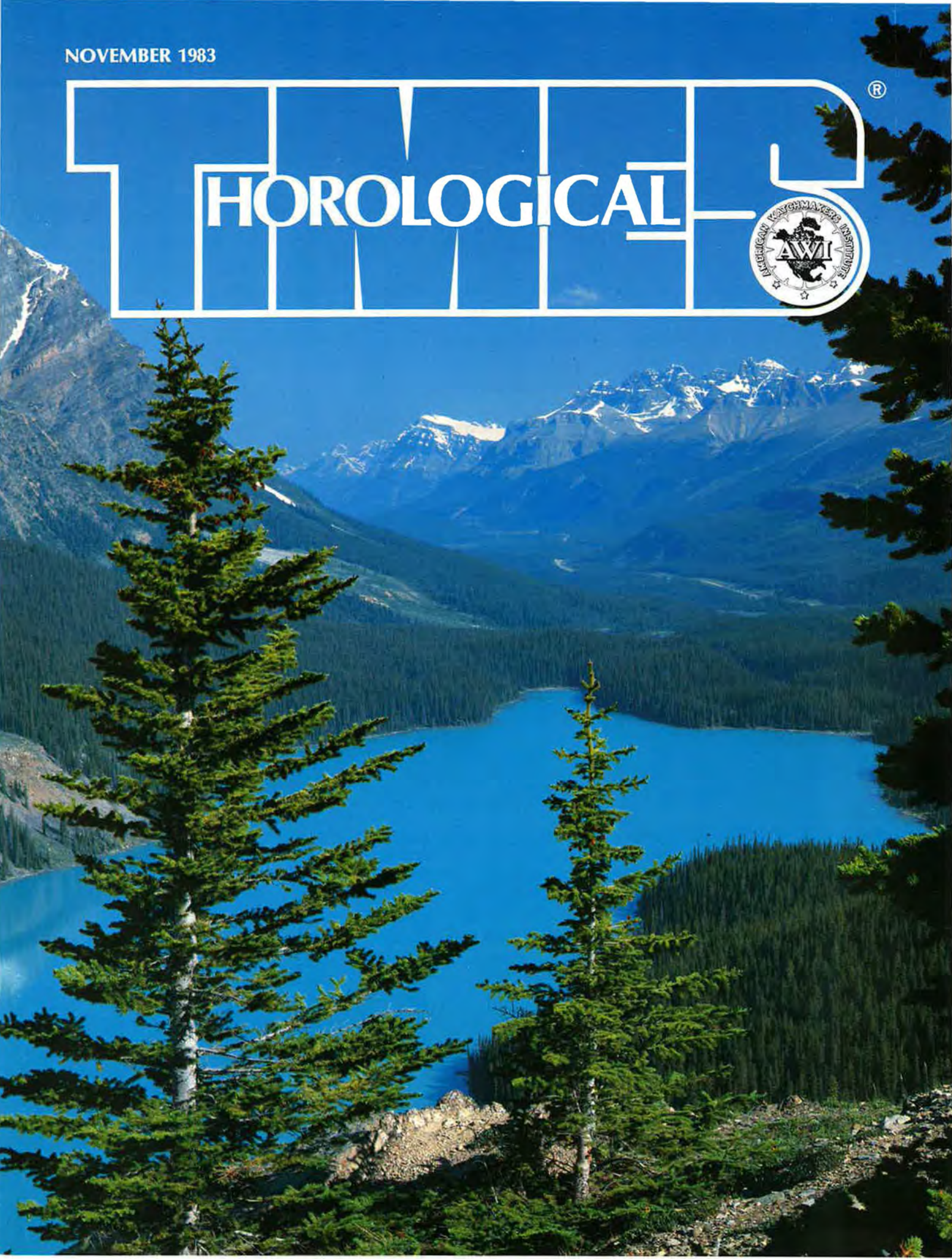


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Editorial

Think about good times and bad times. Think about slumps in the economy and acceleration of the economy. Now think about watch repair and clock repair.

Suppose the economy takes a turn for the worse. Assume that you have been taking a particular repair in for \$50.00 and that ten possible repair customers find their way into your store or shop. Should you decrease your cost to \$40.00 per repair or should you hold fast at \$50.00?

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On the Front

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Buy American!

“Buy American” . . . this is a phrase that we hear almost daily, but I am beginning to wonder: is this completely possible? Many years ago watches that were produced one hundred percent disappeared from the market. We had good watches made in the American factories that could be repaired by local watchmakers, but shortly after World War II the American factories started to disappear one by one, they then had imported movements cased and timed in the United States. These were also repairable by local watchmakers. It seems now that all watches in the U.S. are imported complete, and mechanical watches are all but extinct, due largely to the wide availability of quartz digitals and quartz analogs. This transition has been a monumental task for watchmakers to learn new skills and for the American Watchmakers Institute to come up with available training programs to meet the needs of these watchmakers so they can properly service the new watches. So far, the Institute has done an excellent job in furnishing such training, and plans are continuing on the expansion of the educational programs to be offered.

I have always tried to buy American-made products, but in recent years with a so-called “American-made” color television, I find that although it was partly assembled in the U.S., all its components have been imported. I purchased an American name in a sewing machine for my wife only to find when we unpacked it that it was made in Poland. A neighbor recently bought a new farm tractor with a popular American name, discovering later when it needed repairs that it was made in the Soviet Union. Articles of clothing that I would assume were American-made purchased from reputable stores have labels stitched in normally unseen places with the name of the country where they were made. Some of these were

not American-made. It seems to be the same story with automobiles . . . cars sold by the big three automakers as “American-made cars” contain many imported parts which show up when they later need to be replaced. Many of these parts are marked with the country of their manufacture. The cause of this is anyone’s guess; labor blames management, management blames labor, and they both blame the government, but it is apparent that the unemployment rate could be greatly lessened or completely wiped out if we could find a solution to this problem.

I have always had a strong feeling to buy American-made goods as much as possible and I *still* feel this way. Hopefully something will happen that will get America to produce the complete products on the market so we can buy good old American quality with articles that can be serviced, repaired or maintained in a practical manner. It was only a few years ago that we could service a \$19.95 watch, make a profit and have a satisfied customer. Some of today’s throw-away watches cost even \$50 to \$100, and after a year of wear have to be thrown away due to the unavailability or high cost of parts.

This is something that we Americans will have to do something about, for there is no practical way that legislation will cure such a gigantic problem and I am not sure that government meddling has not greatly contributed to causing it. Although the American Watchmakers Institute cannot solve this problem, it can show watchmakers how to live and work with it and continue to make a good living. Positive thinking by AWI and you craftsmen can continue to forecast a bright future for our profession.

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Some Hoosier Hints

This month's bench tips are taken from the Watchmakers Association of Indiana. They were published in their August issue of the Hoosier Watchmakers, under "Bill's Hints" by Bill Lewis.

Our Executive Secretary, Mr. Milton Stevens, sent them to me and suggested I might want to consider some of them in the Bench Tips Column. When "Uncle" Milt suggests, I consider!

I'm sure the Hoosier Watchmakers would like to share tips with their fellow watchmakers of the USA—so here we go!

These tips were from Stan Bloch:

When you have completed the service on a lower medium grade mechanical watch, always advance the timing

slightly when you are regulating on the timing machine. You will have less chance of receiving complaints. Most people prefer their watches to gain than to lose time.

File the inside points of your working tweezers slightly criss-cross fashion with a small triangular file. This gives a better grip on small items such as screws, etc.

Stan, I don't mean to be facetious with you about the tweezer tip, but there is a better way to remove the slick polished finish from wear on the inside of tweezers. Files are ridged and it is easy to round the points of tweezers roughing the end side of tweezers with them.

Electric point files are much better (not to be confused with auto

point files). They are made from a flexible, plastic, abrasive material that leaves a sand finish on the inside of tweezers when stroked with a criss-cross motion from the back of each side, towards the points.

Because the electric point file is flexible, it will not curl the points, but will actually remove rounded wear at the tips.

This next tip comes from Tom Bellows:

Get a portable hand vacuum cleaner and fit a loose piece of ladies' hosiery over the intake nozzle. This helps greatly in retrieving lost parts from the floor.

(Continued on page 29)

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354.....	1.23/ea.65/ea.61/ea.57/ea. ..	876-100-354
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HOW TO USE

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Part XIV

A common problem encountered by the watchmaker is one or both pivots broken on the pallet arbor. This is not usually caused by dropping the watch but by carelessness on the part of the watchmaker or someone going into the watch that was not qualified to do so. It is very easy to bend or break a pallet arbor pivot when lifting the pallet bridge to remove the pallet fork from the watch, especially if the bridge is not lifted evenly. The pallet arbor pivots can easily become broken on an 18 size full plate watch as it is being assembled or disassembled. The reason for this is that the end of the pallet fork is restricted between the upper plate and the potence which is fastened to the under side of the upper plate. If care is not used when the assembly and disassembly is done, there is danger of bending or breaking a pallet arbor pivot.

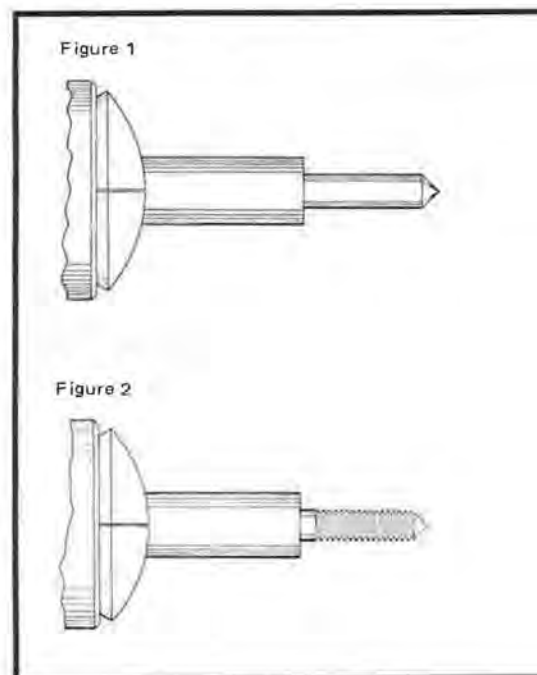
If a pivot becomes broken on a pallet arbor, the watchmaker has four choices to correct the situation:

1. The pallet arbor can be replaced if a new one is available.
2. The old pallet arbor can be repivoted.
3. A new pallet arbor can be made.
4. The complete pallet can be replaced if available which is very expensive in most cases.

There are times when a new pallet arbor must be made. For example, a pallet arbor may be rusty and both pivots damaged beyond use and a new arbor or pallet is not available. Many of the old antique pocket watches have no material available which requires material to be made.

To make a new pallet arbor, first it must be determined if the arbor is threaded or friction style. Usually if the arbor is threaded, two or three threads can be seen above the top of the pallet fork; whereas, if the arbor is a friction style, no threads will be seen. Let us assume that the watch is a very high grade watch with cap jewels on both ends of the arbor. This would mean that the arbor would have conical shouldered pivots with oil grooves back of the pivots on both ends. Also, the arbor is a threaded style. To remove the arbor from the pallet fork, the lower end of the arbor is chucked in the lathe and the pallet fork is unscrewed from the arbor. A sketch should be made of the pallet arbor, the same as when making a balance staff. It would be desirable to make the arbor from blue steel rod except that blue steel is difficult to thread due to its hardness. Watch factories usually make the arbors from annealed high carbon steel rod. The pivots are left oversized until the arbors are hardened and tempered, then the

pivots are brought to size. This method helps keep the pivots from becoming damaged during the hardening process. Another method that can be used by the watchmaker is to use annealed high carbon drill rod, and after the part to be threaded is turned down and threaded, the material is hardened and tempered to blue, then the rest of the arbor is made. This is the method we will use to make this arbor.



To make the arbor, first select a piece of soft high carbon steel drill rod which has a diameter that is slightly larger than the hub diameter of the old pallet arbor. The length of the rod should be two or three times longer than the old arbor. Now, chuck the rod up true in the lathe and turn down for the thread as shown in Figure 1. A die or screw plate is now selected which has a hole that matches the thread on the old pallet arbor. Then the turned-down portion of the rod is threaded to fit the hole in the pallet fork as shown in Figure 2. After the thread has been cut, the rod is hardened and tempered to dark blue. Note: Before the rod is heated for hardening, the threaded portion should be wrapped with fine iron binding wire to build this part up so it is about the same diameter as the rest of the rod. This helps to protect the delicate thread as well as to help keep it from warping during the hardening process. To harden the rod, warm it in the alcohol flame, then place the rod into a pan of boric acid powder so a uniform coating of powder will adhere to its surface. Now, reheat the rod uniformly to a medium cherry red color. Then the rod is quenched, large end first, into a jar of water. The rod must still be medium cherry red when it is quenched. The water should be about room temperature. The rod is now checked with a fine file to determine if it is hard. If it is not hard, the process is repeated until it is hard. Then the binding wire is unwound from the threaded part of the rod and the rod is cleaned with fine emery

paper. After this, the rod is tempered to a dark blue color. This is done by placing some clean white sand into a small metal pan, then the rod is placed on top of the sand, and the pan is heated until the rod turns to the desired blue.

Now, chuck the rod up true in the lathe, leaving enough extending from the chuck so the complete arbor can be made without disturbing the rod in the chuck. Make sure the threaded portion runs true before proceeding with the completion of the arbor.

Next, the unneeded part of the thread is removed with the graver as is shown in Figure 3. Next, a sapphire burnisher can be used to grind and burnish this surface smooth, as shown in Figure 4. Then the surface is polished with Linde A or Diamantine on a boxwood slip or a slip made from a piece of large French pegwood.

After this, the upper pivot is turned, ground and polished to size as shown in Figure 5. See the August, 1983 *Horological Times* "Technically Watches" column on how to make and finish pivots.

The next step is to turn the oil groove at the base of the pivot as shown in Figure 6.

Then the oil groove is ground and burnished with a sapphire burnisher as shown in Figure 7, and polished with Linde A on a boxwood slip.

Now, proceed to make the lower end of the pallet arbor. Figure 8 shows how the hub of the pallet arbor is formed by first turning the proper angle for the

o and then using a sapphire burnisher to grind the hub smooth, then polishing with Linde A and boxwood. Note: Any time the sapphire burnisher is used, it should be kept clean and lubricated by wiping it often with a clean piece of cloth or facial tissue saturated with thread cutting oil. By using this procedure, the burnisher does a much better job; that is, the burnisher cuts faster and leaves a smoother surface.

After the hub of the pallet arbor has been finished, then the lower end of the arbor is turned down and the lower pivot is turned as shown in Figure 9. The lower portion and the pivot are left slightly oversized at this time, as they will be brought to size and finished after the arbor is reversed in the chuck for finishing the lower end.

(Continued on next page)

Figure 5

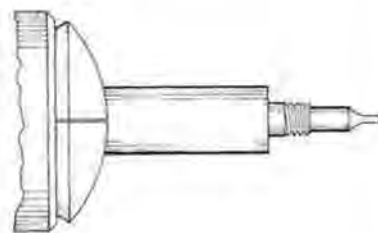


Figure 6

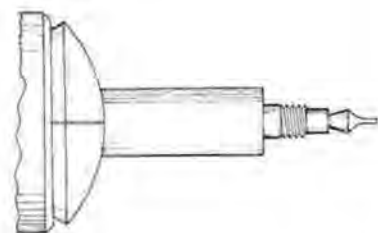


Figure 7

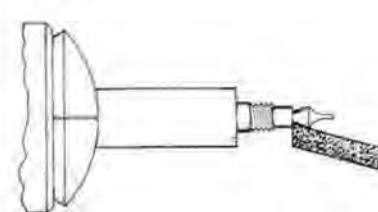


Figure 8

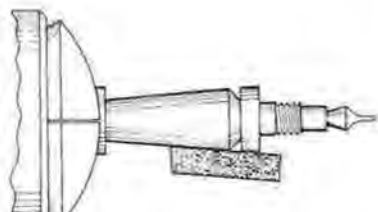


Figure 9

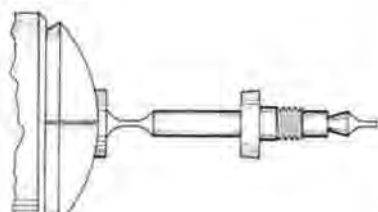


Figure 3



Figure 4



TECHNICALLY WATCHES

(Continued from page 9)

Figure 10 shows the pallet arbor chucked for finishing the lower end. To finish the lower end, the following steps are used. First, grind and polish the lower pivot. Then turn the diameter of the lower end and turn the bottom of the hub flat. Now grind, burnish, and polish this section. After this, the oil groove is turned, ground and polished. This completes the steps used in making a high grade threaded pallet arbor.

