Piano Technicians

Journal

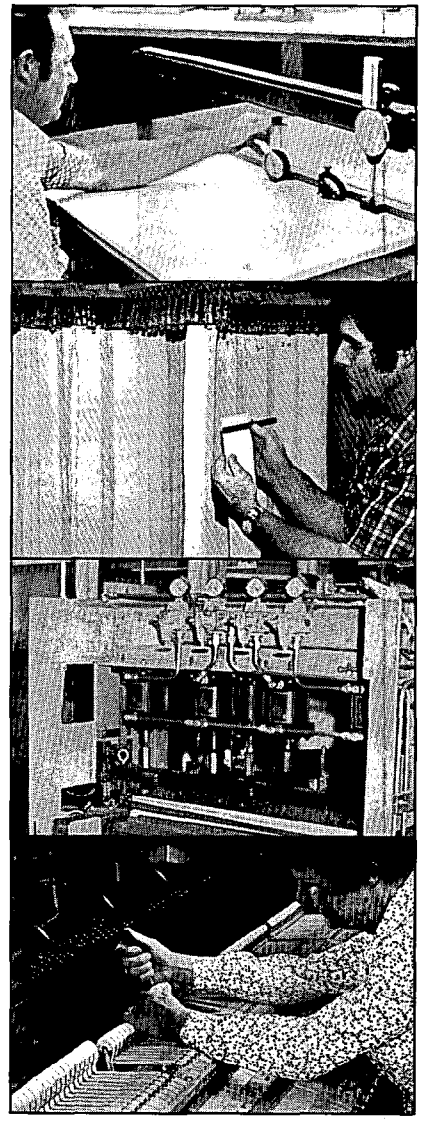
March 1988

NAMM Report '88

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.

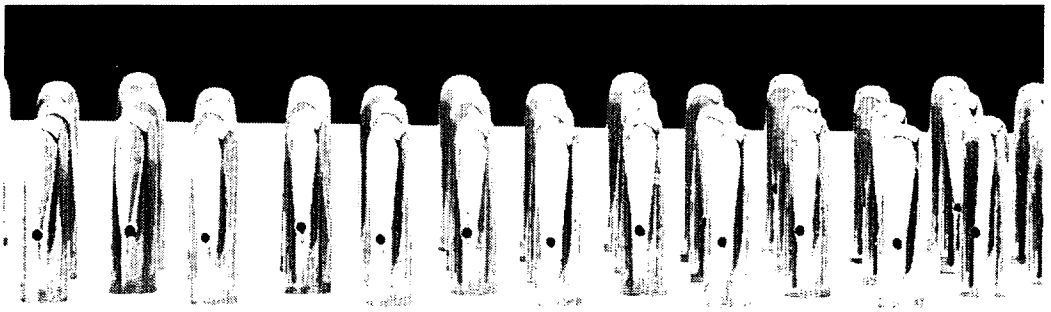
The object of all this extra care in design and construction of hammers is tone quality...and tone quality that is consistent from note to note.

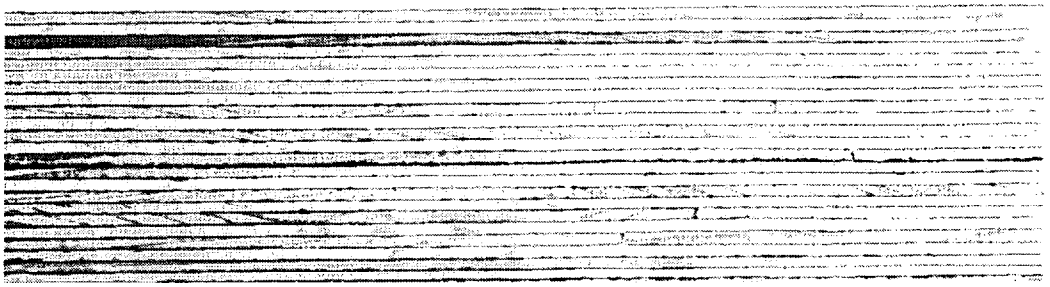
Fifth in a series of informative ads on piano tone published by Baldwin Piano & Organ Company exclusively for the benefit of piano technicians.

Baldwin® - *Leading the way through research*

Delignit®

Multi-laminated beech pin block material





At long last Schaff has obtained a distributorship for the German made, multi-laminated beech pin block material called DELIGNIT®. For several years now this type of pin block has been imported into the United States and Canada. Now this particular DELIGNIT® grade, having the same characteristics of density as used by almost all European piano manufacturers, is available at Schaff.

As the above picture of a typical 1⅜" DELIGNIT® pin block shows, there are approximately 21 cross laminated plys of high quality beech veneers that are compressed together with a modified hot curing phenolic resin applied in a special dry-bonding process. A full panel pin block measures 48" wide x 59" long with a double block being 19" wide and a single block measuring 9½". All of the various width blocks come in either 1¼", 1⅜" or 1½" thickness.

Single and double blocks can be shipped UPS, but a full panel must ship via truck. Write or call for pricing information.

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Schaff PIANO SUPPLY COMPANY

451 OAKWOOD ROAD, LAKE ZURICH, IL 60047

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The Piano Technicians Journal **March 1988**

Official Publication Of The Piano Technicians Guild, Inc.

Volume 31
Number 3

IN THIS ISSUE...

PLUS...

THE COVER...

This year's National Association of Music Merchants Winter Market in Anaheim drew a wide variety of piano -related exhibitors. See Susan Graham's report on page 13. Photos by Frank Rackley.

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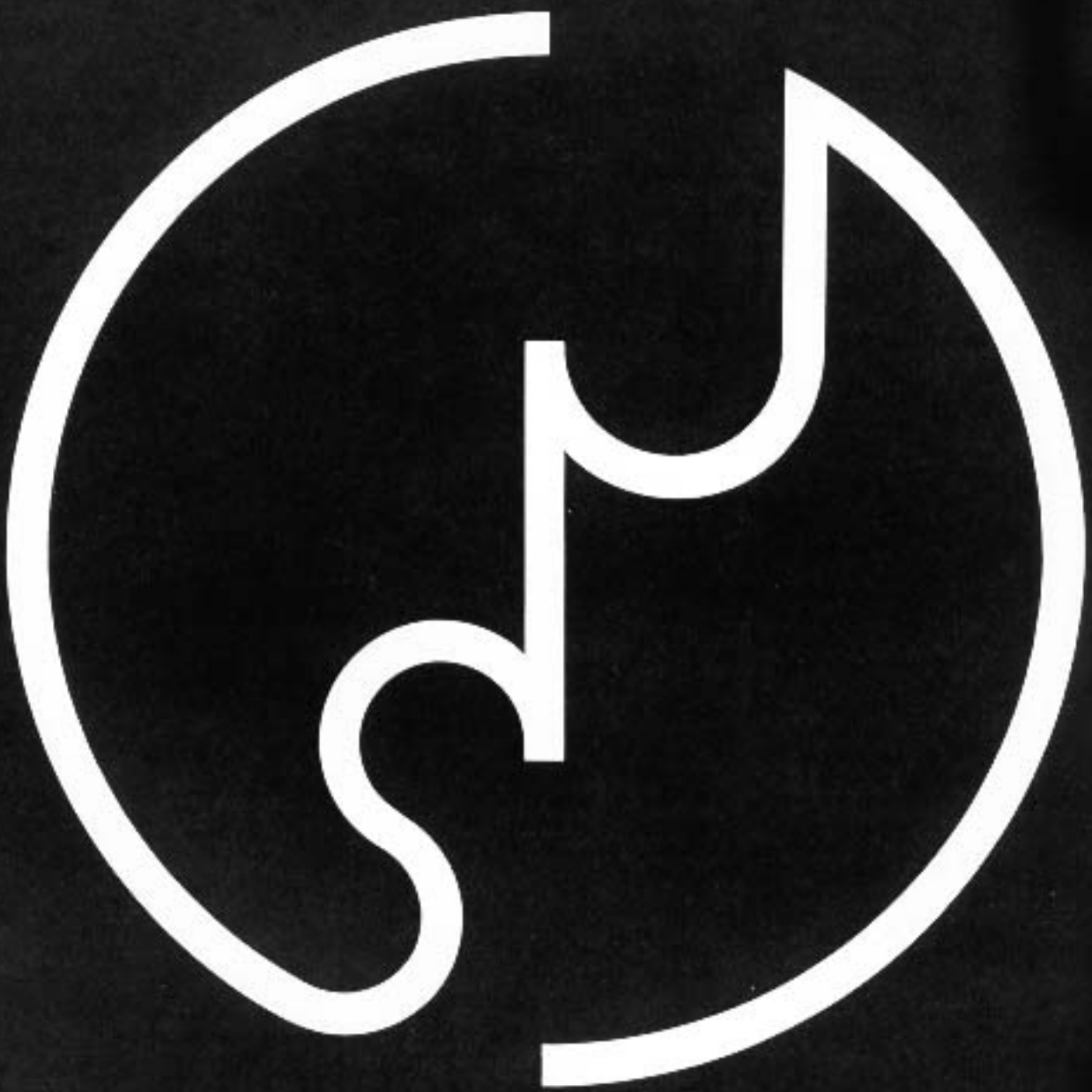

Young Chang. The only Korean piano to meet Japan's highest standards.

The Japanese Industrial Standards seal.

It guarantees a piano is created of the finest materials in the world. It promises quality construction and careful attention to detail. It assures a long lifetime of exceptional performance and remarkable tone.

And Young Chang is the *only* Korean piano to earn its approval.

The JIS seal guarantees our instruments are every bit as outstanding as their Japanese counterparts. But because Young Chang pianos are created in Korea, we're able to offer the very best value.

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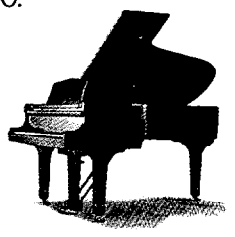
For a free copy of our Service Guide and Technical Specifications Manual, write to Young Chang Technical Services, 13336 Alondra Blvd., Cerritos, CA 90701. Or call 213/926-3200.



YOUNG CHANG

The best the world has to offer.

President's Message

M.B. Hawkins
President

Staying Plugged In

Can you imagine or even remember the lights going out in the house? When you looked out of the window and saw things all lit up in the surrounding area the word "isolation" could really be appreciated. In that particular circumstance one could appreciate how important it is to be plugged in. When you are cut off from the current it is obvious you miss the electricity. The same thing applies in our organization. When one allows isolation to set in it is only natural that enthusiasm will wane.

Attendance at monthly meetings is a good way to stay plugged in. Those are perfect times to have rewarding discussions with other people in the profession. Chapters offer technical programs which provide a number of things. If you are giving the technical program you surely will come away with more information than you think you gave out. If you have never given a program you may not relate to the statement, but believe me, it is true. If you are not giving the technical program you not only provide support for the person giving the program but have the opportunity to experience a different method or procedure. At the least there is reinforcement of something you already know. You are also there to share with the less experienced persons. There are all types of benefits to be gained from staying in the flow of activity created by your chapter.

So you live too far away from where the chapter meets to attend the meetings? I've heard this one over and over. It's not for me to say how far it has to be to be too far away but I know some people who drive rather great distances to be with other technicians each month. Some chapters arrange various alternatives to deal with the business of long distances. If it is absolutely too far to go, why not work out a deal where the meeting can be taped and sent to you? How about using the telephone to stay in touch with other members of the chapter?

Newsletters along with the *Journal* are certainly helpful but personal involvement is absolutely necessary. If you don't believe that, try getting electricity without being plugged in. The fact of the matter is that many members impede their progress and our organizational destiny by failing to live up to article II of our bylaws. Remember that part about why our organization was formed? Our aim is to achieve the highest possible service standards and to effectively promote them in such a way as to improve the piano tuning and service industry. We do that by forming and developing chapters. The chapter meeting is a vehicle for the exchange of ideas. Anyone who is a member needs to constantly make every effort to attend each and every meeting. That way everybody wins because there is excitement and electricity when a group with common interests gets together.

Of course the chapter meeting is not the only vehicle that provides face to face involvement. There are seminars, conferences and of course the annual institute and convention. They all are designed to help membership stay plugged in to professional development. I have found that the most enthusiastic members, the members with the most electricity, are those members that do whatever it is that must be done to be present where informational exchanges occur. Those are the members who realize the more one learns the more one realizes how much more there is yet to be learned. Those are the members who make this organization what it is today. Those are the people with that thirst for knowledge who will meet this summer in St. Louis to be ushered thru the gateway to excellence.

Til then, stay plugged in. ■

From The Home Office

Larry Goldsmith
Executive Director

Getting The Word Out

Seems like every time you turn around these days, there's an ad for something or other using a grand piano as a selling tool. Pianos have been used to sell everything from banks and credit cards to perfume to liquors. As a symbol of the good life, it's threatening to replace German automobiles and certain soft drinks.

Maybe it's part of the latest national trend, something called "cocooning." A woman with the unlikely name of Faith Popcorn has built a business around spotting the next trend. She says that instead of drinking exotic mineral waters in fern bars (last year's trend), we're all supposed to be curling up at home with an evening's worth of Snickers bars to watch "Thirtysomething."

Since not everyone's constitution can deal with that much television, and since we have a lot of disposable income now that we don't spend our evenings "grazing" on squid, black beans and strange lettuces, we're spending our money on feathering our nests. What better to spend our money on that something that looks good and fairly reeks of culture? You can increase your "class" quotient just by looking across the room at a grand piano during commercials.

Whatever the reason, it's nice to have American Express and the other large national advertisers on our side. They're positioning pianos as desirable things to own, which means our manufacturer friends will sell more of them, and sooner or later these new owners will get around to maintaining them, which is where Guild members come in. According to people in the manufacturing end of the business, this theory is being born out recently in increased sales (See Susan Graham's report from the National Association of Music Merchants show in this issue). Whether or not these piano owners will turn into long-term piano players is yet to be determined, but at least the instruments will find homes where they will be admired and dusted regularly.

It's all marketing and positioning. Which brings me to the point of this. In today's superficial, instant-gratification age, it's not enough to be the best piano technician in town. (Or the best plumber. Or the best florist. Or whatever.) What matters, if you're at all interested in increasing the volume and quality of your business, is who else knows it. Or perceives it. That's why the subject of the next few columns in this space will be public relations.

During the 20th century, public relations has grown from a simple philosophy of telling people about your good points to a full-fledged profession. A few years ago, someone did a survey of articles in the *Wall Street Journal*. A high percentage were rewrites of company press releases, not old-fashioned trenchcoat-and-notepad reporting. That's not to say these were puff pieces or that the *Journal* didn't verify the facts. It's just that the paper was provided with information that it judged sufficiently important to use.

Editors are people like anyone else. In last month's column, I said that an editor's responsibility is to sort through all the incoming information and produce a thorough, responsible and readable product. As an editor, if you had your choice between two articles of approximately equal news value, one in good shape and ready to go, the other requiring several phone calls and an extensive rewrite, which would you publish? Remember that you're only human.

But that's a topic for next month. Meanwhile, it's time to check our local piano dealer for a cheap BMW trade-in.■

Tech Gazette

Yamaha Piano Service March, 1988

MIDI Corner

Have you heard the one about the piano technician who said: "Why should I be bothered with this MIDI stuff!? MIDI is for computers and synthesizers—not pianos!"

New concepts and ideas can at times be confusing and difficult to understand. Imagine, if you can, what it would be like to be a manufacturer trying to keep abreast of new technologies and incorporate these new ideas into new models and products without making current models obsolete. In order for the end user (usually the consumer) to benefit from what manufacturers are marketing without the need to be independently wealthy, a standard format must be devised that will allow new equipment to interface with currently existing products.

MIDI represents an industry standard, developed by five leading synthesizer manufacturers, that enables diverse products from different manufacturers to be effectively interfaced. As an industry standard, MIDI is analogous to standards for magnetic tape size and recording speed developed by tape recorder manufacturers. In other words, MIDI allows for interchangeability of products developed by different manufacturers.

MIDI is many things to many people. To the musician, it is an amazing tool that expands their capability of expression. To manufacturers, it is a liberating technology that allows for the creation of music systems that can boggle the mind. To the piano technician who is willing to welcome new technology with open arms and make a commitment to avoid being left in "digital darkness"... More next month!

