

The Journal Of The Electrical Horological Society

Chapter # 78 National Association of Watch and Clock Collectors



A
HAPPY NEW
YEAR TO
ALL

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President's Message

Fellow Horologists:

Greetings all,
As this year comes to a close I would like to welcome all our new members.

Next year will be a busy one with Chapter 78 holding meeting at Southern Ohio Regional located in Wilmington Oh in April and the National Convention in June which is being held in York Pa for 2025.

I created a Facebook group page for Chapter 78 so we can share, discuss and enjoy our unique Electric horological items. Just search for "NAWCC Chapter 78 Electric Horology". Please feel free to spread the word of our group to friends who enjoy Horology and especially our love of these wonderful unique electros! In closing I would like to wish all a Happy Holidays and look forward to seeing you next year.

Cheers,
James James Meechie

President

From The Editor:

The chapter is always looking for electrical clock and watch information that we can reproduce in the Journal. Company instructions and catalogs are particularly helpful in dating clock or watch models. Anything regarding European clocks and watches would be most welcome. Anyone wishing to write an article on any aspect of electrical horology should contact the editor.

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All hard copies will be scanned and returned via USPS.

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At rxmelchert@aol.com

Please add Chapter 78 in the subject line.

Feedback regarding the contents of this Journal and suggestions for future articles would be greatly appreciated.

THANK YOU

Electric “Mystery” Clocks of the Twentieth Century

By Alex Melchert

The lay public has always been fascinated on how clocks work. Until the late 19th century, clocks required either weights or springs to power the clockworks. Toward the end of the 19th century with the evolution of battery technology and ultimately mains electricity, clocks could be powered by electricity, although it was used to power basic clockworks. One of a kind, unusual clocks, built for the elite of society sometimes seemed to be working without a physical connection to the clockworks. With the advent of the 20th century, enhanced battery technology and motors could replace weights and springs. The term “mystery clock” became something that fascinated the general public. If we assume that a mystery clock is a clock that does not appear to have a connection between the power unit and the clockworks, then one of the first “mystery” clocks would be Henry Warren’s electro-magnetic clock of 1910. One version had no physical connection to the clockworks. Unfortunately, this clock was not a good timekeeper and was abandoned by Henry Warren as he pursued the invention of the synchronous motor.

Richard Hatch has written an extremely complete article on the history of the first Warren Clock Company . His article details the progression of the clock from mechanical to magnetic over a period of 5 years. He makes a very effective argument that this clock was the precursor of Warren’s AC synchronous motor and was pivotal in the development of that motor. His article can be found below at :

(<https://clockdoc.org/Default.aspx?aid=12438>)

Henry Warren, today considered the *"Father of Electrical Timekeeping,"* invented the synchronous motor and then to sell his invention proceeded with the use of Warren master clocks to standardize electrical frequencies, thereby ensuring that clocks with his motors would function properly and at the same time create the precursor of what we today call the National Grid.

With the availability of the synchronous motor, standardized mains electricity and plastics after World War II, a number of manufacturers created “mystery” clocks where the hands appear to be suspended in thin air. They were known under the following names:

The Dutch Secret, The Magic Crystal, Etalage Magic Clock, Rex Cole, Jefferson Golden Hour, Haddon Golden Vision, Mastercrafters 209 and others.

Haddon and Mastercrafters clocks were to a certain extent copies of the very popular Jefferson Golden Hour. The Dutch Secret, Magic Crystal, Etalage, Rex Cole and Jefferson models were all covered under the extensive patents of one individual: Leendert Prins, an inventor from the Netherlands. It is strange, how the most popular of these floating hands clocks were made for over 40 years by the Jefferson Company. This company had no experience in clock manufacture and was mostly involved with electronic components such as transformers and ballasts. It is said that the owner’s wife, on a trip to the Netherlands was fascinated by a clock she saw in a store, probably a Dutch Secret, and brought it home to the United States. The Jefferson Company bought Mr. Prins’ patent and with some modifications proceeded to manufacture the Jefferson Golden Hour for over 40 years starting in 1949. It is estimated that over two million Golden Hour clocks were made. The Golden Hour was extremely popular and was featured in 1950s TV shows in the background. The author received his first Golden Hour clock from his mother-in-law, who got it from her mother. That clock was a free giveaway in the early 1950s for people who bought Philco televisions.



