Through My Eyepiece

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

Santa Scopes

'Tis the season to think about buying a telescope either as a present for someone or for yourself. I wrote about this in this column a few years ago, but since then I've had the chance to use a number of new and different telescopes, and thought I'd take a fresh look at what I recommend for beginners and not-so-beginners.

My main recommendation for beginners remains unchanged: a 10-inch Newtonian on a Dobsonian mount. The greatest difficulty beginners encounter is actually *seeing* things through their telescopes and, for this, aperture is the answer both in terms of resolution and light gathering. There's not much difference in size and cost between a 6-inch and 10-inch Dob, so I'd say go for the 10-inch right from the start, and enjoy bright, crisp images.

Bigger

Aperture fever! Who doesn't long for a humungous telescope that will make those faint fuzzies look like Andromeda? I've used a few big scopes and been really thrilled by them. But then reality sets in. I *really* don't like observing without my feet on solid ground. To be honest, I really prefer observing sitting down. It's easier to keep my eye aligned with the telescope's exit pupil, plus I just see more and better when I'm in a relaxed seated position. That's one reason I've become a convert to Schmidt-Cassegrains in recent years. Even with quite a large SCT, the eyepiece doesn't move much as you point the telescope around the sky, and I've come to really appreciate that.

A recent development has been increasingly short focal ratios for big Dobs. Until a few years ago, it was rare to see a Newtonian with a focal ratio less than f/6. Now focal ratios between f/4 and f/5 have become very common, not just in high-end custom scopes, but even in mass-market jobs. Meade has a 16-inch f/4.5 Dob and Orion has just announced a 14-inch f/4.6 Dob. The resulting scopes are more compact and transportable than anything widely available until now, and, more importantly, their eyepiece heights at the zenith are now accessible without needing a ladder. Custom Dobs are now slipping below the f/4 limit. All of these bring the hazards of coma, which means that Tele Vue will be selling a lot of Paracorr coma correctors.

Smaller

A major new development in the last few years has been the dropping prices for apochromatic refractors. For decades these have been priced high and have had decade-long waiting lists. Suddenly a number of manufacturers in the Far East have started producing apochromats at far more affordable prices and without waiting lists.

I got on the bargain apo bandwagon back in 2003 when Orion came out with their 80-mm f/7.5 ED refractor. This amazing little scope (Figure 1) produced such exquisite images that I ordered the 100-mm f/9 version as soon as it was announced, which, too, is an amazing performer. These scopes have proven very popular with both visual observers and imagers, and have inspired a host of imitators. Although optically fine, they were mechanically crude, but have recently been upgraded with two-speed Crayford focusers and shiny polished tube assemblies. I recently tested the 120-mm f/7.5 version, and found it to be superb, both optically and mechanically — and beautiful to look at too.

Figure 1 — The author's favourite 100-mm Orion refractor.

Different

How about a Big Mak? I've always had a soft spot for Maksutovs. It was a 90-mm Maksutov-Cassegrain that got me back into astronomy in 1997, and the Russian 6-inch Maksutov-Newtonian that I purchased 9 years ago has long been my optical standard of reference to which all other telescopes are compared. I've recently tested a couple of new entries into this field: Orion's 180-mm f/15 Maksutov-Cassegrain and 190-mm f/5.3 Maksutov-Newtonian. While both these are impressive achievements, it seems to me that the "sweet spot" for these designs is a bit smaller. I sometimes regret having sold my Orion 127-mm Mak-Cass to Guy Nason, and I know I'll never part with my 6-inch Mak-Newt.

Brainier

Telescopes with brains? Twenty years ago, who would have believed it? Yet computerized telescopes have been the greatest astronomical innovation in the last two decades. I resisted this for a while, until I was sent a telescope with digital setting circles for testing. After

finishing my tests, I suddenly got the notion of programming its controller to locate my favourite variable-star fields. I quickly discovered that not only could I cover a lot more variables in an evening, but I could intersperse this with quick looks at favourite deep-sky objects and double stars.

I'd long been a starhopping purist and felt that a beginner could only get to know the sky intimately if they learned their way around the sky "the hard way," *i.e.* as I did fifty years ago. However, the reality is that the sky has changed (for the worse: light pollution) and the typical amateur astronomer has changed also. People are very busy today, and hobbies must be squeezed into a variety of other activities. Not everyone has the luxury of long evenings spent with telescope and star atlas under pleasant summer skies. I'm convinced, from studying my log books, that there are far fewer clear nights in the year today than there were 50 years ago. When it's clear, I want to pack as much astronomy as I can into the available time. Computers help that.

There are two routes to follow. Digital setting circles are quiet and consume very little electricity. Motorized GOTO telescopes tend to be noisy and eat up batteries at an alarming rate; an external power supply is almost an essential. Most GOTO systems are based on altazimuth mounts, which requires two motors to be operating constantly. I recently tested an equatorial GOTO mount, and found this to be a pleasing alternative. Most of the time only the RA motor is operating, which cuts down on noise, power consumption, and results in a smoother operation.

Most telescopes and mounts today come with a standardized dovetail system based on the Vixen design. This enables you to mix and match telescopes and mounts, something that I do a lot.

New toys: just one of the things that keeps our hobby (and ourselves) fresh and young!

Geoff Gaherty recently received the Toronto Centre's Ostrander-Ramsay Award for excellence in writing, specifically for his JRASC column, Through My Eyepiece. 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. Besides this column, he writes regularly for the Starry Night Times *and the* Orion Sky Times. *He recently started writing a weekly column on the* Space.com *Web site.*

A Moment With…

by Phil Mozel, Toronto and Mississauga Centres (dunnfore@gmail.com)

Dr. Leslie Sage

Turn to page 245 of this issue of the *Journal* and you will see a long-running column entitled Second Light. At the end is an abbreviated biography of the author, Dr. Leslie Sage. What caught my eye early on was the fact that he grew up under the light-polluted skies of Burlington, Ontario, while I grew up under the light-polluted skies of adjacent Oakville. "Neighbours" under the stars (and in the *Journal's* pages), it seems logical that we connect for a moment.

A pristine night sky was not going to be the spark that set Dr. Sage off on his astronomical odyssey. Instead, it was the double whammy that jump-started many astronomers, both amateur and professional: *Star Trek* and the *Apollo* Moon program. Add membership in the Toronto Centre of the RASC to that, and he was well on his way. After a Ph.D. from Stony Brook University in New York, Dr. Sage took up post-doctoral positions at New Mexico Tech and the Max Planck Institute for Radio Astronomy. He currently holds a research associate position at the University of Maryland, in addition to his "day job" as the astronomy editor of *Nature.*

Dr. Sage's primary research interest involves the study of gas content and star formation in galaxies beyond the Milky Way. This interest came about when, considering topics for his Ph.D., his faculty advisor provided a list of potential research topics that included star formation in galaxies. This was in the early 1980s when, coincidentally, results from the *Infrared Astronomical Satellite* (*IRAS*) were pouring in.

IRAS was the first observatory to conduct an all-sky survey at infrared wavelengths. It discovered about 350,000 infrared sources

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(including three asteroids, among them, 3200 Phaethon, the parent body of the Geminid meteors) and six comets. *IRAS* found dust disks around many stars, notably Vega, and made the first images of the Milky Way's core. About 75,000 of the sources are believed to be starburst galaxies, *i.e.* galaxies that are churning out new stars at a high rate. M82 is the classic example. More to the point, very strong