NOVAC

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Object Envy – Observing Southern Skies

A trip to San Pedro De Atacama, Chile

by Milt Roney

In early November, my wife, Lisa, and I traveled to the Southern Hemisphere to see the part of the sky we can't see from the Washington, DC area. I'll be happy if this article gets you fired up to do the same.

In the Washington, DC area we can see the sky from the North Celestial Pole down to about 40 degrees south of the Celestial Equator, so if we patiently observe through the year we can see about 72 percent of the sky. Lisa and I rented a 17.5 inch telescope in San Pedro de Atacama, Chile. From San Pedro, you can see what we're missing in the north. Many constellations are unfamiliar; instead of the ancient names we're used to some have names like Telescopium and Horologium (the clock) assigned by Abbe Nicolas Louis de La Calle in the 1750s. I'm not good at star hopping, but thanks to hours poring over star charts, Google Sky and the Digitized Sky Survey (DSS) produced at the Space Telescope Science Institute*, I was able to find everything I was looking for without a computerized telescope despite the unfamiliar sky.

If a Chilean tells you his objects are bigger than yours, he's probably right, astronomically speaking. The Magellanic Clouds, named by the famous explorer's crew, are satellites of our own galaxy, and look like detached chunks of the Milky Way. If you've forgotten your star charts, you could spend a lot of telescope time just wandering in and around these two clouds; 47 Tucanae (NGC 104, Caldwell 106) is a huge globular cluster

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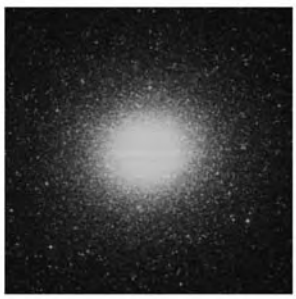
M-13 NGC 6205 ©1993-2003 by the California Institute of Technology

47 Tucanae, NGC 104, Caldwell 106 ©1976-1993, jointly by the UK SERC/PPAR



Omega Centauri NGC 5139, Caldwell 80 ©1976-1993, jointly by the UK SERC/PPARC

Figure 1

**The Digitized Sky Surveys were produced at the Space Telescope Science Institute under U.S. Government grant NAG W-2166. The images of these surveys are based on photographic data obtained using the Oschin Schmidt Telescope on Palomar Mountain and the UK Schmidt Telescope. See http://archive.stsci.edu/dss/.*

MESSAGE FROM THE PRESIDENT

Happy 2008 NOVAC!

A New Year is upon us. First and foremost I would like to thank Phil Wherry, last year's NOVAC President for a job well done. I would also like to thank outgoing board members Lyle Mars, Tom Finkenbinder and Rob McKinney. They all volunteered a great deal of time and effort coordinating some of last year's premier public events helping make 2007 a great year for volunteering in NOVAC. Congratulations goes to Deb Stover for being awarded the Volunteer of the Year Award; she has put countless hours into the great NOVAC newsletter and at numerous events. In addition, a special service award was presented to Alan Figgatt for his long term commitment, contribution and volunteerism to NOVAC. Outstanding work by all, thank you.

I look forward to working with the NOVAC board and NOVAC members towards a very exciting and enriching year. Many of NOVAC's special projects are moving forward. First and foremost, NOVAC's Robotic Observatory, The Roboscope, will be back on line very soon. In addition, we will be working on a Children's Junior Astronomer/Observer program for NOVAC families. The wonderful winter sky is upon us—time to get some hot chocolate and go observing! Happy New Year NOVAC!

Enjoy the Sky

Ed Witkowski

NOVAC, President 2008

Observing Southern Skies from page 1

next to the Small Magellanic Cloud. My detailed preparations for finding it were unnecessary—it was easy to see even with my poorly trained naked eye.

Globular clusters provide a case in point for astronomical brinkmanship. The pictures in Figure 1 are all taken from the DSS at http://archive.stsci.edu/dss/. Most pictures you see in books are cropped to show only the objects; I sized these all the same (40 arcseconds) so you can compare M-13, which most of us have seen, to some Southern Sky globulars in a common format.