The clocks manufactured under the Prins patents were very similar. They consisted of a sandwich of three circular pieces of glass. The middle piece had a ring gear hidden under the clock frame that rotated at one revolution per hour. The hands were completely separate and were a friction fit on the central rotating glass. The



hands consisted of a counterweight balanced construction with gearing to match the one revolution per hour. This type of mechanism was used in the Dutch Secret, Etalage Magic, and Jefferson Golden Hour. Other Jefferson clocks, such as the Golden Minute, Golden Helm, Golden View used the same mechanism, but were smaller in diameter than the Golden Hour and used a different motor. The Golden Secret, dispensed with the glass altogether but

used the same hands and motor as the non-Golden Hour clocks. Another model, the Golden Suspense went one step further and elevated the motor to the top of the clock and via pulley and ball chain “suspended” the dial in mid air. The hands on this clock were of the familiar counterweight design.

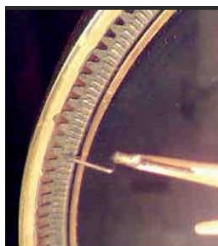


**The
Jefferson
Family of
Clocks**



A variation on the Prins patents was the was the Rex Cole and Boots Boy clocks that used a sandwich of four circular glasses, the central two both rotated. The minute hand was embossed on one glass and the hour hand on the other, thereby eliminating the need for external hands and counterweight

The popularity of the Jefferson Golden Hour stimulated the manufacture of similar looking clocks by other companies. Haddon created several clocks that looked like the Jefferson but used a different mechanism to move the hands. Their Golden Vision, Special



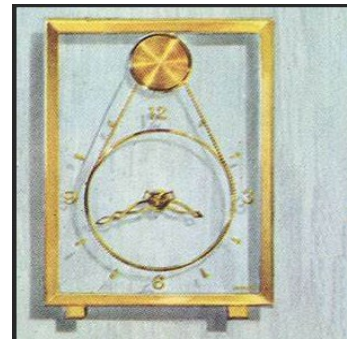
Vision, **Golden Visionette**, Commodore, Sun Gold’n Hour and Golden Secretary mimicked the line of Jefferson clocks. A fine wire extended from the minute hand to a rotating hidden disk in the clock frame. By this method Haddon was able to get past the Prins patents.



Two of Haddon’s clocks, South Wind and Linear were unique in that they were not circular in design. They were rectangular and used a vertical drive mechanism to move the hands. Many of the Haddon clocks had a light in the base. Both Jefferson and Haddon made clocks to order for special events such as Bowling and Golf tournaments. The clear glass lent itself well for embossing sports figures for presentation clocks.



One of the rarest mystery clocks is the Haddon Golden Charm, a copy of the Jefferson Suspense. It could be a shelf or wall clock. I have only seen one in a 1950s Haddon advertisement. I have never seen one offered for sale on the internet.



Mastercrafters, a manufacturer best known for their novelty clocks also ventured into the mystery clock market. Their **Fantasy Model 209**, a golden rectangular clock had two glasses that slid horizontally to engage the “floating hands.” Mastercrafters was very careful not to infringe on the Prins patents. They had just gone through a lawsuit from Vacheron & Constantin-LeCoultre, for making a copy of the Atmos clock that the average consumer couldn’t tell from the original.

(See Sidebar page 6).

There were many manufacturers over the years who developed clocks similar to the Golden Hour, even as the transition to quartz clocks had begun. An interesting clock that used two circular glasses was the Lowenbrau advertising clock of 1980. I have a functioning model adorning my basement bar.



The Jefferson Company made the Golden Hour into the late 1980s. The company and its brand was sold with all spare parts to the Timesavers Company located in Arizona. Timesavers can still supply a lot of spare parts for the Golden Hour. Parts for the lesser known Jefferson line of clocks are not available. Repairing those would probably require cannibalizing a non-working parts clock. These clocks were made during a time when there was great enthusiasm regarding the future. The post World War II middle class saw increases in technology and the betterment of life that these futuristic clocks represented.

