



JAPANESE TEMPORAL CLOCKS

by Ken McWilliams

One of the primary reasons that I chose to go into clock repair and restoration was for the challenge. I wanted something that I could never completely master, something that would be a constant learning experience. I haven't been disappointed.

I recently received two Japanese temporal timepieces, both from the same owner. The first one was a rectangular shaped pocket watch incased in a tortoiseshell container. (Called an "Inro") This watch was featured in an article written by Ferdinand Geitner in the November/December 2016 Chrono Times. The second timepiece was a gold-plated, time and strike, Japanese carriage clock.

Before I get into the clock itself, let's look at what temporal time is, and how it was handled by the Japanese in the late Edo period (1603 to 1868). Temporal time is simply local time based on the sun. Since virtually all business transactions were conducted locally, this worked fine for the people of this period. Japanese traditional timekeeping practices required the use of unequal temporal hours: six daytime units from local sunrise to local sunset, and six nighttime units from sunset to sunrise. Adapting the European clock designs to the needs of Japanese traditional timekeeping presented a challenge to Japanese clockmakers. Japanese timekeepers varied with the seasons; the daylight hours were longer in summer and shorter in winter, with the opposite at night. European mechanical clocks were, by contrast, set up to tell equal hours that did not vary with the seasons. Most Japanese clocks

were driven by weights. However, the Japanese were also aware of, and occasionally made, clocks that ran from springs, like the Western lantern clocks that inspired their design. Spring driven Japanese clocks were made for portability.

The typical clock had six numbered hours from 9 to 4, which counted backwards from noon until midnight. (The hours numbered 1 through 3 were not used in Japan for religious reasons. These numbers were used by Buddhists to call to prayer). The count ran backwards because the earliest Japanese timekeepers used the burning of incense to count down the time. Dawn and dusk were therefore both marked as the sixth hour in the Japanese timekeeping system. The Japanese characters for each hour are: 六6, 五5, 四4, 九9, 八8, 七7.

European lantern clocks were the starting point for the design of



This is a similar temporal clock but has moveable numerals. No calendar.

Japanese clocks. Beginning in 1844 the calendar was revised to provide differing hour lengths for different parts of the year. Japanese clocks used various mechanisms to display the changing temporal hours. The use of clock faces was part of the European technology received in Japan, and a number of arrangements were made to display Japanese hours on clock faces. Some had movable hours around the rim of a 24-hour clock dial. Others had multiple clock faces that could be changed with the seasons. To make a striking clock that told Japanese time, some clockmakers used a system that ran two balance escapements, one slow and one fast. The appropriate escapement was changed automatically as the time moved from day to night.



The hand is fixed, and the dial rotates



Note the 3 calendar windows, top & Bottom

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PRESIDENTS MESSAGE

By Mostyn Gale

The year has gotten off to a rip-roaring start thanks to all of you active and enthusiastic members—a big THANK YOU from me to you! We have seven new members, have held four classes and workshops, had a very informative speaker at our meeting in January and a successful mart at the Ventura Fairgrounds last month. Our Mart sold all 135 tables and had 245 paid visitors—up about 10% from last year. That's a pretty amazing first two months of the year!

We continue to focus on education—Lex Rooker is completing a class on Count Wheel Striking Clocks which should be coming out soon. Have all those wheels and levers ever gotten you confused?—here's your chance to get all your questions answered. Anyone who has taken a class from Lex can attest to them being very worthwhile.

No doubt you have heard the expression, the more you put into something, the more you get out of it. This is certainly true for all things horological. I have found that a little effort goes a long way in the clock world—my point here is to encourage you to pursue whatever interests you might have, be they historical, artistic, or technical. Even if you think you might be a bit over your head—there are many people in our Chapter that would be excited to help. And then, you MUST share what you're doing—the more you share, the more fun we all have.

In fact, the world of horology is a lot bigger than many might realize and one of the best ways to take advantage of that is to subscribe to one or several of the other magazines or journals available: Here are a few that might be interesting to you: Antiquarian Horology: this is the quarterly publication of the Antiquarian Horological Society. The Society is based in England but this publication is the best scholarly publication there is. The dues of \$82/year are well worth the quality of information they deliver.

