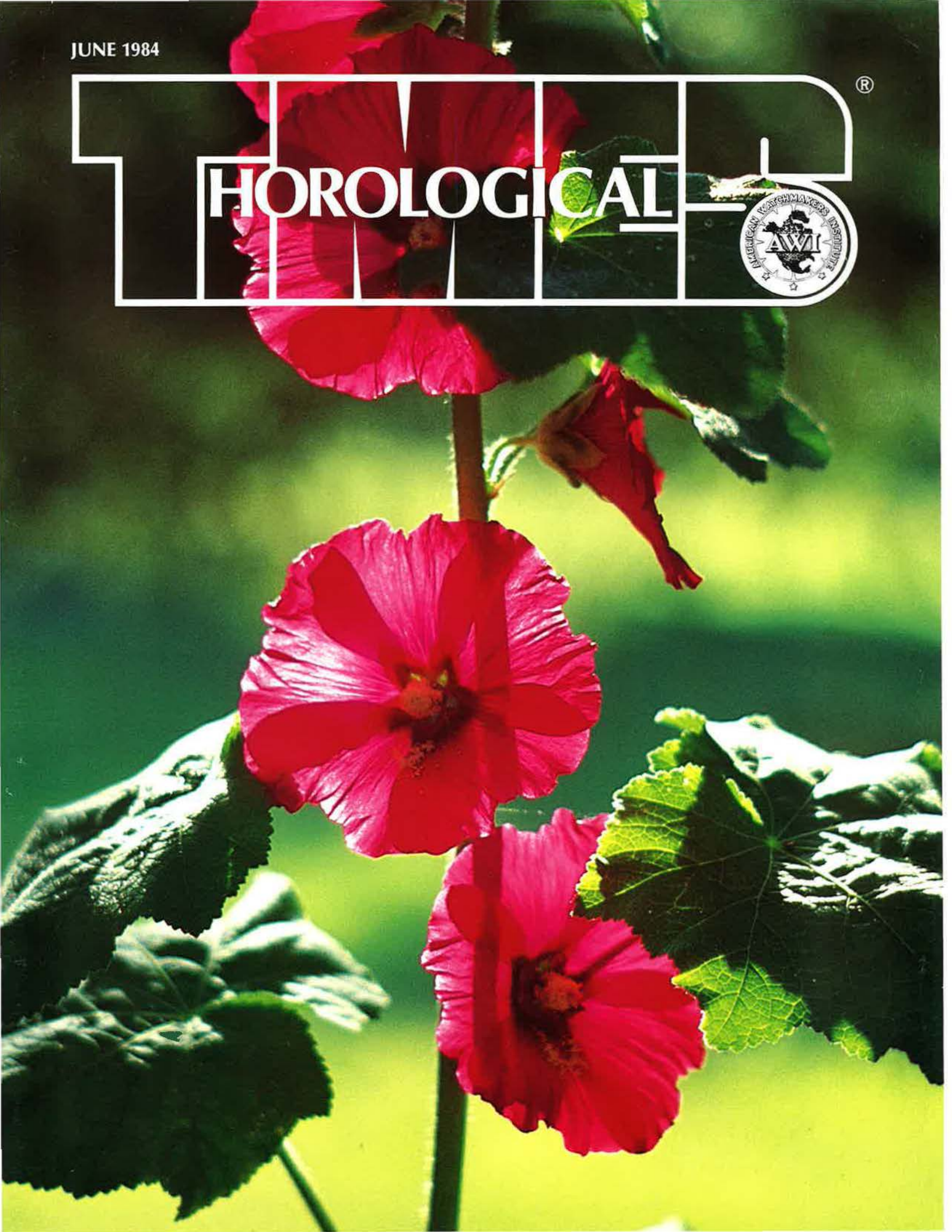
JUNE 1984

THE HOROLOGICAL TIMES®



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FELLOWS OF THE AMERICAN WATCHMAKERS INSTITUTE

Editorial

There are times when an item is brought to you for repair where the cost of repair exceeds the value of the piece. An example could be a 16 size Elgin filled hunting watch with case condition judged as poor. Close examination shows that the case lid needs repair, the movement needs complete service, balance jewel, balance staff, mainspring, and a sleeve. Cost of restoration is approaching the double century mark. The ills of the watch and the cost to correct them are explained to the customer along with the assurance that the watch will operate satisfactorily after servicing.

Almost every customer will ask the value of the watch. Now that you have been invited into the field of appraising, you must explain that millions of 16 size Elgin watches have been manufactured and that it holds no real antique value. But the customer is not satisfied and wants you to translate their watch into dollar value. You must explain that the value of the watch does not nearly approach the cost of repair. The customer thinks for a minute and says that he doesn't care about the cost. He simply wants his watch to work.

Those of you who have a customer's completely restored 16 size Elgin in your safe for the past five years have already learned your lesson. Those of you who do not are fortunate.

It is reasonable to ask for a substantial advance of money prior to proceeding with the repair.

On the Front

The showy spikes of a red hollyhock decorate our June front cover. The plant is native to China, but widely cultivated in the U.S. for its brightly colored flowers.

Photo by Mervin Levenberg

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PRESIDENT'S MESSAGE...

Marshall F. Richmond, CMW

Proposed Amendments

The constitution of the American Watchmakers Institute was originally drafted by a committee headed by Mr. John M. Farrell, CMW, who was the first President of the Institute. Over the 24 years that AWI has been operating, very few amendments have been made to this constitution, although the Institute has been very closely guided by it. Most changes made have been made in an effort to expand the operations and services offered members to allow the healthy growth it has shown over this 24-year period. This constitution has been adequate to allow the dedicated officers, directors and the administrative staff to build the American Watchmakers Institute into what it is today, offering more services in educational and technical information than any other trade organization that I have heard of.

I believe that the process to amend the Constitution and By-laws is a necessary and important one, but it should be used judiciously. In my opinion, if a proposal is worth presenting, it should be worth careful consideration and proper presentation. Care should be given to determine the impact such change might have on all aspects of the Institute's structure. Care should be given so that while you are "fixing" what you believe to be a problem, you are not actually creating others. I further believe that those who sign a petition for change are responsible for being thoroughly familiar with what the proposal contains. They should be sure that it actually accomplishes what it claims to do.

The cost of processing a proposed amendment is no small item. If a proposal requires a special meeting of the members of the Constitution and By-laws Committee and a special election is directed, the costs can exceed $4000! Postage alone is about $1400. I believe that proposals should be well thought out and not made capriciously. While I write this article, there is a proposal before the Constitution and By-laws Committee. Unfortunately, it was tendered too late to be processed with the annual election materials. If it goes on the ballot, the costs mentioned above will apply. It would seem to me that AWI's monies and energy could be better spent in helping out members. This is especially true in this case, because the same basic idea was rejected by the delegates to the last affiliate chapter meeting. This fact gives me cause for concern.

My concern is the fact that a few, who are unwilling to accept the will of the majority, could continue to raise an issue which has been rejected, again and again.

This action would needlessly drain the financial and manpower resources of the Institute. I would hope that some safeguard could be devised to prevent such abuse.

Book Review

CANE CURIOSA From Gun to Gadget by Catherine Dike. 11 x 8½", 374 pages, hard covers with dust jacket. 1600 illustrations, 90 with color, 170 period drawings, 120 patents. Pub. 1983 by Cane Curiosa, 4121 Forest Pk., St. Louis, MO 63108 at $68.00.

This elegantly encyclopedic book on canes deserves its place among reviews of horological interest through its chapter on horological canes which shows photographs of 56 canes with horological attachments and uses.

In this chapter there is shown a cane made about 1550 with sundials and belonging to Duke Albert of Augsburg and listed in the court inventory of 1598. Canes with their handles of silver engraved in the form of cylindrical shepherd's dial are shown with horological gnomons from the seventeenth century. A metal sundial with hinged gnomon and used by Denmark's King Christian IV (1577-1648) was incorporated in his walking stick. King Christian V had a curved end walking stick engraved with a shepherd's dial as well (1646-1699).

A Nepalese shepherd's stick is also unusual in that its otherwise cylindrical shape is carved with eight flat sides into which are engraved Nagari characters for the eight months or two seasons. A patented walking stick-top by Mathey Doret in 1853 shows a more modern dial with hinged gnomon and ivory ring with an engraved equation of timetable for meantime correction.

Other canes contain period watches by Cabrier (1697-1724), Carus of Paris, dated 1735, another belonging to Prince Karl Theodor (1743-1799) not only contains a contemporary front-wind watch, but writing material as well.

One 18th Century watch atop a cane is tower turret in form with three dials equally positioned around the stick and each set to a different local time, reminiscent of days before standard time, incidentally first instituted one hundred years ago. Also, there are cane watches with alarms. enamel scenes, bezel wind and set, watches with pedometers as well so that with each step of the cane, the pedometer counts these and advances its own hands upon the pedometer dial, thus allowing comparison with elapsed time and obtaining relative speed of the walker.

A watch cane patented by Holuska in Vienna in 1885 allows a sturdy rectangular watch to be wound by turning the cane's knob-head. Patent drawings show some of these intriguing systems in draftsman's detail.

A skull watch cast in silver as an integral part of the cane head and fastened to it by a neck protrusion of the

(Continued next page)

skull's lower jaw is of the 17th Century style but created in the late 1800's. Cane watches with powder and pill box compartments show the vanity of the contemporary "dandy."

Other photographs show hatchet canes whose sides contain ornate carvings in metal of ancient German runic calendars. One dates from 1743. Others with runic calendars are shown dating back to 1605. Another, belonging to King Frederick III of Denmark, is dated 1663 and is made of silver and clearly has engravings of the runic calendar but with modern type Roman letters and strongly incised. This cane strangely also has the Hebrew letters for God engraved at its head.

Miss Dike's dedication to her hobby has resulted in a scholarly book with almost two thousand photographs of canes which during the 19th and early part of this century were ordered from and designed by well-known jewelers. The test reveals the result of dedicated and intense research coupled with the skill of a professional photographer.

Covered elsewhere in this volume are canes for climbing, drinking, golf, fishing, hunting, sitting, smoking, various optical and optical voyeurism, musical, automation, lighting, writing and artwork, games, tricks of magic. There are pictures of canes for ladies and gentlemen, canes for warming the hands, necessaire, umbrellas, and even a scooter unfolded from a walking stick.

Canes for ceremonial occasions other than the verge of old canes designed and carved for religious and official, medical use and mystery canes and a section on fakes is also included.

The largest section one might guess correctly is for the canes designed as walking sticks and quickly converted to weaponry. The uses and variety of these cane-weapons staggers the imagination in the variety of methods and extent to which these were designed for both defense and offensive purposes. Although this reviewer's main interest was horological, his interest was arrested throughout the complete book, savoring each page in this charming exposition.

Henry B. Fried

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European Watch, Clock &

By Harold J. Herman

At sometime in everyone's lifetime, they have witnessed a spectacular event that remains etched in their memory. Such an event was the 1984 European Watch, Clock and Jewelry Fair. It was separated by one month from the general industries fair for the first time, but from the extremely heavy attendance, one would be hard pressed by observation only, to know if both were being held in conjunction.

Upon passing through the Schweizer Mustermesse turnstile, the first sights were the magnificent booths of Patek Philippe, Rolex, Vacheron & Constantin, Omega, Rado, Longines, Piaget, and Audemars Piquet.

An explanation of the word "booth" is in order. They are actually rooms, expertly lighted, with plush decorations in excellent taste. The exteriors are delicately lighted and designed in finery that any United States jeweler would envy. But at this grand fair, it is only the beginning of exquisite displays of fine merchandise. Not only are watches, clocks, and jewelry represented, but a complete display of the latest tools and machinery are on hand.

At least 16,000 people from America attended this fair. Any jeweler or watchmaker who has never attended the Basel Fair should begin to make plans for 1985. You will be a part of the most professional, spectacular event of your life.

Of special interest are three releases by the Swiss. One is about quartz watches, another on mechanical watches, and yet another is about clocks.

CLOCKS: SALES ARE LOOKING UP

For some time now, Swiss clock manufacturers have concentrated on designing and turning out high-quality timepieces. After a number of difficult years attributable essentially to stagnant markets, their efforts are now yielding encouraging results. For the first month of this year, for instance, their exports are up 13% in value over the same period a year ago. Their good showing in world markets thus confirms that there is strong demand all over the world for sharply profiled time products–goods that contrast unequivocally with standard, run-of-the-mill articles.

New entries in Basel this year testify to the Swiss clock manufacturers' successful efforts in the product area. Everywhere, their technological qualities, design, and impeccable finish reflect a very high sense of style and impressive craftsmanship. Many models seek to duplicate the finest timepieces of earlier centuries, others harness state-of-the-art technology to inject new ideas in an area where, as one observer put it: ". . . everything has long ago been said and done . . ." Both quartz and traditional mechanical movements are used, the latter (very often of the 8-day type, with chimes) often favoured when the design and constituent materials of the clock allow them to be seen and admired. In such cases, Swiss clockmakers will often chamfer sharp angles, gild, and meticulously openwork and engrave many of their parts.

One definitely popular item was the mini-alarm in a travelling case. A great many such models were seen in Basel Fair showcases this year. Some table clocks featured precious and exotic wood veneers, others were remote-controlled by a radio signal with millionth-of-a-second precision. Carriage clocks proudly displayed open-worked "skeleton" movements. Unusual entries included a small-clock line called "Merveilleuses et Secretes" and, in a homage to the grandest traditions of mechanical clockmaking, an incredible table clock featuring a full calendar–date, day, week, month, year and moon phases–that needs not a single correction between now and the year 9999.

Figure 1.

MECHANICAL WATCHES: NEW DEVELOPMENTS NEVER CEASE

It's now official, last year for the first time the Swiss quartz watch production overtook the country's output of traditional mechanical timepieces. When you think of it, however, it does seem to show that, for a system which for quite some time has been seen by some as definitely condemned, it is still faring quite well.

While undeniably fewer developments were introduced in this area this year at Basel, one of them was quite significant–an entirely new self-winding movement with micrometer, earmarked for volume production. With centre seconds and calendar, it is 3.75 mm thick, i.e. compatible with standard analogue quartz calibres so the same cases and dials can be used. A day-date version of this movement is also available.

Most other new mechanical watch developments involved either upmarket luxury designs or pocket watches:

- Wrist and pocket models of "Full Calendar" calibres featuring the date, day, month, and phases of the moon. The first calibre of this type for women's watches is now available, as is a perpetual calendar watch with leap-year indications.

- Hunter-type pocket watches with an opening in the cover-lid.

- Mechanical chronographs deserve a special mention–and not just for the incredible revival they've been experiencing. A number of new models were introduced at Basel this year–some have a moon-phase indicator, others have pushpieces built into the bezel, or designed specifically for navigators–even an all-new "Grande Complication" model with flyback hand, chimes and perpetual calendar.

Mechanical time at its best is still thriving as it strives to outdo itself yet again.

SWISS QUARTZ WATCHES:
BROADER RANGE, MORE FUNCTIONS, IMPROVED PRECISION AND NEW LOW-PRICED MODELS

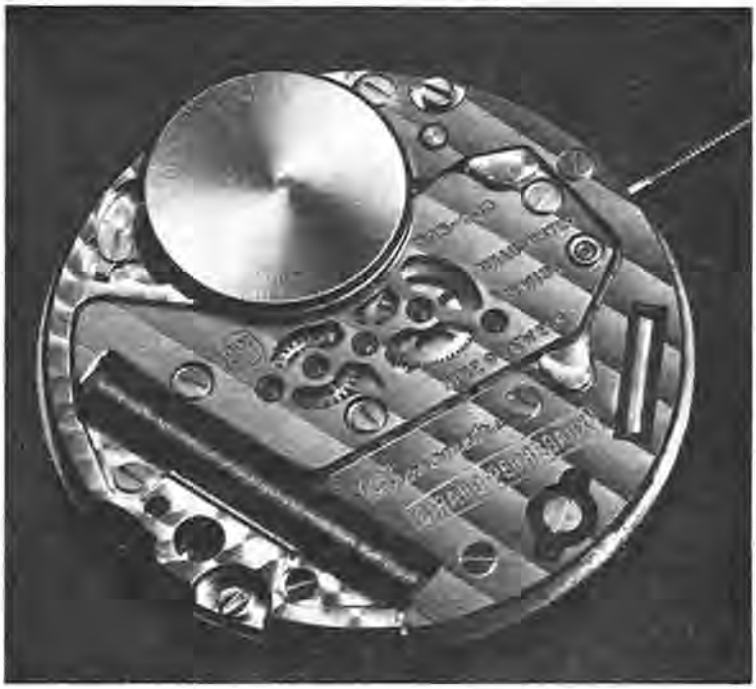
In 1983, Basel had provided Swiss watchmakers with a venue for the introduction of an impressive number of new quartz models. The outcome of their design efforts were there for all to see this year and, for the first time, their ouput of quartz watches has overtaken that of traditional mechanical watches. In keeping with an understandable policy of maintaining some continuity in their respective manufacturing programs, they are now focusing essentially on supplying the market.

This is not at all to say that Swiss industrialists at the European Watch, Clock and Jewellery Fair had nothing new to show their customers. There is always some part of even as broad a range as theirs which can use some improvement. Analogue (dials and hands) quartz watches, where the Swiss are particularly active and inventive, are enjoying unprecedented market success. This is amply evidenced by the fact that digital time displays are now rarely found anywhere but on "instrument watches" and low-end models.

So this year's new entries were basically designed to round out the industry's electronic watch range as well as to prove that analogue quartz watches can do more than just show the time and perhaps the date. A few examples:

- At the upper end of the market, thinner-than-ever movements with centre seconds and calendar (1.80smm); others only a shade thicker with date indicator in the form of a pointer and dial aperture for moon phases or signs of the Zodiac.

Swiss quartz watches: broader range, more functions.



Girard-Perregaux's new 735 movement. Built for "quartz chronometers," 1.80 mm thick and 23.30 mm in diameter (10½'''). Decorated and chamfered by hand, it shows hours, minutes, seconds, and the date. Two calibres are derived from it: 736, showing the date on a special dial and various periods of the year (seasons, months, zodiac signs, solstices, and equinoxes) in a large dial aperture: 737, with special date dial and moon-phase indicator. Calibre 736/737, thickness 2.25 mm (La Chaux-de-Fonds, March 1984).

Jewelry Fair–1984 BASEL, SWITZERLAND

- Bridge-less movements for men's and women's watches. Thickness: 1.60 mm, all moving parts mounted on ball bearings, there is even a solid gold version.

- A new extra-thin (1.95 mm) movement featuring a centre seconds hand and a calendar, designed for volume production at extremely competitive prices.

- Also earmarked for mass production, a new analogue calibre with moon-phase indicator.

- A world first: a ring-shaped alarm-watch subassembly designed to fit around a standard analogue quartz movement, made for both men's and women's calibres.

Very High Precision:

Reliability was the initial objective of quartz time technology, followed by miniaturization. Now comes the third stage: providing an even higher degree of precision on the wrist. There are two ways of overcoming the effects of temperature variations, the major factor affecting the rate of quartz watches. The first is to increase quartz frequency, a solution which necessitates higher energy consumption. The second is to monitor and control those variations. In this area, there was a world first in Basel this year–a new watch with a 262,144 Hertz thermometer quartz alongside the movement's basic 32,768 Hertz time standard, after measuring tem-

perature variations, it offsets them by acting directly on the watch's rate.

The movement features a lithium battery with a 5-year operational life. During that time, the thermometer quartz watch will have gained or lost barely a minute.

New Low-Priced Models

Over a year ago, Swiss watch manufacturers entered the lowpriced analogue watch market with a variety of models combining excellent horological performances, very respectable quality and most attractive prices. This year, a number of new entries of this kind were introduced.

All display a good measure of technological inventiveness insofar as outer or "dress" components are concerned, embodying novel approaches to shock protection and water resistance. Styling, in synthetic materials or even steel, is quite elegant and their price will allow them to continue gaining market share in their specific sector.