These clocks are eminently collectable. Most are not so rare that they would fall outside the income of the average collector. Golden Hour clocks are readily available on the internet and at NAWCC Marts. The lesser known clocks occasionally show up on these venues. In terms of rarity, The Dutch Secret is probably the most rare of these type of clocks. Currently, only six are known. The Golden Hour was also made in a brushed chrome version called the “Exciting Hour.” They are rare and a recent example on the internet was tagged at over \$1,000. One of the last clocks that Jefferson made with “floating hands” was the Golden Suspense. The dial was suspended via a chain that rotated on a pulley. A few show up every once in a while on eBay. The replacement chain is difficult to obtain. It is similar to the continuous chain (# 6 Ball Chain) used in hotel blinds and requires a special tool to close the ends of the chain. This clock is very heavy (10 lbs) and attracts a great deal of attention. I friend who is a 4th generation clock maker sold one very quickly with the original box after placing it in his store window.

You will have noticed that I have not gone into great detail on the way these clocks work or how to repair them. That is beyond the scope of this article. There are some excellent websites and sources for that kind of information that I will outline below.

Reference:

Russell, Roger, The “Dutch Secret” and the Jefferson Electric Clock History, NAWCC Bulletin October 2004

Rusell, Roger, Etalage and Rex Cole Mystery Clocks, NAWCC Bulletin, October 2002

Kaye, Mel, A “Mystery Clock for the Space Age, NAWCC Bulletin, October 1994

Russell, Roger, Mastercrafters and Haddon Mystery Clocks, NAWCC Bulletin August 2003

Anonymous, NAWCC Journal of Electric Horology, April 1985 (repair instructions) Note: There is a better copy available through the Timesavers Website.

WEBSITES: Google Search

Phenomenal Information on all aspects of these clocks including Repair Tips

Roger Russell’s History Page About Jefferson Electric Clocks

Roger Russell’s Jefferson Golden Hour

Roger Russell’s The Clocks of Leedert Prins

Roger Russell’s History Page About Haddon Clocks

Roger Russell’s History Page About Mastercrafters Clocks

Roger Russell’s Mastercrafters Model Page

Recommended Reading / Repair / Model Tips and Information

Holmes, Bob, Catalog of Mystery Clocks and Related Material, Winter, 2006, Buckeye Chapter #23 (No longer available at NAWCC Store) *A Great source for photos of these Mystery clocks.*

Crum, Elmer, Keller, William, 150 Years of Electric Horology, 1992 NAWCC National Convention

Bilger, William, How to Repair Jefferson Golden Hour Mystery Clocks, Blue Parrot Publishing Co, 2010 (Available through Amazon)

Jefferson Golden Hour
Guide for Owners



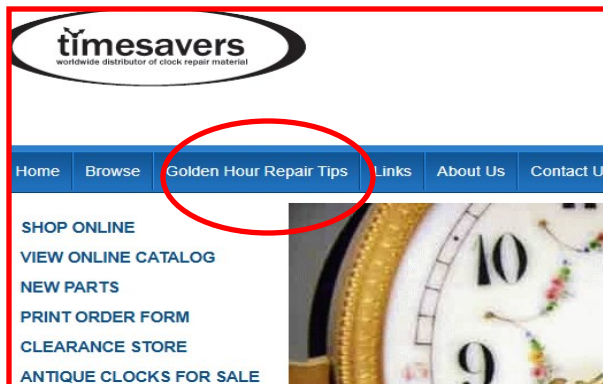
SIDEBAR:

Mastercrafters

Sometimes, those “new style” Mastercrafter clocks fell more into the “knockoff” category, as Mastercrafters did what a lot of smaller manufacturers do—basing some of its designs on established “luxury” models in an effort to undercut the competition at lower prices. In 1955, for example, the Mastercrafters Model 308 “Dorell” clock drew the ire of esteemed Swiss manufacturer Vacheron & Constantin-LeCoultre, who claimed the design blatantly copied its famed “Atmos Clock.” Unlike the Atmos, which was operated by atmospheric pressure and sold for \$165,(1955 price) the Mastercrafters 308 was electric and went for about \$30 . A circuit court judge eventually determined that some customers would buy Mastercrafters’ cheaper clock for the purpose of acquiring the prestige gained by displaying what many visitors at the customers’ homes would likely assume to be an Atmos clock. United Time also made an Atmos copy, but it wasn’t as close a copy as the Mastercrafters clock and did not inspire a lawsuit. (No rotating torsion disk)

Information About Repairs and Replacement Parts

<https://timesavers.com/p-9286-golden-hour-repair-tips.html>



Timesavers is the exclusive site for Jefferson Golden Hour parts. They provide 2 pdf files that one can download with tips on how to repair that clock. See RED circled click points above and below.

