

The Torsion Times

QUARTERLY JOURNAL OF THE NATIONAL
400-DAY CLOCK CHAPTER # 168

VOLUME I, NUMBER 2

2ND QUARTER 1996

IN THIS ISSUE:

| | Page |
|---|------|
| President's Message | 1 |
| Chapter News and Activities | 1 |
| Feature Articles | |
| * Schatz Third Wheel with Barrel by Bill Ellison | 4 |
| * Tooth Straightening Made Easy by Les McAlister | 4 |
| * Finding the Right 400-Day Suspension by D. W. Swindells | 5 |
| * Repair Identification by Les McAlister | 7 |
| Terwilliger's Corner with Fred Armbrust | 8 |
| What Clock is That ? by John Hubby | 10 |
| The MART Page | 15 |
| Enclosures: Suspension Spring Nomograph, Silent Auction Form, Membership Appl. | |

FROM THE PRESIDENT

Just a short note to thank everyone for your very positive comments on the first Torsion Times. Of the 100 original publications, five copies were used for library and other official needs and the others went to the first 95 members of the Chapter. New members will receive a black/white copy of the Volume I, Number 1 until the end of the year.

I was unable to make the National in Cleveland this year due to a last minute conflict (my son's Eagle Scout Project). However, I promise I will be at the Great Lakes Regional in Dearborn, MI in September. The Chapter is in the process of obtaining meeting space at that regional, so please try to attend if you are in that area..... Les

CHAPTER NEWS AND ACTIVITIES

NEW CHAPTER #168 LOGO

Thanks and congratulations to member Charles Kroll for submitting the winning entry in our Chapter logo competition. It is displayed above in the header, and as you can see it does an excellent job of conveying the 400-Day Clock image joined with our chapter name and number. Charles, I hope you enjoy your reward of the Schatz 49 400-Day Clock..... Les

HOROLOVAR OPEN HOUSE

Mr. Bill Ellison of The Horolovar Company has agreed to host an "Open House" at his business during the Great Lakes Regional, on Friday, Sep 6. It is planned to travel to the Horolovar building after the MART closes that day. See Bill at his table during the MART to get directions on how to get there. Hope to see many of you there..... Les

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SECRETARY'S REPORT

At June 30, 1996 Chapter #168 membership had risen to 111, an increase of 34 from the previous quarter. All members are to be thanked for your efforts to add to our numbers. Several members joining the chapter recently have said they learned about us from friends who were already members, and several more have sent in their applications after seeing the Chapter Highlights feature in the NAWCC BULLETIN.

Activities during the quarter included issuing Volume I, Number 1 of The Torsion Times; two Chapter Highlights reports to the NAWCC; two meetings of chapter members (at the St. Louis Regional and the NAWCC National), and a flyer to all members giving info on who is doing what for The Torsion Times. President Les Mcalister took care of getting the first Torsion Times published, and your Secretary has now taken over the honors. It is hoped you will enjoy this issue, which introduces some new features.

**SILENT AUCTION TO BENEFIT
CHAPTER #168**

Chapter #168 Vice-President Joe Delaney has donated a Badische UhrenFabrik Disc Pendulum Dome Clock ca 1890 to the chapter, which will be sold to a lucky member by Silent Auction in the old "Charles Terwilliger Silent Auction" format. The upset price is \$100.00, and a bid form has been enclosed in this Journal. If you are interested, please mail your bid to Chapter #168 President Les McAlister by no later than September 1, 1996 (9/01/96). Thanks, Joe, for your generosity !!

TREASURER'S REPORT

| | |
|------------------------------|------------|
| Opening Balance 4/1/96 | \$ 1011.62 |
| Cash/Stamps on Hand 4/1/96 | 0.00 |
| Receipts | |
| Membership Payments | 406.00 |
| Donations | 40.00 |
| Subtotal | \$ 446.00 |
| Expenses | |
| Office Supplies | 32.82 |
| Stationery | 60.64 |
| Postage | 178.08 |
| Photocopy Cost | 60.35 |
| Bank Fees | 5.25 |
| Subtotal | \$ 337.14 |
| Cash/Stamps on Hand 6/30/96 | 68.40 |
| Ending Balance June 30, 1996 | \$ 1188.88 |

CHAPTER MEETING REPORTS

Meetings were held on May 25 at the St. Louis Regional and again on June 21 at the NAWCC National in Cleveland, with a number of members present at those events in attendance.

St. Louis Meeting May 25:

The St. Louis meeting, which will be reported in the August BULLETIN, was attended by a total of 22 members and visitors. President Les McAlister opened the meeting and provided an update of Chapter activities, with a special vote of thanks to the Charter Members for helping to get the Chapter organized. Secretary/Treasurer John Hubby reported on Chapter membership and the current status of the chapter treasury. A discussion was also held regarding the format of and plans for The Torsion Times.

The entries for the Chapter logo were presented to the meeting, and the design submitted by Charles Kroll received overwhelming approval and has been adopted as our official logo.

Bill Ellison presented a video training film on setting pallet lock and drop, which used high magnification closeups and was most interesting and informative. The meeting ended with a display and discussion of an Aaron Dodd Crane year-going torsion pendulum clock owned by Dr. Bryan Rogers of St. Louis Chapter 14. Seeing this very rare clock was a special treat for all.

Cleveland Meeting June 21:

The meeting at the NAWCC National in Cleveland was attended by 25 members and visitors. Secretary/Treasurer John Hubby chaired the meeting in the absence of President Les McAlister, providing an update of activities as well as a membership report and the treasurer's report.

