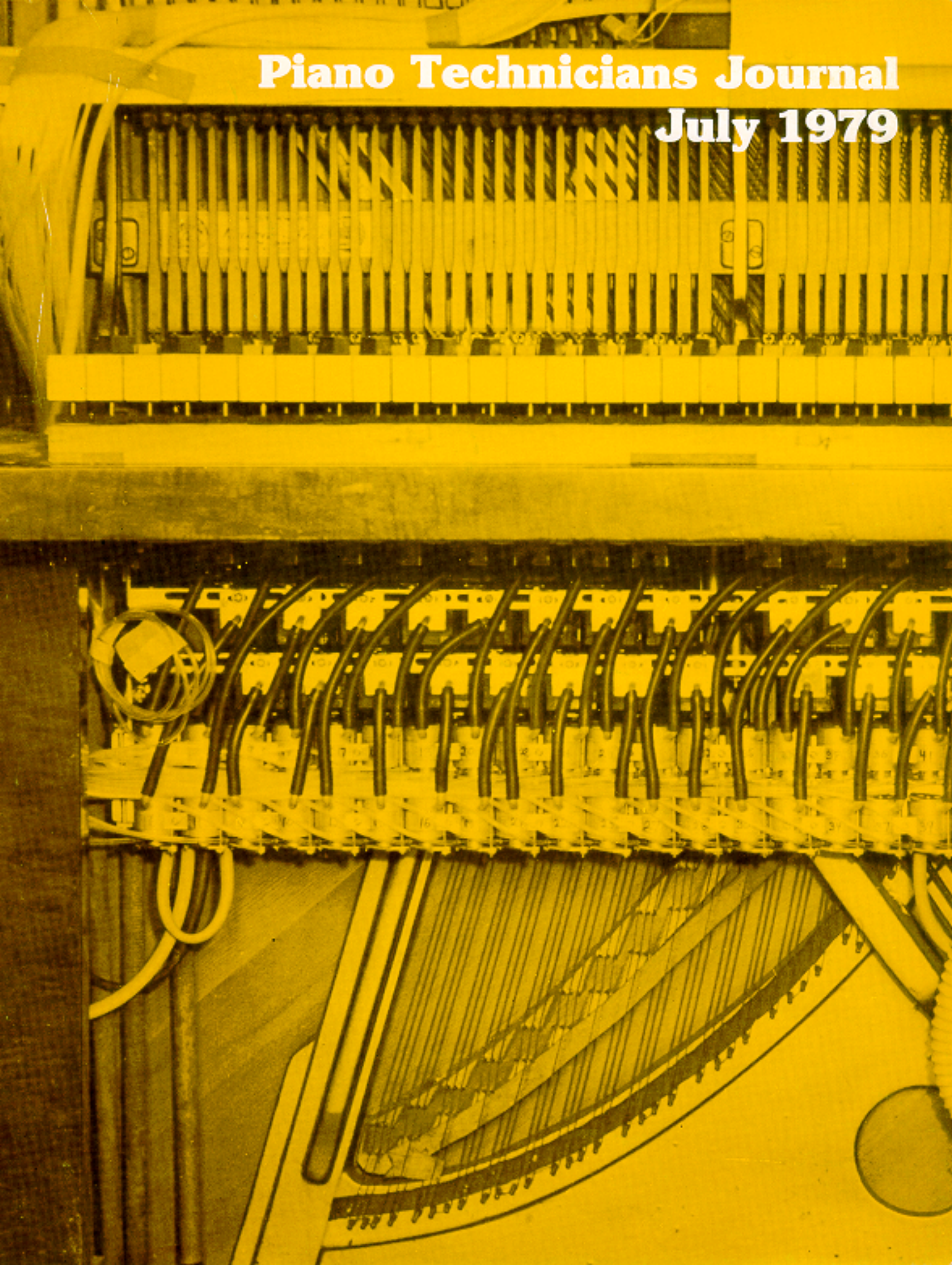
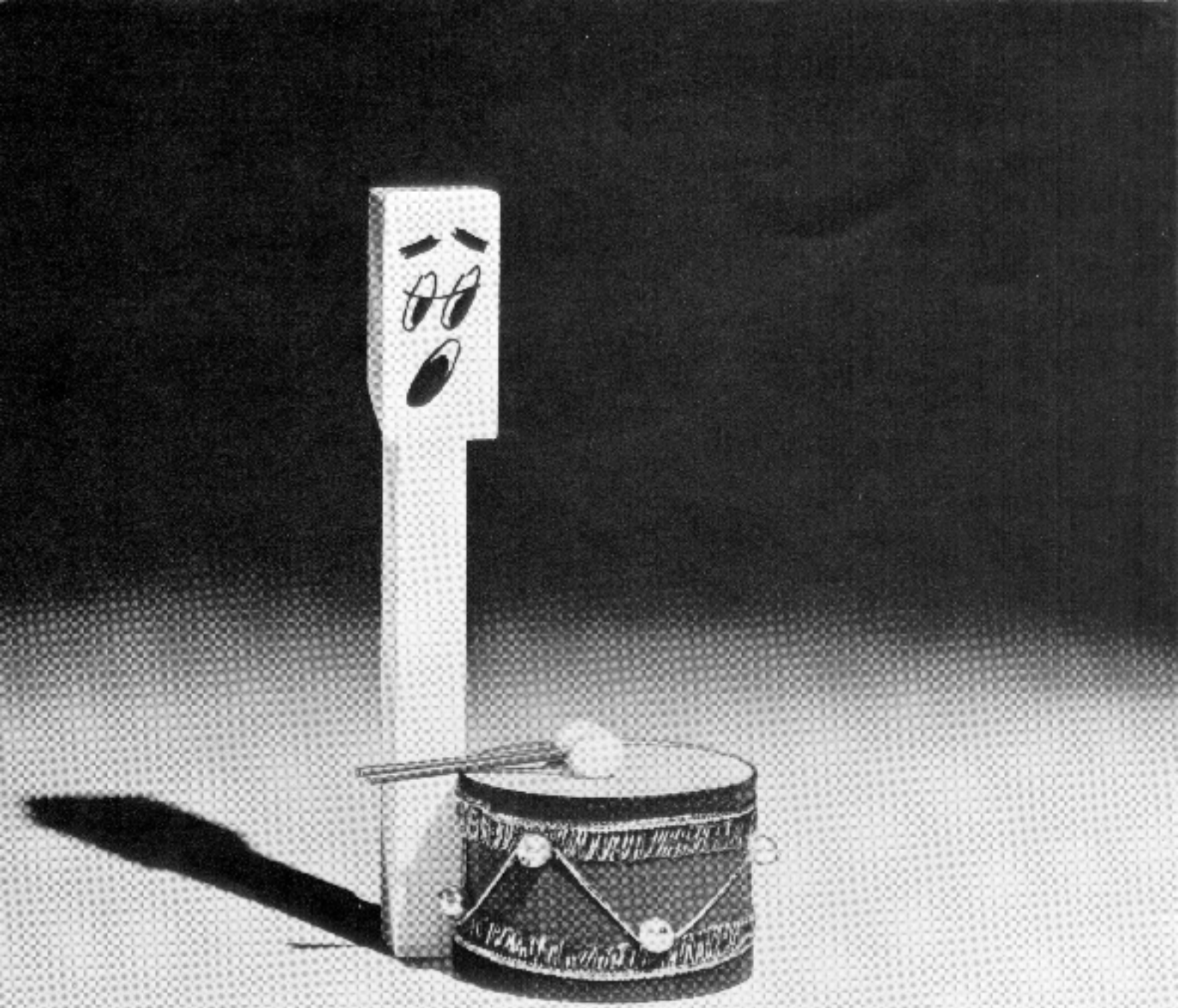
Piano Technicians Journal

July 1979





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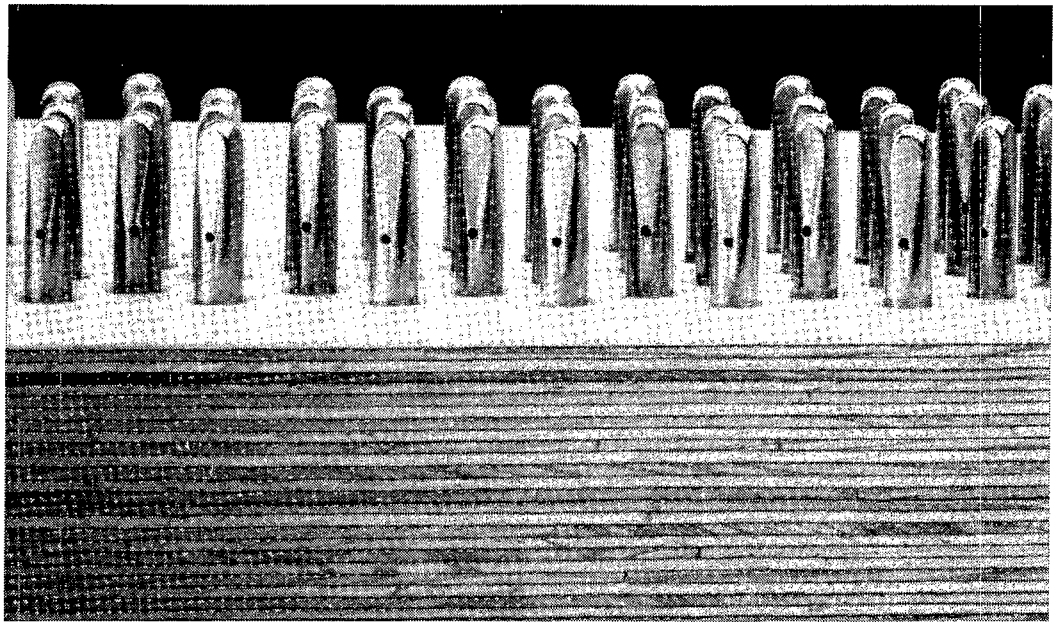

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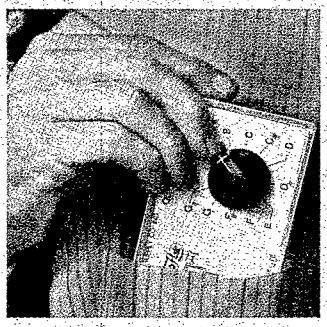

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Piano Technicians Journal

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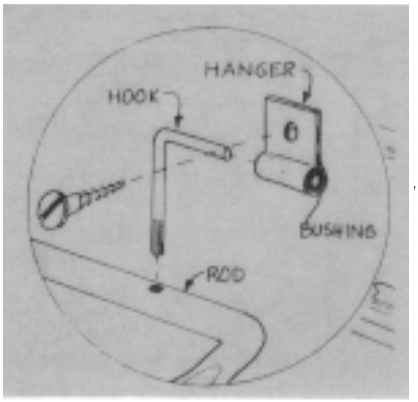

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EDITORIAL

James Thurber, in his "Fables for Our Time," published by Harper a few years back, took some liberties with an old German fable and reworded it for modern mentality. The story went something like this:

It seems there once lived a bear who could "take it" or "leave it alone." He would often go into a bear's bar and have just one drink, or two. Later, as the pressures of everyday bear life began to get to him, he began to drink all day. He would then reel home at night, kick over the umbrella stand, knock down the lamps, ram his elbows through the windows, and finally collapse on the floor in a drunken stupor. His wife would become very distressed and his children very frightened.

At length he saw the error of his ways and began to reform. In the end he became a famous teetotaler. He would go around telling everyone about the awful effects of drinking and boast about how strong and healthy he had become since giving up the stuff. To demonstrate his great health, he would turn cartwheels in the house, kicking over umbrella stands, knocking down lamps, and ramming his elbows through windows. Then he would collapse on the floor, tired from his vigorous demonstration, and promptly fall asleep. His wife would become very distressed and his children very frightened.

The moral of this story is, "You might just as well fall flat on your face as lean over too far backwards."

What does this little homily have to do with anything? Aside from the fact that it has always been one of my favorites, I suppose it could be applied to many organizations. There is a tendency for people in organizations to "overdo" or "underdo," depending on whose doing the "doing." Let me elaborate.

Let's say a group of leaders are trying to think of ways to keep their membership active, excited, and properly served. They might be wrestling with a problem, or simply trying to get a favorite project off the ground. As several internal/external situations arise during their discussion, an interesting procedure begins to take place which can determine the outcome of their discussion. Some considerations could be: (1) how much money is available and/or involved; (2) who is presenting the idea, and how; (3) what is the "crisis" or "concern" of the day; (4) how much work is involved and how many people will it take to accomplish it; and (5) who is available, willing, and able to perform the work.

As pointed out in previous editorials, organizations are not run by the majority; they are run by the vocal minority. Because the vocal minority represents so few members, it is possible for a person to enter the scene who is relatively new to the group — perhaps even unknown — and, through the skillful manipulation and use of just the right words, drastically affect your organization's pattern of progress.

They have developed techniques through the use of "in" words, popular current ideas, and scare tactics to swing a number of people over to their viewpoint rapidly and effectively. In no time at all, motions are made and passed, authority surrendered, and the vocal minority is in the driver's seat. Very often the organization doesn't know what hit them. Wise old heads who have been members for years sit there is disbelief. But, rather than stir up a hornets' nest, they take the "wait and see" position.

Now, there is nothing wrong with fresh, progressive ideas and stimulating courses of action. If the motivation behind them is proper and correct, they can do wonders for organizations. The trouble is, if the action underway is surreptitiously designed to satisfy egos or achieve selfish ends, it can be a disaster.

If your organization is going downhill, then drastic action may be called for. On the other hand, if your organization is successfully doing what it wants to accomplish, look at every drastic change and the motivation behind it — then proceed carefully. Organizations can get *too* busy and burn out members, or they can stop doing anything at all and disintegrate in inactivity. A balance between the two is essential to success.

I have seen organizations become embroiled in gigantic controversies, with members scrambling around building up huge defenses and counter-attacks on problems that either don't exist, are essentially unimportant, or are not broad enough in impact to warrant time and effort. A vocal member may decide that he has a gripe, either real or imagined, and start to make a big fuss about it. The problem may be unique to him, his particular hang-up, or sensitivity.

A leader may then carry out the democratic process to ridiculous extremes, unnecessarily involving others when it could be handled quietly, personally, and forgotten. Instead, valuable time is wasted and hurt feelings result. A good leader must be able to act swiftly and boldly in accordance with his or her conscience and good judgment; this is why he or she was elected to the position of leadership. A good leader must not be overly concerned with the nitpickers and yet concerned by the justified and legitimate complaints. Here is where "going too far" in one direction or the other becomes very easy to do.

The surest way to failure is trying to satisfy everybody. We all know this is impossible and can be carried to extremes. On the other hand, a leader may completely ignore the wishes and concerns of his membership, winding up with an extremely unhappy group of people who will ultimately resist everything he proposes — creating a string of failures. Both courses of action are bad and tend to be debilitating.

In dealing with the very complicated antitrust laws now on the books,

it is easy to panic and take unnecessary and drastic action. It is the responsibility of a strong leader to keep things on a rational and temperate track. When government agencies question your operation, they must be dealt with honestly, openly, and forthrightly. Organizations should not try to avoid, ignore, or resist government action. Questions must be put to rest. This isn't the time to fold up your chapter and go home, nor is it the time to spread alarm and scurry for cover. The chances are that, if a mistake has been made, it has been made in all innocence, and will be resolved in time.

When an organization is faced with a financial crunch — like everyone else these days — there are only three options open: (1) increase income, (2) decrease expense, or (3) a little of both. **What organizations should not do is get rid of the essentials — or "throw the baby out with the bath water."** They should continue to have meetings and good programs, recruit more members (regular and associate), and cut the "fat" out of their budget, leaning a little harder on volunteers. **The organization should not eliminate the very things that make it possible to keep current members and attract new ones.**

When you find yourself faced with a dissident member who is making life miserable for everyone — taking up valuable meeting time with a real or imagined complaint — don't just give up and let him rant and rave. Don't let his nauseating behavior destroy or jeopardize your organization. Send him and his problem into committee until it can be put into proper perspective. Perhaps time will solve the problem.

Running an organization in a democratic way is an extremely difficult thing to do. Look at the constant attempts to get committees to function. Membership is scattered widely and people are extremely busy with their own pursuits. They do not always have secretarial help when they need it, and find it diffiult to communicate with other busy people, particularly with time zone problems and the need to be out working on a daily basis. Some of our most effective committee work is done by the chairman alone or one active member. Democratic action is slow, inefficient, and confusing — and sometimes painfully ineffective. The democratic process is a fragile and sensitive entity, and it can get out of hand. Again, a temperate, balanced, and fair mode of operation is best.

An interesting observation: Ancient Greece was purported to have reached an apex in terms of a highly developed civilization. They were the first government who used slaves to relieve their citizens so they might have more time to enter into the study of and lengthy discussions on the beauties of a democracy. — DLS

DON MORTON

PRESIDENT'S REPORT

Winston Churchill was once asked by a reporter what he considered the most profound statement he had heard or read. Without a moment's hesitation, Mr. Churchill replied, "And this, too, shall pass away." And so it is with my term as president of the Piano Technicians Guild. This will probably be the last time I shall write this column as your president, as our new president will be elected in July. Undoubtedly, he will continue to write this column in an effort to keep our members informed of the Guild's progress and/or procedures.

I can truthfully say that it has been a privilege to serve the Guild in this high office for the past two years. The cooperative efforts of the committees, delegates, and board members have combined to give stability and prestige to our fine organization. I extend my sincere "thanks" to all of you who have contributed so unselfishly in the stabilization and growth of PTG. I am especially grateful to those who trusted PTG's leaders and supported the changes that proved necessary in the early months of 1977.

To "keep the records straight," I must point out that any success in the stabilization and growth of PTG was accomplished by the great team effort of the Board of Directors and the home office staff — this team includes those who are no longer on the board or with the home office staff but who were very much in the line of fire during our reorganization.

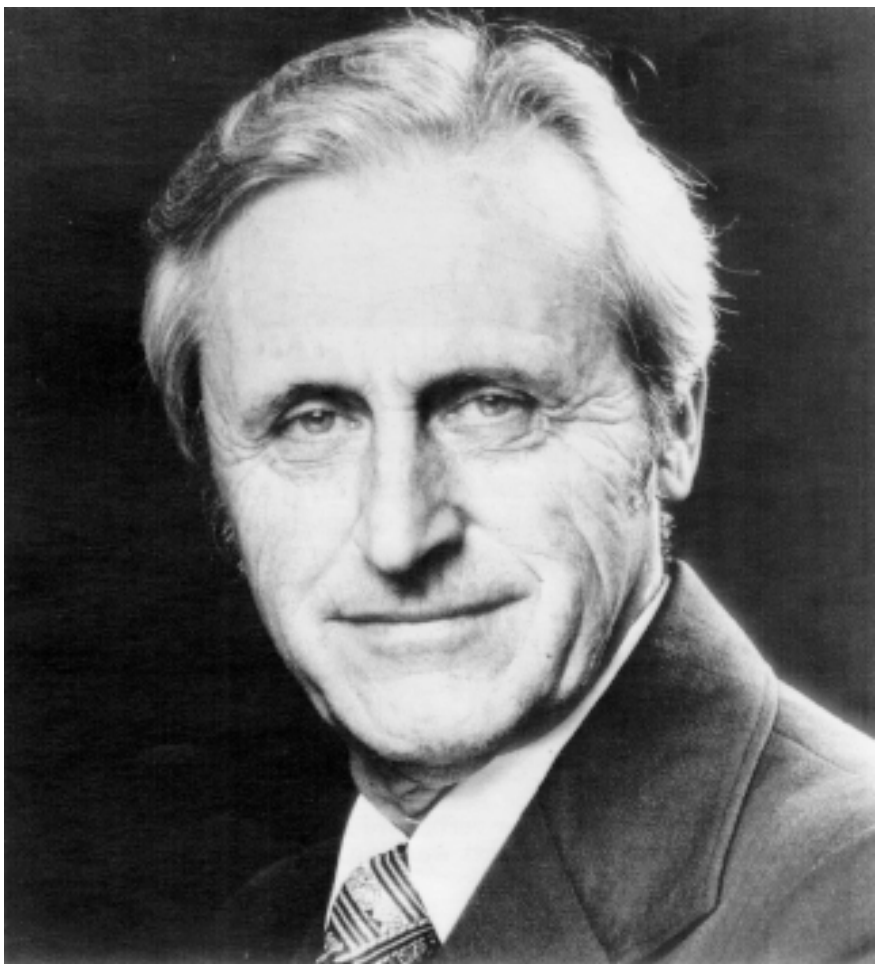
Now, as we look forward to greater growth and development, let us profit by past experiences and resolve not to become mired in half-truths and broken communications. A little trust and respect are great bulwarks against misunderstanding. Within our organization is a photofield of diversified talent. Engineers, teachers, and scientists are within our 3000-plus membership. Likewise, we are gaining many young people who possess excellent leadership potential. All members must be given the opportunity to develop their special talent and assume their rightful responsibility.