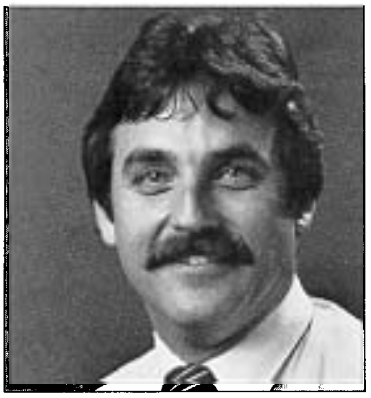
New Products

The 48" WX1 and 52" WX3 vertical pianos are the most recent additions to the **WX PROFESSIONAL COLLECTION** of Yamaha vertical pianos.

Available in two finishes—polished ebony and satin American walnut, the WX1 and WX3 pianos both feature the unique "X" backframe, duplex scaling, and tone escapement function of our WX7 vertical piano. A new scale design and special WX series hammers give these instruments the proper balance of tone color and power to satisfy the most discriminating musician. A full sostenuto is standard in the WX3.

Personnel Profiles

MARK WISNER



When you need parts assistance from a piano manufacturer, it's nice to think that there is someone you can talk with in their parts department who has the knowledge and experience necessary to understand your needs. At Yamaha, that "someone" is Mark Wisner, Piano Parts Coordinator.

A native of northern California, Mark received his degree in Piano technology from Western Iowa Technical School in Sioux City, Iowa in 1973. After gaining experience as a private technician, Mark went on the road as a concert technician in 1976. For the next three years, Mark toured Europe and the United States with a number of different performing artists and pianos. In 1979, Mark returned to the west coast and continued his piano service business until starting as Piano Parts Coordinator in January of 1987. Mark currently lives in Buena Park, California.

Yamaha in the News

ANDRE WATTS

On January 13, in a two hour concert with the New York Philharmonic, conducted by Zubin Mehta, Andre Watts played a Yamaha CFIII concert grand piano. The concert celebrated the 25th anniversary of Mr. Watt's New York concert debut. It was broadcast live on all PBS affiliates.

Mr. Watts, who is generally recognized as one of the world's top ten pianists, performs on the Yamaha piano.

Some of the remaining dates and places where Mr. Watts will be performing in March are:

March 13: Eugene, OR
March 14: Portland, OR
March 16: Seattle, WA
March 20: Pasadena, CA
March 22: Carmel, CA
March 27: Philadelphia, PA
March 31: Toledo, OH

Calendar of Coming Events

1988 PTG Conventions:

March 11-13:	S. Central Regional Fayetteville, AR
March 19-20:	Central W. Regional Wichita, KS
April 8-10:	New Eng. Regional Newport, RI
April 15-17:	Pennsylvania State Altoona, PA
April 22-24:	Pacific Northwest Eugene, OR
April 29 & 30, May 1:	Michigan State Livonia, MI
June 24-28:	Summer NAMM Atlanta, GA
July 18-22:	31st Annual Convention St. Louis, MO

YAMAHA

In Respectful Memory

Robert J. Russell, Sr., RTT

Charles P. Huether, RTT
Immediate Past President

After a long illness, Bob Russell died February 10, 1988, at the Cleveland Clinic where he was undergoing treatment for a failing heart while awaiting a possible heart transplant. For over a year and a half he has been in and out of the hospital; in recent months the visits recurred regularly. As the illness progressed and the prognosis grew more and more serious, he was able to reach an acceptance of the inevitable and share this acceptance with his family. His death came quietly with his family at his bedside.

A member of the Piano Technicians Guild since 1968, Bob was active in organizational affairs from the start. As a member of the Cleveland Chapter, he served with distinction as its Vice President as well as serving long and well on many critical committees. He was also a member of the Erie, PA Chapter.

Bob was an elected member of the Piano Technicians Guild Board of Directors for seven years serving as Central East Regional Vice President, 1975-77; Vice President 1977-79; President, 1979-81; Immediate Past President, 1981-82. He served on many organizational committees, both appointed and elected, including: Nominating, Awards, Teacher Relations, Industry Relations, Economic Affairs and others.

A popular and sought after teacher at chapters, seminars and conventions, his encyclopedic knowledge of pianos and engaging and humorous manner made him a favorite wherever he appeared. He never turned down anyone who asked for his help or assistance. He served as Convention Institute Director, ran Seminars and was an important contributor in developing operations manuals for Conventions and Seminars.

Bob was a Member of Note in 1973 and received the Golden Hammer in 1984.

He is survived by his widow, Ginny, and five children, Candice, Robert Jr., William, Michael and Diane and two grandchildren.

Robert Russell Sr., "Bob", made friends wherever he went. He leaves a legacy of dedication and service. As husband, father, teacher and friend, we all are richer because of him. May he rest in peace. ■

See You In St. Louis

Ernest Juhn
Institute Director '88

On The Road To Better Tone

Any piano tuner-technician who doesn't only "tune" knows how important it is to deal with piano tone.

This time more than ever we will have many classes on the subject of tone. We all know that basically a piano must be in tune in order for the technician to be able to improve on tone quality. So starting with that the St. Louis Technical Institute will feature classes on "Basic Tuning" with George Defebaugh, advanced tuning by ear and electronics with Al Sanderson, a "Master Class" in tuning with Bill Garlick as well as "Efficient Tuning" with Charlie Huether.

Continuing on the road to better tone, there will be a brand-new class on voicing (Chris Robinson) and guess what: Rick Baldassin will not do a class on tuning but will cover the subject of friction and tone in his brand-new class called "Tone and Friction – Facts and Fiction." Concert tuning (Norman Neblett) is another class that fits into that category. Other related subjects are "The Magic Touch" with Ari Isaac and "Practical Approach to Downbearing Theory," a new class by Jack Krefting.

There's no doubt that hammer filing (John Ford) as well as proper regulation can make all the difference in tone quality. Another new class called "Learning to Listen" will be presented by Joel Rappaport.

All this and more will be part of the institute program. If you still feel that you need to learn more about tone (or, for that matter, any subject) there is always private tutoring which will be an expanded version of what has become a well-liked feature of the technical institute.

What I am really saying is that nobody, but nobody, can afford not to plan on attending the convention in St. Louis.■

The International Scene

Fred Odenheimer
International Relations Committee

Be a 'Friend': Support IAPBT

Perhaps this is a good time and place to remind ourselves (including myself) that membership in "Friends of IAPBT" is a wonderful and inexpensive way to support our international association. Membership is but $15.00 a year and you should receive the official IAPBT pin (ask for it if you did not receive it) plus, naturally, your membership card.

What else do you get? The knowledge that you help PTG with funding of its expenses in this international endeavor to promote cooperation in our aims towards better piano service globally and naturally friendship across borders and continents.

Why does this all seem so important at this time when we still have 1 1/4 years to go to the next convention? Well, we just had a letter from President Seiichi Utsunomiya informing us that the 1989 convention of IAPBT will be in Kyoto Saturday, June 10 and Sunday, June 11 in the Kyoto International Conference Hall.

As you see, work has begun on the convention and I understand that the International Relations Committee of PTG and especially its Chairman, Charlie Huether are looking into a study trip of the Far East in connection with this convention.

This is also the time for you to start planning if you are thinking of finding out about the state of affairs concerning our piano industry in that part of the world, and also to see how people live in other parts of the world. Those of us who have traveled before know that it never works out when you wait for decisions to be made at the last moment because you will be left behind, for sure, either because of possible customer demands (you just cannot tell them "I am going away tomorrow," without making prior arrangements for a substitute) or your finances will not allow the trip because "I did not know it is that expensive." Sure, such a trip costs money and unless plans are made well in advance of departure, we will always wait for the next opportunity. But oh, what an eye-opener to learn, to study, to communicate and make friends and to see the world.

At the time of this writing we are again just days before the opening of the National Association of Music Merchants Winter Market in Anaheim. It seems as if I had just made a short report yesterday about last year's affair. We count 21 names from various countries and not all of those are naturally manufacturers. I hope to be able to take a look and certainly will make a stop at our PTG booth. We will miss Bob Russell and Ginny who have been out here for the last number of years. ■

THE
TECHNICAL
FORUM

NAMM Report '88

Susan Graham
Technical Editor

The scale of the NAMM show is overwhelming: there were more than 25 piano manufacturers displaying from 10 to 60 units apiece, and attendance at these shows runs upwards of 30,000.

A significant change this year was that the majority of the piano displays were in the two large ballrooms of the Hilton, next to the Anaheim Convention Center which housed the remainder of the show. This reduced ambient noise (and "qualified" the traffic a little) but it was still an event better to see pianos than to hear them. After wandering these vast and keyboard-laden spaces I have much more sympathy for my customers who complain of being overwhelmed by the simple (!) process of selecting a piano.

Understand, beyond any doubt, that this is marketing - a sales event, not a technical one. Emphasis is placed on displays and features attractive to dealers. This creates a real dilemma in preparing a report for a technical journal such as ours. Sheer numbers make it impossible to examine pianos in detail, unless the report covers only a few brands: if only a few, which ones? Without regularly following developments in manufacturing or retail, it is difficult to pinpoint significant changes. The displays are arranged for eye appeal and the marketing representatives are less than enthusiastic about having pianos pulled apart and examined; they worry about potential buyers getting the wrong impression. Finally, most conversations have the ring of sales talk: it is hard to prepare a technical report with the uneasy sensation of not being told the whole, unvarnished truth. This report, then, becomes an overview. Information and observations are made and recorded as accurately as possible but ultimately, it is frustrating that our need to keep up with industry changes requires a show of this scale, but the setting and format make it difficult to get the information we need.

This is not to say that effort isn't made to have pianos in the best possible condition. When I arrived Thursday , the rooms were chaotic with forklifts, crates and cardboard everywhere. As pianos emerged from this primordial clutter, tuners appeared and set to work - often elbow to elbow and keyboard to keyboard. It seemed that every piano technician in Southern California was there, and there was more than one factory executive in blue jeans working a voicing tool or struggling with recalcitrant casters and lyre braces. When the answer to the question "How many pianos do you have to tune today?" is "Forty," everybody gets into the act.

I had a chance to talk with Ed Whitting, who is Technical Services Manager for Young Chang (and later spoke with Lloyd Robbins, company president, as well). They have a new design for the 43" vertical, with a full perimeter plate and no backposts. It is an Ibach design; this piano is also made for Ibach for the European market. The intention is to produce a piano with good tuning stability but a reduced need for raw materials (which must be imported). Young Chang now makes two grand lines with duplex scaling, in 5'2" and 5'9". Lew Herwig is working with them as a consultant: they will soon be producing a 6'4" grand of his design.

Ed had an interesting comment about polyester finishes, pointing out that part of the difficulty we have with them is cultural: the Koreans accept high-polish as standard and have difficulty instead with the satin finish we find so natural. Of the verticals I had a chance to play, the 43" had the prettiest sound . The grand actions felt good, although I was surprised to find many of the smaller grands somewhat subdued in tone (perhaps voiced down for American taste?) while the 7- and 9-foot grands (which feature a Renner action) had a bigger sound but were a little abrupt in the treble.

From Young Chang, I wandered down and took a look at the Fazer, a 43" vertical manufactured in Finland by a branch of the Kaman Corporation. It features the Langer 80 action (British), a German 12-ply beech pinblock, Roslau treble wire, a Swedish cast plate, and African wood in the case - all assembled in Finland (some with high polish case parts made in Italy). This typifies the international flavor of the piano manufacturing business these days, and demonstrates why it can be so difficult to answer accurately the question "Where is this piano made?"

This Langer action has a new feature, which is a stiff wire straight spring attached to the inside of the catcher, extending backward to intercept the jack as it

moves out from under the butt, and assist it to return. The buckskin side of the catcher has been shaped to match the curvature of the backcheck felt. These changes are to improve repetition and checking. The Fazer is an efficiency piano - one size, interchangeable cabinet parts, and something of a low-end sound and feel.

The Wurlitzer Company was showing Wurlitzer and Chickering pianos. Baldwin plans to purchase the assets of this company, but at present most of the verticals are still made in Holly Springs, Mississippi. They also import 45" and 48" verticals and 5'2" and 6'1" grands (made by Young Chang to their design specifications). They featured a new 45" Chickering with a solid spruce board, available in two case styles and two finishes. This piano produced a lot of sound - the trend toward larger verticals is definitely worth the effort. As usual, the actions felt reliable and there were a great many styles and sizes being shown. There were also electronic pianos and conventional players.

I ventured up to the Yamaha suite where a revolution was in progress. My motto for years has been "Never trust anything with a plug" but even I am beginning to see that the line between acoustic pianos and electronics is getting fuzzy. Therefore, with the patient assistance of Bill Brandom, who probably knows more about this system than any other human being, I detailed what I was seeing so I can pass it on to you. There was a Yamaha C-7 grand containing a laser system which reads both key and hammer travel for activation and speed (recording full expression). This is turned into digital information and stored in an internal computer (digital information basically means that the variables such as speed are assigned numerical value so they "speak computer"). The music just performed on the piano is now available for a limitless variety of alterations and improvements.

This piano is a MIDI controller. MIDI, or Musical Instrument Digital Interface, is a standardized system or code for microprocessor instruments (which we tend to lump together as "electronics") and computers to record and store musical information. On a MIDI-compatible instrument, music can be translated into numbers and stored, transmitted, enhanced, edited, plugged into a computer which will print it out as sheet music, and so forth. Any instrument (or computer equipped with the proper software) which is "MIDI-compatible" can then read and play this universal code.

The artist (in this case, Mike Garson of Free Flight) performed, and the audience heard the acoustic piano. *However*, there was also a DX7 Mark IIFD - a synthesizer or tone generator which has a keyboard - and a column of gear including "guts only" synthesizers without keyboards (each can produce at least 8 voices, simultaneously), and drum and other tone-generating "effects" machines. To handle the digital information and allow it to be altered in the desired fashion and sent to the desired instrument, there were a MIDI event processor, a MIDI junction controller. and a sequencer, which records and plays back through the electronic instruments. There was the usual collection of standard sound equipment - amps, mixers, speakers and monitors. As stated, the artist plays what feels, sounds and behaves like a nice acoustic grand and what he plays is recorded in exact detail. He can now take that piece and run it through the tone generators to produce different voices - in other words, he could play a piece on the piano and reproduce it sounding like a drum or a violin or anything he can dream up with the synthesizers. He can accompany himself, either with the acoustic piano or by activating the tone generators with the piano keys. He can edit, change and build on what he has created. He or she has the best of of both worlds - the feel and control of a piano, but the capability to play with sound that modern electronics offers. The one thing he cannot do is play back through the grand piano - the piano is a MIDI controller but not a "player." The same system is available with piano playback capability - in the vertical Disklavier - but the controls are not on the fallboard of the piano itself, as they are on the grand.

As far as service goes, Yamaha plans to begin training conventional piano technicians to work on the MIDI grand (claiming that service is usually a simple matter of replacing a circuit board), and I can tell you that Richard Davenport was up there on Thursday, voicing hammers just as usual... This particular system is a good example of the technology, and so has been described in detail. Many manufacturers have or are developing products in this field - it is a way that the acoustic piano can hold its place in the modern music scene, and as technicians we should welcome it. The full effect on our lives has yet to be seen, but I strongly suggest we at least become familiar with the terminology and ideas.

Other news from Yamaha are new "X" back 48" and 51" verticals. They continue to assemble small verticals in Georgia, although anything over 45" is built in Japan. Baldwin is still manufacturing the Everett line for Yamaha, while Yamaha makes the DH Baldwin grand. All Yamaha grands are made in Japan.

Steinway customarily does not have a display booth, but they had a suite upstairs where I spoke with Daniel Koenig, the Vice President of Manufacturing. The company is putting emphasis on getting

action-making machinery in top working condition, and is moving the action department to a different part of the plant in hopes that a more modern setup (the stability of a concrete floor, for instance) will also improve quality.

They are refining hammer-making with a new felt-cutting method, plans for new presses, and closer inspection of materials to insure that they actually meet the specifications required. They currently allow a higher scrap rate: this means better quality but explains some of the delay technicians are experiencing in obtaining parts. (It's always good policy to order parts and have them on hand before picking up a job to start work.) Current New York production is about 3,000 units a year (800 verticals); Hamburg produces about 2,000 yearly (400 verticals). They continue to have Renner build actions (to Steinway specifications) for the B and D pianos and to put New York actions in the remainder, although Herrburger-Brooks (England) is currently building some actions for the 45" studio. Steinway plans to continue to utilize the knowledge they already have by improving quality control and worker understanding of the piano-building process.