The meeting program included a presentation by Bill Ellison, in which he discussed the function of a rare Schatz movement which has a maintaining power spring barrel on the third wheel. The full text of this presentation is included in this issue of The Torsion Times.

Following this excellent presentation the meeting was opened for general discussion of 400-Day clock maintenance, setup, and adjustment, which resulted in lively and active participation by those attending. Several visitors joined the Chapter at the close of the meeting.

The next meeting opportunity is planned to be at the Great Lakes Regional in Dearborn, MI on September 6. We hope to see many of you there.

WHAT'S NEW IN THE TORSION TIMES

Chapter #168 Secretary John Hubby has volunteered to become "editor and publisher" of The Torsion Times. The new format for this issue has been developed to highlight all the features of our Journal and present them in a logical manner. Starting with this issue we are also adding a new regular feature, "What Clock is That ?", which will focus on 400-Day clocks that cannot be identified in The Horolovar Repair Guide, or that have unusual and different characteristics such as a very unusual case or pendulum. One of the main purposes of this feature is to collect information and data on 400-Day clocks, including pictures, back plate drawings, and other information which can be used to eventually update the Repair Guide or even be used as the basis for a chapter-sponsored new publication. Any member who has a clock and/or movement they cannot identify or that they think will add to our information should send pictures and detail descriptions to John Hubby. This information will be returned if requested. More detail is available starting on Page 10.

LETTERS TO THE EDITOR

In the next issue of The Torsion Times, we would like to start a "Letters to the Editor" feature. Members are encouraged to use this forum for discussion of general items and to provide constructive criticism for improvements to our Journal and any other feature of Chapter #168. All letters to the editor should be addressed to John Hubby, Editor, "The Torsion Times", 28 Red Sable Place, The Woodlands, TX 77380.

SCHATZ THIRD WHEEL WITH BARREL

by Bill Ellison

In the early 1950's, Aug. Schatz & Söhne produced a standard size movement which incorporated a small barrel on the third wheel. In their repair instructions, Schatz identified the spring in this barrel as a "compensating spring". They noted in some factory repair instructions that, when the spring was installed properly, no further adjustment was necessary as the spring would automatically adjust itself. It is believed that this device was intended to produce a constant amount of torque at the escape wheel regardless of the amount of torque available as the mainspring winds down. Schatz was trying to improve timekeeping, particularly if the clock was allowed to run one year without any adjustment. In the days that this design was used, Schatz was using either steel or bronze suspension springs so, in reality, the third wheel compensating barrel may have been the right answer to the wrong question.

The Schatz movements incorporating the third wheel compensating spring are relatively rare. Probably, importers quickly learned that the extra cost was not justified as there was no real improvement in timekeeping performance. The current rarity of clocks using the design was probably helped by the fact that Charles Terwilliger recommended that repairmen simply discard the small barrel and replace it with a conventional third wheel. Conventional third wheels were available at special "factory prices" at the time and this may indicate that Schatz had also given up on the design and had no intention of making replacement compensating springs available. The compensating springs are similar to watch mainsprings but are quite thin and relatively long so finding replacement compensating springs is quite a

challenge.

I have checked my files and can find no advertising literature which describes the benefits of the compensating third wheel design. If anyone has a Schatz advertisement extolling this design, I would very much appreciate a copy for my files. Also, I was not able to determine exactly when this design was produced. I was able to learn of one clock with Plate Number 1283, dated 3/53 and I have a clock with Plate Number 1287 which is dated 4/53. The copy of the Remington Rand repair literature that references this design is dated October 1, 1953. In order to try to determine the time period that the compensating barrel was used on the third wheel, I would greatly appreciate hearing from Chapter members who own examples of these clocks. Please send the Plate Number and date information to Horolovar. Also, please note if the movement is equipped with an anchor that has adjustable pallets. Thank you for your help in this project.

TOOTH STRAIGHTENING MADE EASY

by Les McAlister

In the past one of the most challenging things I have attempted to do is straighten bent teeth on a mainspring barrel or wheel.

By past experience I can usually tell when I will be confronting this issue when I see a bulge on the mainspring barrel where the mainspring tang is attached. This bulge is a telltale sign of the whiplash created when a mainspring breaks or a ratchet wheel tooth is ground off and "always" means that teeth will have to be straightened (not to mention a pivot or two).

In the past I would take a small screw driver or special ground flat nose pliers and work the tooth back into position and then burnish the tooth surface to assure a smooth surface for the pinion to pass over. If the tooth was only slightly bent I was successful 100% of the time; however, if it was bent over 40 degrees my success rate fell dramatically and if it was an old Jahres Uhrenfabrik barrel it was less than 50/50.

Due to the difficult and time consuming nature of this repair and the possibility of disaster, I came up with the following procedure which works perfectly every time and can be used on any wheel with any tooth in the clock except the escape wheel:

1. Clean the wheel and teeth to remove all dirt.
2. Find another wheel or barrel with the same tooth count/pitch.
3. Roll the teeth from the wheel with the bent tooth against the good wheel, starting with light pressure.
4. Gradually increase the rolling pressure until the bent tooth (teeth) are back into proper position.

Note: If the tooth is badly bent and there is no room for the teeth on the good wheel to fit between the bent teeth on the bad wheel, it may be necessary to begin straightening the bent tooth with a screwdriver or knife, just enough to allow the teeth to mesh.

The chances of breaking a tooth using this procedure is all but eliminated as even pressure is applied over the entire face of the bent tooth in a gradual manner. This also eliminates the need to burnish the surface of the tooth that is being repaired as this is being done as you roll the teeth of one wheel against the teeth of the other. Lastly, you can be assured that the tooth is in the "exact" proper position and can easily feel if it is not.