A Look At The Future

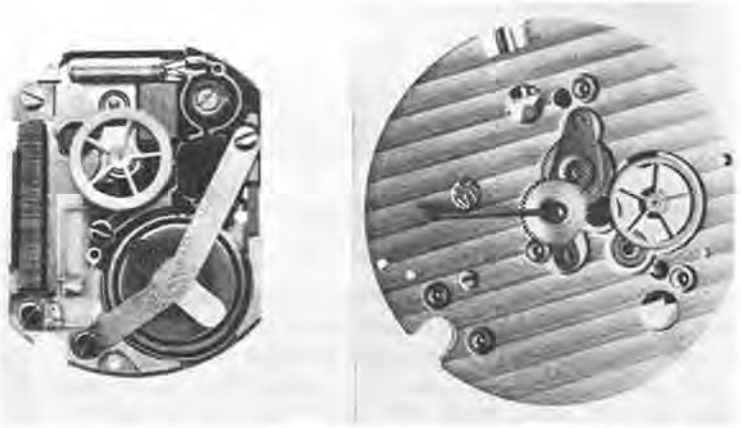
A trade fair is an unusual place to call attention to products which have not yet reached market. But since a number of major technological innovations have recently been announced, a look at what the future holds in store seemed justified, be it only as a reminder that the Swiss watch industry remains a leader in horological research.

The most striking of these new developments can be called a technological breakthrough in electro-optics: the dichroic or "Guest-Host" display. Its basic principle is the molecular reorientation, under the influence of an electric field, of a solution of dichroic colouring agents (the "Guest") in liquid crystal (the "Host").

Along with a brilliant, easy-to-read display of alphanumeric data (letters and digits) and an optimum viewing angle, this type of display can be produced in practically any colour. More important, it turns the entire surface of the dial into an "electronic screen."

The system therefore makes it possible to turn out extremely handsome, traditional-looking timepieces. "At rest," the two hands (hours and minutes, driven by a two-phase bipolar motor) move against what seems to be an ordinary dial. On command, the following data appear on the dial-screen—alarm, chronograph, totalizer, other timezones, seconds, day and date. All these functions are set and controlled by the crown, eliminating the need for unsightly pushpieces.

This system is based on a new microcomputer-type integrated circuit comprising the equivalent of 22,000 transistors, its memory is programmed with 800 instructions (16 bits)—all on a mere 40 sq. mm.



Two extra-thin quartz movements. Total thickness on the battery is 1.60 mm. 6¾ x 8''' and 9''' (20.40 mm) versions. One-piece construction (no bridges) with all moving parts mounted on ball bearings. Electronic resetting by pushpiece at 3 o'clock or corrector in the case back. Power reserve: 3 years (ISATRONIC S.A.).

Only 1.95 mm thick, a new analog quartz movement designed for volume production at a highly competitive price. 8¼-line calibre (Ø 18.60 mm) with center seconds and date calendar. A 10½-line version (Ø 23.30 mm) also 1.95 mm thick is planned (RONDA Harley Quartz 7873-7875).

Girard-Perregaux quartz chronometer fitted with the new GP737 movement: only 2.25 mm thick. With center seconds, dial at 12 o'clock, and moon-phase indicator. 5-year power reserve, transparent case back revealing the movement. Battery cover engraved with the watch owner's name. Water-resistant gold or steel-and-gold case (Girard-Perregaux).

In the interests of speedier and simpler watch servicing, a new device combining the operational capabilities of two Portescap "quick checker" units, the Vibrograf and the Renotest, can now be used to check practically all quartz watches: rate, power consumption, and voltage, and other values. Two other combinations, Vibrograf M90 + Renotest "quick checker" and Vibrograf M90 + Renotest 2, are designed for more elaborate testing up to and including industrial applications. Portescap's new entries bring the market a range of tailor-made investment possibilities at a very attractive pirce (PORTESCAP).

RIGHT: High precision with a power reserve of more than ten years. This quartz clock features a tiny radio receiver tuned to a transmitter's time signals controlled by an atomic clock. These signals constantly synchronize the clock's rate precision and automatically trigger the switch to and from summer (daylight saving) time. The transmitter has a range of some 2,000 km. Perpetual date calendar with LCD readout. Solid polished mahogany cabinet with gilt metal trim (IMHOF).

NEW DEVELOPMENTS:

LONGINES - 320

The truly high-precision quartz watch is here. To offset temperature variations, the major factor affecting quartz precision, a new movement incorporates a second quartz with thermometer functions vibrating at the rate of 262,144 Hertz. It measures temperatures and dictates offsetting corrections to the movement. The resulting precision of 0.03 second a day corresponds to a maximum variation of one minute every five years, a period corresponding to the power reserve of the watch's lithium battery.

BUECHE-GIROD S.A.
LES PONTS-DE-MARTEL

Reversible double-face watch: one side in 18K yellow gold, the other in 18K white and yellow gold.

PAUL BUHRE S.A.
LE LOCLE

Jewellery watches containing three quartz movements giving the time in as many timezones.

GIRARD-PERREGAUX S.A.
LA CHAUX-DE-FONDS

GPI 735: analogue quartz, hours-minutes-seconds-date. Total thickness: 1.80 mm.

RIGHT: **The "Skeleton" Watch.** Pure marvels, transparent, cut, chiseled, and engraved entirely by hand. The beauty of the mechanisms of time in the greatest simplicity. A natural beauty, created in the expert hands of the Audemars Piguet master-watchmakers. They alone know how to bring the art of watchmaking to such a peak of perfection.

RIGHT: An exclusive Tissot development for globetrotters and business executives: a quartz wristwatch providing both local time and the exact time in the world's 24 timezones. Scratch-resistant sapphire crystal. Water-resistant to a depth of 120 m. (Tissot "Navigator").

LEFT: Analog quartz chronometer with rotating bezel providing an extra timing function thanks to the tritium arrow it carries. Time functions: hours, minutes, and permanent seconds on the upper dial. Chronograph functions: center seconds, 30-minute and 12-hour totalisers. Quartz movement with date calendar. Steel bracelet or waterproofed leather strap (Heuer "Collection 3000").

Chime and Strike

Steven G. Conover

New Haven Rack Striking Movement*

In February of 1980, almost at the beginning of the Chime & Strike series, we looked at a round New Haven chime movement. We returned to New Haven in April of 1983 for a count wheel strike movement. Our subject this month is another round movement by the same manufacturer—a rack striking model. It is worth studying because of the rather unusual arrangement of the strike train.

For one thing, the rack and snail are on the back of the movement instead of the front. The front of the movement is completely plain, with only the winding arbors, center arbor, and the regulator arbor coming through. The motion work is behind the front plate. Overall, the New Haven seems the same type of movement as the Seth Thomas No. 120, the subject of the August, 1983 installment in this series. Many features are common to these two, although arranged in a different way. The Seth Thomas is the conventional design, with front rack and snail. Both movements, however, are round in shape and intended for small mantel clocks where space is confined. Both have the mainsprings enclosed in mainspring boxes. These are not going barrels, but are screwed to the plate and serve only to contain the springs as they unwind. To some extent, the boxes may keep the springs clean for a longer time by limiting the entry of dust. Unfortunately, some repairers try to save effort by leaving the springs alone instead of cleaning them. Loop end, open mainsprings are more likely to get cleaned, even if it is by dunking.

Figure 1 shows the New Haven case. The movement is pinned to the dial and bezel unit, which comes out through the front of the clock after the screws are removed from the dial straps. The clock strikes the hour and half hour on a gong. Figure 2 shows the front of the movement, which is completely plain. The strike levers are hidden away inside the movement; the rack and snail are on the back. Figure 3 shows the back view of the New Haven. A closeup of the rack and snail is pictured in Figure 4.

The design combines features we have seen before in other movements. The New Haven, like a count wheel American movement, carries the motion work behind the front plate. But our clock is a rack striking model, so we would have expected to see the motion work out front. Further, the snail is normally mounted with the hour wheel, because it turns of necessity at the same rate. Rack, gathering pallet, rack hook, and other parts would then be on the front as well, as these parts all work together. Instead, we find the rack and snail on the back of the movement, as I mentioned earlier. The minute wheel pinion, behind the front plate, has 10 leaves. At the opposite end of the same arbor, there is another pinion with 10 leaves. This pinion, shown on Figure 6 as part (14), turns the wheel mounted to the snail. The wheel has 40 teeth, as does the hour wheel behind the front plate. This means there are really two minute wheel pinions and two hour wheels

Figure 1. The New Haven case, 8½ inches wide x 9 inches high. Hour and half hour gong strike.

Figure 2. Front of the movement.

Figure 3. Rear of the movement, showing the rack and snail arrangement.

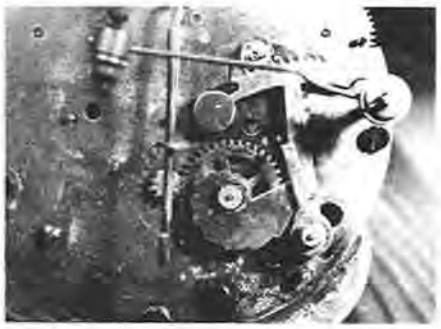
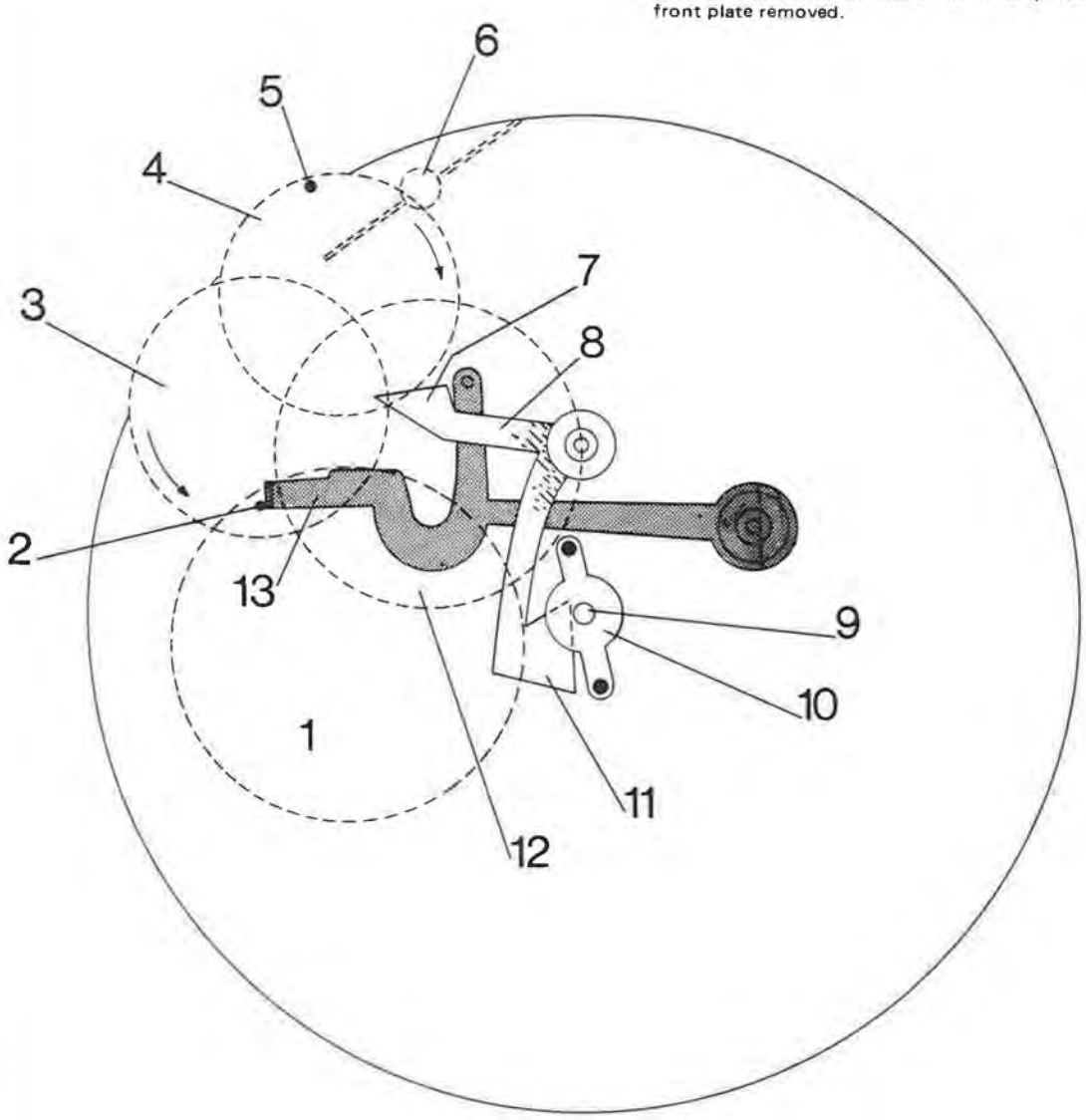


Figure 4. Closeup of the rack and snail mechanism.

in the movement. It's all for the purpose of rearranging the strike train.

Figure 5 is a diagram of the strike mechanism viewed from the front, with the front plate removed. A rear strike train view is drawn in Figure 6. The strike levers are mounted to the inside surface of the rear plate. They are no different than the levers we see on other rack striking clocks, except for their location. The center cam (10) is a flat piece of brass with two steel lifting pins. One of the pins is placed slightly further from the center, which means it will provide higher lift. Before the hour, it raises the rack hook (18). The rack tail falls upon the snail (15), to establish the hour to be struck. The other lifting pin raises the rack hook past the first "step" on the end of the rack, but not high enough to clear the rack teeth and allow the rack to move further. This permits the single half-hour note to be sounded.

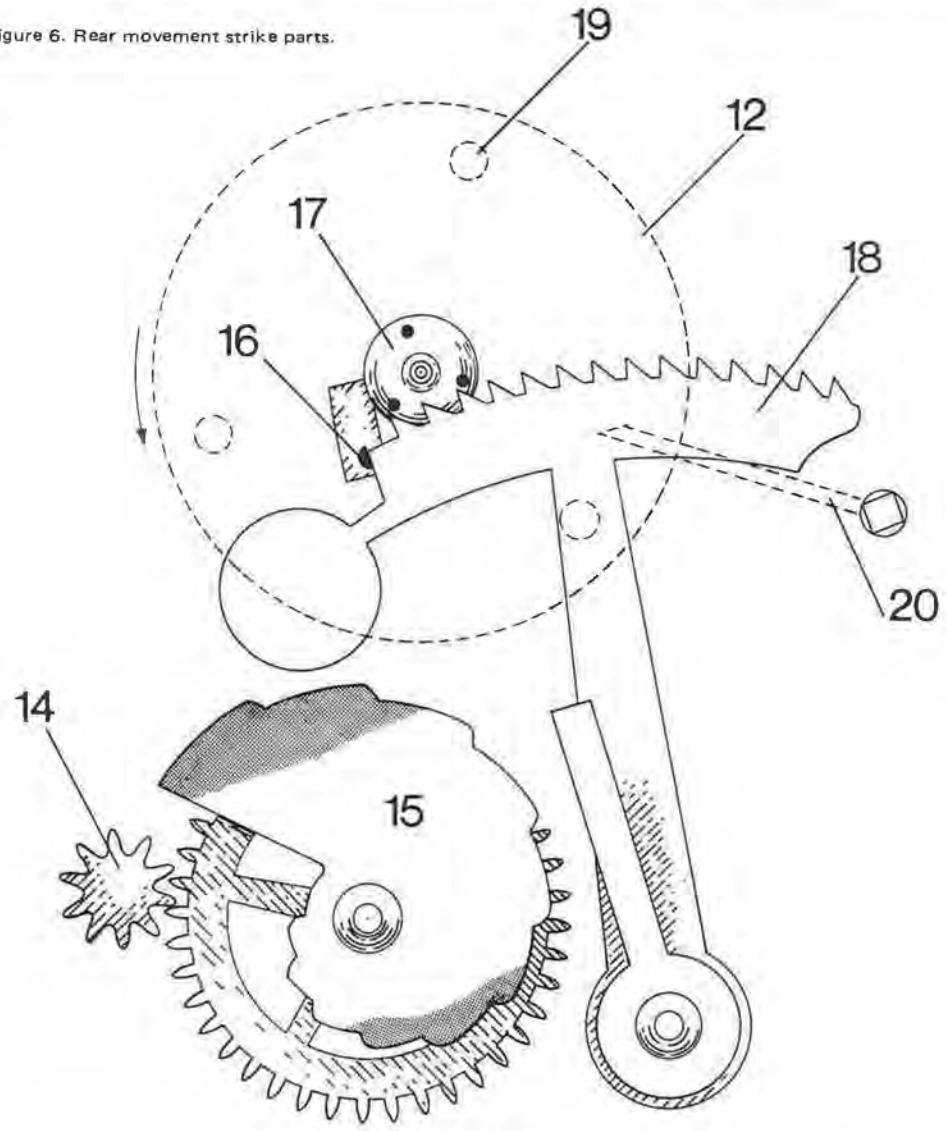
Figure 5. Diagram of the strike levers, viewed from the front with front plate removed.



PARTS LIST
FOR FIGURE 5

1. Second wheel
2. Lock pin
3. Locking wheel
4. Warning wheel
5. Warning pin
6. Fly
7. Warning lever
8. Unlocking lever
9. Center arbor
10. Center cam
11. Lift lever
12. Pin wheel
13. Locking lever

Figure 6. Rear movement strike parts.



PARTS LIST
FOR FIGURE 6

14. Pinion
15. Snail
16. Rack hook
17. Gathering pallet
18. Rack
19. Hammer lift pins (3)
20. Hammer tail

To begin the overhaul, let down the mainsprings. Then remove the pendulum suspension unit and the hammer. Carefully unhook the rack spring and then take off the rack and snail. Pull off the pinion (14). If you decide to leave it in place, the arbor and pinion will remain with the rear plate after disassembly. The gathering pallet should be removed. Leave the mainspring boxes screwed to the rear plate until after you have separated the plates. Remove the front plate, leaving all the parts in the rear plate.

Following cleaning, bushing work, and pivot polishing as required, you are ready to reassemble and adjust the movement. Don't forget to fasten the mainspring boxes to the rear plate before you begin. If the hammer arbor needs a new spring, now is the time to make one. Check the locking lever (13) and the lift lever (11) to make sure they operate without binding or sticking. Load all the parts into the rear plate.

There is only one strike train adjustment to make before you install the front plate; the remaining adjustments are to be done later. Make sure you place the locking wheel (3) with the lock pin (2) resting against the locking lever (13) as shown in Figure 5. To finish the adjustment, place the warning wheel (4) so the warning pin (5) is at an 11 or 12 o'clock position. This will assure approximately a ½ revolution warning run before the pin contacts the warning lever (7). Put the clock plates together, making sure this relationship is maintained.

Add the rack, snail, and gathering pallet. Leave the gathering pallet loose enough to move by hand during the adjustments. Tighten the pillar screws, wind the strike spring partially, and install the minute hand. Now you are ready to complete the strike adjustments. Raise the rack hook (16) with your finger, and watch as the hammer lift pins (19) lift the hammer tail (20). After the hammer tail is clear of one of the pins, stop the fly (6) to arrest the train in this position. Move the rack to the right, slipping the rack hook into its locked position. Now twist the gathering pallet so each of the three pins is clear of the rack. This arrangement will produce the correct results; the hammer tail will be clear of the lifting pins at the conclusion of every strike sequence. In addition, the gathering pallet will not interfere with the free movement of the rack. Turn the minute hand, observing the strike action. If necessary readjust the gathering pallet so it finishes up clear of the rack teeth. Push the gathering pallet on tight so it will not slip, but don't overdo it. All the gathering pallet has to do is move the rack, and that is the only load it carries. Avoid bending the elongated pivot which carries the gathering pallet.

Install the snail, and check for correct operation at 12 and 1 o'clock. Change the mesh of our "duplicate" hour wheel and minute wheel pinion if necessary to get the rack tail to fall on each step of the snail instead of in between. This completes the assembly of the strike train. Several common problems are worth brief mention at this point.

The rack hook is easily bent, and you may find that it has been twisted by a previous repairer. If it is out of adjustment, the hook will not fall cleanly between rack teeth as the hour strike begins. This can cause an incorrect strike count. Straightening the rack hook should cure the problem. It is also possible to move the rack tail with respect to the rack to effect the same result, but check for a bent rack hook first.

Binding of the strike linkage is another problem area. The levers work by gravity, and no stiffness can be tolerated. It is important to check these parts when the movement is apart, because there is little you can do after it is all back together again. From a repair standpoint, the inaccessibility of the strike levers is perhaps the worst aspect of this New Haven movement.