Golden Hour Repair Tips



The Classic Golden Hour Mystery Clock

Timesavers is the exclusive distributor of repair material for the Golden Hour Mystery Clock. This clock has been popular for over 65 years with collectors and collectors alike.

- [Repair Tips - Part 1 \(requires Adobe Reader\)](#)
- [Repair Tips - Part 2 \(requires Adobe Reader\)](#)

Replacement parts for the Golden Hour Clock. (Click to view or order) [all products...](#)

- [#847 Rubber & Glass Adhesive For Golden Hour Clocks](#)
- [220 Volt Golden Hour Motor](#)
- [Convex Tension Washer-Golden Hour](#)
- [Glass For Golden Helm, Minute,View Clocks](#)
- [Golden Hour 3-Pc. Leaf Spring Set](#)
- [Golden Hour Base Plate Screws 2-Pack](#)
- [Golden Hour Clock Bezel Retainer](#)
- [Golden Hour Clock Cord Set](#)
- [Golden Hour Clock Glass](#)
- [Golden Hour Clock Gold Base](#)
- [Golden Hour Clock Minute Hand](#)
- [Golden Hour Clock Motor](#)



United Time Model 999

The Hamilton Watch Company and the First Electric Watch

By Rene Rondeau

Although electricity has been used in clockmaking for generations, watchmakers could only dream of eliminating the mainspring. With no batteries small enough to fit inside a watch case, the dream could not become a reality. The turning point came as a result of WW II research, when miniature batteries developed for the military became available to the public.

The first company to bring the elusive dream of an electric to reality was the Hamilton Watch Company in Lancaster, PA. In 1946, Hamilton's President, George Luckey, assigned the project of developing such a watch to Arthur Fillinger in their Research and Development Department. Fillinger ultimately designed an electric timepiece in which the electromagnet powered the balance wheel, which in turn drove the rest of the gear train. Because miniature batteries were still not commercially available, he built a model of his movement as a small clock. Nonetheless, he submitted a patent claim under the designation "Electric Watch" in 1947. Hamilton's management took great pride in their first patent for an electric timepiece, granted in 1951. Fillinger worked on his model for nearly two years before transferring to another division. His successor, John Hendricks continued experimenting, but despite their best efforts. The watch / clock remained unreliable.

In 1950, Fred Koehler, a master technician considered to be Hamilton's finest watchmaker took over the project. He had frequently been called upon to make parts for and repair the Fillinger models, and understood the limitations of the movement. He constructed a far superior movement which retained the electromagnetically powered balance wheel, but was otherwise redesigned. Like Fillinger, Koehler built his model as a clock but submitted a patent application under the title "Electric Watch" in October, 1951. His movement became known as the "Koehler Clock," and was highly regarded in the Research and Department for its accuracy —called "equal to or better than that of a railroad" in a 1952 Hamilton memo.

In 1952, Koehler took the next step and assembled a handmade, watch-sized prototype in which a circular ring of coils surrounded the movement, with a battery fitted into the back of the case. Known as the EM-1, it was the first battery-powered wrist watch made at Hamilton. Unfortunately, though it was accurate, it consumed too much battery power to be practical.

Shortly before the Koehler prototype had been completed, the Elgin Watch Company announced its intention to produce and market an electric watch. This motivated Hamilton's chief physicist, Dr. John A. Van Horn, to take a closer look at the project. He proposed to Hamilton's management that the development work be given top priority, with the goal of producing the world's first electric watch. The Directors agreed and the project was assigned to Philip E. Biemiller, a talented physicist in Van Horn's division and James H. Reese, a brilliant inventor who had the rare talent of turning vague concepts into working models. This three-man team devoted the next decade to developing a marketable watch.

Van Horn felt that Koehler's electromagnetic system, with its fixed coil and moving magnets, was not suitable for a wristwatch because of its high energy requirements. He proposed a movement with a coil on the balance wheel moving within a permanent magnetic field.