I've mentioned the Caldwell list (created by a guy named Moore, but that's another story) because it lists best viewing objects arranged from North to South, which is convenient for our discussion. This list doesn't include the famous Messier objects, but that's not a problem because Messier observed from Paris, and couldn't see the Southern Sky. I can see Caldwell 70 (NGC 300) from Sperryville, VA, but it is so low to the horizon that background light washes it out. Caldwell lists 14 globulars that are farther south than this.

Star clusters play an important role in our understanding of the universe, but I think the most gorgeous things in the sky are bright emission nebulae with glowing gas swirling around all over the place. The Southern Sky contains two spectacular specimens, Eta Carinae and the Tarantula Nebula. No size envy here, they're smaller than the Orion Nebula, but so pretty that your astronomical life isn't complete until you've seen them. (You can see the Orion Nebula from Chile, but its upside down, which is a little distracting.)

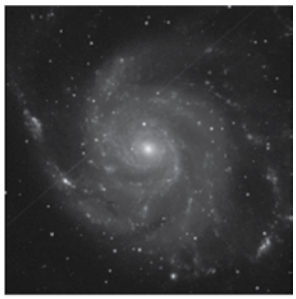
Some really primal part of me flips out over really BIG things, i.e. galaxies. Only five below our horizon show up on the Caldwell list, but a southern location is a great place to observe some galaxies that are close to the horizon when viewed from the Washington, DC area. One of my favorites is NGC 55 (Caldwell 72), which looked really spectacular with the 45 cm. scope and far up in the sky. I included a picture (see Figure 2) even though I couldn't find an easily comparable object on the Messier list.

Another galaxy that demands attention is NGC 6744, Caldwell 101, which

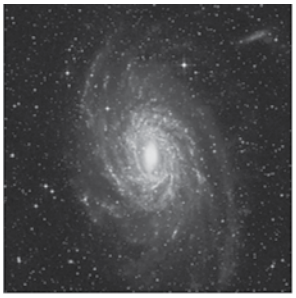
Continued next page

4NGC 55, Caldwell 72 at 20 arcsec ©1976-1993, jointly by the UK SERC/PPARC

Figure 2



6 M 101, NCG 5457 at 15 arcsec ©1976-1993, jointly by the UK SERC/PPARC



5 NCG 6744, Caldwell 101 at 15 arcsec ©1976-1993, jointly by the UK SERC/PPARC

Figure 3

Observing Southern Skies from page 2

Phoenix Group NGC 85 et cet. at 10 arcsec

Stephan's Quintet, NGC 7317 et.cet. at 10 arcsec

Figure 4

compares favorably with, coincidentally, Messier 101.

When I learned, over 40 years ago, that there was something EVEN BIGGER THAN GALAXIES, namely clusters, and even super-clusters of galaxies, it took my breath away. I'm breathing normally now, but my wonder is undiminished. Here are some distant groups I saw from Chile, the Phoenix Group, also known as Rose 34, in the Southern Constellation of Phoenix, compared to Stephan's Quintet in Pegasus.

By way of full disclosure, I should mention that my wife was polite but unimpressed by the galaxy groups I claim to have found in the telescope. Also, it must be obvious that I'm somewhat like a tourist just back from a "See Europe in 7 Days!" trip. I've probably left out some great stuff. If you want to learn more about the trip we took, please see http://novac.com/resources/SouthernSkies/ObservingSouthernSkies.pdf , a trip report that NOVAC was kind enough to put on the website. We really enjoyed our stay at Atacama Lodge. See http://spaceobs.com/ . Bill Gates and a friend just donated $30 million to The Large Synoptic Survey Telescope in Northern Chile, one of the projects described at our December meeting. I'm fantasizing they were influenced by my trip. Hopefully it's not a fantasy that this story makes you want to go and look for yourself. ✶

All photos in this article are copyright Digitized Sky Survey [http://archive.stsci.edu/dss/]

NOVAC Elections

NOVAC's annual elections were held at the December meeting. The newly elected officers and trustees are pictured below. Congratulations to all, and many thanks to the outgoing officers and trustees! Officers and trustees are pictured below.