One of the best places to develop talent is at our international convention. Each year some 800 to 1000-plus get together to search out better ways of solving problems, including how to operate our organization on a more meaningful level. Conventions are great builder-uppers; they rattle your horizons and pull you out of environmental traps.

Before heading to Minneapolis, however, some 35 PTG'ers (including my wife and myself) are going to Europe and the British Isles, touring more than a half dozen piano and organ factories (including action, wire, and felt manufacturers). This trip is a follow-up on our effort to organize worldwide fellowship of piano craftsmen. Most of you remember the Japanese tour last year by some 25 PTG members. This was very successful and resulted in establishing a fine relationship between the two groups.

It is our plan to take as many pictures and tape as many recordings as permissible in an effort to share the trip's highlights with you through the pages of the JOURNAL.

See you in Minneapolis. ■



GEORGE S. PETERS

Suggestions for Reregulating the Vertical Action

I believe an often overlooked feature of a piano is the "settling in" process. This occurs in each and every piano and creates distortion of tone and touch. The pianist blames the piano (or worse yet, the tuning), when actually it's a condition caused by maintenance neglect. This article deals with the vertical piano, the bread-and-butter of our profession.

The approximately 8000 moving parts are mathematically integrated and there is a built-in tolerance for a limited departure from these ratios. A detectable excess in these tolerances should result in the following suggested remedial steps.

Note: *Manufacturers' specifications vary, so please refer to PTG's* Piano Action Handbook *or manufacturers' respective service manuals.*

1. **Keyboard and Keyframe Felt** — Check the keyboard and keyframe felt for excessive wear or damage; replace where necessary. Check all keys for free movement at front and center rail pins. When keys are raised slightly (say 1/4 inch) and then released, they should fall back to normal position instantly. If they do not, they will need easing or possibly reaming at the center pin hole. Use your easing pliers with discretion. If the keys are too sloppy, rebush and possibly size center pin hole.

2. **Check Action Pinning** — Depress soft pedal and release abruptly. The hammers will fall back with the hammer rail if the butt centers are free. Check whippen center pins by depressing the sustaining pedal, holding the damper levers away from the spoons and alleviating any spring tension on the whippens. Depress each key all the way and release slowly. If key hangs up or returns slowly, the whippen or jack is the culprit. If it is necessary to correct sluggishness, try a lubricant first at the birdseye to ascertain it's not a problem of friction. If this does not do it, then try a shrinking solution. I like three parts alcohol to one part water (pure alcohol). If it's still reluctant, cut your solution to one and one. The water is the shrinking agent, alcohol the carrier. Finally, as a last resort, repin or replace the offending flange.

3. **Remove and Inspect Action** — Tighten all screws. Agitate damper lift rod for squeaks at the lift swings; check damper return springs for squeaks at the grooves. Lubricate where necessary. Replace any broken bridle straps. Adjust and tighten regulating rail so that the jack heel centers with the regulating button. Check hammers for string cuts; file if excessive. Check for loose heads. Check for any damage such as split shanks, flanges, etc.

4. **Replace Action** — Space hammers and strings; align hammers to strings. Set blow distance by adjusting hammer rail height, by use of felt spacers at action brackets. Refer to service manual for specifications.

5. **Regulate Capstans (stickers on a drop action)** — Eliminate lost motion between keys and action. Adjust capstans to "just a wink" between jack and hammer butt, to ensure easy return to position under butt after key is released. This facilitates fast repetition.

6. **Let-off Hammers** — Refer to your service manual for specifications; some manufacturers say 1/16 inch. I like added insurance (due to fluctuation in humidity), so I set it at 1/8 inch. This is set by adjusting the let-off screw at the regulating rail. Ideal response is letting off close enough to the string for fast repetition, yet not blocking the string — but not too soon or it will miss striking on a light blow.

7. **Key Height and Leveling** — Again, consult your manual on this specification because the manufacturers don't agree on the distance or the measurement points. Hypothetically, let's say from the keybed to the top of the key covering is 2-3/8 inches. Set your two end keys at this height as guides. Lay a key-level straightedge on top of the keys from end to end and build up any keys that are low by placing shims under the balance rail. Leveling can be adjusted by placing (or removing) punchings on the balance rail pins of the individual keys. Check with a straightedge (or the Davis key leveler, a personal preference). Level sharps in the same manner except set your guides so that the flat surface just in back of the cap is slightly lower than the adjacent natural surface. Squaring can be done by tapping the top of the center rail pin; space them by using your key spacing tool at the front rail pin.

8. **Key Dip** — Set guides at the end of the bass, middle, and treble sections to manufacturer's specifications. Set the rest of the keys by adding cardboard shims under the front rail.

9. **Back-checks** — Set guides at the end of each section to the manufacturer's recommended hammer check-off distance, and set the rest of the back-checks by bending them in or out to form a straight line.

10. **Laying Touch** — Striking more than one key at the same time with an even blow, proceed down the keyboard, comparing check-off distance as you go to determine if it stays the same from key to key. If your previous regulatory steps are correct, the only change necessary to correct irregularities of check-off will be in the key dip. This key dip must include built-in aftertouch for insurance. (Aftertouch is additional movement of the key after jack escapement from underneath the hammer butt.) Corrections are made at the front rail pin by

adding or removing punchings. I use a dip block in this adjustment.

11. **Damper Adjustment** — The damper should start letting off when the hammer is halfway to the string. Maladjustment here can be serious. If the damper lifts too soon, it causes the touch to feel heavy; when at rest, it probably is not dampening the string. Of course, if the damper is not leaving the string soon enough, it likely is not clearing the string sufficiently. Corrections here are made at the spoon, bending it in or out as required. You must be certain that the damper felt is squared with the string. This adjustment is made by bending the damper wire. There must be coordination so that dampers will lift evenly. One way to do this is to remove the action from the piano and "gang block" the damper assembly; adjust while evenly suspended. It is a good idea at this point to voice your dampers; listen for zings or buzzing when in contact with the vibrating string. This is usually the symptom of hardened damper felt and can be corrected either by needling, skinning, or filing the layer of felt next to the string. If these steps fail to correct it, replace the felt.

12. **Adjust the Trapwork** — Adjust the full and bass sustaining to include lost motion. I like approximately 1/4 inch. This ensures that the damper lift rod will not hold the dampers off the strings while in the rest position. It also compensates for the foot of the pianist resting on the pedal. This adjustment can be verified by depressing the string just above the damper; the damper should follow the string at least 1/16 inch. The soft pedal should be adjusted so that the forward motion of the hammer rail will halt the hammer line about halfway to the strings. There should be no lost motion in the soft pedal.

13. **Adjust the Bridle Straps** — The bridle straps should be adjusted so that the straps will be tight, just short of lifting the whippens when the soft pedal is fully depressed. At this point the hammers should be halfway to the strings.

14. **Now, go back and double-check everything.** ■

PTG Logo And Its Use

It has come to our attention that the official PTG logo and emblem are being used by people who are not craftsmen members of PTG.

It is extremely important to know that this emblem is officially registered and is the protected trademark of the Piano Technicians Guild, Inc.

It cannot be used by any individual or firm unless they are fully qualified and accredited by this guild through proper competence testing procedures. Any illegal use of this emblem should be reported to the home office immediately for proper action.

JACK KREFTING, TECHNICAL EDITOR

THE TUNER-TECHNICIANS FORUM

To all of you who have written with kind words for our efforts here, we say a heartfelt "Thank you!" Our expanded technical coverage in recent months has generated many positive reader responses, for which we are humbly grateful. It has also generated the optimistic assumption that such coverage will automatically continue and even increase. Not so, I'm afraid, unless more of you start contributing technical material for publication.

A periodical is not like a book. When a book is finished, no more writing is required; a periodical is never finished. When one issue is finally filled, there is always the next one to fill, and then the next one, and so on. Sometimes I feel like the man who bought a baby elephant for a pet — it sure is cute but it's always hungry, and the bigger it gets the more it eats.

I want to present a feature-length technical article every month in addition to the "Forum" and the regular technical columns. It's unrealistic to expect our regular technical writers to write feature articles in addition to their regular columns and, anyway, I'm sure there is a lot of untapped talent among our readership. If you know of someone who is qualified but reticent, please pass that person's name on to me. Thanks!

NOSEBOLT ADJUSTMENT

Now and then we hear someone refer to nosebolts as "plate bearing screws." To me, this nomenclature is a dead giveaway that the speaker will soon indicate that downbearing can or should be regulated by the process of turning these bolts up or down. I recognize the fact that there is some disagreement among technicians as to the designed function of these bolts, but I also feel obliged to state the facts as I see them.

In my opinion, nosebolts should not be considered as dynamic regulators, but rather as static supporting members. Their function is to stiffen the plate, not to bend it. If the bearing must be altered, it should be done by changing the height of the entire plate rather than by forcing a distortion of one part of the plate. Cast iron is an excellent material for piano plates because of its strength under compression but, when placed under tension, it is not very reliable. Figure 1 shows what happens to a plate strut when a nosebolt is turned down. As you can see, the upper portion of the strut is compressed and the lower part is stretched. Because of the iron's weakness under tension, this strut is liable to crack at the bottom.

Sometime ago, the Baldwin Company decided to run a few experiments to determine whether nosebolts were really necessary. One of the experiments involved the loosening of a nosebolt nut on a grand piano when the strings were up to pitch. They found that, as the nut was unscrewed, the plate strut kept bending upward, following the nut. Had they removed the nut completely, the plate would undoubtedly have broken.

It seems inevitable that this discussion must lead to some basic principles of downbearing; but before we get into that I want to quote a passage from PTG's nomenclature book, *Piano Parts and Their Functions*. Here is a portion of what Merle H. Mason has to say about nosebolts:

. . . The factory setting of this bolt normally should never be disturbed except when resetting the plate, at which time careful adjustment must be made from underneath the piano, usually with light and mirror, to obtain firm but nonpressured contact between the shoulder of the bolt and the plate. Tightening of the nut on the upper side then holds the plate firm, resisting the upward tendency created by the string tension.

DOWNBEARING

There is a tendency among technicians to confuse the terms *crown* and *bearing*, and sometimes they are even used synonymously. One published work, written by a highly esteemed technician, actually stated that the technician could lower the plate in order to "raise the crown." That

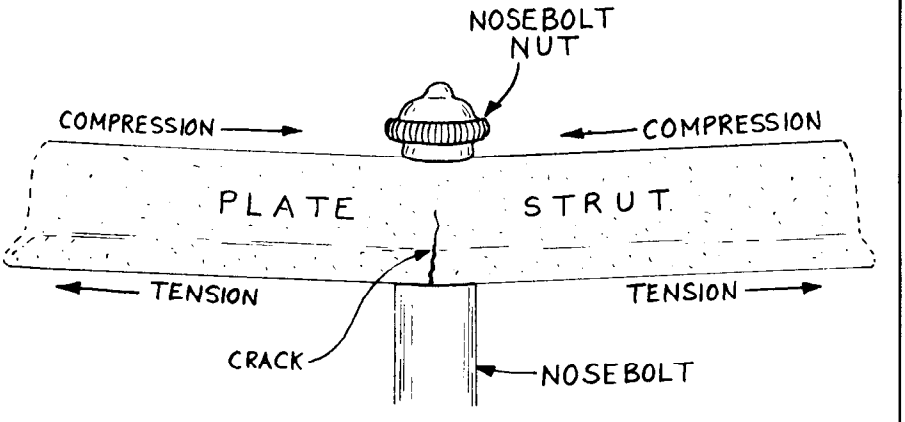


FIGURE 1.

statement is not merely questionable or subject to interpretation; it is just plain wrong.

Crown is, quite simply, the upward curvature or convexity of the soundboard. If it exists at all, it will exist whether or not the plate is even in the piano. The position of the plate has nothing to do with it.

Bearing is the term we use to describe the downward pressure of the strings, exerted on the bridge and soundboard. Since the string tension is a known factor, the amount of bearing can be measured by the angle of the string as it crosses the bridge.

The relationship between the two terms can be stated this way: **Bearing increases with crown, but crown does not increase with bearing.** When the crown is increased, the bridge becomes higher in relation to the plate; therefore, the string angle (bearing) is automatically increased. On the other hand, when the plate is lowered the bearing will naturally be increased because the plate will be holding both ends of the string at a lower point. The bridge didn't move, so it is actually higher in relation to the plate; thus, the string angle or bearing has increased. But what happend to the crown? It most certainly could not have increased; if anything, it flattened a bit more because of the added downpressure on the bridge. So we can then say without fear of contradiction that lowering the plate will **always** increase the downbearing, but will **never** increase the crown.

Whenever I talk about downbearing, I like to make a distinction between front and back bearing. The angle from the top of the bridge to the speaking length is what I call *front bearing*; the angle from the top of the bridge to the aliquot or waste end segment is what I call *back bearing* (see Figure 2). The total included angle of both front- and back-bearing angles is what we call downbearing.

I make this distinction because I believe that there are instances where one or the other, or both, should be altered when rebuilding a piano. Manufacturers of high-quality pianos usually plane their bridges so

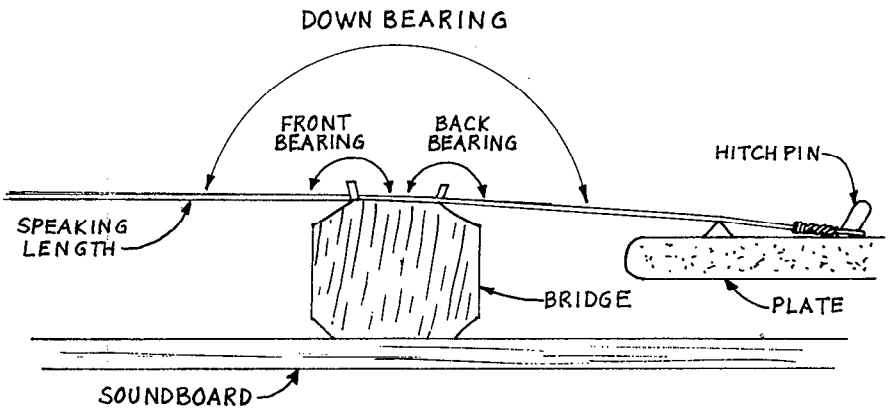


FIGURE 2

that the speaking length side is slightly higher than the aliquot side, and with good reason. The bridge pin on the speaking length side is the terminus of the scale, and the downbearing at that point must be sufficient to prevent the string from shifting in any direction. The same amount of bearing on the aliquot side would be excessive, having a tendency to bind the board down and inhibit its diaphragmatic action. I like to see about twice as much front bearing as back bearing, throughout the scale.

To increase bearing on both sides of the bridge, lower the plate. To increase back bearing only, grind down the string rest; to increase front bearing only, lower the plate and shim up the string rest.

Lowering the plate is accomplished by evenly lowering all plate supports, including the pinblock. The tension must be completely removed, and in nearly all cases the plate must be removed from the piano; so this job is strictly in the major rebuilding category, not something to be done in the customer's home while performing routine maintenance or tuning.

HUMIDITY CONTROL

Question: *. . . I have a question on something that you don't hear very much about anymore. Placing jars, pans, etc., of water in the trap area of vertical pianos. For three years I've tried this, but I can't really say I've found any concrete results. If unspilled, I would say it does no harm, perhaps* **some** *good in extremely dry pianos and it's cheaper than a humidifier. I am convinced that room humidifiers help since they blow the moisture right into the air. But is the water bottle worth the effort?* — Joseph Meehan, Gardiner, Maine.

Answer: Yes, it is. It lacks the sophistication of a regular humidifier, and certainly is less efficient; but you will notice that the water level has to be refilled frequently during the dry season, which proves that the water in the jar is evaporating. The moisture is drawn into the air in the piano, and that has to have some favorable effect. At least it is better than nothing.

If a piano is kept in a controlled environment, preferably around 40- to 45-percent ambient humidity all year, it will hold its tuning better and last longer than an instrument in an uncontrolled environment. Every piece of wood in the piano, regardless of varnishes, lacquers, or other finishes, expands across the grain whenever humidity is increased and contracts when humidity is reduced. Keys and actions can become very sluggish in the summertime, and loose in winter. Soundboards and pinblocks can actually be destroyed by wide variations in humidity, because they are stressed by unyielding metal parts (strings and tuning pins). Excessive expansion against any immovable object will cause some of the individual wood cells to be crushed. That part of the wood becomes dead and pulpy as a result, and loses its natural elasticity. When the next dry season rolls around, the wood will crack at the point of

the crushed wood cells. This wood cannot be revived; it must be replaced.

Let's take a look at some of the preventive measures that can be taken by the piano owner. Here are some of the available options:

1. Humidifier/dehumidifer installed on furnace, to control the humidity in the entire house — This type of system not only protects the piano, but also original oil paintings and fine wooden furniture. It is also helpful for people with certain respiratory problems. It is also the most expensive of the options we are discussing.

2. Portable room humidifier, with dehumidifer installed in piano — This system can be effective, but requires some human monitoring. In order to really control the environment of that room, the owner should have a hygrometer on the wall, preferably near the piano. The humidifier should be placed far enough from the piano that the droplets do not settle in, or on, the instrument.

3. Climate control system installed in the piano — An electronic sensor automatically switches the system from humidification to dehumidification whenever required. This is a very fine system for protecting the piano, and requires only that the owner keep the unit plugged in and filled with water.

4. Light bulb/water jar system — This is the cheapest of all, but requires the most monitoring and is not very efficient. Commonly used before the advent of more sophisticated humidity control systems, it has fallen into disfavor largely because owners forget to switch from one to the other or simply can't be bothered with constant checking to be sure the bulb hasn't burned out or the water jar hasn't gone dry. If this system is used, a glass or plastic container is best; a coffee can has soldered seams which will quickly rust out and leak.

Walt Thatcher, frequent correspondent from Creve Coeur, Missouri, has some ideas on this subject also:

. . . About ten years ago I went to service a 45-inch good-quality vertical, less than one year old. It was in an upstairs apartment and dry as an old bone. I ordered the owner to place two pails of water behind the piano next to the wall, and keep them filled. About six months later the box was tight and could be tuned. In 1963, a studio piano in a college was so dry everything rattled. I wheeled it outside to a covered patio and left it for two days during a rainstorm. That music box tightened up without a whimper. . . .

