

RASC SUDBURY CENTRE

Club Website

www.sudburyastronomyclub.com



Fri January 3, 2020

Time 7:30 pm

January Meeting Agenda

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|--|-----------------|
| 1) Greetings | Robert Pothier |
| 2) Sudbury Centre Business | Robert |
| 3) From Ironic Beginnings to Unprecedented Outcomes | Alan Ward |
| 4) National Outreach Information | Linda Pulliah |
| 5) Break | |
| 6) Silvering Mirrors—an old process is now making a resurgence | Alan Ward |
| 7) Darken the Dome and “What is This in The Sky?” | Steve and Linda |

Our February meeting will be our AGM as it has been in the past. On the next page is a nomination form that you can fill out if you are interested in running for any of the executive positions that are up for re-election.

Please note that the Treasurer's position is NOT up for re-election this year.

Keep our club vibrant—attend the meeting and vote for your executive.



The RASC-Sudbury Centre Club bylaws (from the original SAC bylaws) state that elections for Executive Positions must be held every two years. These elections are always held at the February meeting. Every position is for a two-year term.

Please ask an executive member about the duties of the positions. Bylaw job descriptions are available, but do not necessarily give a clear image of the duties that the position may carry.

It is our opinion that no position on the board requires a large time commitment. Members are encouraged to consider getting involved and help the club move forward.

The duties that I have carried and witnessed, and the duties I have seen my fellow executive members handle were never inconvenient, time consuming, or considered to be chores for us. I believe that we have become a team that takes pride in nothing more than another chance for friends to get together each month to discuss astronomy. Keep looking up!

If you are interested in running for one of the six (6) electable executive positions, please sign your name to the position you wish to run for, and have two (2) other members nominate you for your position.

Position	Your Name	Nominated By (2 Members)
President	_____	_____
Vice President	_____	_____
Treasurer	_____	_____
Secretary	_____	_____
Observatory Chair	_____	_____
Director at Large	_____	_____

RASC-Sudbury Centre News

About the website:

Please update your bookmarks and use www.sudburyastronomyclub.com. Do not use ogorman.ca as this does no longer work. The domain up above is now the main address of the website.

The Club Website is now LIVE!! This was made possible by the hard work of Vic Liimatainen and Patrick Dodson.

Observing Certificates Overview

Here is a list of the Observing Certificates that are available through RASC and a few can now be verified and supplied via RASC-Sudbury Centre. Why not start a certificate at the start of the summer and follow through until the temperatures return to negative numbers?

Explore the Universe Certificate (Do NOT have to be a RASC member) can be approved by Linda Pulliah here at Sudbury Centre

Explore the Moon Certificate

Isabel Williamson Lunar Observing Certificate for intermediate or advanced members

Messier Catalogue Certificate

Finest NGC Objects Certificate

Deep Sky Gems

Deep Sky Challenge

Explore - The Night Sky | Hubble's Caldwell Catalog from Nasa website

[Explore](#) - [Light](#) | [The Night Sky](#) | [Our Universe](#) | [Technology Spinoffs](#)

During the 18th century, French astronomer [Charles Messier](#) compiled a list of over 100 cosmic objects that might fool fellow comet hunters into thinking they had discovered new comets. These smudgy spots on the sky have since been revealed as distant galaxies, star clusters and nebulas, and the [Messier catalog](#) became a guide for locating visually stunning cosmic objects.

In the 1980s, an Englishman named [Sir Patrick Moore](#) produced an additional list to highlight more cosmic wonders visible to amateur astronomers. Unlike the Messier catalog, which only features objects that were visible from Charles Messier's viewing location in Europe, Moore's Caldwell catalog includes celestial bodies that are found in both the northern and southern skies. The catalog consists of 46 star clusters, 35 galaxies and 28 nebulas, adding up to 109 objects. Moore intentionally avoided including any of the Messier objects in his catalog, hoping to expand his fellow amateur astronomers' cosmic horizons. From nearby clouds of gas and dust that are left over from dying stars to remote galaxies that formed billions of years ago, the Caldwell catalog is brimming with surprising celestial treats.