Continuing along in the stratosphere, I stopped at the Bechstein display, which featured a very nice 52" vertical (which retails at approximately $25,000) and their new 5'2" grand (for $40,000). All import prices are affected by international money market conditions, and since the dollar is currently down against practically everything (marks, schillings , yen etc.), the prices can't help but seem a little out of proportion. The 5'2" grand is designed by Lothar Thomma, master piano designer and part owner of the Bechstein company (now privately owned and no longer part of Baldwin). It has a butterfly-spring, Renner-built action; some models come with Renner hammers, and some with Abel. The model on display had a very nice feel and a strong, clear treble and tenor range, but it did lack some depth in the bass - inevitable in a piano this size, even a high quality one. According to Karl Schulze , the company is in the process of establishing a Bechstein America center, based through R. Kassman in San Francisco, which hopes to stock repair parts and improve the service and information available for Bechstein in the United States.

The Baldwin reproducing grand, attracting a lot of attention

The Mellotron: no strings, no soundboard, but a familiar case

The Boesendorfer B225 SE and its control center

Donald Dillon and Robert Dove of PMAI

Setting up

Young Chang vertical with full perimeter plate . . . and no backposts

George Defebaugh

Daewoo Precision Industries manufactures pianos under the Sojin name and makes private label units (the two lines are sold in mutually exclusive markets); the company also makes rifles. Included in their display was the Grand Prize for Quality Control, an award given to the company as a whole by Prime Minister Kim. Pianos shown included the 7' grand reviewed in the July report, which has a duplex scale, a bass bridge relieved to remove mass (and a very mellow bass sound), a treble bell and heavier post and rim construction than many of the Asian imports. A number of the verticals had a springy heaviness to the touch which was distracting but the sound was acceptable. The

Set-up; Kathy Teetsell and Dave Vanderlip and a lot of pianos to tune

Mike Garson at the Yamaha MIDI grand

Sign at the Pearl River booth

Henry Steinway (with Horace Greeley and Susan Graham)

The Samick French Provincial grand

Full-length music rack on the Tokai vertical

The new Chickering 45" verticals

The nostalgia look in a Schimmel

grands had a similar quality in the action and were somewhat abrupt in decay.

For a change of pace, the Baldwin display over in the main convention center was the place to go. An ivory SD-10 at one corner of the booth and a conventional roll-operated reproducing M grand on the other side were great attention-getters, even among the hubbub. The grands seemed voiced very bright in the top, appropriate for this setting since it balanced the characteristically heavy bass and allowed the pianos not only to be heard but to be appreciated. They make the reproducing piano in the M (5′7″) and R (5′2″) models, and in the Hamilton vertical scale; the company also manufactures electronic keyboards. The Acrosonic line has models added with a heavy duty back and a Boston fallboard; additional lead has been added to the natural keys on the 45″ Hamilton and 50″ 6000 series to match the touch more evenly with that of the sharps. Pratt-Win still manufactures actions in Juarez; the company also carries the DH Baldwin grand made by Yamaha and the Korean-made Howards. Purchase of the Wurlitzer assets will give Baldwin more manufacturing capacity; the intention is to continue Wurlitzer as a separate line.

In these confusing times, it is well to keep in mind the distinction between a piano made under a company name, and a piano made by that company (or its parent company) for another company under another name. There may be design and material differences which can be significant; it is short-cut thinking and not entirely accurate to lump the two products together.

It can add further to the confusion that one importer may handle more than one line from more than one country. For instance, Performance Pianos, Inc., of Houston, Texas, imports Diapason and Schiedmeyer (which are made by Kawai) and also carries the East German Zimmermann and August Foerster lines. I didn't have a chance to look at the Diapason or Schiedmeyer; of the two East German pianos, the Foerster was the more impressive and appeared to have several interesting design features, such as a three-layer treble bridge. Unfortunately, there were no "technical" people on hand so I was limited in what I could learn. The actions in both pianos are made either by Fleming, an East German action and hammer manufacturer, or in Japan to a Fleming design. Both pianos felt good; the Zimmermann was a very small grand with side-shaved bass hammers and some tonal shortcomings as a result.

I know where the Sohmer/Mason & Hamlin pianos come from because I've been there: the old Pratt, Read plant in Ivoryton, Connecticut. They are making Sohmer pianos in a rescaled 5′ grand , a 5′7″ grand, and a 46″ studio, and may start making a 52″ vertical. As always, the Sohmer case work is classic and high quality: the verticals had a pleasantly resistant action although the grands seemed a little springy. Tone was pretty but a little subdued. The Mason & Hamlin line includes a 50″ vertical, the B (5′4″) and the BB (7′) and will soon rein-

troduce the A (5'8 3/4"). The B was a particularly nice small grand, with the big bass and tenor sound we associate with Mason & Hamlin. The company is trying a variety of sources for actions and keys: they caution that some of their pianos use a Herrburger-Brooks action which has regulating specifications which must be followed closely for the actions to work properly.

Schimmel is the largest exporter of (West) German pianos. They make grands in 5'1", 5'10", and 6'9", ranging in price from $14,000 to $65,000 for the eyecatching 6'9" in the clear plexiglas case. Verticals are available in 44", 47" and 50 1/2" (price for the largest around $8,000). The pianos all have Renner actions, with Renner hammers in the smaller pianos and Abel in the 6'9" grand. Their current production is 9,000 yearly, with approximately 8 verticals to each grand. They have a 3 1/2 year program for apprentices, who attend six weeks of school twice yearly; the remainder of their time is spent working first on a separate production line and later incorporated into the regular workforce. I spoke with Leo Duricic, the Assistant Manager of Sales and Service. He cautioned that, although the plexiglas-case grand is serviced like a conventional piano (which it really is, in spite of the appearance) technicians will need an Allen wrench to disassemble the case, and also to remove the legs. The company has excellent service manuals available. The pianos on display all seemed substantial, with good actions and classic European sound. The company is expanding into the U.S. market so we may be seeing more Schimmels in the future.

What can I say about Bosendorfer which hasn't been said? Costs are going up, due again to international money conditions, but sales are still strong, particularly in the 5'8" and 7'4" grands. They were showing the B225 SE digital reproducing grand: this system is also available in the 275 and 290 grands. It uses a laser beam to record key and hammer movement, stores it as digital information, and will play it back through the piano itself. However, at this time it is not MIDI-compatible.

Technical editor, cornered

Emily Moerdomo and Bud Corey of Pearl River

Hex head leg bolts

Metronomes

Kimball must have gotten the "most-pianos -at-show" award, with 60 units on display. Notable was 6'7" Viennese Classic grand with a solid spruce board, Schwander action and some design changes to reduce inharmonity and improve sustain. This was a good-feeling piano with a particularly nice bass. They are using the Langer 80 action with the jack-return wire (built by Herrburger-Brooks and described in the Fazer report above) in the 46" vertical, and are expanding the plant in Reynosa, Mexico, to handle the low-end 42" vertical. They were also showing the "Cosmopolitan" line, a 42" vertical available in some rather remarkable colors such as seafoam green and gunmetal gray. These are intended to meet the needs of designers and homeowners who want a piano which will coordinate closely with a decor.

Also showing a lot of imagination in the case department is Samick. This company makes a wide range of sizes as well, from a 75-note European-style vertical to the SG 275 (9') grand. The company has also expanded into digital "grands" (electronics in a grand-shaped case) and verticals. Samick does all its own manufacturing, although they do buy some Roslau wire, Royal George Felt, and German beech pinblocks. The private label pianos made for Hyundai and Schumann and the joint venture with Baldwin making the Howard are operations controlled by a branch of the company separate from the Samick Music Corporation, which imports and handles the Samick name line. Bob Beck, Director of Technical Services, expects to be offering more classes at seminars, since the company has become interested in providing support and information for technicians. Service on the pianos is standard, but the leg and lyre attachment bolts are hex head and require an Allen wrench. The 9' grand had a springy action and a clean but light tone - not quite as much "push" as expected in an instrument this size. There was noticeable variation in tone and response among pianos in the display.

Kawai also makes a wide selection of grands and verticals in a variety of cases. They have changed the rib structure of their verticals to improve tone through greater flexibility. Notable among grands are the EX(9'1") and RX-A(6'5") which are made by a special crew, rather than produced on the regular line. There was an RX-A on display which had a very smooth action and a nice sound. There was also a 7'4" GS-70 grand

with a big bass and a nicely balanced sound.

Ray Chandler, Manager of the Piano Technical Support Division, says that when the piano team from Brigham Young University played four hands on the RX-A and the GS-70 it had the spike-haircut crowd stopping in the aisles and crawling under the pianos to look for the amplification system (we call it a soundboard...). Kawai offers a MIDI grand and a wide range of other electronic instruments.

Time and space are running short, but there was much, much more. Hyundai was showing grands and verticals made for them by Samick, including a 6'9" grand with a big bass and good action (they also make but didn't show a 7'4"). Petrof was showing grands with a Renner-type, butterfly spring action, and verticals with agraffes throughout the scale. These Czech pianos enjoy a good reputation in Europe, and are another import line to watch.

Speaking of imports, it was interesting to see the Pearl River line, made in Guangzhao in mainland China near Hong Kong (designated as a "new economical zone" by the Chinese). Workers in this area receive fringe benefits and incentives, which is not standard in other parts of the country. Bud Corey, of Wurlitzer fame, now serves as a consultant to this enormous company, which made 20,000 pianos last year and plans to be producing 50,000 yearly by 1998. The Chinese have a great interest in the piano, and the company could probably sell five times as many as they currently make, according to Bud. Pearl River purchases felt from England and wire from Germany, but does all their own manufacturing.

Tokai had a small display in the main hall, showing some grands and their large verticals, which have no back posts and a "floating" feature to the soundboard, which is not glued at the lower edge. Unfortunately, they were back to back with a guitar display, so it was pointless to try to determine any tonal effect. They offer a nice case feature in the 47" vertical, which is a fold-down, full-length music shelf on the frontboard.

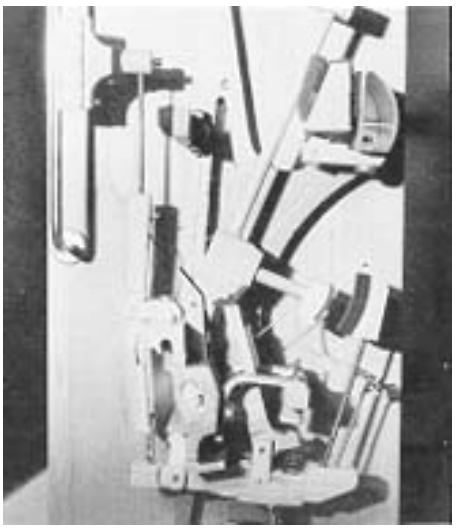
Astin-Weight makes verticals with a full perimeter plate and no backposts. Attracting a lot of attention in their booth was the "left-handed" grand: the curve of the case is on the bass side, while the lid is hinged on the right. (After two days of the NAMM show, it was startling to find how long it took to figure out exactly what was different about the piano.) The reasoning is to allow longer bass strings - the piano is radically cross-strung - and a larger, more flexible soundboard while maintaining a reasonable size of piano for a home.

As an interesting aside, I talked with a man who makes and sells dulcimers, which are small stringed instruments indigenous to the Appalachian region of the United States. He reports a big upswing in business, due to increased use of the instruments for classroom music instruction. It seems that perhaps, even with the American love of things electronic, organic musical instruments with strings you can see and wood you can feel still have a place in our hearts.

The Museum of the American Piano in New York City occupied a booth next to the PTG display. They are to be commended for

Young Chang grand lids

Astin-Weight "left-handed" grand



Langer 80 action – note wire extending from backcheck

Quality control award given to Dae Woo by Prime Minister Kim

making the effort to collect and preserve the products of the tradition of piano making in this country. We will have more about this very interesting establishment in future issues.

It was good to talk with Frank A. Johnson, president of Posey, which makes spruce soundboards, ribs and keybeds. The employees purchased the company two years ago, and now have a very thriving business. There is a renewed interest in spruce, and in solid soundboards. They have gone from 250 grand boards a month to 2250 - grand boards are now 35 percent of production, and there was a lot of interest in the product among importers. I asked him a burning technical question: "What causes a compression ridge in a new soundboard?" The company has found that these ridges (which are unsightly but not harmful - except to sales) occur when the assembled board is not allowed to recuperate from the pressure of gluing. They are not a result of excess clamping force but the spruce simply needs four or five days to settle back into equilibrium and this must be allowed before the boards get final sanding and finishing or the ridge will develop under the finish .

And now, a few closing thoughts. First of all, I have a renewed appreciation for how difficult it is to get everything right; I saw a lot of pianos with good actions which lacked something in tone, or good tone with shortcomings in the action or casework. When everything is right, the price reflects the extra effort. The trend seems to be strongly toward larger verticals and grands; either on or off the record, several companies indicate an intention to discontinue the spinet. Business is good, and seems to be heaviest among those customers who want size and quality in a piano. This impression was borne out in a quick conversation with Donald Dillon and Robert Dove, representing PMAI (Piano Manufacturers Association International). Without the time to be precise I won't go into detail (but hope to converse further with these gentlemen and present a better report in the future). They confirm that sales have been up for the past two years, and the increase is particularly noticeable in grands. From what I saw, the piano retains its magnetic quality (witness the electronic instruments in grand-shaped cases to "borrow" some of that presence). The acoustic piano is no longer the only keyboard game in town, but it still has undisputed appeal and character and an unmatched ability to say "music."

Finally, let me thank all the representatives who took time to talk with me during a very busy weekend. In the next issue we'll publish an updated list of industry contacts: whom to call for technical assistance, information and parts. A NAMM show is a fascinating experience, and I hope this report has communicated some of the flavor of this industry event. ■

Pianos, pianos

TUNING UP

Optimum Size of A5 - A4 Octave, Accu-Tuner Filter Output, 'Two Piano Tuners' and memories of Heifetz

Rick Baldassin
Tuning Editor

Our first letter this month comes from Paul Rice, of Bath, Maine. Paul writes:

Is there any way for an aural tuner to determine the optimum size for the A3-A4 octave at the beginning of the tuning process? I start by setting a 4:2 octave and then trying to lower A3 as much as possible to find the maximum tolerable stretch. Generally, the larger the piano, the wider I can make it. Occasionally, however, I find myself wanting to "massage" A4 a little one way or the other when I return to it during octave tuning (rather than going back and changing every note in the temperament) to compensate for inaccurate stretch initially. Sometimes tuning A2 and using the resulting octave and double octave checks helps if the piano is well scaled, but nothing seems precise enough to satisfy the perfectionist in me.

The fact that so much is riding on the initial tuning of the A3-A4 octave makes the execution critical. As Paul mentioned, if we are not happy with the octave when we are tuning upward out of the temperament, we are faced with a decision to either move A4 away from 440 where we tuned it initially, or re-tune our entire temperament to insure leaving the piano at A-440. Neither alternative is very enticing. We must somehow try to ensure that our initial tuning of the A3-A4 octave will remain satisfactory to us when we are tuning octaves out of the temperament.

Before we worry about tuning A3 to A4, let us discuss how to properly tune A at 440. If we are concerned that the piano be tuned precisely to A-440, then we must have a pitch source which is precisely calibrated to A-440. Any pitch source, be it a tuning fork or electronic device, should be checked regularly to insure that it is properly calibrated. If it is not properly calibrated, then the entire matter of moving A4 after the initial tuning becomes academic. We must be aware that all devices change pitch with temperature. This is particularly true of the tuning fork which changes radically, but even the crystal-controlled electronic devices give a temperature range in which the device will function optimally, so it is a good idea not to leave your pitch reference in the car overnight while it is freezing, etc. Crystal-controlled devices have a very wide temperature range within which they are considered accurate, usually 30 degrees, and the fluctuations beyond this range are generally quite small in comparison to a tuning fork which changes with even minor temperature changes. For this reason it is important that our tuning fork be calibrated at the same temperature as it is to be used, whether that be room temperature, body temperature, plate temperature, etc. Since our body temperature is very constant (usually within a few tenths of a degree F) it is a reliable temperature to calibrate our fork to.