Koehler's watch was abandoned, but his clock movement was used as the basis for the Hamilton Cordless Clock, an abortive attempt to make and market a battery desk clock. After six years of development and well over \$100,000 invested, the cordless clock was scrapped in 1959. Koehler's original movement had been so stripped in an attempt to keep production costs low that it was no longer reliable.

Van Horn, Biemiller and Reece built their first working prototype of a moving coil electric watch in February, 1953. Because the balance wheel took up so much room, the battery was fitted into the strap. Further refinements led to a smaller balance wheel and more efficient timekeeping. After three years and countless obstacles, the Model 500 was created. It was subjected to extensive “wear testing” by Hamilton employees, with only limited success. The development team redesigned most of the weak points, but by mid-1956 Hamilton’s management became impatient and fearful that another company, particularly Elgin, would market an electric watch first. Consequently, the inventors were under extreme pressure to get the watch ready for market, despite its being an unrefined prototype.

On January 3, 1957, Hamilton held a press conference to announce the “World’s First Electric Watch,” though the watches themselves did not hit stores until March. The idea of a watch that never needed winding appealed to the 1950s consumers, who were captivated by progress and modernity. The watch was an instant hit and its popularity was enhanced by the dramatic case styling that were used. The cases were visual reminders of the ultramodern movement inside them.

Unfortunately, the physical limitations of the crude contact system and the complete lack of dealer training led to an overwhelming problem as customer’s watches stopped and jewelers had to return to the factory for servicing. Hamilton’s reputation began to deteriorate.

By 1961, when Hamilton released its Model 505, a well-designed and very reliable movement, the damage had been done. The excitement of producing the world’s first electric watch had worn off, and Hamilton faced the stigma of a temperamental watch that intimidated many watchmakers. When Bulova announced the Accutron, with a tuning fork replacing the balance wheel of the Hamilton electric, another nail was driven in Hamilton’s coffin.



The lifespan of the Hamilton electric watch was brief, but it spanned the most exciting and tumultuous decade of the century, from the launch of Sputnik —the first space satellite to man’s first step on the moon. When first released in 1957, it was *“the watch of the future,”* but unfortunately for Hamilton, the future passed them faster than anyone could have imagined. By 1969, when production ended, the world’s first electric watch had become a quaint electromechanical relic.

NOTE: The futuristic case designs of designer Richard Arbib today are avidly sought by collectors



This article, reprinted from *“150 Years of Electric Horology,”* 1992, With Permission of the author

Suggested Reading:

Rondeau, Rene, 4th Printing, Revised Edition, 2006, *“The Watch of the Future,”* Corte Madera, CA, Published by the Author

Rondeau, Rene, 1991: The Hamilton *Cordless* Clock, NAWCC Bulletin, 33:529-536

Rondeau, Rene, 1991: Dials Crafted of Natural Wood — Hamilton Sherwood Watches, NAWCC Bulletin, 33:251-255

Rene Rondeau’s website <https://www.hamiltonwristwatch.com//> offers a wealth of information on Hamilton Electric Watches.




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Classical Electric Clock/ Watch Ads From the Past



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(E) THE "500". Sparkling brilliance of heavy chrome keynotes this handsome clock contrasted by its rich black dial with gold numerals and red second hand. Retail B04819-1297 each... \$19.95 B04819-1197 3/more \$19.95

(F) THE LADY MARION. Delicacy and taste create an enchanting effect. 24 kt. gold plated housing with white hand crafted dial with matching base. Retail B05843-1492 each... \$22.95 B05843-1377 3/more \$22.95



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Jefferson's known quality in a new cordless clock. Brings to the modern home a new way of life... a new mood of elegance and perfection. Self-regulating movement, operated by standard mercury cells, assures precision accuracy. Jefferson Cordless Clock can be used anywhere with its own built-in power source. Measures 5 1/4 inches high and 4 1/4 inches diameter. Batteries included with clock. Wt. 3 lbs.