Newly elected officers (left to right): Allan Mayer, Vice President; Ed Witkowski, President, Kent Allingham Treasurer; Yvette Johnson, Secretary.

Trustees (left to right—newly elected trustees are in bold): Harold Geller, John Stewart, **Pedro Martinez**, **Richard Grauel**, **Paul Derby**

NOVAC Dark Sky Site Committee

As amateur astronomers, we are always seeking dark, darker and some day the darkest skies. A NOVAC committee is being organized to examine issues involved in the long term use/access of a permanent "DARK SKY SITE". This committee is not going to search for land but provide a report to the NOVAC board and membership regarding the possible options for the extended use of a permanent dark sky site. If you are interested in being on the committee please contact me at president@novac.com

Thank You and Enjoy the Sky
Ed Witkowski
NOVAC, President

NOVAC Volunteer Awards

The Volunteer of the Year award is NOVAC's highest honor. The club depends almost entirely on volunteer labor to orchestrate its public programs as well as events and services that are provided for members. NOVAC recognized its outstand corps of volunteers with a dinner prior to the December Meeting.

The recipient of the Volunteer of the Year award for 2007 was Deb Stover. The NOVAC Board heard from some of the people she had worked with at our major public events. In addition, we heard from others who thought highly of the work she is doing on the NOVAC newsletter. Though she was nominated for work on a great many different things, every nominator commented on her enthusiasm and willingness to help out whenever and wherever the club needed her assistance. As to the newsletter, without her assistance as designer and co-editor, it would be tough to imagine how we'd maintain such a high-quality (and interesting) avenue of communication with our members.

Thank you Deb for a great job!

This Year, NOVAC presented a Special Service Award to one of it's most active members, Alan Figgatt.

For many years, Alan has been there to help out. Whether it's sharing views at a public event, conducting sky tours at a monthly meeting, or in representing our club with the Analemma Society at Observatory Park in Reston, he has always done a great job in advancing NOVAC's image and reputation as a club of friendly observers. He also served on the NOVAC Board for number of years helping guide the club into the future.

Thank you Alan for sharing the sky with NOVAC and others.

Alan Figgatt, recipient of the Special Service Award.

Deb Stover, Volunteer of the Year

NOVAC Volunteer Appreciation Reception

Prior to the December meeting and Volunteers Awards, a reception was held to honor all NOVAC volunteers. The event was organized by Donna Blosser and featured great food and fellowship, and the much-coveted NOVAC volunteer pins were distributed. Thank you to Donna and all the dedicated NOVAC volunteers!

NOVAC Needs You!!!

NOVAC has a great corps of volunteers, and needs their help. Every year NOVAC hosts two premier public events, ***Astronomy Day*** and *The Star Gaze*.

This year's Astronomy Day will take place on May 10th at Sky Meadows and The Star Gaze will take place on October 4th at Crockett Park. NOVAC has an urgent need for an Event Coordinator and other volunteers to help at Astronomy Day. If you can help, please contact me at president@novac.com.

Thank You
Ed Witkowski
NOVAC, President

Choosing Your First Telescope

NOVAC Members Provide Advice and Mentoring

From the Editor, Tim Nicholson: The article that follows is the result of an email exchange on the NOVAC list server. It just goes to show how much good advice and knowledge is available from our members. My thanks go out to Bob Traube and Rob McKinney for providing us with the hard copy of the transcript.

Wow, what a great question, or rather series of questions. I've got so many threads running through my head on how to answer you, its beginning to feel more like cobwebs. Oh, wait, that's just old age... sorry.

OK, first, my experience. I started with a used 8 in. Celestron fork mounted SCT (although, like you I wanted an 11 in. to start), and after about 5 years, I found I had seen all the easy, bright stuff and was ready to go for the fainter objects and better views of the brighter stuff. Now I've got a Celestron 11 in. SCT. I've had it for about six years, and I love it. I wouldn't give it up. Having said that, it was a great 5 years with the 8 in. During that time, I found out I really DID like astronomy as much as I hoped I would, I developed a set of skills (knowledge of the sky, sources of information, network of observing friends) that I will use forever, and I accumulated a lot of useful stuff. I was able to look through dozens and dozens of other scopes to refine my taste in equipment (not just scopes, but EPs, filters, etc.), and I didn't risk a large investment only to find out I always fell asleep at 11:30PM (Ok, that's just an example, but hopefully you get my point.)