The Horological Journal: this is the monthly publication of the British Horological Institute. It has many interesting articles covering a broad variety of topics. Dues are ~\$160/yr. Clocks Magazine: A monthly publication covering many aspects of clocks; costs \$99/yr. Horological Times: this is the monthly publication of the American Watchmakers-Clockmakers Institute. Their charter is to certify watch and clockmakers for business in the trade and their journal covers interesting articles on repair of watches and clocks. Their dues are \$175/yr.

We also have many ways that you can be involved in our Chapter. Specifically, we need help in the education program and we can also use help with getting and setting up lunch at our monthly meetings. And there are many other ways that you can help as well. If you have suggestions or other comments, please don't hesitate to talk to me. See you at the next meeting.



Happy Birthday

March

Greg Anserlian, Michael Arnoldus, Alan Davis, Tim Harriman, Richard Muntz, Tom Musselman, Michael Pollard, Steven Stewart, Bill Douglas, and Jerry Treiman

April

Mark Davenport, Donna Gaglini, Cathy Gillogly, William Hall, Ron Kubitsky, Loren Miller, Walter Pickett, Dean Sanderson, Jeff Slobodian, and Lee Wade.

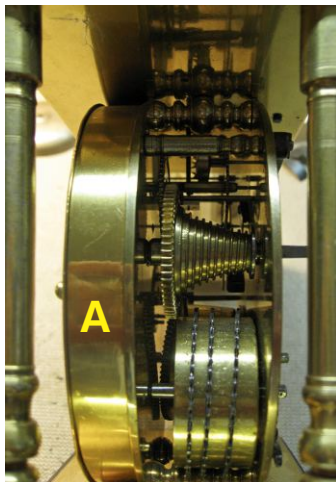
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In 1873 the Japanese government adopted Western style timekeeping practices, including equal hours that do not vary with the seasons.

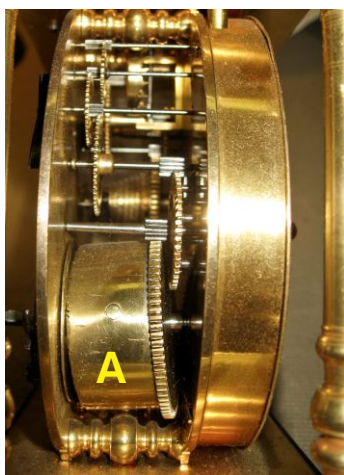
Now let's look at our clock. It is a large 30 hour carriage clock style with a bell strike on the top. It has a fusee time train with a crown wheel escapement governed by a balance wheel. It is also a calendar clock. The sides are open and subject to dust and debris. It has a single hand which might lead you to believe that it is not very accurate. (Like the early English lantern clocks.) This is not true because the fusee helps provide a uniform power to the escapement. The single hand is merely an indicator and does not even move. The dial rotates instead of the hand. I'll bet you haven't seen many clocks like that! It is a 24-hour dial with numerals four through nine repeated twice. Remember, the first six is sunrise and the second six is sunset. Time is set by manually rotating the dial. The motion works which includes the calendar mechanism is in a covered container which helps protect it from dust and debris.

This clock came to me because the spring barrel cover on the strike train had come off and allowed the spring barrel to twist and jam its mating pinion. My first thought was that the spring had broken, or one of the holes had torn out allowing it to explosively unwind. After disassembly, I was surprised to find none of my assumptions were correct.

Some inventive, but not very bright, repairman had made a very strange winding arbor and spring hook replacement. The Arbor diameter was less than a quarter of an inch, which is much too small for a spring this size. To compensate for this, the repairman made a disk about three quarters of an inch in diameter with a hole in the center and soldered it to the winding arbor. He had filed the outer portion of the disc round with one area left high to act as the hook for the spring. The disc was only about 0.050" thick so the outside of the spring had no support on either side. Eventually, the spring pushed the end cap off. I made a new winding arbor out of drill rod designed to



The enclosure (A) is for the motion works and calendar mechanism.