While the Hubble Space Telescope has not taken images of every object in the Caldwell catalog, it has observed 95 of them as of late 2019. Processed images for 56 Caldwell objects are included here. More images will be added to Hubble's catalog of Caldwell objects in the future.

Some of Hubble's images are close-ups of a particularly interesting region of an object rather than capturing the whole thing. That's because Hubble provides high-resolution views but of relatively small regions of the sky. Sometimes the entire astronomical object doesn't fit in Hubble's view, and the scientists taking the observations don't always need to view the full object for their studies.

Other Hubble images of the Caldwell objects have an unusual staircase-like shape where an edge of the picture appears cut off or missing. These images were taken using the Wide Field and Planetary Camera 2 (WFPC2), which was in operation between 1994 and 2009. WFPC2 was made up of four light detectors with overlapping fields of view, one of which gave a higher magnification than the other three. When the four images were combined together into one picture, the high-magnification image needed to be reduced in size in order for the image to align properly. This produced an image with a layout that looked like steps.

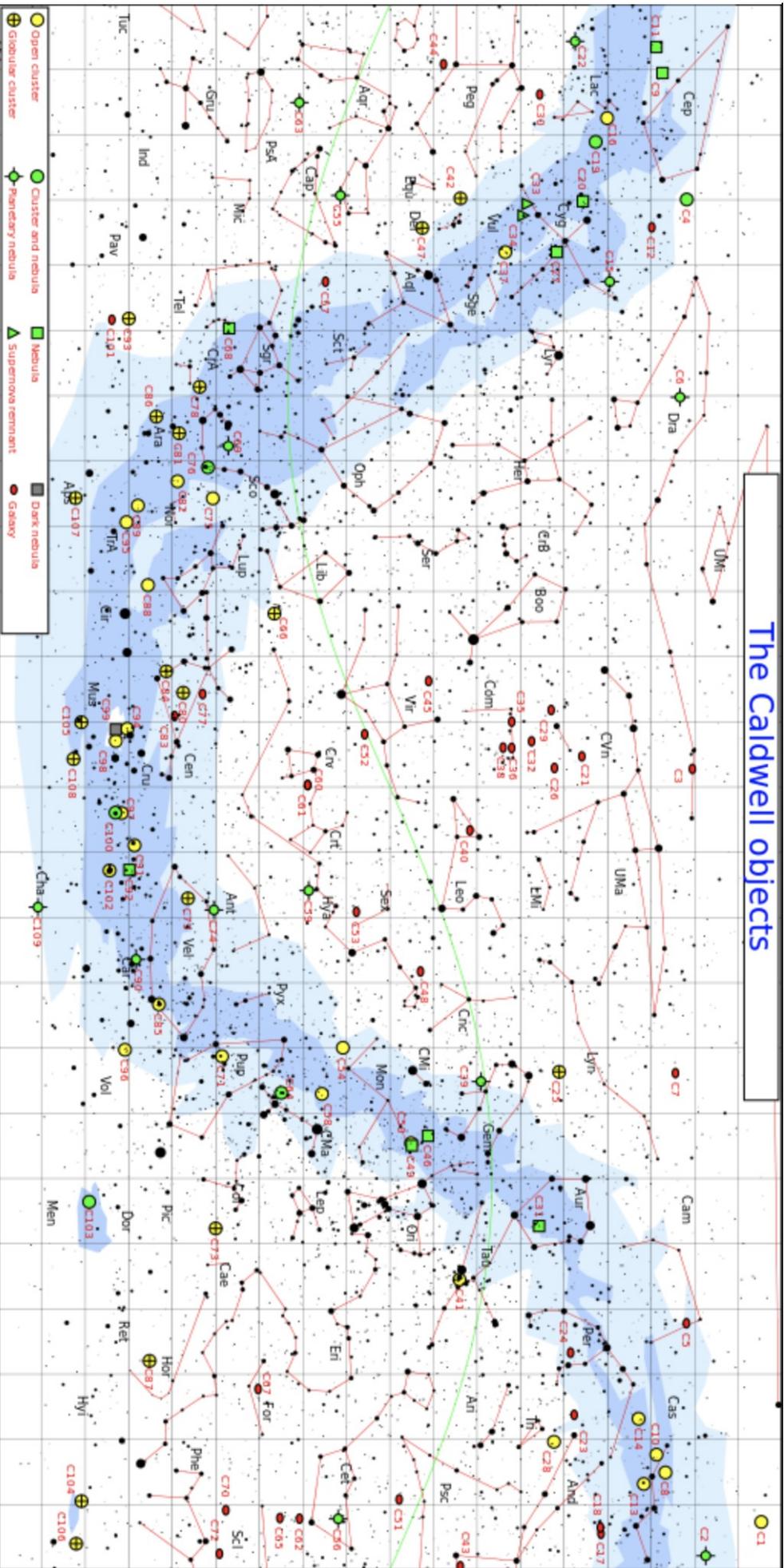
Today, Hubble has two primary cameras to capture images of the cosmos. Called the Advanced Camera for Surveys (ACS) and the Wide Field Camera 3 (WFC3), they work together to provide superb wide-field imaging over a broad range of wavelengths. The telescope's visible-light observations allow us to view cosmic objects in the wavelengths of light we see with our own eyes, but in a much greater level of detail. Infrared observations extend our vision, detecting lower-energy light than our eyes can see and peering through shrouds of dust to image some of the faintest and farthest objects yet discovered. Hubble's ultraviolet vision extends our view in the opposite direction, opening a window on the evolving universe and allowing us to glimpse some of the more violent events in the cosmos.

