Southward Bound

by Geoff Gaherty, Toronto Centre (geoff@foxmead.ca)

In a couple of weeks, Louise and I will be flying down to New Zealand and Australia to visit our son, who is doing a semester as an exchange student at Swinburne University in Melbourne. I cleverly planned this visit to coincide with the "Deepest South Texas Star Safari" being held close to Coonabarabran, New South Wales, Australia (`www.ozsky.org`). This event is being organized by the Three Rivers Foundation in Texas and hosted by a number of experienced Australian amateur astronomers, including my old Internet friend, John Bambury, plus some guy from Calgary named Alan Dyer. In the spirit of family compromise, we won't be spending the full ten nights there, but still hope to have several nights under dark Australian skies.

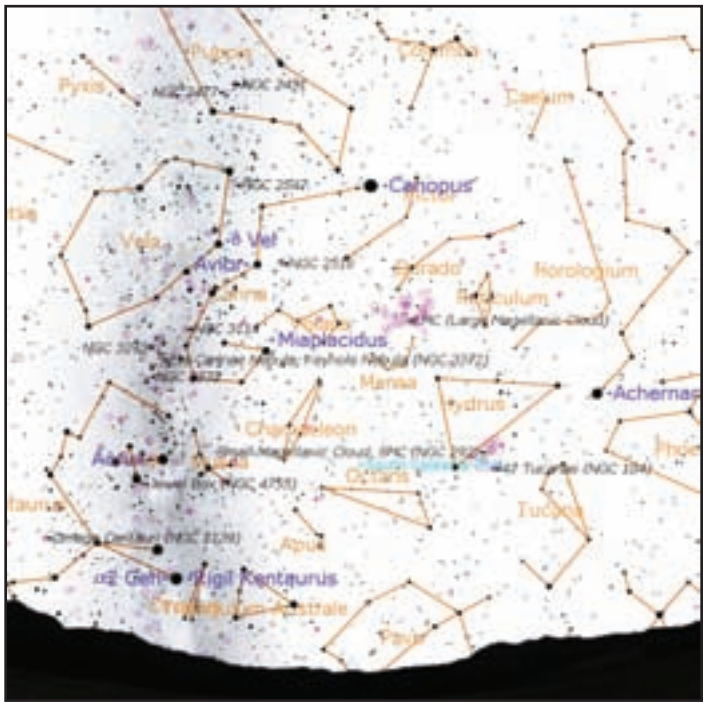
This won't be my first time south of the equator, but it will be the first time with my astronomical interest in high gear. I was in southern Africa twice in the late sixties doing anthropological research, but my only astronomical memory was a night in Kenya's Amboseli National Park, when I saw alpha and beta Centauri and the Southern Cross for the first time in an inky-black African sky. Later, in 1973, I slept for a couple of nights on the deck of an Ecuadorian fishing boat anchored in the Galapagos Islands, with the same constellations over my head. But I've never seen the Magellanic Clouds or any of the southern deep-sky wonders.

As I write this, the winter winds are roaring past my window in Coldwater, but my thoughts are on the southern skies. My copy of *Starry Night* is set to Warrumbungles (31° 16′ 24″ S, 149° 11′22″E) and I'm paging through the only charts in my star atlases that aren't dog-eared and covered with my scribbling. Those of you who've been reading my columns here know that I'm a great believer in planning my observing sessions, and this seems especially important before venturing into what is unknown celestial territory for me. So much to see, so little time!

My observing plans always centre around a list. In this case, I needed to look no further than our own *Observer's Handbook,* which in recent years has contained Alan Whitman's list of Southern-Hemisphere Splendours. This list contains 73 objects, which is 'way more than I can hope to cover in a few nights of observing. To help me prioritize, Alan has rated all his objects with one, two, or three exclamation points. As I do with all my observing lists, I've entered Alan's list into my *FileMaker* database, based on the Saguaro Astronomy Club's excellent resource (`www.saguaroastro.org/content/downloads.htm`). This has served me well for many years both as a planning tool and as a place to record all my deep-sky observations.

I find two levels of charts useful in planning and conducting deep-sky observations. I long ago replaced my planisphere with charts generated for a particular time and place with *Starry Night;* I'm sure other software will do as well, but *Starry Night* is what I've always used. What I do first is determine the end of evening twilight and the beginning of morning twilight. There are lots of ways of doing this, but usually I just turn on the NGC-IC catalog in *Starry Night,* and see what time all the objects appear and disappear. I set the date to 2008 March 1, when I'll be arriving in Warrumbungles, and found that the sky becomes totally dark at 9:00 p.m. Daylight Time, and starts to lighten at 5:30 a.m. I printed charts for both these times, and a third set halfway in between. I usually print a set of four charts with a 90° field of view facing north, west, south, and east. This gives me a large enough scale to be comparable to the actual sky; one of the reasons I abandoned planispheres is their small scale. In this case, it's the south-facing charts that are most important. Here's a sample chart, facing south at 9 p.m.:

This chart serves two purposes. First, it gets me oriented under an unfamiliar sky, showing me the locations of bright



stars like Canopus and Achernar, and the new constellations I need to learn in order to starhop to my targets. Notice how Puppis and Columba, usually lost in the murk of our Canadian southern horizon, are right up in the zenith. The South Celestial Pole is about a third of the way up the sky, with no bright star anywhere near to mark it. Most of the stars in this chart are circumpolar but, unlike our northern circumpolar stars, they rotate clockwise. This tells me that I must mainly concentrate on the right side of the chart, because these are the stars that will be setting first. As the night goes on, the stars on the left side of the chart will become better placed.

This leads to the second purpose of these wide-field charts: prioritizing my observing targets. First up is obviously the Small Magellanic Cloud, located just above the brilliant globular cluster, 47 Tucanae, and soon to be slipping beneath the South Celestial Pole. The second priority is the Large Magellanic Cloud, now at its highest, but swinging around and down to the right. The southern Milky Way is still rising on the left; plenty of time for that later.

This level of chart is perfect for naked-eye and binocular observing. When I switch to using a telescope, I'll need charts that are more detailed. In recent years, observing Alan Dyer's Finest NGC Objects list and the Astronomical League's Herschel 400 list, I've come to rely on the highly detailed and deep charts of *The Millennium Star Atlas*. However, for this trip I'm back to observing bright, easy objects, so a more suitable atlas is Sky & Telescope's *Pocket Sky Atlas*. This atlas contains most of Alan Whitman's Southern-Hemisphere Splendours, has a large enough scale and wonderfully legible labels, and is a convenient size and shape for airline travel. This has quickly become my favourite general atlas. It covers the southern circumpolar constellations in eight charts, -55° to 90°. There is also a detailed chart of the Large Magellanic Cloud.

Charts in hand, the next question is about equipment. Telescopes I don't have to worry about, as the organizers of the Star Safari have arranged for a number of large Dobsonians. I will certainly bring my 10×50 binoculars, as I rarely travel anywhere without them, and probably my 15×70s as well. I'll surely bring my Hydrogen beta filter, as the horrible winter weather this year has so far prevented me from trying for the Horsehead Nebula (see my column in the December 2007 *JRASC*) and it will be high overhead in Australia.

By the time you read this, I should be back home, hopefully full of wonderful memories of southern skies!

Geoff Gaherty is currently celebrating his 50th anniversary as an amateur astronomer. Despite cold in the winter and mosquitoes in the summer, he still manages to pursue a variety of observations, particularly of Jupiter and variable stars. Though technically retired as a computer consultant, he's now getting paid to do astronomy, providing content and technical support for Starry Night Software.

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