BIRDCAGE PIANOS

John Wiley, a registered technician in Courtenay, British Columbia (Canada), writes:

. . . I would be pleased to receive any information or sources on the subject of overdamper or "birdcage" action upright cottage pianos that you can offer. Apparently due to their low cost, many of these "pianos" have been appearing in my area. My own impression has been that they are low quality and that parts are not available. While many have attractive cabinets, most are in poor condition as instruments. . . .

Yes, they are visually attractive. Many cottage pianos have intricate music racks that uhfold at the touch of a finger, and some even have built-in candleholders. All in all, they are just too cute to resist. I can't stand them.

Birdcage pianos, in this technician's biased view, belong in the exotic furniture class along with square pianos and other oddities so dear to the hearts of interior decorators. As musical instruments, they fall so far short of even reasonable expectations that I simply refuse to work on them, period.

These pianos have two basic design flaws: a bad scale and a very inefficient damper system. The most strikingly primitive feature of the scaling is the fact that they are not overstrung. At least, every birdcage I have seen had all strings on one bridge, and all strings were running straight up and down. This causes not only a radically foreshortened scale with all its attendant tuning problems, but also crowds too many bridge pins into too small an area — especially in the middle. Bridge problems are inevitable in this design.

The damper system causes the most headaches for the tuner, though. With the rail mounted above the hammers, getting a strip mute in place is just about impossible. The tuner must either mute below the keybed and use a short tuning tip to clear the damper rail or remove the damper rail entirely and tune without dampers. In either case it can be a real hassle.

William Braid White once remarked that the upright piano has an inherent advantage over the grand, in that the pinblock of the former can be solidly glued into the framing of the instrument, while that of the latter must be suspended over the action, supported mainly by the plate and the rim at the very ends. His point is well taken, but I submit that any advantage in that area is more than offset by the fact that the dampers in a grand can damp the strike-point node, while those of a vertical cannot. Since the dampers are on the same side of the strings as the hammers, they must necessarily be placed above or below the strike point.

Given this choice, the dampers are more efficient if placed below the hammers; in the birdcage, they are above. Dampers can be helped by springs or weights, and springs tend to work best because they cause the damper to follow the string more closely than bouncing inertia-laden weights. Modern verticals use springs, but the birdcage relies on weights.

The thickness of felt used is far more critical in a birdcage than in a conventional vertical, as I found to my sorrow on one occasion. The fulcrum is so close to the felt in the birdcage action (see Figure 3), as compared to the conventional action, that regulation becomes difficult. For the top of the felt to clear the strings, the bottom must move quite a distance, yet the entire felt surface must make contact when the damper arm is as nearly horizontal as possible; otherwise the damper won't do its job.

Parts availability is a real problem. Some parts could possibly be adapted, but that takes time and time costs money. Suppose you want to install

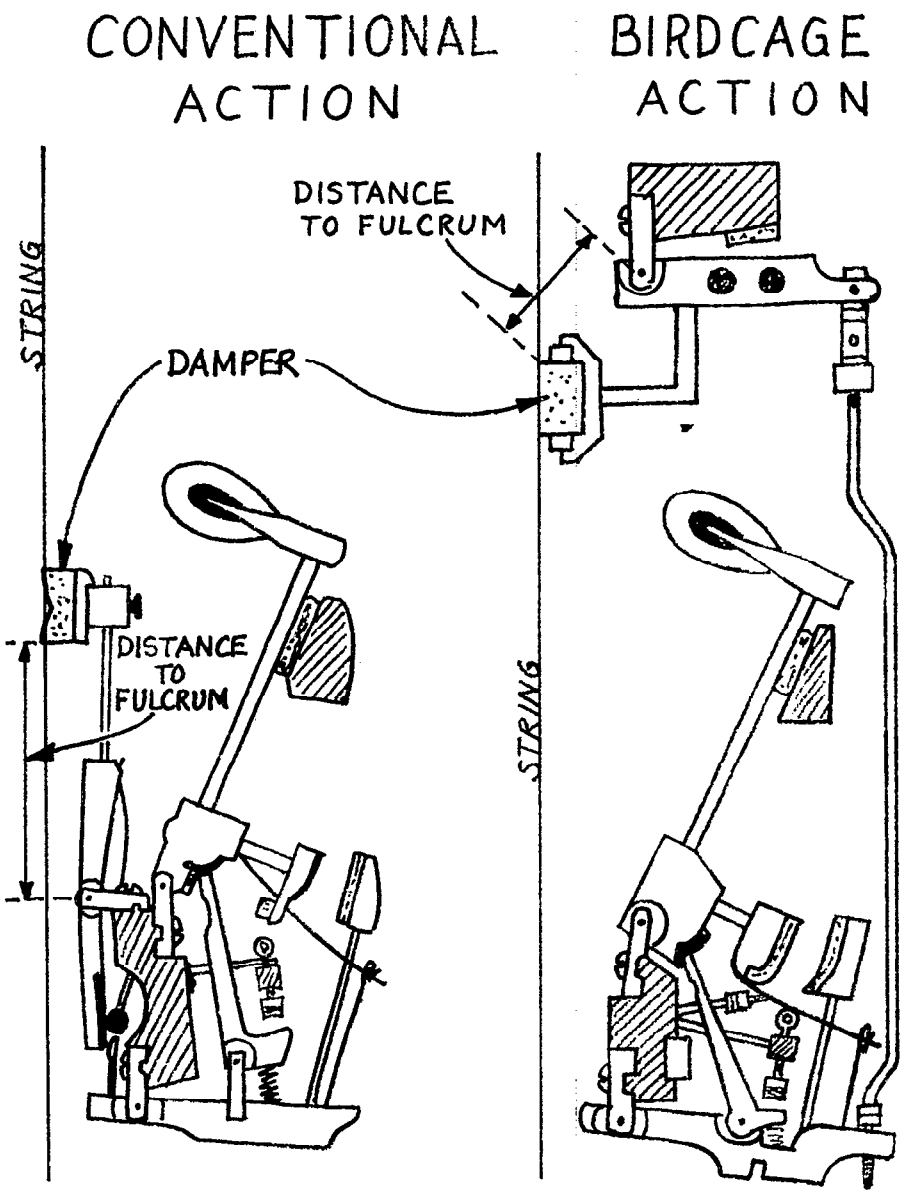


FIGURE 3

a new set of hammers, for instance. An ordinary set won't work because the moldings will be shorter in the bass to allow for overstringing; so, even if the technician has a jig set up to bore the hammers on a straight line, he still must solve the problem of the short molding length. Standard hammershanks could doubtless be used, and maybe even bridle tapes and regulating screws, but precious little else.

Last summer at the convention in Cincinnati, someone stopped me in the hallway to ask about the feasibility of replacing a birdcage action with one of modern design. "Could it be done," he wanted to know, "if cost were no object?" Well, yes it can be done, but the cost would be considerable. Any reputable action manufacturer could do it if given a scale stick and other critical dimensions, but the first one of anything is going to be far more expensive than the ten thousandth. There would be a lot of work involved in fitting the action to the piano, too, because the birdcage uses wooden action brackets. Even if such a replacement action were available, you couldn't just set it in, tighten four thumbnuts, and tune it.

Servicing a birdcage usually involves a certain amount of patchwork and questionable on-the-spot repair work, rather than the kind of work that involves an established procedure and a written guarantee. If the technician charges for what his time is really worth, he might feel a twinge of conscience because the fee isn't justified by the results; on the other hand, if he sets his fee on the basis of the results, he could starve working on a birdcage.

MORE ON SOUNDBOARDS

Our friend Walt Thatcher has more interesting thoughts to share with us, which I will intersperse with some comments of my own.

. . . Referring to John Bloch's panel discussion in April on "Can a Soundboard be Recrowned?," this humble person agrees with the learned views that a flattened soundboard is kaput — if it is hanging from the bridges and emotes a death rattle, replace it. On the other hand, I seem to recall that somebody at Baldwin took measurements and determined that a board needs little or no crown to perform satisfactorily. I assumed that to mean that it is not necessary to measure the crown down to the nth degree. Yes, any old board.

Well, **almost** any old board. I believe Baldwin's position on this was that **any measurable amount** of crown at all is usually sufficient. But you must have some crown; otherwise the downpressure of the strings will cause the board to belly downward in a concave shape. This is what is known as negative crown. Pianos have been built with a negative crown but, in order for this to work, the piano must have been designed that way. If an instrument were designed for a positive crown, it will not perform when bellied downward because the bridges won't be high enough in the middle to reach the strings. Lowering the plate radically in such an instance will not work, because the downbearing at the ends of the bridges would become extreme before ade-

quate bearing could be achieved in the middle. Now, back to Thatcher.

. . . Taking another splinter from the board is the abysmal ignorance of so many people in our profession concerning cracks. Have you counted the number of customers who told you that a previous tuner stated that the soundboard was cracked and therefore ruined? Naturally you (all of you) learned people examined the board, and in 9 out of 10 cases replied, "Tut, tut, the board is fine." I recollect 143 instances. Multiply that by 10,000 and Braid White must be plumb tuckered out turning over in his grave.

I guess we've all heard that kind of statement. I have always assumed that in many cases the customer was confusing the *board* with the *block* — a cracked block is indeed ruined; but I too have heard of tuners expressing alarm at a harmless hairline crack in the soundboard. That crack is often the least of the piano's problems.

Thatcher continues.

. . . Splinter number three is the subject of automatically replacing soundboards as part of a rebuilding or overhauling program. That's like going to the hospital for one of those three-day checkups and maulings. The doctor says, "We automatically replace all your teeth with new ones just to prevent cavities." My 1890 Steinway was overhauled in 1970. If I had automatically replaced the soundboard I would have risked losing that sweet singing quality, which it maintains to this day. If the artists are complaining about the new wood, an owner would want to be darn sure about having fine old wood replaced. There must be a better way to determine its future life.

First of all, I will say that a soundboard doesn't actually wear out in the sense that a pinblock does. I routinely replace pinblocks whenever I have a plate out of a piano, for whatever reason, but not soundboards. Many old instruments still have that singing quality Walt speaks about and, so long as that board meets certain criteria, it can be shimmed and reused.

The first criterion is, naturally, crown. This can be measured by stretching a piece of thread along the bottom of the longest rib (see Figure 4). If there is a gap between thread and rib in the middle, no matter how small, the board still has crown. Check the downbearing every three or four unisons throughout the scale to determine whether any one part of the board has caved downward. Then check the front-side downbearing in the high treble to be sure the bridge hasn't rolled and caused a twist in the board.

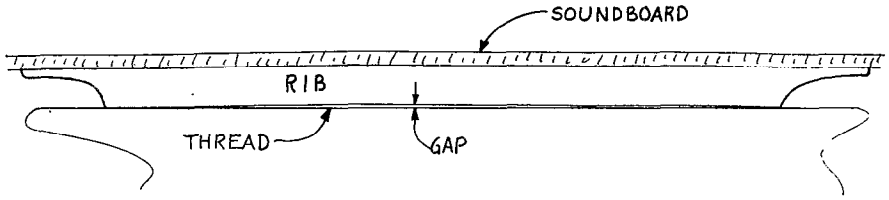


FIGURE 4

The second and final criterion would be whether or not wood cells have been destroyed by being crushed. In conditions of extreme humidity or water damage, a soundboard can belly up so far that it literally crushes itself against the downpressure of the strings, causing compression ridges. While the presence of such a defect is not necessarily fatal in itself (see page 12 of our March 1979 issue for a suggested repair procedure), if it is accompanied by multitudinous cracks and rib separations, the repair time may not be justified. This is a judgment call. The man who has the knowledge and facilities for soundboard replacement will quite logically reject a marginal board that would have been salvaged by the average technician.

The average technician is not so equipped, and will quite understandably try to save every soundboard if he can. If the board cannot be saved, he knows he will have to send the piano to a larger shop, with the extra expense and waiting time that such subcontracting involves.

JACK ALIGNMENT

Question: *. . . I am rebuilding a grand action, and several of the jacks won't return easily because they seem to be scraping against the side of the opening in the repetition lever. Lubricating with graphite helped somewhat, but one or two are still sluggish. Will I have to replace the entire whippen, or is there some way of adjusting the position of the jack?*

Answer: Neither the cradle nor the side of the jack should be lubricated to relieve friction between the two, because there should be no contact at all. If the jack is so far off center that it touches the cradle, it should be moved back to a centered position by bending the centerpin. Some technicians have a special metal anvil which will fit between the key and whippen support, enabling them to make this adjustment right in the action. Lacking this special tool, the technician must remove the whippen from the rail. Do not remove the jack centerpin; it will be bent while in place.

With one hand, position the whippen over a metal block so that one side of the whippen support is resting on the block (see Figure 5). The side that is supported must be the side **toward which the jack must be moved.** With the other hand, take a hammer and lightly tap the top of the jack. If this light tap doesn't bring the jack over to the center, tap a little harder. This will bend the centerpin very slightly, just enough to center the jack in the cradle. The effect of this can be seen in Figure 6.

This may seem like a crude method, but it is a generally accepted procedure. It works because the pin will bend before the bushing can be damaged, and because the arc of movement of the jack is relatively short. Like most procedures, it can be overdone; the first time I tried it, I hit the jack so hard that it was rubbing

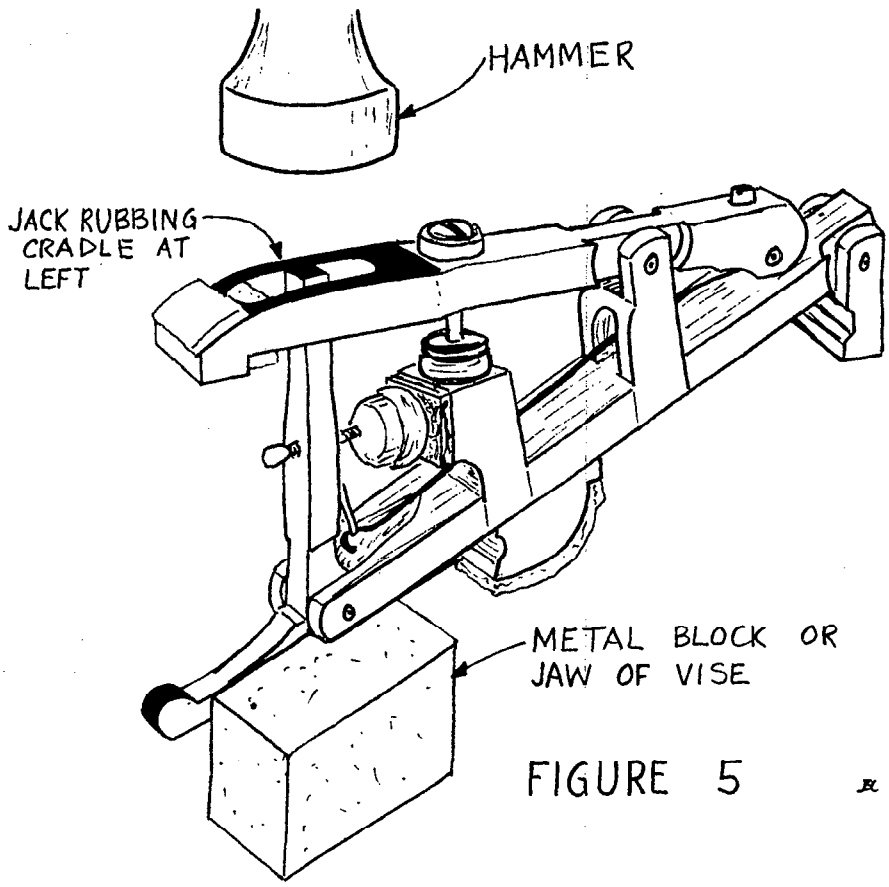


FIGURE 5

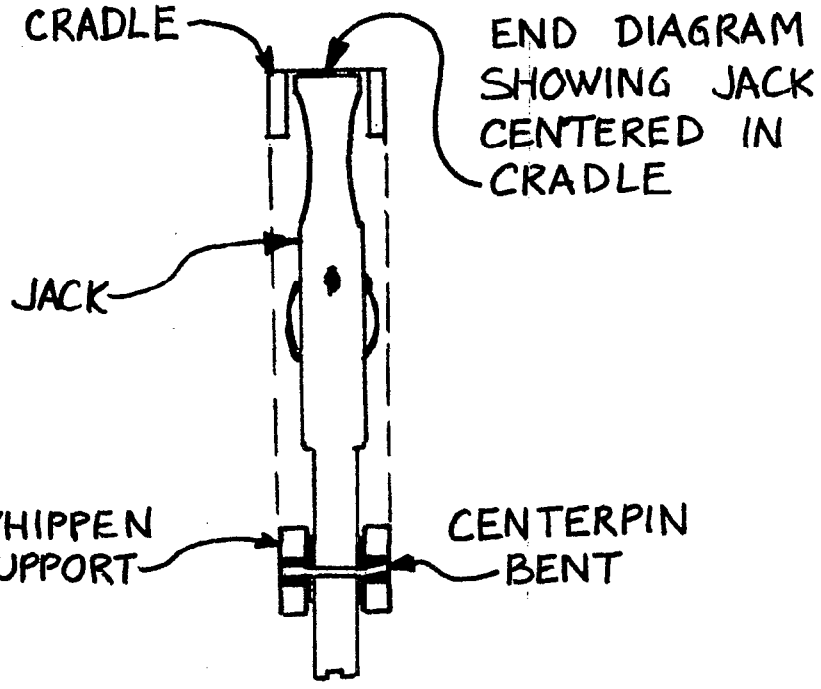


FIGURE 6

the opposite side of the cradle. By the time I finally got it centered, the pin was bent on both ends and had to be replaced. Start by tapping the jack with about the same force you would use to start a brad, and then gradually increase the force of the blow until the jack moves. Once you get the feel of it, you will be able to do it quickly and accurately.

TIGHT TUNING PINS

Question: *I have encountered a Baldwin concert grand (Serial No. 164000) with pins so tight as to be untunable. Short of restringing, is there any remedy for too-tight pins? The piano has no plate bushings, and the pins seem to fill the plate holes completely, leading me to believe the pins are bending backward and dragging on the plate. If you let a string way down it stops jumping. Would a solution of glycerine and alcohol around the pins lubricate them sufficiently?*

The piano is in a school cafeteria, but far from the kitchen, and there is no evidence of too much moisture in the piano.

Could the pinblock be improperly fitted so that the tension has pulled the block backward, making the pins drag? If you try to ease a pin down with normal tuning movements it **will not** *move, then with more pressure it will let go with a sharp crack and jump so far down that the tension on the adjacent string is affected.*

The piano must be repaired. If you have any ideas I would appreciate the help you might offer. I have never encountered this problem before. — Bob Waltrip, Parker, Arizona

Answer: The piano described is probably a Model SD-6, and is about 15 years old. It is equipped with an Amberlite pinblock, which is a 41-ply multilaminate maple block. This type of block is more resistant to dimensional changes than a quartersawn block because there are so many thin plies. Pin torque tends to be much higher on a piano with such a block, particularly in parts of the country where the average humidity is low, than on an instrument equipped with a traditional block.

Even so, I would be surprised if a 15-year-old block measured more than 125 inch-pounds of torque. Assuming that the block has not been contaminated by pin dope, it should now measure at between 100 and 125. This is a very tunable torque range, although it may seem very tight if the technician is accustomed to tuning pianos that measure 50 to 75 inch-

pounds, which could be the case in that part of the country. Is it possible that you don't have many new Baldwin grands in your clientele and, thus, are unaccustomed to the feel of the pins? This would not be an unusual situation at all, even for an experienced technician (if he lives in a rural area).