There are times when the watchmaker has a need to make a friction style pallet arbor. Making a friction pallet arbor is less complicated than making a threaded style. A friction style arbor is usually made from blue steel staff and pivot wire.

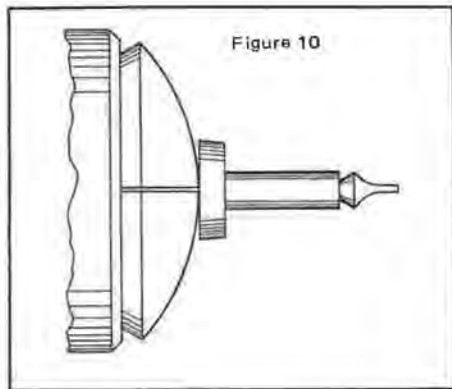


Figure 10

The steps used to make a friction pallet arbor are shown in Figure 11. First, select a piece of blue steel pivot wire which has a diameter that is at least as large as the hub on the old pallet arbor. Note: Blue steel staff and pivot wire can be bought from your local watch material distributor. The number is 49-106. Blue

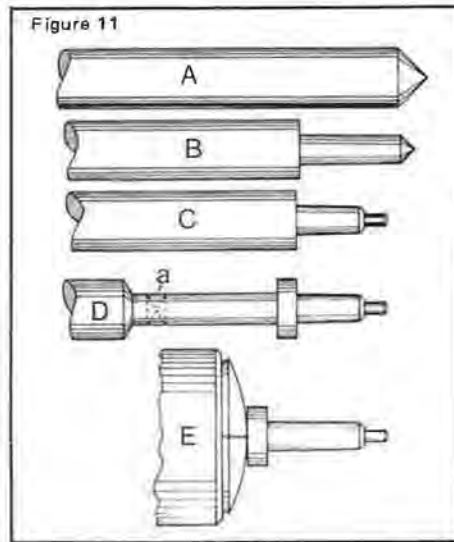


Figure 11

steel can be made by the watchmaker by using the process described in the August, 1983 *Horological Times*, "Technically Watches" column, page 16. The blue steel wire selected is chucked up true in the lathe and the end of the wire is turned to a point as shown in View A, Figure 11.

Next, the wire is turned down to fit the hole in the pallet fork as is shown in View B, Figure 11. This portion should have a slight taper to it, about 0.02 mm. The fit in the pallet fork should be such that when the pallet is placed on the arbor with the tweezers, it should go into the arbor leaving a space between the pallet and the seat for the pallet equal to about one-half the thickness of the pallet at its hole. This gives assurance that the arbor will be tight in the pallet when it is pressed in. Note: If a high grade pallet arbor is being made, it can be burnished with the sapphire burnisher and polished; otherwise, it can just be turned smooth with a smooth graver.

Next, the upper pivot is turned, ground and polished to size. This is shown in View C, Figure 11. Then the

corner of the pivot shoulder is beveled at a 45° angle. See August, 1983 *Horological Times*, "Technically Watches" column, on how to make pivots. Since this arbor has square shouldered pivots, this indicates that there are no cap jewels on the pallet arbor. Conical shouldered pivots need cap jewels to control the end thrust on the arbor. This reduces the friction on the arbor and is usually done in high grade watches.

The next step shown in View D, Figure 11 is to mark off the thickness of the arbor hub and turn down the lower end of the arbor just back of the hub. This part is left slightly oversized to be brought to size after the arbor is cut off and chucked on the upper end. After the lower end is turned down, then it is cut off with the graver at the dotted lines shown at "a," View D, Figure 11. The lower end is left slightly too long to allow for making the lower pivot. Any excess material can be removed when the pivot is made. If the arbor is cut off too short, then it cannot be used.


After the arbor has been cut off, it is chucked in the lathe by the upper end as is shown in View E, Figure 11. Before doing any work on the lower end, make sure that the arbor runs true. Now turn, grind and polish the lower pivot. Then turn the lower end to diameter and at the same time square up the bottom of the hub and bevel the corner of the shoulder of the pivot. If the body of the arbor is to be finished, it should then be burnished with the sapphire burnisher and then polished. This completes the operations of making a friction style pallet arbor.

"How to Use the Modern Watchmaker's Lathe" will continue next month.

WTB

Your AWI membership card signifies that you are entitled to the many services offered by your association. However, we must have the correct information from your card to be able to serve you most efficiently.

The illustration below points out the important, coded information on the right side of your membership card. Always use your AWI membership number when corresponding or ordering from AWI.



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5590	11 1/2	5.0 mm	Day-Date, 3 Hand		\$18.00
32002	5 1/2 X 6 3/4	3.5 mm	2 Hand	BuTova 2500.10	18.00
32003	6 3/4 X 8	3.5 mm	2 Hand, Crownless Electric Setting		18.00
Citizen 833	8 3/4	5.0 mm	Day-Date, 3 Hand		18.00
Citizen 855	10 1/2	5.0 mm	Day-Date, 3 Hand		18.00
Citizen 1305	3 3/4 X 10	2.5 mm	2 Hand	Citizen 1300A & 1301A	30.00
Citizen 2005	10 1/2	4.0 mm	Day-Date, 3 Hand		18.00
Citizen 2035	6 3/4 X 8	3.1 mm	3 Hand		18.00
Citizen 2105	10 1/2	4.0 mm	Day-Date, 3 Hand		18.00
Citizen 3225	5 1/2 X 6 3/4	2.8 mm	2 Hand	Y590	18.00
Citizen 8300	5 1/2 X 6 3/4	3.7 mm	2 Hand		18.00
EJ30	12	6.0 mm	Day-Date, 3 Hand		18.00
ESA 900-231	11 1/2	4.4 mm	Digital/Analog		18.00
ESA 9222	6 3/4 X 8	4.6 mm	2 Hand	Remex 132.001	16.00
ETA 927.101	5 1/2 X 6 3/4	3.6 mm	3 Hand		18.00
FHF 102.001	8 3/4 X 10	3.5 mm	2 Hand	FHF 59 & FHF 59-21	30.00
FHF 963.123	11 1/2	4.0 mm	Day-Date, 3 Hand		18.00
Harley 672	6 3/4 X 8	3.4 mm	2 Hand	Ronda 672	16.00
Harley 3672	6 3/4 X 8	2.7 mm	2 Hand		18.00
Harley 3872	8 3/4	2.6 mm	2 Hand		18.00

MOVEMENT NUMBER	SIZE IN LINES	THICKNESS	SPECIAL NOTES	SUITABLE SUBSTITUTE FOR	COST
Harley 3972	11 1/2	2.6 mm	2 Hand		18.00
PUM 532	6 3/4 X 8	3.5 mm	2 Hand		16.00
PUM 603	11 1/2	3.6 mm	Day-Date, 3 Hand		18.00
PUM 683A	11 1/2	3.6 mm	Day-Date, 3 Hand, Alarm		18.00
PUM 801	12 X 12	3.7 mm	Digital/Analog		18.00
PUM 900	6 3/4 X 8	2.5 mm	3 Hand		18.00
PUM 910	6 3/4 X 8	2.5 mm	2 Hand		18.00
Remex 6641	11 1/2	4.0 mm	Calendar, 3 Hand		18.00
Rico 0190	11 3/4	4.3 mm	Day-Date, 3 Hand		18.00
Rico 580	11 1/2	4.8 mm	Day-Date, 3 Hand		18.00
Ronda 377	11 1/2	4.3 mm	Day-Date, 3 Hand		18.00
Ronda 1177	11 1/2	5.1 mm	Day-Date, 3 Hand		18.00
Ronda 1377	13 1/2	6.1 mm	Day-Date, 3 Hand		18.00
Seiko/Pulsar Y432	5 1/2 X 6 3/4	3.0 mm	3 Hand		18.00
Seiko/Pulsar Y480	6 3/4 X 8	2.8 mm	2 Hand		16.00
Seiko/Pulsar Y481	6 3/4 X 8	2.8 mm	3 Hand		16.00
Seiko/Pulsar Y573	11 1/2	4.5 mm	Day-Date, 3 Hand		18.00

DIGITAL & QUARTZ WATCH REPLACEMENT PARTS ORDERING

Zantech carries a full line of quartz watch parts. Because of the changing price and availability of these watch parts, they have been put in their own parts catalog which will be updated periodically. We will also be sending out occasional catalog additions and sales flyers.

SPECIAL ORDERING PROCEDURES

- Seiko:** When ordering any Seiko parts, all of the numbers on the caseback must be given. Prices are available. Call for quotation. Complete modules are not available. SPECIAL ORDERS ARE NOT REFUNDABLE OR RETURNABLE!
- Casio:** Casio parts with the exception of circuit boards and complete modules are now available from Zantech. When ordering these parts send all of the numbers on the caseback. The correct number usually involves one or two letters such as CA80 or OS-41 or M1230. Occasionally, additional information is given on the lens of the watch, such as F8, F300, etc. Please include these also.
- Armitron:** When ordering Armitron parts, the caseback number and module number (when available) should be provided. A caseback number is a two digit number followed by a hyphen and four digit number. The module number will usually follow this number in parentheses. Example: 40-6095 (HD350).

Elgin/Waltham: When ordering any Elgin/Waltham part, all of the numbers on the caseback must be given.

Citizen: Zantech is now stocking Citizen modules and parts. When ordering module parts specify the module caliber number followed by an accurate description of the part needed.

- The module caliber number is engraved on either the main plate, train wheel bridge, or module cover.
- The module caliber number is shown in the form of 4 digits or 4 digits followed by a letter. Example 7200, 7200A

COMPONENT PARTS OF WATCHCASE (Buttons, Lens Crystal, etc.)

When ordering parts of a watchcase, specify the watchcase code number followed by an accurate description of the part needed.

- The watchcase code number is engraved on the caseback.
- The watchcase code number is usually shown in the form of 7 digits, starting with the number 4, but some code numbers use the module code number instead of the number 4. Example 4-710371, 9010 - 710371
- The watchcase code number may sometimes be shown on the inner side of the case back.

If case module number is not available, submit a photo copy of the watch or module/movement and describe the part required, or send the watch or module/movement to us for identification.

Phone or write for a picture catalog of quartz analog and digital movements.



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THE ROCK QUARRY

By Fred S. Burckhardt



Meeting and Beating Competition Part 3

In order to meet your competition effectively, you must price your goods according to what you must receive for them in order to satisfy the following requirements:

1. **COST.** This is the cost of the item including shipping or any other charges: in other words, the actual amount it cost to get the item into your store or shop. For example, let's say you buy an item that cost you \$50.00. When it arrives at your place, you find a surcharge of \$.79 and \$3.95 for handling, postage and insurance. If you sell this item, using only the \$50.00 figure for what you thought was cost, you'll be losing money.

2. **OPERATING EXPENSES.** This is your cost of doing business—salaries, rent, taxes, advertising, etc. Each item must have included in its price its share of operating expenses.

3. **A FAIR NET PROFIT.** This is what you have left over, or hope to have left over, after everything else is paid. If you go through the whole year having gotten nothing more from the business than your regular salary, then you've made zilch for a net profit.

As an example, using these three factors, we'll arrive at a selling price. Let's say your expenses are 25% and you want a net profit of 15%. Adding these two figures, we see that a 40% mark-up is needed. The wrong way to figure the price would be to add 40% to the cost. Using \$50.00 as the cost, we'll see why this way of pricing is wrong:

Cost of item	\$50.00
Plus 40% mark-up	\$20.00
Selling price	\$70.00
If you sell it for this price, you'll end up with:	
Less cost	\$50.00
Gross profit	\$20.00
25% expenses	\$17.50
Net profit	\$2.50
Desired net profit 15%	\$10.50
	- \$8.00

As you can see, this way you'll be short \$8.00, which means it comes out of your pocket—not overhead or cost.

Now, let's figure it out the correct way. Cost of the article is \$50.00. Plus, we need a 40% mark-up. This means the cost will be 60% of the selling price. If we divide 100%—which would be the selling price of the item—by 60%—which is the cost of the item, we find that in order to make expenses and a net profit, the item must receive a 66-2/3% mark-up.

Cost of item	\$50.00
Plus 66-2/3% mark-up	33.33
Selling price	83.33
Less cost	50.00
Gross profit	33.33
25% expenses	20.83
Net profit 15%	12.50

Now you are making enough to cover cost, expenses and a nice net profit.

The **MARK-UP CHART** will show you how much percentage to add to the cost in order to come out like the example above. Some think that to *keystone* an item (double the price) will give a 100% profit, but as you can see, it will only give a 50% gross profit. To triple keystone an item will give a 66-2/3 gross profit. A gross mark-up of 100% or more is not possible.

Of course, pricing is much more complicated than this simple explanation, but regardless of the size of the store, these three factors are still the prime requisites.

Please note that this is also a way to figure your repair prices. Instead of using the cost of the item, use what you figure your labor is worth, plus expenses, plus what you feel is a fair net profit. If you expect your business to grow, the money for the growth will have to come from your labor (or cost factor) instead of from the net profit. You can only make a certain amount of money with your hands, so when figuring repair prices, unless you add a fair net profit, it will mean that you have to work twice as hard, many more hours, and eat beans during your business growth years.

Just a word about "keystone" prices. Many items in this business are priced and pre-ticketed at a keystone mark-up. If you can afford to operate using this type of pricing, fine. If not, maybe you should consider one of two alternatives.

1. Change the price to where it will give you the margin of profit you need. This is not good as the item could be carried in many neighboring stores and sold at the price it is marked. As an example, we'll take the item we figured out earlier. As the figures show, instead of costing \$50.00, it actually cost \$54.74 (adding the surcharge, postage, etc.). If it is pre-ticketed at keystone, which would be \$100.00, your gross profit would only be \$45.26—not \$50.00. The \$4.74 has to come from somewhere. If your normal overhead expenses don't cover it, then the only place left is from your net profit.

2. Stock a line that is not pre-ticketed so you can mark it the price you need in order to make the gross, and hence the net, profit that is necessary. Here again, many of the companies that sell pre-ticketed lines spend a bundle on advertising their product, making it easier to sell—sometimes. If this be the case, the increase in turnover of that particular product will make up for the smaller margin of profit. BUT, if you carry that line and it is being “footballed” all over the place (selling at less than the pre-ticketed price), you may find that in order to move it the price has to be lowered. Then you may only break even or lose money on it. In that case, the best thing is to move it out as quickly as possible, even at a loss.

Many stores only handle items they price themselves. You may find the best selling watch line is the one on which you have your store's name and you set the selling price. There are also stores that handle “blind” items. These are items that the customer can't go out and shop for anywhere else. As long as they are of good quality, the customer gets his/her money's worth and you stand behind what you sell, that's all that matters.

However you price your inventory, leave a slight margin to take care of any changes in price fluctuations. The gold market is a good example. A few dollars difference in the price of gold will not affect the retail price too much. A drastic change, such as we experienced a few years ago, will cause some concern. If the price goes up, many retailers will hesitate to raise their prices on items in stock, even though they know a higher cost will be necessary to replace the items. Others will change prices, even though it may cause an unfavorable impression on those customers who priced the items before the increase. If the price were to take a large

drop, there will be those who will hesitate to reduce prices for fear of selling the higher-priced inventory at a lower price. On the other hand, if the prices were going down, wouldn't it be better to take the loss right away in order to move out the merchandise? The money could then be used to buy lower-priced merchandise on which you could make a better profit.