Other problems can result from poor "housekeeping" and lack of attention to detail. Make sure the gathering pallet will not come loose, for if it does the movement will not strike correctly. The rack and snail must also be properly fitted. Both are held in place with push-on brass fasteners. They must be tight enough and yet not cause binding. The rack spring and hammer spring should be in good condition. Replace them if you have doubts, for a kinked spring may break.

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AND HOW TO USE IT

PART VI

During the process of closing pivot holes in watch and clock plates, quite often the endshake is changed and must be corrected. Figure 1 shows how the endshake can be corrected when it has been increased or decreased during the hole closing process. View A shows how the endshake can be increased. A large flat faced solid stump is used to support the plate while a flat faced solid punch that fits inside the sink around the pivot hole is used to stake the metal down toward the oil sink. This process makes the sink around the pivot hole deeper, thus increasing the endshake. Usually very little change in the depth of the sink is needed to correct the endshake.

In case the endshake is too much, it can be decreased by the method shown in View B, Figure 1. The stump used to support the plate should have a hole which is the same diameter of the sink around the pivot hole. The punch used should be a round faced solid punch which fits the oil sink as shown in View B, Figure 1. The same method can also be used to increase or decrease the endshake if there is no sink around the pivot hole. Note: During the process of correcting the endshake, the pivot hole is likely to become smaller and need to be broached out to fit the pivot.

During the process of overhauling watches, it is quite common to find mainspring barrels which have too much side shake on their arbors. This can be corrected by the method shown in Figure 2. A tapered mouth hole closing punch which is large enough to go over the pipe around the pivot hole is used to close the hole. The barrel is supported on a large flat faced solid stump while the punch is tapped with a brass hammer. Note: It is very important that the punch is not so large that it will touch the bottom of the barrel as the hole is closed. After the hole has been closed enough so the barrel arbor will not quite enter the hole, then the hole is opened with a broach so the arbor fits correctly. A cutting broach can be used when the wall is thick and much metal needs to be removed to open the hole for the arbor. After this, a round

Figure 1

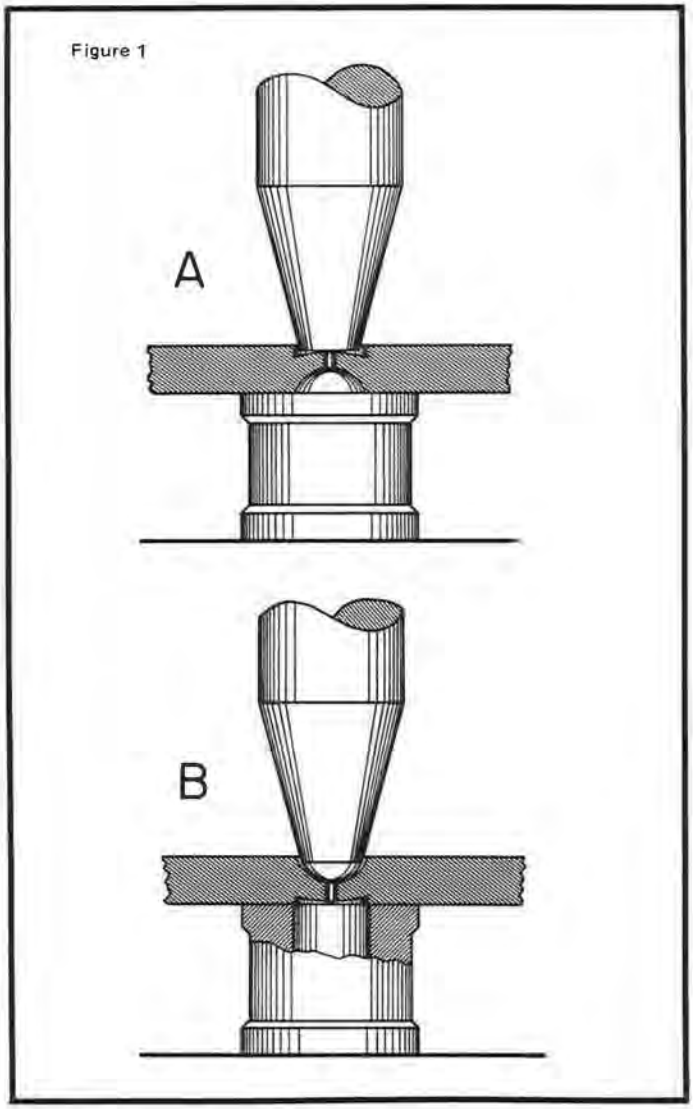


Figure 2

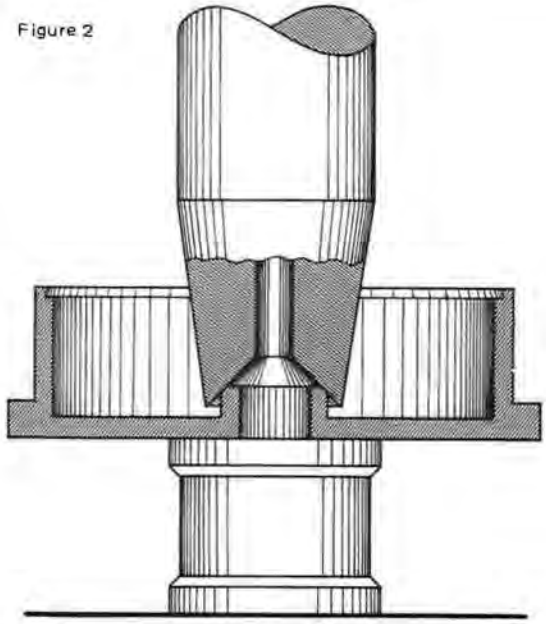


Figure 3

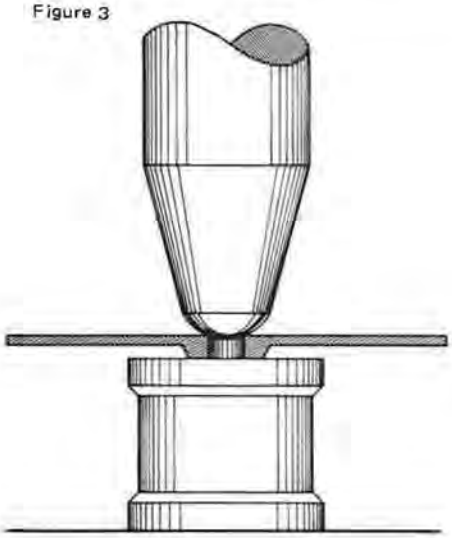


Figure 4

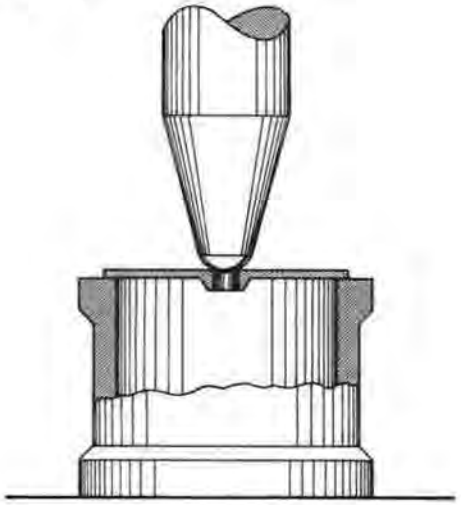
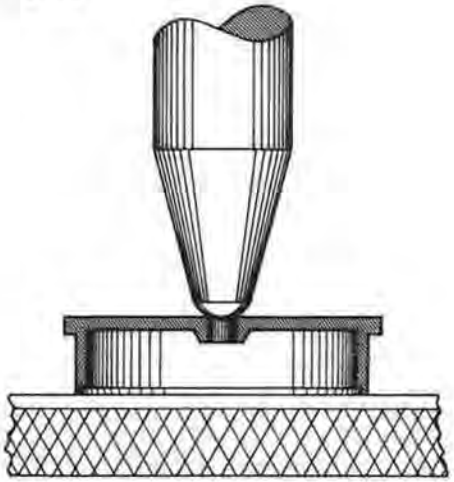


Figure 5



burnishing broach is used to burnish the hole smooth. If the pipe around the hole in the barrel is thick, a taper mouth punch may not be effective in closing the hole. In this case, a round ended solid punch can be used to close the hole from the outside of the barrel. To do this, the pipe is supported on the inside of the barrel with a large solid stump while the round ended punch is used on the outside of the barrel over the hole. Then the punch is tapped with a brass hammer. Note: The diameter of the end of the punch should be at least two times the diameter of the hole in the barrel. If the punch is too small, it is likely to spread the hole rather than close it.

Figure 3 shows the hole in a barrel cover being closed with a round ended punch while being supported on a large flat stump. Note that the pipe around the hole is thick enough to allow the hole to be closed in this manner. If the pipe should be thin, it is likely to collapse when this method is used to close the hole. In this case, the taper mouth punch should be used to close the hole.

When closing the hole in the barrel or its cover, it is quite possible that the endshake will be changed at the same time. If this should be the case, it can be corrected by the following methods. Example: It has been determined that there is too much endshake of the barrel on its arbor. Next, it should be determined whether the fault lies in the barrel or its cover. a straight edge is used on the bottom of the barrel and on the top of the cover to determine if one or the other is cupped outward or out of flat. If it is determined that the cover is cupped outward, then it can be corrected by the method shown in Figure 5. The open end of the barrel is supported on the die plate of the staking tool and a round ended solid punch is used to press the bottom of the barrel inward to remove the cupped condition. The straight edge is used again to check for the flatness of the barrel bottom.

In case the endshake is insufficient, it can be corrected by the method shown in Figure 6. The barrel is supported on a large stump which has a large hole. Then a flat solid punch is used on the end of the barrel arbor to press the bottom of the barrel outward to create more endshake. If it is determined that the cover needs to be pressed outward, it can be done by reversing the barrel on the stump so the

(Continued next page)

barrel cover is supported on the stump while the other end of the arbor is pressed with the flat punch. When correcting the endshake on larger barrels, the large hollow stump will be too small to support the barrel and cover, since they need to be supported near their outside edge. Therefore, some other device will need to be used for support. Another mainspring barrel that is slightly smaller than the one being worked on can be used for support. Anything can be used to support the barrel for changing endshake as long as the opening is just slightly smaller than the barrel and that the surface which rests on the die plate of the staking tool and the surface that the barrel rests on are parallel to each other. A Boley barrel contractor which has been surface ground on both sides makes a good device for this purpose. This device has 19 assorted holes to choose from. Note: It is very important that the barrel or cover be well centered over the opening in the device being used when the endshake is being corrected.

The tapered mouth punch is a very important punch in the staking tool set. For closing holes, it is the most used punch. Figure 7 shows how it is used to close the pipe on an hour hand. The hour hand is supported on the die plate as a tapered mouth punch is used over the pipe to close the hole. The punch selected must be large enough to fit over the pipe to close the hole.

The tapered mouth punch can also be used to close the hole in a minute hand. Figure 8 shows how this is done. The hand is placed top side down on the die plate. Then a tapered mouth punch which has an opening slightly larger than the hole in the hand is used to close the hole. When using this punch to close a hole, it is very important that the punch be perfectly centered around the hole; otherwise, the hole will be

(Continued on page 41)

Figure 7

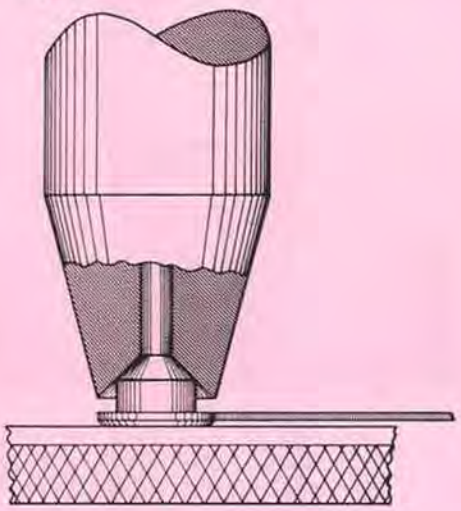


Figure 8

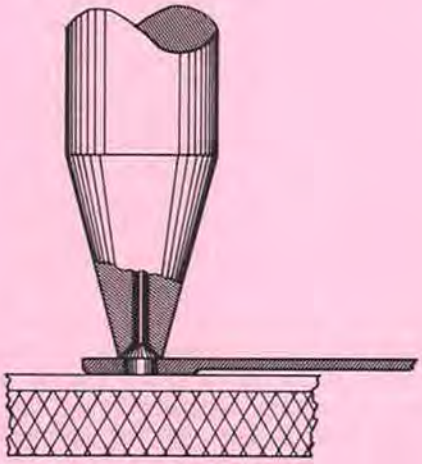


Figure 6

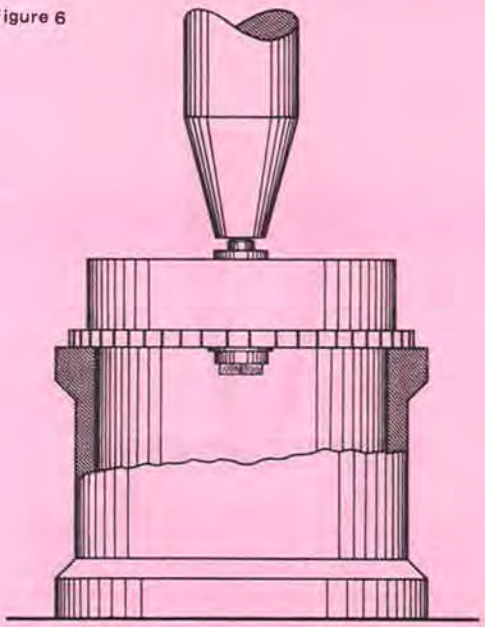
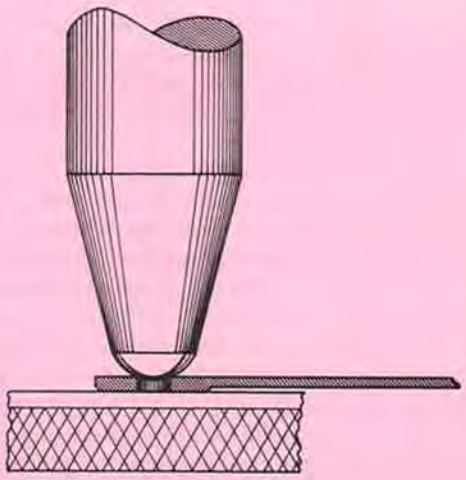


Figure 9



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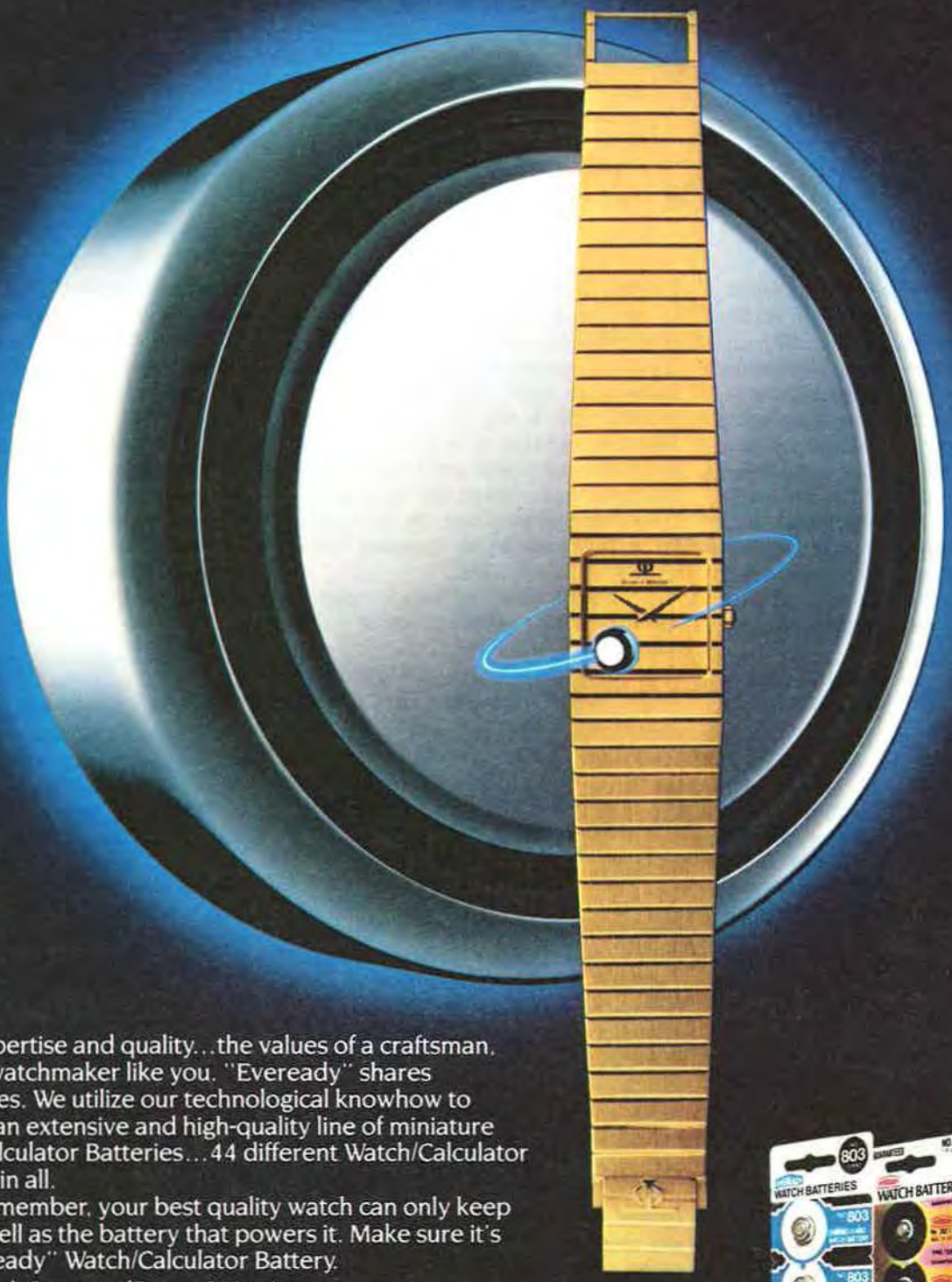

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Questions & Answers

Henry B. Fried, CMW, CMC, FAWI, FBHI

Waltham Balance Staffs

Q I have a question that, no doubt, one of the "old-timers" can readily answer. Both the Model 1877 and Model 1883 Waltham 18 size movements have two types of balance staffs available. They exist with both small or large waists (hubs). In addition, both models can have either a small or large diameter expansion balance. No where have I ever run across instructions which specify where it is proper to use either the large or small waist staff. Can one correctly assume that the small waist staff is used with the small diameter balance and the large waist with the large balance?

Willard W. Halsted
Omaha, Nebraska

A *Yes, both these models, 1883 and 1877, have two types of balances and two types of balance staffs. The material catalogs for these list two balances, large and small, for each of these two models.*

For the 1883 model, the part number 1376 is for the small expansion balance. The large balance number is 1378. For the large waisted staff, the number is 1364; and 1365 for the small waisted staff. You must measure each and provide the gauge.

For the 1877 model, the large balance is number 1016, the small is 1017. The large waisted staff is number 986, small waisted is 987. Again, order by gauges to be sure, the serial numbers are no sure method. It seems that the large balances have larger holes, and thus require the large-waisted staffs.

Q I have on my desk an 18 size Hampden watch 11 jewels, with serial numbers 96369, a key wound movement. This movement is cased into a silver case by FAHY'S which is stamped in the back "oresilver." The case is very unusual to me. The first case is a ring for the movement holding, with a closing hinged case back. This assembly has a pendant with a ring for a watch chain. This case assembly then fits into a case with bezel and crystal and hinged closing case back with cut-out for the pendant. Truly a case within a case. On the back of the outside case is the stamping "pat'd applied for July 1, 1884."

Any pertinent information regarding this watch would be most gratefully received.