> "We must somehow try to ensure that our initial tuning of the A3-A4 octave will remain satisfactory to us when we are tuning octaves out of the temperament."

Assuming that we now have an accurate pitch source, our next task is to accurately transfer the pitch to A4. This is not a complicated matter, but there are several traps which can snare us while trying to do so. One is using the wrong reference note when testing the piano pitch against the fork, and another is trying to tune A3 directly from the fork. Let us first look at what might happen if we were to choose the wrong reference note to verify pitch against the fork. In this area of the piano, we generally test octaves with the M3-M10 test. If we test pitch against the fork using the tenth, we would play F3-A4/F3-fork, to see if they were equal beating. Since F3 and A4 first coincide at the pitch of A5, we would not be making our comparison against the fork at the fundamental, but an octave higher. The tuning fork, cal-

ibrated to 440 hz, when placed on the stretcher (or your skull for that matter) for amplification has an octave harmonic at 880 hz. The piano string for note A4, tuned to 440 hz, has an octave partial at roughly 881 hz. Since with the M10 we are matching an octave higher, we essentially tune the second partial of A4 to 880 hz, and consequently the fundamental of A4 at 439 hz. This would be analogous to setting the pitch of A4 with the electronic device set on A5, at 0.0 cents. We know from experience that if we tune A4 with the electronic device set on A5, there must be a positive cent value entered (usually one to two cents) so it follows that if A4 were tuned with the device set on A5 with 0.0 cents, that A4 would be flat of 440 hz.

Another snare is to try to "save a step" and tune A3 to the fork rather than A4. Using note F2 as a reference, we tune such that F2-A3/F2-fork are equal beating. This has essentially set the second partial of A3 at 440 hz. If we were to then tune A4 to A3 as a 2:1 octave, A4 would be at 440 hz. Since in this area of the piano we generally tune a 4:2 + octave using the M3-M10 test with the tenth beating faster than the third, and since a 4:2 + octave is wider than a 2:1 octave, A4 will wind up sharp of 440 hz.

The proper procedure is to tune A4 to the fork, and test with F2. Since the first coincidence of F2 and A4 is at the pitch of A4, if F2-A4/F2-fork are equal beating, A4 will be tuned to 440 hz.

The next step is to tune A3 to A4. Determining an optimum size for this octave was Paul's question. Experience has shown that this octave will be tuned somewhere between 4:2 and a 6:3, or, in other words, somewhere between where the M3-M10 are equal beating and where the m3-M6 are equal beating. Generally then we can say that the tests should show that the M3 is less than or equal to M10, and that the m3 is less than or equal to M6. This defines our minimum and maximum limits. Defining optimum placement within these limits is somewhat more difficult. Some advocate that the octave should be tuned as either a 4:2 or 6:3. Others advocate that there should be equal beating at both the 4:2 and 6:3 levels. Still others advocate that the 4:2 should be tuned with slight additional beating. All of these systems work very well on some pianos and not so well on others. Part of our criteria for tuning this octave must be what sounds best, which varies from piano to piano. Even so, experience has shown that this will be somewhere between 4:2 and 6:3. On the better scaled pianos, tuning this octave as 4:2 or 6:3 is nearly the same, whereas on poorly scaled pianos there is a bigger discrepancy between the two.

Knowing this we can start by tuning A3 to A4 somewhere between 4:2 and 6:3 as discussed. We must also consider that the best sound for this octave in isolation may not be the same as when compared to those around it in a progression. For this reason we must gather some additional information, by tuning additional notes and additional octaves. Hopefully by doing so we can determine the optimum placement for A3 (and therefore the temperament) without actually tuning the entire temperament. The next step would probably be to tune F3. Having done so, we can listen to the F3-A3 3rd and the F3-A4 10th, to see if they sound good. We can next tune F4 as an octave to F3, trying to use the same criteria as our initial octave. Once we have done so we can listen to the F3-A3 3rd as compared to the F4-A4 3rd. The latter should be considerably faster (nearly twice as fast). If not, then evaluation and corrections in either or both of the octaves should take place. Once proper relationships have been established here, we can procede to tune C♯4, establishing 4:5 beat ratios between F3-A3, A3-C♯4, C♯4-F4, and F4-A4. Any problems with these ratios should make obvious necessary changes which can be executed at this time. Once the placement of the above notes has been established, we have a good foundation for the rest of our temperament, based on the width of two different octaves, and a chain of four contiguous M3rds. It would be well at this point to insure that other critical intervals such as the 4ths (with resulting 5ths) and 5ths (with resulting 4ths) will fit within the framework of the two individual octaves we have tuned. For example, we should check to see that when we tune the 4th from A3-D4, that the resulting fifth D4-A4 sounds good as well. In addition, when we tune the 5th from A3-E4, that the 4th from E4-A4 sounds good. The same should be done for the corresponding notes between the F3-F4 octave. While it is true that by now we have tuned several notes, the relationships between these notes are simple, and it is easy to analyze the effects of moving any of them, much easier than analyzing the complex effect of moving one note in the temperament octave, no less the entire temperament octave.

The above system can be expanded to include the C♯3-C♯4

octave, and the A2-A3 octave, which gives us six contiguous M3rds, four individual octaves, and one double octave to use as the foundation of our temperament. With a foundation such as this, filling in the blanks can be a much easier task, and with any luck, we will not have to move A4 when we come to it.

Our thanks to Paul Rice for his question concerning tuning of the initial octaves in temperament setting. Our next question comes from Frank Gebel of Edmonds, Washington. Frank writes:

Could you please explain the proper use of the filter output on the Sanderson Accu-Tuner as suggested in the operating manual, and also by Steve Fairchild and Richard Weinberger in previous articles. When I try to use the filter output, I get a loud pulsating background sound (approximately 12 bps) which, if you turn up the gain on the headphone amplifier, interferes sufficiently with whatever beats or partials you are listening for. This pulsating becomes most prominent at about C5 and above, but you can start to hear it at about C4. Is this common, and what, if anything can I do to correct it?

Let me begin by saying that the Filter Output is primarily designed for calibration of the filtering circuit. Some have also advocated its use as a teaching aid, because it effectively isolates one small bandwidth of sound, and allows one to listen to a given partial of a note, or the beating of a given interval, without the rest of the frequencies present. This sounds like an interesting application. The system, however, is prone to feedback, and listening to the amplified attack of the note is anything but pleasant in headphones. To eliminate the feedback problem, one must wear closed-ear headphones while listening through the internal microphone, or employ a magnetic pickup, which allows listening either through speakers or headphones. In no case can one listen through the case microphone with speakers. Another problem is level matching between the Filter Output and amplifier. On some amplifiers the gain is too high. Symptoms of this would be turning the device on with the volume all the way down, then immediately having too much gain when the volume is adjusted ever so slightly. If the amplifier gain is proper, there should be quite a range of volume adjustment. Attenuating plugs and cords are available to eliminate this problem.

Once the system is functioning, we should be able to hear the specified bandwidth which we select with the note and octave buttons. The note and octave must be set to the partial of the note, or coincident partial of the interval being listening to. As I mentioned previously, the initial attack is very unpleasant, and the sound in general is not pleasant to listen to, which would make everyday use of this feature unpractical. It is interesting to use on occasion, however, as a learning tool for the identification of beats, or to reaffirm that they really do exist. I have not experienced the pulsations as described, and can only speculate that they are being caused by some sort of feedback, possibly from too much gain and/or open-air headphones. Try the magnetic pickup and closed-ear headphones.

Our thanks to Frank Gebel for his question on the use of the Filter Output.

I would like to close this month with a book review, "Two Piano Tuners," by M.B. Goffstein, reviewed by Ellen Wathen, and the first of a three-part series by Norman Neblett entitled "Memories of Heifetz." Until next month, please send your questions and comments to me. They add tremendously to this forum.

Rick Baldassin
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Book Review

"Two Piano Tuners"

By M.B. Goffstein
(Farrar, Straus and Giroux: 1970, $9.95)

In *Two Piano Tuners* by M.B. Goffstein, Debbie Weinstock is a little girl who wants to be a piano tuner like her grandfather, Reuben Weinstock. Debbie has lived with her grandfather since her parents died two years ago. Although her grandfather wants her to be a pianist or piano teacher someday, Debbie wants to be a piano tuner.

One morning, Debbie and Mr. Weinstock go to the auditorium to tune the piano for Isaac Lipman, the famous pianist. Mr. Weinstock suddenly remember that he was supposed to tune Mrs. Perlman's piano and he sends Debbie off to tell Mrs. Perlman that he will be late.

But Debbie decides that she can tune Mrs. Perlman's piano herself, and she runs home to get an old tuning hammer and a rusty tuning fork. When she arrives at Mrs. Perlman's house and announces that she is the piano tuner, Mrs. Perlman good-naturedly leads her to the piano where Debbie begins playing C!C!C!C!C!C! Soon Mr. Weinstock and Mr. Lipman arrive, worried because Debbie has been gone over an hour. Debbie wails unhappily, "I've only done two octaves," but everyone is amazed at how well she has done.

Much later after Mr. Lipman's concert, Debbie and her grandfather go backstage. Debbie still insists she wants to be a piano tuner just like her grandpa, and Mr. Lipman says he will send her a present of a bag full of new tuning instruments.

Two Piano Tuners is a gentle story told with warmth and humor. Much attention is paid to small details about tuning and tuning instruments. The plain line drawings that accompany the text are very appropriate for this simple, loving story. The characters are charming: Debbie is a precocious, persistent little girl who quickly absorbs everything her grandfather tells her about piano tuning; and Mr. Weinstock is a patient, kindhearted man. Suitable for eight- to 10-year olds, this story will be a favorite of any piano tuner's children or grandchildren.

Ellen Wathen

Memories Of Heifetz

Norman Neblett

Foreward

Jascha Heifetz was often referred to as the premier violinist of the 20th Century. His style of playing, his impeccable taste and technique, set a standard throughout the musical world that few violinists even approached. Heifetz was the consumate artist and virtuoso.

Born in Russia, pupil of the renowned teacher Leopold Auer, he left his homeland at the onset of the Russian Revolution and migrated to the United States where he became a naturalized citizen.

A child prodigy, Heifetz concertized in almost every major city in the world, over a 50 year period. A meticulous man, he maintained a file of every concert of his career so that he would not play the same program in the same place twice.

Retiring from public performance in the early 1970s, Heifetz devoted the rest of his career to teaching talented students privately, and at the University of Southern California, where he was a member of the faculty.

It was little known that he was a first-rate pianist, but he did not play professionally. Norman Neblett served him as his personal and professional piano technician for over ten years. Neblett's former wife, Annette Neblett Greer, was Heifetz's private secretary for 25 years until his death on December 10, 1987.

These articles are about the humorous side of the Heifetz artistic personality. They demonstrate that he was human like the rest of us.

My introduction to Jascha Heifetz was fairly unusual. A call came from Janette Walker, head of the Concert and Artist Department for the Steinway dealer in Los Angeles. From the tone of her voice, she was clearly upset. "Do you know who Heifetz is?" she asked.

"Yes!" I replied.

"Would you be willing to go out to his home in Beverly Hills?" she pleaded.

"Why!?" I asked.

"He has just fired our chief concert technician and he is raising hell with me to find another piano tuner immediately. He is acting like a stinker. He is even threatening to call Steinway in New York. Would you be willing to go?" she implored.

"Maybe!" I responded.

"Please, oh please. I will do anything," she continued.

"OK!" I replied.

Needless to say, I did not walk into the house with complete composure, but outwardly tried to look calm. To get there required a drive off Sunset Boulevard on a very winding road to the top of a hill. I was to make that trek many times over the next 10 years.

Answering the doorbell was the man himself. I, of course, knew what he looked like, being from a musical family and having heard him perform on the concert stage since boyhood. The impassive face was as I expected, but there was a slight twinge of the facial muscles as he looked up at all six feet three inches of me. We went into an attractive room separated from the living room by french doors and windows. The house was neatly furnished in very good taste. On the walls were a number of fine oil paintings. Among them were some nudes by Gluckman. I never failed to admire how the women in these paintings looked as though they might step out into the room at any time.

As we approached the piano, I could see that it was a Steinway Model L in light brown mahogany. It stood on a bare cork tile floor. In the middle of the room was a beautiful oval-shaped hand-carved carpet in cut pile. A few comfortable chairs and small tables were neatly placed around the room. I have been in many homes during my 40-year career. By comparison, it was obvious that the same impeccable taste by which the man performed extended to the way that he lived.

Standing next to the piano, Heifetz turned toward me and said, "I understand Mrs. Walker thinks highly of you."

"Thank you," I replied.

"We shall see!" he responded, "The last tuner she sent would not tune the piano the way that I wanted it! I want the piano tuned sharp as you go up into the treble. In fact, I want the last octave tuned so sharp that the top C is a D."

"But Mr. Heifetz," I countered, "If I do that it will not match the rest of the piano. To tune the piano sharp like that in the last octave would require starting in the middle and stretching each note upward more than normal so that there is an even progression of beats all of the way."

It was obvious that he was not interested in my fairly complex explanation. I realized that we were at an impasse and that the situation was deteriorating. Having never been known to fear people, prominent or not, I turned toward Heifetz, taking my tuning hammer in hand, and offered it to him, saying "I do not quite understand what you want. Why don't you show me what you mean."

For a moment he looked at me with the most piercing blue eyes that I have ever seen. His face was an absolute expressionless mask. Then he smiled and said, "I tried that once and it was a disaster! Go ahead and tune the piano your way and I will check it when you are through." And with that, he immediately left the room. Our equitable relationship had begun. ■

ANTIQUE

RESTORATION

Restoring Antique Pianos: Part II - Documentation

Edward E. Swenson
Ithaca College

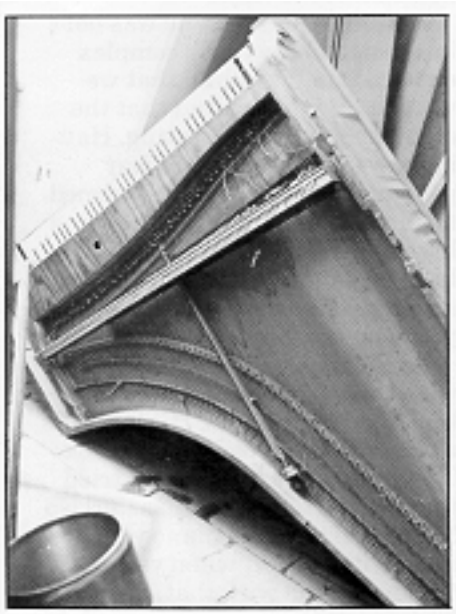
In Part I of this series in January, I commented that an instrument in my workshop would serve as a model for subsequent articles on antique piano restoration. We will follow the restoration of a Bosendorfer concert fortepiano which requires a wide variety of different repairs.

When I first saw the piano, it was resting on its bentside in a storeroom where wind, rain, and sun were alternately working on it through a broken window. *(Illustration 1)* The fallboard was lying on the floor, delaminated and dirty. Perched precariously on top of the piano were a cupboard and an old bed frame. It was covered with filth and had rusty and broken strings reaching out in a tangled array. A few strokes of a cloth revealed the elaborate Bosendorfer nameboard. *(Illustration 2)*

Miraculously, the piano was still largely complete. It had a beautiful ivory and ebony keyboard and still retained its original leather hammers and dampers. Although it had been neglected for many decades and required extensive restoration, it was clearly an important instrument that should be saved from further deterioration. In May, 1987 I bought the piano in Austria and shipped it home.

Work began by making a detailed description, supported by sketches and photographs, of the instrument in its original condition. I decided to take some extra time and make a few notes play in different registers of the instrument by cleaning strings and regulating a few unisons. The Bosendorfer, even in its unrestored condition, revealed important information about its tone and musical potential. Because the music wire had to be replaced, a comparison was made between the replacement strings and the originals. The timbral differences between the old and new wire were recorded on tape for future reference. (New music wire usually sounds weak in comparison to the original wire. It gains power gradually in the months after installation.