Always remember: the longer you hold something in inventory, the more it is going to cost you and the less profit you'll make on it. Sometimes you may stock an item that your customers feel is priced too high for the value they'll receive. A slight reduction may be enough to get it out of stock.

Pricing is a game. If you stocked exactly the same merchandise as every other store, everyone sold it at the same price and under the same exact conditions, and the supply and demand factors were equal, we would have what is termed “pure competition.” Of course, such a thing has never, and it is doubtful it will ever, exist. If it ever came close, the first thing that would happen would be a reduction in the retail price. In this case, the only one who would profit is the one who could sell the most pieces which would help to increase his profit margin because of the turnover.

Once you have set your prices, stick to them. Sell at the same price to everyone. Never be afraid to tell your customer that your prices are figured with a fair profit and that's what you have to sell it for in order to stay in business. If a customer should make you an offer, just say “We don't take offers in this store!” They'll either pay the price or walk. If they walk, you'll find that oftentimes they will return and pay what you asked. If not, don't cry about it. This type will never become a real customer anyway. Let the purveyors of inferior merchandise take care of them. This isn't to say that your pricing shouldn't be flexible—for instance, if a customer has a trade-in or intends to buy in large quantities.

While on the subject of pricing, you may want to try a trick used by many of the large stores, especially department stores. It's the ODD-PRICE type of pricing. For example, instead of pricing an article at an even \$10.00, use \$9.95 or end in an odd number like “88” or “97.” This has a psychological effect upon customers as they feel the price has been cut to the lowest possible penny. This also works when pricing your repair. You'll find that customers

(Continued on page 15)

MARK-UP CHART

%	1	2	3	4	5	6	7	8	9	10	12	15	20	25
15	19	20½	22	23½	25	26½	28¼	30	31½	33⅓	37	43	54	66⅔
16	20½	22	23½	25	26½	28¼	30	31½	33⅓	35⅞	39	45	56¼	69½
17	22	23½	25	26½	28¼	30	31½	33⅓	35⅞	37	41	47	58¼	72½
18	23½	25	26½	28¼	30	31½	33⅓	35⅞	37	39	43	49¼	61⅓	75½
19	25	26½	28¼	30	31½	33⅓	35⅞	37	39	41	45	51½	64	78½
20	26½	28¼	30	31½	33⅓	35⅞	37	39	41	43	47	54	66⅓	81¼
21	28¼	30	31½	33⅓	35⅞	37	39	41	43	45	49¼	56¼	69½	85¼
22	30	31½	33⅓	35⅞	37	39	41	43	45	47	51½	58¼	72½	88⅔
23	31½	33⅓	35⅞	37	39	41	43	45	47	49¼	54	61⅓	75½	92⅓
24	33⅓	35⅞	37	39	41	43	45	47	49¼	51½	56¼	64	78½	96
25	35⅞	37	39	41	43	45	47	49¼	51½	54	58¼	66⅔	81¼	100

Find expense percentage of selling price in first vertical left-hand column. Find profit percentage of selling price in horizontal column at top of chart. Percentage of cost

that must be added to cost price is figure at intersection of horizontal line drawn through expense figure and vertical line drawn through profit figure.



Dorothy Aderman

Funeral services for Dorothy Aderman were held October 18 in Hallandale, Florida. Mrs. Aderman was extremely active in the affairs of the American Watchmakers Institute and served the association in numerous capacities. She was a member of the AWI Board of Directors and served as Secretary, Treasurer and First Vice President over the years.

She is survived by her husband, Clint, who is also a Past President of AWI. They have traveled many miles and contributed generously of their time to benefit their fellow craftsmen. They have been active in the affairs of the Greater Miami and Broward County guilds as well as the Florida State Watchmakers Association and the national activities of the AWI.

Mrs. Aderman was a full-time bench watchmaker. She received her training at the Elgin Watchmakers College under the direction of the late W. H. Samelius. Upon completion of her academic courses, she was employed in the Elgin Watch factory for a time.

Burial will be in her hometown of Shawano, Wisconsin.

Our Readers Write

My application for membership and my check for \$35.00 is enclosed. Thank you for your very prompt reply to my request for information. It was most helpful. As a matter of fact, your prompt service is the reason for my enclosed application!

Jack R. Lewis
Seattle, Washington

I would be lost without *Horological Times*, as it is a fine magazine. Good work and thanks!

Michael L. Gerber
Waunakee, WI

It is great to have a group such as you, where we can go to get the straight facts. You are doing a great job. Many thanks.

Daniel A. Spath
Ellicott City, Maryland

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Horological Times

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ROCK QUARRY

(Continued from page 13)

will more readily okay the prices on crystals, crowns and dial refinishing if the price ends in an odd number. Sound silly? Try it and see if it works or not.

In all your pricing, remember: the name of the game is to sell at a price that will yield the maximum net profit. This is what makes the difference between winners and losers.

In closing, I would like to leave you with a little merchandising tip. Assuming that you have a counter for taking in repair work, use it to make some extra money. Make a small display of jewelry cleaner, with a hand-written sign, about the size of a business card, and just put **JEWELRY CLEANER** - \$3.95, or whatever you sell it for. You'll find that you will sell more jewelry cleaner than you ever thought possible. Most customers use jewelry cleaner but never think about buying it. If you have it sitting on a back shelf where it's hard to see, it won't pay for the space it uses.

This is an idea I got from an advertising seminar. The instructor told about an experiment he had conducted in a grocery store. Over the regular price, he put larger hand-written signs such as "X-BRAND COFFEE - \$3.95." There was no reduction in price, just the sign. It resulted in an increase in sales and became the best-selling coffee line in the store during the experiment. When I got back to the store, I tried it with jewelry cleaner. It was moved from the back shelf, where it never sold more than a few dozen jars a year. Now, it's ordered two gross at a time, with the name imprinted free, and it's ordered two or three times a year. It also works for pearl cleaner, silver polish and especially during the Christmas season when small gift items are displayed with a sign "STOCKING STUFFERS." You'll be surprised how many customers, waiting to leave or pick up repair work, will buy these articles. We're not talking about "big bucks" here. We are talking about a large turnover with no time spent in selling—just taking the customer's money! Best of all, the more that sells, the less the overhead expenses, which means more net profit and that's the name of the game!!!

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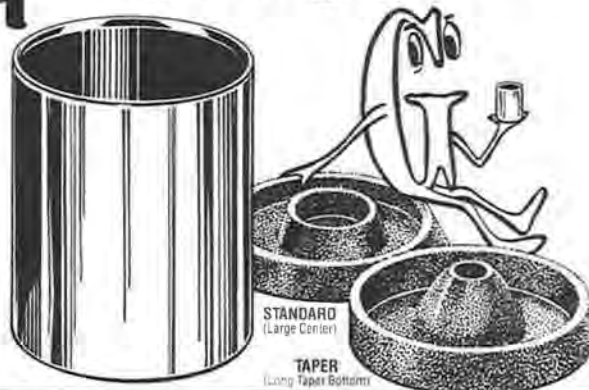
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1 3/4	2 1/4	F-1	\$5.20	—	—	ST-1	\$3.60
1 3/4	2 1/2	F-1A	5.20	—	—	ST-1	3.60
2	2 1/2	F-2	3.00	S-2	\$1.50	ST-2	1.50
2 3/8	2 5/8	F-3	7.00	—	—	ST-3	3.60
2 1/2	2	F-4	3.05	S-4	1.35	ST-4	1.50
2 1/2	2 1/2	F-4A	3.25	S-4	1.35	ST-4	1.50
2 1/2	3	F-4B	3.40	S-4	1.35	ST-4	1.50
2 1/2	4	F-4C	5.10	S-4	1.35	ST-4	1.50
3	2 1/2	F-5	4.00	S-5	1.50	ST-5	1.50
3	3	F-5A	4.20	S-5	1.50	ST-5	1.50
3 3/8	4	F-6	11.20	—	—	ST-6	1.90
3 1/2	2 3/4	F-7	4.30	S-7	1.50	ST-7	1.50
3 1/2	3	F-7A	4.50	S-7	1.50	ST-7	1.50
3 1/2	4	F-7B	5.65	S-7	1.50	ST-7	1.50
3 1/2	5	F-7C	6.60	S-7	1.50	ST-7	1.50
4	3	F-8	6.15	S-8	2.40	ST-8	2.25
4	4	F-8A	6.40	S-8	2.40	ST-8	2.25
4	5	F-8B	7.15	S-8	2.40	ST-8	2.25
4	5 3/4	F-8C	11.60	S-8	2.40	ST-8	2.25
4	6	F-8D	9.75	S-8	2.40	ST-8	2.25
5	7	F-9	15.00	S-9	2.25	ST-9	2.50

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

Which "International" Is It?

Q I recently examined what appeared to be an unusual watch. It did not have the usual hour and minute hand or customary face, but it *did* have the second hand.

In researching, the information I had available I noticed there were two International Watch Companies listed. One was a Swiss Co. which I am sure made this watch, as it was brought from Germany many years ago.

Since the International Watch Co. (of Newark City, New Jersey, 1902-1907) made only inexpensive nickel-plated watches, I believe this source can be eliminated.

I have made a sketch of the watch in question with its description below the drawing. From this I hope you might give me some idea of the age and if it has some collector value. Thank you.

Larry Gerber
Duluth, MN

A *The International Watch Company that made your watch is in Switzerland in the town of Schaffhausen, near Winterthur. They have been in business since the start of the last quarter of the 19th Century, founded by an American using USA methods; thus the "International."*

Your watch is of the 1880 period. It is a fair item, and is a form of collectors' item.

Q I have an antique pocket watch in for repairs that I would like some information on. The details are as follows:

- * 22½ Ln. (50½ mm)
- * Chronograph with alarm (?)
- * On the dial is:

CHRONOMETRRE
REPETITION

- * Under the dial (under the rack) is:
0342 Bte S.G.D.G. DRP 180 384
28646 BREUETTATO R.A. 224 249
- * Near the stem:
U.S. PAT 10 Sep 07
PAT No. 14462/07
- * On the train side is: 867406

The chronograph functions (start, stop, flyback) are accomplished with one action through a side button on the case. There is a slide on the case which protrudes through from the movement that actuates the alarm (?).

The alarm has a single chime for each hour and a double chime for each ¼ hour (1 double for 15 minutes, 2 double for 30 minutes, 3 double for 45 minutes).

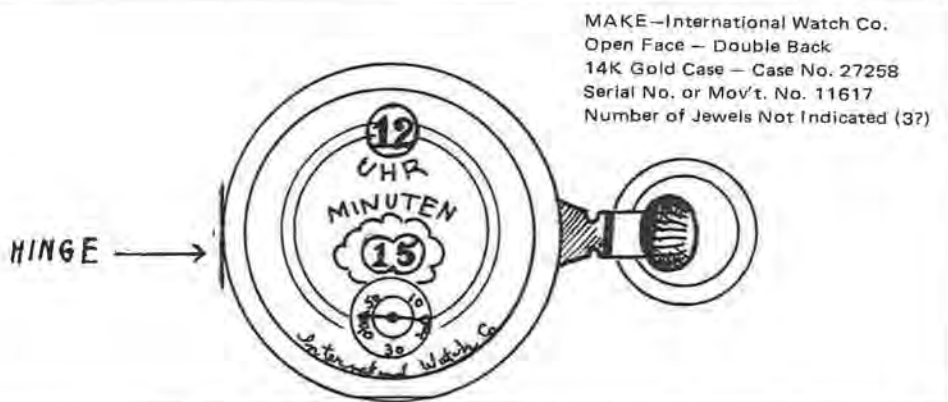
The case is 18K gold hunter with a pool-shooting scene on the front. Inside on the lid is:

Chronographe
Repetition A Quarts
Qualite Superieure
Montre

De Precisiv No. 91168

Was this watch originally intended for a blind person? Or was this a "gimmick" of the day? Approximately when was it manufactured? Is it of all American origin, or American/French? Any information will be appreciated.

W. A. Stancliff
Atlanta, GA



Another Great Borel Buy!

Here are two popular quartz analog movements used by many of the major watch manufacturers, at a price about the same as or less than you'd pay for just the coil. Both movements have good parts availability and are repairable. In many cases you'll find it more practical and more profitable to replace, rather than repair a malfunctioning movement.

ESA 961.001 Quartz Analog Movement



6¾ × 8 L size
3.5 mm thickness

\$11.95

Battery Included

(Dial foot has to be shortened, before installation.)
Replaces Font 60 and Font 69

Other available movements:

102.001	3¾ × 10L	\$27.00
301.001	5½ × 6¾L	16.00
950.001	7¾ L	32.00

Y 480 A Quartz Analog Movement



6¾ × 8L size
2.8 mm thickness

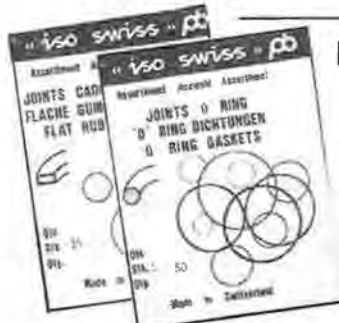
\$14.00

Battery Included

This movement used by Pulsar.

Other available movements:

Y 481	6¾ × 8L, sweep second	\$16.50
Y 590	5½ × 6¾L	17.50
Y 561/571	11½ L, sweep second	17.50
Y 572	11½ L, date	20.00
Y 573	11½ L, day/date	20.00



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- # 10039 - Same as above for pocket watches 6.10



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The National Case-Marking (Identification) System

The system, originally designated as the *National Case-Marking System*, was initiated in Michigan a number of years ago as being the only positive and easy-to-recognize (for law-enforcement agencies) system of identification of the watch, or clock owner, through identification of the watchmaker, or clock-repairman.

For as long as one can remember, watchmakers and their various trade associations have been contacted by the police and other law-enforcement agencies for solving the riddle of watch identification. In cases of theft, or more violent crimes, or just for personal identification, the watchmaker's case-mark can prove extremely important.

Watchmakers everywhere are known to scratch certain identification marks in the backs of watches held for repair. Unfortunately, as most police departments have become painfully aware, the task of positive identification through these marks, either of the watchmaker who inscribed them or the watch owner, have not been generally successful. The reason has been that only the watchmaker (unless he, or she, is one using the national system) can untangle the mystery. Case-markings, for the most part in the past, have been in the form of unintelligible hieroglyphics to all outsiders.

As mentioned, the system was initiated in Michigan and, with the establishment of a state Horologist's Registration Act (1965), each license holder was issued his own case-mark by the Michigan Department of Licensing & Regulations.

Nationally, the American Watchmakers Institute, with its special committee for this purpose, has advocated the system on a voluntary basis to watchmakers associations throughout the fifty states and Puerto Rico.

How does it work? . . . Identification is very simple. Primarily, for law-enforcement personnel it rests upon the observation of the clear marking of a *simple triangle*, Δ . The triangle, easy to identify, therefore replaces the obscure hieroglyphics of the past.

Having observed the inscription of the triangle identification mark, the law-enforcement officer should then know that the particular item is registered with the American Watchmakers Institute in their *confidential file* in Cincinnati. The next observation he should make is to determine the letter code immediately following the triangle. This will identify the individual mechanic who etched the mark.

Let us now clarify the situation, using Michigan as an example. The first Michigan watchmaker registered was allocated the simple triangle mark Δ , followed by the letter "A." The next mechanic registered scratched the triangle followed by the letter "B." The next was assigned triangle "C" and so on, down to triangle "Z." This, of course, completed the first block of registrations; i.e., the first 26 watchmakers were assigned.

The second block of letters began with the 27th registrant who was assigned the triangle mark Δ followed by the letter combo "AA." The next became triangle "AB," and so on to triangle "AZ." This completed the second block of registrations, or 52 registered watchmakers. The system follows on in this fashion, the third block commencing with triangle "BA," "BB," "BC," etc. The last block of double-lettered registrations commenced with the triangle mark followed by the letters "ZA" and concluded with the mark triangle "ZZ."