Finding another wheel with the proper tooth count will not be hard if have even a small "400-Day Salvage Yard". I have found that almost all Jahres Uhrenfabrik and Schatz clocks of all years have the same tooth count/pitch on the mainspring barrel and 1st through 4th wheels. The same rule applies to Kieninger and Obergfell ("Kundo") clocks with both wide and narrow plates.

FINDING THE RIGHT 400-DAY SUSPENSION

by D. W. Swindells, FBHI

Editor's Note: This article reprinted with permission from the April 1995 "Horological Journal".

Like many repairers I have mixed feelings about 400-Day clocks. More vulnerable to mishandling and meddling than any other type, in most workshops they are seen as trouble. Overhaul one belonging to a compulsive duster and polisher, and you may never be rid of it. How often do have we had them returned within a week with the suspension reduced to a corkscrew, to be told "it only went for a few minutes". Replacing a suspension is not hard in theory, but by the operation of Murphy's Law the size needed is the one you haven's got. In due course it proves to be temporarily unobtainable because of supply problems, and the customer grows doubtful and restive.

Such thoughts so deter me that I sometimes accumulate quite a few 400-Day clocks before screwing up the courage to tackle them. Five were on hand when I last embarked on a batch, but this time for reasons unknown they seemed less threatening. By the time three were on test I had become quite interested and decided to restore an early model that was given to be in a dreadful state

some years ago.

This one had fallen prey to a Brasso fanatic. The liquid had even managed to enter the barrel and coat the mainspring, leaving it dry as snuff. However, no real damage had been done and the only part needed was, of course, the suspension.

The Horolovar Guide quoted a 0.102 mm wire, but this proved quite a lot too strong and way outside the regulating range. How then to find the right size? According to Terwilliger the only way is guessing and eliminating by trial, which is fine if you have unlimited time and never get bored.

Surely there must be a way to work it out; a known relation between spring thickness, torque and period as there is for hairsprings? Well, according to Rawlings (*Science of Clocks and Watches*), there isn't, because when a flat ribbon is twisted it shortens. Thus a torsion pendulum rises and falls as well as rotating and gravity alters the restoring force in ways that defy calculation. According to the books there was no alternative to trial and error.

I looked again at the Horolovar suspensions and noticed how narrow they are in relation to their length. As the twisting hardly ever exceeds 3/4 of a turn (1 1/2 turns amplitude) the shortening must be microscopic. It seemed unlikely to have any noticeable effect in practice, and so I carried out the simplest of experiments.

The large disc pendulum (or balance as it really is) from one of the clocks was suspended in turn from each of six suspensions differing greatly in thickness, and the times taken to perform eight swings measured by stopwatch. Amplitude was standardized at one turn for accuracy of reading and to eliminate isochronal errors.

When the resulting values were plotted on graph paper with time on one axis and thickness on the other, a smooth curve could be drawn through the points, suggesting that there was some consistent relation of one to the other. Following advice gleaned from *The Model Engineer's Handbook*, another graph was made by plotting the logarithms of both sets of values, and, as predicted by Tubal Cain, the result was a straight line.

Editor's Note: The resulting graph is included as a separate enclosure with this issue so you can use it at your bench or make copies for friends. It also has been updated to include actual Horolovar spring strengths currently available.

The slope of this line expresses the relation of suspension strength to period of swing. While the solid line shown in the graph relates to one particular balance, an equivalent line of the same slope can be drawn for any other balance and used to estimate the correct Horolovar suspension from any time of swing or any other strength by the same maker.

For example, take the case of a Kundo model which should make ten swings per minute. The correct number of seconds to make eight swings is therefore $(60 \times 8) \div 10 = 48$. Suppose that your clock actually takes 52 seconds on an 0.058 mm suspension with the regulator in mid position. What size will bring it to correct time?

Find where the vertical and horizontal lines from 52 seconds and the 0.058 mm suspension meet. Note that the scale is not linear, 52 may be a little further from 50 than you may at first estimate. Draw a line parallel to the sloping line on the graph through the meeting point. Now find where the vertical line from 48 seconds crosses this new line. From that point, follow across horizontally and read off the size suspension nearest to the point, 0.061 mm. While

the result may not be exactly right every time, the graph has so far proved to be a big improvement on guesswork. I hope others may find it a useful time-saver..... DWS

Note: Philip Woodward has pointed out that using the assumption that gravity is not a factor, $K = P\sqrt{W^3}$, where K is a constant, P is time and W thickness, using the same units as above. K for a given pendulum is calculated using an arbitrary suspension and measuring the period. The correct suspension thickness for the required period can then be calculated using this K value. e.g., When in the example above $P = 52$ and $W = 58$, $K = 25619$. Rearranging our equation gives $W = \sqrt[3]{(K \div P)^2}$, thus when $P = 48$, $W = 61$.

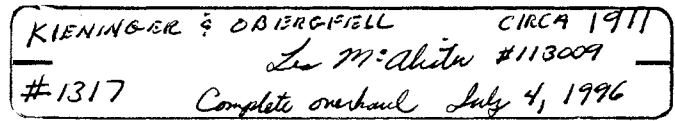
REPAIR IDENTIFICATION

by Les McAlister

Since I began repair and restoration of 400-Day clocks I have struggled with a way to mark each clock worked on with general information about the clock and the repairs performed. I now use a system that I want to present to Chapter members for discussion and comment. I think it could be a good idea for the Chapter to consider adoption of some kind of standard for our members to use so that such information does not become lost in time.