Note the angle of the spring barrel (A) and the loose cap.

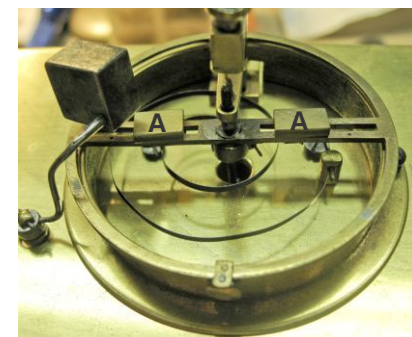
properly accommodate the spring and barrel. When reassembled, the clock struck as it was designed to do.

The strike was determined by a count wheel located on the back of the clock. It consisted of a count wheel, count lever, and a gathering pallet. The gathering pallet would lift the count lever and advance the count wheel by one tooth then lower the count lever. If the count lever did not fall on a deep slot, the gathering pallet would continue until it did. The count wheel turned counterclockwise and had the following strike sequence: 9-2-8-2-7-2-6-2-5-1-4-2. One revolution of the count wheel represented 12 hours. An iron hammer struck the time on a bell located at the top of the clock.



Count wheel

At the top of the clock, under the bell, is a balance wheel. The balance wheel is about 3 inches in diameter and is suspended by a string attached to the top of the arbor. The hair spring only has two coils. The balance has two wide spokes with a slot in the center of each. Two adjustable weights ("A" in the photo to the right) fit into the slots and are used to adjust the rate. (Much like a foliet escapement) Moving them out will retard the clock and conversely, moving them in will advance it. The verge is located at the bottom of the balance arbor and works with the crown wheel. A tab attached to the balance wheel hung down below the bell and is visible from the front of the clock. This is a visual indicator that the clock is running.



Another innovative item on this clock is the two winding ratchets. The two clicks are kept engaged to the ratchet wheel by a single spring. One end of the spring is attached to the left click and tail puts pressure on the right click. this scheme seems to work quite well.



Like I said earlier, new things, or in this case a very old things, keep popping up to keep horology interesting. ■

Chapter 190 People

Interviewed by Walter Pickett

If you are married, do you have any children?

I have three adult daughters who no longer matter because I have a granddaughter who calls me "PahPah".

Where were you born and where did you reside before landing here?

I was born in what I call East Hollywood, near LA City College. The hospital, that was at Santa Monica and Hoover, is no longer there. I lived on Normal Avenue. Moved to Gardena, where I graduated high school, met my wife – she was a senior while I was a junior, married in 1973, a year after my graduation. Lived in Gardena until 1981 when we moved with our 5 year old daughter to Camarillo. We couldn't afford a larger, better house in the greater South Bay area, compared to Camarillo.

Did you go to college?

I did not do the traditional college thing – went to Los Angeles Harbor College from 1972 to 1980 – I avoided the Vietnam draft by enlisting in the USAF – no deferments – went to college while in the USAF, continued after, eventually graduating with a degree in Business (marketing) minor in Journalism (public relations) from Dominguez Hills, a Master's degree in public administration, and currently finishing up a fire protection engineering Bachelor's and Masters degree at Cal Poly San Luis Obispo.

Are you presently employed?

I am retired from the Los Angeles City Fire Department where I was a Fire Captain, still currently maintaining my paramedic license. I have taken employment with CASE Forensics, a Jensen Hughes company, where my title is the Southwest Region Fire Services Manager. My primary role is to determine the origin and cause of assigned fires, usually for insurance companies and attorneys, working as an expert witness. I also provide fire life safety consulting and contracted plan check services. Jensen Hughes is a major corporate consultant for fire life safety building design, working on office and residential structures, nuclear facilities, power generating facilities, athletic stadiums, and entertainment facilities. I also provide consulting services through Jensen Hughes to cities and fire departments.

Do you have any hobbies?