After the 8 in. I graduated to a Celestron 11 in. SCT, but based on my experience, I got it with the Losmandy G-11, a German Equatorial Mount (GEM). Also I was better able to understand why a Go-To capability (Gemini) was important and felt justified in making that additional investment. Starting with the modest 8 in. scope gave me the ability to explore other options for advancement later on instead of being locked into one configuration because of a high initial investment.

As I said before I love my C/G-11 in. configuration. However, it always takes quite a while to pack the car, set up the gear, tear down the gear, and unpack the car. Nearly an hour average for each step (did I mention that I had accumulated a lot of stuff in five years) - that's four hours, not counting the drive to and back from the dark site. Going observing, even for a short while, became a campaign, and took all of an evening and most of the next day to unpack and catch up on lost sleep. It didn't happen right away, but the thought of all that lifting, packing, driving, I found I was observing less. Here I had made this significant investment in gear, but I was using it less. My hobby just became more expensive on a per hour basis. I was living Astro-axiom #1, "The best scope is the one you'll use the most."

In the end, I bought a modest (12.5 in.) Dob with "push-to" capability for those short trips to generally observe stuff. I can pack, set up, tear down, and unpack in about an hour total (avg 15 minutes each) (OK the drive hasn't changed, but some things you don't have control over.) I observe more and bring out the C/G-11 when I need it for astrophotography, or tracking of planets, etc.

OK, now the tough part. What do you need to know to make an informed decision?

First, you have to ask yourself what you will do with this scope. Will my observing be just visual? Or do I want to take photos, do astrometry, find comets, look at neighbors (no, forget that last part)?

If it's just visual, you have lots of options. Refractor, Reflector, SCT, DOB, GEM, but for visual work, bigger (aperture) is better. The larger the scope, the brighter the view. Period. The Astro-axiom #2 is "Aperture wins." If you just want to do visual observing, take the money and buy the biggest scope AND EYEPIECES (more on this later) you can afford now, and have fun. An 8 -10 in. DOB is good for starters. You don't need a go-to capability unless you're going to do photography or a lot of high power (e.g. planetary) observing. Digital Setting Circles are available on most mounts now at a modest price, so you can push the scope to the object you want to see. No motors, just guidance. Buy a smaller scope now to see the brighter sights, and then save your money to get the next larger one in a couple more years. Used gear is always marketable (see www.astromart.com) if you take care of it. If you get used gear to begin with it's more like renting the scope for a while, until you sell it later for nearly the same price. Then you can use that money to invest in the next upgrade. The delay will preserve your options, allow you to save your money, and also make an informed choice based on your experiences and desires later on.

If you want to do something more technical like astrophotography, your choices are narrower. A GEM or wedge mounted fork/SCT or Refractor is the weapon of choice here. But remember. Astrophotos are (nearly) independent of aperture. Yes, you read that right. What matters for photography is the F-ratio. An F10 scope will take the same exposure regardless of the aperture. At prime focus, the aperture changes the field of view. An 11in. F10 SCT and an 8 in. F10 SCT will capture a nearly identical picture for a given exposure, except the 8 in. scope will have a larger Field of View than the 11in. scope. In fact, one of the drawbacks of my C11

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Choosing Your First Telescope from page 5

is that its FOV is so small, many objects, such as the Moon, won't fully fit in the picture in a Prime Focus mode, whereas the 8" does much better. (I say nearly identical because technically there is some resolution penalty with the smaller scope, but for 8 in. vs. 11in. on photographic film, the difference is lost in the film grain or Pixel size for CCD work.)

So that said, size doesn't matter for pictures (or may be detrimental), F-ratio rules. Hard to believe I know, but true.