I have been attaching a file label to the bottom of the clock base with the following information printed on it:

- | | |
|---------------------|--------------------|
| * Manufacturer | * Plate Number |
| * Circa Date | * Date of Repairs |
| * Repairs Performed | * Name of Repairer |



This works well; however, I realize that after a period of time the label may become detached, removed or destroyed and I wanted a way to mark clocks for historical reference or just in case they were lost or stolen.

Not wanting to “engrave” my name or repair number into any of the plates or base as I have seen in some examples, which defaces the appearance of the clock, I started scribing the following on the “inside” of each mainspring barrel cover on every clock serviced



This in no way defaces the clock; however, it does give “historical” information on the past repairs, where they were performed, and who the repair person was.

Please let me know what you think of this procedure and whether you think the Chapter should adopt such a standard procedure. All recommendations and comments are welcome !

CONTRIBUTION OF ARTICLES

All members are encouraged to contribute articles, helpful hints, etc, to The Torsion Times. Please send your written text or 3.5” floppy (WordPerfect 6.0 preferred) to Les McAlister, 1369 Manuka Drive, O’Fallon, MO 63366.

TERWILLIGER'S CORNER

by Fred Armbrust

Dear Fellow Members:

For the present, I have been appointed the Keeper of "Terwilliger's Corner", the troubleshooting section of our Chapter's Journal, which I volunteered for and hope I can live up to (or maybe live down!). I am far from being an "Expert", but I have worked on 400-Day clocks for several years, and hope I can help others over the rough spots. Permit me to introduce myself: My name is Fred Armbrust, and I reside way up in the North Woods of Maine at P.O. Box 663, Caribou, ME 04736-0663 (The dogsled brings the mail from there). You can call me at 207-493-4435, if you would like. I am not set up for Fax or modem file transfer at the present, because two phone lines make NYNEX (Ma Bell) rich and me poor. Sorry about that.

Something I should explain about my name and nicknames, because some of the old timers may know me by one or another. To clear up any confusion, allow me to explain that my Christian name is Ferdinand Armbrust. If some of you were involved with the simulators in the U.S. Air Force, you may know me as "Fritz", a nickname my mother gave me: and now, I use "Fred" because I like it. "Hey, You!" will do in a pinch, but truthfully, folks, I'm not crazy about it. For the present I think it's best I stick to "Fred", and we will let it go at that. Thanks for the indulgence.

Before we get deeper into this, I will ask that a given question be accompanied by a SASE and reference the tenth edition of the Horolovar 400-Day Repair Guide. Further, I ask that you reference a given clock back plate number wherever possible. If you

don't have the Guide, please beg, borrow, or somehow get one; without it you are lost. It's a little like trying to find your way out of the Maine Woods without a compass - - it can be done, but boy, it isn't easy (The last poor soul that tried it took a wicked long time to get back to civilization, and was last seen on an airplane bound for the Bahamas!).

And now for a couple of hints. One of the areas that the Guide does NOT talk about very much is the fork and its position on the suspension spring. The fork must be a light slide fit on the anchor pin at ALL positions, and its position on the suspension spring is critical because it and the spring control the escapement action. The lower the fork sits on the spring, the better the transfer of energy to the pendulum, but the greater the tendency for the escapement to flutter. Higher on the spring, the fork controls the escapement better, but less energy is transferred, resulting in a sluggish action of the pendulum. In other words, the fork and the suspension spring (between the fork and the top block) MUST control the escapement's tendency to flutter or jump. The escapement's transfer from one pallet to the other must be reasonably smooth and the escape wheel teeth must land on the locking faces of the pallets, or the clock will not run long, if at all. The reason for this is that a mislocking pallet fights the action of the fork, and thus energy is lost and the clock stops. "Mislocking" is defined here as the tooth of the escape wheel landing on the IMPULSE face of the pallet, instead of the locking face. The transfer of the escapement from one side to the other must be locking face to locking face, and the position of the fork controls this.

It is also very important that the mainspring is right for the clock and it must not have been distorted when cleaned and lubricated. Since it unwinds so slowly (typically one turn in 80 days), it must

unwind properly or energy is lost and the clock stops. A mainspring which has been "Coned" while being removed will almost always lose energy in the barrel, because the spring rubs the side and cover. If a power problem is present this is the first place to check. I advocate the use of oil for 400-Day mainsprings as opposed to grease. The oil should be heavier than regular clock oil, about the same viscosity as SAE 10, giving sufficient film strength to keep the spring leaves separated and to allow the spring to transfer its power smoothly.

Now, just for the fun (??) of it, let us say that you, the repair person(!), have one of these "gems" we all get from time to time, and for reason or reasons unknown, the (CENSORED) thing simply will NOT run no matter what you have tried, and you are back to square one wondering why you took on this (CENSORED) job in the first place and what in (CENSORED) are you going to do about it. Well, friend, you are up against it, and maybe I can help a little here.

First, let down the power, remove the suspension spring and top block support, hands, dial, and motion works. You may or may not want to remove the base as well. Now, put perhaps a half turn of power on the mainspring, get out the old loupe, and check EVERY tooth on the escape wheel for drop, lock, and slide. Check entering and exiting pallets. Then sit back a minute, rest the eyeballs, and do it all over again! Everything must be right here of the clock probably won't run. Check the anchor pin -- it should be as the factory installed it, and not all loose and wobbly. Check the fit of the fork on the pin -- it must grip the pin lightly (see my earlier comment). Then, remove the rest of the power, take out the anchor completely and reassemble the movement. Now you really are at square one.