Other than my relatively new horology hobby, I am



John Kitchens

returning to backpacking, hopefully long-range hiking trips, fishing, gardening, reading and writing. An avocation is becoming artisanal black smithing.

Tell us about your interest in horology?

I like timepieces, but more significantly, I have always been fascinated with taking apart mechanical things. Putting them back together has not been so successful – ask my mother if she were still around. I want to improve my ability to put clocks and watches back together. My mother enjoyed cuckoo clocks. My dad built a "grandfather" clock. The sounds of clocks make me smile, somewhat of a nostalgic grin and pleasure.

Have you participated in any NAWCC activities?

Outside of local clubs, no, although I recently voted in the NAWCC election, hopefully voting the "right" way. I have been a NAWCC member for a little more than 6 months.

Do you have any clock or watch stories.

So far, all repairs of clocks and watches have been tough. Taking them apart, repairing, replacing bushings, making new replacement parts – no problem. What to do with all of the parts, not so much. They don't seem to work properly after they come apart.

We recently purchased a house (the family wants to call it a cabin) in Big Bear City. It came with a battery operated cuckoo clock. A plastic bird is supposed to pop out at the proper times. Our granddaughter makes sure that the bird makes its appearance, as its popping out is somewhat intermittent. The hour makes its imitative cheep, she looks up, and makes her statement "It didn't come out", or "I saw it". She definitely lets us know. When I feel more comfortable being able to put it back together once I clean and lube it, I will open the case and provide the needed service. ■

Welcome New Members



Alex Grzywacki
from Santa Barbara

Ed Neumann
from Camarillo

John Kitchens
from Somis



Mary Anne Herschede
from Santa Barbara



Bill Douglas
from Camarillo

Robert Seitz
from Oxnard



Brian Watson
from West Hills

Two Early 19th Century American Clocks

by Bill Robinson

(Dates and information were obtained from publications available from the library of the NAWCC. The photographs are from clocks in my personal collection)



Ingraham Style Carved Short Case

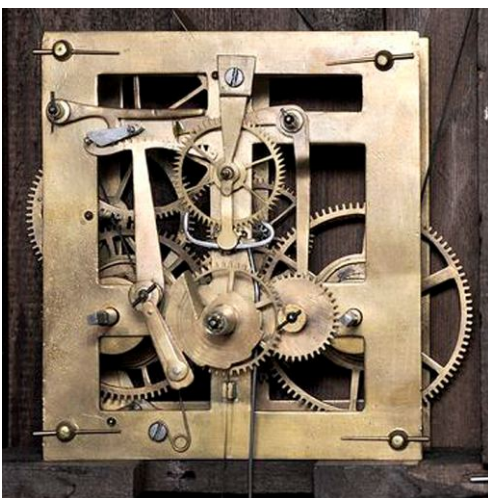
About 1828 the cabinetmaker Elias Ingraham was engaged by businessman George Mitchell to design a clock case to compete with the Jerome long-drop, mirrorbronzed styled case. Ingraham designed a short case with carved splat and columns as you see here. This style case was first used with wood movement clocks but was later also used with eight day brass movements. The shorter 30-hour wooden movement case is often called a “transition” style implying it was a transition from the pillar-and-scroll case to the longer bronzed style case. As noted above it was designed to compete with the Jerome style case.



Carved Case with Eight Day “Salem Bridge” Cast Brass Movement

The style of the case and the movement indicates a probable date from the early 1830's. No label exists. The hand-painted tablet as shown above is old but may be a later replacement. The dial of this clock is painted wood. Earlier Salem Bridge clocks usually had painted iron dials imported from Boston.

Salem Bridge was a region in the southwestern part of Waterbury Conn. It was named after a bridge across the Naugatuck river. In June 1844 it was absorbed into the newly formed town of Naugatuck.



The movement of this clock is cast brass, eight-day, weight driven, attached to a seat-board and is original to the case. This movement is probably from the workshop of Hemen or Sylvester Clark. This is now referred to as an “intermediate” style movement. The early styles were attached directly to the back-board and the late style had circular cutouts in the front and back plates. Both of the Clark brothers supplied movements to many of the clockmakers in or near Salem Bridge during the 1820's and 1830's.