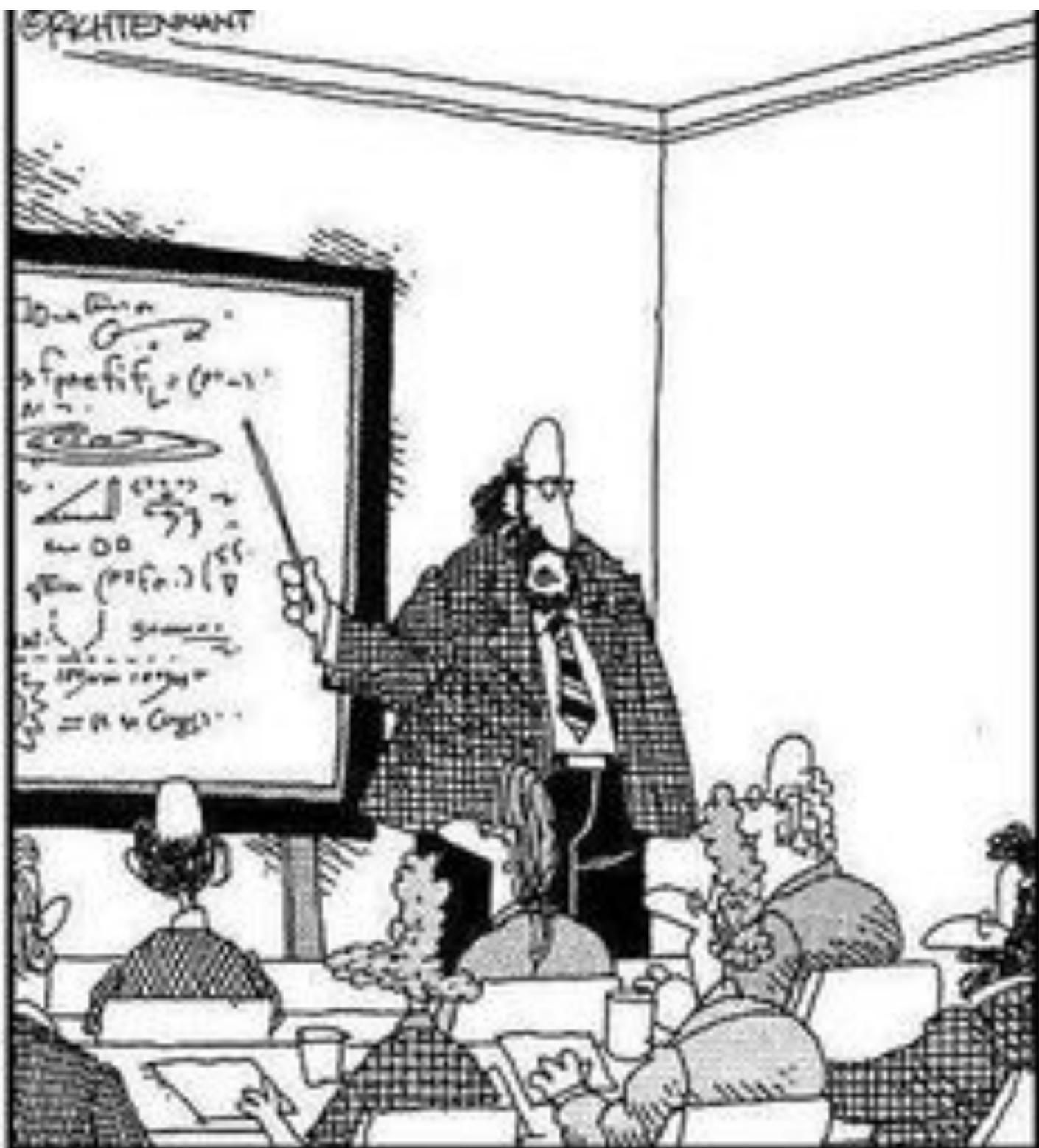
While Hubble provides images in exquisite detail, the Caldwell objects can be observed using modest ground-based telescopes, though some are more challenging targets than others. The catalog features many deep-sky objects that are bright enough to be seen with binoculars and a few that are visible to the naked eye. Regardless of the viewing instrument, the Caldwell objects are rich in history, brimming with science and fun to observe.