Next, take up the slack in the mainspring with a key; and, while gently holding the escape wheel, put one

or two (NO MORE) clicks worth of power on the mainspring. When you let go of the escape wheel it should take right off. This is a good indicator of power train problems, because the overall ratio from the main barrel to the escape wheel is so large it won't take much to stop it if something is wrong: a bent pivot, a rough pivot, or a dirty pivot hole will stop one like this quickly (it is assumed here you have already checked out EVERY wheel in the clock to be sure there are no bent teeth or obstructions in the slots between the pinion leaves!).

If this test works OK, now try putting on the motion works and the hands, and try the power check again. It may take slightly more power to make everything turn over, but not very much more. Lack of power here indicates problems in the motion works and hands (Take them off and repeat the first test again to be sure).

If all is well so far, you are probably back to the escapement and/or suspension spring giving you a hard time. If the previous escapement checks didn't show anything amiss, then about the only thing you can do is reinstall the suspension spring assembly (checking the Guide to be sure it is correct), install the pendulum, and try it out. It may be out of beat as well. This is one of those jobs I like to work on about 1:00 A.M. so I am NOT bothered by anyone. It's a case of look and observe, and look some more. You will get it if you look long enough.

All of these problems (and solutions) came to me the hard way, I hope they help some other guy who is up "against it" with one of these clocks. Good Luck!

Members are urged to send their "how do I fix it?" and other technical questions to Fred Armbrust, P.O. Box 663, Caribou, ME 04736-0663 or call 207-493-4435. Send SASE if you want a direct reply.

WHAT CLOCK IS THAT ?

by John Hubby

At one time in my early days working with 400-Day clocks, I would feel "lost at sea" when I came across a clock for which I could not find the back plate in the Repair Guide. That meant I was completely at the mercy of the "try and see if it works" school for finding the correct suspension spring or any other information on how that clock should work or be set up. Also, I have long been intrigued at the almost complete lack of information available on torsion pendulum clocks in any publication other than the Repair Guide.

In recent discussions with other members of the Chapter, I have found quite a number who have made the same comments, and that led to the idea for adding this new "What Clock is That ?" feature to The Torsion Times.

The initial objectives of starting this feature are:

1. To provide detailed information, including pictures where possible, about clocks that are not shown in the Repair Guide. This will help Chapter members to identify their own clocks and to become aware of the many different and unusual features of 400-Day and other torsion pendulum clocks.
2. To accumulate the information compiled herein, with a longer term objective of using it to
 - a. Update the Repair Guide
 - b. Serve as the basis for a possible Chapter project to publish new information on 400-Day and other torsion pendulum clocks.

The information to be provided in meeting the first objective would include descriptive information, drawings, photographs, and/or manufacturer's data and publications related to any different or unusual clock or clock case not shown in the Repair Guide, whether the movement back plate is shown or not. It will also include any clock having a significant part or parts not shown in the Repair Guide, including: back plates, front plates, pendulums, escapements, suspension brackets, calendar or other subsidiary movements, or any other part of a torsion pendulum clock that is not now included in the Repair Guide.

Back plate drawings will be made for movements that are not shown in the Repair Guide, using the same standards and including available reference information. Plate numbering will be sequential in order of appearance in the Journal, starting with TT01 (Torsion Times No. 1).

The success of this feature will depend heavily on Chapter members being willing to send pictures and descriptions of their clocks for publication, and all of you are asked to help. Please send your information, with as much detail and description as possible, to John Hubby, "The Torsion Times", 28 Red Sable Place, The Woodlands, TX 77380. Each entry received will be thoroughly researched using all sources available, and prior to publication will be fully reviewed with the submitting member for accuracy. Please send a SASE if you want your photographs returned.

Starting on the next page is the first of what I hope will be dozens or more clocks to be featured in "What Clock is That ?". This clock is from my personal collection and it has defied identification for many years. Any ideas regarding its origin, or any "confirmed sightings" of similar or identical clocks will be very much appreciated.... John Hubby

WHAT CLOCK IS THAT ?

A 30-DAY TORSION PENDULUM CLOCK

This little clock (Figures 1 and 2) has several very unusual features, including:

- * Front Wind
- * Open Spring (No Barrel)
- * Back Plate Not in Repair Guide
- * Suspension Bracket Not in Repair Guide
- * Hemispherical Pendulum, Not in Repair Guide

General Description:

The movement is suspended from a solid arched steel support, standing $9 \frac{3}{4}$ inches high overall and mounted on a $7 \frac{1}{2}$ inch diameter turned mahogany stained wood base. The steel support is made of a solid steel rod overwrapped damascus fashion with a narrow steel strip to a final diameter of $\frac{15}{32}$ inches (10 mm), which had been originally brass plated or anodized a silver-gold color. The glass dome is $5 \frac{1}{2}$ inches in diameter and $10 \frac{1}{2}$ inches high, and appears to be original.

The silvered stamped sheet metal dial has a $3 \frac{3}{4}$ inch diameter chapter ring, with art nouveau style arabic numerals on a raised ring. A colleted winding hole is at 6:00, and the hands are spade type blued steel. The dial is rivetted to a zinc plated false plate, which has three shouldered studs on which the movement is mounted with taper pins. The false plate also has spring clips at 3:00 and 9:00 which clamp to the arch support and a threaded stud at 12:00 through which a single brass headed screw secures the whole assembly to the arch support (Figures 3, 4, and 5).

The inverted hemispherical pendulum has internal weights and is described separately.