Ken Lingenfelder
Vandenberg AFB, California

A *In my records I have a patent issued for a watch case to the Fahys Watch Case Co. on July 1, 1884. Patent No. 301,440. However, there are no details given as to the nature of the case. In another record of a patent on July 9 in an English reference of patents, I see one issued to C.K. Giles, who was a prominent name in the watch manufacturing business in America. I don't know if this is the same person, but the case actually has three hinges; one for the front, one for the back, and another for the inside back. The patent concerns that the outer case was to protect the movement from magnetism. The metal on the outside was magnetic-permeable so that any magnetic field would go around it rather than through it and affect the inside mechanism.*

Another possibility, without you showing me photographs or drawings, is that it might be a convertible watch case–one that can be twisted around so that the open faced watch becomes a hunting watch. Elgin, Hampden and others produced these in very limited quantities. The idea, however, is not new, having seen watches from the late 1700's in these cases, yet patents were granted later on the same idea. To obtain the patent, you could send $2 to the National Association of Watch and Clock Collectors, P.O. Box 33, Columbia, PA 17512 and ask for that patent which will illustrate and describe your watch case. The oresilver is nothing but German "s lver," not silver at all but an alloy that looks like it without any silver, nickle mostly, a little lead (to make it easier to turn on the lathe), and the rest in copper.

Q I am a second year student at Parkland College in Champaign, IL. I have been studying Micro-Precision Technology under the instruction of William O. Smith. I will be in France for two weeks, and after discussing this with Mr. Smith, he suggested that I contact you to find out what particular sites might be interesting for someone very intrigued with horology. We will be spending most of our two weeks in Paris.

Brian Glynn
Urbana, Illinois

A *While in France you should visit the Museum-Conservatoire des Arts et Metiers, 292 rue St. Martin, 75003 Paris. They have a very fine collection of important and interesting clocks. Also good to see is the Musee des Arts Decoratifs, Palis du Louvre, Pavillon de Marsan, rue de Rivoli.*

The Louvre, of course, has excellent collections of clocks and watches, and some very beautiful enamel watches. While in Paris, also tour the "Flea Market" (Marche de Pouce) to browse, as they have many clocks on display. They are open only on weekends.

(Continued on page 33)

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Marshall F. Richmond, CMW

SHIELDING FROM HEAT

A large percentage of jewelry repairs require the use of heat. Many stones, enamels soft solder joints will not stand the heat required to make hard solder repairs. Shielding portions of the piece of jewelry that will not stand the heat is one way of making the repair without having to remove stones, soft-soldered crests or emblems, or replacing enamels that have been damaged from the heat.

SHIELDING USING WET PAPER TOWELS

There are many ways to shield against heat when repairing jewelry. The one that I use most is using wet paper towels wrapped around the part to be shielded. This is done by cutting one sheet of paper towel in four parts, folding each to a width that will cover the portion of the jewelry that needs shielding. It is immersed in water, which makes it soft and pliable so that it can easily be wrapped (in most cases) around the part to be shielded. A good example is a finger ring with a stone that will not take heat, such as opal, turquoise, pearl, or jade. The stone can be wrapped with the wet tissue, held in place with the heavy duty tweezers. Hard solder joints can be made anywhere on the shank, even up close to the bezel. When using this method, enough heat must be applied to flow the solder *quickly*. This is because the paper will begin to dry out and start to scorch on the edges, and if the solder has not flowed, any more application of heat would surely damage the stone. The heat should be taken away.

It is practical then to re-soak the paper and try again using a more intense heat. However, if this fails, the stone should be removed and the solder joint can be made with no shielding.

WET SAND METHOD

Another method of shielding is using a small metal cup on the bench filled with wet sand. Casting moulders sand is excellent for this.

The part to be shielded can be set in the wet sand with the sand packed tightly around it. This will allow hard soldering even fairly close to the sand; the farther away from the sand the solder joint is made, the easier it will be to flow the solder. Just like the wet tissue method, if heat is applied for too long a time without the solder flowing, the water will evaporate from the sand, allowing the heat to get to the shielded part, and this could damage the part needing shielding. In using the wet sand method on an extra heavy piece of jewelry that requires a lot of heat, the moisture (water) in the sand will get hot and steam will rise, causing the flame of the torch to go out. This indicates that not enough heat is being applied to quickly flow the solder. In using the wet tissue method and holding a ring in the heavy duty tweezers in one hand and the torch in the other, the shielded part can be held up and the heat applied under it so the steam rises without putting out the flame of the torch.

A PUTTY-LIKE SUBSTANCE FOR SHIELDING

There are on the market today, available through the material distributor, other products manufactured for shielding jewelry against heat. One that I have used before is a black waxy substance that comes in a one-pound block and is nonflammable. You can break a piece of this off the block the correct size to cover the area. This material works like putty, and can be worked into the crevices of rings with stones and tightly around the stones. Being a poor conductor of heat, it gives good protection to the part to be shielded. My only criticism of it is that so much time is needed to clean the piece of jewelry after the heat has been applied. Although I purchased this through a material salesman, I don't know what it was called, and I can't find it listed in any of my catalogs.

"Kool Jewel"® is the name of another shielding substance. I have never used it before, but it is listed in the jewelers supply catalogs as being available in aerosol cans as well as in paste form (in jars). The listing states that it protects all stones from heat except opals. No explanation is given as to whether it just will not protect opals from heat or if there is a chemical there in the substance that would be damaging to opals.

In doing repairs on jewelry that contains either stones, hard- or epoxy-type enamels, cemented stones or soft-soldered parts, this judgement must be made prior to applying heat, or great damage could be done to the piece of jewelry. There is no given rule that a novice could apply to every job that comes across his bench; this comes with experience and practice. Many stone-set rings can be sized either larger or smaller without shielding because the shanks are not too heavy. Therefore, enough heat can be applied to flow the hard solder with no danger of the heat reaching the stone. In fact, one jewelry repairman I knew used to size almost all lightweight rings by holding the ring in one hand between the thumb and forefinger (opposite where the solder joint was to be made) and applying heat with the torch held in the other hand. If you have enough courage to do this, the chances of damaging the stone from heat is almost nil; the heat would be felt by the fingers before enough would get to the stone to damage it. Of course, it could also result in a burnt thumb or forefinger. Although I have done this many times, it is definitely not a recommended procedure. My advice to a novice is to shield *all* stones—except diamond, ruby and sapphire—although many other stones will take heat as well as ruby and sapphire. No stone will take heat as well as a diamond. I have no advice to an experienced journeyman. Through his years of experience he certainly knows what to shield, what to remove, and how to handle the most delicate of jobs. With this article is a chart on gemstone characteristics and a general guide to handling. The stones listed are genuine stones, not simulated or synthetic stones. This chart appears courtesy of J. Frank Golden and Associates of Morrow, Georgia. They are dealers in all types of gemstones and synthetics.

SHIELDING AGAINST OXIDATION

Still another shielding process that needs to be understood is shielding against oxidation while using heat. In this case, flux is a method of shielding Heat on metal causes the metal making contact with air to mix with oxygen from the surrounding air which coats the metal with an oxide. Solder will not flow on an oxidized surface; with careful placement of the flux that you use, the extent the solder will flow can be controlled and held to only the place where the flux is applied. This is also one reason why using contaminated flux will sometimes not let the solder flow because the contaminant in the flux will coat the metal, not allowing it any protection from the heat.

Heat from making repairs will cause oxidation of the metal surrounding the repair. It must be soaked or boiled in pickling solution, then removed with a bronze scratch brush before polishing. However, a very effective method of protecting the whole article is a solution of borax or boric acid and alcohol (denatured grain–the type you would use in an alcohol lamp). The article can be dipped in this solution, ignited by passing it over the pilot flame of your torch, and then letting it burn out, which will leave a white residue of the borax or boric acid covering the piece. This protects not only the metal but also stones as well. CAUTION: DO NOT USE ON STONES THAT WILL NOT TAKE HEAT BECAUSE THE BURN-OFF HEAT MAY DAMAGE THEM!

One jewelry repairman heard of the borax and alcohol shielding process and thought it would protect all stones from heat. He called me asking if this was true. When my answer was "no," he requested that he come to my shop and experiment with it bringing his own rings (not customer repairs), to which I consented. The ring was a sterling silver ring with a black onyx stone and he wanted to size it down. He insisted we use the borax and alcohol protective coating, so we did. After applying the heat and slow-cooling it, we ended up with a good solder joint and an onyx stone that was so checked all over with fractures from the expansion and contraction, it looked like alligator leather. I explained to him that the protective coating was just to protect the *metal* from oxidation; the *stone* would not take that amount of heat. If it had been a diamond, sapphire, or ruby, it no doubt would have come out all right.

In replacing prongs, re-tipping prongs, or replacing beads on rings with stones that will take heat, I always preclean and use the borax and alcohol burn-off which protects the metal from oxidizing and also gives the stone some protection, as they always seem to clean up perfectly after pickling. Synthetic birthstone rings and mothers' rings often need repairs on their settings. Some are prong-set, some are bead-set, and some are bezel-set. In making these repairs it is much quicker on the bead- or prong-set to make them with the stone still in the ring. Bezels needing repair usually have to be replaced, so the stone must be removed. In making the repairs such as re-pronging or tipping, the stone will often become red hot. Most synthetic stones will stand the heat, but some synthetic stones (depending on the source) are doublets and will not stand heat. Some are of a material other than synthetic spinel or synthetic corundum, and might not take heat. I carry an ample supply of synthetic round birthstones from 2mm to 5mm, which will make over 90% of the replacements that I have encountered. I do occasionally damage a synthetic birthstone but it is only on rare occasions. This is a judgement you have to make for yourself: if you want to risk damaging a stone by not removing it when heat must be applied directly to it. I feel that the risk of damage by not removing a stone is much less than the risk of damaging it in removing and resetting, which requires a lot of time, but should be to a greater cost to the customer.

Twenty years ago, sterling silver rings sold for such a low price that it was not practical to size them if they were stone-set. Back then it was difficult to find a jewelry repairman who would size or repair silver rings, but in recent years when the price of gold skyrocketed and the price of silver also rose, the retail price of silver rings rose accordingly and we found them to be profitable and practical to size and repair. The popularity of silver jewelry with turquoise, onyx, agate, and other stones (that will not take heat) and their retail price made it even more practical to repair them. Silver turquoise rings, even heavyweight ones, can be sized without removal of the stones by shielding the stones with wet tissue and applying a lot of heat. As silver is such a good conductor of heat, it has a tendency of flowing the heat away from the point of application. Therefore, a great amount of heat must be applied to quickly flow the silver solder before the heat can dry out the tissue and damage the turquoise.

The same applies to any stone that I have encountered that is set in silver. I charge the same price for sizing or repair of silver jewelry as I do for gold jewelry. The price is quoted upon accepting the repair from the customer, so never do I get a complaint about the repair being too costly afterwards. Shielding on turquoise rings is much safer than removing and re-setting the stones, for where there are black lines in the turquoise, the stone can easily break. With proper shielding and quick soldering, the risk of damage is much less.

No one knows everything about any subject–and this applies to jewelry repair. The methods I pass on to you are what I use. They work for me, and they will also work for you. Of course, there can be many methods better than these, and if you find them, use them. Share them with your fellow craftsmen, something I always try to do.

Since the last four articles have dealt with common sense preliminaries to doing jewelry repair, the next articles will be devoted to the application of heat and soldering.

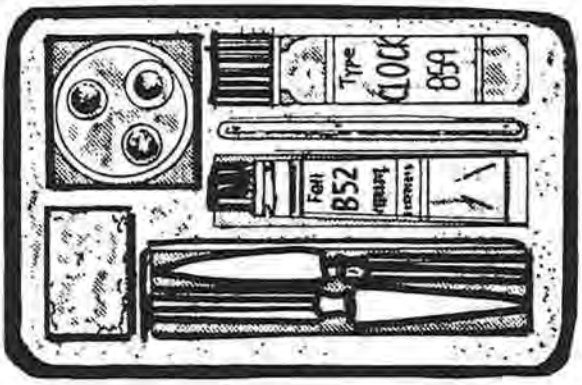
GEMSTONE CHARACTERISTICS AND GENERAL GUIDE TO HANDLING

GEMSTONE	Refr. Index	Specific Gravity	Optic Char	Hardness Toughness	TYPICAL STONE REACTIONS TO VARIOUS JEWELRY PROCEDURES						
					Setting	Polishing	Torch	Boiling	Steaming	Ultrasonic	Acid
DIAMOND	2.417	3.52 ±.01	SR	H-10 T-Good	Very Good	Excellent	Good	Excellent	Excellent	Excellent	Excellent
AQUAMARINE	1.577 to 1.583	2.67 to 2.84	DR	H-7½-8 T-Fair	Fair	Good	Poor	Poor	Fair	Fair	Good
CHRYSOBERYL (Alexandrite)	1.746 to 1.755	3.73 ±.02	DR	H-8½ T-Good	Very Good	Excellent	Fair	Good	Good	Good	Good
CORUNDUM (Ruby, Sapphire)	1.762 to 1.770	3.99 ±.03	DR	H-9 T-Good	Very Good	Excellent	R-Good S-Fair	Good	Good	Good	Good
EMERALD	1.577 to 1.583	2.67 to 2.84	DR	H-7½-8 T-Poor	Poor	Fair	Poor	Poor	Poor	Fair	Poor
GARNET	1.72 to 1.875	3.30 to 4.16	SR	H-6½-7½ T-Fair	Good to Fair (Flaw)	Good	Poor	Poor	Fair	Good	Poor
KUNZITE	1.660 to 1.678	3.18 ±.03	DR	H-6-7 T-Poor	Poor	Fair	Poor	Poor	Poor	Fair	Fair
OPAL	1.45	1.25 to 2.22	SR	H-5½-6½ T-Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor
PERIDOT	1.654 to 1.690	3.31 to 3.48	DR	H-6½-7 T-Poor	Poor	Poor	Poor	Poor	Poor	Fair	Poor
QUARTZ (Amethyst, Citrine, Smoky)	1.544 to 1.553	2.66 ±.01	DR or AGG	H-6½-7 T-Good	Good	Good	Fair (Color change area)	Fair	Fair	Good	Fair
SPINEL	1.718	3.57 to 3.90	SR	H-8 T-Fair	Good to Fair	Good	Fair	Fair	Good	Good	Good
TANZANITE	1.691 to 1.704	3.30 ±.10	DR	H-6½ T-Poor	Poor	Fair	Poor	Poor	Poor	Poor	Fair
TOPAZ	1.619 to 1.627	3.53 ±.04	DR	H-8 T-Poor	Poor	Good	Poor	Poor	Poor	Fair	Good
TOURMALINE	1.624 to 1.644	3.01 to 3.21	DR	H-7-7½ T-Fair	Fair	Good	Poor	Fair	Fair	Good	Fair
ZIRCON	1.810 to 1.984	3.93 to 4.73	DR	H-6-6½ T-Poor	Poor	Fair	Poor	Poor	Poor	Fair	Fair

NOTES: (1) Any stone with less than a good reaction requires further consideration fefore attempting the jewelry procedure indicated. (2) This is a guide; any stone may have individual characteristics, ie cleavages, other inclusions, treatments, etc. which will require additional care.

(Courtesy of J. Frank Golden & Assoc., Inc.)

PRECISION CLOCK OIL KIT



CONTAINS: 2—different high quality clock oils
2—oilers
1—oil cup
1—pithwood cleaning block for oilers
1—glass stick to transfer oil from bottle to oil cup

Can be used to lubricate clock movements and precision timekeeping movements.

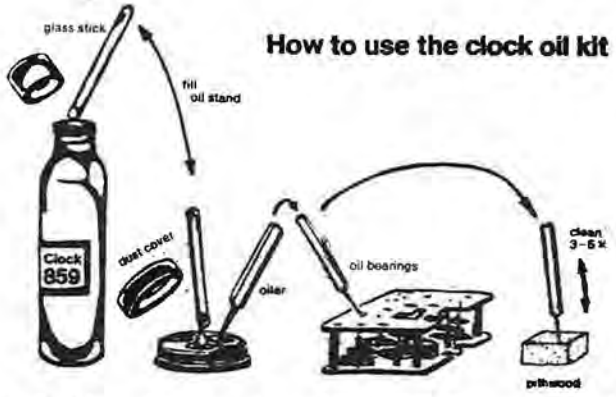
OL-395M. $13.50

NEW!

INSTRUCTION INCLUDED

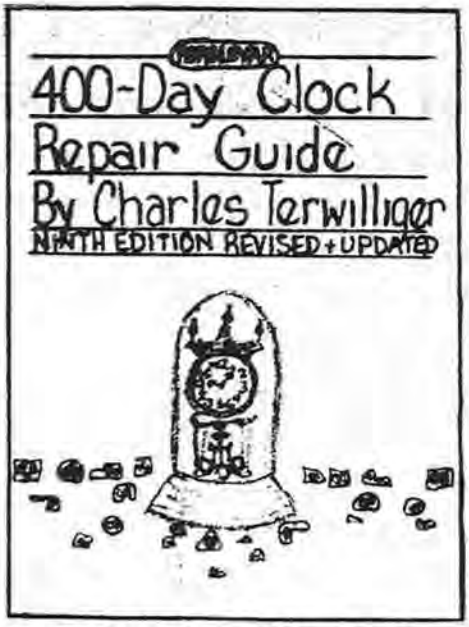
PRECISION WATCH OIL KIT

How to use the clock oil kit



OL-396M . . . Similar to above Watch Oil Kit $13.50

No. 59469
$18.00



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By CHARLES TERWILLIGER.
9th edition, revised and updated. Up-to-date and easy-to-find information. Every question answered and very well illustrated. 227 pages.

SMALL SPRING-WOUND CLOCK UNIT WITH 30-HOUR MOVEMENT

No. 568201
SPECIAL PRICE
$3.95

2¼" bezel fits opening 2" to 2-3/16". Can be used for many ceramic and other small clocks. An inexpensive, reliable 30-hour movement. Made in West Germany. Complete with brass bezel and hands, crystal, as illustrated. Completely assembled, ready to install.

Quick credit to accounts well-rated by Dun & Bradstreet or Jewelers Board of Trade.

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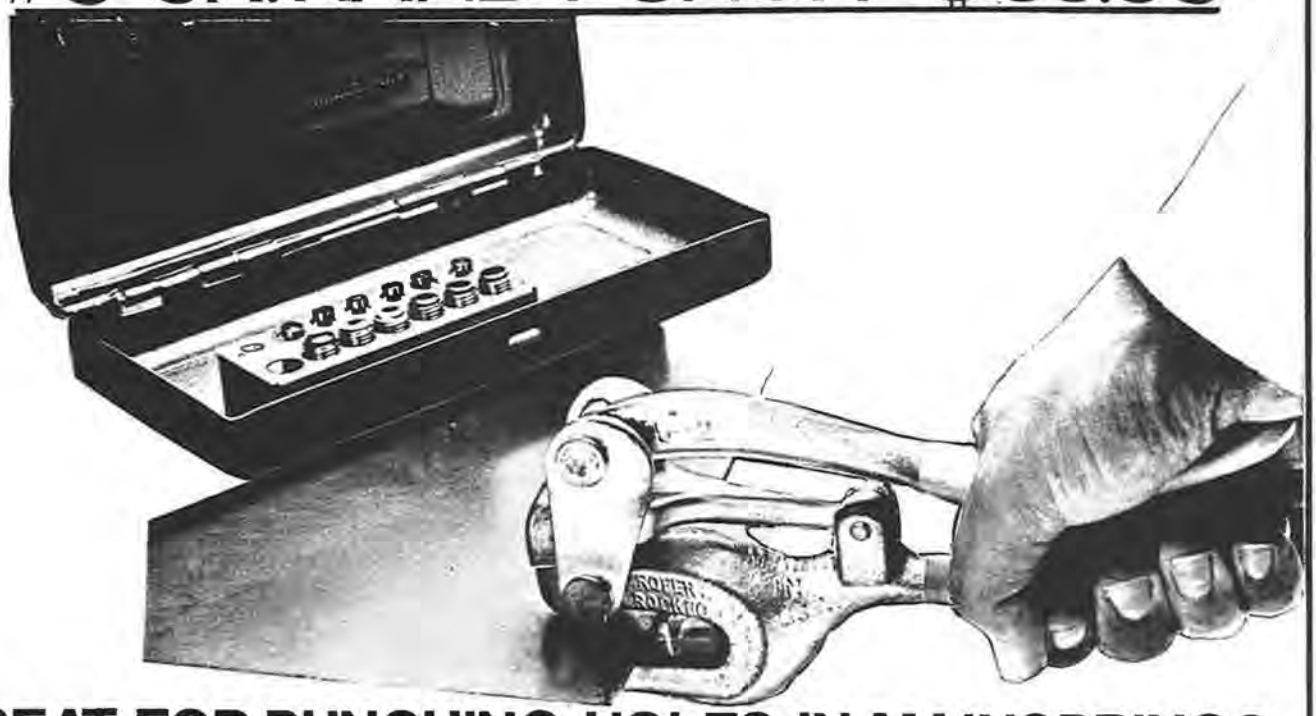
1212 Main St., Houston, TX 77001—713/759-9009
1425 Fourth Ave., Seattle, WA 98101—206/682-6158

TOLL-FREE PHONE ORDERS (except—sorry!—Alaska and Hawaii)—9 till 4 C.D.T., WEEKDAYS.

