucker, Harper & Row, copyright 1981.

Kimball Asks Technicians To Tune For MDA

Kimball Piano & Organ Co. has announced a new event in its "Keys for Kids" program to benefit the Muscular Dystrophy Association. Piano tuners and technicians will join music teachers, students and Kimball dealers in helping "Jerry's Kids" for the second straight year. As one of 20 corporate sponsors of the Muscular Dystrophy Association, Kimball pledged $300,000 on last year's Labor Day Telethon.

Members of the Piano Technicians Guild will receive a pledge card and complete details of the program. Others wishing to participate can obtain information at any authorized Kimball dealer or by calling John Norton at (812)482-1600.

Total results of the Kimball "Keys for Kids" program, including technicians' contributions, will be announced during the MDA Labor Day Telethon Sept. 6-7.

"We're very pleased that technicians, who are a vital part of our business, will play an important role in our fund-raising efforts for the Muscular Dystrophy Association. We're confident they'll want to join us in helping "Jerry's Kids," said Jim Birk, executive vice president and director of sales and marketing— for Kimball Piano & Organ Co.

Correction

In March's article on the recent National Association of Music Merchants show in Anaheim, CA, an error was made in identifying two new Samick pianos. Samick introduced an 85-note 42-inch and a 75-note 42-inch. Both are continental-style consoles.

THE
TECHNICAL
FORUM

Plate-To-Stretcher Screws, Grand Rebuilding, Butterfly Spring Adjustment, Apprentice Tips, Dumb Sales Claim Contest And Tech Tips

Jack Krefting
Technical Editor

Plate-To-Stretcher Screws

Q: *I have a question about the screws I find in grands that do not have the pinblock fitted to the stretcher. These screws go through the plate and the void between, on into the stretcher. What is their purpose?"*

A: Their purpose is to stiffen the stretcher for greater structural integrity, especially when the piano is being moved. This is the reason some makers glue and dowel the stretcher to the pinblock, too, despite the oft-repeated assumption which has not been validated by any scientific research as far as we know.

Incidentally, Steinway's name for the stretcher is "cornice," a woodworking and fine-furniture term of traditional acceptance, while Baldwin calls it the "front rail." The late Merle Mason objected to both terms in his nomenclature book a few years ago; the former because it isn't really a musical-instrument term, and the latter because he felt that there was no clearly identifiable corresponding "back rail" and that it was therefore confusing. He proposed the term "frontal bar" instead.

Steinway could, of course, argue that they have used the term "cornice" for so many years that it deserves to be considered a musical-instrument term now, whatever its origin; and Baldwin clearly identifies the rail that supports the front edge of the soundboard as the "back rail," so there you have it. To add to the confusion, there is a group of technicians, mostly non-Guild, which maddeningly persists in referring to the keyslip as the "front rail"...Aaargh!

Between the keyframe and the stretcher, we have one front rail too many already, thank you.

Butterfly Spring Adjustment

Q: *I have always had some difficulty with butterfly springs, not so much in the actual adjustment of individual springs as in evening the speed of rise from note to note. Some technicians say they are no more difficult to adjust evenly than the Schwander-type wippens, but I don't see how that can be. On the butterfly type, the slightest bend seems to either make no difference at all, or it makes too much of a change. What is your preferred method of dealing with the type of action?*

A: Usually when there is a problem making fine adjustments in the spring rate of a butterfly wippen, it is either because of the bending method or a friction problem. That is not to say that butterfly wippens are just as easy to adjust as those with screwdriver adjustments — they aren't — but if the right method is used on an action that is properly prepared for regulation, they aren't all that difficult either.

One common symptom involves not just uneven hammer rise from note to note, but also uneven rise speed when the same note is released repeatedly from check.

Sometimes the hammer will almost jerk upwards, while other times it barely seems to rise at all. If this is accompanied by a slow or incomplete return of the jack, even though the repetition lever is at the correct height and the knuckle nap is going the right way — smooth toward the hammer, rough toward the flange — the problem is almost assuredly that the repetition lever is pinned too loosely. Repin the center so there is at least five grams of resistance (spring disengaged) and then, when the spring is strengthened to the point where it will lift the hammer quickly and smoothly from check, the jack will also return reliably because its spring will have been strengthened at the same time.

If jack return is not part of the problem, then the same general symptom could more likely be traced to friction where the spring touches the repetition lever. Friction at this point can become excessive when: (1) the contacting hook of the spring has been inadvertently bent slightly sideways, causing it to bind in its groove; or (2) the spring has been incorrectly strengthened by bending it at a point too far distant from its coil, causing it to chatter rather than slide in its groove, or (3) there is a gummy or hard residue of old lubricant in the repetition lever groove which is creating undue and excessive sliding friction; or (4) the spring itself has such a

Grand Rebuilding

If the bridges are perfectly good and can be simply cleaned, refinished and reused, and if the soundboard will not be replaced, this particular segment may be skipped. If in doubt about the seating of the bridge pins — we should be in doubt constantly, if we are good rebuilders — try to pull some of them out with a needlenose plier. If they can be removed easily with such a tool, they are too loose and must be set in epoxy at the very least. If the looseness is accompanied by cracking that is more than simply surface checking, the bridge should be recapped or replaced.

It's a good idea to keep the bridge pins in order if the same pins will be reused, especially if the bridge was drilled by hand, otherwise when they are reinstalled they won't be level. In the worst case, a short pin in a deep hole will be driven flush with the bridge cap before bottoming out, presenting a serious extraction problem which must be addressed quickly and decisively if epoxy has been placed in the hole. A piece of rigid styrofoam works quite well as a bridge pin holder, as the pins can be inserted more easily than into cardboard and will stay in place better than in paper. If the pins are not kept in order, at least keep them segregated according to diameter. Most pianos use three or four sizes of bridge pins.

If the soundboard will be replaced but the existing bridges reused, make a "tree" — a wooden template which will relocate the bridges to the new board, using the rim as a point of reference — from one-by-three or similar lumber stock as shown in Figure 1. The tree must touch the rim and stretcher in enough places that there will be no question about the precise location of the bridges. If the tree doesn't fit the rim tightly, shim it with veneer until it does, and only then drill the tooling holes through the

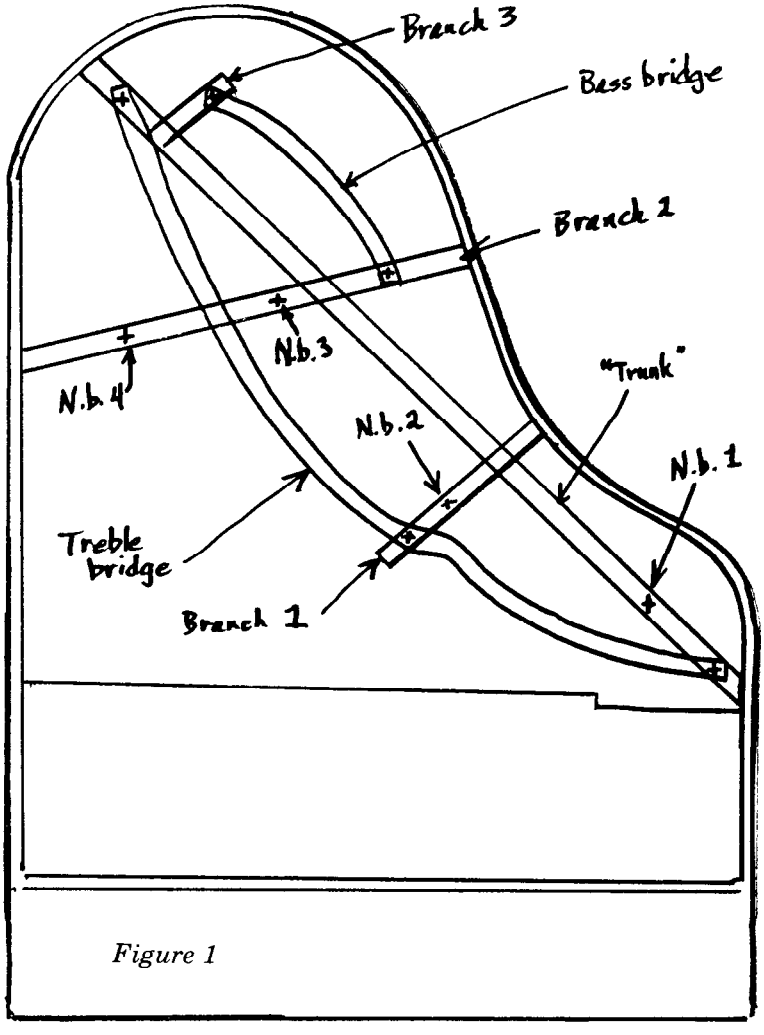


Figure 1

gunky coating right where it touches the groove. *Figure 2* illustrates the bending/chattering problem described in the second of the above.

If you are called upon to regulate a butterfly action that has not been serviced in the past few years, you will do everyone a favor to approach the job as not only an adjustment procedure, but first a maintenance requirement. Check sample wippens from various positions in the scale, looking specifically for cleanliness of spring tips, resistance in repetition centers, and the configuration of the upper part of the spring curve. If the springs are gummy, or the repetition levers loosely pinned, allow enough extra in your estimate so these things can be taken care of before regulating is attempted.

Slip the springs out of their grooves and clean them with metal cleaner (Noxon or Brasso on a rag) and then clean the grooves with a lead pencil point or, in extreme cases, naphtha followed by graphite and a burnisher. If the repetition levers are generally too loose, unpin them before cleaning and burnishing since they will have to be repinned anyway and it is much easier to service the grooves when the levers are removed.

Repin the repetition levers for proper resistance, and of course check the resistance of the jack center and the wippen flange center at the same time, correcting as necessary. Check the point of application of the jack spring also, to be sure no excess friction exists.

Recurve the repetition springs if necessary to avoid chatter, but don't overdo it because this will make it difficult to achieve sufficient spring strength. Just bend them back to their original angle and they'll work fine.

Now, before starting the regulation procedure, be sure there is *some* hammer rise on release from check, and that the shanks are all above the rest cushions. To adjust spring strength, slip the spring out of its groove and gently to the side and then simply push it up or down; up to strengthen, down to weaken, and then back carefully into the groove. This bends the spring at the base of the coil, correctly, rather than out in the middle of the curve where such a bend will substantially change the angle of the spring tip in its groove.

If this procedure does not immediately correct the problem, look for bass wippens in the treble or vice versa — the springs are of different diameters to compensate for different hammer weight — or for replacement hammers that are radically different from the originals, especially in weight.

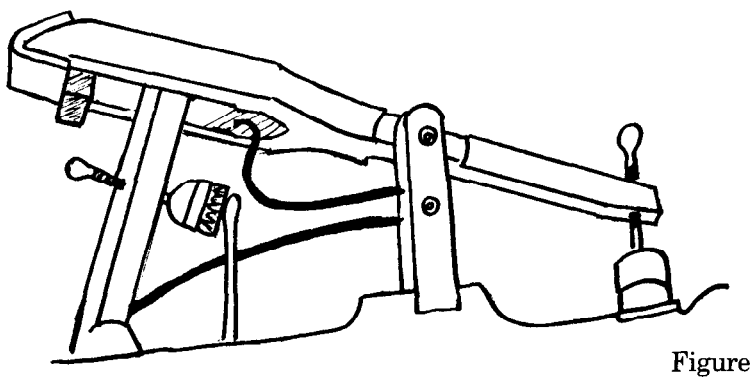


Figure 2

Grand Rebuilding . . .

tree and into the bridges.

We suggest drilling five holes for bridge location: one near each end of each bridge, and one near the middle of the treble ridge to guard against the effects of possible warpage while the bridge is out of the piano. We also suggest adding branches to the tree to locate nosebolt holes, although there are other ways of doing that which may work better in a given circumstance. For example, if the nosebolt holes project all the way through the beams, an electrician's drill bit can be inserted from below to locate these holes. Such bits can splinter a soundboard, though, so be careful.