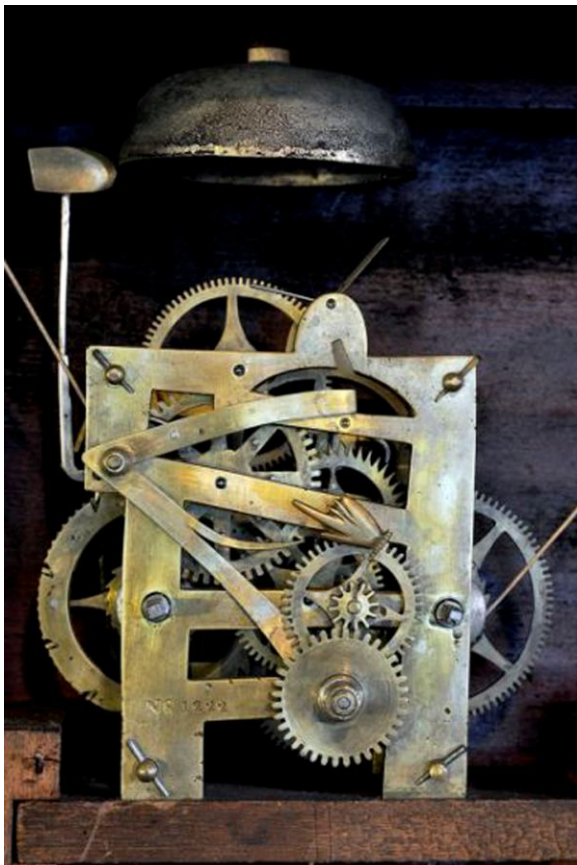
As you can see the movement has a rack and snail strike. The rack tail, which impacts the snail, is not peened onto a boss as in later American brass movements but is only pinned to the boss. I became aware of this when I had to re-pin the rack tail as it had worked loose causing the clock to strike erratically.

Hotchkiss & Benedict, Auburn N.Y. 1834-1836

Thaddeus Benedict and Charles Hotchkiss



The case is about 39" to the top of the carved splat by about 18" wide. The mirror is old but not original. The original patterned paper and label that were pasted to the backboard are missing. Below are images of the wooden dial with the Hotchkiss & Benedict printed crest and title. Notice the circular cutout just below the chapter ring with the pointed finger seconds hand. You should also notice the trademark eagle pendulum bob, below-right. These are being reproduced and mine is probably not original.



The cast brass movement is stamped No. 1222 at the lower left. Thaddeus Benedict was a clockmaker working in partnership with Asa Munger approximately from 1829 to 1833. During this period their clock movements were manufactured under contract by convicts in Auburn Prison. Charles Hotchkiss, not a clockmaker, entered the business around 1833-34 and Asa Munger gradually withdrew from active participation. By the summer of 1834 the names of both Hotchkiss and Benedict appear on the Auburn Prison labor contracts. The use of prison labor to manufacture Munger movements in Auburn gradually decreased from 1832-1837.

The movement and case style of the clock shown here are typical of the mature style of Munger and Benedict clocks and may be from the formal transition from Munger and Benedict to Hothkiss & Benedict. The details I have cited here were obtained from the December 1991 Vol. 33/6, Number 275 of the NAWCC Bulletin pp. 636-643, presented in a full article on this subject by California member Jack L. Clemes.

Handling clocks/Watches with Gloves

by Mostyn Gale

I'm sure all of you have heard and understand that when handling a very precious clock or watch, one should do so only if wearing gloves. Most of us think of white cotton gloves in this circumstance but there is much more to the story of when to wear gloves and which type of glove to use. From here on, I need to caveat this discussion with the fact that I don't work on watches, so I can't really speak to what is best for working on watches. From now on, the topic will be about handling clocks.