ILLINOIS: 800/972-3776.
OTHER STATES: 800/621-4767
OR MAIL ORDER TO: Dept. H, BOX 726, CHICAGO, IL 60690

#5 JR. HAND PUNCH $39.95



GREAT FOR PUNCHING HOLES IN MAINSPRINGS

It punches through most any material . . . steel, aluminum, plastic, leather—you name it. It punches clean, round holes without burrs, with the punches provided in this kit:

3/32", 1/8", 5/32", 3/16",
7/32", 1/4", 9/32"

The No. 5 Jr. punch is built strong . . . to last for years. It's built small . . . to fit any tool box or belt. It's convenient . . . has depth gauge, easy-to-change tooling. It has a sturdy carrying case for convenient storage. It's cordless . . . use it anywhere you need it.

QUARTZ TEST PENCIL

Tester in the form of a pencil; length, with cover, 150 mm. Body in artificial horn with quartz points frequency 32'768 Hz. Allows control of the function of the quartz in place in a module. It is not necessary to un-solder and take out the quartz.

TO OPERATE: Make contact with the two quartz bits with the aid of the two quartz points of the quartz test pencil. If the movement starts to work, this means that the quartz in the module is defective and must be replaced.

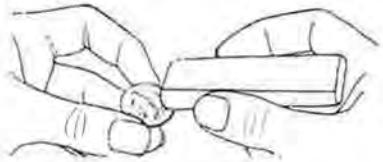
This quartz test pencil allows control of all quartz with a frequency of 32'768 Hz.

ON REQUEST: Specially-made quartz test pencil with frequencies higher than 32'768 Hz.

No. 6437 **$14.95 ea.**

RODICO ONE TOUCH

Special gum product for watchmakers. Stick shape. For cleaning balance pivots, train wheel parts, removing fingerprints and stains from plates, bridges, dials, etc.



No. 6033 **$6.50 ea.**

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OTHER STATES: 800/621-4767
OR MAIL ORDER TO P.O. BOX 726, CHICAGO, IL 60690

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109 North Akard, Dallas, TX 75201 – 214/741-1454
1212 Main St., Houston, TX 77001 – 713/759-9009
1425 Fourth Ave., Seattle, WA 98101 – 206/682-6158

Quick credit to accounts well-rated by Dun & Bradstreet or Jewelers Board of Trade.

Name_____

Firm_____

Address_____

City/State/Zip_____

THE ROCK QUARRY

Fred S. Burckhardt

HOOPLA

I guess I'm just a nut about advertising. One of my favorite pastimes is to look through trade magazines at the ads that claim the particular item or items are the finest quality, the best available, the least expensive, you can't stay in business without them; they claim they have the fastest delivery, the best merchandising program, or the most lenient terms in the industry. One even says, in so many words, that you're not smart if you don't carry their product. Thank goodness we happen to carry it in our store.

Now we are seeing a lot of ads about tri-colored gold jewelry. I don't know about this colored stuff. I've noticed when the new merchandise comes in, the invoices always say "Plumb Gold." It still looks yellow to me. I guess the guy mixing the gold doesn't put in enough of the purple color.

Another thing I'd like to know is, whatever happened to the "middle man"? Everybody claims to be an importer now. The ads say: "We sell to you direct. Forget the middle man!" Quite frankly, I like the middle man. It rubs me the wrong way to think they brag about putting someone out of work. We should start an organization called "Put the middle man back in your life." Remember years ago when a manufacturer was strictly a manufacturer, a wholesaler was strictly a wholesaler, and a retailer was strictly a retailer? Somewhere along the line things got mixed up. Nowadays, everybody tries to be everything.

Packaging is another form of advertising. I've come to the conclusion that people who design packages are those who couldn't make it in any other department, so the company makes them a package designer. The artwork and copy on many packages are really great, but the problem arises when you try to open some of them. Millions of dollars are spent on the development of a product and then they stick them in a five cent thing that can't be opened. By the way, I know I shouldn't say this, but how do you like the way some of the watch material is packaged? For example, how about shock springs? You know, the ones that come in a small plastic cup with a riveted top. Now I know it's not really riveted, but it takes major surgery to separate it from the bottom. After you finally get a small hole made, do you notice how the springs dance around inside the cup? I figured out why they package them in five's: you lose four of them before you luck out with the fifth.

Let's not forget batteries. True, most come with a paper top that's easily peeled away. Others have a serrated back where the battery can be pushed out without too much trouble. But how about the ones that come completely encapsulated in plastic strong enough to resist the strength of a bull elephant? It always makes you look good in the customers' eyes when you spend ten minutes getting one of these things open. The usual tools are of no help at all—screwdrivers of various sizes, knives, razor blades, blow torches, and jack hammers. The smart thing to do is to tell your customers you'll sell it to them for half price if they'll put it in themselves.

Pictures have a lot to do with a good ad. I like the ones that are done mostly for chain companies or for pendants. They always show a good-looking guy slobbering over an attractive young lady while he's holding the piece around her neck. Of course, he's always dressed in a tuxedo and she has on a beautiful evening gown. How come they never show some average-looking guy who's been saving his money for five years to buy a nice present, putting the thing around an average-looking girl and both dressed in nice, average-looking clothes? Other ads show half-naked models with about three pounds of gold wrapped around various parts of their anatomies. How many of those looking at the ads ever notice any of the jewelry?

Fastest delivery in the industry! We ship in 48 hours! Your orders are processed immediately!—Did you ever order anything from a company that advertises like this? When you don't receive the item in a couple of weeks, call and listen to some of the excuses. They must hire old watch repairmen in their excuse departments! Some of the excuses are great. I wish I would have written them down over the years—I'd have a best-selling book.

I must close for now. I have to finish making up an ad for the newspaper. First I'll show a picture of myself. The copy will read: "*The best, fastest, least expensive, top quality watch repair in the country. We are direct importers of watch parts, so we'll save you money by skipping the middle man!*" Sounds good to me . . .

PRESENTING . . . Robert F. Bishop--AWI Instructor

EDITOR'S NOTE: An ongoing educational program is one of the prime benefits available to members of the American Watchmakers Institute. Horological experts share their knowledge and experience by conducting seminars throughout the country. (See BENCH COURSES listing elsewhere in this issue for current subjects and dates.) HOROLOGICAL TIMES will feature a brief background sketch of each of these instructors in future issues.

No longer can the watchmaker of today base his career strictly on the repair of the mechanical watch. The day of the quartz watch is here, and has been for sometime, but many are just now realizing that they must become proficient in quartz in order to compete." The preceding statement sums up the philosophy of Robert F. "Bob" Bishop on the state of the art in the watchmaking industry today. His seminar on *Common Sense Quartz Watch Repair* is among the most popular of the AWI Bench Courses.

Born in Jamestown, NY, Bishop now lives in Glenshaw, PA. He is a self-employed watchmaker doing warranty service work for a major Seiko distributor. He is a graduate of the Western Pennsylvania Horological Institute, an active member or the Allegheny Watchmakers Guild, Past President of the Watchmakers Association of Pennsylvania, and is currently serving as a Director as well as Secretary of the American Watchmakers Institute. On his own time, his hobbies include photography, video production, and travel.

Bob Bishop is a firm believer in the value of continued education. He states that the AWI and various factory bench courses are vital to help today's successful horologist keep up-to-date with new techniques and instruments. The multimeter is a prime example.

"After conducting AWI seminars on *Common Sense Quartz Repair* for more than two years, it has become evident to me that the average traditional watchmaker is not confident in the use of the multimeter in the diagnosis of electronic malfunction," Bishop states.

"While I strongly recommend that diagnostic test equipment engineered for watches be used, the low cost multimeter, properly used and understood, will provide sufficient accuracy for all normal testing. Confusion in its use can result in replacing expensive parts that are not needed.

"Quartz watch repair is basically simple, and little electronic knowledge is required. However, a basic understanding of amps, ohms, and volts is necessary. Take the time to study, practice with your meter, and attend all available workshops. Quartz repair cannot be learned in a single seminar. Consider outside study using electronic experimenting kits such as those sold by your local electronics store. Treat the meter as your friend . . . not as your enemy!" he concludes.

AWI Bench Courses are designed to help watchmakers run a more profitable business. Check the monthly listing on page 40 of this issue for the date and location of the next seminar to be held in your area.

SHOP TALK

Wes Door, CMW

Appraisals: YES or NO?

THE ABC'S OF APPRAISALS
Part VIII

The three basic needs in making an appraisal are **ability**, **basic equipment**, and, of course, **customers**. Without any of these ingredients we cannot properly accomplish our task. By looking at our chart (Figure 1), we see these graphically pictured.

ABILITY

Our first need is ability. We gain this through education, from various schools, apprenticeships, or a combination of these with the "school of hard knocks." This education gives us a good background. However, we still need our reference books, magazines, periodicals, etc. It is a good idea to write the date received on each piece of literature that we receive, especially if they include a price list.

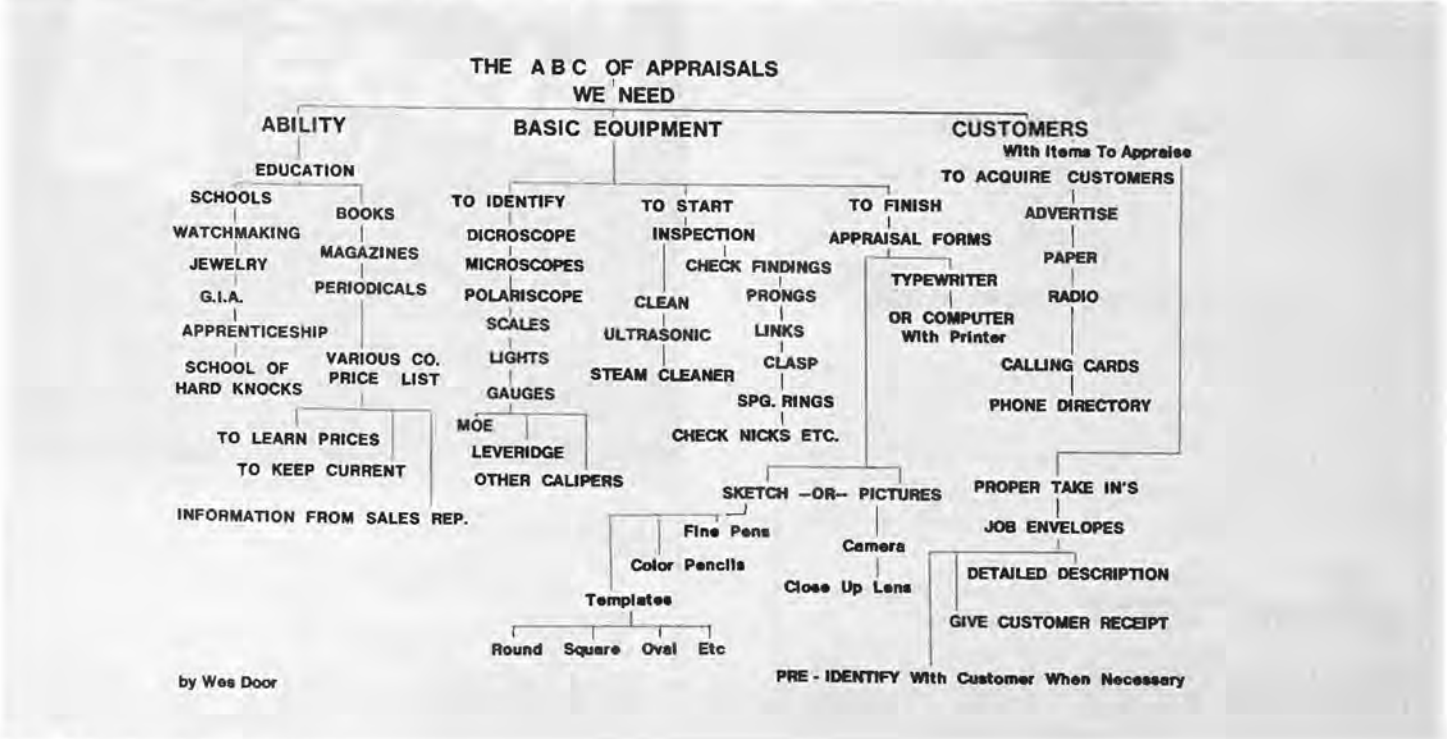
Contrary to the "good ole days," prices in our more modern times have been changing so fast that in some areas price lists are not shown at all. Generally price lists are printed separately for easy changing. Catalogs and all other reference materials are important to keep us updated on new gems developed, and have on hand the information on the availability of various gems.

BASIC EQUIPMENT

This next section on our chart (basic equipment), is divided into three sections.

To identify. To identify gems we must have several instruments. A modest number of these are shown on our chart. Since we have already discussed these in previous articles, let's go on.

To start. Actually, before using our identification equipment, we start by inspecting the items. We check prongs, links, clasps, spring rings, etc., and we inspect the gemstones for obvious defects, such as nicks, cracks, scratches, and other



blemishes, and point these out to our customer who may or may not have known about them. If repairs are needed and the customer agrees, these repairs should be done before the appraisal is written. If the customer will not OK the necessary repairs, and if we decide to still complete an appraisal on these items, we should write a statement on our appraisal form to indicate these "unrepaired" items.

If we are completely honest with our customer in pointing out needed work, the additional business from that will add to our income, while the assurance will give our customer peace of mind.

To finish. In finishing an appraisal, we must also have some basic office type of equipment, including a typewriter or a computer with a printer. Of course we need appraisal forms, and if we are going to include a picture, we need a camera with a close-up lens and proper lighting, etc.

If we are drawing a sketch, we need fine point pens, color pencils, and templates. Being organized (or maybe just plain lazy), I have twelve color pencils placed in a small carousel, purchased from an office supply store. By rotating it, the proper color pencil appears, for any of the months desired. Also, a few extra pencils are needed to help match, as close as possible, the hue of the customer's gems. A yellow pencil is used to recreate the color of yellow gold mountings. "CUSTOMERS WITH ITEMS TO APPRAISE" is rightfully shown *last* on our chart. Actually, without our ability and basic equipment, we would not have customers (with appraisal needs) and besides, without showing these items in this order, I could not have titled this chart "The ABC's of Appraisals."

After having the desire to use our education and our new equipment, we need to acquire "appraisal" customers. Usual methods may be used, such as advertising by newspaper, radio, phone directory, calling cards, and that old favorite, "word of mouth."

Our appraisal business greatly increased after developing our own detailed appraisal forms, which include color sketches. To review a picture of this form, see the December 1983 issue of *Horological Times* (in "Shop Talk").

Last, but not least, proper take-ins are most important. Our job envelopes must adequately describe the items. Also, we should give our customer a numbered receipt. On some occasions, we must identify the gem before it leaves the customer's hands, like the two-carat "Alexandrite-like-sapphire" that the customer thought for sure was a genuine Alexandrite. Common sense tells us when this pre-examination is necessary, and of course, good CENTS is what we get with each appraisal we do.

Stem Removal & Battery Replacement on Quartz Watches

Irving H. Albert

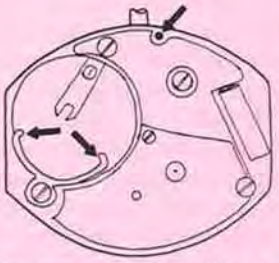
Dennis Tricarico

Last month began a series on correct stem removal and correct battery replacement on quartz watches. Mr. Albert and Mr. Tricarico, Bulova technical experts, joined forces to bring to *Horological Times* and its readers this presentation.

Models covered in this series of articles include Seiko, Citizen, Ricoh, Bulova, Porta, ETA, ESA, and A. Schild. Last month's issue featured the Bulova 2750, Bulova 2500, ESA 551.111, and the FHF 102.001. There is additional information regarding three of these models, which we will pick up in this article. Also pictured are the PUW 512 and Ricoh 5650.

BULOVA 2500 (SWISS)

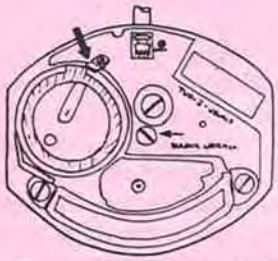
5¼ x 6¾ '''



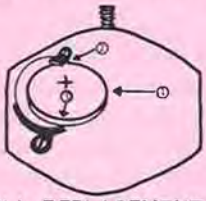
1. To insert cell, first slide the cell under the prongs of the cell retainer, arrow No. 1.
2. Center cell into position and press down into place.

BULOVA 2750 (SWISS)

5¼ x 6¾ '''



1. To insert cell, approach from the direction noted by arrow No. 1.
2. Slide cell under clamp, arrow No. 2.
3. Center cell into position and press down into place.



PREVENTING DAMAGE DURING CELL REPLACEMENT: To prevent damage during cell replacement, carefully check the type of cell retainer used.

Some movements contain cell straps or clamps that overlap the top edge of the cell. To properly insert a cell into these watches, refer to the steps above.

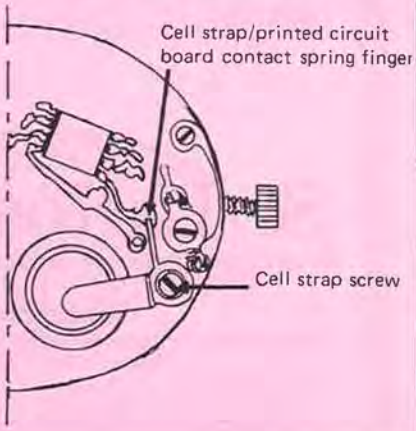
If an attempt is made to insert a cell without first slipping under the cell retainer, damage to the movement and the retainer will occur.

ESA 551.111 (SWISS)

7¾ '''

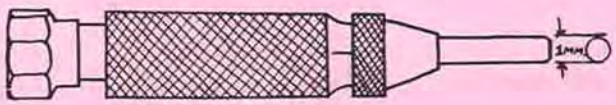
A number of watches received from the field reveal that a problem is inadvertently being created during the cell replacement procedure.

It is imperative that during cell replacement or servicing of this movement, the cell strap/printed circuit board contact spring finger is not distorted. The finger MUST make contact with the printed circuit. The watch will not function otherwise. To prevent distortion, unscrew the cell strap screw 3 complete turns (use screw slot as an index) before removing the cell. This will allow sufficient space under the cell strap to safely remove and replace the cell.



NOTE: The cell strap finger MUST make contact with the printed circuit as shown in the drawing. To prevent distorting the contact finger, turn the cell strap screw 3 complete turns before removing cell.

This tool will operate on 90% of the stem release systems in the field today. To modify, remove the tapered portion of a 1 mm screwdriver blade as shown in the drawing. Use this tool to press down on the stem release pin (post). This will prevent the release pin from being pressed excessively which could create damage or a problem.



PUW 512 (GERMANY)

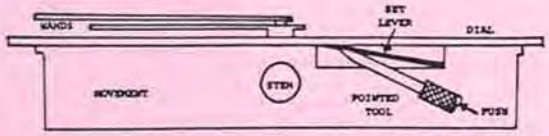


Figure 1. Side view.

Figure 2. Top view.

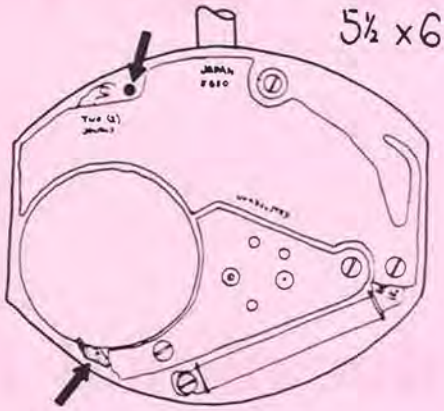
1. Stem MUST be in the "IN" or running position during removal.
2. If stem is released in the setting position, the set lever will "hand up" on the main plate.
3. To reposition, push set lever as in the drawing above.