Note that the tree is constructed on two or three levels so that a branch lies flush on the top of each bridge. This is necessary to prevent mislocation due to parallax, or the inability to precisely sight down at the same angle as was previously drilled. Eliminate guesswork by having the tree lie directly on each bridge.

A shortcut method which is useful particularly when the case will not be refinished while the board is out, is to simply use two boards, one on each bridge, with masking tape and reference marks on the inside of the outer rim. Each board then becomes a locator for its bridge, thus saving the time required to make a tree.

The size of the tooling holes depends on the diameter of the tooling pins to be used. Select the pins first — 6d nails work well — and then select a drill bit that is within a thousandth or two of the pin diameter, and drill as straight down as possible, taking care to avoid bridge pin holes and old tooling holes.

Place the tooling pins in the tree, mark it with the serial number of the piano, and remove the tree to safe storage.

Dumb Sales Claim Contest

Ernest Preuitt of Independence, MO, former Guild President, submits the following classic story:

"A customer, after listening to a sales talk for some time, mentioned that she had heard that humidity had something to do with the tuning stability of a piano. The salesman responded, 'Let me show you something,' opened the lid and then closed it again. When it snapped

Apprentice Tips

When spacing keys remember to lift the front rail punchings and place the spacing tool as low as possible on the pin. If the tool is placed above the punchings, two bad things happen:

1. The tool tends to bend the pin in the middle, thus requiring more of a bend for the same amount of spacing effect, thus causing the key to move sideways when it dips. The same bend at the very bottom of the pin will have a greater spacing effect without nearly so much sidewise movement while the key is descending.
2. The tool could nick the front rail pin, which will cause the bushing to wear out very quickly.

shut he said, 'There you are, humidity sealed!'"

Tech Tip

Another former President, Charles Huether, sent in the following:

We all get upset from time to time when we see an upright which has abused hinges on the lid, abused mainly by people who open the top and let it hang down the back, supported only by the hinges...

Recently I was tuning a piano in a public place (where this situation often occurs) and was pleasantly surprised to find the piano equipped with a homemade system to keep the lid from falling down in back. It consisted of some sash chain attached to the underside of the lid at one end and to the treble side of the case at the other. Simple enough. But what was special was the small metal container attached to the side of the piano to catch the chain as the lid was closed. It was bent from sheet aluminum, wide at the top and sloping to the bottom. The screw holding the chain was placed in the center of the opening, below the level of the side, so that the chain fell into the container as the lid closed, neatly keeping it away from the action...

Please send all technical material for publication to me:

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Intervallic Relativity as a Function of Inharmonicity in Tuned Pianos

Theorem #1

The width of the temperament octave and its interior intervals are substantially inversely proportional to the inharmonicity of their notes.

Theorem #2

The adjacent octave widths below the temperament are substantially inversely proportional to the inharmonicity of the tuned note.

Corollary #1

When resolving conflicting interval checks, intervals with partials closer to the fundamental are favored over intervals with partials further away.

This presentation courtesy of IPT, the exclusive manufacturer and distributor of the Component Downbearing Gauge™, which can be purchased from the following piano supply houses: APSCO, Ford, Itoshin, Pacific, Renner, Schaff and Tuners. For further information on these tuning theorems, send a SASE to: ***IPT, 2360 Galls Creek Road, Gold Hill, OR 97525.***

A Tuning Quiz:

When tuning naturally stretched 6:3 octaves into the bass, with progressive M17ths resulting, how will a substantial increase in the inharmonicity of the tuned note affect the speed of its M17th when the same naturally stretched 6:3 octave is maintained?

Small Pianos and Inharmonicity

Rick Baldassin
Assistant Technical Editor-Tuning

Last month, a question was submitted which required more attention than could be given at that time. The question came from Mark Stivers of Sacramento, California. Mark writes:

In the July Journal, *Susan Graham says that "big pianos want more stretch." During a meticulous seminar on temperament tuning, I heard Michael Kimbell say the same thing. However, isn't it the small pianos which have more inharmonicity and therefore want more stretch?*

First let me say that small pianos do indeed have more inharmonicity. The reason is that a small piano has shorter string lengths than a large piano (at least from the middle of the piano down). If we look at the inharmonicity formula, it becomes apparent that for a given note, the string length is the variable which causes the most dramatic change, it being raised to the fourth power, and being on the bottom of the equation.

Inharmonicity Formula

$$In = \frac{5.3 \times 10^{12} d^2 n^2}{f^2 L^4}$$

where d = wire diameter in inches, n = partial number, f = frequency, L = length, and I = Inharmonicity at nth partial.

The shorter string lengths in a small piano require the diameter of the wire be greater to achieve the same frequency at the same tension. If d is greater and $L$is less, tension being equal, it follows that I is greater. For wrapped strings, the matter becomes slightly more complicated. Not only do we have to consider the diameter of the core wire, but also the diameter of the copper wrap, length of the unwrapped ends, and length and diameter of the so-called "step" of a double wrapped bass string. The shorter string length in a small piano requires more wrap to achieve the same frequency at the same tension as does a longer string with less wrap in a large piano. In a small piano, the lowest notes must be double-wrapped to achieve the desired tension, while single wrapping is sufficient in most large pianos. The "step" in the wrap of the double wrapped string adds to the total inharmonicity of the string. This step is not present in the single wound string. The unwrapped ends also add to the inharmonicity. The effect is more drastic in a short string, however, because the inharmonicity of the unwrapped end is a function of the cube of the unwrapped end divided by the speaking length (L end divided by Ls). Naturally, the shorter the string length, the larger the quantity. Hence from the above one can see that the inharmonicity is greater in small pianos with shorter strings than in large pianos with longer strings.

The fact that a small piano has more inharmonicity than does a large piano dictates that the fundamental frequencies of the bass notes will more than likely be lower in pitch than for a large piano. The graphic representation of this phenomena has come to be known as the *tuning curve* of a

piano, where the fundamental frequencies are plotted with their relative deviation from 0.

If we stop here, it would appear that according to the tuning curves for a small and large piano, the frequencies for a small piano deviate more than for a large piano, and therefore the octaves are more stretched. But what does the Tuning Curve tell us about the stretching of the octaves? *Nothing!* Furthermore, what does knowing how far apart the fundamental frequencies of a given octave are tell us? *Nothing!*

Let me illustrate. In terms of cents, an octave is 1200 cents, or the fundamental frequencies of the two octave notes are 1200 cents apart. Let us say we have an octave with fundamental frequencies 1210 cents apart. According to this definition, the octave would be wide, or "stretched" by 10 cents. If we were dealing with a harmonic instrument, knowing how far apart the fundamental frequencies are would tell us how "stretched" the octave was. Since we are dealing with the inharmonic piano, this same information becomes ambiguous at best. If our octave is from C1 to C2, it might sound all right. If it is from C3 to C4, it would sound much too wide. If it was between C7 and C8, it would sound quite flat. It is clear that the definition of an octave being fundamental frequencies 1200 cents apart is inadequate for use in the piano.

What then can we use as a frame of reference for octave stretch in the piano? The answer lies in the level of partial matching for any given octave. Because of inharmonicity, in the piano we have *types* of octaves. They are named according to the pair of partials most closely matched. In a harmonic instrument, if the fundamental frequency of the upper note is twice that of the lower note (or the two are 1200 cents apart), all of the sets of coincident partials line up simultaneously. This means that the second harmonic of the lower note would correspond exactly to the first harmonic of the upper note (2:1), and at the same time, the fourth harmonic of the lower note would correspond exactly to the second harmonic of the upper note (4:2), and that the relationships of 6:3, 8:4, 10:5, 12:6, etc., would all correspond exactly.

Formula For Inharmonicity Constant of Unwrapped End

$5695\ (D^2\text{-}d^2/D^2 + .12d^2)(L\ end/Ls)^3$

Albert E. Sanderson. Used by permission

In the inharmonic piano, only one of these relationships can generally occur at one time. If we should choose to match the fourth partial of the lower note with the second partial of the upper note, we have chosen to tune a 4:2 octave. At the same point that the octave is beatless at the 4:2 level, it is wide at the 2:1 level, and narrow at the 6:3, 8:4, etc., levels. If we raise the upper note slightly, at some point the octave will become beatless at the 6:3 level, and at the same time will be wide at the 2:1 and 4:2 levels, but still narrow at the 8:4 level. From this it is easy to see that virtually every octave we tune in the piano is both expanded and contracted at the same time. If we apply this thinking to our octave with fundamental frequencies 1210 cents apart, this might yield a C1 -C2 octave in which there is 0 cents deviation (beatless) at the 12:6 level, a C3 - C4 octave which is six cents wide at the 4:2 level, and a C7 - C8 octave which is 15 cents narrow at the 2:1 level. From the above it is clear that in the piano, knowing the distance between the fundamental frequencies tells us nothing about the quality or type of octave. Conversely, we know that the higher the set of partials we match, the more "stretched" the octave is.

Now back to this matter of big pianos and little pianos. We established earlier that the inharmonicity of a short string would be greater than that of a longer string, all else being equal. This means that there is a greater deviation in the partials from theoretical in the shorter string than the longer string. While we often say that the distance between the first and second partials is an octave apart, this is *not* an *octave*. An octave is an interval comprising two notes. To say that an octave in a small piano is more stretched than in a large piano because there is more distance between the first and second partials of the shorter string than the longer string would be inappropriate. For one thing, there is only *one* note being considered, and an octave is an interval comprising *two* notes. It would be more correct in this instance to say that the *inharmonicity co-efficient* is greater in the shorter string than the longer string. This at the same time has nothing to do with octave stretch. Or just maybe it does.

Throughout this discussion, we have stated that a shorter string would have more inharmonicity than a longer string. What if we turned this around and said that a longer string would have *less* inharmonicity than a shorter string. The fact that a longer string would have less inharmonicity would *allow us* to match *higher* sets of partials, without having objectionable beating at the lower sets of partials. Previously it was shown that the higher the set of partials which were matched, the more stretched the octave would be. Since a concert grand allows us to match a higher set of partials (say 12:6) than would a spinet (say 6:3), the octaves of the concert grand are more stretched than those of the spinet.

Looking at things this way, stretching octaves is good, and something which we want to do, rather than being something which is bad and that we are compelled to do. We would want to stretch as much as we could without objectionable beating. The lower inharmonicity of the concert grand would allow us to match higher sets of partials and thereby stretch its octaves more. The spinet with its higher inharmonicity co-efficient does not allow us to stretch beyond the 6:3 level. If we look at our octave with fundamental f requencies 1210 cents apart, we might find

that the C1 - C2 octave in a concert grand would match 12:6, while the same octave in a spinet might not even match 6:3. In both cases, the fundamental frequencies would be 10 cents expanded, but the concert grand octave would be much more stretched (12:6) than that of the spinet. (6:3-)

For me, it is much more useful to think in terms of partial matching when considering octave stretch, than to think of expansion at the fundamentals. Without an electronic aid, we could not even determine what the expansion at the fundamental would be. With selective use of interval tests we can, however, determine what set of partials we are matching. It is, after all, the consequence of this partial matching which we hear when the piano is played, not the expansion at the fundamentals.