Figure 1 Clock With Dome

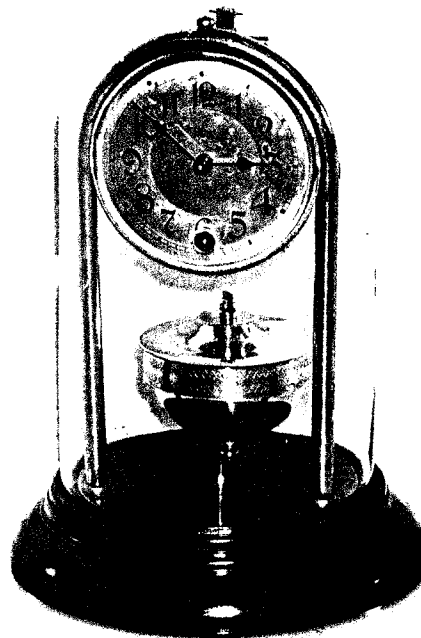


Figure 2 Clock Without Dome

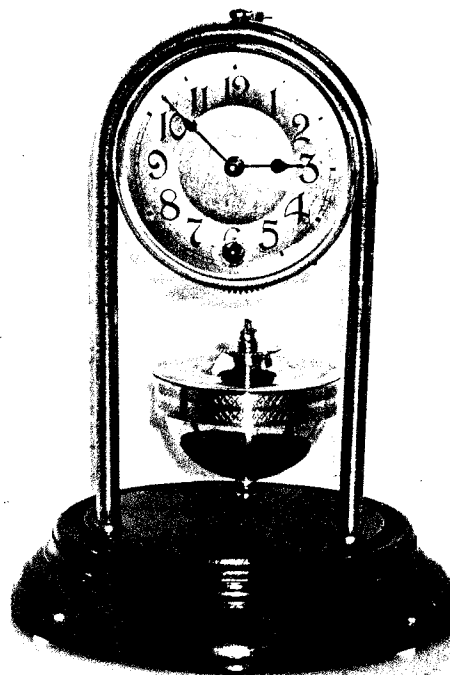


Figure 3 Clock Rear View

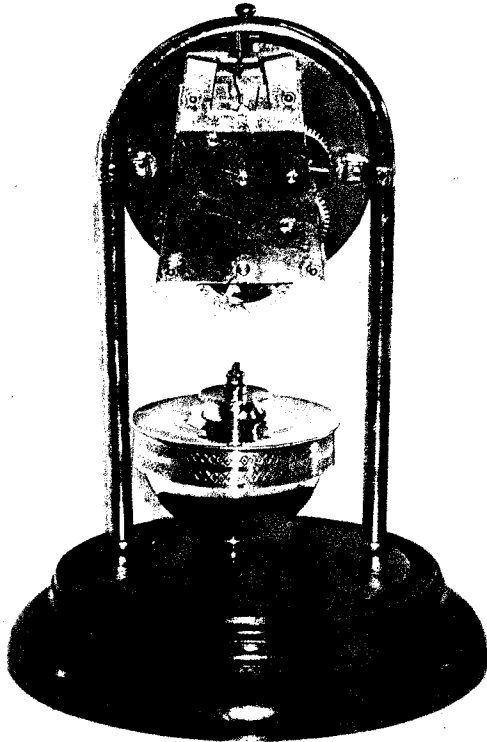
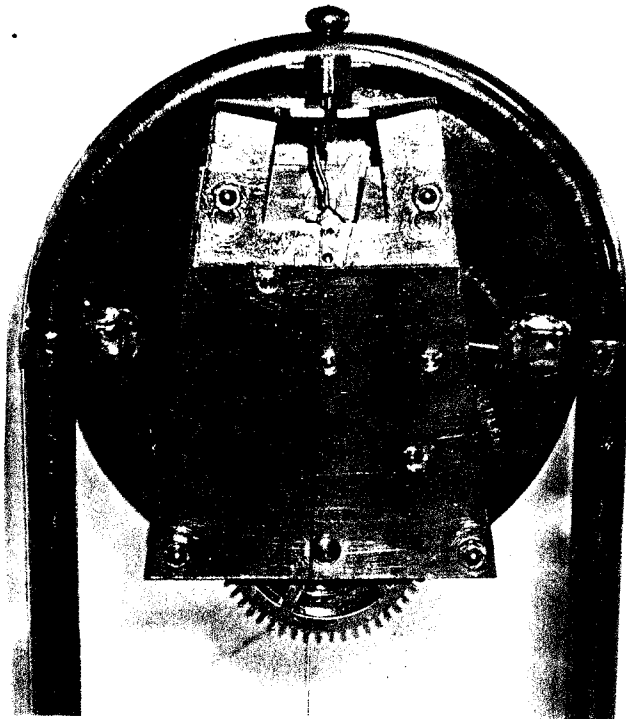


Figure 4 Movement and Supports



The Movement and Suspension:

The 30-Day movement (Figures 3, 4, and 5) has solid trapezoidal plates, with back plate detail drawn full scale in Figure 7. The four spacer columns are rivetted to the front plate and held with nuts to the back plate. It has an open spring with no barrel, four wheels all with lantern pinions, and a pin pallet escapement, looking for all the world like an alarm clock movement (Figure 3). The intermediate wheel in the motion work rides on a rivetted stud and the hands are held on without tension by a threaded nut. The clutch mechanism for setting the clock is behind the wheel on the minute arbor, à la alarm clocks.

The pin pallet escapement has the pallet arms offset to accommodate the very large $1 \frac{1}{16}$ inch diameter 20-tooth escape wheel. The pallet arbor is in a fixed position in the suspension support bracket at the rear but has an eccentric in the front plate.