If that is the case, I might suggest a tuning technique which may be different from the one you usually use. Rather than placing the tuning hammer in a 3-o'clock position and using a steady pull, as most right-handed tuners do when tuning grands, try placing the hammer in a 12-o'clock position (hammer handle pointing toward hitchpins) and using a series of short sharp jerks or bumps to move the pins. This technique is more likely to move the entire pin in the block than to simply twist the top of the pin.

Whatever you do, do not contaminate the pinblock with a liquid of any type. Glycerine and alcohol is what we call pin dope, commonly used as a last resort when tuning pins are too loose and the owner can't afford a new pinblock. It attracts moisture into the block, making the pins even tighter (and rustier), and will eventually ruin the block. Check for stains on the plate around the tuning pins. This would be evidence that someone has already contaminated the block. If this is the case, it will have to be replaced sooner or later. If you suspect that it has been contaminated, you can confirm this by removing a pin. It will be rusty, especially around the top of the threads, and the area around the hole in the top of the block will be blackened.

Another possibility would be that the pins are moving but the strings aren't. This condition is sometimes caused by absorption of moisture into the plate felt near the tuning pins. We have observed many instances of this, and it isn't always immediately apparent. The top of the string may be perfectly shiny and free of rust; yet, when the tension is removed and the string pulled away from the plate felt, the underside of the string may be very rusty. Needless to say, this added friction can make the piano untunable. If this condition exists, mix a solution of benzine and Vaseline in a double boiler and paint the undersides of the strings with it. This will lubricate the strings and retard further rusting without discoloring the plate felt. Be careful not to get any of the solution into the tuning pin holes.

Finally, I will say that the piano should be tuned at least twice every year. If a piano is left untuned for a long period of time, the pins can set themselves firmly in position, making fine tuning difficult. Maybe this is all that's wrong with this particular instrument. If that appears to be the case, I would suggest lowering the pitch evenly by at least a half step, and then raising it back to pitch. This will move all pins enough that a fine tuning should be relatively easy to accomplish.

RESPONSES TO OPEN QUESTION

Back in April, Walt Thatcher asked why a set of vertical dampers would raise evenly on the bench, but not in the piano. Chuck Lustig of Sumter, South Carolina, offers the following solution.

. . . I am not familiar with the Steck action; however, each time I have encountered this problem it has been one or more broken hangers. They can be broken off inside the damper rod, making them difficult to detect. Broken hangers (if that is the proper term) will allow the damper rod to bend under the pressure of the damper springs, resulting in the domino-fashion lift described. The solution is to pull the damper rod, punch out the broken hangers, mike them, and make a trip to your friendly hardware store to buy some taper pins measuring a few thousandths larger for a good snug fit. (My last ones were 0.143 inch at the base.) Tap them into the rod and carefully bend to conform to the other hangers. The reason the action worked on the bench and not in the piano? Possibly because on the bench the dampers are in their most forward relaxed position and operating the mechanism by hand did not exert the full pressure of the damper springs. In the instrument, of course, this is not the case.

I believe the hanger is the little strap hinge that is screwed to the action rail (see Figure 7), and the L-shaped piece that connects the hanger to the damper rod is called the damper rod hook. In any case, we know what Lustig means, and that brings to mind a situation I encountered several years ago with a Kimball studio in a storefront church. The pianist, noted more for enthusiasm than finesse, had been keeping time by stomping on the right pedal while performing one of his string-breaking renditions. When the damper pedal finally gave up the ghost, he astutely determined that the

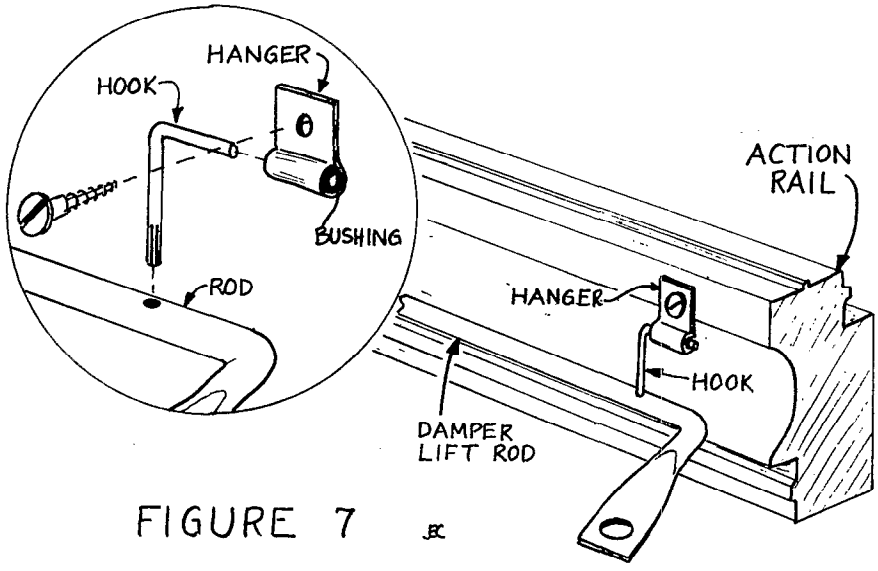


FIGURE 7

instrument needed tuning, and I was the lucky recipient of his call.

One of the hooks had broken previously, and had been replaced with a nail by someone. It was a clever job and a nice fit, but the nail had bent under the stress, being made of softer metal than that of a rod hook. Another hook had broken off flush with the lift rod, and the dampers wouldn't lift at all. I wrote to Kimball, and Roger Weisensteiner came up with an excellent solution to my problem. He sent me a new lift rod, complete with dual hooks at all positions and the extra hangers and screws required for installation. It works beautifully.

Ernie Preuitt of Independence, Missouri, has some thoughts of his own on the subject:

. . . Many times the pedal props, pelican spring, and lifter rod are not properly aligned, causing the damper lever stick to lift sideways. Most probably, though, the trouble is caused by the action bolt on the bass end being screwed in too far. If the damper mechanism works on the bench, then the above is about all it could be. This did happen to me once. By setting the action bracket bolts at the proper level, all worked well.

Our thanks to both Ernie Preuitt and Chuck Lustig for their thoughtful solutions. If Lustig is correct in assuming that a hook is broken, then he is, of course, correct in recommending its replacement. On rereading Thatcher's statement, we note that he doesn't actually say whether any hooks are broken, but my assumption (and Preuitt's) was that they weren't. Since the mechanism worked perfectly on the bench when the rod was actuated manually, Preuitt's theory that the action frame must have been distorted during reinstallation makes sense to me. To maintain the strike point and lost motion regulation, the action must obviously be solidly fastened in place; but, if it is twisted or distorted in any direction when installed in the piano, the relationship of the various parts is bound to be affected.

Although this wasn't the problem in this case, we often find instances of erratic damper lift that have been caused by a technician adjusting the angle of the damper wire when he should have adjusted the angle of the spoon. If a technician notices that a damper is lifting very early or very late when the key is depressed, he will sometimes try to correct the condition by bending the wire rather than worry about finding and bending the spoon. This is an incorrect procedure, in that it totally fouls up the damper lift with the pedal in order to achieve something approaching a correct lift with the key.

When vertical dampers are regulated, the technician should first be certain that no spoons are bent so far outward that they hold the damper lever away from the lift rod. Then the wires should be bent, top and bottom, to allow a perfectly even lift when the pedal is depressed. This is basic, and must be done before the spoons are regulated. The damper pedal should have a slight amount of lost motion, say 1/4 inch or so, at the front of the pedal, to ensure full pressure of the damper springs against the strings.

Depress the pedal slowly, a half inch or so. The dampers should begin to lift in unison, as though they were glued together. This very slow operation of the pedal is important, because one can readily see which dampers begin to lift early or late, and the wires can be bent accordingly. When they all lift at the same time, then the spoons can be regulated so the dampers lift individually at the proper point in the key/hammer travel. This is the right way to do it, because it allows minor differences in damper felt thickness to be compensated by the wire angle while the damper levers remain absolutely even with each other. This evenness of the levers is what allows an even lift when the pedal is depressed. The wire-bending operation must be done with the action in the piano.

Spoon-bending is the bane of most technicians' existence, mainly because the spoons cannot be seen when the action is in the piano. Several articles have appeared in this publication on that subject recently, so I will not belabor the point other than to offer a tip on an easy way to bend a spoon when you can't find it with the spoon-bender.

If the damper is lifting too late in the hammer stroke, unhook the bridle tape and remove the key. (In a drop action piano, slip the grommet off its fork.) Now, gently but firmly, press down on the front of the whippen. The spoon, jammed against the flange screw, will bend outward.

If the damper is lifting too early, slip the spoon-bender into position; but rather than grope for the spoon itself, simply hold the tool against the back of the damper lever (see Figure 8) and lift up on the front of the whippen. In case you're wondering how you'll be able to tell which damper lever you are pressing on, that's no problem. Pull on the tool while watching the damper heads. The one you are pulling will move a little as you pull harder. When the whippen is lifted, the spoon will bend inward toward the action rail, thus adjusting it to lift later in the hammer stroke.

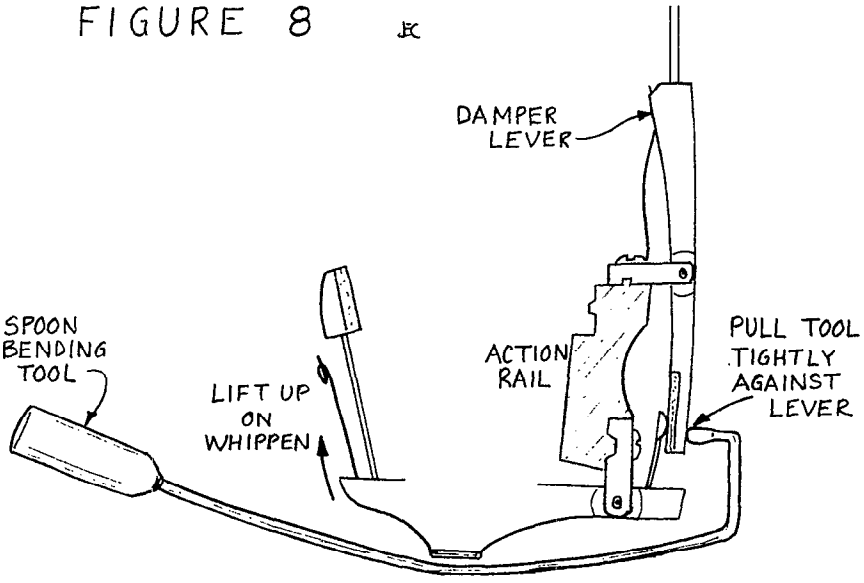
I would not try either of these shortcuts on a piano with plastic flanges, and remember not to bend wires when spoons should be bent. If the dampers don't lift evenly **with the pedal, bend the wires**; if they don't lift at the proper time **when the key is depressed, bend the spoons.** I know all of you know this already, but I have to remind myself once in awhile or I forget which is which.

NEWSLETTER TECH REPRINTS

The following article, the first of two parts, discusses the servicing of the teflon bushing. The writer is Guy McKay of Indianapolis, and the article appeared in a recent issue of *The Indy 440.*

The teflon bushing is considered by the one manufacturer who uses it to be a major improvement. They feel that the consistency of operation of the action outweighs any disadvantage it might have. They plan to use it from now on.

FIGURE 8



As you probably know, this bushing is used throughout the action — hammer flanges, whippen flanges, repetition lever centers, jack centers, as well as the damper parts. Teflon is a relatively stable material and would no doubt need no servicing at all if it weren't coupled to a part made of wood.

The wooden portion will change with the climate, so sometimes the bushings will become too tight or too loose. If too loose they will cause a noise we call the teflon click. If they are too tight, the feel of the action will be hard and repetition will suffer.

Servicing this bushing takes a little different equipment and procedures than the wood bushings that most of us are more familiar with. It's really not very hard to learn; however, I would like to pass on to you what has worked for us.

First let's mention the tools and supplies you will need. You should have — and this is fairly important — a good center pin extractor. You will need the type that works in a parallel motion to push out the pins. A teflon bushing inserter will make putting in bushings a lot easier; they are available at the supply houses. You will need a set of parallel reamers, which I will explain in the second part of this article. A supply of bushings is required. There are three types you may need. If you do very much of this work you will want to obtain a supply of cut pins. These are available from the Steinway Company in sizes 19, 19½, 20, and 20½. Using regular pins and cutting them off will make a burr that will cause problems for you, as we will see later.

First let's consider the loose bushing. It will make itself known — sometimes glaringly so — with a clicking sound at the instant of hammer impact. It is practically identical to the sound of a loose hammer. In fact, it is always a good idea to check and make sure that it is **not** *a loose hammer. The loose bushing can be further verified by lifting the hammer by placing your fingers on either side of the hammer shank. By moving the shank gently sideways you can feel the play that causes the click.*

Start the repair by removing the hammer shank flange from the rail. Take out the old pin with your extractor. Next determine the smallest pin that will fit firmly in the flange. If it goes in easily, chances are it is too loose.

Next try this same pin in each side of the teflon bushings. Very often only one will feel loose. A loose bushing should be popped out and discarded. Insert a new bushing of the same type. It will probably need reaming for a good fit.

In the second part we will discuss the tools and techniques for reaming. We will also explain a little more fully about the types of bushings you will need, and why the cut pins are necessary.

Tip of the Month

Once again our friend Herman O. Koford of Los Angeles has a tip for us:

Removing the threaded end of a broken agraffe from the plate is easy with the right tool. This tool is made from a screwdriver filed to make two sharp points [see Figure 9]. *A brass agraffe never breaks off smooth, so take advantage of this and press the sharp points where they will catch and gently turn it out. Nine times out of ten it works. A drop of liquid wrench might help.*

If it is necessary to drill, use a very small bit. Don't prick punch, since

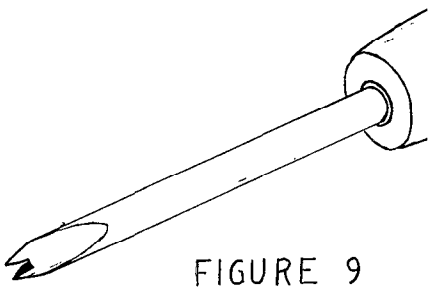


FIGURE 9

this will jam the brass threads in the iron plate. If when starting the drill it runs off center, slant the drill until it is centered again and then straighten it up. When you have a good small hole started, change to a larger drill. Be careful not to drill too close to the threads in the plate. Finally, use a square tapered extractor (not the screw type).

For Steinways there are two sizes of thread. To use the large-thread agraffe when the hole has a small thread, there is a tap available from Steinway. Don't force the new agraffe in. If it won't line up, scrape some of the brass off the agraffe with a sharp knife [or add thin brass agraffe shimming washers — Ed.]. *If the threads have been damaged by a novice, the hole can be tapped to fit the larger size.*

On a three-string agraffe, loosen only one string at a time. In this way, the strings will stay on the hitchpins and bridge pins. Turn the tuning pin just enough to pick the becket out of the hole. Slip the wire off and, with a screwdriver in the coil, pull back to straighten the wire. Now cut the

becket off. This will shorten the string by only one third of a turn on the tuning pin. When you have the first wire strung on with some tension, repeat on the other two wires.

Reader Feedback

Here is still another letter on the subject of plate stress. It comes to us from a reader in Marquette, Michigan.

I am writing in response to Hugh Manhart's inquiry into the possible uses of holograms. The technique Mr. Manhart refers to is known as holographic interferometry.

Holography is an optical technique which uses lasers. Because of the concentrated and continuous nature of the light-wave energy that the laser produces, these light waves can be made to interfere with each other when part of the laser beam is reflected by a mirror onto a photographic plate and part is reflected by the object being photographed. In so doing, some waves from the two sources will be in phase with each other and some will be out of phase when they meet at the plate, because of the different distances of light travel involved. This produces a complex pattern on the plate and is known as a hologram.

This can be applied to the study of vibrations of an object by the process of holographic interferometry. By superimposing the image made by a hologram of a vibrating body onto the same body at rest, any variations in the two images will be visible in the form of dark bands of interference. This is because the motion of any point on the body's surface will cause the light reflected by that point to travel a different distance than when at rest. This in effect results in some waves being cancelled and some being amplified. Overly simplified, this is similar to the interference of sound waves that we know as **beats.** *This cancellation and amplification will produce outlines of vibratory patterns. Much work has been done recently with the acoustical applications of this technique in the making and study of string instruments.*

A more detailed description of the principles and procedures involved in holography is beyond the scope of this letter; however, an excellent report — "Resonances of a Violin Body Studied by Hologram Interferometry and Acoustical Methods" — can be found in Physica Scripta *(Vol. 2, No. 6, page 243), written by Jansson, Molin, and Sundin of the Institute of Optical Research and Department of Speech Communication, Royal Institute of Technology, Stockholm, Sweden.*

In this paper, the authors used holograms to study the vibrations of violin plates in all stages of violin construction. The plates were resonated electronically and compared, through the use of holograms, with the violin at rest. What becomes immediately apparent is the manner in which the plates divide into modes of vibration at certain frequencies, giving a visual representation of the plate's natural resonances. These resonances are commonly referred to as **tap tones,** *which are produced by tapping the plate with the finger. The violin maker listens to these tones and makes appropriate changes in the plate's contours until the desired tone is achieved.*

Of interest, and to give an idea of how sensitive holographic interferometry is in measuring small changes, is the fact that a faster method of development and using holograms had to be devised for these experiments. In as little time as 15 minutes, the violin plate would show significant changes due to humidity alone. Also, it was shown that the plates retain their distortion for several minutes after being resonated.

Now the piano soundboard functions in much the same manner as the plates of a violin; however, with its unsymmetrical shape, it is hoped that the board does not exhibit any particular natural resonances, but responds freely at all frequencies. With the use of holograms, this would be a rather simple thing to find out.

Other possible applications, besides the study of soundboard vibrations and plate stress during tuning and chipping, could be the study of plate resonance. Is the iron plate completely static? Perhaps most useful would be the ability for this technique to record any particular points of instability in the bridges, board, and plate. This could possibly prove invaluable in attempting to eliminate false beats by observing, for instance, the activity around the braces where these beats are common. — Gary Shulze

Mr. Shulze is a graduate assistant in piano technology at Michigan State University. We thank him, along with James Ellis of Powell, Tennessee, and Dr. K.A. Stetson of the United Technologies Research Center in Connecticut, for their interest in and contributions to this fascinating topic.

Please don't forget, we need technical articles, tips, comments, and interesting questions. Readers have requested comprehensive articles on such topics as rebronzing, buffing, and gluing techniques. We hope to hear from you very soon. ■

Readers may contribute material to the "Forum" by writing Jack Krefting, Technical Editor; 6034 Hamilton Avenue; Cincinnati, OH 45224.

NEWTON J. HUNT

ACCENT ON TUNING

Piano tuning has been established as a specialty occupation for over 100 years. Now, more than any other time in our history, rapid and basic changes in other fields are having massive influences on piano tuning.

In the last 10 years we have seen the superfast tuner, the precision approach to pitch raising, inordinately accurate tunings, the advent of inhumanly accurate electronic tuning aids, and a better approach to scaling pianos — just to mention a few.

I think we have only begun to see the changes. In the next 5 to 10 years we will be modifying many of our approaches to tuning, rebuilding, and rescaling. We will see an ever-increasing demand for accuracy by ourselves, of each other, and by the buying/owning public. Competition will become stiffer — especially for those who do not keep abreast of what is happening and who do not incorporate the new and superior methods.

It is the philosophy and intent of this column to present the more suitable, the improved, the new, or even the novel way that is in keeping with good craftsmanship and work habits. It is the further intent of this column that such methods mentioned are in agreement with the philosophies of both the Guild and this column. I am, therefore, pleased to present a new and novel prestressing approach to pitch lowering, by Larry O. Bowen.