The subject of interval tests and the types of octaves they tune has been covered by the "On Pitch" series of articles in the *Journal*. Here is a chart which summarizes the different tests, the type of octave they yield, corresponding electronic setting instructions, and areas of general use in the piano:

Octave Type	Aural Tests	Electronic Setting Instructions	Area of General Use
2:1	M10-M17 P5-P12	On the upper note	treble
4:2	M3-M10 P4-P5	Octave above the upper note	midrange
6:3	m3-m6 P12-P5	Twelfth above the upper note	midrange, bass
8:4	m6-M3 P11-P4	Two octaves above upper note	low bass, med. pianos
10:5	M6-m3 A4d5	Seventeenth above the upper note	lower bass, large pianos
12:6	m10-m3 P19-P12	Nineteenth above the upper note	lowest bass, large pianos

The object in each case is to obtain an equal beat rate between the upper and lower notes of the octave, and the test note. Each test is given a name corresponding to the intervals employed in the test. In naming the intervals, "P" denotes a so-called "Perfect" interval, "A" denotes an "Augmented" interval, and "d" denotes a diminished interval. It must be noted that some of these intervals are very hard to hear in the bass region of the piano. These checks, however, are still valid. To make use of these checks, hold down one of the octave notes and the test note without playing them. (You may have to use the sostenuto pedal in some cases.) Play the strike note with a staccato blow. Repeat this procedure with the other octave note and the test note. When the two beat rates are the same, the type of octave which has been tested for will have been tuned. The strike note in all cases is the note listed in the electronic setting instructions for that particular type of octave.

In conclusion, it has been demonstrated that the shorter bass strings of a small piano have more inharmonicity than the longer bass strings in a large piano, and that as a result of this, the tuning curve of a small piano would more than likely have fundamental frequencies which deviate more from zero than for a large piano. It was also demonstrated that the tuning curve (or knowing how far apart the fundamental frequencies are) tells us nothing about the amount of octave stretch, since we are dealing with the inharmonic piano, and the same amount of expansion at the fundamentals could yield octaves that were acceptable in the bass, too wide in the midrange, and too narrow in the treble. The ambiguity of this definition of stretch requires another frame of reference for octave stretch in the piano. It was demonstrated that classifying octaves according to the level of partials being matched was more reliable in defining octave stretch, as this can be done aurally with the aid of the interval tests provided as well as electronically. It was demonstrated that the higher the level of partials being matched, the more stretched the octave is. Since the concert grand has longer strings and lower inharmonicity than does a spinet piano, partial matching can be much higher in a concert grand than in a spinet. According to this definition of octave stretch, the octaves in a concert grand are indeed *more stretched* than in a spinet.

Our thanks to Mark Stivers of Sacramento, California for this thought-provoking question. Until next month, happy octave stretching! Please send your tuning questions and comments to me:

Rick Baldassin
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Provo, UT 84601

G O O D

VIBRATIONS

How Much Crown Should There Be?

Nick Gravagne
New Mexico Chapter

When Abraham Lincoln was asked how long the human leg should be, his answer was characteristically to the point — "long enough to reach the ground." In discussions of the theory and application of piano technology regarding soundboards, bridges and bearings, it is not uncommon to consider such questions as: how much crown should there be and how much bearing should there be? Like the opening question posed to Mr. Lincoln, these questions have no absolute answers. Initially, however they can be answered in principle, after which time a more specific approach is useful.

Since quality piano building and quality rebuilding have the same objectives, it is certain that the theoretical and practical viewpoints held by the manufacturers should be carefully considered by the rebuilder. Considering last month's Steinway article, three significant practical applications of piano technology will receive a closer look in upcoming articles: soundboard mounting on the inner rim, soundboard thickness, and downbearing. But before investigating these, a further comment on the subject of soundboard crown seems necessary in order to round out these discussions.

"

. . . the 60-foot radius for crown is so often quoted that the tendency for this dimension to be viewed as an absolute value is quite real. In fact, it's not. However, to say that soundboards are initially crowned across the grain somewhere in the vicinity of a 60-foot radius is accurate

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The first article in this series dealt with the theoretical soundboard, the second with the practical soundboard and the third with the diaphragmatic soundboard. There are many variable factors which govern the final outcome and shape of a manufactured soundboard. Some of these will be noted in this article.

First, the 60-foot radius for crown is so often quoted that the tendency for this dimension to be viewed as an absolute value is quite real. In fact, it is not. However, to say that soundboards are initially crowned across the grain somewhere in the vicinity of a 60-foot radius is accurate. This, at least, suggests that a five foot radius is far too high and a 100-foot radius too flat, but a 55- or 65-foot radius is "in the vicinity." (Note, an interesting fact here is that the Tadashi Piano Co. has published their crown specification at 8mm per meter. This converts and relates to a crown radius based on a 62.5 foot circle.) Additionally, soundboards take on some curious "compound crowns" in processing for various reasons, the most intriguing being the

result of paring the ribs at their ends after they have been glued to the soundboard.

Consider this: All things being the same, a soundboard will take on a much higher crown with ribs which are 1/4 inch deep than one with ribs which are one inch deep. The reason is that the thin ribs are more easily overcome by the expansion of the board (the ribs have been glued on to the board after the board has been heated and shrunk). The deeper ribs, however, present a more formidable resistance to bending. The typical soundboard has both conditions within the same rib in that a one inch deep rib is pared down to about 1/4 inch for several inches of length at both ends. Does the crown of the board respond accordingly? Yes, and with predictable results. This compound crown can easily be measured, even noticed by eye on the long ribs that have longer paring.

This extra-crown condition of the soundboard "in the white," (a violin-making term meaning unvarnished), is a sure indication that the crown in the board is being assisted by board expansion in ambient conditions. There are basically two methods used to crown a soundboard:

First, heating the spruce sheet (which has been cut to shape and planed to thickness/taper) for a specific period of time to a moisture content of approximately 5 percent and gluing the flat ribs on in a flat press before the board cools off. In cooling, the board absorbs moisture from the air until it attains what is called its EMC — equilibrium moisture content. That is, it has adjusted to prevailing ambient conditions and has stabilized. Since the glued-on ribs prevent the board from expanding uniformly in all directions, the soundboard can do nothing else but crown or belly upwards. (See Tech Forums December 1982 and February 1980).

Second, radiusing the ribs, also called "tapering" or "crowning" the ribs, to an arc based on a circle with a radius of more than 60 feet, say 70, 80 or even 90 feet (note, this larger circle means less curvature in the rib). The spruce sheet is also heated but for less time than the first procedure and the ribs are glued on in a concave press which is based on a 60-foot radius. This board will receive part of its crown from the subsequent expansion of the board in cooling and part from the crowned rib. The final crown nets out as the sum of these two additives.

> "In fact, how the soundboard is finished can have a material effect on the final crown before gluing it to the inner rim. Both varnish and lacquer are applied wet, carrying resins and/or oils into the wood pores. This wet application swells the board on the side being finished first."

All else being the same, higher-crowned ribs will produce a higher-crowned board and vice-versa. Both methods require dry wood although method number two requires the spruce sheet to be at five percent EMC prior to the final warming for the actual pressing. Also, both methods put the wood fibers in compression, not tension. They are pushing on each other, not pulling away from each other. A soundboard in tension is going to fail sooner or later. Method one compresses the wood fibers more in proportion to the curvature than method two. There is no better insurance against soundboard cracks than to heat the board in a hot box just prior to gluing on the ribs. Boards can crack for reasons other than pressing a sheet with a too-high moisture content, but more on this in a later article.

The white soundboard cycles with humidity changes much more noticeably than one which is varnished or lacquered. Since the board is finished before it is glued in the piano, this cycling can be observed and measured. Finishing the board effectively seals the wood pores allowing it to become more stable. In fact, how the soundboard is finished can have a material effect on the final crown before gluing it to the inner rim. Both varnish and lacquer are applied wet, carrying resins and/or oils into the wood pores. This wet application swells the board on the side being finished first. When the finish has dried or cured (the solvent has evaporated with lacquer or the varnish has oxidized or polymerized), the resin substances remain in the wood causing a "wedging effect." This effect can actually increase the crown somewhat if the top is finished first and allowed to dry, or decrease the crown if the bottom is finished first and allowed to dry. The compound crown mentioned earlier can be undone by finishing the bottom first. But even here caution is due. Piling on the finish on the bottom rib side can cause the soundboard around the edges in the rib-pared area to actually reverse crown as the thin, pared ribs are no match against the cumulative wedging effect of finish substances. It is generally safer and more advantageous to a predictable outcome to apply the first sealer coats such as shellac or lacquer sanding sealer in moderation. Finish the top first and as soon as possible do the underside. If spraying lacquer, the board can be stood up on its belly rail edge and both sides done at once.

Still another variable factor in soundboard crown analysis is that measuring the old or new board in order to determine its radius base is tricky at best. This isn't to say there isn't some real value in getting an idea of the amount of board curvature, but even with proper gauges and/or mathematics, the deflection values are relatively small and an error of 1/32-inch works out to a large error in the radius base (60-foot or other). For example a 7/64-inch deflection in a 28-inch long rib is based on a 65-foot radius but a 9/64-inch

deflection is closer to a 50-foot radius.

Actually, the crown of a soundboard is best measured on the rib side since many spruce sheets which make up the board are not of uniform thickness. It is entirely possible to measure some small crown in the top of a soundboard when in reality it is the effect of tapering which is being measured. The ribs may be perfectly flat. Furthermore, even in a carefully made soundboard the crown will measure differently at different ribs, taking into consideration the various lengths. The longer ribs generally will show a relatively higher crown measurement than the shorter ribs. This is especially true of the ribs in the high treble area. Most of the reason for this is as the ribs get shorter, their cross-sectional dimensions and the soundboard thickness do not reduce at all proportionately. Since their stiffness-to-size ratio is higher than the longer ribs there will be less curvature in the soundboard along the shorter ribs. Crowning these short ribs to a higher curve than the other ribs is a way to compensate but unless some unusual circumstance dictates, there isn't any reason to bother.

The point of this discussion is to show that soundboard crown is a relative value. Like so many aspects of piano technology it cannot be defined in dogmatic terms. The materials, tooling, processes, dimensions and environment all conspire to produce the soundboard component as it will finally take shape. What really matters about soundboard crown is that it does exist, more or less, within some reasonably prescribed parameters. As mentioned in the second article of this series, the primary function of crown is mechanical, not acoustical. Crown is necessary in a piano the way a pinblock is necessary, both are there to resist and stabilize the forces applied to them. A soundboard which is crowned on a plus- or minus-60-foot radius has been amply proven over many years to fulfill its function quite well. Insofar as handling the manufacturing and installation variable, the best that can be done is to standardize the processes to a point where reasonable consistency of outcome is assured. But even in the piano the soundboard crown is a constantly changing value due to ambient conditions.

Now consider the following rebuilding scenario. A piano is going to be rebuilt and a string test shows that there is some bearing at the ends of the treble bridge but zero to negative bearing in the center places. Bearing exists at the low bass but is zero to negative in the high bass. The soundboard has some crown as determined from stretching a string under the board across the grain. But because the piano is a quality one and the board is seriously cracked, has had repairs over the years which included two dozen screws, holes, splintering, etc., a decision is made to install a new soundboard. The bearing measurements are typical of a flattened soundboard even if not totally flat. The negative bearing is 1/32 inch (i.e., the test string is 1/32 inch above the bridge when it should really have been about 1/16 inch or better above the string rest/duplex). The questions are these: How much crown actually exists in this old board? Without changing the height of the bridge, how much crown should there be to put downbearing at a positive "in the ball park" reading? What kind of bearing readings can be more or less expected by installing a new plus or minus 60-foot radius soundboard with original bridge dimensions. The reason the bridge height plays an important role in questions two and three is that often the old bridge, or part of it, is usable.

Considering a new soundboard and either the old or new bridge, several possibilities are present. The one which is consistent with quality yet is the easiest and least expensive should be chosen. It may turn out that the old bridge height will be either too tall or too short on the new soundboard, necessitating some inordinate plate height adjustments to insure proper bearing. If these adjustments are such that the pinblock

thickness must be altered as much as 3/16-inch or more there is going to be trouble in getting the action to work properly with the new higher or lower strike distance (keybed to string level).