The full width suspension bracket is shaped similarly to the movement back plate, made of folded sheet brass and with a slotted hexagonal top block press fitted in the bracket. As found, the bracket had been badly modified to raise the suspension point, including adding a new pallet arbor pivot hole!

A standard length Horolovar suspension spring, 0.076 mm (0.003 in.) strength, had to be shortened by $\frac{1}{4}$ inch to fit and bring the clock into the regulation range of the pendulum.

The Pendulum:

This is a most unusual pendulum (Figures 1, 2, 3, and 6), shaped like the miniature Kienzle pendulum No. 12 page 195 in the Repair Guide. However, it is large, being $3 \frac{3}{16}$ inches diameter at the upper flange and $2 \frac{7}{8}$ inches high. The upper housing is

made of thin brass and decorated around the band with two embossed rows of diamond-shaped figures. A non-functional knurled edge disc is mounted below the suspension hook. Inside the pendulum (Figure 6) are two brass weights on a countershaft like the usual disc pendulum, each guided by a slotted steel disc. However, the shaft only extends completely through one weight with that end squared for adjustment through a hole in the pendulum case. A stack of steel shims, with one side notched to allow passage of the countershaft, is contained in the upper flange to provide the mass needed for the pendulum and secured in place by the thin brass lower hemisphere which in turn is held with a decorative bottom nut.

Where Did it Come From, Who Made It and When?

I obtained the clock from a lady who claimed it had been in her family since it was purchased new "around 1900" by her grandfather. The family was living in Brooklyn, NY at the time.

There is no identification of any kind on the clock, so unless we can find manufacturer's literature or some other concrete evidence with a picture and/or description it will be only speculation as to who actually made this clock. However, I have narrowed my guess to a runoff between Kienzle and Badische Uhrenfabrik (BUF) ca. 1898-1902, with the odds on Kienzle for the following reasons:

1. The movement could be either Kienzle or BUF. Both used lantern pinions and pin pallet escapements in large volume commercial production. Jahres Uhrenfabrik (JUF) also used these on their 30-Day movements, but those clocks seem to be generally well documented and this is not one of them.
2. Kienzle was among the few German makers to

Figure 5 Movement Quarter View



Figure 6 Pendulum Detail

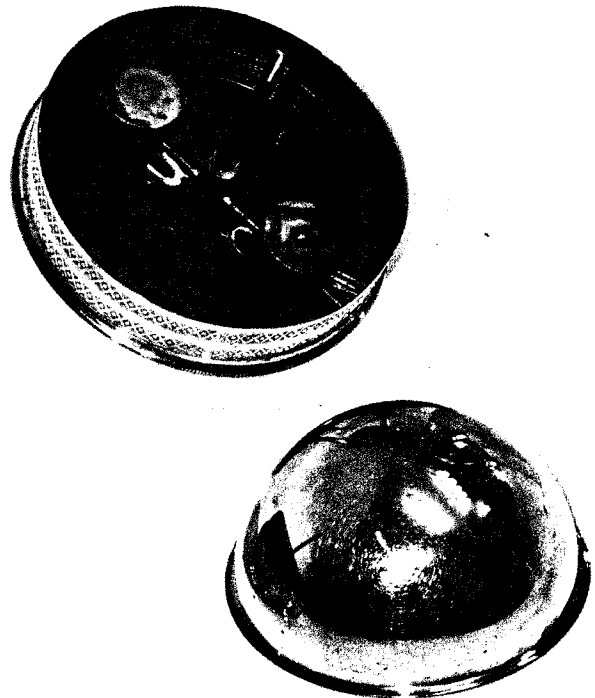


Figure 7 Movement Back Plate

Manufacturer Not Known c 1900

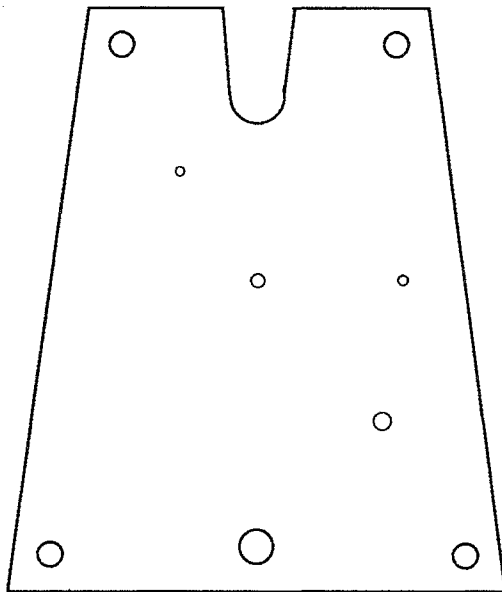


Plate TT01 Hemisphere Pendulum
Pin Pallet Escapement
Front Wind 30-Day Clock

USE .003" -(.076 mm)-HOROLOVAR

produce front wind torsion pendulum clocks. JUF used front wind on their wall models and the 30-Day models, but I have not found any examples by BUF.

3. The construction of the pendulum has many Kienzle characteristics such as the counterweight guide slots, thin gage metal covers, and steel ring shim inserts to place mass at the rim, the same as No. 38 pg. 197 in the Repair Guide. It also is nearly identical in design and appearance to the Kienzle miniature No. 12 pg. 195.

That still leaves many unanswered questions, such as:

* Why did such an elegant support, including a finished wooden base, get saddled with such a rinky-dink 30-Day movement ?

* Same question with regard to the pendulum. This pendulum, which quite evidently belongs to the clock, would certainly have better suited a full fledged 400-Day movement.