(G) THE INTERMEZZO. An exquisite cameo dial of gold on winter white encased in 24 kt. gold plate housing. Retail B05845-1947 each... \$29.95 B05845-1797 3/more \$29.95

(H) THE INTEGER. A gold prismatic dial encased in polished chrome housing creates a new design concept. Retail B05844-1947 each... \$29.95 B05844-1797 3/more \$29.95

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Classical Electric Clock/ Watch Ads From the Past

JEFFERSON ELECTRIC COMPANY

The Jefferson Electric Company started in business in 1915. They produced several electrical items such as transformers, automotive ignition coils, fuses, lamp ballasts, etc. In 1931 they moved their manufacturing facilities from Chicago to Bellwood, Illinois and built a very large, modern plant. The original Jefferson Mystery Clocks seem to be the result of the company President's wife finding an "appealing" clock in a shop window during a visit to the Netherlands.

The design of the original Dutch clock was simplified and the various Jefferson Mystery Clocks were placed in production.

The clocks shown in the flyer were introduced in the late 1950's and early 1960's. The "Integer" and the "Intermezzo" models (the 110 VAC corded desk clocks) featured a patented system that wound any excess electrical cord in the base of the clock thereby tidying your desk top.

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Daring new design concept. Distinctive numerals deeply etched into clear crystal and luxuriously gold filled. Hands float in space—suspended by a gleaming gold chain. 24 kt. gold plated.

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Exquisite timepieces

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REFLECTED LIGHT

GOLDEN VISION LIGHTED MODEL 70. Amazing "See-Thru" Dial is enhanced by "REFLECTIVE LIGHT" from its sturdy base of 24K Gold Plated metal. 3-Dimensional time indicators etched on Mystery "See-Thru" crystal dial are gold filled. Reflective light makes clock readable in the dark, useful as a night light, or to offset television glare. 8 3/4" high, 7 3/4" wide, 4 3/4" deep. Shpg. Wt. 4 lbs. Handsomely gift packaged.

54C1-1377 Retail **\$22.95***

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54C2-1077 Retail **\$17.95***

THE COMMODORE MODEL 85. A clock of originality and style. "See-Thru" mystery glass is deeply etched in 3-dimensional gold filled nautical scene. Individually machine-turned spokes, pressure cast base and rim in 24K Gold Plate. Etched gold-filled Arabic Numerals and harmonizing hands seem to float in space. 7 1/2" high, 8" wide (dial with spokes), 4 1/4" deep. Shpg. Wt. 3 lbs. Gift packaged.

54C3-1197 Retail **\$19.95***

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Classical Electric Clock/ Watch Ads From the Past



Two great American inventions. One is the Hamilton Electric watch.

Electricity. You think of Edison. And Franklin. Electricity is American. Is it any wonder that Hamilton—with its American pride and ingenuity, with its American fine watchmaking tradition—made the world's first electric watch? The place: Lancaster, Pennsylvania, U.S.A.

Introduction date: January 3rd, 1957. No wonder Hamilton Electric watches are years ahead of the others. Remarkably accurate and dependable. With a new, improved battery built to last for two years. With only eight moving parts, less than any other electric. The Hamilton Electric. A great

American achievement. A proud possession. A prized gift. Hamilton jewelers are now showing a complete selection from \$69.50.

If you want more than time, get a **HAMILTON**

Watch above: Gemini II, \$125. Others: Nautilus 604, \$115. Centaur, \$125; Nautilus 402, \$125; Nautilus 503, \$79.50. Hamilton Watches are sold by jewelers in the U.S., Canada and more than 50 other countries. Hamilton Watch Company, Lancaster, Pa., U.S.A.



Classical Electric Clock/ Watch Ads From the Past

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Your gift will be remembered . . . for the "Golden Hour", with hands that "float" in clear crystal, is a constant conversation-piece. Your gift will be cherished . . . for the "Golden Hour" brings heirloom quality to modern timekeeping. 24 Karat gold plated . . . fully guaranteed.

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NAWCC, CHAPTER 78- ELECTRICAL HOROLOGY WORD SEARCH

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 N R P B O S E L F W I N D I N G C O B N
 O E E Q N I A B R E D N A X E L A N W D
 K G M R E C A P N O T L I M A H R S A Q
 B R I L L I E E T A C K L F I Y J W R H
 T A D F M A I Y Q B Q Y G S F B J N D W

Find the word in the puzzle. Words can go in any direction. Words can share letters as they cross over each other. Solution will be posted in the January Update.