If the old bridge in whole or part is reusable it is going to be very tempting to use it as is, adjust the plate for good bearing and hope that somehow the action can be made to work. On the other hand, in order to keep the strike distance at or close to original specs, the old bridge will have to be recapped higher or planed down. An unattractive alternative if the old bridge/cap is still good and pins are tight. Of course, the old bridge may be shot throughout.

In any event, should a bridge need recapping it is considerably easier to remove the old cap, recap, drill holes and notch while the bridge is off the old soundboard and handy. However, if there is no real idea of how high the bridge should be the usual procedure is necessary of capping the bridge to a point where it is obviously higher than it needs to be, gluing to the new soundboard, installing the plate on the pinblock and nosebolts (remember the plate support dowels or whatever are not yet installed), adjusting the keybed to string level distance as to original, making string tests in order to determine how far down to plane the bridge. Then the plate needs to come out again, the bridge holes drilled and the cap notched and pinned. Sometimes this process is unavoidable, but it isn't always necessary either.

If some idea can be had in advance as to what might be expected by installing a new soundboard with a bridge at the original height (or any other height) the rebuilding process can be better planned and time and energy saved. It is at this point Mr. Lincoln might have been asked, instead, "Mr. President, how long should your legs be in order for you to be as tall as you are?" In light of the above scenario the question, "how much crown should there be?" has a practical answer. Next month, more on this and some simple procedures and calculations necessary to answer these questions.■

SOUND
BACKGROUND

Stein's Pianos and Mozart's Piano Composition

Jack Greenfield
Chicago Chapter

Stein's Business Increases

After Johann Andreas Stein's introduction of his bumping action with an escapement mechanism in 1773, the demands for his pianos expanded rapidly. There was a good potential market where he lived in Augsburg. This city with a population of 30,000 had a prosperous middle class. Stein, a performing musician and a member of a local musical society as well as an instrument builder, was well-known in musical circles. Stein's reputation soon spread beyond Augsburg and he began to receive orders from all over Southern Germany and from as far away as Salzburg, Vienna and Zurich.

Although he could no doubt sell all of the pianos he made, he still spent some time working on experimental instruments. By 1777 he completed a "vis-a-vis Flugel." This instrument, believed to be the one now in the Museo Civico, Verona, is a piano and a two-keyboard harpsichord with four sets of strings combined in a rectangular case about nine feet five inches long by three feet four inches wide on six legs. Keyboards at each end have a F1-F6 five-octave range. This time, instead of going to Paris as he had done previously, Stein went to Vienna which had now become a much better market for musical instruments.

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This instrument . . . is a piano and a two-keyboard harpsichord with four sets of strings combined in a rectangular case about nine feet five inches long by three feet four inches wide on six legs. Keyboards at each end have a F1-F6 five-octave range.

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Mozart's Second Visit To Stein In Augsburg

Later in 1777, soon after Stein's return from Vienna, he was visited in Augsburg again by Wolfgang Amadeus Mozart who was starting out on another extended concert tour. Mozart was at the age of 21. Fourteen years earlier, Wolfgang and his sister, accompanied by their father, had stopped in Augsburg before continuing on their first concert tour that included programs in Paris, London, The Hague, and leading cities in the Netherlands, Switzerland and Germany. The family had returned to Salzburg in November, 1766 and for the next several years Wolfgang had continued to study, compose, and perform and he began to conduct. He and his father had also made occasional short trips to Vienna.

In December 1769, the two departed for Italy where Wolfgang acquired an excellent command of Italian music in a short time. Except for a brief return to Salzburg, they spent about two years in Italy. Italian musicians and critics

were astounded at Wolfgang's accomplishments as a composer, performer, and conductor and they acclaimed him a genius.

Wolfgang and Leopold, although salaried members of the musical staff of the Archbishop of Salzburg, had had almost complete freedom to travel until the death of the Archbishop in 1772. His successor, Count Hieronymus von Colloredo, had little appreciation for music and considered the Mozarts little better than servants. It was with difficulty that they received permission for another trip to Italy and occasional short visits to Vienna and nearby German cities. Mozart left on his extended concert tour beginning in 1777 without the Archbishop's permission. Since his father could not go, Mozart was accompanied by his mother.

Mozart's Beginning At The Piano

During the earlier part of his career, Mozart had played mostly harpsichord, clavichord and organ. His early compositions include sonatas for keyboard solo, and keyboard and violin duo intended for performance on harpsichord. He also wrote a harpsichord concerto that became popular. By the early 1770s the piano began to compete seriously with the harpsichord. Harpsichord tone was much brighter than the dull timbre of the piano but the piano was comparable in loudness and had flexible dynamic capability desirable for expressive playing. Mozart began his transition to the piano with a set of six sonatas, K.279-284 in 1774. Mozart composed these works for performance on a piano at concerts he expected to play in December 1774 and January 1775 in Munich.

Mozart's conversion to piano playing was complete after his meeting with Stein in 1777. Mozart's letters to his father describe the events in Augsburg and also provide some information on Stein's work. Mozart's letter of October 14, 1777, his first after he and his mother arrived, paid a compliment to Stein's clavichords. Roughly translated, he wrote "I had the honor for three-quarters of an hour to play on one of Stein's good clavichords."

> "Mozart began his transition to the piano with a series of six sonatas K.279-284 in 1774"

Mozart's Description of Stein's Work

Mozart's famous letter of October 17-18, 1777, contains the following informative report on Stein's work.

Now I shall begin at once with the Stein pianofortes. Before I had ever seen any of Stein's work, I liked the Spath claviers the best. But now I prefer Stein's for they damp ever so much better than the Regensburg instruments. When I strike hard, I can keep my finger on the note or raise it, but the sound ceases the moment I have produced it. In whatever way I touch the keys, the tone is always even. It never jars, it is never stronger or weaker or entirely absent; in a word it is always even. It is true that he does not sell a pianoforte of this kind for less than three hundred gulden, but the trouble he takes and diligence he applies must be paid for. His instruments have this special advantage: they are made with an escapement. Not a maker in a hundred bothers about this; but without an escapement it is impossible to avoid "jangling" (blocking) and aftersound after the note is struck. When you touch the keys, the hammers fall back again the moment after they have struck the keys, whether you hold down the keys or release them. He himself told me that when he has finished making one of these claviers, he sits down to it and tries all kinds of passages, runs and jumps, and he polishes and works away so long until the clavier can do anything. For he labors only for the benefit of the music and not just for his own profit, otherwise he would finish his work sooner. He often says: "If I were not myself such a devoted lover of music and had not myself some slight skill on the clavier, I should long ago have lost patience with my work. But I do like an instrument which never lets the player down and which is durable." His claviers certainly do last. He guarantees that the soundboard will neither break nor split. When he has finished making a soundboard for a clavier, he places it in the open air, exposing it to rain, snow, the heat of the sun and all hell so that it may crack. Then he inserts wedges and glues them in to make it really strong and firm. He is glad when it cracks, for then he can be sure that nothing more can happen to it. Quite often he even cuts into it himself and then glues it together again and strengthens it in this way. He has finished making three pianofortes of this kind. I played on them again today.... Here and at Munich I played all my six sonatas (K.279- 84) by heart several times.... The last one, in D, sounds exquisite on Stein's pianoforte. The device, too, which you work with your knee is better on his than on others' instruments. I need scarcely touch it and it works, and when you shift your knee the least bit, you do not hear the least reverberation.

The knee-device Mozart referred to was a knee lever for raising the dampers. German makers continued to use knee levers for the sustaining mechanism for some time before changing to the foot pedals first introduced by English builders.

According to Mozart, the minimum price of a Stein piano in 1777 was 300 gulden. Comparing this with earlier prices shown in a list of instruments Stein had sold previously (*Journal*, March 1987, page 22) indicates how Stein prospered after introduction of his escapement mechanism. Four of the nine pianofortes, evidently square instruments, were listed at 60-75. The others, evidently grand pianos, included four at 200-250, and one at 400. The list did not show the currency unit, which could have been either gulden or florins, with a value about 25 percent higher.

Mozart played his final concert

in Augsburg on October 22, 1777. The program, described by Mozart in his October 24, 1777, letter to his father, included a symphony, a concerto for three claviers, and solo performance by Mozart himself playing the Stein piano. In addition to several previously written compositions, Mozart improvised a Sonata in C major which he wrote down later.

Completion of 1777-1778 Mozart Tour

Mozart and his mother traveled next to Mannheim for a series of concerts with the magnificent Mannheim Court orchestra during the period from early November 1777 to late March 1778. From Mannheim, the Mozarts went on to Paris. The Mozart's stay in Paris was not happy. Although he was respected by expert musicians, the Parisian musical public, occupied by a bitter rivalry between the prominent musical conductors, gave Mozart little attention. He did manage to earn some money by giving music lessons. The Mozart tour came to a sad conclusion with the illness and death of his mother in July. Mozart delayed his departure until September. He stopped off in several cities along the way back finally reaching home in Salzburg in early 1779.

Advances in Mozart's Piano Composition

Mozart had continued to compose while in Mannheim and in Paris. In Paris he came under the beneficial influence of association with such leading contemporary composers as Johann Schobert and Johann Christian Bach who had come to Paris in 1778. Mozart's musical style developed a more expansive vigorous harmonic and expressive character. His compositions for keyboard from this time on were all primarily for piano. In addition to his improvised C major sonata K.309 he completed his D major sonata K.311 in Mannheim. His next set of five sonatas K.310, 330-3 were either finished or started in Paris. Other works for keyboard from this period include a set of sonatas for violin and piano and a piano concerto in E♭ K.271. In 1778 he began to use the phrase "pour le Clavecin ou le Pianoforte" and sometimes "pianoforte" in the titles of his keyboard publications.

"In Paris he came under the beneficial influence of association with such leading contemporary composers as Johann Schobert and Johann Christian Bach who had come to Paris in 1778."

Mozart Leaves Salzburg for Vienna

After Mozart's return from Paris, he resumed work for the Archbishop of Salzburg. An accomplished violinist as well as keyboard artist, Mozart held the posts of concertmaster in the court orchestra and court organist. Mozart soon became discontented with the lack of musical opportunity and narrowness of provincial life in Salzburg. In addition there was growing hostility between him and the Archbishop, who had no conception of Mozart's greatness. Finally in 1781, against his father's advice, Mozart decided to leave his service for the Archbishop and to settle in Vienna. Mozart's presence added to that of Haydn's already there, provided a great stimulus to piano playing and started the growth of Vienna into a leading center of piano building.■

Associate With the Guild!

Friendships

Ron Berry
Vice President

Friendships — we all have them with various types of people and life would be impossible without them. One of the largest benefits of membership in PTG is the friendships you will make with others in your profession. Aside from the joys of having a friend, there are some advantages to having friends in the trade. This was most recently brought home to me when I got sick and had to cancel appointments for the next day. I was able to reschedule most of these appointments, but one tuning had to be done that day because the customer was having a party. I called on one my friends in the chapter and he was able to work the tuning into his schedule. A few days later a get-well card came in the mail with a check enclosed. My friend asked the customer to make the check out to me and sent it along.

When one of our chapter members had a flood in her shop, several chapter members donated time to help get her back on the track. There are many small ways in which Guild friends help each other. Have you ever needed a particular part for a piano in a hurry? Borrowing among chapter members is very common and some chapters have even established a parts bank which is stocked by the chapter.

There are the times when we have called a friend to find out how he has solved a technical problem with a piano. Maybe we haven't run into this problem before or maybe we just want to run our idea for solving it by another technician.

By attending seminars and conventions, I have developed a group of friends which I consider some of my best friends even though I have never been in their homes. We meet in hotels in different parts of the country, but we have much in common with our interest in piano technology and the PTG.