Once the individual watchmaker, or clock-repairman, is designated a triangle identification mark, it is his personal mark, like one's social security number, and cannot (or should not) be used by another individual.

Now, how do we determine which state the individual repairman is recorded in? The answer is simple: The states are assigned a number, alphabetically, by state. The state numbers commence with Alabama (1) and end with Wyoming (51). The District of Columbia is fitted into the alphabetical arrangement and is number (9). Puerto Rico, thanks to Henry Fried, is number 52. The complete list of the designated state numbers follows at the end of this article.

Roll Out the Barrel...

QUICKLY!!



By Ken Law, CMC, CMBHI

EDITOR'S NOTE: Ken Law shares his knowledge of repairing damaged teeth on a spring barrel with his fellow H.T. readers. The process is described in the four following steps.



1 A soldered type spring barrel with damaged teeth.

(Continued on page 37)

To complete his, or her, identification mark, *the state number is put in front of the triangle mark*, with the assigned letter code following. For example, in our original Michigan case, the first registered watchmaker was assigned (and marks his watch case, or clock): 23Δ A.

Personal record-keeping. This is also fundamental to the success of the system. Nearly all watchmakers and clockmen keep repair records. These records (usually in the form of a keystone record book) should include the customer's name, address, phone numbers, type of watch or clock, nature of the repair to be performed, the repair charge, the date of entry (and possibly release), but above all, *the store repair job number*. The latter is important because it should be scratched in (or on) the case along with the registered case-mark.

The watchmaker, or clock repairman, may also wish to scratch the repair date on the item, as well as his personal registered case-mark and his store job number. The personal case-mark need only be inscribed one time, unless the mechanic prefers to use it with each repair, as many do.

How important is this program to law enforcement? It is very important, if every watch and clockman gets registered. There have been hundreds of unsolved crimes, missing persons not identified, and so forth. In deference to the program it has been said that one seldom sees any Δ marks. One reason, we feel sure, is that it has not been sufficiently explained, or promoted. Let's change that. For this purpose each state should appoint a chairman to be responsible for collecting the names and addresses of prospective registrants. These registrants' particulars can be sent to the AWI headquarters in Cincinnati. Each person will then be assigned a national identification mark (case-mark).

With *your* co-operation, this simple system can and *will* work.

DESIGNATION OF STATE NUMBERS TO BE PLACED IN FRONT OF TRIANGLE (Δ) IDENTIFICATION MARK

1—Alabama	27—Montana
2—Alaska	28—Nebraska
3—Arizona	29—Nevada
4—Arkansas	30—New Hampshire
5—California	31—New Jersey
6—Colorado	32—New Mexico
7—Connecticut	33—New York
8—Delaware	34—North Carolina
9—Dist. of Columbia	35—North Dakota
10—Florida	36—Ohio
11—Georgia	37—Oklahoma
12—Hawaii	38—Oregon
13—Idaho	39—Pennsylvania
14—Illinois	40—Rhode Island
15—Indiana	41—South Carolina
16—Iowa	42—South Dakota
17—Kansas	43—Tennessee
18—Kentucky	44—Texas
19—Louisiana	45—Utah
20—Maine	46—Vermont
21—Maryland	47—Virginia
22—Massachusetts	48—Washington
23—Michigan	49—West Virginia
24—Minnesota	50—Wisconsin
25—Mississippi	51—Wyoming
26—Missouri	52—Puerto Rico

HT 13

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QUESTIONS & ANSWERS

(Continued from page 16)

A Your watch is not an alarm but a watch which in the trade is called a "quarter repeating" watch. That is, it will ring when YOU want it to at your command. You can do this by thumbnailing the case-side lever which loads a spring.

These are not rare watches. Many were used by blind people, but most often were used by those in the days before radium dials and hands, to learn the time at night.

E. Picard, the patent holder, was Swiss and was of good to high quality. Repeating watches are still available today in the very high grade watches such as Audemars, Piquet, Patek Phillippe, Vacheron-Constantine. However, at the turn of the century, many companies of all qualities produced these. It was not a gimmick but a watch providing a bit more service than merely keeping the hours and minutes. The watch was Swiss made. The absence of a name on your watch denotes that these were made so the jeweler (local) could put his own name upon the watch and movement. The engravings on the case were standard for such products. This is NOT an alarm watch. It cannot be pre-set to ring at a given time. The slide makes the time ring when it is pushed to its limit (it won't ring unless the slide is slid all the way).

Q Can you identify this trademark? It is a one-weight, time only, wall clock:



Can you tell about how old it is? I appreciate your help very much.

Anthony Zalatoris
Chicago, IL

A Your trademark sketched is that of the E. & J. Swigart Co. and was used in the early 1900's. Current catalogues do not use this logo.

Q I have to make a verge staff for a quarter hour repeating watch. I have Gazeley's book *Watch and Clockmaking and Repairing* and his book on escapements. I understood from one book that steel is encased in a ferrule and then turned on a lathe. In his other book it seems as if the verge is filed by hand. I have tried to embed a piece of mainspring steel in a brass rod and turned with poor results. It broke in the center.

Is there any other literature available that can help clarify this or help me? Can you recommend any literature that shows the old methods of watch and clockmaking?

Also, I have recently obtained an electric clock with an ETA 2421N movement. In the technical library index I noticed that there is a parts bulletin available. Can you enlighten me as to how I may obtain it? I see that it is a parts bulletin and I am wondering what information I can get on the set-up on the balance wheel as to alignment.

I have had many occasions where this knowledge would have come

(Continued on next page)

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QUESTIONS AND ANSWERS
(Continued from previous page)

in handy. I have been fortunate in being able to figure things out, but I am not against learning from others.

Milton Shopnick
Oak Park, MI

"shellac chuck" until all is finished. Do not expect success with your first try; you must stick with it until you have acquired the knack or skill or both to complete the job.

You can get technical bulletins by writing the office staff at AWI and merely asking for it, or a loan of the bulletin you desire.

Henry B. Fried

**HAVING
TECHNICAL
PROBLEMS?**



**AWI HOTLINE
(513)661-4636**

TUES

Actually, I do not remember any book in which the making of a verge watch balance staff is explained. Gazeley's methods are the acceptable systems of making the verge staff. I know that this excellent watchmaker's explanations are sometimes involved and it does indeed take reading and re-reading for the details to become clear. I saw Mr. Gazeley at work, and few were as expert as this master.

If you are going to use a piece of mainspring for the body of the staff, it would be best to anneal it slightly so that the inner strain and grain of the metal is more yielding to the graver. Some older watchmakers would turn the verge staff from a piece of rod carbon steel. The flags would at first be two square shoulders and the pivots turned to suit the height over-all, and the shoulders for the collet and balance wheel turned. Thus, the turned piece might look like a pinion with its pivots before the leaves were cut into it. Then they would file the flags or pallets so that these were at 90° to each other, taking into consideration the height of the pallets in their relation to the teeth of the verge escape wheel, the direction in which the escape wheel turned, and the proper height of the balance and hairspring. The piece, after turning, was held in a small toolmaker's parallel clamps or sliding pin vise.

As you can surmise, much skill is needed to finish the pallets to obtain a good escapement action with the above method. Gazeley's method of turning a flat piece of stock and twisting the profiled piece is simpler but finishing is difficult. Some watchmakers would drill an hole the proper diameter and depth to just accommodate the profiled piece, then filling it with shellac. Then finish the pivots, cutting the brass rod and shellac away as the graver cuts towards the lathe so as to cut the middle, twisted surface, still leaving the last part of the staff in the

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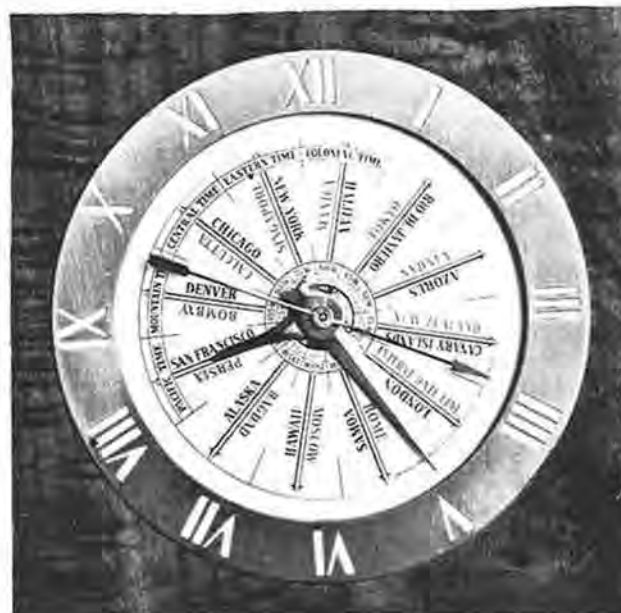
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ORH



Zone Time Dial

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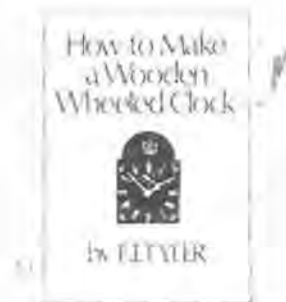
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THE PICKLE BARREL

Marshall F. Richmond, CMW



Expanding The Skills Of Jewelry Repair

Previous articles have been written to adapt the skills of a watchmaker to do jewelry repair. Due to declining volumes of watch repair, it was necessary for many watchmakers to find supplementary incomes in order to maintain their standard of living. When we become proficient in doing jewelry repairs, the next step is to improve our work. There are many ways that this can be done and I will try and outline some of them in this article.

ASSETS OF HAND ENGRAVERS

One of the biggest assets that a jewelry repairman or stone setter can have is the knowledge and ability to do hand engraving. By this I do not necessarily mean letter engraving or ornamental engraving, but the ability to use hand engravers. In one watchmakers school it is highly recommended that the course in hand engraving be taken before diamond setting. Being able to hand engrave is an asset, even though it is not used for doing ornamental or letter engraving. Since most engraving is now done by machine, some mistakes can be corrected and in turn saves the ruin of a piece of jewelry. Hand engraving can also be used to touch up a piece of jewelry that has been machine-engraved and make it look like a hand-engraved job. Hand gravers can cut away metal that is not within the reach of rotary tools or files and can make some jobs look better and stronger. Often too much metal is removed when using files or rotary tools.

I took a course in hand engraving before jewelry repair in watchmakers school. Since I wasn't artistically inclined, it came hard for me. All I could do was copy, although I did learn layout and design. I memorized the script alphabet, old English alphabet, and two different block alphabets. I did hand letter engraving in my store along with watch and jewelry repairs for about five years. Then I purchased an engraving machine. From then on only machine engraving was accepted. But with the knowledge of layout and hand engraving, a much better quality of engraving could be done with the machine. The real asset of being a hand engraver was that it enabled me to do most any jewelry repair, stone or diamond setting job, and to custom make pieces of jewelry for my customers. Even in retirement I still make custom pieces of jewelry.

WHERE DO YOU LEARN IT?

In order to learn about hand engraving, a person does not necessarily need to take a course on the subject. A person with watchmaking skills can learn from reading books available on loan from the AWI library. Or, you can purchase them through AWI or your material distributor. The skills that you have already developed in sharpening and using watchmakers gravers, combined with what you can learn by reading engraving instruction books, makes it possible to learn hand engraving.

SOME USES OF HAND ENGRAVING

The use of hand engravers in jewelry repair can be quite extensive. In sizing rings with shanks that are grooved, excess solder can easily be removed with hand gravers. When an engraved wedding band needs to be enlarged more than it can be stretched, it will require that a piece be added. This can be dressed to shape with files or rotary tools and then hand engraved to match the other engraving. In setting stones with bezels, metal can be removed inside the bezel, in corners, on sides, or the bottom to make a seat for the stone. After the stone is properly seated and the bezel burnished over the edges of the stone, the excess metal can be trimmed prior to polishing. When setting diamonds in flat settings, it is necessary to be able to cut away the metal around the beads and stone and finish with making bright cut grooves. This will leave an edge which is usually finished with a milgrain tool. In any kind of bead settings and many prong settings, hand gravers can be used to trim around the beads and stones prior to polishing.

Diamond and stone setting is considered a trade in itself. A watchmaker and jewelry repairman will never get as much experience in a lifetime as someone who does nothing but stone setting for a living. But, since perfection is something never attained, we can spend our lifetime striving for it. This will accomplish one thing—a better quality of workmanship and the ability to produce more work in a given amount of time.

ON USING A WATCHMAKER'S LATHE

Using the watchmaker's lathe to make parts for repairing or

making jewelry is a plus that most jewelry repairmen do not have. The lathe can be used to make pierced earring posts by cutting off 0.80 mm 14K gold wire to lengths of 10 mm or 3/8 inch. They can be cut off in the lathe using a number 8 chuck and a jeweler's saw. Chuck the cut wire in the lathe leaving about 1/3 protruding from the chuck. With a cone pivot graver, cut a groove about 1 mm from the end, making the groove about 1/2 mm long and 1/10 mm deep. This gives a good seat for the clutch back to grip into. These can be hard soldered onto almost any setting or metal which is used for an earring or replacement of a missing post. Rivets of any metal can be turned from wire in the lathe. Cutting tubing for any purpose, such as watch case hinges, ladies' watch case ends, or any time tubing needs to be cut to length, can be done much better in the lathe than by just sawing it in two. The ends will be square and true instead of angled. Tubing can be made from solid wire by drilling into the end of the wire which is chucked in the lathe, and the hole will be true.

OTHER TOOLS

In doing jewelry repair I try to utilize as many of my watchmakers tools as I possibly can. I even use a crystal grinder for reducing the size of softer stones or reshaping them. I have reduced turquoise, opal, bloodstone, and even onyx using the wet crystal grinder. The time involved is not much more than packaging and mailing a sample to have one cut. And, you're saving the cost of shipping both ways, plus the cost of cutting. This will not work on harder stones such as sapphire, ruby, or diamond, which require lapidary equipment.

The staking tool can be used to punch out thin metal discs often needed in making or repairing jewelry. Use a flat bottom punch for flat discs and a round bottom punch for concave or convex discs. Concave discs drilled in the center with a post protruding about 2 mm in the concave make an excellent setting for half-drilled pearls when the post is hard soldered to the disc. With a little Aaron Alpha® cement, the pearl is installed on the setting to stay.

STRIVING FOR PERFECTION

After working as a jewelry repairman as an allied trade to watchmaking, I have made thousands of repairs and custom pieces of jewelry. Looking back, I cannot think of any one job that I would consider as being perfect. From day one I have always tried to make the next job better than the last. I feel that I have done so, but even now I feel that every job I do could have been done better. We work in tolerances and learning these tolerances only comes with experience. But as long as there are tolerances, a perfect job would be rare indeed. We have to maintain these tolerances so we can make practical repairs to the satisfaction of our customers, and still do them in a time limit that will allow us ample compensation for this time. So for me, I will settle on spending the rest of my life striving for perfection. Short cuts can often be developed with thinking, experiments, and experience. Many times these short cuts will turn out to be a more perfect job than the older longer methods. Perfection is something we never achieve but always strive for. One of the best ways we can expand our skills with every job we do, even though it has become routine, is to be constantly thinking of ways to do it better and quicker.

REPAIRING SILVER

For many years and still today, many watchmakers and some jewelry repairmen shy away from repairing silver. But, using

common sense combined with a knowledge of gold soldering, silver jewelry can be repaired the same as gold. In previous articles I have explained that silver is more difficult to silver solder since it is a better conductor of heat. (See June 1980 issue of *Horological Times*.) Since silver is a better conductor of heat, the heat travels away from the point of application faster than a lesser conductor, such as gold. So, silver requires more heat to make the solder flow.

When stones are involved, enough heat needed to make the solder flow would reach and damage the stone. Therefore shielding must be used on the stone, followed by an intense heat applied so that the solder will flow faster than the heat can dry out the shielding material. In a few cases with heavy silver turquoise rings, I have gone out in my garage where I have an industrial cutting and welding outfit and used this to get enough heat to make the solder flow quickly enough. The other alternative would be to remove the stone.