The stem MUST be in the "IN" (running) position during removal to prevent the setting mechanism from disengaging. The use of a 1 mm screwdriver is used to depress the stem release pin. Anything smaller may damage or disengage the setting mechanism. If the setting mechanism is inadvertently disengaged, either of the following procedures are recommended to correct the problem:

FIGURE 1. Holding the movement and a pointed tool in a horizontal position, carefully push the set lever into the "IN" (running) position. Only a slight pressure is necessary to accomplish this fix.

FIGURE 2. Remove the hands and dial, and with a slight pressure, push the set lever into running position.

RICOH 5650 (JAPAN)



1. To remove stem, press pin indicated by upper arrow.
2. During cell insertion, care should be taken not to distort the side cell retainer indicated by lower arrow.

AWI NEWS

Milton C. Stevens

Educational Programs to Expand

Three new educational programs are being offered by the American Watchmakers Institute, and one standard is being revised under the direction of a new instructor. The Institute's goal is to provide the types of training which will address the needs of a wide variety of interests among the AWI membership. In this period of rapid change, we find renewed interest in some of the traditional skills as well as the continued need for training in quartz watch technology. A summary of these new programs follows.

QUARTZ WATCH TEST EQUIPMENT

The Quartz Watch Test Equipment seminar will be instructed by Calvin Sustacheck, well known for his AWI and Bulova Watch Company workshops during the past six years. This program will be divided into small group segments in which each of the various pieces of equipment will be taught. These small group segments will enable the participants, who may already own these pieces of equipment, to learn how to use them properly so as to insure maximum profitability in quartz watch repair. In addition to the individual test equipment segments, Mr. Sustacheck will demonstrate all of the pieces assembled. This will enable those who may be planning to purchase equipment to see each piece in operation prior to making the actual purchase.

The first series of seminars is scheduled for early Fall, and are tentatively targeted for Kansas, Oklahoma, Texas, Missouri and Illinois. Additional schedules will be developed as we receive requests for programs at AWI Central. The equipment demonstrated will include: The ETIC Quartz Watch Repair System; The Zantec Quartz Watch Repair System; Portescap - Renotest; Bulova Accutron Test Set for the Repair of all Quartz Watches; and Use of the Citizen Test Meter.

SWISS ANALOG QUARTZ REPAIR

James Adams, AWI's newest instructor, launched his new course "Swiss Analog Quartz Watch Repair" on May 20. Using the ESA 963.124 gent's calibre watch movement, Instructor Adams has designed the program for students to use basic concepts to analyze and correct malfunctions in all types of quartz analog watches. This approach is in keeping with AWI's attempt to teach repairers not to rely on a training session for each individual calibre as it appears on the market, but rather to learn certain basic skills and concepts which can be applied to the repair of all quartz watches. This is much like the procedure watchmakers learned in order to service all types of self-winding watches when they first came on the market.

USING THE WATCHMAKERS LATHE

The growing interest and need to develop and sharpen lathe skills, as watchmakers turn their attention to watch and clock restoration, has prompted the development of a course for the proper use of the watchmakers lathe. We have secured the services of Mr. Archie Perkins, one of this country's recognized authorities, to present a three-day seminar.

The first course will be held August 13 through 15, in Cincinnati, Ohio. Students will be required to furnish their own lathe, gravers, and hand tools. AWI may be able to arrange for the loan of a limited number of lathes. The course is open to beginners as well as those with limited lathe experience. Complete details can be obtained by writing AWI Central for the "Lathe Course Brochure."

INTRODUCTION TO CLOCK REPAIR

Several years ago we recognized the need to offer an introductory course in clock repair. At that time a problem arose in finding a qualified instructor to develop such a course. Marvin Whitney and Otto Benesh agreed to develop the program for us and to present several seminars. They have done this and their course has been enthusiastically received. In keeping with their wishes to turn the course over to another instructor, we are pleased that Mr. David Arnold has agreed to take on the assignment. Marvin Whitney will assist Mr. Arnold during the transition period, as Mr. Arnold introduces his own techniques and ideas into the curriculum.

The first program offered under the leadership of David Arnold will be the week of August 13 through 17, in Cincinnati, Ohio. It will run concurrently with the new lathe course being offered by Archie Perkins. Registration is necessarily limited and AWI members will be given preference. Details of this course may be obtained by writing to AWI Central for a brochure for the "Introduction to Clock Repair" course.

We fully expect these new programs to be greeted with the same enthusiasm as have all other AWI courses. For details about any of AWI's courses, or to arrange for them to be in your area, please contact me at AWI Central.

QUESTIONS & ANSWERS
(Continued from page 20)

If you visit outside of Paris, far into Besancon, they have a nice horological museum and that city is the horological manufacturing center of France. There, the Musee de Beaux Arts, place de la Revolution, is worthwhile and ask there where one might visit the offices of the French Collectors Association and offices that might assist with other visits, possibly a watch factory. Also, while in Paris, try to get to the jewelry trade center area and building. It IS different.

Q I am in need of parts for the Guardson Time Recorder. The clock mechanism is made by the Recta Watch Company, Swiss 11 Jewel. This data is stamped on the top of the balance bridge assembly. The unit is composed of the balance wheel assembly with either a flat or Brequet hairspring with a regular staff or a shock resistant staff.

I have four Time Recorders (Guardsmen) with the Recta Watch Company assembly. I would hope that you can provide me with their correct address and phone number if possible.

Frank Rudman
White Oak, Pennsylvania

A *The Recta Watch Company can be contacted in Bienne, Switzerland at Recta S.A., reu du Viaduc 3, Bienne, Switzerland. They have been in business a long time, presently specializing in platform escapements.*

The Guardsman label is owned and produced by the Zodiac-Calame Company. Their address is: LeLocle, Switzerland, c/o Paul Buhre, (NE 039) LeLocle. A United States address might help you. They are at Zodia Watch Company, 565 Fifth Avenue, New York, NY 10017.

Henry B. Fried

In the Spotlight © 1984
by Orville R. Hagans

From the Manuscript and Photo Library of Orville R. Hagans, FAWI, CMW, CMC, FBHI, FNAWCC

Are You A "Horologist"?

In lexicology, the derivation of horology is shown to be from the Greek word "hora" meaning an hour, and from "ology" – a colloquial term for any branch of science. This compound word means "the art of constructing machines for measuring and indicating time." And, the definition of a horologist is "one adept in horology." How many may claim the right to be addressed by this name?

The definition of a watchmaker is "one whose occupation is to make or repair watches." Many may, without compunction, claim this distinction.

Horologist is, undoubtedly, a more intriguing word than watchmaker, and while the latter title may be more understandable to the English speaking public, both are misnomers when applied to the average workman engaged in the repair of watches.

In order to conscientiously apply either of these names to ourselves we should be able to construct a watch in its entirety and be equipped to make any part for replacement purposes. Many workmen, given the proper tools, could do this but it is neither expected nor required of us in this modern age.

What then is the present requirement in order that we may call ourselves horologists? The minimum requirement is that we must be able to fit and adjust any of the replacement parts that may be needed in repairing a watch to return it to its original condition and usefulness. We should be able to make certain parts such as staffs, springs, stems, and screws equal in appearance and utility to the original ones being replaced. This may sound simple in its statement, but in practical work it is far from simple. It requires knowledge and ability equal to that of the designer and maker of the watch if it is to be returned to its original condition, and if we have pride in our work this should be our aim.

How is such knowledge and ability to be attained? There are two ways: (1) attendance at a recognized horological school, where the instructors are certified watchmakers with a broad knowledge of the art, for a sufficient length of time to thoroughly learn the work; and, (2) by serving an apprenticeship of not less than three years under the instruction of a recognized master watchmaker who has the ability and equipment to impart his knowledge to the student. Either of these alternatives must be supplemented with a wide study of all branches of the art.

The novice, whether in school or a shop, should first be given a course in applied mechanics, starting with a consideration of the mechanical powers–the lever, the wheel and axle, the pulley, the inclined plane, the wedge, and the screw. These are the elementary contrivances of which all machines are composed. A condensed course in horological drafting covering theory of design should follow in order to give the student a further insight into the mechanical planning and some of the mathematical aspects of the design of watches and clocks. A well-planned course of practical work in turning, milling, grinding and polishing, and watch tool making, going through the actual process of making a clock with dead beat escapement should be given. All this, of course, for the purpose of building a firm foundation upon which the name of horologist is to later soundly rest.

With such a foundation laid, the student, if his marks are satisfactory in this work, is well started on the long road to receiving his diploma "Horologist," which will be regarded with confidence by the public and will be a constant source of pride to him. Only after such groundwork has been laid, is the student really prepared to begin the study of horology. With this firm foundation in mechanics, the novice will progress rapidly in the art as he will have had impressed on his mind the why and wherefore of the mechanical movements and construction of the clock. It remains only that he be taught the construction of the watch and the modern methods of repair and adjustment. This, in conjunction with a sufficient length of time spent in applying the knowledge he has gained, should give him sufficient instruction to entitle him to receive the coveted appellation "Horologist."

All this may seem unnecessary to some, but many of the older watchmakers who did not have this sort of training will readily admit that their progress and proficiency would have been enhanced immeasurably had they received such training.

While the present-day watchmaker is not generally called upon to manufacture watches, he should have a complete knowledge of all the details entering into their construction. There is a wide field of study to be engaged in in order for one to rightfully earn the title of horologist. It is this knowledge that places one in the professional class which implies a measure of learning above the average.

(Continued next page)

IN THE SPOTLIGHT
(Continued from previous page)

There is much being written today on the value of a high school and college education, and there is no doubt that both of these are highly desirable, but it is a comfort to the novice with less than a high school education to know that intelligence is congenital. Some of the greatest inventors of our age have been watchmakers and men of little education who have given us the most valuable of our machines and conveniences. Edison is an outstanding example of a self-educated man and his name will be remembered when those of his contemporary college presidents have been forgotten. Edison was a student all his life and his success was due to not being satisfied with knowing just enough about anything but by learning all there was to know about the things he put his mind and hands to. Let the young apprentice, whether he has much or little education, take his cue from Edison. And, in connection with the training he is receiving, make an exploration or research into all departments of the art of horology.

The American Watchmakers Institute has a growing library of practical books on horology which it will loan to members. The only requirement is the payment of return postage. State associations or guilds of watchmakers who are affiliated with the AWI or those with student or apprentice memberships may also obtain these books. The American Watchmakers Institute also has a large selection of works by well-known writers which are for sale.

Watchmaking cannot be learned from books, but there is much horological lore that can be obtained in no other way.

Battery News

By Ewell Hartman, CMW

The 1985 Battery Number System booklet will be going to press in a few months. This will be the third edition and we want it to be the best! In addition to the inclusion of the latest battery information, we will be making two changes to the format. The Conversion Tables (Section I) will have the **manufacturers'** battery numbers listed in numerical order for even faster location of your AWI master number. Space will be provided at the end of each of these listings for the addition of new battery numbers, as published monthly in this column.

We would like to know what you like and don't like about the 1984 edition, other than the changes listed above. Do you like the present size and format? Is there a battery brand that isn't listed that you feel should be? Is there any information, not presently included, that would be helpful to you?

As a watchmaker, store manager, battery distributor or manufacturer, let me hear your ideas and comments. You can write to me at 4805 Jan Road, Richmond, Virginia 23231, or call in the afternoon (except Wednesday and Sunday) at (804) 740-1422. This is **your** system——let's keep it the industry's most complete, most accurate, and most in demand.

Affiliate Chapter Column

Walter Riegler, CMW

Communication

It was with a great deal of pleasure that, when entering Barton & Chase watch material distributors in Philadelphia, Pennsylvania the other day, I noticed a large color lettered sign about 2 x 3 feet on the wall at the watch material counter. It announced the Delaware Valley Watchmakers Association's monthly meetings, the location, and when they are held. I had seen the sign there many times before, in fact I was a guest speaker at one of their meetings a few years ago.

What made this day and my seeing the sign different, was that I had the communication of watchmakers on my mind, and thoughts about it for this column were fresh in my mind. Incidentally, there was also a stack of AWI information flyers on the counter near the cash register.

This is just one way of communicating locally, between local watchmakers, and sometimes visitors with the local guild. How many material houses have you seen with the area watchmakers' meetings posted and AWI flyers on the counter? It really is a two-way street between the associations in the area and local material houses, with the association taking the initiative and approaching the material houses. This is one way of communicating by "billboard" advertising which attracts a great deal of attention.

I have been attempting to get all our chapters to send out at least one newsletter a year so that there is some correspondence. How many of you (your chapter) sent out at least one bulletin this past year? We in New Jersey have received a couple from some chapters and only one from some of the others. Perhaps this year we can encourage more chapters to do this after having personal contact. If for some reason you have not sent out a bulletin, please bring one to the June meeting which is only days away.

The chapter delegates are responsible for having returned the Affiliate Chapter report sheets to AWI Central this past month. Please check to make certain that the sheets were properly filled out and returned to the responsible party. If you, by some chance, discover that "George" did not follow through, you had better track down the report sheets and get them right off or call AWI Central for copies. You might have to make 40 copies on your own.

I am sure that all of you were able to discuss, to some degree, the upcoming ideas set forth by the Goals Committee. We are at the fork in the road so to speak, and must decide which direction to take, not which side of the road to continue on. Sure there are some watchmakers that will never have to work on any watch but a mechanical one and still be busy. Perhaps some will want to keep our membership for watchmakers only, regardless come what may. This must all be discussed prior to coming to Cincinnati and rediscussed at our chapter meetings and also by the Board of Directors. What the Goals Committee is implying is that for many watchmakers it may become necessary to learn related jewelry store skills to maintain employment. These are all individuals' opinions. What are yours?

Do you remember what Mr. Lowe, our guest speaker, said last year? One jeweler that he knew of discontinued selling watches because he could not locate a watchmaker who could *properly* repair quartz watches. An owner-operated store is expected, by his customer, to service all that he sells. This is not so with the discount and mall chain stores. The customer expects more from us, perhaps rightly so, since we claim to be watchmakers, with our certificates and diplomas hanging on the wall advertising this fact.

How many times have you had a customer bring in a self-winding watch and say, "My watch stopped, put a battery in it;" or "I want the oil changed in the motor, its beginning to run slow;" or "Can I have the battery recharged while I wait"? All he sees are the face and hands of the watch, little does he know what goes on inside.

How many bring in a watch that they or someone else has opened to put a cell in it and have damaged the watch or put the cell in upside down? Are these customers or are they just not aware that you offer these services? There is more to repairing watches than just repairing them from start to finish. Advertising one's services on the wall is just as important for your profession as the advertising of the Delaware Valley Watchmakers meeting place, to maintain an ongoing relationship whatever it may be.

Have a good month and see you at the meeting.

NEWS

...from all around the ASSOCIATION...

NORTH CAROLINA

The 1984 convention of the North Carolina Watchmakers Association was held April 13, 14 and 15 in Fayetteville, NC. Seminars were held by Marshall Richmond, Henry Frystak, and Fred Burkhardt. Entertainment was provided each day, as well as honors and awards, an auction, tours, Sunday school, and door prizes. The Annual Business Meeting was also conducted.

MICHIGAN

The Michigan Watchmakers' Guild held their 30th Annual Convention at the Doherty Motor Hotel, Clare, MI, on April 27, 28 and 29. This year's convention chairman was Sean Monk.

The President's Reception was held on Friday evening. On Saturday, April 28 a Quartz Analog Bench Workshop was held with Les Smith, AWI, as instructor; and a "Night at the Races" took place in the evening. Sunday's activities included Bertram Lowe giving a lecture on "The Watchmaking Industry, Today, Tomorrow and in the Future;" a Bench Workshop–Citizen Model 73 and Citizen Model 920, by Buddy Carpenter, AWI instructor; the election of officers; awards and prize giving; and the adjournment.

OHIO

The 1984 Convention Committee for the Watchmakers Association of Ohio are putting the finishing touches on the program for the week end of July 27, 28, and 29, 1984. The Convention will be held at the Marriott Inn East on Hamilton Road in Columbus, Ohio. Full details will be in the mail soon. The Swap and Shop Table will be available again. Bring your items to the Convention, put your name and asking price on each item.

NEW YORK

On Monday, April 2, at the Hotel Summit, NY, Mr. David Peyton, Jewelry Instructor at the Joseph Bulova School of Watchmaking, gave another installment of his highly popular and informative talk on the "Repair of Watch Cases" to the Horological Society of New York.

This program dealt primarily with the importance of identifying and salvaging gold. The talk, which included many tips on control of the torch, testing techniques, etc., also dealt with the age old question of why solid gold jewelry causes skin discoloration on some people. Surprisingly there was no conclusive answer to this question. However, these possibilities were raised: (1) exceptionally high acidity of the skin of the wearer; (2) reaction to some alloys in gold less than 24 kt.; (3) interaction with certain types of perfume, make-up, etc.

A question and answer period concluded the informative lecture.

David Peyton, Instructor, Joseph Bulova School of Watchmaking, addressing the Horological Society of New York.

SCHOLASTICALLY SPEAKING

Alice Carpenter, CEWS

ARE YOUR CUSTOMERS NOW MINE?

The following comes from Mr. Dale Linerode. I believe I may have worked behind some of the watchmakers he is speaking of. Students, I challenge you: before you take that shortcut, take this man's words to heart.

"Things are bad. Watchmakers are being forced out of business due to lack of work and low-priced watches. Learn a new trade that you can fall back on. Where have I heard that before?

"In 1952, I started my formal apprenticeship. My wife's grandfather said, 'Dale, I know business is good now, but you'll starve to death when you get all the watches in the area repaired.' That was 32 years ago and I haven't caught up yet.

"A couple of years ago I attended a seminar, and during a break, one of the attendants said, 'I won't touch another Accutron! I cleaned that damned thing three times and put in two index wheels and it *still* won't run!' Now methinks the damned fool was too lazy to pull the dial side down and clean between the cannon pinion and center post. By this time that clutch must have been pretty badly worn. I wonder if he knows that he can pop it apart, reverse the wheel on the pinion, properly lube it, and then have a very good timepiece. I think *his* customer is now *my* customer. Thank you, sir, for sending me your business.

"I'll bet that my two fellow watchmakers and I take in about 30 to 50 watches in a week that some watchmaker, cell fitter, discounter or customer has screwed up by trying to change cells—wrong cells, straps missing or damaged, gasket missing or damaged, up-converter torn off and can't get the back on, etc. It makes me sick to see this butchery—but I'll tell you this, it sure helps my business. Thank you, my fellow watchmakers—my sales keep climbing. Last year was a very good year and by the end of the year we had far surpassed the previous year.

"With all of the low-cost seminars available there is no reason for a watchmaker to give up on repairs or to butcher a watch.

"I attended our annual state convention this last summer and arrived late due to a plugged radiator. I hurried into a session already in progress. At our first break, I asked the fellow sitting next to me how many watchmakers were present at the meeting, and without batting an eye, he surveyed the crowd and said, 'Five.' I said, '*What*?'—and he repeated his answer with an explanation. I hate to admit it, but I had to agree with him. Most of those men didn't even know how to hollow-grind a screwdriver. They are still slicing coils and gouging bridges with their chisel points.

"Young watchmakers, *A*-order means that the timepiece is returned to your customer looking inside and out, and running as good or better than it did when it left the factory. Now I realize that most of the cheap cases cannot be totally renewed, but you can certainly improve their looks. What does that crystal, dial, crown, and band look like? A little ammonia, detergent, water, and buffing does wonders. A few minutes in the ultrasonic and forced air dryer makes a big improvement. This is what your customer sees.

"Now, how about that movement? It must be surgically clean. Remove the mainspring, open the cap, leaving the rest of the watch assembled. Run it through the cleaner a minimum of three rinses, dry well, and let cool in

(Continued on page 48)

Bench Tips

Joe Crooks

Centering Dials

For the past two months we have published dial tips. Now don't quit reading just because this is another one! Read on and see how important it is for quartz analog watch repair.

Cal Sustachek of Racine, Wisconsin, sends us this tip given to him by Paul Gross of Wisconsin Rapids, Wisconsin. Paul wouldn't send it in because he didn't think it was worth printing.

Well, shame on you, Paul. You have a good tip! I will never make fun of any tip we receive, even if it's no good, botchery, or has been printed before. I want our readers to know that if we don't use a tip, it is confidentially destroyed, along with the name of the person sending it to us. So no matter how simple a watchmaker may think a tip is, send it to us. It may be very valuable to some other craftsman.

This is a quick method of centering a dial on the movement when the dial feet are bent.