There are many benefits of membership in PTG, most of which are listed in the directory under member benefits. But one of the biggest benefits of membership is the friendships made by joining and being an active member.

New Associate Members During February 1987

REGION 1

Rhode Island # 29
David Flanders
675 Ten Rod Road
N. Kingstown, RI 02852

Reading-Lancaster, PA # 195
Joseph Lenich
458 W. 6th St.
Birdsboro, PA 19508

REGION 2

Baltimore, MD # 212
Michael C. Vecchione
8013 York Road, Apt. B-2
Towson, MD 21204

Richmond, VA # 231
Thomas Sheppe
5743 Thorndale Lane
Richmond, VA 23225

REGION 3

Houston, TX # 771
Harold Holcomb
606 Glenmore St.
Pasadena, TX 77503

REGION 4

Milwaukee, WI # 532
Brian Wales
640 N. Church St.
Elkhorn, WI 53121

Waukegan, IL # 600
Oscar Roth
240 N. Lombard
Lombard, IL 60148

REGION 5

Twin Cities, MN # 553
Roland Lozier
2580 Clarence St.
St. Paul, MN 55109

Kansas City, MO # 641
Herman Bonett
100 N. Mitchell
Warrensburg, MO 64093

Wichita, KS # 671
Joe H. Wisner III
2515 N. Battin
Wichita, KS 67204

Beverly Rice
2648 N. Clarence
Wichita, KS 67204

REGION 6

Los Angeles # 901
Dan Amihud
2606 Halm Ave.
Los Angeles, CA 90034

South Bay # 905
Wayne Stark
4601 West 48th St.
Lawndale, CA 90260

Golden Gate # 945
David Diaman
813 Rincon Way
San Rafael, CA 94903

Seattle, WA # 981
Susan Procter-Willanger
3823 54th Ave. SW
Seattle, WA 98116

Reclassifications To Registered Tuner-Technician

REGION 1

Long Island-Suffolk, NY # 117
Peri Fairchild
PO Box 217
49 Carlson Ave.
Kings Park, NY 11754

REGION 4

Chicago # 601
John L. Blackburn
2432 S. 9th Ave.
Broadview, IL 60153

Calendar Of Coming Events

Date	Event
April 2-4, 1987	**Pacific Northwest Conference** Thunderbird Motor Inn, Yakima, WA Kathleen hodge; 4401 Henning; Yakima, WA 98901; (509) 453-4314
April 2-5, 1987	**1987 Pennsylvania State Conference** Scranton, PA Howard A. Yepson; 94 Brook Street; Carbondale, PA 18407; (717) 282-5151
April 10-12, 1987	**Michigan State Conference** Holiday Inn, Kalamazoo, MI Dave Postma; 3430 Oak St.; Hudsonville, MI 49426; (616) 669-0407
April 24-26, 1987	**New England Regional Seminar** Merrimack Hilton, Merrimack, NH Douglas Kirkwood; 9 Woodbine Lane; Amherst, NH 03031; (603) 424-7996
April 25, 1987	**Los Angeles Chapter One-Day Seminar** La Cañada Presbyterian Church 626 Foothill Blvd. La Cañada — Flintridge, CA Kathy Teetsell; 5621 E. 23rd St. Apt. 1; Longbeach, CA 90815
* July 20-24, 1987	**30th Annual Piano Technicians Guild Convention & Institute** Constellation Hotel, Toronto, Ontario, Canada Home Office; 9140 Ward Parkway; Kansas City, MO 64114; (816) 444-3500
July 24-26, 1987	**International Association of Piano Builders and Technicians Biannual Conference** Constellation Hotel, Toronto, Ontario, Canada Home Office; 9140 Ward Parkway, Kansas City, MO 64114; (816) 444-3500
Sept. 19, 1987	**Connecticut One-Day Seminar** Sohmer Piano Co., Ivoryton, CT Vivian Brooks, 376 Shore Road, Old Lyme, CT 06371 (203) 434-0287
Oct. 2-4, 1987	**Florida State Assembly of the Piano Technicians Guild** Orlando, FL David G. Taylor; 1909 Mae St.; Orlando, FL 32806; (305) 898-9266
Oct. 9-11, 1987	**Ohio State Conference** Greater Cincinnati area Jack Krefting; P.O. Box 16066; Ludlow, KY 41016; (606) 261-1643
Oct. 16-18, 1987	**Texas State Seminar** Hilton Hotel, Wichita Falls, TX Jimmy Gold; 2101 Walnut; Duncan, OK 73533; (405) 255-5804

President's Message

The Auxiliary Exchange

Piano industry sources expect 1987 to be one of the best years ever for their industry. They came away from the Winter NAMM show with lots of orders and great expectations for the year. While they report there is no longer a market for the spinet piano, sales of quality consoles and grands may reach record-breaking proportions.

I am not a technician and the only kinds of pins I am familiar with are prefaced with "safety," "straight" and "rolling." It amazes me that pianos last as long as they do when I am told they are "pinned" together with tuning pins, center pins, hitch pins, stagger pins, etc. However, I am authoritatively told that the real future for the technician is going to lie more and more in full service to grand pianos. Now that makes sense to me because the more money one pays for something, the more concerned one is going to be with keeping it in condition. And, the more particular he is going to be about who keeps it that way.

It also doesn't take any specific knowledge of the inner workings of the piano to realize that the greater the skill level attained by the technician, the greater his income and future security. This makes attendance at our Annual PTG Convention and Technical Institute even more valuable than it has been in the past.

The reason I am using this subject for my message this month is that I realize the principle reason many technicians do not attend the convention to avail themselves of this most important training, is that they feel they can't quite afford it. Some feel it would be unfair to their spouse and family. It is unfair to *you* for *you not* to take advantage of this excellent opportunity to increase your skill level (or *keep* your skill level high) thus enabling you to earn the kind of income that will, in the long run, give the financial security for which most people strive.

It is not considered unusual for a young couple to make sacrifices so one might complete his or her college education — this is rightfully justified by the increased income it will provide for a lifetime. The very same logic applies to sacrificing, if necessary, so the technician can become as highly skilled as possible in his profession. The Piano Technicians Guild Technical Institute is, dollar for dollar, one of the most economical training programs offered anywhere, in any profession. Who better to learn from than a "Master?" These technical instructors *are* "Masters." My message to you is: Accompany your spouse to this convention. See first hand what the advantages are. Join in the activities of the Auxiliary — both educational and entertaining. Come make new friends and renew the friendships we have all made over the years. Support your technician and reap your harvest in the coming years. The time to prepare for it is *now!*

Ginger Bryant

On January 27th 1987, Layleth Qualls of Enid, OK, died after a hospitalization of three weeks. A devoted wife, and mother of two sons, she will be sorely missed. She was her husband's eyes, his driver, and his business and technical assistant for over forty years. The Piano Technicians Guild and the Piano Technicians Guild Auxiliary will miss her gracious presence, her support and her enthusiasm at annual and regional conventions and seminars which she regularly attended.

In behalf of the Officers and members of the Piano Technicians Guild Auxiliary, we offer our sincere sympathy and condolences to her husband and sons.

Ginger Bryant

A great lady has died. A new lady is welcomed. Fred and Dorothea Odenheimer's granddaughter, Stephanie Gillian, arrived on February 1, 1987. Congratulations to parents and grandparents and a warm embrace to Stephanie, 8 lbs. 7 oz.

Agnes Huether

Introducing The Auxiliary Instructors

Jan Blees — "Business Techniques"

Jan has an impressive background in both education and music and we are fortunate to have a member with such talent and expertise. She received a BA in German, and a Master's Degree in Music from Northern Illinois University. After ten years as a teacher and vocalist, Jan came to the conclusion that it was "time to move on." Expressing an interest in piano tuning and having an instructor named "Wim" close at hand she proved to her-

self, and then to her clients, her ability in yet another field. She completed her first "paid" tuning in 1981.

Due to a number of turn-overs in their office secretaries, Jan accepted another challenge — that of running the office for their tuning, rebuilding and refinishing shop. Their success story will be the basis for what she will pass on to us in Toronto.

We are honored not only in having Jan as a member, but by having her accept yet another challenge — that of instructor for our forthcoming convention.

Andre Bolduc, RTT — 'Refinishing, Touch-up and Adhesives"

Although relatively young (38) Andre is a cabinetmaker as well as an RTT. It was while working as a cabinetmaker that his interest in piano technology rose when he bought his wife an Ivers and Pond upright. He naturally set about refinishing the piano and when it was completed, he looked for a local piano technician. Finding a lack of competent technicians in his area at that time, he took up the study of piano technology himself and fixed and tuned the piano in the course of his studies.

Andre was born in Montreal. His father wanted him to learn English and, at 13, enrolled him in The English Air Cadets. Although he could hardly speak English he was finally accepted and spent five years as a Cadet and later received his Commercial Pilot's License. His first jobs were as a production planner. First with an aviation company and four production planning jobs later with a furniture company, where he finally found a field that really interested him.

He studied cabinetry with a Conrad Lapointe who taught him the many secrets of the art. He combines his two chosen professions with his wife, Michelle, helping with the business aspects. Andre and Michelle have three children and all play the violin. He says he is a very happy man because he does what he likes the best.

Such a fascinating background! Many thanks to **Dick Bittinger** for "lending" him to us. It's a class no one will want to miss and we are pleased and proud to present him to you.

Ginger Bryant

Please take special note of this month's cover. That unique Steinway is on display at the home of Col. McLaughlin, at Parkwood Estates. All PTGA registrants at the Toronto convention will be traveling by bus where we will tour the home and grounds before having High Tea in the formal gardens. And . . . this is all included in your nominal registration fee.

"March winds and April showers
Bring forth May flowers."

This couplet was written by one E.T. Elworthy. It was thought that credit for the rhyme was due Shakespeare, or even Irving Berlin, but a resource Librarian came up with the actual data. The French have a variation on this ditty: *Mars venteux annonce un bon Mai."* (A windy March forecasts a fine May.) While we may groan or grumble about the rain during these 30 days of April, our London Fog raincoat and our Pierre Cardin umbrella notwithstanding, let us consider rain, the most important element for all living things.

Rain/water has existed from earliest times. Just think and realize that the water that flooded over Noah's Ark and drenched the hordes of Genghis Khan still exists on planet earth whether it be in the frozen wastes of Antarctica, in the blue waters of Lake Tahoe or your tea-cup!

Water may have a mesmerizing affect as we gaze wordlessly at a river or stand in awe viewing the falls of Niagara. Water is miraculous, it has life and energy, but no skin and bones. Water evaporates and rises skyward today to fall tomorrow as rain or snow. It expands as it freezes, thus ice floats and saves our planet from the danger and stillness that would result if the ice sank and froze our oceans from the bottom up. Water is always arriving or departing. No scientists have yet rocketed water/rain into orbit, and nature has never boosted our water into space.

We watch water with fascination perhaps because it recalls our evolutionary past. Are the lungfish and the mudskipper our ancestors? Their experimental breaths of air led ultimately to wings, then to legs and then to humans? Perhaps we even lived *in* water. Alister Hardy, British marine biologist has proposed that humans may have descended from aquatic ancestors, since humans *alone* among primates, have subcutaneous fat like marine mammals. We too need iodine and salt as well as a high protein diet like the marine mammal.

Before the era of modern plumbing and complex systems of water piping, our ancestors set up camps or lived in villages proximate to lakes and rivers. Thus in an historical sense we also hail from water. We need water to cook with, wash with, dissolve our acids, alcohols, phosphates and nitrates. Water is essential to the life of every living thing. Only man contaminates water with his industrial chemicals and high density toxins. What we do to water is part of a revolution in the way we look at ourselves and the world. Since we humans are 90 percent water, we are in a way like bags of water which evolved spine and intelligence enough to walk around and manipulate other forms of life and matter.