PRESTRESSING APPROACH TO PITCH LOWERING

We might tend to assume the aural art/science that we practice has not developed much in recent years, but anyone who attended the 1978 PTG Convention and heard Dr. Albert Sanderson describe his use of contiguous intervals, or his sixth/tenth test of the tempered fifth, has to admit that the art of aural tuning is still developing.

In keeping with that thought, let me now outline the procedure I have developed to rapidly "prestress" the scale prior to fine tuning when lowering pitch. Let's change the wording of the familiar old shoe, "You cannot fine tune an out-of-tune piano," to read, "You cannot fine tune an out-of-balance piano scale." Since a fine tuning is also a delicate balancing of the scale's tension, any rapid method of achieving a close approximation of that balance prior to the fine-tuning sequence would be of great benefit.

Suppose a particular piano is 8 cents sharp (i.e., A442), and it must be tuned to A440 for a concert. The iron plate and the soundboard crown would not be offended if we lower the pitch of every other note 16 cents (twice the required amount) to prestress the scale prior to tuning every note. Carrying this logic a step further, the plate and soundboard still would not be offended if we prestress the scale by lowering every fourth note 32 cents to save time (four times the required amount). However, we discover that, in doing so, the whole scale creeps back up a bit and we have not quite accomplished the desired purpose. I have discovered that lowering one additional note per octave four times the required amount compensated for this scale rise.

Let's suppose the piano to be tuned to A440 is fairly in tune with itself, but at a pitch of A442. First, drop the entire F_3-F_4 temperament octave to A439.5 and clear the unisons. (The slight undershoot will creep back up to approximately A440 as we proceed.)

Next, skip $F^{\#}_4$ and G_4 and insert a rubber mute between the center and right strings of $G^{\#}_4$. Sound the $G^{\#}_3$-$G^{\#}_4$ octave and listen to the beat of the 2-1 partials. In this example, the beat will be about 2 bps. Lower the pitch on the left string of $G^{\#}_4$ and invert the beat. (The term "invert the beat" means to change the beat so that it is the same beat but in the opposite direction; i.e., if it is 2 bps sharp, "invert the beat" so that it becomes 2 bps flat.)

Now, insert the rubber mute between $G^{\#}_4$ and A_4, then play the note $G^{\#}_4$. The beat of the fundamentals between the left and center strings should be approximately 4 bps. Invert the beat by lowering the center string of $G^{\#}_4$ so it now becomes 4 bps flat to the left string. After lowering the left and right strings to the center string, we have doubly inverted the beat of note $G^{\#}_4$. When sounded, the $G^{\#}_3$-$G^{\#}_4$ octave should have a 2-1 beat of about 8 bps.

Do the same to B_4, D_5, and F_5. These four notes ($G^{\#}_4$, B_4, D_5, and F_5) now comprise the "prestressing temperament" for the remaining treble notes. Tune pure octaves as you proceed to $G^{\#}_5$, B_5, D_6, F_6, $G^{\#}_6$, B_6, D_7, F_7, $G^{\#}_7$, and B_7; the entire top half of the scale is prestressed for the A440 level.

Proceed downward into the bass section in the same manner, doubly inverting the beat of D_3, B_2, $G^{\#}_2$, and F_2. Tune pure octaves for D_2, B_1, $G^{\#}_1$, F_1, D_1, and B_0; the entire scale is prestressed for the A440 level.

After the 13 notes of the temperament octave are set, the procedure takes about 3 minutes to prestress 24 notes and is considerable faster than dealing with all 75 remaining notes before beginning the second time around the scale.

As we proceed up and down the scale and away from the temperament octave on our second time over the scale, we can determine if our prestressing procedure was properly done if the "ups" balance the "downs." For example, as we proceed upward this second time from the temperament octave, if we lower $F^{\#}_4$ and G_4 a couple of beats, and are still in balance if we raise $G^{\#}_4$ about four beats, etc., then our prestressing procedure is correct. Of course, this is only a rough comparison because the actual beat rate would change according to the degree of original out-of-tuneness.

Anyone who starts to use this procedure will find that, as they familiarize themselves with this valuable new method, they will develop a sense of when they are "right on," so to speak. My way of looking at prestressing is not as a time-saver, but rather as a method of producing a finer final result in the allotted time. In most cases a three-times-over tuning will have a slight edge over a two-timer. Since our 3-minute prestressing counts as the first time around, we can still accomplish the second time around after that, and all three trips fit nicely into the allotted time. I am sure that you can adapt all this to the temperament octave of your choice.

I am certain that there are individuals reading this prestressing procedure who have already deduced that it also can be used to increase scale tension slightly, and that the term "invert the beat" can go in both directions. After much deliberation, we have decided to present the procedure in terms of pitch lowering only. Persons who choose to investigate it in any other manner are strictly on their own.

The idea of prestressing began to knock around in my head about six years ago, and I have used the procedure in the form presented here for about four years. ■

PRISCILLA AND JOEL RAPPAPORT

VON DER WERKSTATT

BLACK KEY DIP

Since we have been talking about piano keys, why don't we continue on to the point at which all works well and it is time to adjust the keys. One of the interesting adjustments facing us is the dip of the black keys. It can be done "a nickle's thickness above the whites," "put the same number of paper punchings under the black keys as you do under the white keys around it," or any number of techniques. We'd like to present a method for overhauling an action with new parts in the shop, but which can also be used for evening out a good regulation when touching up in the home or concert hall.

First, a key height is chosen for the whites. In a grand rebuilding job, several factors are helpful: the old measurement from before the action was dismantled; the *PTG Action Handbook* listing factory specifications; and the key position relationship to cheek blocks, front rail pins, keyslip, and fallboard.

No one measurement has to be the deciding factor. Maybe the leveling had been touched up before and it is wrong. What about "factory specifications"? Surely, they must be right. Well, in the factories in which we have worked, there were indeed specifications; but, if the white key sitting on a felt punching alone was already at the specified height, we had to add two thin paper punchings so that there was **something** under there. Factory specifications are good beginnings, but the technician has to use his own judgment. After a level for the whites is decided upon, the blacks are placed 12 mm or 1/2 inch above the level of the whites.

Whippen adjustments have been done already; let-off is next. Back to the key again, and we come to the dip. The dip of the white keys can begin with a dip block. How the dip actually ends up depends on the action design, the length of the hammers (replacements should be as close to the original length as possible, taking into consideration how much felt from the old hammers had been filed away), how hard the key dip block is depressed, and the wishes of the owner, if those desires are within the physical possibilities of the action.

Working with the end white keys of each section with the grand action in the piano, step on the damper lift pedal to get the damper levers out-of-the-way and check the aftertouch. If the aftertouch is too little, raise the hammer with the capstan adjustment; if too much, lower the hammer. Keep the whole picture in mind here. If the hammers have to be raised halfway to the strings to get aftertouch, then this action needs more dip! If the hammer shanks are down as far as they can go and there is excessive aftertouch, less dip than the dip block indicates is in order. When the sample keys have aftertouch to your satisfaction, regulate the hammer line by making the tops of the hammers a straight line from sample hammer to sample hammer.

As you know, there are three adjustments that regulate aftertouch: let-off, dip, and blow distance. The earlier the hammer lets off, the more aftertouch there will be. More dip gives more aftertouch, and less blow distance increases the aftertouch. To avoid confusion and getting lost, only one adjustment should be changed at a time, with the others remaining constant. If we could keep three of the four — let-off, dip, blow distance, and aftertouch — constant, the fourth will fall into place.

So, we have the let-off done, the blow distance finished, and the aftertouch fixed in our minds from the sample keys. The white keys should have the correct dip already, and therefore the right aftertouch, providing we are careful with even let-off and a straight hammer line. However, due to slight irregularities in action design, the regulation of dip, blow distance, let-off, and aftertouch does not always work out perfectly.

For example, the aftertouch in a piano may be the desired amount in bass and middle sections, but it increases as you go towards the upper treble sections. A compromise in this case is necessary. In order to keep the aftertouch even, since **this** is what we are after, we would slightly decrease the dip by adding a paper punching or two. The aftertouch in the treble would be decreased slightly to match the other sections of the piano.

There may be pianists and concert artists who prefer that the **dip** remain constant. If this is the preference, then they have to also realize that the aftertouch may not be the same in all sections of the piano, providing the other adjustments remain constant.

To get the aftertouch of the black keys to match that of the white keys, you simply add or take out paper punchings at the front rail. In other words, we are actually regulating the black key dip by feel, which is our end product anyway. This method takes quite a bit of sensitivity to the amount of crunch in the aftertouch. With a lot of practice, it is a fast and accurate way of letting the black keys go down just the right amount.

Incidentally, be sure to do the back-check catch adjustment **after** dip is established. The more the front of the key goes down, the higher the back of the key will rise. Then the hammer will be caught higher than before. If, in fine regulation, you touch up the dip, be sure to go over the back-check adjustment. ■

RAYE McCALL

The Vacuum Line

From what activity in the field of piano technology do you earn the largest part of your income? If you were to ask that question of people in this profession, the answer that would most often be given would be "tuning." This suggests that the majority of us spend the largest percentage of our time in clients' homes tuning their pianos. Are we just simply tuning the piano, or are we also servicing the instrument? I am sure you can readily see that there is a difference. The latter is the approach we take in our business.

This is especially true in player work because you must be concerned about the player and all of its functions, in addition to the piano. When I go into a home on a player service call, I anticipate being there 2 hours. The charge that is made to the client pays me for that amount of time. During that 2-hour period, I will do whatever needs to be done — tuning, pitch raise, remove and replace action(s), repairs, player checks, and/or adjustments.

Before I get into player servicing, let me say something here that I do not want you to forget. Immediately following the completion of your work on the piano, just before you close it up and leave, play at least one roll on the piano. During the time it is playing, operate every control at least once. If you forget to hook something up, now is when you will discover it, instead of having to make a free callback. Also, if it is a foot pumper and is in good condition, perhaps you can demonstrate some things that the owners have not seen or heard before — provided you know how to operate the player system. If they have any rolls that give problems when playing, now is the time you find that out. Those are the rolls I would suggest you play. This also presents a good opportunity to give your client some instruction in roll care.

I made the statement in the first article that there would be some discussion here about servicing specific makes. Since Aeolian holds the lion's share of the market in player units sold (at least it is my understanding that they do), perhaps theirs are the ones that should be dealt with first. Until recently, Aeolian was the only manufacturer who made a player that could be operated either electrically or manually via the foot pump. From the time the Aeolian players appeared on the market, there have, of course, been changes in case styling. Inside, however, the player unit remains pretty much the same.

There are certain steps necessary when you approach the tuning of the Aeolian player pianos. You will find the following procedure differs slightly from the one described in the Aeolian service manual.

1. Disconnect and remove the motor chain.

2. Remove the air motor from the piano and lay it aside, completely out of harm's way. This involves the removal of three screws and then carefully slipping the tubing off the nipple.

3. Remove screws (two) from the music box brackets — pinblock end. Then simply swivel the brackets forward so that they rest on the roll box.

4. Remove rinky-tink rail. There is one screw at each end on which it swivels. There are usually soundboard buttons between the ends of the rail and the case. **Caution:** The soundboard buttons are not glued in place and are sometimes not even glued together. You must work carefully when backing the screws out or they will disappear and it can become very interesting trying to find them. After the screws are out, you must disconnect the rail from the control cable. This is done by raising the rail to a vertical position with one hand while maneuvering the cable out of the hole with the other hand.

As soon as you have laid the rail aside, you are ready to prepare the piano for tuning in the conventional manner. In some models the roll box sits rather close to the tuning pins. This necessitates a shorter tip on your hammer. When the tuning has been completed, everything that was taken apart and/or removed goes back together in the reverse order of the above steps.

When you replace the ladder chain on the motor, be sure that you get it under the idler wheel and that the tension is correct. There should be 1/2- to 3/4-inch play in the chain as you move it up and down with your fingers. Also, the correct way to replace the chain on the sprockets is with the links **up** and the eyelet openings facing the direction of travel.

There are several possible malfunctions that could be discussed here, but I would rather have your questions about problems you have had. In this way, I feel the verbage can be a lot more meaningful. Let me suggest two problems that we have found to recur more consistently than any others. In the older model Aeolian players, the valves were glued together. (I am referring to the valve **inside** the plastic encasement.) The glue will let go; hence, the valve comes apart and you have a note that does not play and a possible vacuum leak. Obviously, the bad valve must be replaced. This is done by **carefully** removing it from the stack. I use a pair of channel lock pliers and slowly break the valve unit from the stack. Clean off any old glue and install a new plastic unit valve using either PVCE glue or Duco Cement.

The other problem we have found is that the tubing cracks around the nipples. Usually when this condition shows up, it is pretty general throughout the entire player action. The corrective procedure is to completely retube the piano. This could be done in the customer's home, but we prefer to bring the piano into the shop. In the next article I will continue this subject and move on into discussing other makes of players. ■

PIANO ALLEY

EXPORTS OF PIANOS AND ORGANS RISE IN 1978

American exports of musical instruments and parts rose 18 percent to reach the $151 million mark during 1978. According to the American Music Conference of the U.S. Department of Commerce and Tariff Commission import-export data, this was better than a sixfold increase over a decade ago.

Pianos and organs led the export increase, setting new highs for both categories in units shipped and dollar valuation. More than 19,000 pianos (total value of over $14 million) were shipped out of the United States. Units were ahead of 1977 by 68 percent and dollars were up 42 percent. The quantity of pianos exported to West Germany almost tripled in 1978, with Canadian purchases accounting for an increase of 61 percent. American manufacturers exported 61,253 electric and electronic organs in 1978 (total value of over $55 million), resulting in an increase of 26 percent in units and 23 percent in dollars. The majority of all electronic organs exported went to eight countries: Canada, Australia, United Kingdom, The Netherlands, West Germany, Indonesia, and New Zealand. (Exports to the United Kingdom and The Netherlands almost doubled in 1978.)

The tremendous strides made by American manufacturers in marketing their products abroad can readily be seen by comparing the number of pianos and organs exported in 1968 to the industry's performance 10 years later. Only about 2000 pianos (total value of under $1 million) were exported in 1968; by 1978 units had increased better than 800 percent and dollars were up 1400 percent. The most significant growth has taken place in the past five years; in 1973 5497 units were exported, and by 1978 that figure almost quadrupled.

In the electronic organ category, units and dollars have almost doubled since 1973; there has been a sixfold increase since 1968. In 1968 American manufacturers exported over 11,000 organs at a total value of about $8 million. The value of American exports now exceeds imports by $37 million and Americans exported 21,000 more organs than were imported in 1978.

New categories and breakouts of instruments within broader categories were provided for the first time in 1978 by the U.S. Commerce Department, so comparisons cannot be made with previous years. However, United States makers shipped $16 million worth of synthesizers and electric pianos during 1978 (principally to the United Kingdom).

First-time breakouts also show that almost 91,000 unamplified guitars and nearly 104,000 electric guitars were exported (total value of nearly $17 million). The average value of an exported electric guitar was $71; the average value of an exported unamplified guitar was $104.

The total value of wind and percussion instruments exported in 1978 fell slightly to just over $10 million from $12.5 million in 1977. ■

ORVILLE S. BRAYMER

Ulys S. Rogers

In memory of Ulys S. Rogers, a PTG founder and president from 1959 to 1962, the Northern Virginia Chapter has established the Ulys S. Rogers Memorial Award, to be given to the most oustanding national convention technical institute instructor. The recipient of this award will be selected by the Northern Virginia Chapter from nominees chosen by the regional vice presidents. Each regional vice president shall pick one nominee. To assist in this selection, members who attend the convention are asked to vote for the instructor of their choice and forward the ballots to their regional vice president. Ballots will be provided all persons attending the convention by the Institute Evaluation Committee. The Northern Virginia Chapter requests those attending the convention to be particularly attentive to the quality of instruction and to impartially complete the ballot after the convention.

A Ulys S. Rogers Memorial Fund has been established to provide the money for the award plaque each year. Annual interest from this fund is used to purchase the award. Any chapter, member, or other organization wishing to contribute to this fund — in memory of Ulys S. Rogers and for the continuance of high technical instruction standards — are encouraged to do so. ■

FRANCIS MEHAFFEY

STORES

Most of us in the piano technical field started our vocation working for piano stores. However, when we have built-up a clientele of private customers, we often drop the stores and leave them needing a technician. When you think of it, none of us would have any work if there were no stores to sell pianos; therefore, we actually owe our livelihood to stores. There is a tendency to feel they do not pay what they should in comparison to private customers, but through them we had the opportunity to develop the skills required for our trade. Actually, we were practicing tuning and related skills while working for the stores. Therefore, they sometimes had to put up with less than quality work. We should be thankful that stores have done this for us. I have had piano men tell me that working in stores did two things for them: (1) Because they were aware that someone who knew good tuning would check their work in the store, they did their best. (2) Having to work for less, they developed tuning speed. Bills must be paid and this was a real training program.

When working for a store, one must always keep in mind the interests of the store. The store is paying for the service, so their interests must come first. Sometimes, when tuning a piano in the home for a store, I have found that I had to resell the piano before the customer would let me tune it. Frequently, a customer would ask: "Did I buy a good piano?" or "What should I have paid for it?" For the first question my answer usually was: "You have a good instrument relative to the money you paid for it." Of course, there are times when the less said the better, and keeping one's mouth shut is the only way to handle things. For the second question it is very convenient not to know prices. I explain to the customer that service is my line of work and that I do not keep up with prices. I got caught once in that trap when I found out the customer had paid far more than the price I quoted. It was very embarrassing, to say the least.

If the piano has problems you feel you cannot handle, talk to the store about them — not the customer. If there is extra work to be done on the instrument which you feel the agreed tuning fee will not cover, make some excuse and go out and phone the store. Explain the problem and what price you feel you will need to fix it. **Do not call from the customer's home.** Customers are sometimes very suspicious after they have purchased a piano, so do not give them any reason for concern.

I have often thought that a wise piano tuner would never discredit a store to anyone; likewise, a smart store owner should not discredit a piano tuner. We **need** each other to succeed. Our work is tied closely together, so let us **support** one another. If you feel you are not being paid enough for your store work, make youself indispensable before asking for a raise. You can do this by knowing and doing your work so well that satisfied customers result, which in turn makes a happy store owner.

I have never heard of a piano technician having to declare bankruptcy, but stores frequently have had to do this. The store owner has put everything he has into his business: He has mortgaged his home, borrowed from every source he could, and spent endless hours working in the store while carrying an overhead every day — whether he sells a piano or not. Comparatively, we have very little invested and to some degree can choose our own hours. We can even work part-time if it suits us better.

I personally feel that, because stores gave me an opportunity to develop a very unique skill which has given me a good living and an enjoyable life, I will always have the greatest regard for stores and their needs. Even now, when I have more private work than I can handle, I will look after a store's needs when called upon. I owe this to them for what they have done for me. Also, I am training others to take my place in the stores now that I have enough work to do without them. Remember the Biblical admonition: "Whatever measure you deal out to others will be dealt back to you." ■

ED FESLER

A REVIEW

This review of "The Coupled Motions of Piano Strings," an article published in the January 1979 issue of *Scientific American*, was printed in the February issue of *Soundboard Buttons*. Home office tried to secure the original article, written by Gabriel Weinreich, professor of physics at the University of Michigan, but was unable to do so. We thought membership would enjoy reading this review by Ed Fesler.

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Professor Weinreich, apparently following up on work done by Roger E. Kirk of the D.H. Baldwin Company, finds that the mistuning of piano string unisons by top-notch piano technicians is not completely random, but is governed by the tuner's instinctive desire to make the "aftersound" of each note uniform and smooth from note to note. Weinreich feels that it is **this** skill which differentiates the truly skilled tuner-technician from those less skilled.