I will just say right at the outset that white cotton gloves are probably not the best choice whenever you are handling a clock or watch. White cotton gloves may do more harm than good, here's why. First, cotton can be slippery and bulky, the effect of both of these conditions is that you lose "touch" with the object and it can more easily slip from your grip than without the gloves. This puts precious cargo at risk.

Second, the idea that we are protecting the object from the dirt and oils of our hands is also false. Dirt can just as easily, or perhaps even more easily, collect on cotton than on skin, and whatever else you touch (face, clothes, hair, chairs, tables, drawer handles, tools) is probably dirty/oily and that dirt/oil will now be transferred to the object of interest. Some dirt adhering to the cotton may even cause some scratches in the object. Further, cotton is very absorbent, if you wear the gloves for long enough (your hands get warmer faster when wearing gloves), the sweat and oils from your hands transfers through the cotton to the article you are holding, especially if any pressure is applied. Of course pressure is applied because you can't feel the object as well so you grab it harder to make sure you can feel it and it doesn't slip.

Third, cotton gloves shed tiny particles of lint. As you probably are aware, lint and clocks or watches are enemies so, rustling cotton in the same vicinity as an open movement is a recipe for faster degradation and wear. So, what is a good protocol for when to wear gloves and what type of glove should be used? You should you wear gloves anytime you want to protect either yourself or the object you're working on. This is probably more often than most of us are used to. That being said, handling a wooden case is a lot different than handling a brass movement so, it is important to consider the type and frequency of handling, and the nature of the material. The unfortunate part of working with brass is that you don't see the results of dirty fingers immediately but in a few weeks or month they show up. One simple rule is to wear gloves any time after you have cleaned a movement. Some clocks have such a strong brass oxidation that it will not be penetrated by sweat from your fingers. (one good reason to leave that brown stuff on there), in that case gloves would not be necessary. If the clock movement is already fairly clean, you may want to consider using gloves depending on what

you are going to be doing with it and how long it will be before you give it a thorough clean.

What type of glove is best? This can be a very broad topic but since we mostly have a very specific use in mind (working on a clock movement) we can eliminate many of the options. Working with harsh cleaning chemicals may open up these options but since I hope you are not applying any harsh cleaners to your clock movement we won't go there. We can narrow down the options to vinyl, latex, or nitrile.

Vinyl gloves are the least expensive and therefore attractive. Their primary drawback for our purposes is the fit, kind of loose. Therefore grip and a good feel are compromised. For short term, general use they are probably a good choice because they are less expensive and just get thrown away quickly.



About \$12 for a box of 100

Latex gloves have a very nice fit and excellent touch sensitivity. Some people have allergic reactions to latex but it is biodegradable. That also gives it a short shelf life, so if you don't use them very often they may go bad before you use them. Tends to weaken or swell in oils and solvents.



About \$16 for a box of 100

Nitrile gloves are the most expensive but are more puncture resistant whilst fitting very well and having a high touch sensitivity. They last a lot longer on the shelf than latex and can even be reused. They have a low risk of allergic reactions. Good resistance to oils and some solvents.



About \$22 for a box of 100

Bottom line for me is to use vinyl gloves for house calls or situations where you know it will be a very brief use—as long as I am sure my grip will be good enough. Nitrile is better when I know I will be wearing them for longer stretches of the day. I never wear cotton gloves. ■

**The March Chapter 190 Meeting
is JMarch 19, 2017
Sellers may start setting up at 11:30
The Mart is open from 12:00 til 1:15
The Meeting starts at 1:15**

"Members Show-n-Tell"

**Bring a clock, watch, tool,
book, or a good story to
this meeting to share with
your fellow members.**

Chapter 190 Mart, 2017



EDUCATIONAL OPPORTUNITIES

by Mike Schmidt

The Sunday morning workshops held prior to the monthly meetings are free and open to all. This is a great opportunity to learn many new repair techniques. It is an opportunity to bring clocks and watches and receive assistance with perplexing repair problems. Guests are always welcome. The workshop begins at 11:00 and the coffee will be on.