Just imagine, when the sea, or a mountain stream commands our attention, is the water outside calling to the water inside our bodies to swap news, offer a warning, or extend a greeting? We must never forget that water/rain is a miracle, a most precious element. When we get waterlogged with April showers, recall the words of the songwriter: "...Let a smile be your umbrella on a rainy rainy day."

Agnes Huether

Piano Technicians Guild Foundation

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What does the Foundation do?

The Piano Technicians Guild Foundation is a separate, non-profit entity with its own board of directors. Contributions to the Foundation's Steve Jellen Memorial Fund for Research and Education are used to promote the piano and the professional technician. Most recently, the Foundation endowed a $500 annual scholarship for advanced piano study for a certified member of the Music Teachers National Assn.

To contribute, complete this form and mail to: Piano Technicians Guild, Inc. 9140 Ward Parkway, Kansas City, MO 64114.

Our thanks to these recent contributors.

Steve Jellen
Kenneth Sloane

Sidney Durfee
Jesse Manley

George Defebaugh
Jesse Manley

Sam Perlman
Ernest S. Preuitt

Robert Burton
James Burton

Honorees' names are listed in Italics

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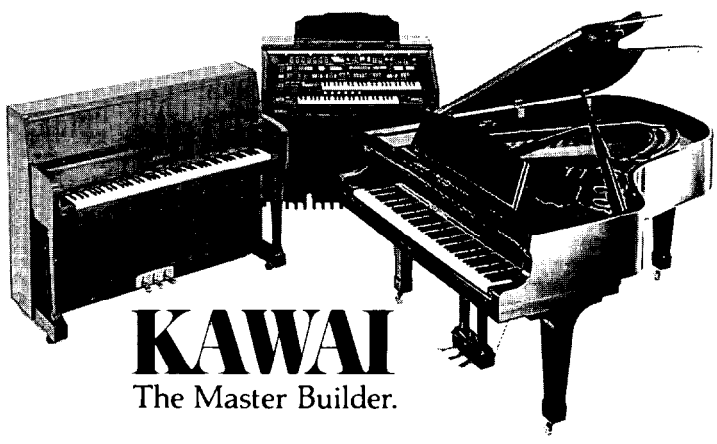

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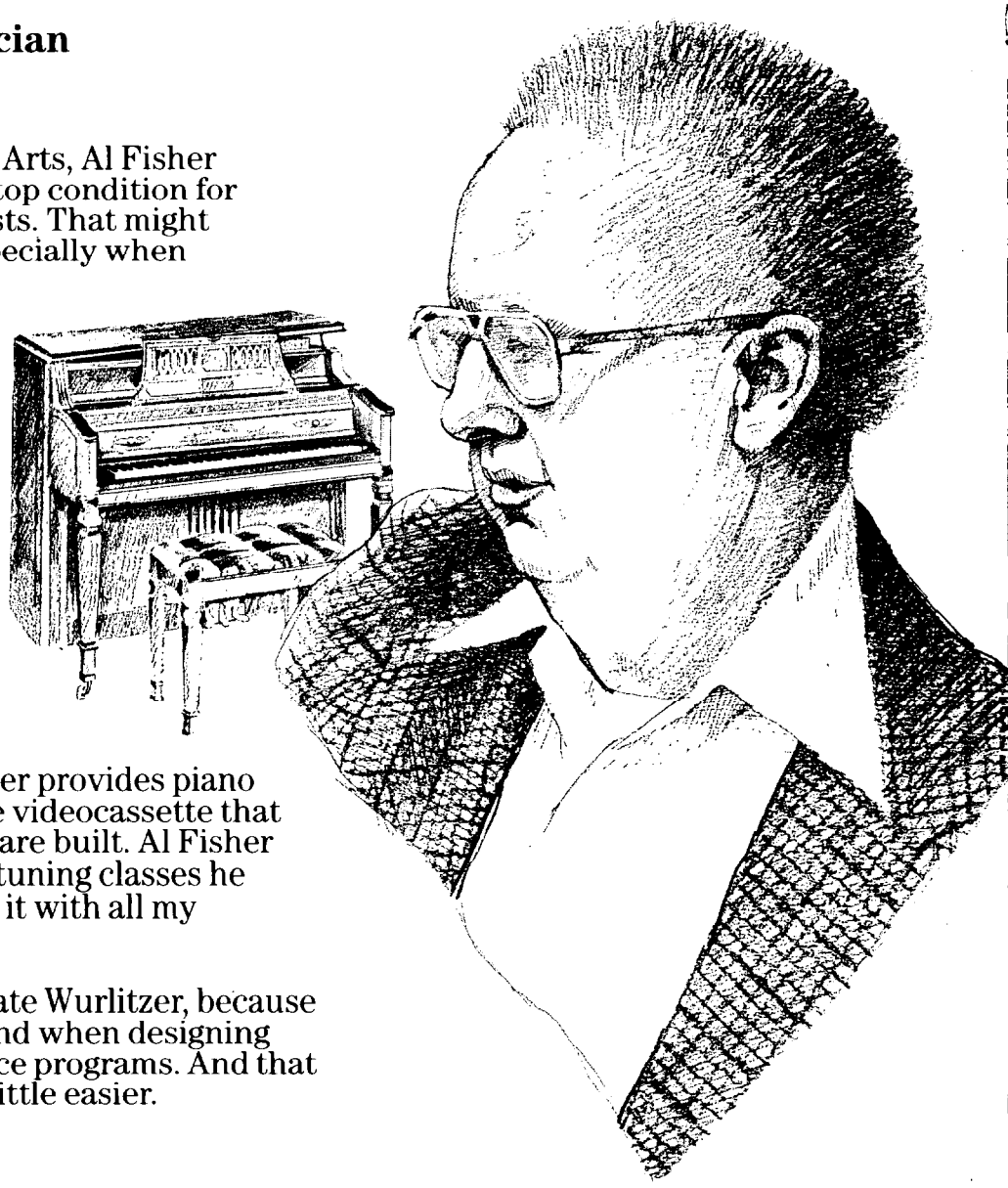

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Naturally, he appreciates that. But he also appreciates the extra service that Wurlitzer provides piano technicians. For example, the videocassette that shows how Wurlizter pianos are built. Al Fisher uses it regularly in the piano tuning classes he teaches at Interlochen. "I use it with all my students. It's well done."

People like Al Fisher appreciate Wurlitzer, because we keep the technician in mind when designing pianos and establishing service programs. And that makes the technician's job a little easier.

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April **UPDATE** 1987

Published Monthly For Members Of The Piano Technicians Guild, Inc.

New Officers

Montreal, Quebec
Roland Bessette, *President*
Kerry Wagner, *Vice President*
Jean-Marc Beauchamp, *Secretary-Treasurer*

Utah Valley
Rick Baldassin, *President*
Merrill Cox, *Vice President*
Jack Reeves, *Secretary-Treasurer*
Skip Livingston, *Membership*
Rick Florence, *Newsletter*
Kevin Price, *Social*

Chapter Mailing

The March mailing to chapter presidents included this information:

1. Deadlines for naming Council delegates, filing committee reports and paying membership dues were March 31.

2. A seminar approval form is the first step in scheduling a seminar or conference.

3. Kimball reports that action models are to be shipped in May.

4. To assist the Home Office in keeping a computerized record of all chapter officers, chapters were asked to provide more detailed information about their officers.

5. A message from President Hawkins regarding college technicians, discipline and "The Therapy of Action."

Involvement, Energy Make For Success

M.B. Hawkins
President

The time is fast approaching when our chapters will be electing officers, if this has not already been done. In conjunction with this very important activity, let's spend a few moments reviewing a few items.

When a slate of names is prepared and presented to the membership for their approval, I would dare say the committee responsible for this task has spent a fair amount of time seriously thinking through past chapter issues, chapter experience, energy level, the ability to follow through in getting a job done and the varied qualities a member would want a chapter officer to possess. Just because there is a committee to take the brunt of this preparation of a slate for future officers does not remove the final responsibility from you, the member. Sometimes without thinking very much about it, membership will more or less rubber-stamp the names arrived at by the committee. While it is good to recognize and appreciate the committees' diligence, membership as a whole needs to spend some time thinking about the future of operations. We in PTG tend to reflect the society we are a part of very well. What I mean by that is as a society we are prone to trust and expect from those who have a job to do so much that we remove ourselves completely from the picture. I do not think that is good policy. While we expect the best from those to whom a task has been assigned, individually we should exert the added thrust that is needed to truly make an operation a success. That is individual input. So, I would hope that while the committees are doing their best work, each member will also do his or her best to not only support the committee but to intelligently question what is being put in front of you for consideration.

Probably the normal path of experience within our organization is membership followed by some helping role which leads to committee involvement. Involvement with committees generally unearths some leadership potential and that is where chairpersons come from. This involvement on local committees will more than likely land a person on a slate for one of the elected officers at chapter level. Some even bypass this and/or at the same time find themselves functioning on an organizational committee at the state, region or even national level. All of this is good experience and should be encouraged.

When committee members and chairpersons are sought for the association level, it is past history at the chapter, state and regional level that is reviewed. Chapter presidents and other chapter officers have been found to generally possess the qualities needed to effectively head a committee. While this is not always the case, it often happens this way.

While Regional Vice Presi-

Continued on next page

Involvement, Energy...

held in the regional caucuses during our annual convention, it is sincerely hoped that some of the thinking mentioned above is taken into consideration. History seems to indicate that people nominated and elected as RVPs tend to be carrying with them a fair amount of chapter experience including Secretary, Vice President, and President. Once again, this is not always the case but those members present at regional caucuses need to have a good idea of who it is their chapter favors for RVP and it is certainly to the region's advantage if individual members have exerted some energy within their chapter prior to the last chapter meeting before the convention to study and be apprised of where the region is going and by whom it will be led.

It may not be clear to many what real function the RVPs provide to their regions. As a matter of fact there have been times when the RVP will go through two years of service before really comprehending the complexity of the job. Then it is sometimes too late because for whatever reason the region then elects another person to serve in that capacity.

It requires energy to be an effective RVP. The Regional Vice President is the backbone of the Executive Board of P.T.G., so when you send someone into this slot you as an individual member within your chapter need to be reasonably comfortable that the person your chapter is backing has the qualities needed coupled with the desire and drive to last the long haul. That is asking for quite a bit.

When one looks at the duties of an RVP as listed in the Bylaws, it is easy to glance over the real meaning of what is being said., i.e. "The RVP shall exercise a general supervision over the chapters and harmony of PTG." Wow, that is a mouthful. Let's look at those words more closely. We all know that exercise means to perform as well as exert influence. The word itself connotes activity. Then, we recognize general to mean widespread, most common as well as not specific or precise as in "general terms." Of course, the big word is supervision which still means to oversee or direct as in superintend. It is rather difficult to get anything other than "manage" out of superintend, isn't it? To me this sounds like exercising general supervision can be a very energetic activity when it is worked at. It can be done in conjunction with running a private business and you may be sure it does not just happen by itself.

Because our regions have from 19 to 35 chapters it is sometimes tough to stay in touch with all chapters across the great expanses of our states. For that reason RVPs are allowed to appoint assistants such as state chairpersons to help with the duties within the region. This has not been widely done but the provision is there. No chapter should go without personal contact by the RVP or an assistant for more than one quarter, in my opinion. This can be accomplished and when it is even worked at a little bit, the results show up in quite sizable proportions. When is the last time you saw or talked with your RVP?

Acting as the president's deputy on authorization as well as functioning as the membership chairman and the advertising representative in the region should help the RVP to be a high-visibility person within the region. Attending major meetings such as seminars and conferences is more or less expected but when that extra little push is put into the act to attend chapter meetings and make additional contacts, the region is going to know something is happening.