But what is "aftersound"? Professor Weinreich distinguishes two components of the piano tone: the "prompt" sound and the "aftersound." When graphed on a time/sound-pressure (loudness) scale, he shows the result is a kinked line consisting of two straight-line segments. No matter how much the string is initially displaced by the hammer blow, the first plotted line drops sharply on the graph and forms a kink after a predictable number of seconds; a new line, descending much more slowly on the graph, continues the piano tone until damped or completely decayed. The first line on the graph is called the "prompt" sound and the second part is called the "aftersound." Professor Weinreich says that it is the "aftersound" that causes the piano's "singing" tone, which distinguishes it from such instruments as the xylophone.

A piano dissipates its energy through friction. The vertical movement of the strings (in a grand piano) is greater than the lateral movement by a factor of 10. Because the soundboard moves vertically, it dissipates the vertical movement of the strings very quickly, and is the source of the "prompt" sound.

The "aftersound" is caused by three factors: (1) the lateral movement of the strings (which apparently causes parts other than the soundboard to act as its "antennas"); (2) the coupled motion of the unison strings (hence the title of the article); and (3) slight mistunings of the unison strings by the skilled tuner.

Particularly interesting is Weinreich's description of the function of the *una corda* pedal: the unstruck string is far from passive because the bridge imparts to it a motion antisymmetric to the struck string(s). The "aftersound" with *una corda* pedal depressed is much stronger than a normal "aftersound," which is usually 20 dB below the sound-pressure level of the "prompt" sound.

Most of Professor Weinreich's article is devoted to an exposition of how the coupling of unison strings affects the "aftersound" and accounts for the characteristic "singing" tone of the piano.

How great are the mistunings detected by Weinreich and Kirk? As I read the material, it would appear that they are in the order of one third of a "vibration" in the middle range of the piano. At A-400, I take this to be about 1 cent, if the rather unscientific term "vibration" can be equated with "Hertz" or "cycle."

How does this research affect the discussion now raging in PTG over Dr. Albert Sanderson's proposed changes in tuning examinations? Not at all, I believe. By the time a Sight-O-Tuner or other pitch-measuring device is stabilized enough so that an accurate reading can be taken from it, the piano is well into its "aftersound" mode, and the unison strings have settled down to a common level of pitch. Any reading made with a pitch-measuring instrument should be perfectly consistent from tuning to tuning.

I realize that abbreviating a long, difficult article in no way makes it more lucid. But I do hope to have stimulated my readers enough so that they will look up and read the article themselves. — Ed Fesler ■

DON GALT

Relative Humidity & Piano Pitch

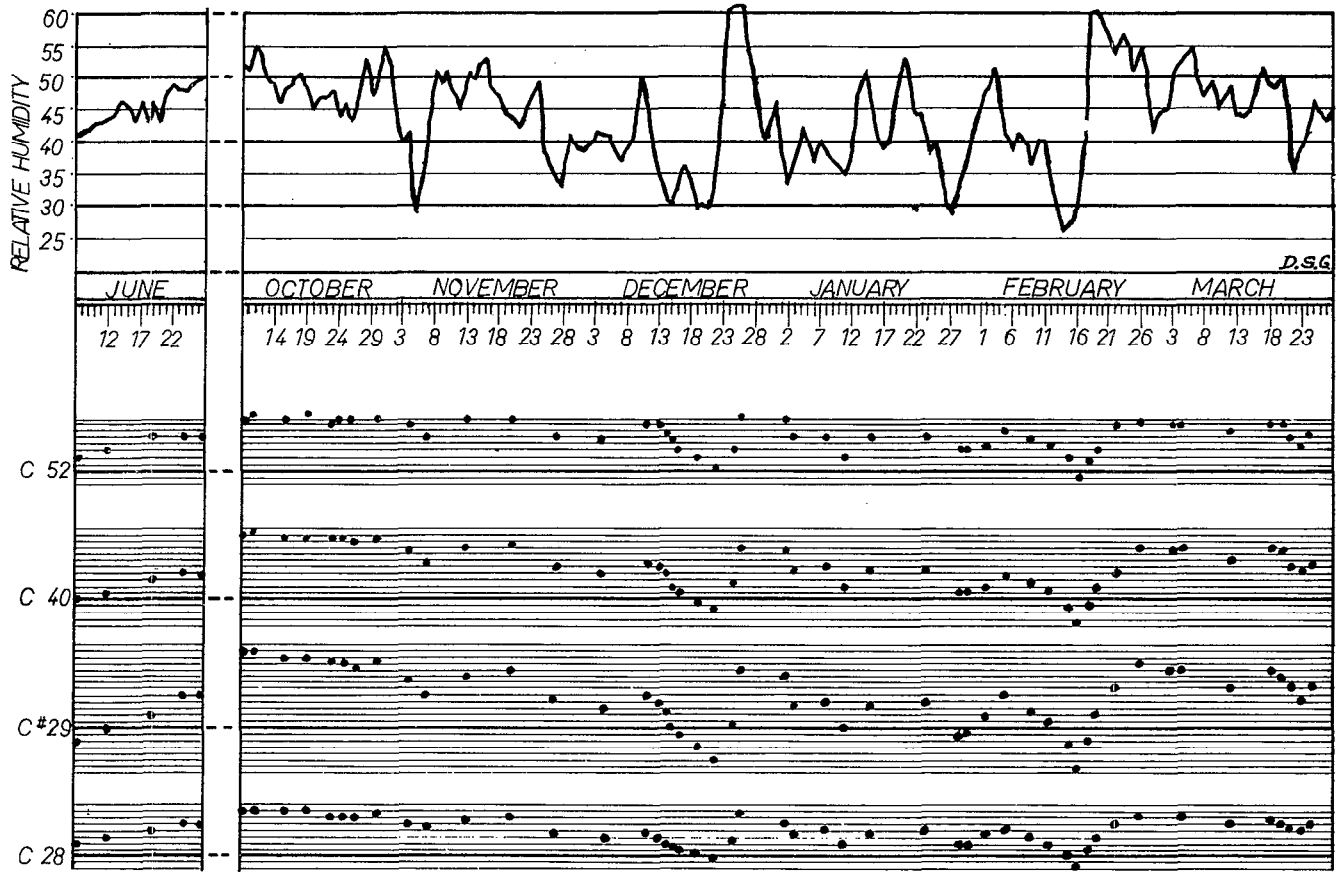
It is common knowledge that piano pitch tends to rise during the summer and fall during the winter in most temperate zone environments, due to upward and downward trends in indoor relative humidity. Less well known is the fact that piano pitch is also affected by changes in humidity occurring over a few days.

The correlation between such humidity changes and the pitch of your piano is revealed graphically in the accompanying chart. To obtain these data, a 45-inch studio upright piano of good quality was kept under surveillance over a period of nearly three years. The piano stood idle in a studio in the Music Building at the University of Washington. During this time, it was neither played nor tuned. The piano simply sat there, responding naturally to the ambient atmospheric conditions. A recording hygrometer placed on top of the piano made a continuous record of the relative humidity. Periodic pitch readings were made on all of the C's and of C#29 (the first note above the bass-tenor break in this instrument). These readings were made with a Stroboconn.

The chart covers a representative part of the three-year period. The pitch data on the other C's (not shown) are similar, and are omitted for simplicity. During the period covered by the June through October gap in the chart, both the humidity and the pitch curves were relatively smooth, tending generally upward, with a few humidity excursions into the upper 50's.

How large are the pitch fluctuations shown by the chart? Each space represents 1 cent (i.e., one one-hundredth of a semitone). During the period shown, C52 varied between 9 cents sharp and 1 cent flat. This 10-cent spread is about 3 Hz (cycles per second). C#29 varied from 12 cents sharp to 6-1/2 cents flat (i.e., 18-1/2 cents, or nearly double the variation at C52). This amounts to 1-1/2 Hz at this pitch. C28, at 7 cents sharp to 1-1/2 cents flat, varied less than half as much as its neighbor above the bass break.

In terms of "how it sounds," if the piano had been tuned in early June, it would have been pretty bad by October. Had the piano been tuned in October, it would have sounded atrocious on December 22, would have recovered dramatically (though unevenly) by the day after Christmas, would have been even worse on Feb-



ruary 16, and by March 1 would have been ready for a good solid tuning.

Humidity fluctuations are the most persistent enemy of pitch stability in the piano, operating relentlessly whether the instrument is used or not. Whatever sort of humidity curve you have in your area, you can expect this sort of correlation between humidity and piano pitch. In the Puget Sound area, where this study was made, the indoor relative humidity is usually between 30 and 60 percent. A wider range will mean greater fluctuations in piano pitch. ■

LESLIE J. HOSKINS

STRAY THOUGHTS

I suppose there are days when everyone — even you and I — wishes he, or we, had chosen some other profession than the one which now claims us. Something with wider horizons, greater opportunities, more glamour. Maybe a desk job with an open road ahead. We feel inhibited, stuck in a groove with no place to go.

I know that mood indigo feeling and it can really get a fellow down. Sometimes you feel so low you would almost be willing to trade jobs with the dog catcher, just for adventure.

Well, I've found an antidote for that hemmed-in feeling. It is in a little piece I read about a traveler who had stopped off in a small town and, while looking around, talked to an old man working in his garden. The traveler asked, "Is this town noted for anything?"

"Why son," was the reply, "this town is the center of the universe. You can start from here and go as far as you like in any direction." Isn't that a jolt for the stuck-in-the-mud state of mind? Of course we can start from where we now are and go as far as ambition and ability will take us; but as soon as we become aware of that fact, we realize that right where we are is where we really want to be or we wouldn't have built our house here in the first place. It's all in the point of view.

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There are many things which tend to dispirit a person and right now it is the annoyance and wasted time necessary to get gasoline for our cars. We grown angry and demand to know what got us into this plight. No ready answer appears, but it does seem as though our government could have prepared us for it. True, we were told, "Look out, it is coming," but we have heard the cry "wolf" so often that we don't take it seriously.

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Senator William Roth (Republican, Delaware), commenting on the worst rate of inflation in four years, said, "If the taxpayers have to dig deeper to make ends meet, they are going to need pockets 6 feet deep. We are sitting on an economic time bomb and the fuse is getting shorter every day." The taxpayer's temper fuse has been growing short for some time.

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Thought for the Month: "The higher you rise, the wider the horizon." ■

JOHN BLOCH

CHIPS OFF THE OLD BLOCH

Last month we left the symposium with Mr. Trefz as the last speaker on the panel. Now let's see if we can finish the discussion with everyone getting in their "last words" — so to speak.

CAN A SOUNDBOARD BE RECROWNED?

Don Morton: In the past four years we have been restringing an average of four to five pianos a week. In our shop we can't help but learn something while we are doing this. We have observed that, by giving the soundboard and the plate a rest before restringing, we get better results. The longer the rest, the better the results. We have concluded that the larger the piano, the longer the rest period. What is your experience on this? We try and give every job a three- to four-week rest before restringing. As soon as a job comes in, we measure the downbearing, then release the tension and let the matter rest for a month.

Moderator: Does anyone wish to reply to Mr. Morton's question? If not, then the next question. When installing a new soundboard, which would be preferable, a solid soundboard or a laminated board? In the case of the laminated board, which would be preferable, a spruce board or one made of mahogany?

Mr. Hoffman: The soundboard has certain functions. Since it must reproduce the tone (amplify), we believe that spruce is the only answer. We have had pianos in our shop that were fitted with plywood boards. Some of these were quite good. Truthfully, however, the resonance that could have come from, or could have been in, these pianos before they were fitted with laminated boards would have been better.

Let me go back once more to the soundboard installation. We season a board for a 12-day minimum in a dry kiln, with a temperature range of 120 to 175 dgrees F. The day before the board is placed in the piano case, it is seasoned once more for 7 hours. Time is getting short and I have said my part about spruce boards; let someone else say something about laminated boards.

Mr. Stein: I am not going to put my foot into this controversy at this time. I am through arguing about it. The people who haven't tried a laminated board just don't know. It is very true that the solid spruce board is a most wonderful board. Ever so many of us forget that the plywood board was patented some 80 years ago; it's nothing new. The only reason it was not a success at that time was because the only glue we had then was animal glue, which put too much weight on the board. A hide glue will take on as much moisture as wood will, but hide glue is susceptible to dampness and this does not make for a good board. The new glues that we have are immune to dampness. Water will not touch them. Much of the talk we heard here today indicates that solid boards lose the crown in many cases. I wish to say that a plywood board will hold the crown longer than we could expect a solid board to. A spruce plywood board is an ideal board.

I would like to prove my statement. I hope that a certain gentleman is in the building and here today, as he was one of the most difficult to convince that a spruce plywood board is a good board. Is Mr. Strum in the hall? In the meantime, I want to tell you something about Mr. Strum of Chicago. He is a very fine piano technician and has very good taste and judgment. Mr. Strum, will you step forward please? Now, Mr. Strum is not aware of what I am going to say, and what I say will prove a point. There are times when I must pull a fast one with a friend when he is not easily convinced and prefers to hold on to old established traditions.

I made some pianos in my laboratory several years ago. I made up two 40-inch pianos with laminated spruce boards. One day, Mr. Strum called on me for a visit. I suggested that he try these and other pianos in my shop. He was to tell me which piano he would choose if he were to select for a customer or friend. I also mentioned to him that I had intended one of these for a friend and would like to see his reaction and choice. He tried one, then another, and so on. He returned to a piano which he had tried once and then again, and finally said, "Gee, this is a fine piano. You really have something here. I would choose this one." I then told him that he should try two of them again, which he did. His choice was the same. Then I removed the cardboard that concealed the soundboards of the pianos. The piano which he had selected was a piano with a plywood board, one he would have condemned if he had known this before.

When the little piano came into existence, many technicians condemned it by saying that it was not good. The little piano is being made better today; it had to be improved. In the same way, we must strive to improve the soundboard as we go along. It makes no difference to me who uses a plywood soundboard and who doesn't use it, but my experience has been that the plywood board is a success.

Let me add this: Whenever manufacturers make use of birch, gum wood, or poplar for laminated boards, do not expect good results. A spruce plywood board is a good board and I have proof. The two pianos with plywood boards were made years

ago and were not sold, but given to my nephews to that I could at any time put my finger on them. The pianos stay in tune very well, and they are beautifully toned. They have been tried by many fine musicians. I would like to ask Mr. John Challis, the world's greatest harpsichord maker, what kind of a soundboard he uses.

Mr. Challis: Mr. Stein and I have been good friends for many years, always razzing each other and always praising each other, and I sometimes wonder when or where this is going to stop.

We have a real problem in building harpsichords. When you folks make soundboards for pianos, how thick do you make them? Something like 3/8 or 5/16 inch thick? We must make a board 1/8 inch thick. Such a thin board will dry out much faster than a 3/8-inch board.

If Susie's harpsichord is in a steam-heated apartment, and the steam has been turned on for a two-week period while they are vacationing in Florida, when they return they will find several splits in the board. Now, what am I going to do about it? This may also happen in very cold weather when the temperature drops to -10 degrees F, when there is no moisture in the air, and when an instrument is shipped during a cold spell. When the 1/8-inch soundbaord arrives, the board is apt to be cracked, regardless of how long we dry them, and we don't dry them for 15 days. Sometimes, I dry them for a year.

For the last eight years I have been using spruce plywood for soundboards. All the plies are made of as fine a grade of spruce as we can find. We have tried some mahogany and it was good, but not quite as good as spruce for tone. I have tried spruce boards of plywood side by side with lumber boards (solid boards) and, frankly, we cannot tell which is which. We also find that people usually prefer the tone of the plywood board. It is a pleasure to state that I can send out an instrument and positively know that it will not crack or buckle. The laminated soundboard is there for the life of the instrument — I need not worry any longer.

We have also learned that we no longer must bar (rib) a soundboard to keep it from buckling or cracking; all we do is bar a soundboard in such a way as to give the tone every possible advantage. We have made boards with very few bars and found that advantageous, provided of course that we adjust other conditions accordingly. We can't make anyone experiment with a board without making certain compensations at the same time. If we make a flat board, shall we say, we must adjust everything so that all the elements fit that particular board.

The same is true of plywood. If we make a plywood board, we can't make the other elements the same as we have always made them since grandpa's factory days. That would be a mistake. One has a choice of doing a number of things with plywood that you would not possibly do, or dare to do, with a lumber (solid) type board.

We have been making plywood soundboards now for eight years. They have been sent all over the country; some of these instruments are traveling with concert artists and are constantly on the road. We have never had a soundboard pull loose, buckle, or crack. This is quite a relief for me, and more important that that is the great relief for the people who buy that instrument. This must be considered first.

Moderator: This is all the time we have for this interesting discussion. I am sure we have all profited from it. Gentlemen, I thank you for your contributions. ■

BOB RUSSELL

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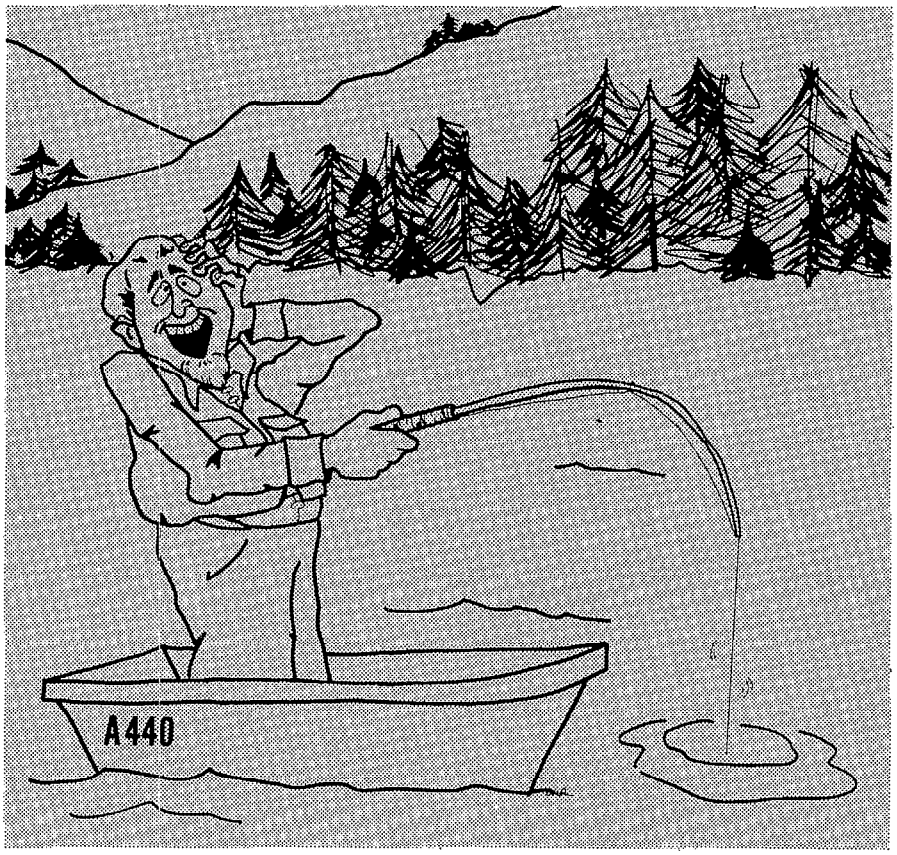

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San Francisco Chapter
COFFEY, BRUCE F.
Long Island-Nassau Chapter

APPRENTICE
BLOOMER, NANCY V.
Santa Clara Valley Chapter
MAHONE, CHARLES F.
Northeast Florida Chapter
MISBIN, BERNARD
New Jersey Chapter

JESSE LYONS

LYONS' ROAR

REPLACING A PINBLOCK

There have been several articles on this subject in the JOURNAL prior to this, but it seems that questions still arise when there in a pinblock to be replaced in a piano. First, when is it absolutely necessary to replace one? — When the tuning pins do not have sufficient torque to hold tuning.