Whatever the case, please send me any ideas or other information you may have regarding this clock or clocks with identical/similar movements.

THE MART

MART ADS should be sent to Ashley King, 6106 Lower York Road, New Hope, PA 18938. Each Chapter member can place one "wanted" ad and one "offered" ad in each issue of the Journal, FREE.

ITEMS AND SERVICES WANTED:

WANTED: Kaiser 400-Day clock with globe pendulum, moon dial, and original glass dome. Also any other 400-Day clocks with disc or unusual pendulums. John Connolly, 6051 Sunwood Drive, Delta, B.C. Canada V4E 2X5. Ph: 604-572-0778. E-mail: jobeco@express.ca

WANTED TO PURCHASE: Pre-1882 /striking/ wooden-cased wall-hanging 400-Day clocks. Please send photos and details to Mr. Mun, 39 Jalan Selanting, Singapore 598395. Ph: 011-65-467-2163

WANTED: Disc pendulum for Urania Jahres Uhrenfabrik, 1908. Wanted unusual older 400-Day clocks, crystal regulator cases, metal cases, U.S. made, unusual pendulums, etc. Joe Kaddis, 7 Steephill Road, Weston, CT 06883. Ph: 203-227-7081.

WANTED: Any advertisements, brochures, or catalogs for 400-Day clocks to be used in research activities. Please call or send info to Les McAlister, 1369 Manuka Drive, O'Fallon, MO 63366-3759. Ph: 314-978-8775.

WANTED: Gustav Becker 400-Day Louvre clock with disc pendulum. Send info to Don Allen, 616 Wilkerson, Sedalia, MO 65301.

WANTED: Will pay \$10 each postpaid for any of the following original Terwilliger Silent Auction Catalogs in good condition: Numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 16, 22, 23, 27. Call John Hubby at 713-362-0165 or Fax details to 713-362-0514.

WANTED: Pendulum for Schneckeburger year striking clock with detent escapement (See Section 3, Clock No. 3.), or access to one in order to duplicate it. Michael Brewer, 115 Marcie Drive, Long Beach, MS 39560. Ph: 601-868-8557.

ITEMS AND SERVICES OFFERED:

The Horolovar Company
Box 264, St. Claire Shores, MI 48080
Manufacturer and Importer of Horological Supplies.

Chris Wadge Clocks
The Anniversary Specialist
142 Fisherton Street, Salisbury, SP2 7QT, England
Horolovar stockist, spares, small selection of pre-1940 used parts for 400-Day clocks.

Timesavers
Horological Supplies
Box 12700, Scottsdale, AZ 85267
E-mail: clocks@indirect.com
Web Site:
<http://www.indirect.com/www/clocks/index.html>

Pas-Times
Torsion Pendulum Specialist
28 Red Sable Place, The Woodlands, TX 77380
Will be publishing a catalog of 400-Day clocks for sale around mid November, including many with disc pendulums and several with crystal regulator cases. Send \$5.00 to cover cost of catalog and postage.

To help raise Chapter Funds, Chapter Vice-President Joe Delaney has donated a Badische 400-Day Clock to be sold in the old Charles Terwilliger "SILENT AUCTION" format.

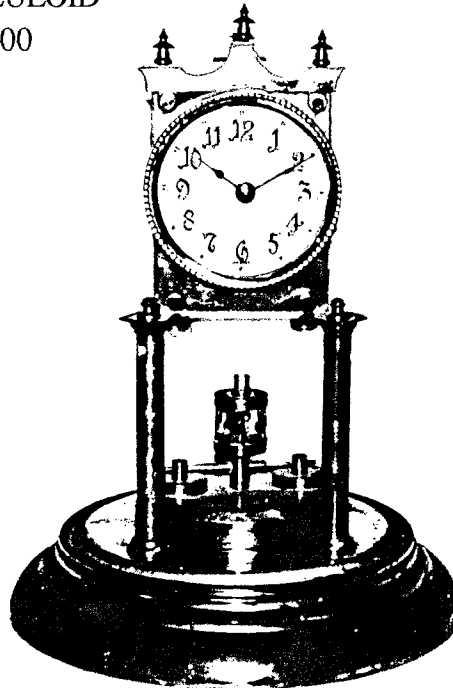
To place a bid on this clock, please complete this bid form and return it to Chapter President Les McAlister no later than September 1, 1996. Only one bid will be accepted from each Chapter member and the highest bid over the "Upset Price" of \$100.00 will win.

To prevent ties it is suggested that you do not bid even dollars. For example bid \$151.49 instead of \$151.00. Only pennies may separate a winning bid from a losing one.

The following picture and description applies to the clock being placed up to bid:

MANUFACTURER: BADISCHE UHRENFABRIK
 PLATE NUMBER: 1041
 CIRCA: 1890
 MOVEMENT TYPE: PIN PALLET ESCAPEMENT, LANTERN PINIONS
 PENDULUM: DISC NUMBER 38
 DIAL: CELLULOID
 UPSET PRICE: \$100.00

The clock is all original and in excellent condition. However, it will need a suspension spring and could stand to have the movement cleaned.



The base and pendulum show signs of age; but no dents or scratches are evident on either (The clock really doesn't need polishing). Has glass dome.

Name: _____

Address: _____

Telephone: _____

Bid: _____

Please mail this bid form (DON'T send money) to:

You will be contacted if you made the winning bid.

DEADLINE: September 1, 1996

Les McAlister

1369 Manuka Drive

O'Fallon, MO 63366

Horolovar Suspension Spring Thickness in Inches