REMOVAL OF STONES

Removing and resetting stones can become routine with practice and experience. On many turquoise "Indian jewelry rings," the turquoise is of poor quality with black streaks in it which often crack. When a ring such as this comes in for repair sometimes the turquoise is already cracked. This should be pointed out to the customer. In removing this stone, it can be re-set by using epoxy and after polishing, the crack will not show. This repair will hold up well and the stone will be as durable or more than it was originally. This is another way of expanding the skills of jewelry repair, and repairing silver can supplement a lagging income.

ONE INQUIRY—WITH SOME SOLUTIONS

Frequently I get inquiries about difficulties encountered in jewelry repair. Many times it takes some experimentation on my part to come up with a solution, but since my knowledge, experience and ability belongs to the watchmaking and jewelry trade, I always try and help with a solution. Over the last weekend something came up two different times from a group of less than 100 people, so it seems worthy of comment in this article. Here's the problem: when a flake of gold solder was put in position, heat applied to the point that the repairman thought to be dangerous, it did not form a ball or melt; it just laid there. Several reasons could explain this, but most likely either the solder was not properly fluxed, or contaminated flux was being used. Perhaps, too, not enough heat was applied. In this case the first thing to try is to re-flux and re-apply heat. Usually this is the solution.

ON USING FLUX . . .

Not being in a position to recommend specific products, I will repeat what has already been said many times in previous articles, and that is to use Batons® flux for nonferrous metals and Aircosil® flux for ferrous metals. My policy on using flux so it will not become contaminated is on Batons®. I have two small bottles that hold about a thimble full, which I change every couple of days. This keeps all forms of contamination from getting into the storage carton, bottle, or can. The Aircosil® is in a squeeze bottle so I usually squirt a few drops in an old waterproof round plastic crystal that I use and discard immediately. Contaminated flux can cause much trouble, such as solder that won't flow or pitted solder joints when the job is finished. If after re-fluxing and applying heat the solder does not flow, then the solder should be removed from the piece to be soldered with tweezers and (Continued on page 33)

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TJTB

BENCH TIPS

(Continued from page 6)

Tom, let us attach a handle to that portable . . . my knees sure do get sore crawling over the floor!

Here's one from Dean Neuen-dorf:

Collect those broken lucite handled oilers and plastic swizzle sticks and convert them to trimmer adjustor tools. If you run across any 1/8" to 1/4" diameter plastic rod stock, this will work.

. . . and here's one from John Tobias:

A small ball of Rodico® works great to prop up an 18 size full plat P. F. & A. while assembling the bridge back on.

John, now what will I do with the piece of 18's mainspring with one end ground into a slot, then heated in the middle and folded over to do this job?

Lastly, here is another Rodico® tip—this one is from Jim Adams:

A small ball of Rodico® pressed against the Second-Wheel Jewel assembly (part No. 325) of the Accutron 221 will hold it in place nicely while you insert the retaining clip. That's the jewel that's on the edge of the train bridge.

You know, sometimes I wonder how we ever got by before that "third hand" Rodico® was invented!

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	12103	5 1/2 x 6 3/4		17 Jwl Inca	AS 1977-5	AS 1012	24.50
	12104	6 3/4 x 8		17 Jwl Inca	FF69N	FF60-ST69-CARA 60F	17.00
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By Wes Door, CMW



Appraisals: YES or NO? Part II

What to do and say when we do not do appraisals was the major portion of our article last month. Now we will continue our discussion, presuming we either do appraisals now or we are intending to do them in the future. In the space of a few pages we will not attempt to give a four year gemology course. We will discuss mostly the DOs and DON'Ts of taking in appraisal jobs, and give pointers on dealing with customers.

Taking in an appraisal job is a very important part of our appraisal. The job envelope must adequately describe the item. At this point, however, we must be cautious and not improperly guess the gemstone's identity. For example: a ladies' ring in a yellow gold-color mounting with a red stone should not be pre-marked as a ruby ring.

If we are using a plain job envelope, we can mark this particular item according to our own store policy. The printed envelope in Figure 1 is what we like to use, and for these two reasons: (1) We are lazy and it's very easy to circle a letter instead of writing it (we seldom forget to do this), and (2) these job envelopes are pre-numbered and have stubs to match those numbers, so the customers have receipts for the items they leave.

There are many good systems to use, but in this article, I will use our store method. In taking in the ladies' ring in a yellow mounting and a red stone, our job envelope will be marked accordingly (Figure 1). Notice we have circled the "Y" to indicate the color of the ring, and "L" is circled, indicating a ladies' ring. We know for a fact we have a yellow-color ring mounting and that it is a ladies' ring.

Now we come to the most important part: the *gemstone*. It is safest to mark it as is indicated on the job envelope. We wrote "Rg./Red stone," which means we have a ring with a red stone. If we are positive about its being a genuine or synthetic ruby or a garnet, tourmaline or other stone, then we may write this on our job envelope.

Now, I know exactly what you're thinking. What if the customer knows he has a genuine ruby ring, and does not want a receipt for just "a red stone"? This question brings us to a very important part of our "take-in" procedure with

Figure 1

The form is a job envelope with the following sections:

- Top Section:** No. 008943, Date Rec'd: _____, Name: _____, Address: 2214 WEST FOURTH AVENUE, KENNEWICK WASHINGTON 98336, PHONE: (509) 582-7770.
- Middle Section:** No. 008943, Date Rec'd: _____, Name: _____, Address: _____.
- Item Description Table:**

NO.	GEN.	M.M.	APX.	A.W.
A	Y		L	
B				
C				
D				
E				
- Bottom Section:** TAX, PROMISED (M T W T F S S), TOTAL, and a logo for Products By Door Wes Door.

SHOP TALK

our customers. If the customer says they have a genuine ruby and yet we believe otherwise, we should let them sit down with us in our "gem room" while we make some preliminary tests to assure our customer (and ourselves) of the correct identity of this stone.

Some gemologists like to set up an appointment with their customers for doing all of the identification including a complete appraisal while the customer waits. I'm sure this is one good way to appraise and does have advantages. It's especially good for the customer, who is sometimes reluctant to leave anything of value for a lengthy period of time.

We prefer to have the items left at our shop, giving the customer a "stub" receipt from the top of our job envelope, after we are sure the customer has no pre-conceived notion that their gemstones are real when in fact they may not be.

Here's a case in point. This is an actual experience we had with a good customer of our store just two days ago. I'll call him "Joe" and his wife "Mary." Joe brought in a yellow gold gents' ring and explained that Mary just bought it for him. They noticed the ring in a jewelry store while traveling through a "quaint" resort town the past weekend. Mary said she asked the jeweler how much the ring was. Since the price was very reasonable, she bought it. Now, Joe brought the ring to me for appraisal because it was something they always have done in the past with their other fine jewelry, in order to add it to their insurance.

As I looked at the ring, I said, "Gee, that's a pretty mounting. Is this a new ring?" I asked this knowing very well it was a new ring and not purchased from us, so I was just "pumping" for more information.

Joe said, "I've always wanted a nice diamond ring," telling me how and why they bought it.

At this point, I spoiled his whole day when I explained he had a Cubic Zirconium (CZ), and not a diamond. I explained the mounting was worth the \$260 that he paid for the ring, but the $\frac{3}{4}$ carat stone was worth only a few dollars.

We cancelled our appraisal and Joe first was considering traveling all the way back to the jeweler in the town where Mary purchased the ring. The town may not look so "quaint" and the jeweler may not be so happy that he forgot to explain that he was really selling a "CZ." We are seeing so many Cubic Zirconium stones now . . . we must be careful in all appraisals containing "white" stones.

To test a stone to determine whether it is a "CZ" or a diamond, we use and recommend the Gem Diamond Master by the Gem Instruments Corporation. It has a probe and is easy to use, and if desired, it can be shown to a customer, to verify what we have told them.

In next month's article on appraisals, we will show a complete and detailed appraisal form, which may be copied in whole or in part for personal store use.

TUES

Book Review

A Strutt Epicyclic Geared SKELETON CLOCK, by Richard Stephen; *Making the Cutters*, by Richard Stephen and William R. Smith; *A Pin-Wheel Transparent SKELETON CLOCK* by Harold Auger. 12x8", 41 pages, plus covers with plastic ring binding, 57 drawings and 37 photographs. Published by The Watch & Clock Book Society, Ashford, Kent, 1983, at \$11.90.

This is a three-part booklet composed of articles which previously appeared in serial form in the British periodical, *Timecraft*. Within its covers the reader is taken through the steps pursued by the authors in constructing two very interesting and unusual clocks. The epicyclic clock invented in the early part of the nineteenth century by William Strutt is the subject of the first half of this reproduction. Basically, its concept is of a 66 toothed sun-wheel which is concentric with the center arbor and rigidly attached tooth dial. The entire train revolves within this sunwheel, tourbillon style. Mounted on the center wheel arbor and free to rotate on it is a ring-wheel which contains both internal and external teeth. A planetary gear in this train makes $8\frac{1}{4}$ revolutions for each of the center arbors or once an hour.

This reviewer has seen such a clock made by William R. Smith of Knoxville, Tennessee, after these plans. Mr. Smith also is one of the contributing authors of this "how to make" book, illustrating how to make the cutters and apply them in cutting the internal teeth.

The instructions are in fine illustrated details and should be easy to follow by anyone with sufficient interest and motivation. The drawings are professional, although the photographs suffer a bit from reproduction processing.

The other half of the book is an exposition on the construction of a skeleton clock with a 276 toothed great wheel upon which the weight cord drum is mounted, together with the maintaining power system. The escapement is a form of a pinwheel with slightly offset pallets. The power as mentioned is supplied by two opposite, unpuled weights, each $1\frac{1}{2}$ lbs. The train is laid out in a straight line. The front plate is composed of $\frac{1}{8}$ inch thick glass with $\frac{1}{4}$ and $\frac{1}{8}$ inch holes drilled to accommodate brass bushings. The back plate is but $\frac{7}{8}$ inch wide and $\frac{1}{8}$ inch thick, which is skeletonized. The instructions should provide those with thoughts of projects to keep busy through the winter months clear into the spring. There are extra pages of advertisements for books and the Watch & Clock Book Society.

Henry B. Fried

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1984 A.W.I. TOUR NOW BEING PLANNED

The 1984 AWI Horological Tour is in the initial planning stages, according to Henry B. Fried, internationally known horologist who will organize and guide the tour as in the past. The 1983 trip was acknowledged as most enjoyable by all those who participated.

Two itineraries are under consideration for the 1984 excursion. One would take the group to selected areas in Yugoslavia, Finland, Sweden, Norway and Denmark. The alternative route would include: Prague, Moscow, Leningrad, Finland, Sweden and Norway. The tour is scheduled to be made in June, 1984.

Anyone interested in joining the group is invited to contact Mr. Fried expressing their choice of tour routes. Write to: AWI Tour, AWI Central, P.O. Box 11011, Cincinnati, Ohio 45211.

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PICKLE BARREL
(Continued from page 29)

placed on the asbestos pad, fluxed and heat applied. If the piece is actually gold solder, it should form a ball with very little heat. If it does then the article should be re-cleaned and fluxed, and the solder should flow without difficulty. If the solder does not ball on the asbestos pad, there could be a bit of metal in it that is not solder, so clip another piece from the strip of solder and place it on the asbestos pad, and flux and heat. If this one does not form a ball it could be that the solder is bad, but I have never heard of this. Solder laid on the asbestos pad and heated without fluxing sometimes will not form a ball when heated but will just disintegrate in sparks, which is another good reason to always flux the solder before applying.

If self-employed, we are able to increase our income as we expand our skills, thus creating a better standard of living for ourselves and families. If employed we can make ourselves more valuable employees which makes for better security and being more valuable should command a better wage or salary. Just always remember that learning is a process that starts in the cradle and ends with the grave, so regardless of age everyday should be a learning experience.

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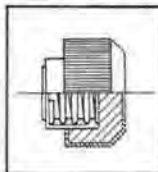
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Winding Problems and Repairs

By Charles F. Barnes

The advent of the keyless wind mechanism, while being a great advance in convenience in winding and setting watches, presented the watchmaker with maintenance problems which are found today with increasing frequency in our aging mechanical watches. Although many of these problems do not affect the time keeping ability of a watch, beyond the ability to wind or set it, the relationship to a satisfactory repair and a satisfied customer is obvious.

As with all repair work, the degree of restoration, finish, and long term durability of the repair depends on the quality of the watch and the needs and wishes of the customer. Often bushing, rebuilding, and making parts when not available, while desirable, are not economically practical. And so, while mentioned as repair possibilities, they are not presented in depth here. Rather, the following is a series of simple observations, tests, and quick economical repairs that will solve many winding problems in less time than is required to describe them. When identified and correctly estimated, winding repairs can be a substantial part of profitable watch repair.

Winding and setting problems are usually the result of rust, wear, or abuse or a combination of these, and must be properly identified before a repair can be completed. This does not rule out the rather rare possibility of a relatively new watch with winding problems caused by a manufacturing defect.

Because of the position of winding parts, next to the largest opening in the case, rust is a major cause of trouble. Stems, set levers, and set lever screws rust and refuse to completely shift the setting mechanism causing clutch and pinion wear. Rusty set springs will break at any time and should be replaced. The same applies to set bridges when there is rust on the detent finger. Rust stains on wind wheels, not accompanied by pitting, can usually be removed with a scratch brush and the parts remain serviceable. Often a little oil on clutch teeth prior to cleaning will soften and remove the rust film with a couple back turns of the stem and restore ratcheting action. Where pitting is present the parts require careful examination and good judgement to determine what will be satisfactory. Some clutches and pinions can look terrible—discolored and pitted on non-working surfaces. But, careful examination of the working surfaces, i.e., teeth, bearing surfaces, and square in the clutch may reveal that either or both are serviceable and, except for aesthetic reasons, don't need

replacing. A nylon brush will work wonders but a stem that has a rough hub that does not polish smooth must be replaced, as the damage to the stem bearing can be severe and in some small watches could be terminal. Weak or broken set bridges must be replaced. Possibly more windings malfunction for this simple reason than any other, with a lot of unnecessary wear.

Occasionally the set lever screw hole becomes enlarged and the set lever then does not completely shift the clutch to setting. This "play" is often compensated for by peening the cam end of the set (detent) lever with a round nose punch. A better grade of repair is to fit an oversize set lever screw first, then, if necessary, stretch the set lever. If the clutch lever is worn where it enters the slot in the clutch, the clutch can slip in either or both winding and setting positions. Here again peening a flat lever with a punch may restore function, but if it has a worn peg it must be replaced.

Some older watches will have worn stem pilot bearings (Figure 1-A) which will allow slipping in setting due to poor depthing of clutch gear teeth and the setting wheel. Occasionally the clutch will slip under the clutch lever (Figure 1-B) and not shift properly. This can be repaired by fitting

Figure 1. A - Pilot bearing worn.
B - Clutch slips under clutch lever.

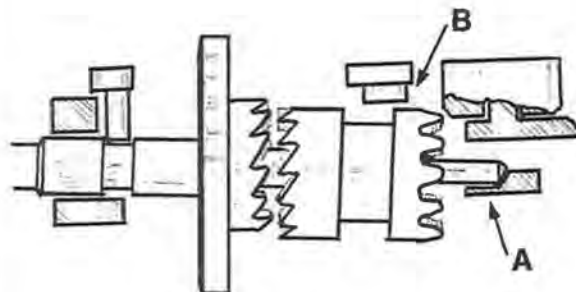
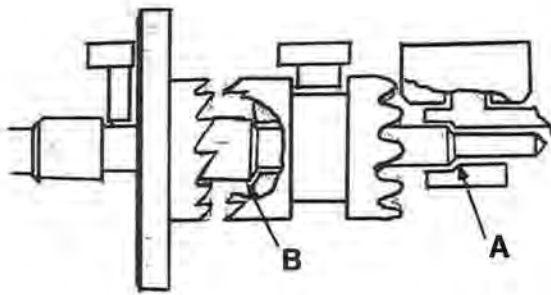
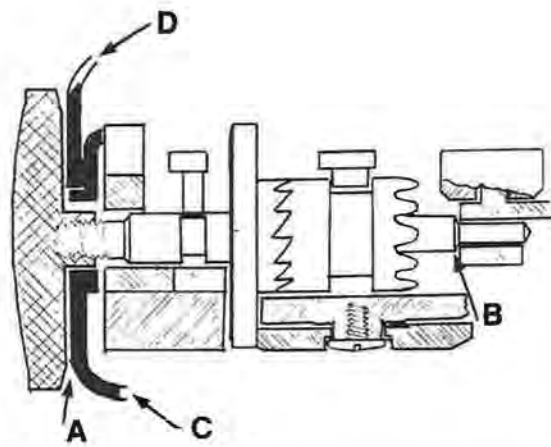


Figure 2. A - Pilot bearing undercut.
B - Stem carries clutch away from pinion.