Determine which way the dial must be shifted by observing the space around the hour wheel tube before fitting the hands. Rest the edge of the movement main plate on a bench block and gently tap the dial in the direction it needs to go to proper position (no need to loosen dial screws).

After it is centered, check the dial foot screws to be sure they are tight. This method eliminates bending feet, trying, and bending again. Also, there's less of a chance of breaking the dial feet off.

A word of caution: If the movement is not shockproof, remove the balance wheel before tapping.

Our Executive Secretary, Milt Stevens, told me that his uncle taught him this years ago when Milt was in watchmaking. He squared the end of a wooden handle watch brush, held the brush loosely in a vise, placed the square end of the brush against the dial, and "whacked" the other end of the brush handle. He said it worked super. But he didn't tell me what was used to "whack" the brush with, or how many center wheels he sheared off.

This is my method to center round dials, dating back to the sixties. After the Accutrons were manufactured, they supplied us with a friction-fit, round movement holder that would also hold the movement, dial up. I discovered that one of the aluminum American Watch movement holders (all of us old watchmakers have a set of these to hold American watches from 18S down to the smallest round movement) fits nicely over the outside of the dial from the bottom side of an 0 size movement holder.

With the 218 movement secure in its holder and the proper American movement holder over the outside edge of the dial, it can quickly be centered to the hour wheel with surprisingly little pressure with the thumbs on the top holder while holding the bottom holder with the fingers.

The beauty of this method is that you can observe exactly how much the dial is being shifted with an eyeloupe. With a little imagination and experimenting, you probably have a round American holder that will fit over any make manufactured dial. It doesn't need to fit tight–just be large enough to fit over the outside edge of the dial. Where the imagination and experimenting come in is finding something to securely hold the movement without damaging it, provided the movement cannot be held in the back of the case with the edge of the dial exposed.

Now that we are repairing quartz analog watches with sweep second hands that jump once a second, centering watch dials is much more important than it ever was in the past! If the dial is not perfectly centered with the sweep second post, the second hand will stop on one side of the second markers while on one side of the dial and on the other side of the markers on the opposite side. Some customers don't like this!

Sometimes with the "cheapie" quartz analogs, the second markers are so out of round with the center hole in the dial that it's almost impossible to make the sweep second hand stop on all the second markers around the dial. Don't waste much time with these watches; just shift the dial on the movement between nine and three until the second hand stops on the same side of the second markers between eleven and one o'clock with the watch running. Then remove the second hand and set it to stop dead on the 60-second marker.

Incidentally, are you having trouble adjusting sweep second hands to stop on the second markers without wasting time? If so, try this. With the stem in setting position to lock

(Continued on page 41)

AWI Bench Courses 1984

	PROGRAMS	INSTRUCTORS
A	Basic Electricity & Use of Meters	Jaeger
B	AWI Certified Citizen Quartz Watch Technician	Carpenter
C	Pulsar	Broughton
D	Seiko Quartz Analog and LCD	Smith
E	Intro. to Solid State Watch Repair	Nelson
F	Fundamentals of Solid State Watch Repair	Opp
G	Repairing the ESA 900.911 Digital/Analog	Biederman
I	Introduction to Striking Clocks	Baier
J	Common Sense Quartz Watch Repair	Bishop
K	Introduction to Clock Repair	Arnold & Whitney
L	Bulova Quartz 262 and 2500	Sustachek
M	Striking Clocks—Advanced Seminar	Baier
N	ESA Analog Quartz Repair	Adams
P	Using the Watchmakers Lathe	Perkins

JUNE

1 . . . . .C . . .Albuquerque, NM BROUGHTON
3 . . . . .C . . .Los Angeles, CA. . .BROUGHTON

AUGUST

6-10. . . .K . . .Cincinnati, OH . . .ARNOLD & WHITNEY
13-15. . .P . . .Cincinnati, OH . . .PERKINS
18-19. . .J. . . .Toronto, Canada . .BISHOP

SEPTEMBER

15. . . . .C . . .Mandan, ND. . . . .BROUGHTON
17-20. . .M . . .Cincinnati, OH . . .BAIER
23. . . . .G . . .Chicago, IL . . . . .BIEDERMAN

OCTOBER

13-14. . .J. . . .Greensboro, NC. . .BISHOP

NOVEMBER

18. . . . .C . . .Chicago, IL . . . . .BROUGHTON

SEND INQUIRIES OR RESERVATIONS TO:
AWI, P.O. BOX 11011, CINCINNATI, OH 45211

I AM INTERESTED IN YOUR BENCH COURSE TO BE PRESENTED ON _____ AT _____. PLEASE SEND ME MORE INFORMATION.

NAME: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

TECHNICALLY WATCHES

(Continued from page 18)

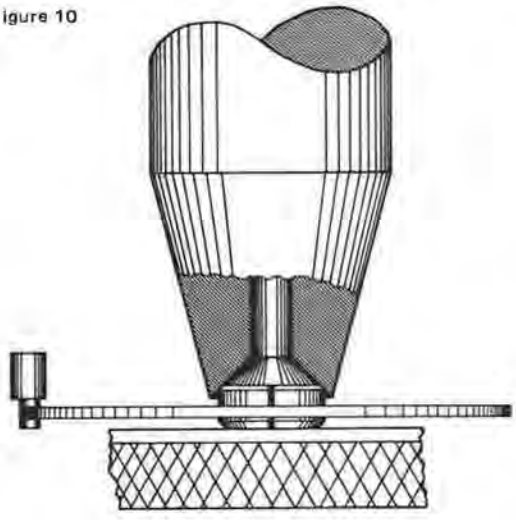
closed off center. The hole in the hand can first be centered on the die plate with the die set punch and held in this position while the die set punch is removed from the frame and the tapered mouth punch placed into position and the hole closed.

The hole in a minute hand can also be closed with a round end solid punch. Figure 9 shows this being done. The hand is rested top side down on the die plate while the hole is being closed. The punch used should have a diameter at its end that is two times larger than the hole in the hand. If it is found that the hole has been closed too much, then it must be held in a hand tong or hand broaching device while the hole is opened with a broach to have the proper fit.

The tapered mouth punch makes an excellent tool for closing hairspring collets. Figure 10 shows this being done. The hairspring collet is supported on the die plate at a place where there are no holes in the die plate. The punch used must be large enough to fit over the edge of the collet but not large enough that it will touch the hairspring during the process of closing the hole in the collet. The collet can be closed on either side but the side selected should be the side which extends the greatest distance out from the hairspring. Usually the collet on a Breguet hairspring is closed from the top of the collet, and the collet for a flat hairspring is closed from the bottom.

"The Staking Tool and How to Use It" will continue next month.

Figure 10



BENCH TIPS

(Continued from page 39)

the train, press the second hand on the pinion to a **loose fit** *while holding the end with your tweezers on the 60-second marker (like you would zero the sweep second hand on a chronograph), then start the watch running to see if the second hand stops on the minute markers. If it doesn't, observe how far off you are and again pull the stem into setting position to lock the train and place one tip of the tweezers under the sweep hand and the other on top and move the hand the amount needed. (The sweep second hand post will slip on the sweep second pinion where it was loosely fitted.) Continue holding the hand in place and press the post firmly on the pinion. Now if you are still just a tad off with the watch in running position, bend the hand as close as possible to the post to correct the error. These hands are soft, so bend gently. A bend so small that you can't see it, close to the post, will shift the tip of the second hand 0.20 mm at the tip end.*

NOTE: If a sweep second pinion is bent and the second hand is replaced crosswise to the bend, the second hand won't stop on all the minute markers around the dial. It will react just like a dial not centered to the sweep second post.

Send your tips to: Jingle Joe, AWI Central, 3700 Harrison Ave., Cincinnati, Ohio 45211.

United States' Master Clock

The Naval Observatory in Washington, D.C. maintains the Master Clock of the United States, the most accurate and reliable time standard in the world. This time service dates back to 1845 when the Observatory offered its first time service to the Public by a time ball dropping at noon. Beginning in 1864, time signals were sent daily by telegraph. In 1904 a U.S. Navy station broadcast the first worldwide radio time signals based on a clock provided and controlled by the Observatory. A special telescope, known as a Photographic Zenith Tube (PZT), was installed in 1915 to observe the variation of latitude. Beginning in 1935, it was used to determine Universal Time (UT) also called Greenwich mean time.

Today, the atomic clock is used to determine very precise time. Operation of the atomic clock is based on the principle of measuring the resonant frequency (9, 192, 631, 770 cycles per second) of the cesium atom. At the Observatory, the atomic scale (AT) is determined by averaging 20 to 24 atomic clocks placed in separate, environmentally controlled vaults. Each clock costs about $30,000 and weighs 150 pounds. Atomic time is a very uniform measure of time (1 billionth of a second per day).

The Master Clock maintained by the Observatory provides the national time standard. A recording provides a voice announcement of the time. The entire United States as well as select countries can access the Master Clock and hear the voice announcement via the 900 service provided by AT&T Communications. By dialing 1-900-410-TIME, the most precise time available can be heard. A constant ticking in the background allows scientific users to synchronize equipment.

This service can complete 8,000 calls simultaneously. Future expansion can easily be accommodated. Due to the tremendous call completion capability, callers can stay on the line as long as desired and will not be cut off after a certain time as in other time services.

This service provides a universally available Time Announcement Service without incurring high toll charges. Callers will be charged on a pay-as-you-call basis, $0.50 for the first minute, $0.35 for each additional minute.

For more information contact the U.S. Naval Observatory, 34th and Massachusetts Avenue, N.W., Washington, D.C. 20390.

GREDINGER NAMED EXECUTIVE V.P. AT IJO

Jack Gredinger has been appointed Executive Vice President of the Independent Jewelers Organization (IJO), a worldwide professional group of retail jewelers headquartered in Westport, Connecticut.

In his new position, Gredinger will supervise the implementation of all IJO programs on a day-to-day basis and will assist Bill Roberts, IJO's president and founder.

Gredinger, who joined IJO as Director of Merchandising in 1976, rose to the post of Vice President, Merchandising, prior to this promotion. As Merchandising V.P., he was charged with coordinating IJO's Buying Group, which provides IJO's more than 900 member jewelers with discounted buying opportunities on jewelry, diamonds and gemstones at the group's semi-annual convention/seminars. Gredinger also supervised IJO's advertising and promotional services and new membership functions.

PORTESCAP U.S. ANNOUNCES APPOINTMENT OF NEW SALESMAN

Joseph Presti, Vice President of the Vibrograf Machine Division of Portescap U.S., announced the appointment of Tom Bouska to their national sales force.

Mr. Tom Bouska has had extensive training in the horological industry. From 1980 through 1981 he represented the Bulova Watch Company. He has worked in the retail jewelry business, and for ten years taught Merchandising and Retailing. He resides in San Jose, CA.

Tom Bouska

JA'S 1984 TRADE SHOWS

Jewelers of America's 1984 Chicago Jewelry Trade Show and Conference will be a two day show, Sunday and Monday, August 12 & 13, as announced by JA Trade Show Director Mort S. Abelson.

"JA's successful New Orleans Show proved that the best format for a regional show is a two-day event," Abelson comments. "With a Sunday opening, retailers can at least come in for the one day to cover the exhibits and take advantage of the seminars. The second day of a two-day event seems to attract the larger stores and the serious buyers that have to travel some distance. It also appears that the department store buyers prefer to pass up Sunday, especially during the summer, and come in on Monday, a regular work day," Abelson concludes.

Also, Jewelers attending Jewelers of America's 1984 New Orleans Trade Show, August 26 & 27, at the Hyatt Regency Hotel, will have a unique opportunity to "see the world" too—the 1984 Louisiana World Exposition. The already historic, charming and exciting city of New Orleans has been chosen as the site of this year's World's Fair, running through November 11, giving Show attendees the chance to combine their Christmas buying business with pleasure.

"JA's Sunbelt Show can now serve a two-fold purpose," comments JA Chairman Michael D. Roman. "Show attendees will have the opportunity to attend an informative Conference program and roundtable discussions on timely topics, free cocktail party and fashion show, enter a lottery for prizes of magnificent jewelry, and visit hundreds of exhibits of the newest jewelry store products and services displayed under one roof.

"In addition, retailers attending JA's Sunbelt Show can visit the 1984 Louisiana World Exposition, offering entertainment spectaculars, major sporting events and scientific marvels during the summer-long celebration," adds Roman.

DYER NAMED NATIONAL SALES MANAGER OF JAZ NORTH AMERICA

Richard L. Dyer was named national sales manager, of JAZ North America, it was announed recently by Ron Klass, general manager.

Prior to joining JAZ, Mr. Dyer was a district sales manager for two years at Royal Worcester Spode. Earlier, he had been a district sales manager for Kendall Co. The JAZ North America executive, a graduate of Eastern Kentucky University, is a resident of Cincinnati, Ohio.

Richard L. Dyer

HONG KONG JEWELERY AND WATCH FAIR

The 1984 Hong Kong Jewelry & Watch Fair, will be held from September 18-21, 1984 at the Regent Hotel and New World Hotel.

For the 1984 Fair, the fairground will be extended to include four exhibition premises. While the original Regent Hall and New World Hall are still used as general exhibition halls, another two floors will be taken to accommodate the Special Gemstone Section and the Special Watch & Clock Section. They enable gemstone wholesalers and manufacturers of watches and clocks to meet clients and conduct business in an undisturbed atmosphere. Qualified dealers may apply for space in these two sections.

More than 6,000 visitors from 33 countries, namely from Asia, the United States, Europe, Australia and the Pacific Islands, Africa, Middle East and South America, visited the Fair last year.

A full-color information leaflet, together with travel and accommodation details, is now available from the organizers at: Hong Kong Jewelry & Watch Fair Ltd., 806 Pioneer Building, 748A Nathan Road, Kowloon, Hong Kong.

WATCHMAKING CAREER SEIKO SEMINARS FOR STUDENTS

In an effort to help attract more qualified young people into the watchmaking profession, Seiko Time Corporation recently held a unique forum at George Westinghouse Vocational and Technical High School—the only high school in New York offering a watch repair curriculum. This curriculum was instituted 45 years ago by renowned horologist Henry B. Fried.

Students were addressed by Jack Schecter, Seiko Time Corporation's manager of technical services. The presentation to the student body included an educational film on Seiko quartz, the automated facilities of Seiko's factories in Japan, and an informative lecture centered on opportunities for career achievement and growth in the watchmaking profession.

Seiko frequently participates at high school and college seminars and throughout the country on career opportunities in watchmaking.

Pictured above is a graduating class of Horology at the Community Colleges of Spokane, Washington, SCC Branch. Left to right, front row: Tom Imai, CMW, CEWS, Instructor; Janet Diller; Edward Russell; John M. Hughes. Back row: Hollis H. Cantrell Jr.; Jose D.C. Murphy; Joseph Gould; Daniel Weigel; and Richard King.

A Personal Data-Bank from Seiko

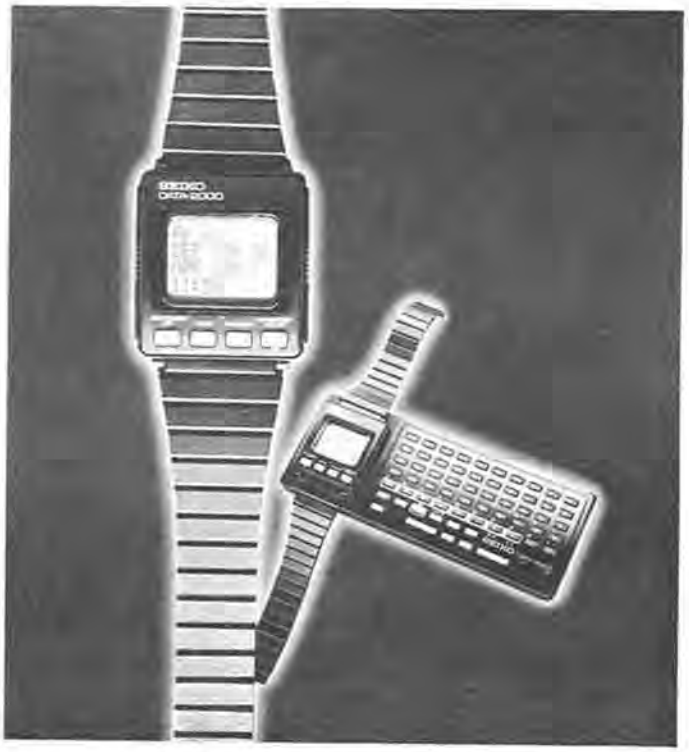
Seiko Time Corporation announced the introduction of the world's first quartz alarm chronograph with data storage and retrieval system as well as a calculator capabilities.

Called the Seiko "Data 2000," it became available in the U.S. recently and has a suggested retail price of $195.

The Seiko "Data 2000" has two components: a quartz alarm chronograph utilizing a liquid crystal dot matrix display and a lightweight check book size data entry keyboard. The watch snaps into the keyboard to become a full function calculator or for data input. The watch is capable of storing 200 lines of ten characters each. When worn separately it is capable of displaying four lines at a time and can scroll through all 200 lines of data, making it ideal for use as a personal phone directory and an electronic note pad for schedules, appointments, and travel details such as airline flight numbers, departure times, hotel addresses, etc.

Since marketing the world's first quartz watch in 1969, Seiko has been working toward the creation of other innovative products. In 1984, Seiko introduced the world's first television watch. "Seiko's record continues to be the leader in the watch and clock industry, creating superior products designed for everyday living," said Robert Pliskin, Seiko's president.

For further information contact Seiko Time Corp., 640 Fifth Ave., New York, NY 10019.



"Data 2000" from Seiko Time Corporation.

GESSWEIN & COMPANY'S NEW CATALOG FOR JEWELERS AND MANUFACTURERS

Gesswein has just published an entirely new catalog. This catalog (No. 36) has over 200 pages illustrating new products and shows the expanded product lines on many others. To obtain your free copy, send your request on your company letterhead and the Gesswein Catalog will be sent to you. Write to: Paul H. Gesswein & Company, Inc., 255 Hancock Avenue, Bridgeport, CT 06650;—or 676 West Wilson Ave., Glendale, CA 91203.

Gesswein & Company's New Catalog.

CAS-KER OFFERS NEW CASTING CATALOG

The new 1984-85 Kerr Casting catalog is now available through their authorized distributor, the Cas-Ker Co., P.O. Box 2347, Cincinnati, Ohio 45201. The catalog covers techniques, equipment and supplies for art and metalcraft operations. Cost is $1.00 per copy.

STEREO MICROSCOPE FROM FREI & BOREL

Frei & Borel has announced the immediate availability of a precision-made stereo microscope with 10X and 30X magnification for gem grading.

The instrument features a 360 degree rotating head with locking screw, built-in four position illuminator to provide incident, transmitted incident, transmitted illumination or neither, and reflected light, two-position stone holder mount with tweezer, and rotatable turret with one pair of objective lenses. The Frei & Borel stereo microscope has individually adjustable eyepieces plus large side-mounted controls for convenient focusing.

The price is $570 each, plus freight and applicable sales tax. It comes with a complimentary set of ABC diamond grading books. More information can be obtained by writing to Frei & Borel, 119 Third Street, Oakland, California 94607, or by telephoning the company at (415) 832-0355.

New Microscope from Frei & Borel.

ERNEST BOREL by AUBRY of SWITZERLAND

From its 1984 collection, Ernest Borel offers new His and Hers quartz models. Features include yellow case with richly designed dials. The price starts at $120, and these watches are distributed through fine jewelry stores only by Borel Watch Company. Catalogs are available by writing to Borel at 818 Grand, Kansas City, MO 64106.

His and Hers Quartz Models from Borel.

FLEXIBLE SHAFT WITH FULL TORQUE FOR CRAFTSMEN

Lapidaries and jewelers rely on the Foredom "R Series" flexible shaft machine to deliver continuous torque under load for their handiwork. These Foredom machines have a positive feedback feature for full torque at all speeds, virtually eliminating the typical stalling problems of the fractional horsepower motors.

The Foredom "R Series" is available in bench-top and hang-up models with a choice of solid-state foot variable speed controls or manual controls. A selection of 21 interchangeable handpieces and hundreds of accessories make this one of the most versatile power tools in the modern workshop. For more information, write to The Foredom Electric Co., Route 6, Bethel, CT 06801; phone is (203) 792-8622; ask for catalog 280.