Photographs of the piano and its mechanism were taken from every angle to provide documentation of the instrument in its original condition. Although hundreds of color slides and black and white photographs were taken, prints were only made of the most important. The negatives and slides remain on file to answer any questions about the piano's original condition. It is particularly important to photograph any signatures on the keys, key blocks, pinblock and elsewhere. (Even the humble front and balance rail punchings often have a story to tell, as they were frequently made from old



1. Piano Stored on its bentside in Austria.

2. Nameboard after cleaning.

manuscripts, music paper or newspapers, which often provide clues about an instrument's history.)

A cardinal rule in restoration is that all the original parts must be saved and documented. Old music wire, original tuning pins, original felt, leather and action cloth, must be saved and labeled. *Whenever possible, the original materials should be retained rather than replaced.* Careful brushing and cleaning will often restore old leather and textiles, making replacement unnecessary.

Bosendorfer Fortepiano #167 Pre-Restoration Condition

Case: The entire instrument needs thorough cleaning. There is a great deal of loose and missing veneer, particularly on the spine where several large pieces are missing. The top is stained, scratched and damaged. The leg sockets have come loose from the case. The legs are in good condition and the large wooden screws at the end of the legs are undamaged. The pedal lyre and music desk are intact and in good condition. The brass pedal rods are missing. The spine is slightly warped and the wood which supports the front top hinge is broken. The original spirit-varnish finish needs to be cleaned, repolished and restored. The original pin block is still in excellent condition and will be retained.

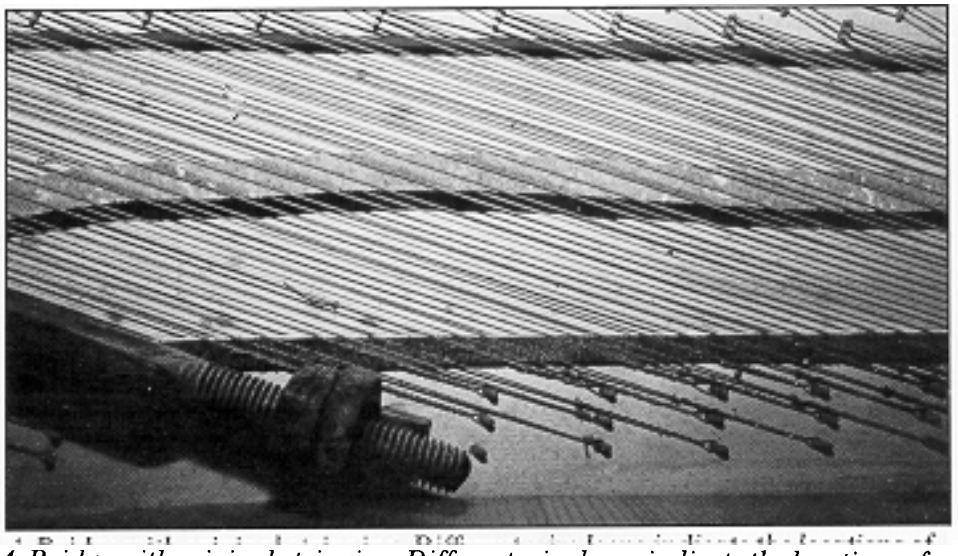
Soundboard: The soundboard has several long, straight cracks which must be shimmed with central-European spruce. (This repair will be made soon to benefit from the dry season.) The soundboard, which appears to be unfinished on both sides, has some large dark stains and several ribs are loose. The underside of the soundboard carries the signature, serial number and date of manufacture in pencil. *(Illustration 3)* No wire gauge numbers are present on the bridge, pin block or hitch-pin rail. Some small, round pencil marks on the bridge may have reminded the original stringer to change wire sizes. All three bridges are free of cracks and splits.*(Illustration 4)*

Stringing: During a repair attempt, probably in the late 19th century, a single iron brace, joining the tuning pin and hitch pin ends, probably to improve tuning stability, was added to the instrument. *(Illustration 5)* This brace was installed by removing the three strings and tuning pins and one hitch pin for the dumb unison which ran over the pin block brace *(Stimstockspreize)*. The bridge has been crudely notched to provide clearance for this brace. Although it will be saved, the brace will not be replaced in restoring the instrument.

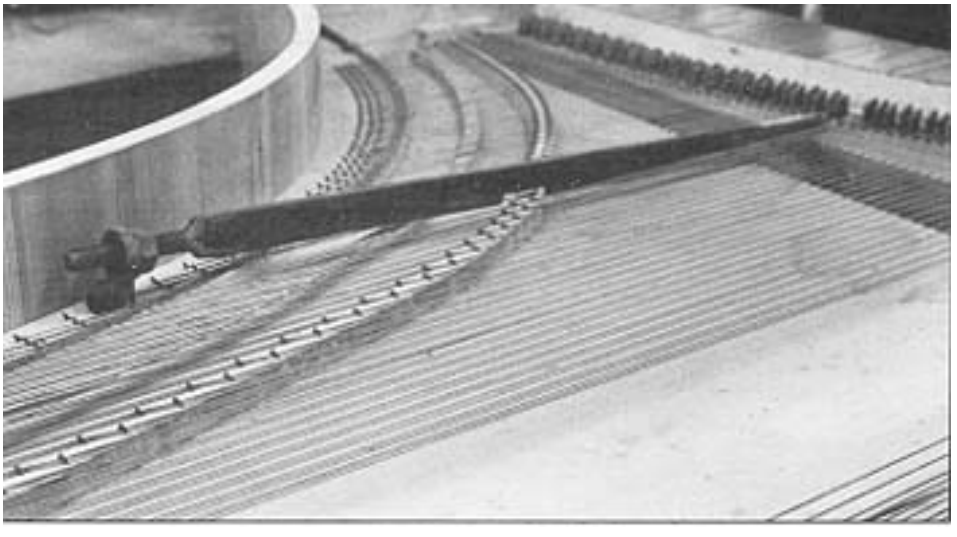
The brass-wound bass strings have broken windings and one is completely missing. These strings will be measured and saved, but they have to be replaced in restoration.

All of the original brass strings are broken. From the stumps of wire

3. Signature, serial number and date under the soundboard.



4. Bridge with original stringing. Different wire loops indicate the locations of replacement strings from different periods. Note the pencil spot on the bridge (lower right) which probably showed the stringer where to change wire sizes.



5. Metal brace added to the instrument at a later date.

left on the tuning pins, it is possible to measure the wire sizes. Malcolm Rose's brass wire will serve for the replacement strings.

Most of the original, low-carbon steel strings are intact, but they are very rusty. The loops on the string ends are extremely varied in form, indicating the presence of many replacement strings. The last string and tuning pin in the treble is missing. The coils around the tuning pins are not very neat and the stringing does not look professional. Still, most of the strings and the oblong tuning pins appear to be original. Probably when the metal brace was installed in the 19th century, the string tension in the instrument was lowered. Sufficient attention may not have been given to tightening the coils when the string tension was restored. The tuning pins are extremely rusty. They will be gently turned to their original holes. The strings will replaced with Malcolm Rose's type C fortepiano wire.

The Action: Fortunately the action is amazingly intact. It needs thorough cleaning. Rust must be removed from the key frame pins. The key covers need cleaning and a few ivories require regluing. In the middle of the keyboard, the ivory is slightly scalloped, indicating that the piano received heavy use. One natural key is broken and the front half of the key is missing. This missing section will be replaced and spliced to the stump of the old key. The keys and action require careful cleaning. The leather key bushings are worn in the center of the keyboard and will be replaced with thin leather. (In any action where the hammers are attached directly to the keys, it is essential that the key bushing be closely fitted to the key pins. Otherwise the wobble in the key is transferred directly to the hammer.) The *Kapseln* must be cleaned and lubricated. The keys will be leveled, the dip adjusted and the action regulated. Several broken hammer shanks must be repaired. The original hammer leather is in excellent condition and will only require cleaning and voicing. The beak leathers on the hammer shanks will also be retained. The keybed is straight, but needs cleaning. The balance rail cloth punchings will be measured for thickness and diameter and replaced. The back rail cloth will be cleaned and retained.

Dampers: The damper rack is broken at the treble end. The original dampers, covered with leather and wool, are preserved. It is not yet certain whether they can be made functional. If the damper coverings have to be replaced, the originals will serve as models for making new ones. Several damper rods are either broken or warped.

The documentation form which follows provides basic information about the piano. As work progresses, it will be possible to refer back to this form for measurements and information about the instrument's original condition. The form is stored on computer disk, where it can easily be supplemented. Later the completed form will provide the foundation for a final restoration report. For the sake of completeness, the entire form is included here even though it is only partially filled out. It will continue to grow as work progresses.

Pianoforte Documentation Form
Date: January 15, 1988

Instrument name and type: Ignaz Bosendorfer, concert fortepiano
Location: Trumansburg, NY
Owner: Cornell University, Department of Music
Date and place of manufacture: Vienna, Austria, 1841
Serial number: 167
Description of the nameboard: Brass letters and floral design inlaid in a Rosewood panel: "I. BOSENDORFER/ KAISERL: HOF = (Austrian Double Eagle) FORTEPIANOVERFERTIGER/WEIN/GOLDENE MEDAILLE/AUSTELLUNG 1839" (I. Bosendorfer/ Imperial and Royal Court Fortepiano Manufacturer/ Vienna/Gold Medal/Exhibition 1839)
Other signatures and identifications: Written in pencil underneath the soundboard: "Nr. 167/Johann Bosendorfer(?)/(1)841. The number "74," probably a production number, is written in pencil inside the bass end of the action opening and on other components of the action. Another faintly visible signature, possibly the autograph of a performer, is written in pencil on the hitch pin rail in the treble.

History of the Instrument

Ignaz Bosendorfer (1794-1859) sold this piano to the Benedictine monastery at Kremsmunster, Austria, sometime between 1841 and 1844. Given the active musical life of this Austrian monastery, one can only speculate on the identities of the famous pianists who may have played it. In the review of a concert at the monastery on December 10, 1844, a critic from the *Allgemeine Wiener Musik-Zeitung* spoke in glowing terms about the monastery's new Bosendorfer: "On the evening before (Founder's Day) the music director organized a musical entertainment in the abbey in which Hummel's great Septet, arranged for Quintet, was performed. Mr. Carl Benedict, monastic official and music director of the Imperial and Royal Music Hostel (training center for the Vienna Choirboys), played the piano part with such skill and elegance, that he was able to take pleasure in the general applause. The instrument on which Mr. Benedict played, which came from the workshop of Mr. Bosendorfer, verified on this occasion once again in a splendid way the spreading fame of this master (builder)."
(Altman Kellner, *Musikgeschichte des Stiftes Kremsmunster,* Kassel:Barenreiter, 1956, p. 644)

Ignaz Bosendorfer began his career as a keyboard maker, which explains why Bosendorfers traditionally have such beautifully made keyboards. Later, he apprenticed with the famous Viennese piano maker Josef Brodman. After Brodman's death in 1828, Bosendorfer took over Brodman's shop and began to make pianos using both his own and Brodman's names. *(Illustration 6)* In 1839 and 1845, Bosendorfer won gold medals for fortepiano building at the Industrial Exposition in Vienna. Fortepiano 167 was manufactured in 1841, in the 13th year of the new firm's existence, and the coveted gold medal was proudly displayed on the piano's nameboard.

6. Early Bosendorfer nameboard.

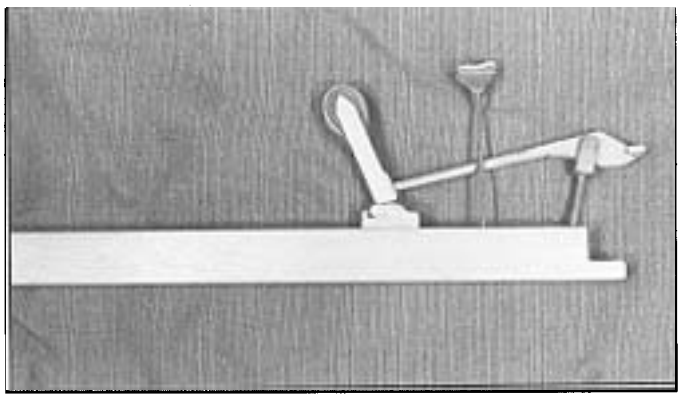
An important occurrence in Bosendorfer's early career was his friendship with Franz Liszt. Liszt, with his forceful, demanding technique, was destroying the pianos of rival builders. To everyone's surprise, the instruments built by Bosendorfer were able to withstand the punishment. Through Liszt's endorsement, Bosendorfer's concert instruments became increasingly well known.*(Illustration 7)*


7. Franz Liszt playing a Bosendorfer for Austrian aristocracy. Emperor Franz Josef I and the young Archduke Rudolf are clearly evident.

Location of similar instruments: Yale University collection; Vienna, Kunsthistorisches Museum, Vienna, private collection.
Selected Bibliography: Helmut Ottner, *Der Wiener Instrumentenbau 1815-1833,* Tutzing, Hans Schneider, 1977, p. 26.
Bosendorfer Co., *The History of a Grand Piano,* Vienna, (n.d.).

Technical Data

Keyboard
Keyboard range: CC-G"", six octaves and a fifth (80 keys, but 81 strung unisons, including the dumb unison over the wrest plank support.)
Width of octave span – C to B: 6 5/16"
Key covering materials:
Naturals: ivory
sharps: ebony veneer over a stained hardwood block
fronts: bone
White key covering thickness: .065"
Description of key levers:(Illustration 8): Fine grain,



8. Bosendorfer mid-range hammer with Kapsel, damper push rod, and hammer rest cushion.

spruce keys with brass *kapseln* set in beech inserts at 77 degrees. Beech key buttons. Key bushings made of thin, brown leather. Hammer-rest cushions set in an individual wooden retainer glued to the key. No key leads.
Description of key frame, key frame pins: Vertically laminated spruce and red beech front rail with front pins set in the beech laminations. Horizontally laminated red beech and spruce balance rail with an unusual key fulcrum, reaching its apex at the balance pins, shaped in the red beech cap.
Felting and leathering (type, color and thickness):
Back rail felt: One wide layer of white cloth glued only at the edges, retaining two narrow, unglued layers of the same white cloth.
Key bushings: Thin, brown leather.
Key dip stop rail felt: Five layers of white wool cloth sewn together. Only the last layer glued to a wooden rail. Total thickness of wool layers circa .305".
Hammer rest felt: Three layers of white wool cloth in a special wooden retainer. Glued away from the hammer to avoid glue impregnation at the point of hammer molding contact.
Beak leather: Thick, yellow, rectangular leather (elk skin?) glued with animal glues to the beak (5/16" long, 1/4" wide; .109" thick; leather protrudes 1/16" over the beak).
Balance rail punching: White woven cloth. 15/32" in diameter, .035" thick.
Front rail punching: none (in a Viennese-action, the key dip is controlled by a felted rail across the back of the keys. The front rail pins serve only to maintain key travel and spacing.
Understring felt (tuning pin end): none.
Understring material (hitch pin end): Soft, brown leather, circa .035" thick.
String web: yellow, wool cloth (5/8" wide by .045" thick) woven through the strings between the bridge and the hitch pin rail.
Pre-adjustment key height (white keys): (measured at the front of the key from front rail to the top of the ivory): Bass: 1.506"; Middle C♯: 1.476"; Treble: 1.472"
Sharp key height: Bass: -- ; Middle C♯: -- ; Treble: --
Pre-regulation key dip (White keys): Bass: -- ; Middle C♯: -- ; Treble: --
Sharp key dip: Bass: -- ; Middle C♯: -- ; Treble: --
Pre-regulation aftertouch (naturals): none. hammers not letting off.
Aftertouch sharps: None
Pre-regulation back check distance: NA

Case
Total length: 8' 3/4"
Total width: 4' 4 1/2"
Total height (with lid): NA
Case height (without lid): NA
Description of metal plate or reinforcing bars: One brace, not original.
Description of case joinery: --
Thickness of case sides: --
Description of case sides: Bentside: crossbanded laminations of spruce.
Finish veneer: Ash; *Interior veneer:* Ash
Description of veneer matching: Book matched, vertical panels of ash veneer, .055" thick.
Case finish: Spirit varnish
Legs: (number, form, material, caster type): 3 turned, slender legs with fancy brass casters.
Pedals: 2 steel pedals (shift and damper lift), covered with heavy brass attached to a pedal lyre in ash with three inlaid vertical bands representing the lyre strings.
Bottom: -- Material: -- Thickness: --
Bottom to side attachment: (sides glued to top or side of the bottom):
Describe and measure bottom opening, if any: Partially open bottom covered with a burlap vermin screen attached to a wooden frame.
Thickness of: spine: -- tail: -- bentside: -- bellyrail: --
Composition of bentside from soundboard to the bottom (core stock thicknesses and veneer direction is discernible from the bottom edge of the bentside):
Lid: --
Lid material: --
Description of music desk: double-hinged, sliding music desk.
Soundboard material and grain orientation and finish (sketch): grain runs parallel to the strings and the spine.
Growth rings per inch: Variable. 32 to 14 rings per inch with 20 as the norm.
Soundboard ribs: Spruce
Treatment of rib ends: (Tapered, cloth-taped, relived under bridges)
Soundboard thickness: (Measured at leading edge) Bass: -- Treble: --
Soundboard thickness: (Through cracks)