ACCUTRON

ALEXANDERBAIN

ANSONIA

ATO

BARR

BRILLIE

BULLE

DIMEP

DRAWBAUGH

ELGIN

EUREKA

FORRESTVILLE

GOLDENHOUR

HADDON

HAMILTONPACER

HIPPTOGGLE

INGRAHAM

JEFFERSON

JUNGHANS

MASTERCRAFTERS

MURDAY

POOLE

REMPE

SANGAMO

SELFWINDINGCO

SESSIONS

SETHTHOMAS

SYNCHRONOME

TELECHRON

TEMPEX

TIFFANYNEVERWIND

TIMEX

NAWCC Chapter 78—Electrical Horology LINKS

The Electrical Horology Section of The NAWCC Website

<https://new.nawcc.org/index.php/chapter-78-electrical-horology-society>

Horologix: A great site to review restoration of Bulle and Eureka clocks

<http://www.horologix.com/index.html>

Sangamo and Hamilton-Sangamo Electric Clocks

<http://www.sangamoclocks.com/>

Rene Rondeau's website for the complete history of the Hamilton Electric Wristwatch.

<https://www.hamiltonwristwatch.com//>

Roger Russell's websites for all things Jefferson, Mastercrafters and Haddon

<http://www.roger-russell.com/jeffers/prins.htm>

ClockDoc, the most complete website in the world devoted to electric clocks. We have now established a relationship with our friends in the United Kingdom, whereby we get monthly updates to changes in the ClockDoc website which I will include at regular intervals for our members.

<https://clockdoc.org/Default.aspx?aid=148>

December, 2024 Updates are:

Two new [Ferramo](#) Ferraris driven clocks by Bauerle. This was previously discussed on this group and now we have more information

The [later type of Kelvin Hughes](#) quartz marine chronometer, after the company stopped using Patek Phillipe movements. We don't know who made this movement, can anyone recognise the makers mark? Its not in the Kochmann book, but possibly it is too recent.

Another [1 second Ericsson master clock](#)

Two early quartz from Staiger, the [QC2000 and QC2001](#). The QC2000 was Staiger's first quartz and both date to early 1970s with interesting quartz timed electromechanical movements

New information and another [very early Siemens Shuckert](#) master clock. Back in October we listed an early 1906 Siemens master, but now we have not only a second example but a lot more information on the maker.

A [less common Bardon pendulum bob](#) design. This Bardon pendulum is uncommon, but a recognized rare variation.

The document search still occasionally finds a document that it cannot provide a link to, please let me know through the contact form if you identify a problem document.

Check out the website, particularly if you have an interest in a particular clock or company.

These and previous updates can be seen at <https://wp.clockdoc.org/updates/>

NAWCC Chapter 78—Electrical Horology LINKS

Antiquarian Horological Society, Electrical Horology Group

<https://www.ahsoc.org/groups/electrical-horology-group/>

Michael Ridout's Electrical Horology Website

<http://www.electric-clocks.org.uk/>

Forum for Collectors of Flip Digit Clocks

<https://www.flipclockfans.com/forum/>

Pappy's Warren Telechron Clock Website and Forum

<https://www.telechron.net/main.htm>

Westclox, Warren Telechron, Standard Electric, and Seth Thomas Clock History

<https://clockhistory.com/>

Pulsynetic Clocks by Gent's of Leicester

<https://pulsynetic.eu/>

Selfwinding Clock Company of NY and Western Union Clocks

<https://www.abbeyclock.com/western.html>

Clock Museum of the Electric Time Company

<https://www.electrictime.com/museum/>

Museu do Relogio Prof. Dimas de Nelo Pimenta

<https://www.dimep.com.br/museu/>

Largest clock / watch museum in South America. A company museum of Dimep Systems, Brazil highlighting the accomplishments and clock / watch models of the company founder. A digital guided tour via the mouse. May be challenging to some because of the Portuguese titles. This company bought the Bulle Patents in the late 1950s.

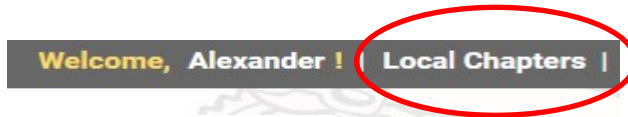
If you are aware of any other interesting electric clock / watch websites or YouTube videos, please bring to the attention of the

Editor: Alex Melchert, rxmelchert@aol.com

How to Access The Chapter 78 Information on the NAWCC WEBSITE

Step 1: Need to establish a NAWCC password.