Foredom "R Series"

CRYSTAL CEMENT FROM AMERICAN PERFIT

Glass watch crystals are now a standard item for most new watches. At American Perfit Crystal Corp., the crystal cement used is an important tool in fitting these crystals. Packaged in a 20cc glass bottle, this semi-liquid cement hardens best overnight, or under a lamp for 20 minutes. It works for unbreakable crystals as well. It is now available through your watch material dealer.

For more information contact American Perfit Crystal Corp., 653 Eleventh Ave., New York, NY 10036.

KASSOY INTRODUCES ADVANCED SECURI-TAGS

Kassoy, a known jewelry tag innovator is introducing the latest in a series of Computer tags and aptly called Securi-Tags™. Made of metalized mylar, the tag boasts a finish to allow for permanent marking. This tag is twice as strong as Kass-Hide® and new attractive colors will compliment any jewelry line.

Used with indelible ink by Word processors and Computer printers alike, the tags eliminate costly and time-consuming handmarking and have no loss of shape or information when cleaned by steam or ultrasonically. Adhesive free centers allow for ease of handling and leaves no sticky mess on your merchandise. This is a tough, good-looking tag that gives strong protection against tag switching.

Securi-Tags comes in nine colors, and the minimum order 10M, is $19.95 per M. Quantity discount schedule is available.

Contact: Kassoy, 32 W. 47th St., New York, NY 10036, or call toll free 1(800) I. KASSOY.

Securi-Tags from Kassoy

SILVER ANNIVERSARY CELEBRATION

Here's what Bulova is offering as an ideal gift for a 25th wedding anniversary, or for any other important celebration. It's a silver-plated, brass 400-Day Anniversary Clock. The etched face with unique Roman numerals, delicate tiara, rotating pendulum, and glass dome reflect its old-fashioned beauty, while its quartz movement provides the most advance timekeeping accuracy. The Model Number is B8816, "Celebration." It has a height of 9" and a diameter of 6¼". Suggested retail price is $99.95. Contact: Bulova, Inc., Bulova Park, Flushing, NY 11370.

Classified Ads

Regulations and Rates

Ads are payable in advance $.50 per word, $.60 per word in bold type. Ads are not commissionable or discountable. The publisher reserves the right to edit all copy. Price lists of services will not be accepted. Confidential ads are $4.00 additional for postage and handling. The first of the month is issue date. Copy must be received 30 days in advance. (e.g. February issue closes for copy on January 1st.)

Horological Times, P.O. Box 11011, Cincinnati, OH 45211. (513) 661-3838.

Situations Wanted

Watchmaker/Jewelry Repair expert seeking better opportunity. 33 years experience, including quartz analog repair. Capable of managing if desired. Write Box SW6841, 3700 Harrison Ave., Cincinnati, OH 45211.

Korean Watchmaker/Clockmaker, expert in Analog, Quartz, Lathe, Welding, with 21 years experience in all aspects of watch and clock repair, seeks position in USA. Write to: Jun Duk, 570-1 Dalsu Apt. 14 Dong, 410 Ho Suku Sung Dang Dong, Taegu KOREA.

Schools

Correspondence courses in Quartz - Accutron - Watchmaking - Jewelry. Free folders. Watchmaking Institute of Canada, 1012 Mt. Royal East, Montreal, H2J 1X6. Telephone (514) 523-7623.

The **FALL SEMESTER** for the **WATCH REPAIR TRAINING COURSE** at the John O' Connell Community College will begin **AUGUST 15, 1984.** This full time, tuition-free course has been in existence **SINCE 1952.** Brochure on request. John O' Connell Community College, 108 Bartlett Street, San Francisco, CA 94110; Phone (415) 282-3100.

For Sale

JEWELRY STORE–Owner selling due to poor health. Ideal for watchmaker or manufacturing jeweler. Glenwood Springs, CO. (303) 945-9547, or 945-1139.

Watchmaker's/Clockmaker's bench, Boley lathe with attachments, complete staking set, L&R manual watch cleaning machine, Seitz jeweling outfit, tools galore, supplies, shelving–everything goes. Over $5000 value. Highest bid over $1000 gets it all. Phone (715) 543-2153.

BOOKS: CLOCKS – WATCHES – REPAIR. Send 3 stamps for your copy of the most complete color catalog of books on clocks, watches, and repairs. P.O. Box 357, Cranbury, NJ 08512; (609) 655-8269.

FOR SALE: The only fine watchmaker/jeweler store (no snow, not cold), all year, in sunny, beautiful first-class Resort Island. Well-established, quality lines and quality customer, plenty of work and further great potential. Price incl. inventory, showcases, equipment, everything for $111,000–negotiable. Prime location, lease 4 plus 5 years, $400 a month. Please contact Peter at: LITTLE SWITZERLAND Ltd., Swiss Master-Watchmaker & Jewelers, Box 3195, 118 Plaza Center. Hilton Head Island, South Carolina, 22928; phone (803) 785-7661.

OLD CLOCK MOVEMENTS. Longcase, fusee, French, German, American. At least 100 movements in stock. Many old parts, faces, glasses, pendulums, etc. Complete grandfather clocks from £225. Olivers, 15 Cross Street, Hove BN3 1AJ, England. Tel. Brighton 736542.

FOR SALE: Vibrograf B200A Watch Timing Machine. Bought new last year for $1,395. Asking $800. (608) 776-2551.

BE ALL THE CLOCKMAKER YOU CAN BE with CHRONOS, KEYSTONE, and J.M. WILD tools. Wheel cutting engines, pinion mills, depthing tools, spring winders, wheel blanks, pinion steel, test stands, division plates. Construction books, lubricants, cutters, lathe attachments, etc. Send $2.00 for literature to: Ken Law, CMC, CMBHI–HC 30, Box 825, Prescott, Arizona 86301.

SECRETS of WHEEL and PINION CUTTING REVEALED. A $15.00 value! Send only $12.75 for three booklets from England while supply lasts. You get: *Wheel Cutting*, E. Isaacs; *Chronos Wheel Cutting Engine Operating Instructions; Chronos Pinion Mill Operating Instructions.* Ken Law, CMC, HC 30 Box 825, Prescott, Arizona 86301.

JEWELRY STORE FOR SALE–Established 1957 in central Florida. Fast-growing community. Low inventory. Building and showcases for sale or lease. Good repair business. Great opportunity for couple. Stewart, P.O. Box 339, Dunnellon, Florida 32630; (904) 489-2316.

MINI QUARTZ MOVEMENTS. Guaranteed lowest prices (as low as $2.30). 2 year guarantee. Large selection of hands and numerals. Free delivery. SASE or call (704) 333-0221. Hall Clock Shop, 1512 Central Ave., Charlotte, NC 28205.

U. S. HEADQUARTERS FOR ALL SCHATZ PARTS. PARTS FOR THE NEW 400-DAY ELECTRONICS. ALSO FOR KUNDO ELECTRONIC. GREENHILL CLOCK SERVICE, P. O. Box 172, Santee, CA 92071.

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400 Day Domes. We've moved! New Address: Box 8973, Ft. Collins, CO 80525. Same Prices. Send SASE for price list. C. A. Zimmerman.

CLOCK TIMER. Regulate your clocks electronically with the new C.T.I. Clock Timer. Can be used on almost any clock with mechanical escapement. Pendulum clocks large and small, lever or cylinder escapements, anniversary clocks, etc. For information write: Can Tho Instruments, P.O. Box 80113, San Diego, CA 92138.

KUNDO AND SCHATZ PARTS –Mechanical, electronic, and quartz. Try Us! Baltimore Clock Parts, 2004 Hillside Drive, Baltimore, MD 21207.

CLOCK REPAIRMEN–Over 2,000 items for the professional clock repairman. FREE DELIVERY!! Send $2.00 for catalog to: Timesavers, Box 171, Wheeling, IL 60090, (312) 394-4818.

Metal Cutting Lathes, Bench Mills, Drillpresses, Unimats (Accessories also), Maximats, Sherline, Cowells, Enco the Maximat Super Eleven. Lathe Catalog $1.00. Precision tools inch or metric, aluminum, brass, steel, all shapes, miniature screws, taps, drills, saws, collets. Tool catalog $1.00. Campbell Tools, 2100M Selma Road, Springfield, OH 45505; Phone (513) 322-8562.

Wanted To Buy

ATMOS CLOCK–Wanted by student studying clock repair. Any condition. H. Norton, 4759 N. Bartlett Dr., Whitefish Bay, WI 53211.

WATCHES–Instant payment by your choice of means for old watches, movements, dials (fancy or double sunk only, please), cases, high grade wrist watches (Patek, moon-phases, repeater wrist watches), old advertising relating to pocket or wrist watches; I specialize in entire buy-outs of jewelry stores, watchmakers, entire collections or individual watches. I urgently need Railroad watches, repeaters, enamels, verge fusees! CALL ME TODAY AT (TOLL FREE) 1-800-235-2866, OR WRITE ME AT: MAUNDY INTERNATIONAL POCKET & WRIST WATCHES, MILES F. SANDLER, 9071 METCALF, SUITE 108HT, OVERLAND PARK, KANSAS 66212. BANKING REFERENCE: Peoples Mercantile Bank, K.C.Mo.

IMMEDIATE CASH PAID!! Old Mine and Old European cut diamonds. Especially needed: Stones over 1 carat. Ship with phone number for highest offer, or call Mr. Neff, (404) 938-0744. W. F. N. Enterprises, Inc., HT, 2300 Henderson Mill Rd., NE, Suite 318, Atlanta, GA 30345.

STERLING FLATWARE STOCKS–New or used needed. Call us before you sell for scrap. Also wanted: silver, diamonds, gold scrap, coins and coin collections. Call or write: Mr. Neff, HT, WFN Enterprises, 2300 Henderson Mill Rd., NE, Suite 318, Atlanta, GA 30345. Phone (404) 938-0744.

IMMEDIATE CASH PAID for Gold, Silver, Platinum, any form! Jewelry scrap, filings, gold filled, sterling! Immediate top dollar cash offer return mail! Satisfaction guaranteed. Ship insured/registered mail to: American Metals Co., 253 King St., Charleston, SC 29401; (803) 722-2073.

Help Wanted

CLOCK/WATCHMAKER/REPAIRER – We need a Clock/Watchmaker experienced in the area of diagnosis/repair of clocks. A certificate of completion from an accredited school of Horology could be accepted in lieu of required experience. Excellent salary and benefits. For details call Ralph Thompson at (512) 629-2900 and/or send resume: **DETEX CORPORATION**, 302 Detex Crive, New Braunfels, Texas 78130. An Equal Opportunity Employer.

Clockmaker needed for busy well-equipped repair shop. Must be a self starter with background in antique and modern movements. Ability to work quickly with accuracy is essential. We offer paid vacation and holidays plus group medical insurance plan. Send resume with references and salary requirements to: Box HW6841, 3700 Harrison Ave., Cincinnati, Ohio 45211.

Watchmaker–Ft. Dix, NJ military mall. Full or part time, good opportunity for future. P.O. Box 16023, McGuire Air Force Base, NJ 08641; Tel. (609) 723-8414.

SUPERB CRAFTSMEN WANTED: Potential earnings $30,000 or more. We serve San Francisco's finest clocks. From cathedral clocks to 17thC pocket watches. No retail. Apply only if you are versatile, ambitious, and at the top of your trade. Charles B. Welch, Craftsmen/Clockmakers, 20 Corte Patencio, Greenbrae, CA 94904.

Tradesman

Watch Repair–Quality service on all your watch needs. Send for price list and guarantee. Richard Mazza, Box 76316, Atlanta, GA 30358

REPIVOTING Wheels for all watches. Custom made balance staffs, pallet arbors, stems, center wheels, cannon pinions. Send SASE for price list. J. D. WATCHWORKS, Juliusz Dabrowski, 210 Post St. Suite 507, San Francisco, CA 94108; Tel. (415) 397-0310.

EXPERT WATCHMAKER–47 years experience. Makes parts for watches and clocks. Repeaters, antiques, all others. Also, tradework, all makes, all models. Phone (602) 986-6150, or write D.E. Simpson, 7726 E. Garnet Ave., Mesa, AR 85208.

Analog–Mechanical Watch Repair–Also Pearl Restringing. Free Information Packet. Thomas Rhoades, 7000 Fern, Apt. 230, Shreveport, Louisiana 71105.

CLOCK SERVICES–Wheels, gears, barrels, retoothing, repivoting, mainspring winding, bushing, jeweling. Send sample for estimate. SASE. NIEGEL'S HOROLOGY, Roy H. Niegel CMC, CMW, 101 East St. Joe Drive, Spirit Lake, ID 83869.

Jewelry–Repair & Manufacturing–2-day turnaround time on production work. 1 week on special design work. Call collect for price list. Southeastern Jewelers & Manufacturers, 323 Main St., Williamsburg, KY 40769; (606) 549-3298 (call collect).

NEW MOVEMENTS CUSTOM FITTED. Quartz Swiss or 17 jewels, to diamond gold or antique cases. Includes dial refinish to original. Alfonso Zamora, 395 Bernhardt Drive, Buffalo, New York, 14226. (716) 839-5091.

CLOCK WHEEL AND PINION CUTTING. Fast Service - Write for free brochure and price list. Pendleys, 2535 Himes St., Irving, TX 75060.

Superior Tweezer Resharpening. $2.50 each, including return first class postage. Minimum of three tweezers. Advance payment required. Harvey C. Watkins, CMW, P. O. Box 1738, 1204 West Cason Street, Plant City, FL 33566.

Pearl and Bead Restringing. All types. Fast service. Jean A. Gruenig, P. O. Box 12007, 1279 Inglis Ave., Columbus, OH 43212.

CUSTOM BALANCE STAFFS, cut and fitted: Since 1922. James Bourne, CMW. P. O. Box 215, Ladysmith, WI 54848; (715) 532-3166.

Wheels, pinions, barrels, or whatever, repaired or made new. Repivot arbors. No watch parts. Ken Leeseberg, Ken-Way, Inc., 19 W. 672 Army Trail, P. O. Box 219, Addison, Illinois 60101.

CLOCK and MUSIC BOX parts, mainsprings, material and tools. Custom made to order or repair of gears, pinions and parts. Catalog $2.00. Tani Engineering, Box 338, Atwater, Ohio 44201; (216) 947-2268.

CLOCK WHEEL AND PINION CUTTING, repivoting, retoothing, escapement work. J. C. Van Dyke, CMW, CMC, CMBHI, 1039 Rt. 163, Oakdale, CT 06370.

DIAL REFINISHING, CRYSTAL FITTING & WATCH REPAIR. Fast Services on Dial Refinishing & Crystal Fitting. Finest Quality. Quantity works welcome. Send your works to: Kirk Dial & Crystal Co., 4th & Pike Bldg., Suite 625, Seattle, WA 98101.

Custom made Horological Parts and Tool repair by: Precision Instrument, P. O. Box 70004, Charleston, SC 29405; Phone: (803) 553-1198.

WATCH WHEEL CUTTING, REPIVOTING AND STAFFING CO. WE CAN REPAIR ANY WATCH, WE CAN MAKE ANY PART, IT IS JUST A MATTER OF ECONOMICS. SASE FOR PRICE LIST. SAME DAY SERVICE. 136 N. 7th Ave., P.O. Box 1314, Highland Park, NJ 08904; Tel. (201) 985-0685.

QUARTZ ANALOG, LED, LCD, ELECTRONICS REPAIRED–All Makes–Quartz Movement Conversions–Price List–Delta, 6665 Dorchester, New Orleans, LA 70126.

Dates To Remember

JUNE

9-10—Watchmakers Association of Pennsylvania Fifth Annual Convention, Pennsylvania State University, University Park, Pennsylvania.

18-21—AWI Research and Education Committee meeting; Drawbridge Inn and Convention Center; Ft. Mitchell, KY

22—AWI Affiliate Chapter meeting; Drawbridge Inn and Convention Center; Ft. Mitchell, KY

23-24—AWI Board of Directors meeting; Drawbridge Inn and Convention Center; Ft. Mitchell, KY

JULY

14—Indiana Watch & Jewelry Trade Show and Convention; presented by Jewelers Association of Traveling Salesmen of Indiana; Atkinson Hotel; Indianapolis, IN; Starts at 12:00 noon.

27-29—Watchmakers Association of Ohio, Inc. Convention; Marriott Inn East; Hamilton Rd., Columbus, Ohio.

28-Aug. 1—New York International Jewelry Trade Show & Convention; Sheraton Centre and New York Hilton Hotels; Information and tickets obtained from: Jewelers of America, 1271 Avenue of the Americas, NY, NY 10020.

AUGUST

18-20—Nebraska and South Dakota Jewelers Association Annual Convention; Holiday Inn; Kearney, Nebraska.

SEPTEMBER

4-5—Mid-America Jewelry Show; Cincinnati Convention Center; Cincinnati, Ohio; (614) 221-7833.

4-8—International Watch, Jewelry and Silver Trades Fair; Earls Court; London, England; (212) 752-8400.

6-9—Intermountain Jewelers Association Convention; Jackson Hole, Wyoming.

6-9—JUWELIA '84; Vienna, Austria; Information:Mrs. I. Boyd, Glahe International, Inc., 1700 K St., NW, Suite 402, Washington, D.C., 20006; Phone: (202) 659-4557.

6-11—Commercial and Professional Arts and Crafts Exhibition, Parc des Expositions, Porte de Versailles, Paris.

7-12—International Exhibition BIJORHCA, Parc des Expositions, Porte de Versailles, Paris.

8-9—Iowa Jewelers Convention & Trade Show; Des Moines Marriott Hotel; Des Moines, IA. Information: Iowa Jewelers and Watchmakers Assn., 906 SW 2nd, P.O. Box 44, Eagle Grove, IA 50533; 1 (515) 448-4640.

10-11—North Dakota Jewelers & Watchmakers Association Convention; Seven Seas Motor Inn; Mandan, ND; (701) 663-2537.

17-20—Striking Clocks-Advanced Seminar(AWI) Joseph Baier, Ph.D., instructor; Cincinnati, OH.*

18-21—Hong Kong Jewellery & Watch Fair, Hong Kong Regent Hotel and New World Hotel.

22-23—Watchmakers Association of Indiana, 1984 Fall Convention; Holiday Inn Southeast, I-465 and Emerson; Indianapolis, IN.

23—Repairing the ESA 900.911 Digital/Analog Bench Seminar, Wm. Biederman, instructor; Chicago, IL.*

24-25—New York State Watchmakers Association Annual Meeting and Convention; Holiday Inn; Auburn, NY (607) 655-2011.

24-25—Watchmakers Association of Indiana Convention and Trade Show; Atkinson Hotel; Indianapolis, IN; (317) 631-8124.

OCTOBER

1-2—Iowa Jewelers Association Convention and Trade Show; Marriott Hotel; Des Moines, IA; (515) 448-4640.

8-9—Illinois Watchmakers Convention; Holiday Inn; Decatur, IL; (217) 762-4061.

14-16—Florida State Watchmakers Association Annual Meeting; Holiday Inn; Hollywood, FL; (305) 983-3509.

NOVEMBER

12—Watchmakers Association of New Jersey Annual Dinner Dance; Royal Hawaiian Palm; Lyndhurst, NJ; (212) 698-7506.

18—AWI Bench Seminar, James Broughton, instructor; Chicago, IL.*

*** For details concerning the above programs, contact: AWI Central, P.O. Box 11011, Cincinnati, OH 45211. See page 40 of this issue for the list of AWI Bench Courses and Instructors.**

Advertisers' Index

SCHOLASTICALLY SPEAKING
(Continued from page 38)

the dryer slowly. When cool, remove the balance and pallet, check train for true running; disassemble, check for wear and lube. Fill cups no more than one-third full of good oil. Reassemble, check for wear again, check backlash, check for beat, wind, and time. Test-run a minimum of three days. Don't forget your casemark. You should not be ashamed of the work you do, so let other watchmakers see your mark and let them know that you produce quality work.

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- One case opener (S-280) for snap-type case backs.
- One battery hatch opener (S-822).
- One case opener (194) for screw-type case backs.
- One case holder (S-210D) with 12 sliding reversible clamps to conform with case lug size. Used in conjunction with case opener (194).
- One non-magnetic plastic tweezer.
- Seiko Battery Chart and Battery Replacement Manual.
- Seiko Battery Hatch Gasket Assortment (HG72). Contains 16 different size gaskets. 72 total fitting over 175 case numbers. With alphanumeric case number guide.

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