Bellyrail description: (Partial, full, connection with the soundboard?)
Wrest plank material: Maple
Tuning pin orientation: --
Depth of tuning pin holes: 1.080"
Description of wrest-plank bridge ("nut"): Maple with steel pins. An iron support joins the wrest plank to the belly.
Bridge pins: --
Hitch pins: --
Hitch pin rail: --
Description of metal plate (Painting and decorative features, presence of wire gauges): none

Action

Description of action and action type: (Kapsel- or jack-type action, how attached to key, angle of Kapsel to key): --
Hammer shank diameter: Bass: -- Center: -- Treble: --
Description of hammers: (hammer composition, hammer weight, material in hammer molding)
Description of regulation and let-off adjustment: --

Damper System

Damper range: 1-65. *Number of undampened strings:* 15 (originally 12)
Range of damper materials:
1-5: Pear-wood wedges covered with soft, white leather.
6-18: Double pear-wood wedges covered with leather.
19-37: Double wedges covered with shaggy woolen material.
38-42: Solid "Vienna-weave" dampers glued to parchment.
43: Damper for blind string (missing).
44-46: Block "Vienna-weave" dampers glued to parchment.
Number of unisons without dampers: 15
Number of keys without damper lifters: 12
(Examination of the damper case shows that three damper guides have been cut off. As the push-rod leathers on the corresponding keys show wear, one can assume that the last three original dampers in the treble have been removed.)
Sketch (Photograph) of damper types:
Description of damper guidance system: Stringing
*Number of wire coils on each tuning pin: Bass:*2; *Middle:* 3; *Treble:* 3
Description of tuning pin (bored or unbored): Bored
Forging length (to middle of hole): 9/16"
Threading length: 1 1/16"
total length: bass: 1.949" *treble:* 2.003" (variable)
Tuning pin diameter: bass: .241" *diameter treble: Location and description of looped strings:* All strings individually looped (Samples saved).
Number of wound bass string unisons: 5 two-string unisons (10 strings) on a short, separate bridge.
Number of unisons strung in brass: 13 triple-unisons strung in brass (39 strings) on a short, separate bridge.
Number of unisons strung with low-carbon steel: 62 triple-strung unisons (186 strings) on a long, separate bridge.
Wire gauge markings on the bridge: none
Wire analysis:
Wire sizes: (In measuring wire in early instruments, it is usually necessary to measure every wire in every unison. Many different wire gauge systems were used in the 18th and 19th centuries. Wire gauge numbers on bridges and pinblocks are often either misleading or incomprehensible.)
Speaking lengths: (Speaking lengths are measured from the middle of the unision, from the nut pin to the bridge pin, for the bottom note, top note and all Cs and Fs.)
Striking point: (Measured from the nut pin to the center of the hammer's striking point.)
Lowest note: -- middle note: -- top note: --
Blow distance: Lowest note: -- Middle C: -- Highest note: --
Distance from the kapsel axis to the middle of the hammer molding:
Kapsel angle to key: 77 degrees.
Angle of hammer head to hammer shank:
Down weight (measured in grams after regulation): lowest note: -- middle C: -- Highest note: --
Upweight (in grams): lowest note: -- middle C: -- highest note: -- ■

Force Equals Tension Times What?

Nick Gravagne
New Mexico Chapter

When it comes to discussions of the multi-faceted topic of downbearing, it is all too easy to enter a technical labyrinth filled with a dizzying array of terms, mechanical concepts and seemingly contradictory points-of-view. The best way not to get lost in this maze is to have a clear idea of where to enter and an equally clear idea of how to get out.

As explained previously, downbearing is a force applied to the soundboard by a battery of high-tensioned strings pressing on the bridge. This connection of string to bridge is actually a mechanical linkage which remains unbroken so long as there is pressure on the bridge. Of course, we all understand that this constant pressure is what insures a solid and reliable transferrence of energy from the vibrating string to the soundboard.

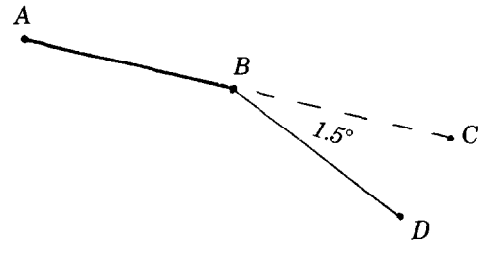
To begin simply, then, we are going to enter into these discussions by considering a downbearing string angle as *one* angle. This angle, called the *angle of downbearing*, is easy to understand and is our first frame of reference. Without this as a starting point it will become needlessly difficult to make sense out of what has become known as the "front bearing" and the "rear bearing" along with a host of other related considerations. Not only is this one angle the initial reference, but it is also the final and overriding requirement when it comes time to "set the bearing" because setting the bearing really means "setting the force." But just what is this angle of downbearing?

> "Definitions of downbearing may seem more plentiful than useful because most, although accurate, are either too general in nature or too shop-oriented."

Definitions of downbearing may seem more plentiful than useful because most, although accurate, are either too general in nature or too shop-oriented. Some, however, are just what we need to get started. The book "Piano Parts and Their Functions" defines downbearing as, "The deflection of the string toward the soundboard as it crosses the bridge."[1] Former *Journal* Technical Editor Don Galt states "...the string should deflect downward over the bridge about 1.5 degrees...When I speak of downward deflection over the bridge I mean deflection of the waste length from the straight continuation of the speaking length."[2] Other concurring sources include such eminent names of the past as Samuel Wolfenden[3] and Lawrence Nalder.[4] So, the primary reference angle of downbearing turns out to be a relatively small *deflection* from a straight line.

As can be seen in *figure 1*, line segment BD is deflected from segment AB. If segment BD were not deflected, then line ABC would be a straight line. Segment BC is a dashed line indicating where line ABC would be if it remained undeflected. The illustration is purposely drawn in a random reference plane and with line segments AB and BD of equal length. This is expressly done so to abstract our thinking from the usual representations of piano strings crossing

FIGURE 1



bridges which typically illustrate a model condition of a speaking length segment inclining toward a perpendicular bridge, crossing the bridge and, afterward, neatly declining. There is a time and place for looking at it that way, but for the present, our only concern is that the angle of downbearing is a deflection of about 1.5 degrees from a straight line.

So the phrase "angle of downbearing" and "angle of deflection" have essentially the same meaning. A piano which downbearing (in any amount) has a string deflection and a piano with no downbearing does not have this deflection. The 1.5-degree angle may seem arbitrary: why not one-half degree or, for that matter, three degrees? This is a question which has to be answered in parts.

The first part of the answer has to do with a simple mathematical computation. Given a string tension – say, 160 pounds – the measure on the soundboard is a direct function of the angle of deflection: the larger the angle the more compressive force is applied to the soundboard. This force is easy to calculate in that it only requires multiplying two numbers. These numbers are the string tension (in pounds) and what is called the *sine* of the angle of deflection. Since not everyone has access to trigonometric function tables or scientific calculators, the sine values for a one-half degree angle, a one degree angle, a 1.5 degree angle and a two degree angle are given in *table 1* along with the simple multiplication. (Math aficcionados please refer to the "Computations" section at the end of this article for more detail).

Note that the calculations in the table are only for one string. When averaged over the whole soundboard, and with 220 strings, the resultant compressive force on the board for a 1.5 degree angle of deflection would be 4.20 pounds times 220 strings equals 924 pounds. The pressure for a two degree angle per string would be 1232 pounds – a 308-pound addition for only a one-half degree greater angle!

Obviously, there is the question of string tension; how is this known? Of course, Taylor's Formula can be used (you probably have a book in your library which contains this formula along with an explanation of how to use it). However, working through the computation is cumbersome.

I heartily recommend the book "Piano Rebuilders' Handbook of Treble String Tensions" by Donelson. This book looks rather ominous when you first see it as it looks more like a large physics textbook than a "handbook." (Its appearance would no doubt elicit a collective groan in a high school classroom). Actually, except for the introduction, the book is not for reading. It is a marvelous reference which contains page after page of string tensions for various lengths, diameters and frequencies.

I have not used Taylor's Formula since owning the book. It does not contain (and no book could contain) bass string tensions. (A formula will be presented for these at a later date). As to finding the string tensions of a particular piano it is not necessary to measure every string in the scale. I have found it quite enough to measure only six strings or so and find an average of tension. In addition, once you have this information for a certain make and model piano, it isn't necessary to repeat this operation next time that kind of piano is in the shop. The Steinway M, for example, averages 160 pounds of tension per treble wire. Bass string tensions are always higher than the plain steel strings so, if the angle of deflection remains unchanged, the downbearing pressure can be quite different (much higher) for this section of the scale.

So, now that an anticipated compressive force on a soundboard can be known for a single string (or a group of strings) for a given angle of deflection, the next matter to understand is how much force we want and why. Answering this question is not so easy as explaining why string angles cause pressure. The reason for this is that our focus must once again be directed at the soundboard, the mechanics of which are not as simple as multiplying two numbers. The ideal pressure from downbearing (if there is such a thing) has been observed and noted rather then predicted and calculated. Previously quoted Don Galt, writing about this, said, "...it is agreed that about one-fortieth of the

Table 1

Angle of deflection	*Sine of angle*
0.5 degrees	*0.0087*
1.0 degrees	*0.0175*
1.5 degrees	*0.0262*
2.0 degrees	*0.0349*

To calculate the anticipated pressure (in pounds) on the soundboard multiply the string tension by the sine of the angle of deflection. If the string tension is 160 pounds it works like this:

Deflection	*Calculation*	*Force on Soundboard*
0.5 degrees	*160 X .0087*	1.40 pounds
1.0	*160 X .0175*	2.80
1.5	*160 X .0262*	4.20
2.0	*160 X .0349*	5.60

string tension is a suitable amount for each string to press upon the bridge."[5]

Multiplying 220 strings by an average 160 pounds of tension per string yields a total tensional load of 35,200 pounds. This times one-fortieth (divide by 40) equals 880 pounds of pressure on the soundboard. And this divided by 220 strings brings us back to our 4 pounds of pressure per string. As shown earlier, deflection (1.43 degrees, actually). Samuel Wolfenden, writing in 1927, concluded, "Much observation and many experiments have produced the conviction that a down pressure in a piano should be about 800 pounds, and if the string tension accords with the present average (160 lbs.), this will be attained by the angle of the downbearing being made to produce about four pounds per string."[6]

Bear in mind that this kind of pressure is considered applicable to a soundboard which is fully crowned at the standard 60-foot radius. It would be necessary to modify the pressure proportionately on a soundboard with less crown. But this is a practical consideration. In fact, there are a slew of practical considerations. These will be covered at the appropriate times. For now, however, principles precede particulars. We'll continue along these lines next time.

Computations

Since the angles in question are relatively small, either the sine or the tangent can be used as a factor. *Figure 2* uses the sine. Angle B is 1.5 degrees and string segment BD is 160 pounds. Solving for CD we have Sine 1.5 equals CD/160, hence, CD equals 160 sine 1.5 equals 4.20 pounds.

As can be seen from the drawing, a right triangle must be assumed and assigned arbitrarily (angle C in this case). Again, because angle B is only 1.5 degrees this is acceptable and expedient. However, this simple approach to finding the force exerted on a body due to a tensioned string, cable, rope etc. drawn over it does not work for larger angles. Imagine our 160 pound tensioned string deflected 45 degrees over a body and pushing on it. The above method of finding the pressure using 160 sine 45 equals 113 pounds, and 160 tan 45 equals 160 pounds. However, the conventional method of solving the problem of concurrent and resultant forces is by constructing a *free body diagram* and a *triangle of forces* then solving the triangle. When this is done for the 45-degree angle the correct answer is 122.45 pounds of pressure.

Figures 3 and *4* are the Free Body Diagram and Triangle of Forces for downbearing as it has been discussed in this article.

FIGURE 2

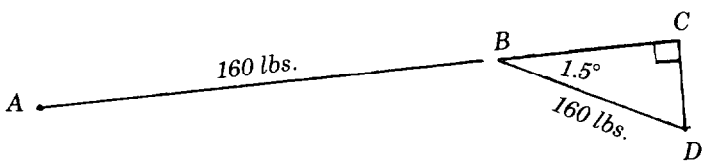
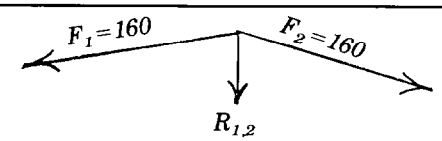
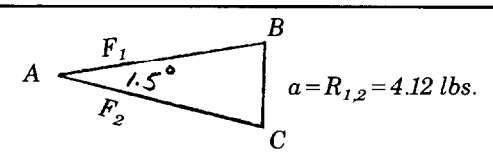


FIGURE 3



Free Body Diagram

FIGURE 4



Triangle of Forces

Notice that the triangle has two sides at 160 pounds each. This is, then, an isosceles triangle which cannot be solved for side a (which is the resultant force R) using the relatively simple Pythagareon Theorem. Its solution necessitates the use of *Law of Cosines* as such:

$a^2 = b^2 + c^2$-2bc Cos.A (Note: Cos. A = 0.99966)

$a^2 = 51200$-51183

$a^2 = 17$

$a = 4.12$

It is easy to see why the simpler expedient of tension multiplied by the sine or tangent of the angle is generally used.

Footnotes

1 Merle H. Mason, *Piano Parts and Their Functions*, page 72.

2,5 Don Galt, *Piano Technicians Journal*, May 1970, page 8.

3,6 Samuel Wolfenden, *A Treatise on the Art of Pianoforte Construction*, page 260

4 Lawrence M. Nadler, *The Modern Piano*, page 173.

ECONOMIC AFFAIRS

Basic Accounting

Janet Leary
Economic Affairs Committee

Requests have come in for an article on basic accounting. This article will cover what I understand basic accounting to be. I will present a discussion of bookkeeping vs. accounting, explain revenue and expenses, go over a sample income statement, and balance sheet, give a short explanation of debits and credits, and review the accounting cycle.

Accounting is a method of recording and measuring economic information so that informed decisions can be made in reference to that information. Changes in the type of information needed alters accounting concepts and techniques. Enviromental factors such as IRS rulings and tax law may demand more detailed information than you individually need, adding to your record-keeping. Or, as your business grows, you may desire more detailed records to make more informed decisions as to long-range planning or cost containment. Your accounting/bookkeeping system should be tailored to your individual needs while also complying with tax demands.

Bookkeeping vs. Accounting

There is a difference between bookkeeping and accounting. Bookkeeping is the recording of data while accounting is the actual system of records, interpretation of those records and the preparation of reports detailing the results of the recordkeeping. When people ask for general information on accounting I wonder if they actually are requesting bookkeeping systems information. If that's the case let's cover that issue a bit before we move on to accounting per se.

There are countless bookkeeping systems you can use. Your accountant should be able to set up a system for you, or review your present system and make suggestions. Of primary importance is a separation of all business and personal transactions. You must have a separate check system, credit cards, expense records, ledgers, etc. Intermingling personal and business records is not acceptable and can negate business expense deductions for tax purposes. Basic to all bookkeeping is an understanding of revenue and expense.

Revenue & Expenses

Revenue is the amount charged to clients for goods or services. Expenses are assets or services purchased or used up while in the process of earning revenue. Revenue minus expenses equals net income or loss. In order to record revenue and expense transactions you should have separate ledgers or record systems for each.