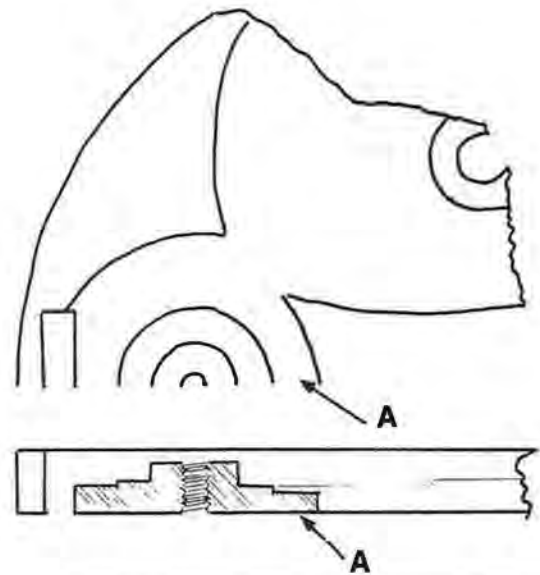
a stem with an oversize or long pilot or by bushing. This malfunction also occurs when a pilot bearing is counter sunk by cutting by the stem square (Figure 2) allowing excessive play of the stem pilot when in setting. A longer pilot will cure the problem but it must not interfere with the barrel or center wheel when in the winding position. The undercut pilot bushing also causes a winding problem when the hub and pinion shoulder are the same size. The stem can slide through the pinion carrying the clutch away from the pinion (Figure 2-B) causing slipping of the clutch. Also, in watches with contrate crown wheel gearing, the pinion will occasionally be moved inside the gearing the slip. Correct fitting of the crown, as close as possible to the case, will not only prevent this type of slipping and prevent pilot bearing damage when cased, but also is a serviceable, quick fix instead of the longer stem square. It will prevent severe damage, such as a pilot bearing being split or torn free of the pillar plate by a sharp blow on the crown. In Figure 3 the crown clearance at A should about equal the end shake at B.

Figure 3. A - Crown clearance.
B - Stem endshake.
C - Case back.
D - Bezel.



A particular troublesome winding is one that occasionally slips when being wound. To test, simply keep pressure on the crown from the dial side of the movement while winding. Correct action under pressure indicates that installing an oversized stem after rounding up the bearing might be all the repair needed. However, wear on the under-side of the crown wheel teeth (from slipping) is often accompanied by wear on the wind pinion teeth. When the cause is removed, the wear still causes poor depthing, hard winding, and often accelerates wear. Where slipping has been severe, replacement of the crown wheel and wind pinion may be required to guarantee a satisfactory repair. Another cause of slipping is a worn crown wheel bearing surface or a high crown wheel ring which allows excessive vertical shake in the crown wheel. Stoning the ring or bending the crown wheel bushing to lower the wheel into the pinion teeth will make a satisfactory repair. The latter can be accomplished by grasping the top and bottom of the bushing with a smooth pliers, where the bushing is accessible, and gently raising the side of the bushing nearest the center of the watch. When not accessible, this adjustment can be accomplished by using pegwood as a punch and slightly tipping the bushing by tapping the underside of the bushing nearest the center of the movement (Figure 4). This does alter the bridge, but remember, it is to compensate for irreplaceable wear or occasionally a manufacturing defect. Note: This adjustment must be accomplished on the bridge out of the watch but references are to the direction of the adjustment.

Figure 4. A - Wear, lift or punch.



Often the cause of clutch slipping is not always easy to see or feel, but it can be found. If the crown wheel and pinion teeth do not show signs of slipping, the problem is in the clutch or pinion ratchet teeth or a worn stem square or clutch square. The stem square is easy to check visually and by comparison with a new stem, but if there is excessive turning of a new stem in the clutch when blocked, the clutch square may be worn enough to require replacing. *(Continued on page 48)*



AWI Certified Directory

When the delegates of the Affiliate Chapters met this June for their Affiliate Chapter meeting, they requested that AWI publish a directory of those people who hold an AWI title of: Certified Watchmaker (CW), Certified Master Watchmaker (CMW), Certified Clockmaker (CC), Certified Master Clockmaker (CMC), or Certified Electronic Watch Specialist (CEWS).

The purpose of such a directory is to provide a convenient booklet available to use to refer customers who move to another city or section of the country, to an AWI Certified craftsman. Such a directory will be useful for our use at AWI Central as well. Often we receive requests from the public to supply the names of certified craftsmen in their particular area.

Recently, Henry Fried was interviewed for the national newspaper, *USA Today*. During the interview Mr. Fried suggested that the public contact AWI for a list of AWI Certified craftsmen in their area. Needless to say, we were deluged with requests. The article appeared six months ago and we are still receiving requests resulting from it.

The Board of Directors approved the publication of such a roster, but because a number of "certified" people attending the meeting expressed the desire not to be listed in the directory, the Board instructed that we publish only the names of those individuals who request inclusion in the directory.

A number of people indicated that their shop is in their home and they do not want customers suddenly appearing at their door. Others cited a possible breach of security if the public became aware of a shop they operate in their home.

Others felt they were just too busy to try to cope with an influx of new customers.

Therefore, if you hold one of the AWI titles mentioned above, and if you wish to have your name and location published in the directory, please send us the following information. Be sure to print or type!

- * Name of business.
- * Name of title holder.
- * Title held.
- * Street address (no P.O. boxes will be accepted).
- * Street, City, State and Zip Code.
- * Area code and phone number.

Include this statement with the above information.

I hereby request that my firm be listed in the AWI Directory of Certified Personnel.

date

signature

These requests should be mailed to: AWI Certified Directory, 3700 Harrison Ave., Cincinnati, Ohio 45211.

No firm or individual's name will be listed in the directory unless a specific request is made.

TIMES

AWI Bench Courses 1983

PROGRAMS		INSTRUCTORS
A	Basic Electricity & Use of Meters	Jaeger
B	AWI Certified Citizen Quartz Watch Technician	Carpenter
C (a)	Citizen LCD Multi-Alarm	Broughton
C (b)	FHF 965	Broughton
C (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
H	Clock Restoration	Benesh
I	Introduction to Striking Clocks	Baier
J	Common Sense Quartz Watch Repair	Bishop
K	Introduction to Clock Repair	Benesh & Whitney
L	Bulova Quartz 262 and 2500	Sustachek
M	Striking Clocks—Advanced Seminar	Baier

NOVEMBER

5-6	J	Richmond, VA	BISHOP
18	B	Spokane, WA	CARPENTER
20	C (b & c)	Nashville, TN	BROUGHTON
20	B	Seattle, WA	CARPENTER
20	F	Lancaster, PA	OPP

FEBRUARY, 1984

19	B	Chicago, IL	CARPENTER
24	G	Bloomington, MN	BIEDERMAN

MARCH 1984

24-25	J	Rochester, NY	BISHOP
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APRIL 1984

14-15	J	Chicago, IL	BISHOP
28	D	Clare, MI	SMITH
29	B	Clare, MI	CARPENTER

MAY 1984

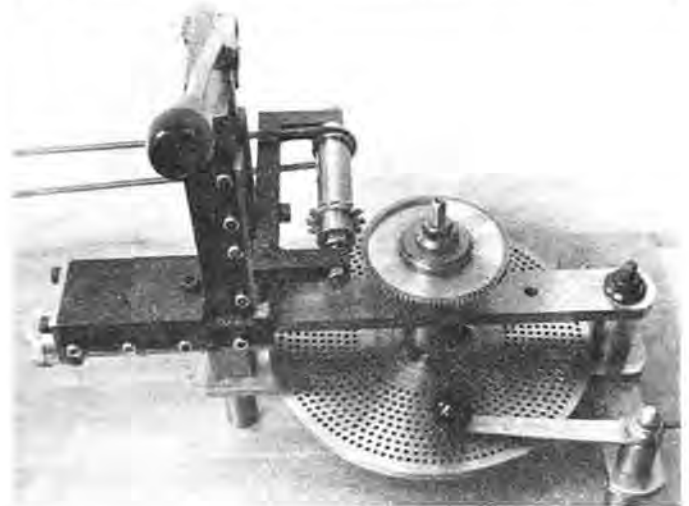
19-20	J	St. Paul, MN	BISHOP
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I AM INTERESTED IN YOUR BENCH COURSE TO BE PRESENTED ON _____ AT _____, PLEASE SEND ME MORE INFORMATION.
 NAME: _____
 ADDRESS: _____
 CITY, STATE, ZIP: _____

KEN LAW
(Continued from page 19)



2 Turn up a blank, thicker if possible.



3 Ten minutes on the wheel cutting engine provides the new dentures.



4 Move the hub and ring to the new wheel, and it's ready to roll!

TIMES



Composite Chapter Picture

Judging by your delegates' responses on the Affiliate Chapter Annual Report, I will present a composite picture including all our reporting chapters.

Nearly all of the delegates that were representing their chapters had submitted their reports to us a month before the annual meeting so that there was ample time to have printed copies made for easier reading.

Some of the chapters not able to send a delegate sent in their reports. In the future, if you are not able to send a delegate please mail in your reports. The newer chapters where time and/or money is a problem should begin to discuss next year's meeting. Twenty-eight reports were received prior to the meeting, with many contrasting differences, due mainly perhaps to the number of members and their specific needs in the various chapters.

One prerequisite to become an affiliate chapter is that there be at least 15 members. Keep in mind that I am only calculating from figures given to me. The reported chapter memberships ranged in size from 18 to about 400 or more in cases where a chapter represented many guilds. States such as Florida, Indiana, Missouri, North Carolina, Pennsylvania, Virginia and Wisconsin have from three to nine guilds belonging to their state chapters. Some states have a state chapter and an independent chapter in a large city or metropolitan area such as New York state, New York city, Ohio and Cincinnati. California has four independent affiliate chapters; conversely, Nebraska and South Dakota combine to form a chapter. Some states divide their areas geographically; for example, Central Arizona and Southern Arizona, while Illinois is divided into north and central chapters. One unique situation is the combination of the Missouri watchmakers with the Missouri jewelers to form their affiliate chapter. We also have the provincial chapter of Ontario which encompasses a large area in Canada.

You can see that there are many chapters quite different in structure from each other, usually because of their own individual needs and circumstances. These affiliate chapters represent approximately 4,500 members. Now this does not mean that they are all AWI members, even though they should be, considering what AWI has to offer in addition to belonging to an affiliate chapter. It is like getting compound interest for your money. Also we have some 7,000 AWI members, many of whom do not belong to individual chapters. You can see that we have a large overlapping of membership, some having membership in both the AWI and a state or local chapter and many belonging to either one or the other. Let's try to close the gap. The number of states that have more AWI members than chapter members is more than 3 to 1 and in

many instances the majority is tremendous.

Local chapter dues vary from a low of \$10 to a high of \$72, with 1/3 reporting dues of \$15. Four chapters have lower dues while the rest range between \$15 to \$40, equally numbered in increments of \$5.

Their financial needs dictate their amount of yearly dues. The rent of a meeting room and publishing a newsletter represents the largest portion of the chapter budgets. Refreshments can also be expensive; some groups overcome this by having a "tincup" by the coffee urn for those that partake to donate, offsetting the expense.

New York City Horological has been charging a fee for non-members for years to attend their meetings and rightly so, and New Jersey has also started this practice. Half of the chapters reported their student members' dues at a lower rate, while 2/3 reported that they had associate member status, whose dues were the same or greater than the regular members. Almost all of the chapters publish a bulletin from two to 12 times a year. Most reported (2/3) getting out six to nine bulletins a year, reflecting of course the number of meetings held.

One general area in which 100% representation occurred was in the AWI-related (3) categories listed as AWI: bench courses, films, and speakers. This means that at least one of these categories was utilized by each chapter. There was a total of seven categories, with incidentally 3/4 of the chapters reporting to have held at least one bench course (AWI) during the past year. This sounds great but what happened to the other 1/4 of the chapters?

Communications are a must to announce, events like bench courses and future plans. Almost everyone reported some sort of a bulletin sent to members throughout the year, usually written by themselves, a few had their bulletins prepared professionally. Approximately 25% of the chapters are using "Paid Ads," an area worth looking into for added revenue.

I certainly hope that I have shed some light on our AWI Affiliate Chapter makeup by using some trivia and percentages that will stir more interest in your own chapter to improve your own makeup based upon what others are doing in their respective chapters. Try to implement what others have found to be very beneficial to their chapter's success.

Last but not least do not forget those chapter meeting reports, so that we can all share in your meeting. Keep them brief but to the point and constructive. Even criticism is good when it is constructive.

Have a good month and a Happy Thanksgiving.



NEWS ...from all around the ASSOCIATION...

NEW YORK

The Horological Society of New York held a recent meeting at the Hotel Summit where a color-slide talk was given by Theodore Woolf on "Modern and Antique Jewelry Repair." The talk dealt with the methods used in recognizing, evaluating, appraising and restoring antique jewelry. However, since the range of topics were so broad, the lecturer confined himself to "helpful hints" within each category. Interestingly, the format of the talk was a dialogue between the jeweler and the piece of jewelry.

Included in Mr. Woolf's talk were tips on restoration. He indicated that since many stones—even some diamonds—are damaged by heat, he uses electrical soldering. Mr. Woolf concluded his talk with an extraordinary set of color slides of jewelry museum pieces that he had restored. These priceless art objects came from world famous collections in the world's most prestigious museums.



Mr. Woolf addressing the Horological Society of New York

MASSACHUSETTS

The Massachusetts Watchmakers Association, Inc. recently had Bob Bishop for his Common Sense Quartz Watch Repair Bench Course twice this past year. The resounding enthusiasm of those that attended the first session created such a demand for a repeat visit from Bob that a second session was scheduled almost immediately.

Having just started their 1983-1984 season, the MWA invites everyone living in or visiting the New England area to attend their meetings. The meetings start at 8 p.m. The location is the Fenway Howard Johnson's Motor Hotel, 777 Memorial Dr., Cambridge, MA. The next meetings are: November 15, 1983; January 17, March 20, May 15, and June 19, 1984.

OHIO

President Wil Ludwig reports that the recent convention of the Watchmakers Association of Ohio was a big success. He urges members to send any news of interest to the group to WAO historian, Howard Opp.

Dates to remember include Board Meetings on Sunday, January 29, and Sunday, April 20, 1984 at the Marriott Inn East in Columbus, Ohio. The 1984 WAO Convention will be held Friday, Saturday and Sunday July 27-29 at the same location.

CALIFORNIA

The Sixth Annual Convention of the Bay Area Watchmakers Guild was held at the Station House Inn, located amid the beautiful surroundings of South Lake Tahoe, in late August. During the two-day event, activities included a cocktail gathering, dinner, and even a sightseeing boat tour of the famous Lake Tahoe. Convention Chairman Harold Fryday spoke at the banquet room on "The Future of the Watch Repair Business." All members joined in a lively roundtable discussion of the topic, during which a number of vital and valuable ideas were expressed, especially concerning the importance of quartz movement "retrofit" conversion of worn-out mechanical watches. Also discussed were the prices of parts replacement in relation to a cost/profit squeeze many of us are experiencing.