This can be determined by using a hand scale (the same or a similar scale as used by fishermen). Extend your tuning hammer handle to where you can have a good 10 inches from the head to the place where you place the loop from the hand scales on the handle. Find what you suspect are the looser of the tuning pins and, holding the other loop of the scales in your finger, pull the tuning hammer backward against the tension. If the reading on the scales registers less than 4 pounds, you don't have good enough torque to ensure good tuning (6, 7, or 8 pounds is better). However, you can go too far to the right, and have more torque than is comfortable for tuning. Pins can then become so tight that they can twist or break off. Besides, it will make an old person out of you rather quickly.

Old pin planks generally have their problems. Take tuning pin measurements throughout the piano to determine if it has been restrung or repinned before. Most pianos are fitted with a 2/0 tuning pin in the beginning. My tuning class is now replacing a pin plank where 5/0 pins were used. (I am sure you know our story by heart.) Also, the old plank is separating in the laminations, making the block useless.

Had the pins been a 2/0 size, I still would have made the decision to replace the block. You might ask why the separation in the plank? It is probably for one or two reasons. First, there could have been an extreme drying out of the plank, preceded by extreme dampness. (This was evident in the plank we are replacing.) Second, someone might have repinned the piano without placing pinblock jacks under the pin plank to keep the laminations from separating. (This also seemed to be in evidence in the piano we are rebuilding.)

Our problem was to get this old pin plank out in as good a condition as possible for duplication. This piano is a Lyon & Healy grand and the pinblock is doweled into the front rim support as well as at the plank support rests on each end. We drilled out the dowels at each end and found that the case had been wrapped around the ends of the pin plank, with the pin plank being slotted into the case. This caused some deep thinking — to saw out the pin plank entirely around would be quite an undertaking. We decided to cut the plank at the point where the bass and tenor sections meet, but this still did not give us the freedom we needed to break the plank from the sides where they were slotted into the case.

Now comes the interesting part of what otherwise could have been a disaster, or major problem, for amateurs. Somewhere in the past years someone was giving away samples of "Firewater" at a convention. Being the pack-rat that I am, I had that sample stuffed in with some important items, and I happened to think of it. Not knowing if it still was effective, due to its extreme age, I reduced the water content to 4 gallons for the tube instead of the specified 5. We used about 3 cups of this "Firewater" around the edge of the pin plank, and let it set for a few minutes while we cut the pin plank as mentioned above.

By the time we got this operation over with, we saw that the pin plank had moved away from the case enough to get a bar behind it, enabling us to create a gap wide enough to get a saw in and cut the five front dowels. To our delight, and surprise, the plank came out clean — with no damage to the case. Also, we have perfect measurements to furnish Cliff Geers for fitting a new plank for us, with the exception of the sawcut in the middle section of the plank. (We made note of it in our description of the plank to him.)

We still have nearly 4 gallons of this precious "Firewater" stored under my desk. If this California firm still makes the product, it is well worth looking into as a glue-breaker.

We wish we could come up with some solution we can pour on the ends of this new pin plank to "grow" it into the slots at each end, but we will have to fit it as best we can and glue what surfaces are available. Fitting the plank to the plate will require exact measurements, so that the plank will be snug against the plate and the right thickness for allowing the plate to rest evenly on all its support posts.

The drilling of the new holes for tuning pins will also have to be done accurately or the whole job is shot to pieces. We are doing our best to come up with a drill on a frame for drilling a 7-degree angle hole.

Don't worry. We will do it — we've gotta do it! ■

ELOISE M. ROSS

YOUR SECURITY BLANKET

Summer — what a great season of the year! We associate vacations with summer. Vacations are fun, relaxing, joyous, free from care. We take a great amount of time planning; arranging; and anticipating where, when, and what we're going to do.

If you will be traveling in the areas of tornadoes, cyclones, and/or lightning — a few safety hints: (1) If golfing, **drop** your clubs (metal attracts electricity) and run to your car or the clubhouse; ***do not*** stand under a tree. (2) If jogging and caught in an open space, bend down with your hands on your knees — keeping to a minimum your contact with the ground. Get inside a building, close the doors and windows, and wait for the storm to subside.

If you are going to a foreign country, be careful about your food and drink. The best medicine is "Pepto Bismo." Be sure to pack a bottle! If you will be in the area of snakes (ask the local people), one precaution is to shut off the flow of blood from the bite — using a tourniquet.

An important part of your preparations is seeing that your insurance protection is all it should be to cover any occurrence — medical coverage adequate for an illness or injury, automobile protection for you and/or the other fellow, homeowner's and business insurance (fire, theft, liability, etc.).

Are you protected in case of accidents? Accidents do happen — according to the National Safety Council's report for 1974, over 10 million (you're right, that's million!). They aren't all vacation-oriented, nor all deaths, but most are disabling. Here are the statistics:

1. Motor Vehicle — 46,200 deaths and 1,800,000 disabling injuries
2. Work — 13,400 deaths and 2,300,000 disabling injuries
3. Home — 25,500 deaths and 4,000,000 disabling injuries
4. Public Places — 24,000 deaths and 3,000,000 disabling injuries

The PTG Accidental Death and Dismemberment plan is a good one. You and your family can be insured by simply applying for coverage. There are **no** health questions! Give yourself a break and peace of mind — look up your January issue of the JOURNAL and send in the application as instructed.

There is also a $10,000 Supplement to your Group Policy through PTG (grand total of $11,000). This plan was explained in the December issue of the JOURNAL. The plan takes a bit longer; you will have to write to us (**Sunset Insurance Associates; 510 NE 65th Street; Seattle, WA 98115**) or call (**1-206-524-8510**) for an application. State your birthdate for the applicable premium age bracket.

Getting back to the 1974 accident report, did you note the greater number of disabling injuries? See about getting disability income insurance. There isn't a plan available through PTG for new applicants at this time — sorry. We do have some covered, and only those may continue.

See you in Minneapolis! ■

CHAPTER NOTES

NOTE: Technical information submitted in chapter newsletters has been forwarded to Jack Krefting, Technical Editor, and will be included as part of the Technical Tip section of the Forum, as space permits.

ATLANTA CHAPTER

Atlanta Chapter recently elected the following officers for the coming year: Ted Staton, president; Larry Crabb, vice president; Harry Day, treasurer; Tim Reed, recording secretary; Bryant Hodgson, corresponding secretary; and Charlie Pritchett, chaplain.

Larry Crabb has also been elected as delegate to the national convention in Minneapolis.

The Atlanta Chapter membership recently passed a motion to have only four business meetings per year.

The NAMM Show will be in Atlanta June 9-11 and home office is requesting volunteers to man the PTG booth during the three-day period. Anyone interested may contact Ted Staton (983-8863) right away so he can send in your name and get your admission credentials. Vice President Bob Russell, RVP Henry Baskerville, and Executive Director Don Santy will be there. — Bryant Hodgson.

BUFFALO CHAPTER

Popenbergs' recently sold our upright project that we had been working on for the past few months. Chuck Erbbsmehl and Laverne Griffith spent some late evenings at the store, completing final touchups, etc., to the piano before it was delivered. Laverne will soon make a final "house call" for further checkup on the instrument. Our chapter will receive $180 from this project's sale.

Popenbergs figures we will be able to sell the Wurlitzer grand we recently brought in, with the assistance of Sandy Hartley, for $2600. The project is in need of new hammers, pinblock, tuning pins, plate bushings, strings, etc.

Our chapter chose not to participate in the free tuning for Channel 17's auction this year.

Laverne Griffith will be Nominating Committee chairman for this year's coming elections. — Marty Turkiewicz, Jr.

DENVER CHAPTER

The May meeting of the Denver Chapter was devoted entirely to chapter business. Chapter officers were elected and installed at the end of the meeting. New officers are David Wilson of Denver, president; Richard S. Frederick of Fort Collins, vice president; and Raymond H. Froid, treasurer. Lucius Day of Lakewood was reelected secretary and given the additional duties of Primary Council delegate. Alternate delegates are Richard Capp and Chris Finger, both of Boulder.

Other important actions taken during this meeting included a change of the regular chapter meeting night to the second Tuesday of each month starting in September, and direction to the new Chapter Board to prepare and distribute a detailed questionnaire to membership polling their opinions on numerous matters of chapter management and policy.

Group photographs of the new Board were taken, a budget was drafted for 1980, and a draft of the chapter questionnaire was approved at a Board meeting called by Dave Wilson. The budget, along with a recommendation for increasing chapter dues, will be presented to the membership at the June chapter meeting. The Council agenda book was discussed, but it was noted that numerous key committee reports and recommendations were not included at the time of distribution. — Lucius Day.

Denver Chapter PTG officers, left to right: John F. Bloch, past president; S. David Wilson, president; Richard S. Frederick, vice president; Lucius Day, secretary; Raymond H. Froid, treasurer.

LONG ISLAND-NASSAU CHAPTER

President Gary Shultz recently announced that Ernie Juhn would be the delegate to the national convention, with Norman Heishober acting as alternate. Bruce Coffey has been appointed the new chapter reporter.

Harold Roth reported on his survey conducted the previous month. The survey examined the willingness of members to volunteer to take part in an insurance program in which members will share the work of another member should he become a victim of a prolonged illness. Although the exact details have not been worked out, the plan will help provide an income for any participating member during his illness.

The highlight of the meeting was Ernie Juhn's demonstration of the new computerized PTG examination. Several Craftsmen tuned a piano until a "super tuning" was agreed upon. The data were measured by using the Sight-O-Tuner and fed into a programmable computer. After the same piano was untuned, Kerry Chaplinsky and Bob Hartz were brave enough to have their skills tested. They tuned the piano as close as possible to the "super tuning" and, as expected, both come extremely close to the original tuning. — Bruce Coffey

LOS ANGELES CHAPTER

President Dan Evans presented our Chapter Awards Dinner program; this will be held soon. Each chapter will honor two members: (1) the member who has done the most for our chapter within the chapter, and (2) the Craftsman who has done the most for our chapter outside of our chapter (such as in music organizations, etc.)

Election of officers took place for the new fiscal year. New officers are Dan Evans, president; Jim Harvey, vice president; Dick Patrick, secretary; Bob McGee, treasurer. Board members elected were Allan Cates, Harry Berg, Elwyn Brown, and Norman Neblett.

President Dan Evans has been elected delegate to the 22nd Annual PTG Council Session in Minneapolis during July, with Allan Cates as first alternate and D. Elwyn Lamb as second alternate.

President Evans called upon Don Morton, national president, to speak. Don outlined the procedures and requisites that will soon be implemented for passing Apprentice and Craftsman tests.

During our technical question-and-answer period, one member showed a type of brush for cleaning strings; another announced that "Dragon Skin," stapled to a paddle, makes a good file for shaping hammers (sold by Standard Brands).

Richard Davenport presented the technical program. This was his first time, and what a tremendous presentation he made. The subject was, "Why Do We Regulate a Grand Piano the Way We Do? What is the Purpose of Each Step? What is the Theory Behind Each Part Regulated?" Space does not permit more, but here is one of his examples: "Why is the knuckle round in shape rather than oblong or an abrupt corner when letting the jack off the knuckle? **Answer:** The jack must continue in the same geometric plane to the core from beginning of lift, to the end of hammer lift; therefore, the knuckle must be round. His whole lecture was full of logical and geometrical thinking. — Harry Berg

ORANGE COUNTY CHAPTER

Orange County Chapter recently voted to host the 1981 California State Convention.

Paul Monroe gave the chapter's requirements for their Chapter Awards Dinner nominees, and the chapter has voted to contribute $25 to help finance the arrangements for the dinner. Ken Churchill has been nominated to be the Orange County Chapter's honoree at the forthcoming dinner. The dinner, including a performance of "My Fair Lady," will be at the Grand Hotel in Anaheim.

Francis Mehaffey has been selected as nominee for extraordinary service to the piano profession, and Norman Miller has been selected for extraordinary service to the music profession. — Newsletter

A Report on the California State Convention and Conference

The convention was preceded by a meeting of the California State Conference Board. Norman Miller, with nine years of service, was succeeded by Jim Donelson as chairman; Ernest Dege, who has served five years as secretary-treasurer, was succeeded by Wayne Matley. The board voted to continue the Awards Program administered with the Music Teachers Association. The program presented over $1800 last year to deserving young pianists.

The 12th Annual California State Convention, held at the Sheraton-Universal Hotel in North Hollywood, attracted an attendance of nearly 400 from 18 states, including Alaska. Convention Director Gene Rudder, Los Angeles President Dan Evans, and Institute Director George Defebaugh led a cooperative and efficient team which featured 21 classes dealing with technical and business-related subjects, as well as other interesting events (such as a tour to San Sylmar where many very unusual musical instruments could be seen and heard).

Drawing the top instructors from the piano industry, as well as from our own membership, the convention results had to be excellent. Altogether, 58 nonmembers were registered. (This should become a challenge to other chapters.) A surprisingly large number of women registered for the technical classes — another indication of their interest in becoming established in our profession.

The banquet offered one of the best dinners experienced in some time at a convention. An honored guest was Mrs. Elizabeth Hilton, first vice president of the Music Teachers Association of California, who expressed the Association's appreciation for the awards sponsored by the California chapters. The speaker of the evening was PTG President Don Morton, whose subject was "Time...

Banquet scene

What We Have Left and What Will We Do with It?" Featured soloist of the evening was the 1978 PTG/MTA Concerto Award winner, Jean-David Coen, whose excellent performance of the major works of Chopin, Ravel, and Rachmaninoff brought a spontaneous and standing ovation. The famous A-440 Combo took over the remainder of the evening, providing an opportunity for dancing.

The Los Angeles Chapter Auxiliary, under the leadership of Marge Evans, provided an invaluable service by managing registration, tours, decorations, etc. Many interesting events kept the ladies busy.

We appreciate the favorable comments on the success of the convention and how smoothly everything went together. Next year wo go to San Jose for the second time, with the Santa Clara Valley Chapter as host. In 1981 we look forward to a convention hosted by the Orange County Chapter, perhaps at Newport Beach or Disneyland.

The dividends of these events obviously exceed the costs.

WICHITA CHAPTER

The following report was submitted by Charles Burbach, president of the Wichita Chapter. Photos were taken by Wayne Clevenger.

Please don't let this story out, lest the Wichita Chapter be arrested *en masse* for *exposure*! We have just concluded a most successful promotion at our largest local shopping center. It was headlined as a "kick-off" to National Music Week. We completely underestimated the interest of the general public and had to call for reinforcements to man our exhibit. Our chapter was told by the shopping mall management that they estimated 60,000 people passed by in the three days that we were there. The marvelous part was the large percentage of people that stopped, looked, and asked questions. Many of our members reported "on the spot" results which involved tunings, repairs, and rebuilding. We feel that the intangible results over a period of time will be tremendous.

Our chapter featured a 7-foot 4-inch Bosendorfer grand on center stage, and issued invitations to local universities and the Piano Teachers League to have their students perform. The response was beyond belief! There was hardly a time that the piano was idle during the 27 hours it was on display.

Our PTG display booth was located on a court just off the center stage (where the Bosendorfer was located). Four tables of exhibits contained PTG brochures, a membership roster of PTG members in Kansas, charts and illustrations of mechanisms, and action models. A special display, put together by Marty Hess, contained a breakdown of action parts mounted on a display board, and a complete grand action and upright action. We featured the "Music of Sound" film on one of our tables, which we ran continuously during peak traffic periods.

In addition to the table displays, we had an 1857 Steinway grand, torn completely down to the posts (minus soundboard), which was furnished by Tony Novinski. Marty Hess supplied us with a completely rebuilt and refinished Mehlin grand, which we used as a contrast to the above-mentioned Steinway, showing the "before-and-after" possibilities.

We involved local music groups by having exhibits from the Wichita Symphony, the Wichita Musicians Association, Wichita State University, Friends University, the Wichita area Piano Teachers League, and the Wichita Music Theater.

The chapter members are elated over the project, and heartily recom-

One of the performers at the Bosendorfer on center stage

Ron Nossaman, center, with some interested viewers of the rebuilt grand by Marty Hess

mend this idea to other chapters. We feel the results and effect were far superior to our past experiences of exhibits at Music Educators meetings, primarily because we had "the whole show," and because we feel we came in contact with the piano-owning public.

We definitely plan to repeat the project next year, including more music groups and, hopefully, selling the idea of our exhibit to the Merchants Association of the mall, to such an extent that they will promote National Music Week in their stores and advertising.

We were also featured on KAKE television, which broadcasts a show from the mall. The following is a partial transcript of that broadcast and will show the great publicity we received for the Guild. The show, called "Kaleidoscope," is broadcast regularly from the mall and has a rated viewing audience of over 200,000 person in Kansas, Oklahoma, and Nebraska.

Partial Transcript of Television Interview

Gene Rump (KAKE-TV): With us from the Guild today are President Chuck Burbach and Vice President Wayne Clevenger. Chuck, tell me about the Guild. What kind of things are you involved in?

Television broadcast — Left to right, Wayne Clevenger, Gene Rump (KAKE-TV), and Chuck Burbach

Burbach: The Piano Technicians Guild is an international organization of piano tuners and repair people. We are the only group in our profession recognized by the National Piano Manufacturers Association, teacher groups, and dealers. The Guild is closely affiliated with similar groups in Europe and Japan. Our basic purpose is to provide responsible, reliable, and ethical service to the piano-owning public.

Rump: Good idea! What kind of projects do you have going over the next couple of weeks?

Burbach: We don't have anything specific occurring in the immediate future. Our display here at the mall will end at 9:00 p.m. this evening, and we would like everyone to come out and see it. The Guild does have monthly local chapter meetings in which we have technical programs for our members. The programs attempt to upgrade their skills and keep them abreast of any new developments in our field. We have a national convention coming up in Minneapolis during July, consisting mainly of technical sessions conducted by manufacturers and experts from within our organization. Our conventions are not the "fun type"

Rump: You don't put on funny hats or anything?

Burbach: No, not really.

LUELLYN PREUITT

Wives' Lives

IN MEMORIAM

We are saddened to have to report the deaths of two dedicated, useful, and talented members of the PTG Auxiliary. Bertha (Mrs. Cecil) Short, a member of the Los Angeles Auxiliary, died recently in Lincoln, Nebraska, where she had been living with her daughter. She was active in the local and national Auxiliary, serving efficiently and faithfully as national parliamentarian — and until a few years ago never missed a national convention. Evelyn (Mrs. Charles) Wagner of Cleveland, Ohio, was likewise a talented and dedicated member of the Auxiliary. She was a motivating force in the organization of the Cleveland Auxiliary and did much to create the success of the national convention when it was held in Cleveland during 1971. Both members will be missed by their many friends in the Auxiliary. We wish their families our deepest sympathy.

Greetings! How are you coping with your hot summer weather? If you hadn't planned to be in Minneapolis this month for the convention, you have only yourself to blame. As Avis and Maxine mentioned — days are warm, but evenings and nights will give you the opportunity to become deliciously cooled off. Even if your decision to come is a "last-minute" one, make it — you won't regret it! Remember, "Take a Giant Step." The 22nd Annual PTG Convention and Institute of Piano Technology begins July 23 and ends the 27th.

NEW AUXILIARY MEMBERS

Dessie Cheatham, Auxiliary treasurer, has forwarded a list of new members. We welcome them to the Auxiliary and hope to meet them in Minneapolis.