Some technicians are using a one-write check system that lists the expense transaction in ledger format when you write a check for the expense. Others rely on their check book as a record of the expense and throw all other miscellaneous receipts in a drawer to be compiled at tax time. Another method is to create a ledger with expense headings from last year's income tax return, dating each entry and balancing monthly. If your business has quite a few major expense areas you'll need a 12- or 14-column ledger.

As for revenue, record all incoming funds on a daily basis. Buy a ledger book - two to four column is sufficient. If you live in a state with a sales tax on piano service, separate taxable sales and exempt sales for each day's sales. Total either on a daily, weekly or monthly basis depending on your needs.

One bookkeeeping method is no better than another as long as as it gets the job done. That depends on how timely and detailed your needs are. Larger shops with employees need more sophisticated systems, and must balance their revenue and expenses ledgers weekly or monthly to monitor costs. Evaluate your specific business and do only what is necessary to get the information you and the IRS need. Don't get bogged down with recordkeeping. We're in the piano business, not the accounting/bookkeeping business. If you feel the job is too much for you, look for outside help.

Now that we have recorded all our revenue and expenses it's time to move on to the accounting area and prepare reports with this information. We will cover the following reports: the income statement, balance sheet, and statement of changes in financial position.

At this point you may be asking why bother going through all this. Preparing these reports for a small simply structured one- or two-person family business is definitely excessive and time consuming. There may be a point in time, however, when you are curious about what your business's financial net worth is, or you may be thinking about obtaining a business loan. That's where these reports come in handy. They serve both an internal and external use for your business. Internally they can help you in strategic planning, cost containment, bill collections, or net worth analysis. Externally detailed reports can help you obtain a business loan with your neighborhood bank.

If this information looks too cumbersome for you, be consoled in the fact that there is surely a computer software package that can do these computations and transfer all your input to the proper reports. Your job is to understand the basis for

accounting so you will know what you need when looking for software.

Income Statement

The first report we will discuss is the income statement. The income statement is a summary of revenue and expenses of a specific business for a specific period of time, generally a month or a year. There are two basic forms - a single-step form and a multiple-step form of the Income Statement. The single-step form is a condensed version of the income statement with revenue in one area and expenses in the other. The single-step form may be sufficient for internal use but if you like more detail, this format isn't sufficient since only the major category areas are listed. See the sample below:

Quality Technicians Inc.
Income Statement
For Year ended December 31, 1987
Year 6

Revenue:	
Net Sales	$95,000
Investment Income	4,000
Gain on Sale of Equip	800
Total Revenue	$99,800
Expenses:	
Cost of Goods Sold	$22,000
Selling Expenses	5,500
General & Administrative	12,000
Interest Expense	500
Income Taxes Expense	18,000
Total Expenses	$58,000
Net Income	*$41,000*

The format for the multiple-step income statement is more detailed. Since it is more detailed, the net income figure does not stand out as readily as in the single step format. Net income however, is broken down into preliminary figures - income from operations, income before taxes, and finally net income. This method gives more information and is preferred by bankers and creditors for that reason. The following is a typical multiple step income statement for the same company:

Quality Technicians Inc.
Income Statement
For Year ended December 31, 1987
Year 6

Gross Sales			$95,500
Less Returns	($500)		
Net Sales			$95,000
Cost of Goods Sold:			
Beg. Inventory		3,000	
Purchases	25,000		
Freight-in	1,000		
Purchases Cost		26,000	
Cost of Goods Available for Sale		29,000	
Less Ending Inventories		(7,000)	
Cost of Goods Sold			22,000
Gross Profit			73,000
Operating Expenses:			
Selling expenses:			
Phone Add	2,500		
Misc. Promo	3,000		
		5,500	
General & Administrative:			
Salaries-Office	5,000		
Rent	5,000		
Property Taxes	1,500		
Depr Office Equip	500		
		12,000	
Total Operating Exp			17,500
Income from Operations			55,500
Other Revenue & Expenses:			
Interest Expense		(500)	
Investment Income		4,000	
Gain on Sale of Equip		800	
			4,300
Income Before Income Taxes			59,800
Income Tax Expense			18,000
Net Income			$41,800

As you can see from this multiple-step form, revenue and expenses are intermingled throughout under different catergory headings. This can be confusing unless you understand the purpose of these separate areas. The general principal behind it is as follows:

1. Operating and all other income such as interest and investment income should be separated so there is no misunderstanding where your profit is actually coming from.

2. Expenses are divided into - cost of goods sold, selling, general and administrative. This separates costs into their traditional areas. It also clearly shows your gross profit on sales. In this case it is 76.84 percent ($73,000/$95,000), meaning that for every dollar of sales @ 24 percent is material costs and supplies.

Income statements, both single and multiple step, can be a useful tool both internally and externally if presented in comparative form. This means that prior years' figures are listed alongside the present year's figures. This method is useful in spotting trends and changes in revenue and expenses.

Balance Sheet

The next report we will look at is the balance sheet. This is a listing of assets, liabilities, and capital or owner's equity of a specific business as of a specific date. Capital or equity is what is left over after deducting liabilities from assets.

The balance sheet is dated for the last date of a business year, month or quarter. Under the asset section it is customary to list current assets in order of their liquidity. The most liquid of the current assets is cash, which should be listed first followed by marketable securities, accounts receivable, inventories, and short-term prepayments. Following current assets are investments - land held for future expansion, cash surrender value of life insurance policies, etc. We then list plant assets - land, buildings and equipment, followed by intangible assets such as goodwill, patents, etc.

Under the liabilities section of the balance sheet are listed all current liabilities (under one year), followed by long-term debt or notes payable.

The capital section lists any earnings retained in the business entity (owner's equity in a sole proprietorship), and any of the company's own stock that it owns, which is called treasury stock or capital stock.

As was mentioned above with the income statement, the balance sheet can include prior years' figures. This comparative format is extremely useful and should be included. If you would like to include prior years in your financial statements simply place a heading at the top of each year's data stating the year it references; i.e., Year 6, Year 5, Year 4, etc. Prior years' data should be placed in decreasing chronology and to the right of the present year's figures. Let's now look at a balance sheet for our fictitious company "Quality Technicians Inc."

Quality Technicians Inc.
Balance Sheet
December 31, 1987, Year 6

Assets:		
Current Assets:		
Cash	**$10,000**	
Marketable Securities	**5,000**	
Accounts Receivable	**3,500**	
Inventories	**7,800**	
Total Current Assets		**26,300**
Investments:		
Cash Surrender/ Insurance	**500**	
Land held for shop	**25,000**	
		25,500

Plant Assets:		
Equipment less accumulated depreciation		**22,000**
Total Assets		**$73,800**
Liabilities & Equity:		
Current Liabilities:		
Accounts payable	**8,500**	
Income taxes payable	**4,500**	
Total current liabilities		**13,000**
Long-term debt:		
Notes payable		**35,000**
Owner's equity		**25,800**
Total liabilities & owner's equity		**$73,800**

We have now gone over the income statement and the balance sheet. At this point you do not have enough information to actually fill out a balance sheet. Why? Because we are omitting part of the actual transaction. As you can see from looking at the balance sheet, total assets equals total liabilities and owner's equity. The reason this situation exists is that assets derive from either a cash position or debt. For example, if you want to buy a planer/joiner, your business must either take out a loan to finance the items or pay cash. When recording the transaction you cannot simply record an expense in your ledger because two things happen, not just one. You either added a debt to liabilities or decreased cash from assets, while increasing the equipment account. This scenario necessitates the double entry bookkeeping system to keep track of which accounts increase and decrease as the result of each transaction. As you will see, each transaction is made up of two parts - one or more debits and one or more credits. Before we go into this, let's begin with an explanation of the accounting cycle.

Accounting Cycle

The accounting cycle is a sequence of accounting procedures that are repeated in the same order during each accounting period. They are as follows:

1. Record transaction in the journal.

2. Take data from the journal and post it to the ledger.

3. Total data from each ledger and get a trial balance.

4. Make any adjustments, correct or update the recorded data.

5. Summarize the data in the form of financial statements.

6. Close all the accounting records for that period, and reverse certain entries so you can start the next period's record-keeping. I will now discuss each of these processes individually.

All transactions are recorded in the journal. In order to do this you must know that a debit means left and credit means right. This means that a debit entry is placed in the left column and credit in the right. So, when you record a transaction such as a cash purchase of a $3000 planer/joiner March 15, 1988, the journal entry would be as shown in Figure 1:

$3000 cash was subtracted from cash assets and $3000 was added to equipment assets. Look at the sample balance sheet to see these categories. After this transaction your business is $3000 less liquid than it was beforehand. If you took out a loan for $2000 and paid cash of $1000 for the planer/joiner the journal entry would be as shown in figure 2:

In order to make use of this system you must be aware that:

1. Asset accounts - increases are recorded by debits and decreases are recorded by credits.

2. Liability & Owners Equity - increases are recorded by credits and decreases are recorded by debits.

3. Expenses - increases are recorded by debits and decreases are recorded by credits.

4. Revenue - increases are recorded by credits and decreases are recorded by debits.

The second step on our check list is to post by categories the information from this journal to your ledger. The ledger includes all the accounts, separated individually so you can come up with a net figure for each category. Each account category such as cash, accounts payable, accounts receivable, etc., will have both debit and credit entries because of the differing activity in the accounts over time. Total all the debits for that account, then total all the credits for the same account. Subtract the smaller from the larger figure. If for instance cash totaled to a debit of $34,000 and credit of $15,000 the end result would be a debit of cash in the amount of $19,000.

Figure 1

1988		**Debit**	**Credit**
March 15	**Equipment (planer/joiner)**	**3000**	
	Cash		**3000**

Figure 2

1988		**Debit**	**Credit**
March 15	**Equipment (planer/joiner)**	**3000**	
	Cash		**1000**
	Accounts payable		**2000**

You then put these totals in a trial balance in either the debit or credit column depending on its net outcome from the ledger. A trial balance is a preliminary step to balancing out all the accounts. A portion of a typical trial balance looks as shown in Figure 3.

As you can see this does not look like the income statement or the balance sheet, it looks like a combination of both. The next step is to make adjusting and updating entries. For example, equipment would be a debit of $15,000. The value of the $20,000 equipment account must be decreased by that year's depreciation expense which is $5,000.

Figure 3

Sample Corporation
Trial Balance
December 31, 1987, Year 10

	Debit	Credit
Cash	$15,000	
Accounts receivable	5,000	
Inventory, January 1, 1987	5,000	
Equipment	20,000	
Accumulated depreciation of equipment		5,000
Notes Payable		10,000
Owners Equity, Jan. 1, 1987		25,000
Sales		90,000
Purchases	45,000	
Salaries expense	25,000	
Advertising expense	8,000	
Property tax expense	3,000	
Miscellaneous	4,000	
Totals	$130,000	$130,000

The next steps are to summarize all this data in the financial statements. You would have to come up with:

1. An ending inventory total and transfer this total to the balance sheet
2. Close all revenue and expense accounts
3. Arrive at a net income total
4. Transfer the net income total to the capital statement, and add to the net income for this period owner's equity from January 1, 1987, to arrive at total equity at this point in time
5. Transfer this owner's equity total to the balance sheet
6. Take totals from the adjusted trial balance that pertain to the balance sheet and enter them on the balance sheet
7. The debit total and the credit total on the balance sheet should be the same number; if not, you made a mistake
8. Finally, close all the accounting records for that period and reverse certain adjusting entries so you can begin the recording process for the next period.

I hope this article was of some use to you. If you apply this information to your business, I'm sure you can come up with your own income statement and balance sheet. All the account categories presented in this article were meant to point out some of the possible areas that might apply to your business. If you have fewer categories and have no inventory to speak of, you'll have an easier time making this system work for you. In closing, I must mention that even "basic" accounting is not without some complexity. If by some omission on my part your specific accounting interest was not covered please let me know. Also, if you would like more information on an area I may not have detailed to your satisfaction, let me know. This article is the tip of the iceberg, so to speak. More information, PHD (piled high and deeper) can always be suplied in accordance with demand.■

Calendar Of Coming Events

Date	Event
Mar. 11-13, 1988	**South Central Regional Spring Seminar** Fayetteville, AR Denele Campbell; 541 W. Meadow; Fayetteville, AR 72701; (501) 443-2457
Mar. 18-20, 1988	**Central West Regional Seminar** Wichita, KS Marty Hess; 4031 N. Harding; Wichita, KS 67220; (316) 744-0564
March 26, 1988	**Northern Virginia Seminar – Grand Hammer Installation** Wolf Trap Park, Vienna, VA Jack W. Sprinkle; 6033 N. 19th Rd.; Arlington, VA 22205; (703) 538-2728
April 8-10, 1988	**New England Regional Conference** Viking Hotel and Conference Center, Newport, RI Kirk Russell; 13 Liberty Street; Wakefield, RI 02879, (401) 783-1966
April 15-17, 1988	**Pennsylvania State Conference** Sheraton, Altoona, PA Fred Fornwalt; 1333 Logan Blvd.; Altoona, PA 16602; (814) 942-1489
April 22-24, 1988	**Northern Illinois Seminar** Northern Illinois University, DeKalb, IL Jack Greenfield; 259 Riverside Drive; Northfield, IL 60093; (312) 446-9193
April 28-30, 1988	**Pacific Northwest Conference** Red Lion Inn; Eugene, OR Clay DeForge; 479 Dublin Ave.; Eugene, OR 97404; (503) 688-5152 Donna Byrd; 2293 Birch Lane; Eugene, OR 97403; (503) 344-3840
April 29 - May 1, 1988	**Michigan State Conference** Holiday Inn West, Livonia, MI Hugh Gulledge; 175 Degross; Walled Lake, MI 48088; (313) 669-4325
May 13-14, 1988	**Intermountain PTG Conference** Rodeway Inn; 1292 S. University Ave.; Provo, UT 84061; (801) 374-2500 Jack Reeves; 486 N. 300 W., Orem, UT 84057 (801) 225-1757
July 18-22, 1988	**31st Annual Piano Technician Guild Convention & Institute** Adams Mark Hotel, St. Louis, MO Home Office: 9140 Ward Parkway, Kansas City, MO 64114, (816) 444-3500.

Membership!

Benefits Of Membership

Ron Berry
Vice President

Why join PTG? This is the question asked by nonmembers and it is a fair question indeed. I want to enumerate some of the benefits of membership. As I see it, our member benefits break down into the following categories: Education, Technical Support, Friendships, Personal Satisfaction, Public Relations and Advertising, and Insurance.

Education

Without a doubt the single largest benefit of membership is the *Piano Technicians Journal.* This monthly publication always presents a wealth of technical expertise from some of the finest technicians in North America. While usually sticking with the tried and true, it sometimes delves into experimental and esoteric subjects. The *Piano Technicians Journal* is definitely the finest technical magazine on piano technology available anywhere in the world. Besides the technical content, the *Piano Technicians Journal* offers advertisements for businesses that have products of interest to piano technicians. The *Journal* also contains organizational information vital to the functioning of PTG.

Seminars and conventions offer unequaled opportunity for education at a fraction of the price it would be in other trades. Because of the spirit of PTG, instructors donate their time to teach others and consider it an honor to do so. While it sometimes seems expensive to pay travel expenses and take the time away from work, compare this with other trades where $300-400 registration fees for a weekend seminar are common. Through these seminars and conventions we have access to the best technicians in the field and their years of experience. Among these instructors are many manufacturers' service representatives who bring factory techniques which can make us more efficient in our own work. One good idea that will cut your time on a particular operation will in the long run pay for the cost of coming to the seminar.

The basic unit of operation for PTG is the chapter. While the quality and efficiency of operation of each chapter varies, most offer high quality of education through their technical programs. When chapter members who have gone to seminars bring the ideas back to the chapter, they are a link in the flow of information to the individual technicians. In this way technicians who choose not to go to seminars still share in the information that came from them. Even our tests can be viewed as an educational opportunity in that they give a technician a personal evaluation of his skills and how they relate to the rest of the industry. In my days as exam committee chairman I had many people say that they learned more from the test than they had in any tuning class. I strongly feel that PTG's tuning test has done much to upgrade and standardize tuning throughout North America. It has also made the instruction of tuning better in that the test has forced us to quantify a good tuning. This gives instructors a better way of explaining the goal of a good tuning. Instead of telling a student to leave an octave a little sharp, we can say to make sure that the 10th beats about 1/2 beat faster than the 3rd.