"Introduction to Antique Clock Collecting, Repair & Maintenance # 12" Open to members, friends and the public. The only prerequisite for this workshop is "Interest & Curiosity" in mechanical clocks. All tools, movements, and knowledge will be supplied. The next workshop is April 22 & 23 2017. **For further information, contact Mike Schmidt 805 988 1764 or email EagleCreekClocks@msn.com**

American Count Wheel 2 train movement Workshop is scheduled for May 6th & 7th. The instructor will be Lex Rooker. The workshop will be held at the Historic Odd Fellows Lodge in Santa Paula. Prerequisite is the "Introduction Workshop" or equivalent. The cost of this workshop is \$200. Contact Mike Schmidt - email EagleCreekClocks@msn.com for registration

Congratulations to all the students who completed the January FSW103 Chiming Clock with instructor Lex Rooker. Congratulations to all the students who completed the FSW301 Beginning Pocket Watch Workshop with instructor Ferdinand Geitner.

Congratulations to the 10 students who attended the Introduction to Antique Clocks February workshop with instructors Lex Rooker and Ron Maricich.

Please let me know what workshops or instructions you desire.

Contact Mike Schmidt at e-mail eaglecreekclocks@msn.com

**This month's mini workshop
begins at 11:00 A.M.**

**This is an open forum workshop, so bring your
problem clock or watch and let the group help you.
Don't let your clock problems baffle you,
come and let our experts confuse you.**

CLASSIFIED PAGE

This page is dedicated to advertising for Chapter 190 members. It is, of course, free to members.

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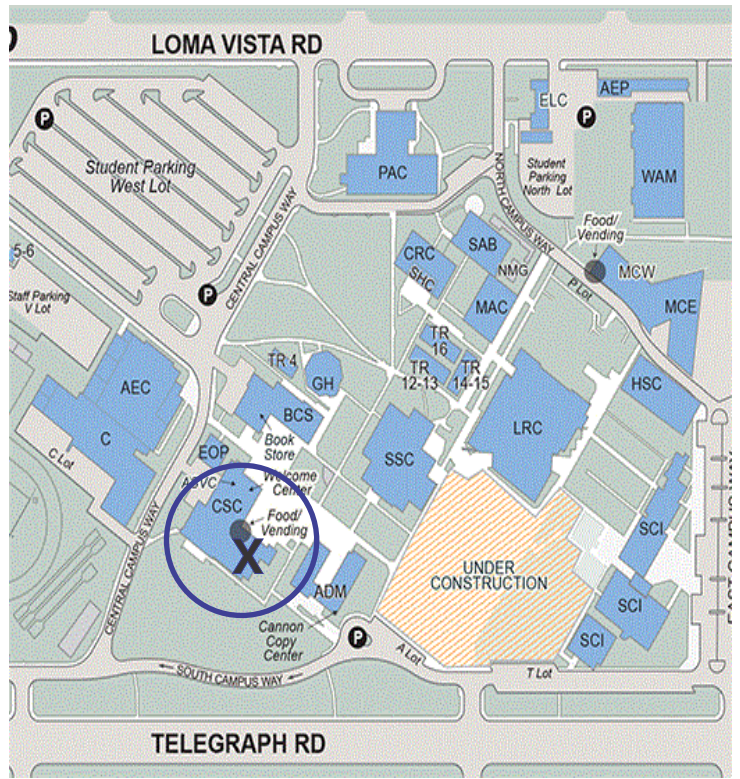
- Chronometer -

Hamilton 21 Marine Chronometer in running condition, with
inner box and gimbals; outer box not essential.

Please contact: Giorgio Perissinotto

E-mail: giorgio@spanport.ucsb.edu

The Chapter 190 meetings are held the third Sunday of each month. (No meeting in December)
 We will meet in the Campus Student Center (CSC) on the Ventura College campus. The CSC is located in building "B", east of the gym and



March - April 2017 Issue

NEXT MEETINGS
MAR 19

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If Undeliverable return To:
 17738 Superior St. Unit 21
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Chrono Times