Mr. Frank Hilson of Batronics batteries, the next speaker, spoke of the necessity of quality control when replacing energy cells. As we all know, a major portion of the watchmaking trade requires close attention. Mr. Hilson also presented the group with a number of free decals for identifying and dating new cells inside the watch or calculator case and some jewelry display pads as well.

The President and Nominating Committee Chairman, Dave Fryday, reported on the proposed slate of preliminary candidates for officers and directors of the guild for the 1984 election, which is upcoming.

THES

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Times Are Swiftly Changing

Last month we heard one instructor's views of the problems we instructors are facing as a result of the changing times. This month we will hear from Leon Martin.

"The cost of equipping a modern watch repair school is enormous," Mr. Martin says. "It has been said that equipping a student work station for electronic module repair will run in the neighborhood of \$4000 to \$5000. This will include diagnostic, testing, and timing equipment, specialized tools and practice modules with some spare parts.

How fortunate all schools would be if we could have 10 to 20 such places with adequate course outlines and qualified instructors. The product of such a school could easily be placed in the outside work world with a salary that would make that individual proud of having chosen watchmaking as a profession.

"With the electronic watches upon us in this country in such large quantities, sales are now said to be running 70% electronic to 30% mechanical, it is a must that schools must change their curriculum to meet the consumer demand for watch repairs. While mechanical watches will be around into the next century in sufficient numbers to warrant graduates with abilities to service mechanical watches, the big emphasis will be on stepping motor quartz module repairs. AWI's REC has long recognized this changing need for schools and has been preparing the REC school instructors so that a smooth transition could take place in the schools. Now it is up to the department heads at the schools to make the necessary changes and somehow come up with the monies necessary, and so keep their school abreast of the fast changing world of the watch repair industry.

"Some schools have already set up one, or two or even more electronic module repair stations. These schools are to be commended, and others should follow their example.

"Students must have a good knowledge of the working tools of the trade in electronic watch repair and then be able to make the repairs of battery checking and coil and circuitry testing, and possess the necessary 'watchmaker skills' to successfully take care of train blockage and date mechanism repairs. Mechanical watchmaking skills are necessary for the successful repair of any timepiece.

"The enormous cost of equipping a modern watch repair lab is perhaps the big reason why we as schools are not up to par regarding electronic watch repair. These instructors who have been attending the REC meetings are certainly adequately equipped to teach this modern art. The school administrators now need to furnish the equipment for the school labs and the necessary training modules and spare parts. Everyone will benefit. Jewelry stores now demand qualified electronics module repair technicians. We need schools equipped to train these applicants."

Many thanks for your thoughts, Leon. Each of us instructors who has a problem with adequate funding certainly finds himself in empathy with you.

THE DIGITAL WATCH REPAIR MANUAL

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A complete manual on the repair of LED and LCD watches

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This 76-page, handsomely printed and easy-to-read version contains all of the practical information of the original plus added features, including a glossary of electronic terms and milli ampere hour battery chart. This fully illustrated "How to do" manual covers the most frequently encountered repairs required of both the LED and LCD watches. The information in this book is fundamental and pertinent to all quartz watches.

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This comprehensive course is designed to equip today's watchmaker with the basic skills and understanding required to successfully service modern electronic watches. The course consists of the following seventeen lessons:

Lesson 1	Theory of Magnetism
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Lesson 3	Dry Cells: Voltage and Amperage
Lesson 4	Using a Meter to Measure Voltage
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Lesson 6	Using Meters to Measure Current and Resistance
Lesson 7	How Magnetism Can Generate Electricity
Lesson 8	Generating Electric Pulses at Your Bench
Lesson 9	Introduction to Diodes and Transistors
Lesson 10	Experimenting with Diodes, Transistors, and Capacitors
Lesson 11	The ESA Electronic Watch, Calibre 9158
Lesson 12	Electronic Principles of the Accutron
Lesson 13	Quartz Crystals and Electronic Reduction
Lesson 14	Bench Practice on the ESA 9180
Lesson 15	LED and LCD Solid State Watches
Lesson 16	Bench Practice on the LCD Solid State Alarm Watch
Lesson 17	Summary

In addition to the written lessons, students will be involved in servicing two electronic watches, as well as working with concept teaching kits. AWI will provide the watches and kits. This course will prepare individuals for the AWI Certification Examination of CERTIFIED ELECTRONIC WATCH SPECIALIST.

Course Price: \$250.00

Time payments can be arranged with \$50.00 down payment and ten successive payments of \$20.00 per month.

To receive your course information booklet, send a mailing label to:

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JA Predicts Brisk Fall & Christmas Sales

"Every indicator is pointing to the best Christmas season for retailers in many years," comments Jewelers of America, Inc. president, Mike Roman. "The confidence in our economy and the optimism for the coming months that started at JA's July Shows continue to pervade the country, and jewelers from every corner are looking forward to a highly successful Christmas season.

"But, if they are right, and if their projections are accurate in which they all look to have their sales figures exceed last year's, it means that at the end of the season, their inventories will be low. With the Spring gift-giving occasions around the corner, the February Show will be their most important vehicle for Spring preparation."

The Spring season is an ideal time to test-market new items for next Christmas. Historically, Roman says, it's at the February show that aggressive jewelers find new ideas and styles, and "test market" them in the Spring months. By the time they are ready to buy for the following Christmas, they know which items were "hot" and which were not.

JA's February Show, which will take place February 5-8, at the New York Hilton and

Sheraton Centre Hotels, will also feature an important conference program and a separate seminar.

WONDOLOWSKI APPOINTED

Colonial Clock Company, a division of Thomas Industries, is pleased to announce the appointment of Stanley C. Wondolowski as National Sales Manager.

Wondolowski has been with Colonial as Sales Representative covering Texas, Louisiana, and Arkansas since 1978. His new responsibilities will include developing national accounts, planning of the Colonial and Molyneux clock lines, and assisting the sales representatives of the company. Colonial manufactures medium to high end grandfather, wall, and mantel clocks.

HEUER TIME NAMES SCHULTHESS EXECUTIVE VICE PRESIDENT

Rodolphe Schulthess has been appointed the new Executive Vice President and General Manager of Heuer Time & Electronics Corporation, in Springfield, NJ. He will be replacing John Hubacher, who has been named President

and Chief Executive Officer of Rado Watch, U.S.

In assuming his new position, Mr. Schulthess leaves the Watchmakers of Switzerland Information Center in New York, where he has been Vice President for the past two years.

Prior to coming to New York, he was at the industry trade association, the FH, in Bienne, Switzerland, where he served as the specialist on activities in foreign markets.

Mr. Schulthess is a graduate of the University of Lausanne, where he was a teaching assistant in statistics before joining the FH.



Rodolphe Schulthess

SWIGART'S TO GIVE FREE SEMINAR IN BONUS PROGRAM

The E. & J. Swigart Company, Cincinnati, an Ohio-based supplier to jewelers, watchmakers and clockmakers, is offering a tuition-free Queen City jewelry making seminar to its customers as part of their Bonus Program for the fourth quarter, according to Ann E. Fisher, Advertising Manager for the company.

In order to qualify for the Bonus Program, a customer must make purchases totalling \$900.00 or more from Swigart's during the purchase period of October 1 to December 31, 1983.

Those who qualify have the option of attending one of the following seminars: Seminar No. 1 - Basic Jewelry Making Techniques; Seminar No. 2 - Casting by the Lost Wax Process; Seminar No. 3 - Specialized Jewelry Work, Advanced Techniques. Each is a 35-hour seminar over the course of a week.

For more information, write to Ms. Fisher at The E. & J. Swigart Company, 34 W. 6th Street, Cincinnati, Ohio 45202; or call toll-free, 1-800-543-0309 (in Ohio, 1-800-582-1706).

J. J. HUBACHER APPOINTED PRESIDENT OF RADO WATCH COMPANY, U.S.

In a major move designed to strengthen their operations in the U.S., Rado Watch Company, Ltd. of Lengnau, Switzerland announced the appointment of John J. Hubacher as President and Chief Executive Officer of Rado Watch, U.S.

Mr. Hubacher moves to the Presidency of Rado Watch from Heuer Time, U.S. where he has been Executive Vice President and General Manager since 1979.



John J. Hubacher

**JOSEPH PRESTI
PROMOTED TO
VICE PRESIDENT**

Portescap U. S. Inc. announced the appointment of Joseph Presti as the vice president of the Vibrograf Machine Division of Portescap U.S.

Mr. Presti has served as general manager of Portescap U.S. for the past three years. Prior to that, Presti was operations manager for three years.

Mr. Presti has complete responsibility for the Vibrograf Machine Division's operations in the United States.



Joseph Presti

**WESLEY & COMPANY
ANNOUNCES MOVE**

Wesley and Company of Canton, Illinois, recently moved its operations into an all-new facility described by Tom Drake, Vice President and General Manager, as "the most advanced and modern watch battery distribution center in the world." Wesley's new computer system will allow them to better maintain proper inventory levels by providing accurate predictions of market trends, as well as assisting Wesley staffers in day-to-day procedures.

Wesley's mailing address, Box 523, Canton, Illinois 61520 will remain the same, as will their 24-hour, seven-days-a-week hotline: 800-447-6438 (in Illinois: 800-322-2649).

**GANZ NAMED SEIKO'S
"1982 NATION WATCH
SALESMAN OF THE YEAR"**

Donald Ganz, sales representative for Northeast Time Corporation, Seiko's distributor in the metropolitan New York area, was presented with Seiko's "1982 National Watch Salesman of the Year" award, at ceremonies during Seiko's national sales meeting at the Marco Beach Resort in Marco Beach, Florida. Congratulating Ganz on his sales performance is Robert Pliskin, Seiko's president.



Don Ganz (right) and Robert Pliskin

**LEO CHERNE'S ECONOMIC
FORECASTS FOR 1984**

As a result of the enthusiastic response of the past two years' presentations, Leo Cherne, noted political scientist, economist, and foreign affairs specialist, will return to the podium at Jewelers of America's 1984 February Conference Program at 9:00 a.m., Sunday, February 5, at the Ziegfeld Theater, 54th Street, directly across from the New York Hilton Hotel.

"Mr. Cherne will recap his forecasts of last year and measure his accuracy according to the current status of each subject," comments JA Chairman Mike Roman. "He will zero in on the jewelry industry by analyzing the status of events surrounding our basic products such as diamonds and gold, and will apply his forecasting techniques to help manufacturers and retailers make their own business decisions.

"For 1984," Roman continues, "business executives and

decision-makers planning budgets will need to have up-to-date professional information in order to achieve maximum profits. Leo Cherne's predictions have proven to be unusually accurate. Jewelers cannot afford to miss this valuable opportunity to hear an expert's views on the economic and political issues that have a direct impact on our business."

**JEROME J. ZAPLETAL
ELECTED VICE PRESIDENT
OF SWEST, INC.**

Jerome J. Zapletal has been elected Vice President of Swest, Inc., a leading supplier to the jewelry industry, according to a recent announcement by F. W. Ward, Swest Chairman of the Board.

Mr. Zapletal joined Swest in 1978 as Comptroller with responsibility for accounting, purchasing, data processing and physical planning.

MID-AMERICA JEWELRY SHOW HELD IN CINCINNATI

The Mid-America Jewelry Show was held September 4 & 5 in Cincinnati, Ohio. More than 2,000 retail jewelers attended to buy merchandise from 135 exhibitors.

The annual show is sponsored by the Indiana, Kentucky, Ohio and West Virginia Jewelers Association.



Vice President and General Manager, Rich Isphording, proudly points the Yesteryear Exhibit of the E. & J. Swigart Co. at the Mid-America Jewelry Show.



Leonard Hess and A. G. Bartholomew (right) of the A. G. Bartholomew Co., Mentor, Ohio, flank Myrtle and Roland Mendenhall, Mendenhall's Jewelry & Gifts, Mitchell, Indiana, at the Mid-America Jewelry Show.

Jadow Announces New Diamond Loupe

B. Jadow & Sons has announced an unusual breakthrough in the methods and the quantity of production of a new wide-angle diamond loupe. This loupe has the unusual quality of extra-diameter lens measuring 20.9 mm, 10X Triplet qualities, and has a completely black lens housing and edges to eliminate glare. The lens is color-corrected both aplanatic and achromatic. The lens moves in and out with ease between a heavy-duty protective shell.

This is a new manufacturing technology and it is pos-

sible for this extra-large capacity Triplet to be available at the price of \$49.95. In the past this similar type loupe was selling for over \$65. The loupe is complete with a heavy-duty leather case.

It bears the VIGOR stock number EL-960 and can be obtained through any wholesale jewelry/lapidary supply house at the retail price of \$49.95.

The loupe is distributed by B. Jadow & Sons, 53 West 23rd St., New York, NY 10010, through Wholesale Jewelers/Lapidary Supply House.



Jadow's New Diamond Loupe

GOULD COMPANY OFFERS NEW CATALOG

A new catalog (No. 835-H) is now available from the Gould Company. It contains 264 pages and a separate price list. Tools, equipment supplies for jewelry, watch and clock repairmen, elec-

tronics and general precision industries are featured.

The catalog is available at no charge by calling or writing: Gould Co., 13750 Neutron Road, Dallas, TX 75240; Tel. nationwide 800/527-4722; in Texas: 800/492-4104.

AMERICAN PERFIT'S NEW REPLACEMENT GLASS CRYSTALS

BB-Perfit has announced the issuance of 48 new replacement glass crystals, the October 1983 New Number Issue. Thirty-four of these other than round models are flat top and bottom crystals for use with new quartz watches.

These flat fancy-shaped mineral crystals are included in the FT-6 Assortment at one each of 72 other than round flat top mineral crystals now available from watch material wholesalers. The FT-6 Assortment comes with a Vernier gauge, emery applicator, crystal cement, BB-Perfit Catalogue and crystal fitting instructions. Contact: American Perfit Crystal Corp., BB Crystal Co. Division, 653 11th Ave., New York, NY 10036.

MINIATURE CROSS RECESS DRIVER SET INTRODUCED

A new eight-piece Cross Recess Driver Set has been added to the Acu-Min® line manufactured by Moody Tools, Inc. Designated stock number 58-0201, the set contains four cross recess screwdrivers, sizes: #000, #00, #0, and #1.

The #000 (0.055"/1.4 mm diameter) and the #00 (0.080"/2.0 mm diameter) sizes are believed by the manufacturer to be the world's smallest mass-produced, cross-recessed drivers.

Each blade is hardened, tempered, and plated tool steel. The four cross recess blades are fully assembled with four solid-locking, chuck-type, knurled and plated steel handles with Swivltops™. The set is packaged in a compact vinyl storage pouch with integral peg board header.

These miniature size drivers are designed for photograph-

ic, industrial, and electronic applications.

For additional information contact Lynn E. Murphy, Moody Tools, Inc., 42-60 Crompton Avenue, P.O. Box 230, East Greenwich, RI 02818; Tel. (401) 885-0911.



Cross Recess Driver Set
by Moody Tools, Inc.

ABC EUROP PRODUCTION— 1983 EDITION

The 1983 edition of the comprehensive guide to the EUROPEAN EXPORTING INDUSTRIES lists over 500,000 manufacturers of 50,000 different products, from 32 European countries regardless of political or economic blocks. Each entry is checked annually before publication. This unique source of reference is a working tool for buyers and sellers wishing to expand their company's trade in Europe.

ABC Europ Production is where the international decision makers find out what is available in the European markets, the publishers claim. For the first time the 1983 edition also has information from the United States. Contact: Western Hemisphere Pub., Inc., P.O. Box 710, Newcastle, CA 95658.

**BULOVA
WATCHMATES**

Sophistication and elegance are the hallmarks of this pair of goldtone quartz watchmates from Bulova. These unique timepieces feature distinctive gilt dials, sculpted link bracelets, and scratch-resistant Dura-Crystals®. The His model (#92M27) retails at \$275; Hers (#92K00) retails at \$250. Contact the Bulova Watch Co., 75-20 Astoria Blvd., Jackson Heights, New York, 11370.