Technical Support

When we run across problems in a piano that we are not sure how to handle, where do we go for help? The piano manufacturer is the first obvious place to go for help and that help is readily available. Your chapter is another place for this support. We can call upon chapter members for ideas, second opinions, or just plain help when we get in over our head. In how many businesses could you call your competitors and ask them to help you? Technical support also comes by sharing rarely used tools or getting parts from another member when you find you need them in a hurry. The sharing of information on how we conduct our businesses and operate efficiently is a valuable resource available to members.

Friendships

While the friendships you make as a member of PTG are not as direct a benefit as the *Journal,* I feel that they are just as important. Becoming friends with so many people in your chosen trade has to make you better at your trade. These friendships can develop into covering for each other when sick or helping each other out of some personal disaster. Being self-employed is usually a lonely business but developing friendships with other self-employed people helps eliminate some of that.

Personal Satisfaction

"To give is better than to receive" is a well known adage and it is true as much in PTG as anywhere else. For one thing, we all have a responsibility to the craft of piano technology to be sure that it continues. Most of us got where we are because of the help of other technicians before us. We owe it to new technicians to help them break into the business and to keep upgrading the craft. I have found that in teaching others, I end up learning from them in ways I would never have guessed. Besides this, putting our efforts into this organization and seeing the results is a great source of personal satisfaction.

Public Relations and Advertising

To begin with, being a Registered Tuner Technician gives weight to your personal advertising. Anyone can claim to be the best technician in the world, but being able to say you are an RTT shows the public that you have proven your ability. Even if prospective customers haven't heard of PTG they often feel you are better because you are a member of "that organization." While I find it highly doubtful that PTG will ever take on wide-scale TV ads, PTG is doing PR and adertising among teachers, organizations and other trade related sources. The rifle approach of advertising to those who definitely have pianos is economically more feasible than paying to reach the general public. PTG has developed literature to support you in your own efforts to reach the public and teachers groups. Pamphlets and recital covers to give to teachers are available. PTG has undertaken a film explaining PTG to be used when talking to teachers groups. PTG is represented at the Music Teachers National Association conventions and at the National Association of Music Merchants, where rapport is developed with dealers and manufacturers. In recent years PTG is enjoying a healthy respect from manufacturers who know how important it is that we all work together. Almost every manufacturer's service representative is an RTT. The manufacturers tend to go to our directory when they need someone to service a piano under

warranty. The respect of the manufacturers is filtering to the dealers where it will have an even greater effect on your personal business. Along with this respect goes the responsibility on our part to be sure that our RTT's are the most qualified technicians available. While there is always room to do more in the area of Public Relations and Advertising, the areas where we are presently working are sometimes not that obvious to the average technician.

Insurance

While insurance may not seem like too much of a benefit in the recent past, I think we are finally getting this member benefit in order. A $1,000 life insurance policy comes with membership. Board has considered raising this for several years but the expense of it has held us back as yet. PTG has a high average age of 49. This tends to make life insurance for the group uncompetitive. The company that carries this life insurance policy does offer supplemental term insurance at very reasonable prices for those who want to purchase greater coverage. Tool and Bailee coverage has been the most popular insurance for many years. This plan has changed carriers recently without any loss of coverage. A Liability policy has recently become available through the same agent. The group medical insurance has been very problematic recently. Our former plan had rather low participation (around 300 members) and was canceled by the carrier. At the Board's recent meeting, a new plan was presented. The details of this plan will be circulated when it is put in place. Here again, the high average age of PTG has made it difficult to come up with a competitive plan. A great number of hours have been spent by Board and Home Office to resolve these insurance problems and we are beginning to see a light at the end of the tunnel. The problems we have experienced in insurance are not unique to us. The whole insurance business is undergoing big changes and the final outcome remains to be seen.

This has been a brief run-down of the benefits of membership in PTG. Can you run your business without the benefits of PTG? Obviously you can and many technicians do it. But can you maintain the quality of your work and run your business as efficiently without PTG? Associate with us and find out. ■

New Members During January 1988

REGION 1

New York City, NY – 101

Peter C. Krakow
508 East Fifth St., B
New York, NY 10009

Ching Kwok Yu
216 Forest Green
Staten Island, NY 10312

Pittsburgh, PA – 151

Jonathan Langham
RD 1, Box 232N
Wellsburg, WV 26070

REGION 2

Washington, DC – 201
Wendy R. Parham
3922 Halsey Street
Kensington, MD 20895

Northern Virginia, VA – 223
Stanley T. Wooten
7054 Highland Street
Springfield, VA 22150

Western North Carolina, NC – 296

Gary C. Griswold
3108 Florida Drive
Hendersonville, NC 28739

Sarasota-Ft. Myers, FL – 335

John H. Haster
2248 Silage Circle
Port Charlotte, FL 33981

REGION 3

Houston, TX – 771

Barry J. Purrington
11030 Hillcroft
Houston, TX 77096

REGION 4

Cleveland, OH 441

Wallace Buchanan
18 Union Street
Oberlin, OH 44074

Esther T. Stanard
7464 Root Road
N. Ridgeville, OH 44039

Central Illinois, IL – 625

Craig U. Fehrenbacher
410 West Holly
Robinson, IL 62454

REGION 5

Edmonton, AB – 002

Stewart V. Munro
PO Box 1301
Hay River, NT X0E 0R0
Canada

Twin Cities, MN – 553

Christopher C. Nord
4501 34th Avenue South
Minneapolis, MN 55406

REGION 6

Vancouver, BC – 011

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St. Louis, MO – 631

David Porter
12459 Glenbush Drive
St. Louis, MO 63043

The Auxiliary Exchange

President's Message

The Gateway to the West.....The theme of St. Louis.

The Gateway to Excellence....The theme of the Piano Technicians Guild.

The Gateway to Friendship...Family...Fun: The theme of the Piano Technicians Guild Auxiliary.

We invite you to partake of all of the above. St. Louis, the river town that is over two centuries old, is a brand new place! And you thought St. Louis' fun stopped with the Arch. That's a great starting point, but there is so much more to see and do. St. Louis Center boasts America's largest indoor shopping mall. A stroll through Laumeier Sculpture Park, one of the only two contemporary sculpture parks in the nation. Then there's historic Union Square of St. Louis. The National Museum of Transport has the largest collection of locomotives in the world. View the hands-on exhibits and new Star Theater at the St. Louis Science Center. The tour we are offering will be a combination of the old and the new. This is only part of what The Gateway to the West has to offer.

The Gateway to Excellence...This one word sums up years of dedication and experience so willingly passed on to the members of the Piano Technicians Guild by the "Professors of the Industry" -your instructors. By no means can we ignore the hours so freely given by the Executive Board, the Institute Directors and the committees to bring this Excellence to culmination.

The Gateway to Friendship...Family...Fun. The friends we make form a family, and who better to have fun with than your family. We try, by offering a variety of piano-related classes, informal gatherings and enjoyable programs, to strengthen this bond that will last a lifetime. Come join us..learn with us..laugh with us and take home another fun-filled page for your book of memories.

Ginger Bryant, President

Getting Along With Others Is An Art

Sooner or later a man, if he is wise, discovers that life is a mixture of good days and bad, victory and defeat, give and take. He learns that it does not pay to be too sensitive a soul; that he should let some things wash over his head like water off a duck's back. He learns that he who loses his temper usually loses out.

He learns that all men have burnt toast for breakfast now and then, and that he should not take the other fellow's grouch too seriously. He learns that carrying a chip on a shoulder is the easiest way to get into a fight. He learns that the quickest way to became unpopular is to carry tales and gossip about others.

He learns that buck-passing always turns out to be a boomerang, and that it never pays. He comes to realize that the business could run along perfectly well without him. He learns that it does not matter so much who gets the credit as long as the business benefits. He learns that even the janitor is human and that it does no harm to smile and say "Good Morning," even if it is raining.

He learns that most of the other fellows are as ambitious as he; they have brains as good or better and that hard work, not cleverness, is the secret of success. He learns not to worry when he loses an order, because experience has shown that if he always gives his best, his average will break pretty well. He learns that no man ever got to first base alone, and that it is only through cooperative effort that we move on to better things.

He learns that bosses are not monsters trying to get the last ounce of work out of him for the least amount of pay, but that they are generally pretty good fellows who have succeeded through hard work and who want to do the right thing. He learns that folks are not any harder to get along with in one place than another, and that the "getting along" depends about 98 percent on his own behavior.

Bert Sierota,
Recording Secretary

Impressive St. Louis Tour

The Auxiliary will depart from the Adams Mark Hotel at 9:00 A.M. enroute to the Missouri Botanical Garden. The drive will go through Lafayette Square, one of the most fashionable residential areas in St. Louis in the 1870s. Victorian-era homes surround the Park, which was the first West of the Mississippi.

Then on to the Missouri Botanical Garden where we board trams for a mobile tour of the beautiful and historic gardens. It was created by Henry Shaw in 1899 and is internationally recognized as one of the foremost botanical institutions in the world. Before being opened to

the public it was Mr. Shaw's country estate.

You will enjoy a variety of flowers and landscape including what many believe to be the finest Japanese Garden outside of Japan. *Seiwa-en* or, "garden of pure, clear harmony and peace," brings the beauty and serenity of the Orient to St. Louis. You will also see the Climatron, a geodesic domed greenhouse, the Desert House; the Mediterrean House and the Linnean House. (While there will be minimal walking, comfortable shoes are recommended as there may be some gravel).

We will then head back to the river by another scenic route to have lunch on the Lt. Robert E. Lee which is moored alongside the levee near the Arch. This floating restaurant is a faithful reproduction of the Mark Twain-era Mississippi sternwheeler and reflects the authentic riverboat charm, decor and ambiance of the 1880s. Following lunch you reboard the bus for a drive through Forest Park and a tour of this heavily wooded, lake-studded, 1,374 acre park. There also will be a stop in Forest Park at the Jefferson Memorial Museum. It will be well worth your time.

Before returning to the hotel a stop will be made at the "New Cathedral." Built in 1907, Pope Paul VI called it "the outstanding Cathedral of the Americas." This imposing edifice combines the best features of Byzantine and Romanesque architecture and boasts the finest collection of mosiacs in the Western Hemisphere. Some 9,000 different shades of color and approximately one hundred million pieces of stone and glass were used to complete the mosiacs which portray scenes from the old and the new testaments and events from the life of St. Louis IX King of France. You will arrive back at the hotel between 3:00 and 4:00 p.m.

The "old Cathedral of St. Louis" built many years earlier is just a short two-block walk from the Hotel and is also worth visiting. An effort was made to include those things on the tour that could not easily be reached otherwise.

Each bus will have a professional tour guide familiar with the rich traditions and culture of St. Louis. They will relate interesting commentary as they direct the bus driver on a route that will include as many points of interest as possible as we motor to the various attractions.

Ginger Bryant

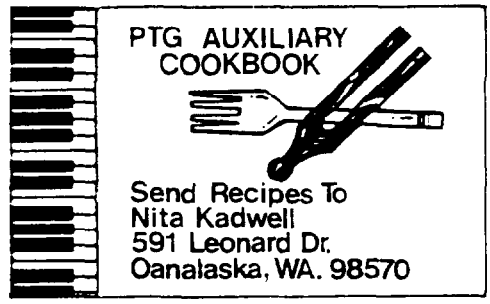
'Food, Glorious Food...'

Hello, Auxiliary Members, here I am again reminding you and asking for those recipes. At this writing I have received six recipes - and that's only a beginning. If we are to have "440" recipes.....the goal that Ginny Russell proposed in her Newsletter, everyone must participate and dig out those special and favorite recipes. Our cookbook fund-raising project welcomes and anticipates the culinary skills, artistry and innovation from Guild members as well. We are sure that our RTTs have talents not confined to the piano shop or work room. Instead of waiting until next week or next month, why not get out the recipe file now, and send me those you wish to share with us. Don't stop with just one – send as many as you like! Handwritten is fine if it is more convenient for you.

Of special interest to all of us and a wonderful contribution to the success of cookbooks are recipes from various ethnic groups represented in our organization such as French Canadian, Cajun, German, Spanish, Creole, Scandinavian, Jewish, Chinese and Japanese, to mention a few.

So let's all get busy. I look forward to seeing a stuffed mail box real soon.

Nita Kadwell, Cookbook Chairman



New Members

Nancy Strouss (Morris)
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Lima, OH 45805

Mary Thomason (David)
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Jacksonville, TX 75766

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Agnes Huether
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Piano Technicians Guild Foundation

The PianoTechnicians 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. More recently, the Foundation endowed a $500 annual scholarship for advanced piano study for a certified member of the Music Teachers National Association.

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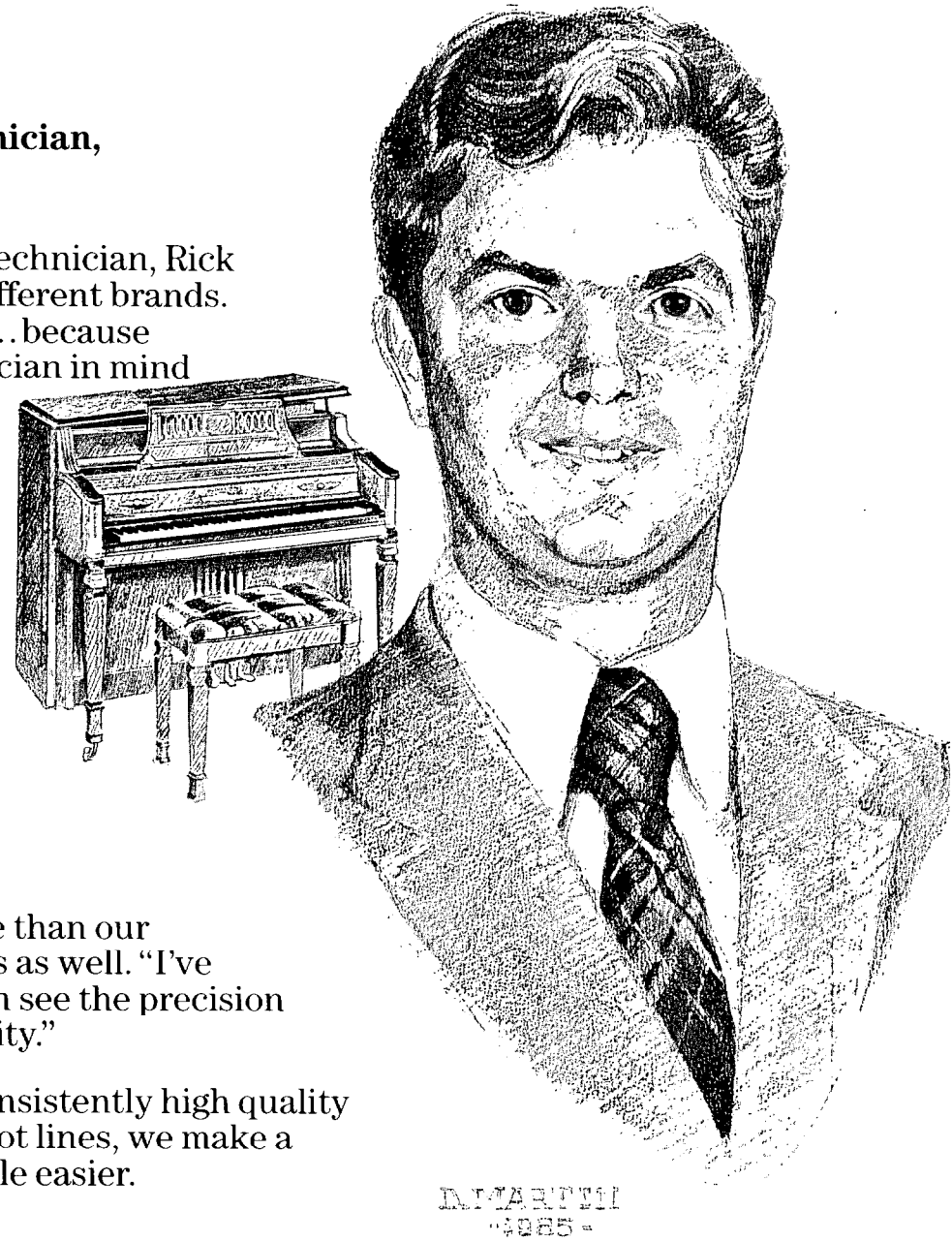

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