From the Indianapolis Chapter, we are glad to welcome Sheryle Rice (Levi); 1305 South Lynhurst Avenue; Indianapolis, IN 46241. This is one of our newer chapters and you can see they are working at expanding. Next, from a chapter which has been in existence for many years and is still working and expanding, we are happy to include Mary Lyons (Jesse); 4301 South Kelly, Apt. 2; Dennison TX 75020. Another of our "old" chapters has recruited Jayne Wagner (R.W.); 1225 Saxonward Avenue; Pittsburgh, PA 15234.

The Philadelphia Chapter claims it doesn't do much, but that must be right (what it is doing that is) because they have a new member — Patricia Johnson; Harding Highway, Box 109; Penns Grove, NJ 08069. And the Twin Cities Chapter (isn't it strange how working on a convention attracts more new members?) reports not one, but two new members. We welcome Kris Meissner (Walter, Jr.); 9262 Yucca Lane; Maple Grove, MN 55369; and Judy White (Charles); RR1, Box 134; Alma Center, WI 54611. Congratulations to all these ladies and their chapters!

TALENT SHOW

Are you preparing something for the talent show? As President Helen suggested, it might be something you're "no good at," or it might just be your "best shot." Whichever, we do hope to see you in performance. You may find that you have a "stage door Johnny (or Janie)."

SPOUSE CLASSES MIGHT PROVIDE AN IDEA OR TWO

We have an exceptionally large number of classes for spouses this year. If you are simply not interested in piano work, take the time and visit the enclosed skyway shopping lanes. If you are part of your technician's business, it will pay you in the extension to attend. Even if the class is about something with which you are entirely conversant, you still might pick up an idea or two. Our good friend, Paul Cheatham, has been heard to say, "If I get just one new technical idea from a convention, I figure it's money well spent." Couldn't this also apply to Auxiliary members? After all, I don't care how much money you make on your own; some of that joint income comes from pianos! Classes are all taught by RTT's!

MEETING A CHALLENGE

Your writer has received a real challenge within the past two months, to defend the Auxiliary and its purpose. She is still thinking and pondering upon this question, even while answering one of the specific challenges. In the interim, as if in answer to prayer, comes an unsolicited contribution which fits into this context. Therefore, I am privileged to relay to you a statement from a member of the Auxiliary who is nominated for first vice president at our Minneapolis meeting, Julie Berry. Julie is a charter member of the Indianapolis Chapter and has contributed to this column in the past.

When I first attended PTG seminars and conventions, I was puzzled that the Auxiliary schedules included so much "let's get acquainted" time. I figured they called any time they couldn't fill with something more useful "let's get acquainted." It took a while, but through the years I have come to realize that one of the best functions of the Auxiliary is helping members across the nation become better acquainted with each other. It gives you a chance to have friends from nearly every state and provides you with an opportunity to share parts

of your life with other families of our highly specialized trade.

Some of your neighbors might tell you they would never put up with sawdust and felt shavings on **their** *garage or basement floors, or they might try to convince you he's taking advantage of you because you have to park in the driveway so he can take over the garage as a workshop. After you have attended a few PTG workshops or conventions, you learn that some of the most successful piano technicians in the trade began by leaving sawdust on the basement floor, or appropriating the garage to rebuild a piano.*

There are definitely aspects of this crazy craft which will perhaps only be understood by people who live and work with — or around — a piano technician. If I had started by saying, "Let's get acquainted time is important so you can learn to live with sawdust," you might think it a misprint. Yet, it comes together when we realize how short the time is we are together. Sometimes we just need someone to listen. Other times we do the listening because we have found ourselves in the presence of women who have been helping their husbands run the business for 30 or more years. Maybe we don't care about or even like the piano business; suddenly we find ourselves in the presence of other piano widows and we plan a great shopping tour.

There is no one prevailing attitude, life-style, background, or opinion among members of the PTG Auxiliary. That's what makes it such a fascinating group for getting acquainted. It isn't always easy to feel comfortable in such diverse company. In fact, many a wife has been thrust into our midst, or at least urged to participate, by a technician who wanted very much for his wife to become part of the group.

Each time I go to a seminar there are lots of new people to meet, especially if we travel to a meeting in a region or state other than our own. While I'll say it is never easy to strike up a conversation with almost-strangers, I have learned that the task becomes less nerve-racking and more pleasurable each time I try it. By the time we leave, I always feel enriched by my new acquaintances.

NEW COLUMN NAME

We are getting some **very** good suggestions for a new column name. This writer will have all of them in Minneapolis. Perhaps you would care to vote; if so, there will be a ballot box and some supplies furnished to help you. Let's "Take a Giant Step Forward"! ■

Coming Events

Notice of seminars will be accepted for insertion in issues no sooner than six months before the event and will be continued until after the event.One free display ad of 2 columns X 2½ inches deep is available for all PTG seminars, etc. It is the responsibility of the advertiser to submit copy for ad to home office. MATERIAL MUST BE RECEIVED BY THE 1st OF THE MONTH PRECEDING PUBLICATION.

NOTE: All seminar dates must be approved by the Conference Seminar Committee. Please submit all dates to home office on the appropriate Request for Seminar Approval Form.

OCTOBER 5-6, 1979
WESTERN MASSACHUSETTS CHAPTER SEMINAR
Sturbridge, Massachusetts
Write: Binese Goldberg
36 Kenwood Terrace 8
Springfield, MA 01108

OCTOBER 7-9, 1979
SOUTHWEST FLORIDA STATE CONVENTION
St. Petersburg Beach, Florida
Write: Roberta Jacobs
627 Hand Avenue
Sarasota, FL 33582

OCTOBER 13-14, 1979
OHIO STATE SEMINAR
Columbus, Ohio
Write: Benjamin F. Wiant
865 Bryden Road
Columbus, OH 43205

OCTOBER 19-21, 1979
TEXAS STATE ASSOCIATION CONVENTION
Fort Worth, Texas
Write: Tom Blanton
P.O. Box 8
Sherman, TX 70509

Serendipity in PTG

For the next several months, space will be devoted in the JOURNAL to those members who have special nontechnical problems. "Rosette" stands by waiting for such correspondence. Please write to home office, addressing letters to "Rosette"; Piano Technicians Guild; 113 Dexter Avenue North; Seattle, WA 98109.

Dear Rosette:

Ever since your column started I have tried to figure out why you use the names Rosette and Flange. Then I stumbled on a possible answer. According to the PTG book entitled Piano Parts and Their Functions, *rosette is part of the flange. Am I correct?* — YRB

Dear YRB:

Such serendipidy!! Go to the head of the class.

CLASSIFIEDS

CLASSIFIED ADVERTISING RATES: Classified ads are 15 cents a word, with a $3 minimum. COPY DUE the first of the month preceding publication. Please do not send remittance with ad copy; you will be billed later. ADDRESS: Managing Editor-Art Director/Charlona Rhodes, PTG, 113 Dexter Avenue North, Seattle, Washington 98109. Telephone: (206) 283-7440.

HELP WANTED

WANTED — Organ technician full time for music dealer in sunny Florida. Write: **Bobb's Pianos & Organs; 304 West Hallandale Blvd.; Hallandale, FL 33009; or call Mr. Bobb (305) 456-7800.**

HELP WANTED — Experienced piano technician-tuner, full time. Excellent wages and working conditions, Anaheim, CA. Mailing address: **Piano Warehouse; 8081 Starr Street; Stanton, CA 90680. Phone (714) 821-3311.**

FOR SALE

FOR SALE — Tuning-rebuilding business, 350 customers. Shop with tools, pianos, etc. **C.L. Strawbridge; P.O. Box 331; Muncie, IN 47305; (317) 282-1479.**

FOR SALE — Steinway Model C grand, 8-foot. Contact: **Brandwein & Hulme, Piano Rebuilding Co., (816) 931-1660.**

FOR SALE — 9' 3" Mason & Hamlin, Model CC-1. Pinblock, soundboard, and action parts replaced in 1971. Excellent condition. $10,000 or offer. Will consider trade for smaller unrestored quality piano. **Richmond Piano Rebuilders; 3133 West Cary Street; Richmond, VA 23221. Phone (804) 358-1929.**

FOR SALE — 1885 eighty-eight note Model D Steinway. Needs rebuilding but has good potential. Rosewood case in good condition (painted over). Three-pedal system, late model action, bridges excellent, good bearing throughout. $4000. **Richmond Piano Rebuilders; 3133 West Cary Street; Richmond, VA 23221. Phone (804) 358-1929.**

TUNING-REBUILDING BUSINESS FOR SALE — 350 customers, shop with tools, pianos, etc. Contact: **C.L. Strawbridge; P.O. Box 331; Muncie, IN 47305; (317) 282-1479.**

FOR SALE — 1857 Chickering Cocked Hat Grand Piano. Rosewood case in excellent condition. New strings and tuning pins in 1976, original action, plays well, looks exceptional. Rare collector's item. $5500 or offer. **Richmond Piano Rebuilders; 3133 West Cary Street; Richmond, VA 23221. Phone (804) 358-1929.**

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

MISC.

WANTED — Steinway upright action parts (old Models V or K): whippens, damper levers with metal plates, and/or hammer butts. Contact: **Glenn Brown; 1108 West 19th Street; Tempe, AZ 85281. Phone (602) 966-3023.**

WANTED — A plate for an early Model A 6' 2½" Steinway grand. Call collect or write: **Tom Kuntz; Rt. 1, Box 201; C.d.a., ID 83814. Phone (206) 667-1205.**

Build your own precision key recovering machine from stock machine parts. Demonstrated 1978 California convention and Pacific Northwest 1979. Send $10.00 p.p. for accurate machine drawing, instructions, photos to: **Solenberger Piano Service; 1551 Lynn Court; Santa Rosa, CA 95405.**

WANTED TO BUY — Mason & Hamlin Grand Piano. Want one that was a player. I have a player mechanism to install. Will pay handsome reward. Brady 4609 Cranbrook Indpls, Ind. 46250 (317) 259-4305, after 5 pm. (317) 849-1469.

WANTED — Steinway upright whippens, K-type. New or nearly new; whole or part set. Write, stating price and quantity: **Roland Grittani; 423 Colborne Street; London, Ontario, Canada N6B 2T2.**

POSITION DESIRED

WANTED — Piano technician desires full-time position with either college or store. Contact: **William Haggerty, RTT; 242 West Silbert; East Rochester, NY 14445. Phone: (716) 381-5649.**

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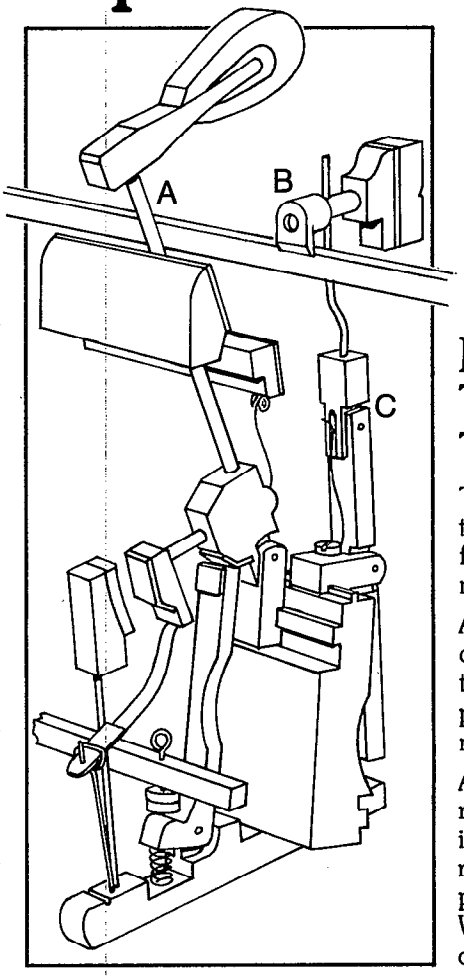
The Wurlitzer sostenuto system -so simple to service



INSTANTLY ACCESSIBLE FOR SERVICE

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

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

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

NO NEED TO REMOVE THE ACTION

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

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

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

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

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

WURLITZER®
The Music People
DeKalb, Illinois 60115

PIANO TECHNICIANS GUILD

1979 JULY UPDATE

In Memory
Leslie Hoskins

The profession of the piano technician owes a great debt to Leslie Hoskins who died June 10th.

Those who knew him were well aware of his quiet, kind and unassuming nature. As former Executive Secretary of the American Society of Piano Technicians and as Editor Emeritus of the JOURNAL, we learned to appreciate his wisdom, humor and devotion to the organization which meant so much to him and which never diminished. During a brief hospitalization last December, his first questions was, "Has the JOURNAL come yet?"

The Guild acknowledged his considerable contributions to PTG through the years with Life Membership (1965), the Man of Note Award (1970), the Golden Hammer Award (1974), and the Hall of Fame (1976). Les accepted these with his usual modesty and humility.

The life of Les Hoskins sets an example that should stand as a beacon for all to follow. Married 69 years to Frieda, theirs was a life full and rewarding.

It is a privilege to have known him as a friend and colleague. -- Norman Miller, Monterey Park, California

Magic Kingdom Club Special Savings

PTG members enjoy membership in the Walt Disney Magic Kingdom Club and now there's a special incentive for your summer travel.

As the "official host" of the Magic Kingdom Club, over 400 participating Howard Johnson's Motor Lodges extend a 10% discount on doubled occupied rooms at the directory rate. And at most of the lodges, children under 18 are accommodated free of charge when occupying a room with their parents.

Advance reservations are necessary. You may call toll-free by dialing (800) 654-200.

In Oklahoma, call (800) 55-9041. In Canada, east of Ontario, (800) 268-4940. In Toronto, 363-7401. Canada west of Ontario, call collect, (88) 363-7401.

Be sure to identify yourself as a Magic Kingdom Club member. Upon registration you will be required to present your Magic Kingdom membership card.

For a free directory listing participating lodges, stop by any Howard Johnson's Motor Lodge or restaurant.

From the PONOMO VALLEY CHAPTER "Junior Journal: comes this observation: "There's a lot of nonsense to the effect that it is better to be poor and happy than to be rich and miserable. How about compromising by being moderately rich and a bit moody?"

IT'S A GAS

An old Chinese saying goes something like this, "It is not WHAT happens to you that is important, but HOW you take it."

If we as piano tuner-technicians approach the present gas shortage with this philosophy, we are going to be better off in more ways than one.

Instead of fretting and fuming or even fighting while waiting in a long line to buy gas, take along the JOURNAL to read; write some long overdue letters; take along some shop-work with you, such as redesigning a scale for a piano to be restrung; or make a list of the advantages of being a member of the Piano Technicians Guild.

Of more importance to your business when there is a gas shortage is "area scheduling." Get out the old customer file and contact by phone or letter those customers whose pianos are overdue for service and let them know that because of the gas shortage, you would like to service their piano on a specific date.

Not exactly recommended is the old telephone trick we've all heard that goes like this: "Mrs. Blank, our Quicky Kleen Rug Company will be in your area next Thursday and we would like to give you a special price to clean your rugs then."

Following is a sample of a form which could be printed and mailed out. But don't use this form, make up a better one.

NITTY GRITTY PIANO SERVICE
123 Main Street
(Your City, State or Province)

Dear _____,

According to our records, your piano was last tuned on __(date)__. Since all piano manufacturers recommend a minimum of two tunings a year, it is quite like to be tuning time at your house.

Due to the current gas shortage, we at Nitty Gritty Piano Service want to make the best use of the limited amount of gasoline we have by scheduling our customers in the same area on the same day. On __(date)__ we will be servicing the piano at the home of __(name)__, __(address)__.

We will call you in a few days to make an appointment with you on that date if this is convenient with you.

Musically yours,

One final suggestion on how to take advantage of the gas shortage is to stay home over the weekends and do some jobs the Missus has been after you to do for months, such as tuning your OWN piano.

Don't let the gas shortage catch you short on how to cope with an unpleasant situation over which you have little or no control. -- Sid Stone, Western Regional Vice President

Membership Promotion

Your chapter can obtain some FREE membership promotion literature to help recruit new members (and enlighten some of your longer termed ones).

Write to the home office for copies of the following:

Thank You for Your Membership Inquiry -- An information sheet about how to apply for membership that is sent out by the home office to all people who inquire. Lists fee schedule, procedures, necessity of chapter contact, etc. A helpful tool for all prospective members.

PTG Member Services -- A comprehensive one-page listing of the benefits of PTG membership. Excellent for present and prospective members.

Lending Library List -- Our library grows more and more popular.

PTG Magic Kingdom Club Applications -- Most of the MKC cards expire in December 1979. You must reapply to receive a card good through 1980 (this card is not sent automatically).

List of PTG Approved Tuning Schools -- This list supplies school names and their addresses.

The Other Masters of the Keyboard -- Reprinted from the February 1978 issue of "Reader's Digest," this superb article about piano technicians as craftsmen and individuals is still available in limited quantities. An excellent career recruitment tool.

Letters... We get letters.

Dear Mr. Santy,

During a coffee break in my shop, I picked up the March 1978 JOURNAL and read with interest your vivid account of the big snowstorm in Chicago. I must confess that I had quite a laugh when I read your first paragraph in which you stated that the population of Chicago was paralyzed during this period.

Only a few days ago, I read another report that more women became pregnant during this particular snowstorm than any other time in history. I therefore would urge you to retract your statement, because the population could not possibly have been as paralyzed as you thought.

I do not question your statement that PTG went into a tailspin, however, there must have been a brighter side to life.

Forgive me for being a bit humorous, but I just couldn't help throwing this in.

(signed) Harry H. Ritchie,
Elizabethton TN

From the MILE HIGH CHAPTER "Soundboard" -- "Every job is a self-portrait of the workman who did it. Autograph your work with excellence."

Late News Convention 1979

(AP) - The Minnesota Energy Agency has launched a voluntary program aimed at keeping open a sufficient number of service stations so that tourists will be able to purchase gasoline this spring and summer.

Under the program announced Friday, some stations will be asked to remain open until 8 PM on Fridays, Saturdays and Sundays. The agency will publish lists of the stations for travelers' convenience.

Richard Wallen, assistant agency director, said the first list will be released Friday. The program is aimed at stations along Minnesota's most heavily traveled highways, he said.

The American Automobile Association's state chapter says gasoline prices at full-service major brand stations last week averaged 80.5 cents a gallon for regular, 84.2 for unleaded, 85.7 for premium and 88.8 for unleaded premium. Self-service prices were three to four cents less.

YOUR CONVENTION PACKETS, available at the Registration Desk upon your arrival in Minneapolis, will contain the usual convention paraphernalia such as your badge, ribbons, tickets, guide maps, etc. In addition, you will find useful items commerative of you taking the "GIANT STEP FORWARD" by attending the 22nd Annual PTG Convention. See you there[

RICHARD FLEGLE, president of the local host committee for the Minneapolis convention, has announced that his Twin Cities Chapter is sponsoring a dance for all members who wish to "trip the light fantastic" FOLLOWING THE BANQUET.

The dance will be held in the Radisson Hotel, Friday, July 27th. More information will be available at the convention.

A NEW FILM will be shown at the convention in Minneapolis on "bridge repair and bridge cap making."

Ernie Juhn produced the one-hour film which will be shown on Sunday, July 22nd at 4:30 p.m. in the North Star Hall of the Radisson immediately following Council session.

This film is NOT included in your official program, so be sure to make a note of the time and place.

Northeast Note

DICK BITTINGER, Northeast Regional Vice President, requests that all newsletter editors in his region add his name and address to their mailing lists.

He would also appreciate receiving newsletters from other chapters outside his region.

It would be a good idea to add your own Regional Vice President to your chapter's mailing list. Their addresses are in the front of the JOURNAL.