The other side of being RVP is being a part of the Executive Board of Directors. This is where the feedback from membership is disseminated and shared in order that we can continue to move our organization ahead.

If there was time this could go on into much more depth, but at least I hope this input will inspire *you* the individual member to share your responsibility to help nominate and subsequently elect those people who will, in your opinion, best represent your chapter and hence, our organization. This is the democratic way and it works best when your voice is not silent but actively pursuing our ultimate goal to achieve the highest possible service standards and to effectively promote and improve the piano tuning and servicing industry.

Chapter Film Usage

Films from the PTG rental library were recently used by the following chapters.

"Action Centers," South Florida (Morty Trautman), Pamlico (Frank Anderson); "Bridge Repair," L.I. Suffolk (Ronald Duschenchuk), Redwood (Gay Ornellas); "Casualties of Stress," Eastern Washington (Tom Kuntz); "Creation of Sounds," Mississippi Gulf Coast (Steve Townsend); "Fifty Minutes with Herman Koford," Golden Gate (Sid Stone); "Grand Action Regulation," L.I. Cristofori (George Brennan), South Florida (Morty Trautman); "Invitation To A Grand," Rhode Island (Kirk Russell); "Music Of Sound," Golden Gate (Sid Stone), Memphis (Monica Hern); "Prescription for Complaints," Golden Gate (Sid Stone); Upright Action Restoration," L.I. Cristofori (George Brennan).

Chapter News And Notes

Dale Heikkinen
Chairman, Chapter Management And Achievement Committee

Syracuse
"You had to be there," by Joseph Karwacki

By nature, the piano is an inharmonic beast. It is natural and it is necessary. Without inharmonicity in the taut, stiff wires, our pianos would not sound as they do. This brief synopsis is based on a program by Paul Simpkin called "The Composition of tone and piano scaling."

Of course, the amount of inharmonicity is subjective. As Paul compared inharmonicity to a piano's sound, he also described salt to a potato's taste. Too much salt is not good and none at all tastes blah. But, just a little bit, and it tastes great. Short stiff strings move to cause greater inharmonicity, and longer, more flexible strings cause the opposite. With the aid of the chapter's Sight-O-Tuner, Paul described how he was able to measure the frequencies of particular partials of three separate octaves of A3, A4, and A5. After so doing, he placed the results on a chart and described how the coincidental partials of each note would act to determine how the tuner would select and possibly compromise to obtain the best sounding pitch. What then followed was a discussion of the inharmonicity of tuning forks, the inharmonicity patterns of uprights, studios, and spinets, false beats, and the motions of bridges and soundboards which made this class a big success.

Lehigh Valley
"The multiple levels of a piano's life and times; Art Forum," with Pauline Fox (The Pocono Record, 12-21-86)

I love pianos! In fact, sometimes the piano has even rivaled the dog as my best friend, and considering that I don't have to license, walk, or feed the piano, it makes an excellent companion.

A piano is real— it has grown. Whether its veneer is mahogany, cherry, walnut, or oak, the visible grain evidences its former life under the sun, feeding from the earth and played upon at the whim of the wind.

How will it respond? Will it ignore efforts to crescendo, or will it dance with joyful staccato? Does it weep because of poor health or sigh with only memories of tone?

Will it clang angrily because of compacted hammer grooves, sizzle because of rust on damper felts, or thud because of corroded bass strings? Or will it sing warmly with over 200 strings in tune, as 8 overtones from each string reinforce each other?

My friend ideally is strung at nearly 40,000 pounds of tension, comparable to a stack of 18 VW Rabbits 80 feet high. Its wool hammers, at a controlled balance of internal compression and external stretch, are expected to obey my directions and bounce back from every blow.

Pianos, too, have heads, tails, elbows, and butts. Piano ailments are not contagious. Medically speaking, a piano surgeon can perform wonders with transplants. A keyboard dental expert can transform 52 yellow chips into a pearly white smile.

For a complaint of creaking joints, a general piano practitioner may prescribe a treatment using acetic acid, also found in apple cider vinegar, by which hale Vermont farmers have survived and sworn for generations.

"You give pie-anna lessons?" A good answer may be that many of us give music lessons by means of the piano. A better answer may be that some teachers and students have learned to live by applying principles of music. Benefits related to study of the piano can include the complementary fields of forestry, cabinetry, physics, mathematics, social and cultural history, muscular coordination, mental health, and intellectual concentration. Maybe all of us should become better acquainted with the piano that lives in our home.

(Art Forum is a series of articles originated by the Monroe County Arts Council.)

Philadelphia

The Philadelphia chapter is sponsoring a new fund called the Walter Sierota Memorial Fund.

Walt was known and respected by the Guild and others in the music or music related fields for many years. He was president of the Philadelphia Chapter three times and also served as chairman of the Pennsylvania State Convention. If someone did a good job, writes James Chadwick, Walt was always quick to give compliments and encouragement when needed.

The Fund proposes awarding the presentation to a member of a chapter in Pennsylvania every year at the Pennsylvania State Convention. Every chapter in Pennsylvania will submit the name of one person to be considered to the President of the Philadelphia Chapter. The names will be submitted to the chairman of the Pennsylvania State Convention who will appoint a committee to select one person to receive the award. The Philadelphia chapter will manage the fund and be responsible for the award presentation.

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Washington

"Gran' drops keep fallin' on my head," by Michael Travis

There seem to be two approaches to regulating the drop screw in a grand action, which yield distinctly different results. One approach, taken by Baldwin, Yamaha and others, is to treat the drop screw like a second let-off button; you adjust jack let-off, and you likewise adjust repetition lever "let-off." Using this approach, you carefully control the key movement without "bottoming" the key on the front rail punching while watching where the hammer drops to just after let-off and just before it resumes its upward motion and the key hits bottom, and turn the drop screw down for more drop and up for less.

A second approach, taken by some Steinway technicians, produces a "deeper" feel in the action. This involves gently depressing the key through let-off and all the way to the punching (without putting the hammer in check) and seeing where the hammer finally rises to, adjusting the drop screw to make it end up higher or lower. You can check the evenness of this adjustment after you've laid the touch by equally and simultaneously depressing a bunch of keys all the way and observing a nice, even row of hammers the proper "drop" distance from the strings.

In both cases, we are advised to set the drop at about 1/8" from the strings. The Steinway service manuals I've seen are not very clear on exactly what you're supposed to do and observe in "making" the drop, but do indicate that it should be done after you lay the touch, whereas in the Baldwin manual you are clearly told how to regulate the drop before checking the touch.

It may surprise you to learn that even after more than a century of modern piano action, technicians do still debate and discuss ways to regulate it.

Baltimore

The annual Baltimore Chapter Seminar was held Nov. 15, 1986, at the Omni Hotel in downtown Baltimore. LaRoy Edwards presented "A Grand Day with Yamaha" covering grand regulation with special attention to dampers. In recognition of the 20th anniversary of the Baltimore Chapter, charter chapter members Irv Cohen, Harold Banner, Richard Kawiecki, Marvin Nigh, and Milton Braune along with "founding father" Wendall Eaton were honored with handsome commemorative walnut and brass plaques. An eager crowd of 65 turned out from five neighboring chapters. Each registrant received a string loop making tool for attending. Two grand prizes, a Yamaha grand action model and an Accu-Fork, were awarded to two lucky seminarees, writes David Hughes.

Richmond

"That's what this is all about!" by Jesse Williams

Your Business! You make the investment and you expect a good return. Randy Potter really put us in a good frame of mind in a comprehensive lesson in "Survival in the piano service business." The three hour seminar quickly turned into a four and one-half hour session. In a big program, there were as many visitors as there were members. Anyone attending could easily come away with up to $500.00 in tax savings and business building techniques; quite a return on the $7.00 investment!

Randy was well versed in business management and better business practices. His topics of discussion included "Taxes and Accounting," and "Getting, Keeping and Increasing the Business. He went through a large number of deductions that most of us would be able to declare; among them are advertising, insurance, office and car expenses, telephone and travel expenses. Randy suggested putting a spouse on payroll, thus saving on the F.I.C.A. tax. He also listed magazines and newspapers, use of your home for business, and how to record expenses in a proper and timely manner in order to receive the deduction without having a receipt.

On the subject of getting new business, using your business card at all times and keeping good public relations is very important. He also suggested working with music teachers by putting on piano care classes for their students. The telephone book is another advertising tool. As for increasing business, Randy talked about recommending repairs and rebuilding, stressing that one should be reasonable, and to explain why more work is needed and why it is worth being done for the piano in question. All of this and more could lead to increased business and security.

Northwest Arkansas

"The Stein fortepiano," by Ted Pankey

James Bonn, Professor of Music at the University of Southern California, Los Angeles recently gave a concert at the Fine Arts Concert Hall at the University of Arkansas in Fayetteville. Those present were privileged to hear keyboard music of the 18th and 19th centuries performed on three different keyboard instruments, one a copy of a French double harpsichord, another, a copy of a 1784 Johann Andreas Stein fortepiano, and a third, a modern American Steinway D grand. The Stein instrument, which was built by Kern Jackson of Fayetteville from a Hubbard kit, is of the most historical interest to piano technicians. The Stein instru-

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ment is used several times a year for concerts at the University of Arkansas.

This Viennese-style of piano action uses a much lighter touch weight and a shallower key dip than the English and German actions of the time and works on a different principle. There is one jack. The hammer is turned in the opposite direction and faces the keyboard. Its shank pivots in a flange directly attached to the key. The portion of the shank extending to the back side of the flange is a small beak which moves in and out of a slotted catch causing let-off. Mozart praised the piano highly for the introduction of the back-check mechanism that prevented the hammer from bouncing back and re-striking the string.

Incidentally, Johann Andreas Stein was the father of Nanette Stein-Streicher, the first female piano builder and technician of record who together with her husband continued to produce pianos in the Viennese tradition well into the 19th century under the Stein-Streicher name. Hers were the pianos that Beethoven raved about. Nanette's career is a well-documented if unusual review of a woman's gaining a foothold in the early 19th century technological world.

Oklahoma

The South Central Regional Spring Seminar was held March 6-8 in Oklahoma City. Seminar Chairman Michael Yeager, was working well in advance of the seminar deadline. Convention-goers at the previous Texas State Seminar saw seminar handouts everywhere. Keith McGavern and the seminar chairman spent much of their time gathering ideas and making contacts for this spring seminar. Layleth Qualls took over and ran the tool sales and seminar publicity featuring the Yamaha team and Cliff Geers.

The amazing Montana Chapter continues to enjoy good attendance at its meetings despite the distances members must drive. In October, 15 of 16 chapter members attended a meeting in Great Falls, some driving as far as 224 miles for a diverse and interesting session.

Dallas

"Analogy for lost motion," by Thom Tomko

We all know how important it is to have no lost motion in a piano action. Here is a good analogy to help you sell this point out in the field.

Stand next to your customer and explain that you are some sort of computer robot programmed to push their shoulder with a firm push or hit from your fist. The program is set with your hand a half inch from their shoulder. Start pushing hard against the shoulder.

Then explain that a malfunction takes place and your hand slips back to the distance of one foot from the shoulder. Now your hand must travel a longer distance with the same amount of force. Ask your now battered and unwilling customer which way they prefer this force from your fist — up close or far away. I'm sure they will conclude that their shoulder would wear out a lot quicker from the longer blow. Explain that the same occurs in the action with the jack causing unnecessary wear to the butt felt if too much lost motion is present.

Also add how correcting lost motion can impove the feel of the keyboard. Explain how the piano lacks power and can not be fully expressive. After going through all this, I'm sure you'll have much success in selling the importance of no lost motion to your customer.

Houston

"Why piano strings go dead," by Jack Garner

Piano strings are operated within their elastic range. That means that when they are put under tension they stretch somewhat like a rubber band. When the tension is released, the piano string returns to its original length. When the tension exceeds a certain level, the piano string begins to permanently elongate at its weakest spot and will remain elongated even when tension is removed. The tension at which the piano wire begins to permanently deform is called the lower yield point.