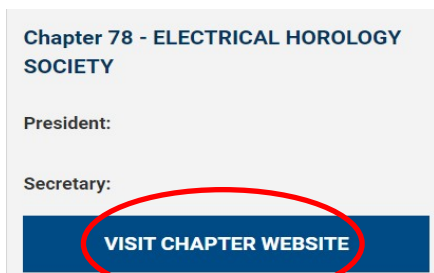
Step 2: Click on **LOCAL CHAPTERS** in the top title bar.



Step 3: Find a chapter by interest, click on **SEARCH**



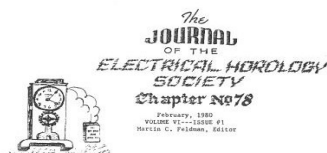
Step 4: Chapter 78—ELECTRICAL HOROLOGICAL SOCIETY, Click on **VISIT CHAPTER WEBSITE**



Step 5: NAWCC Chapter 78– Electrical Horological Society, click on **CHAPTER MATERIALS**



NAWCC Chapter 78 - Electrical Horological Society



Step

Jour-

NAWCC Chapter 78 Electrical Horological Society Journals

6: NAWCC Chapter 78, Electrical Horological Society journals, click on **JOURNAL INDEX** (Blue type)



Index is arranged alphabetically by subject. Find what you are looking for (Journal year) and go back one step and click on the appropriate year.

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Accutron, Bulova	Technical Description of, 1963 SAE Paper	Bennett, W.O.	Mar. 91	XVII	1	9 - 20

**All MART ADs ARE
FREE To Chapter 78
Members**

Send a copy to the
attention of the

Editor: Alex Melchert
522 De Mott Avenue
Baldwin NY 11510

OR

Email to:

Alex Melchert, Editor
rxmelchert@aol.com

FOR SALE: Poole /Barr and Tiffany Neverwind, Bulle parts, movements and project clocks. Let me know what you are looking for and I'll check my inventory. Downsizing my collection. Contact: Alex Melchert, email rxmelchert@aol.com, 516-319-9746

FOR SALE: HAMILTON ELECTRIC WATCH COLLECTORS

A new printing (4th) of "*The Watch of the Future*" by Rene Rondeau is available. This is the most comprehensive history of the Hamilton Electric Watch available. The author had access to the Hamilton archives. The 255 pages have color photos all Hamilton Electric Watch models. Available direct from the author for \$69.95 plus \$7.25 media mail postage. The book and its contents are viewable at the following website: <https://www.hamiltonwristwatch.com>

WANTED: Hettich electronic clocks from the 1960s parts and movements.

Contact: Alex Melchert, email rxmelchert@aol.com, 516-319-9746

WANTED: REMPE Manufacturing Company, Danville Pennsylvania clocks, literature, parts, movements, cases or project clocks in any condition.

American Clock Co. clocks, parts or literature. Contact: James Meechie, Spike_69@hotmail.com

FOR SALE: Standard Electric Company Master Clock, fully restored with working slave. Additional Standard Electric Master without slave. Make offer. Contact: Jack Chalikian, fourth generation clock repair and restoration. Chalikian.com, (516) 922-7222, allow phone to ring at least 8 times

WANTED: Jefferson Golden Minute Motor. The external brass drive gear on the Golden Minute should be a 36 tooth gear, and the internal gear assembly on the Minute should reduce to 1 /12 RPM (same as 5 RPH). The Golden Hour has a 1/6 RPM speed...so even though they look identical, the gear ratios are different. Contact Len Newman at lnewman8@juno.com

FOR SALE: Number 6 Ball Chain for Jefferson Suspense clock, 26 inches, NEW, \$10, free shipping

Contact: Alex Melchert, email rxmelchert@aol.com 516-319-9746, leave message

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*The Journal Of The
Electrical Horology Society
NAWCC Chapter 78*

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Alexander Melchert, Editor

522 De Mott Avenue

Baldwin, NY 11510, United States

OR email the required information to rxmelchert@aol.com, please put NAWCC Chapter 78 in the SUBJECT line.