Before you say, "Yeah, I want to do pictures!" Consider that its one of the most challenging aspects of our hobby. To get it right, you have to have everything perfect. Being able to polar align your scope nearly perfectly, having the patience and ability to actively track a guide-star in a cross-hair during an exposure that could take 30 minutes or more (You can't just let the "clock drive" move the scope, and while there are alternatives like auto guiders, they add significantly to the cost), having a stable mount with no vibration, being able to achieve exact focus, knowing the proper exposure times for the object being photographed, purchasing additional gear such as a film, webcam, CCD, or DSLR camera, an off axis guider or guide scope, and on, and on, and on. I have taken astrophotos before, some of which I'm quite proud of, but it represents the most difficult thing I have done in the hobby. Some aspects, such as star trails, piggy-backed wide angle shots, etc., are easy and fun and can make some spectacular pictures. But true DSOs and planets are tough. Before you make the investment in an astrophoto capable scope and other equipment, and before you decide to put your time and energy into doing astrophotography, you might want to get started more slowly. Go visual first. (Astro Axiom 3?)

Also, an Az/El fork mount (like the Celestron CPC 1100 GPS) won't do Astrophotography unless you have a field de-rotator. The reason you need to polar align the mount accurately is to prevent field rotation. As an object moves across the sky, it rotates relative to the horizon, so the pictures you take will show that rotation unless you "de-rotate" the camera. There are devices that will do that, but they add a level of complexity to an already complex task. The Wedge is really the way to go for astrophotos using a fork mounted scope.

OK, so what should you do?

Sorry, only you can answer that. If you're like most of us, you'll ignore all this advice and do what you wanted to in the first place. And that's fine, I wouldn't blame you and I'll be sure to drop by for a look and congratulate you on your new scope. The yearning to own the best toys is great, and maybe you have the option to make a significant investment now AND later. But count on it; you will want something different later. It's just the nature of the beast - call it "aperture fever" if you want, but as your skills and interests change, so will your equipment needs. But if you start modestly, engage the hobby vigorously and learn as much as you can (or at least as much as is fun), you will be in a better position to buy the "scope of your dreams" later on once you know what that is. The NOVAC loaner program gives you the ability to use several kinds and sizes, and you can look through other members' scopes nearly any time you want.

What would I do? If I was just going to do visual observing, I'd get the biggest DOB I could afford today (aperture wins) along with a small set (1 or 2) of quality eyepieces (that's another email) that will showcase the objects I'm interested in observing. Don't forget that the EPs are just as an important part of the optical train as the mirror or objective. Cheapo EPs give cheapo views regardless of the OTA. Expensive EPs in cheap OTAs give results that are not much better. You've got to balance the two.

If I was convinced I wanted to do astrophotos, I'd start with fixed mount star-trail shots and then do some piggy-back shots on a Fork or GEM to get the basic skills down. Then I'd borrow a GEM or fork mounted scope from NOVAC and try some DSO work, then once I was convinced I knew what I was doing, I'd give up, and download the pictures from Astrophoto of the Day. It's just too much work. OK, then if I still had the bug, I'd buy a GEM or fork mounted scope with perhaps an F7 or faster F-ratio if I could find/afford it.

One final comment. The GPS scopes of today seem awful heavy. By the time you integrate the electronics, the mount and the OTA and mirror all into one package it's got to be really heavy, the Specs say 65lbs for the C1100 not including a substantial case to protect it during transport. I'm guessing the total package to be transported is approaching 80-100 lbs. If you're young and can handle it, or if you observe with young friends/kids, it's probably not going to be a problem for you. But none of us are getting younger, and in 10 years or so, that's going to seem a lot heavier, and may lead to observing less often, as it did with me. Consider the modularity/portability of the scope along with the ability to have it fit in your car. I know several people who bought cars that would be capable of carrying their scopes, and frankly it wouldn't make sense to do it any other way.

I didn't mean for this to get this long, but there's so much to tell. Rob, thanks for thinking of me and asking me to share my opinions with Tim

As proof of my statement that you will always want something different, I just recently bought a 140mm TEC APO refractor. Yes, I love my C/G11, but in the end, it's all about the toys. I can only wonder what's next....

Good luck, and let us know what you decided.