The following pages contain some of Hubble's best images of the Caldwell objects taken thus far. This collection has been assembled for amateur astronomers to compare what they see to what Hubble sees, allowing them to see finer details in each of the objects.

See the next page for a view of the Caldwell Items

The Caldwell objects





"Along with 'Antimatter,' and 'Dark Matter,' we've recently discovered the existence of 'Doesn't Matter,' which appears to have no effect on the universe whatsoever."

Star party dates 2020

Frozen Banana May 21-24 Mew Lake, Algonquin Provincial Park

New Moon in June -June 18-21 Grundy Lake Provincial Park

Gateway to the Universe July 16-19 Samuel de Champlain Provincial Park

August Star Party Aug 13-16 Bobland

Half the Night Aug 27-30 Halfway Lake Provincial Park

Last Chance Sept 17-20 Restoule Provincial Park

Stars Over Killarney Stars Sept 26 (24-27) Killarney Provincial Park

Possibly the River & Sky Festival near Field, Ontario, as well as a small star-party at Restoule. Details will be provided.

Our Valued Partners



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Sudbury, ON**



stargazer Steve

LIVELY I.D.A. PHARMACY

605 MAIN STREET LIVELY, ONTARIO

705 692-3214



**1769
Regent St.
Sudbury**

STARGAZER STEVE

WHO IS STARGAZER STEVE!!
and What does he do?

Steve Dodson is a fellow amateur astronomer, who as a 2nd grader saved his allowance for a Telescope, and made his first 6-inch scope in grade 8.

As **Stargazer Steve**, he makes Telescopes that are designed to give more observing satisfaction to beginners and experts alike, by focusing on design for performance.

In 1981, already an amateur astronomer with decades of observing experience, Steve built the largest mobile Telescope in Canada, and brought it to the Star Party that launched the Sudbury Astronomy Club.

In the 1990's Steve pioneered high-performance low-cost Reflecting Telescope Kits.

Steve has participated in the building of over 4000 Telescopes, including solo projects and activities with children, Astronomy Clubs and people of all ages.

The International Astronomical Union has named **Asteroid #13822** "**Stevedodson**".

Over **2000 Stargazer Steve Telescopes** have been shipped throughout Canada, the US, and around the World.

More Info at <http://stargazer.isys.ca>
<http://neo.jpl.nasa.gov/orbits/> (Put 13822 in the blue box)