Watchmates from Bulova

**WESLEY RELEASES
UPDATED '84
LOCATOR SYSTEM**

Wesley and Company has announced that its 1984 edition Battery Locator System is now available. The '84 system continues to utilize the Wesley-developed Fingertip Battery Locator, 60-drawer battery cabinet and AWI-approved numbering system, but now has been updated to include all new battery types developed since the system was introduced. Current Wesley Battery Locator System users can obtain a free set of updated locator cards and new customers can get more information or place orders by calling Wesley's toll-free hotline: 800/448-6438 (800/322-2629 in Illinois).

**BARONCELLI
BY MIDO
OF SWITZERLAND**

Baroncelli is MIDO's line of distinction and imagination. Each model is designed as a unit, as a blend of technical and design features. Model 3519 contains the slimmest quartz movement with sweep second and date indicator. The case has a sapphire crystal and comes in either all yellow goldplated or in all steel with yellow accents, and is water resistant. Contact MIDO Distribution Center, 818 Grand Ave., Kansas City, MO 64106; (816) 421-2562.



Baroncelli by Mido features the case with a sapphire crystal.

**PORTESCAP'S
NEW JEWELRY
EQUIPMENT CATALOG**

Portescap U.S., worldwide distributor of Vibrograf and Incabloc Horological products, announces their new Special Order Jewelry Catalog. This new catalog is available by contacting Portescap U.S., 6 Ohio Drive, Lake Success, NY 11042, or your local Vibrograf sales representative.

**SEIKO'S HIS & HER
"SPORTS 100" WATCHES IN MATTE BLACK**



Sport and chic, these two new watch additions add the beauty of matte black to the Seiko "Sports 100" collection. Designed for him and her, each timepiece is a masterpiece with subtle touches of gold-tone. Other features include instant day/date calendar and water resistance to 100 meters (300 feet). Contact: Seiko Time Corp., 640 Fifth Ave., New York, NY 10019.



Portescap's New Jewelry Equipment Catalog

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.

Tradesman

EXPERT WATCHMAKER—46 years experience. Makes parts for watches and clocks. Repeaters, antiques, all others. Also, trade-work, all makes, all models. Phone (602) 986-6150, or write D. E. Simpson, 7726 E. Garnet Ave., Mesa, AR 85208.

BAKSHI WATCH SERVICES—Tradework on all quartz mechanical & Accutron watches. All watches guaranteed for one year. Swiss trained. Certified master watchmaker. Experienced with Rolex and Omega watches. 1688-B Callens Rd., Ventura, CA 93003; (805) 642-8215.

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

WATCH WHEEL CUTTING, REPIVOTING & STAFFING COMPANY. WE CAN REPAIR ANY WATCH. WE CAN MAKE ANY PART. IT IS JUST A MATTER OF ECONOMICS. SASE FOR PRICE LIST. 136 N. 7TH AVE., P.O. BOX 1314, HIGHLAND PARK, NJ 08904. (201) 985-0685.

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.

Need Quality Watch Repair? Will do mechanical and quartz analog. Fast Service. Work guaranteed. More information. Charles Bunkelmann, 1410 Sunset Ridge Dr., West Bend, WI 53095. (414) 338-3770.

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

PROFESSIONAL WATCH MAKER offers service on all quartz, Accutron tuning fork, and mechanical watches. Two weeks turn-around, with modern electronic equipment. References and prices on request. Mel Hefner Trade Shop, P.O. Box 419, Dadeville, AL 36853. Phone 1-205-825-4559.

WATCH REPAIR—Quartz, Accutrons and mechanical watches. Send SASE for price list. Work guaranteed. Craig Carmody, 2701 Arthur, Des Moines, Iowa 50317. (515) 265-3390.

Quality Crystal Fitting - All types - Glass, Plastic, Mineral, GS, Perfit and Genuine refills. Spring bars and Crowns at good prices. Send for catalog and mailing label. Send work to: Crystal Fitters Inc., 21 North Street, Middletown, NY 10940. Phone 914-343-4434.

Trade Watch Repair. 34 years experience. Fast service. Modern equipment. Mechanical and electronic. Write or call for price list. "BUD'S" WATCH REPAIR SERVICE, 3748 N. New England Ave., Chicago, IL 60634. (312) MU5-9590.

THE QUARTZ SPECIALISTS. All services on Analog, LCD, LED, Accutron. Lowest prices on batteries. Free information packet. McBee Laboratories, 302-D So. 16th, Bozeman, MT 59715.

DIAL REFINISHING, CRYSTAL FITTING & WATCH REPAIR. Fast services on dial re-finishing & 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.

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

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, OH 44201. (216) 947-2268.

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, IL 60101.

CLOCK SERVICES wheels, gears, barrels, retoothing, repivoting, mainspring winding, bushing, jeweling. Send sample for estimate. SASE. Roy H. Niegel, CMC, CMW, 21837 Woodbury, Cupertino, CA 95014. (408) 253-4927.

For Sale

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

For Sale - Timing Machines, Watchmaster Timers, Vibrograph Timers. Factory rebuilt. All machines guaranteed. Terms available. Also available Ultrasonic Watch Cleaning Machines. Write Vibrograf sales representative Robert Swensgard, 2630-A Jett Hill Road, New Richmond, Ohio 45157. Or phone (513) 553-2113 Territory Kentucky, Michigan, Ohio, Tennessee, and western Pennsylvania.

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.

ESSEMBL-O-GRAF LIBRARY in 28 volumes, Pittsburgh, 1955. Chronograph repairing is made easy by step-by-step procedure. Each small step of removing and replacing each part and making adjustments is clearly illustrated. No concentrated study is necessary. \$200. Write EOG, P.O. Box 11011, Cincinnati, Ohio 45211.

20 used Timex movements for \$10.00. 20 used Swiss Jeweled movements for \$15.00. All complete, sold as is. Add \$3.00 for postage. G & G's **MIRACLE HOUSE**, 5621 W. Hemlock Street, Milwaukee, WI 53223.

MOST UP TO DATE PRICE GUIDE Computer listings of over 1,000 Pocket Watches that are for sale or have sold within the past 3 months. Our Computer listings of Mfg., Size, Jewels, Serial No., Model No., Case and **MOST IMPORTANT PRICE AND CONDITION.** Master list includes Ball, Elgin, Hamilton, Howard, Rockford, Waltham and Misc. Complete list—\$9.00; any of above \$2.00 each. Send Case or Check: **COMPUTER SEARCH AND FIND**, P.O. Box 367, Butler, WI 53007.

Metal cutting lathes, bench mills, drill presses, 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.

MINI QUARTZ MOVEMENTS. Guaranteed lowest prices. 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.

BE ALL THE CLOCKMAKER YOU CAN BE WITH CHRONOS TOOLS. Wheel cutting engines start at \$409.00, \$2 for catalog. **KEN LAW, CMC**, Camp Wood Star Route, Prescott, AZ 86301.

COLLECTORS!! COMPUTER PROGRAM FOR EASY CATALOGING OF YOUR COLLECTION. Runs on Readily Available Commodore VIC-20 or 64. **WATCH AND CLOCK VERSIONS. TAPE OR DISK: \$24.95.** Order Immediately or **SASE Brings You All Details. PREFERABLE WATCHES**, P.O. Box 6105, Phoenix, AZ 85005.

Glass Domes—for anniversary clocks, 5½ x 11, \$5.50 each, minimum order 3, add \$1.00 each for shipping. Curiosity Shop, 2305 Buffalo Rd., Rochester, NY 14624.

1890's Oak Roll Top Watchmaker's Bench, Lathe and Foot Treadle in Bench, Complete Lathe Accessories, Gear Cutting Wheels, etc. \$3000 or best offer. Regulator Time Company, 1-913-776-6977; 121 S. 3rd, Manhattan, KS 66502.

Established clock repair and sales shop for sale in sunny Arizona. Property, business, some stock and equipment included. Terms available. Contact Al Converse, 5665 E. 22nd St., Tucson, Arizona 85711.

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

FOR SALE: TRIUMPH SOLDERING MACHINE 110 VOLT. COMPLETE WITH ALL ACCESSORIES. USED VERY LITTLE. Phone (517) 484-4704.

Original new parts for old Big Ben, Baby Ben, Travalarms, Westclox pocket and wrist watches. Gilbert, P.O. Box 2636, Lakewood, Ohio 44107. (216) 226-5177.

RENOTEST—QUICK CHECKER—\$250.00—Manny Teitch, 3206B Post Woods Drive, Atlanta, GA 30339; (404) 955-6927.

Equipment for sale: 1 Speedi-Trim (Zantech), \$595.00; 1 Microscope (1x-3x, Zantech), \$425.00; 1 Alarm Tester, \$65.00; 1 Battery Tester, \$18.95; 1 Module Tester 1201 (Media Dig.), \$60. Plus: Case opener, tweezers, soldering iron and stand, tool kit, solder, sol-sorb, epoxy kit, solutions, crystals, etc. Total worth: more than \$1200, practically new. \$850 for the whole lot, including crating and shipping free of charge. Jose Ruiz De Porras, 591 Olympic St., Caparra Station, Puerto Rico 00920

Wanted To Buy

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., N.E. Suite 318, Atlanta, Georgia 30345. Phone 404-938-0744.

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, Georgia 30345.

WANTED: Pump Type Ring Stretcher and Watch Master Ultrasonic Watch Cleaner — Model WT. (319) 556-5661.

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.

Wanted To Buy: Horolovar 400-Day Main-spring Winder. (319) 556-5661.

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.

Help Wanted

WATCH REPAIR INSTRUCTOR—Require a CMW, CW or individual with equivalent bench experience to instruct students of a rehabilitation facility in the basic theory & construction of watches. Repair & regulation of both mechanical & electronic watches. Submit Resume or letter along with salary requirements to: P.O. Box 15848, Cincinnati, Ohio 45215.

Dates To Remember

Advertisers' Index

NOVEMBER

- 5-6—Horological Association of California Convention; Hyatt Regency; Anaheim, CA.
- 5-11—New York Tabletops & Accessories Fall Show; 5th Ave. and 28th St., New York, NY; (201) 779-4997.
- 6-7—International Tabletops Show; Dallas Market Center; Dallas, TX; (214) 655-6100.
- 12—Watchmakers Association of New Jersey Annual Dinner Dance; Royal Hawaiian Palm; Lyndhurst, NJ; (212) 698-7506.
- 13—Consolidated Retail Jewelers Assn. of Greater New York Annual Banquet; Sheraton Centre Hotel; New York, NY; (516) 921-8760.
- 15—Meeting of the Massachusetts Watchmakers Assn., Inc.; Fenway Howard Johnson's Motor Hotel, 777 Memorial Dr., Cambridge, MA.
- 16—International Precious Metals Institute's Eastern Analytical Symposium; New York Statler Hotel; New York, NY; (212) 625-3339.
- 27-Dec. 1—Wholesale Buyers' Gift Fair; Mt. Royal Hotel; London, England; (212) 752-8400.

JANUARY 1984

- 7-10—Consumer Electronics Show; Convention Center; Hilton Hotel; Riviera Hotel; Las Vegas, NV; (312) 861-1040.
- 8-12—Atlantic City China & Glass Show; Atlantic City Convention Center; Atlantic City, NJ; (212) 986-8000.
- 13-18—Bijorhca: International Jewelry, Clocks and Gifts Exhibition; Parc des Expositions; Porte de Versailles, Paris, France; (212) 869-1720.
- 14—The Twenty-Four Karat Club of New York Annual Banquet; Waldorf-Astoria Hotel; New York, NY; (212) 687-0328.
- 14-16—Jewelers International Showcase; Miami Beach Convention Center; Miami Beach, FL; (305) 255-6095.
- 17—Meeting of the Massachusetts Watchmakers Assn., Inc.; Fenway Howard Johnson's Motor Hotel, 777 Memorial Dr., Cambridge, MA.
- 29—Meeting of the Watchmakers Assn. of Ohio; Marriott Inn East; Columbus, OH.

FEBRUARY 1984

- 4-11—TUCSON - 1984, Gem Shows, Inc.; 404 N. Freeway, Tucson, AZ 85703; (602) 624-8341.

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WATCHES INSIDE & OUT!

(Continued from page 35)

can be the result of a sloppy fit of the clutch, pinion, or stem. When slipping is present it can be seen by carefully observing while winding slowly. If the set spring tension is adequate and the clutch, pinion, and stem fit properly, but the clutch teeth move away from the pinion, there must be worn or poorly shaped teeth. Often only one part is at fault and can be identified by careful observation. The locking surface of the teeth must be perpendicular or have a positive angle of lock to be satisfactory. Often only the clutch or the pinion is worn, probably due to a difference in the hardness of the steel.

Observation with magnification should identify the part needing replacement. Even a couple of uneven teeth can make a fine watch sound terrible when wound, be a disappointment to the owner, and soon require another repair.

Slipping and partial winding can also be caused by a ratchet wheel that does not align properly with a crown wheel. If the crown wheel shake is correct, the cause is usually an out-of-upright barrel arbor or an arbor square that is not true. When available, replacement of the damaged arbor is usually the most economical repair. Badly worn barrel bridges should be replaced or bushed.

Seiko believes the world's most advanced timepieces deserve the world's most advanced after-sale support system.

At Seiko today, it normally takes about 6 to 9 working days for in-warranty job completion! What's more, the simplicity of control saves time and headaches, and fosters the kind of special relationship between Seiko dealers and their customers that you want and deserve.



How is this industry breakthrough accomplished? With the help of our Seiko service professionals, thoroughly trained experts, every one. With a service and materials system destined to be the most efficient in the industry—the most sophisticated and advanced computer-backed system imaginable.

From the moment a watch arrives at a Seiko Service Center, all pertinent facts about it go into our computer system. We can monitor it through the repair cycle. Pinpoint its status at any time. Maintain an incomparably detailed record of every watch we handle, retrievable from the system for years to come.

We've streamlined our supplemental services as

well. Our unique microfiche system puts all the technical information you'll ever need to know about any Seiko watch at your fingertips easily and inexpensively. And we offer full-scale instruction bench course programs. Now Seiko service is upgraded to parallel the fine reputation of Seiko and its dealers everywhere.

In servicing our superb timepieces Seiko has gone all out to achieve the same single-minded standard of leadership that prevails in producing them. Our way of best serving you, our valued Seiko Authorized Dealers.



SEIKO

Setting the standard for the world, for the future.

Maxell vs. the big-name battery.

In temperature tests,
only Maxell delivers
100% functional power.

1.33 volts. The power a silver oxide battery must maintain to remain functional. Even at -10° Centigrade, under load, Maxell delivers. Under identical test conditions, the leading silver oxide battery never once attained functional power. Maxell's performance attests to our extremely low internal resistance, and the resulting free flow of electrons.

The illustration shows you why:

A: Large surface area anode and cathode. **B:** Specially developed electrolyte.

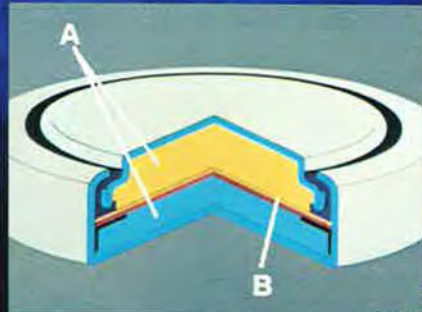
A persuasive argument for using Maxell batteries 100% of the time. The advantages are considerable.

High Leakage Resistance

Under test conditions so severe 40 days simulate 2 years of storage, Maxell proved 100% leakage resistant.

Superior Shelf Life

Under conditions simulating 2 years



of storage, Maxell surged ahead with a service life as much as 60% over the leading silver oxide battery.

The Professional Edge

Maxell's advanced technology is available only to watchmakers. If you want your business to grow, we're behind you, 100%.

For a white paper on test conditions and results, write Dept. R-20.

Maxell Battery Products Division
Maxell Corporation of America,
60 Oxford Drive, Moonachie, N.J. 07074
201-440-8020

maxell