Bob Traube

"To observe, and to help others observe"

NOVAC is a non-profit, all-volunteer organization chartered to advance amateur astronomy in Northern Virginia. Members benefit from:

Access to dark sky observing sites:
NOVAC maintains agreements that provide club members with year-round access to observing sites away from city lights

Monthly meetings
Monthly meetings are held at 7 p.m. on the second Sunday of each month in Room 80 of the Enterprise Building on the campus of George Mason University. Each meeting features a lecture on an interesting topic by a local expert. See the web page or future newsletters for a schedule of speakers.

Bimonthly newsletter
The NOVAC newsletter provides information specifically for NOVAC members, as well as general interest articles on such topics as observing reports, equipment reviews, upcoming events, ATM projects, and more.

High-quality telescopes to borrow
NOVAC members may borrow one of the clubs several "loaner" telescopes at no charge. Members may choose from among three 6 in. reflectors, two 10 in. f/6 reflectors, an 8 in. SCT, and a hydrogen-alpha solar scope. Binoculars are also available for loan.

Club website
Up to date information about club events and activities is maintained on the club website at *www.novac.com.*

Large club library
NOVAC maintains a well stocked library that members may borrow from by contacting John Deriso *(olgazer@verizon.net)*. A full list of titles is available from the club website.

Private email listserv
Members keep up with current club information by subscribing to the NOVAC email list, without fear of flame wars or spam emails.

Public outreach opportunities
Several times each year, volunteers from NOVAC present astronomy programs to schools, churches, Scout troops, and other public groups.

Membership in the Astronomical League
Through NOVAC's membership in the Astronomical League, NOVAC members gain access to the AL's newsletter, services, and observing programs.

Discounts on astronomy magazines
Subscriptions to *Sky & Telescope* and *Astronomy* magazines are offered to club members at a considerable discount. Contact Kent Allingham (see contact info at right).

See your Membership Guide for more details.

The NOVAC Newsletter is the official publication of the Northern Virginia Astronomy Club and is published six times per year. The NOVAC Newsletter is sent to members of NOVAC as a regular membership benefit.

Membership
Membership in the Northern Virginia Astronomy Club is $30.00 per year and is open to anyone interested in astronomy or the sciences. Additional memberships at the same address without additional copies of the newsletter are $5.00 per person. Contact:

Kent Allingham
3510 Country Hill Drive
Fairfax, VA 22030
kent.allingham@verizonbusiness.com

Change of address
All notices of change of address should be sent to Kent Allingham. Please include both old and new addresses.

Advertising
NOVAC does not knowingly accept advertising for products of inferior quality nor does it accept responsibility for the quality of advertised products.

Submissions to the newsletter
NOVAC members are invited to submit articles for publication in the NOVAC Newsletter. The editor reserves the right to edit all materials submitted. Send article submissions to the Editor, Tim Nicholson, at newsletters@novac.com.

The deadline for submissions is two weeks in advance of publication: March 15, 2008 for the March/April 2008 newsletter.

Next Meeting

February 10, 2008, 7 p.m.

Dr Sten Odenwald, Astronomer and author of *Astronomy Cafe*

"An Astronomer's Handy Guide to Pre-Big Bang Cosmogenesis"

General membership meetings are open to the public, and are held at Enterprise Hall, room 80, on the campus of George Mason University (see www.novac.com for directions) in Fairfax, Virginia. The meeting hall is in the basement floor of the building. Since Parking Lot B is now closed, you should park across the street in the far reaches of the Patriot Center's parking lot, then walk up the path to the rear of Enterprise Hall.

Upcoming Events

April 4-6, 2008

2008 South Jersey Spring Star Party

Belleplain State Forest, Northern Cape May County, NJ

www.sjac.us

May 10

NOVAC's Astronomy Day

Sky Meadows State Park

www.NOVAC.com

July 30 - August 3,2008

2008 Mason Dixon Star Party

www.ycas.org

October 4, 2008

NOVAC's Star Gaze

Crockett Park

www.NOVAC.com

THE NORTHERN VIRGINIA ASTRONOMY CLUB

NOVAC

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