The permanent deformation, when the wire yields will become permanently smaller in

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diameter to the rest of the wire, is called necking. Because piano wire is not very ductile, but instead rather brittle, very little necking will occur before fracture occurs.

When a piece of piano wire is under tension, the molecules within the wire are no longer in the same physical relationship with its neighboring molecules as when there was no tension. While the piano string remains elongated, this molecular positional deformation tries to correct itself. The result over a time is that some adjacent molecular slippage occurs which results in a permanent reduction in the diameter of piano wire and a permanent loss to the resilienceof the wire. Resilience, in this case, refers to the amount of energy the piano string can absorb from a hammer blow.

The tuning process also alters the characteristics of the piano wire by repeated slow loading and unloading of the piano wire. The loading and unloading of the piano wire changes the already plastic deformation of piano wire. When steel is plastically deformed in this manner it "work hardens," thus making the wire harder and more brittle. With this loss in flexibility, the wire will break more easily at locations where it has to bend such as at tuning pins and at the V bar.

The strings in the bass section are subject to the same problems previously mentioned with the addition of dust and grease working their way through the overwindings, which act like miniature shock absorbers. The overwinding in the core wire is also subject to the same molecular slippage as the core wire but only more so because the overwinding is made up of more ductile material. Twisting an old bass string places a slight new molecular positional deformation by adding some stretch to the overwinding and twisting deformation to the core wire. Since molecular positional deformation is the source of resilience, you have restored a small portion of what has been lost with age.

The main contributors to the weakening of the piano string are the fact that the piano string remains under tension and the fact that it is work hardened during the tuning process. Rust, as it turns out, is not a major contributor.

Thus from the moment the piano string is put under tension, the aging process begins.

Cincinnati

"Musical daffynitions," by Marnie Squire

1. Duel -- Sung by two people
2. pp -- A violinist who holds the bow one inch off the string... while not touching!
3. Lamentoso -- With handkerchiefs
4. Refrain -- Don't do it!
5. Dramatic soprano -- A female singer who has found the right note and won't let go.
6. Coloratura soprano -- A female singer who can't find the right note, but has a wild time hunting for it.
7. Lunga -- A useful device for playing trombones and tubas
8. Heroic tenor -- One who gets by on sheer nerve

Chicago

Tom Porter, chief technician for the Chicago Symphony Orchestra, Ravinia Festival and Northwestern University recently gave an excellent program on "Tuning." He prepared excellent temperment information handouts, writes Brian Mott, and described his temperment approach. He also shared many stories drawn from his experiences with many well known concert artists over the years.

Paul Mueller was elected Vice President, replacing Otto Keyes, who has moved to Alberta, Canada to become chief technician for the Banff Music Center.

During the first half of this year's season, the Associate Membership roll has nearly doubled, adding 15 new Associates. Many of these are students of RTT member Fred Tremper's school of piano technology.

Waukegan

Armed with action models, pamphlets, charts and parts, Kathi Voss spoke to an interested and attentive group called the Racine Music Teachers' Association in January. Her topics were "The Piano and Equal Temperament" and "What You and Your Technician Can Do For Your Piano." After her presentation, she fielded many questions from the floor.

Wisconsin

"Flick your bic," by Bill Bremmer

It's new! It's compact! It has electronic ignition! It's disposable! It's inexpensive! What is it? It's the new Quartz-Matic™ disposable butane lighter.

Yes, it really is just a cigarette lighter, but what's different about it is that it has no flint. The push of a button generates a spark which ignites the flame.

So what, you ask? This lighter can be used to heat, not burn, hammer shanks in a vertical or grand piano without necessarily burning one's fingers, because the ignition button does not require the use of the thumb and a limited way in which it can be held. It can be ignited and held in many different positions which will facilitate shank heating, especially in verticles.

The quartz-type lighter is also small enough that it can be easily included as a part of a basic tool kit where size is very important.

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Most pianos in service need a little shank bending here and there but it may be too much trouble to get a large tool from the car, or too messy and conspicuous to use a match or an alcohol lamp for the job. This lighter is small, handy, quick, and inconspicous. It can solve appearance, clearance, and voicing problems in your everyday work. Try it. You'll like it!

Wichita

In an effort to promote understanding and goodwill, the Wichita chapter has been meeting with local dealers at their regular meetings. The chapter is also in the process of building a chapter library of journals, books, and videos.

Nebraska

Richard West has just introduced materials he has prepared to help educate piano teachers/ owners about good piano care. It is a small easy-to-read booklet (25 pages) which addresses the most frequently asked questions we all get from our customers. The goal is to provide more information than a two- or three-page pamphlet, yet not so much information that people won't bother reading it. Thirty-two questions and answers are given.

He has also prepared a 20-minute VHS videotape called "The Piano: Beauty or Beast." This video discusses the impact of felt wear on tone and touch. In basic terms, Richard talks about hammer care and action wear and how regular attention to hammers and regulation can keep a piano working and sounding the best that it can.

These are excellent materials for technicians to use when speaking to piano teachers' groups, service groups, or for the annual Music in the Schools program in March. Not only should the materials be good at educating piano owners, but they will also be a good vehicle to promote total piano service which should in turn generate business for technicians. Those interested can contact Richard at the University of Nebraska, Westbrook Music Building, Lincoln, NE.

Denver

In new pianos, the after-touch may be described as a built- in dimension that automatically comes into being when all of the adjustments have met other specifications, i.e., hammer-blow, let-off, key-dip, etc. If, after all other adjustments have been properly established, the after-touch is incorrect, a slight change may be made in the hammer-blow to increase the after- touch, and vice versa.

An apparent weak after-touch in old uprights, after regulation has been carefully made, is generally traceable to poor jack clearance due to:

1. too much hammer travel
2. hammer checking too far from the string
3. worn and misshapen butt cushions
4. regulate accordingly or make repairs

Following the escapement, the jack should clear the butt leather or barrel by 1/16" when firm pressure is applied to the key.

Boulder

The Boulder Area Music Teachers Association sent a thoughtful note of appreciation to members of the chapter who recently contributed their time: "This is a long overdue, but heartfelt note of appreciation for all of the time, effort, support, and talent that you contributed to the 1986 Multiple Piano Festival. The success of this year's festival would have been impossible without the generous contributions we received from organizations such as yours."

Montana

Great Falls, slightly north, is not as centrally located as is Helena where the chapter usually meets. Nevertheless 15 out of 16 members attended the chapter meeting in October! Please note the distances to Great Falls—Billings, 224; Havre, 110; Helena, 91; Missoula, 166; Deer Lodge, 146; Butte, 154; Bozeman, 188; Lewistown, 108.

While it is not practical to meet formally as often as most chapters, writes Peter Briant, our goal is to have well-attended meetings with a variety of activities. Thus, without some of the great advantages available to urban chapters, our group can still function on a worthwhile level.

After a meal at the local Holiday Inn, the chapter adjourned to the nearby College of Great Falls Music Building. Their first speaker was Dr. John Schvaneveldt, a local specialist on problems of the ear; he discussed ear structure, function and hearing conservation. They then viewed the Willis Snyder tape "Grand Regulation from A-Z." There followed a guided tour of Frank Dotz's tool box; Frank also gave a very entertaining viewpoint on being a charter member. The meeting closed with a trip to the home of Mr. Parley Smith to inspect his 1845 London-made Erard Grand; this piano has been recently restrung and repinned; the action was pulled out so everyone could inspect the details of this historically important double excapement mechanism.

Portland

"On robbery and insurance," from Peake's Perspective

Alas! My insurance company finally settled my robbery loss. I claimed $677 less $100 deductible and got it all. They were slow because I was slow. To make sure I could recover as much as possible, I made an

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itemized list, which took time but was well worth it.

Besides an air compressor, most of what I lost were small tools I purchased from a family of a technician who passed away. Since I bought these 60 percent of catalogue value, should I ask for 60 percent replacement value? Specialty tools that we use are not normally purchased second-hand. I itemized my specialty tools based on what I would pay to replace them.

Other tools such as screwdrivers, tool boxes, air compressors, etc, are items you can easily purchase used through your local newspaper or tool pedlar. I asked for replacement at a depreciated price.

If you are organized and professional when you make your claim and explain in detail what you want, they most likely will give you the benefit of the doubt.

Personally I believe that the tool and bailee insurance you have with the PTG is one that you cannot afford to overlook. For $64 per year for $1000 coverage on tools and $10,000 on bailee (such as pianos) will settle more than I lost.

Seattle

Chris Trivelas held forth on "Efficiency and Artistry" at the January technical presentation referring to sweetsweet music, not inches per gram, being the bottom line, writes Mitch Kiel. Chris advocates the telescopic view theorem of work patterns. The myraid tasks of piano work should be looked at in groupings, goes this concept. Sometimes we see long lines, other times short, of tasks that can be most efficiently grouped in work bursts. Eighty-eight times is 87 times too often to pick up a screwdriver to tighten a piano's worth of flange screws. He advises looking for patterns in all of our work, tuning as well as regulating. It turns out that the fastest way is also often the most accurate. There is a rhythm of the hands that will get the tool lined up all by itself. The feel of an adjustment becomes comparative as you move down the line.

Chapter Programs

Toronto - "Grand reconditioning," Richard Bittinger
New York City - "Small claims court procedures," Al Asbury
L.I. Cristofori - "Customer relations," membership
Erie - "Work on rebuilding chapter grand"
Hampton Roads - "Upright disassembly," Garland Goodwin
Roanoke - "Promoting music in the public schools in March," Marshall Hawkins
Southwest Florida - "Pitch raising; do we or don't we?" Artie Smith
Dallas - "Solenberger key recovering," Thom Tomko
Heart of Texas - "History and development of the piano," Jim Richards
Bluegrass - "Taxes and tuners," Mary Dehaan, Accountant, CPA
Cleveland - "Analyzing the key and hammershank ratios in manufacture, and how altering them affects touchweight," Ken Sloane
Cincinnati - "Tax revolution," Amy Erickson of Deloitte, Haskins, & Sells Accounting
Western Michigan - "Shop methods," John Dragone
Milwaukee - "Custom hammer boring," Tim Dixon
Central Illinois - "History of the American piano," Jack Greenfield
Minnesota-North Iowa - "Squaring, spacing, and traveling hammers," Mark Fisher
Hutchinson - "Physics of sound," Theodore Graber
Siouxland - "Player pianos," Norman Heischober
Reno - "Capstan buffing jig"
Los Angeles - "Grand regulation in the shop and in the piano," Steve Sherlock
South Bay - "Agraffe class," Isaac Sadigursky
Pomona - "Observations of five weeks in Japan," Lloyd Whitcomb
San Diego - "The piano tuning business," Fred Odenheimer
Monterey Bay - "Tuning the temperament without counting beats," Tom Gorley
Santa Clara - "Pianocorder presentation," Carl Meyer
Sacramento - "Comparing several different brands of concert grand pianos," Peter Clark
Eastern Washington - "Tools, invented or redesigned for piano work," Francis Mehaffey

New Brochure Debuts

A new brochure explaining the Registered Tuner-Technician designation and the use of the Guild logo made its debut at the recent Music Teachers National Association convention.

The brochure explains the process by which one becomes a Registered Tuner Technician, points out that only RTTs may use the Guild logo, and discusses the function and structure of the Guild. It is designed to be distributed at conventions, fairs and other public events.

Brochures are available from the Home Office.

Speeding The Process

When you correspond with the Home Office, remember that your request can be handled much more efficiently if you include complete information. Please be sure to include your name and address, printed legibly. Your chapter and member numbers as printed on your membership card also will make it easier to respond to your request.