

## Finding Things

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I'm a starhopper. When I got started in astronomy back in 1957, there were two ways of finding things in the sky: setting circles or the other way. It didn't have a name back then.

Setting circles appealed to my 16-year-old geek brain, but I couldn't afford a telescope with setting circles and, besides, I wasn't sure I could ever figure out what the current sidereal time was. Back then, astronomy books assumed you had an observatory with a sidereal clock, and that's how they explained how to use setting circles.

Luckily, two months elapsed between the time I first got interested in astronomy and the arrival of my first telescope on July 4, an Edmund *Palomar Jr.* 4.25-inch reflector. By the time it arrived, I had been studying the sky for two months with my naked eyes and my trusty 6 × 30 monocular (half of my father's World War I binocular that my brother had disassembled and, as usual, only half reassembled). I already had a backlog of objects to look at with my new telescope, and, thanks to my monocular, I knew exactly where to look that first night: the Moon, Saturn ("Oh wow! It *really* has *rings!*"), Epsilon Lyrae, and Mizar and Alcor. Over the next few weeks I observed various double stars, which was what you did in those days, identified Saturn's moon Titan, and observed Jupiter and its retinue of moons. On July 17, I observed my first deep-sky object, M22 in Sagittarius. I don't remember now how I found it, but it was probably by the technique we now call "starhopping": start from a known bright object and then navigate by star patterns to the target.

A few months later, I made the trek up behind Molson Stadium and joined the Montreal Centre. My two most vivid memories of that first night were of the Centre's library — shelves full of books and magazines — and their beautiful brass 6.5-inch f/15 refractor, mounted in a dome atop a gigantic pier and mount, with *setting circles!* Soon I hoped to be initiated into the secret order of serious astronomers who used setting circles.

As the weeks went by and I spent every Wednesday and Saturday night at the observatory, I noticed that nobody actually *used* the setting circles. Instead, everyone seemed to find things exactly the same way I did with my little scope. In fact, one of the rules in the Messier Club was that setting circles were strictly prohibited, as they would make things too easy. I gradually began to suspect that the problem was that no one had figured out how. The only time those beautiful engraved brass setting circles were ever used were when George Wedge (seen at the



Figure 1 — The Montreal Centre's 6.5-inch f/15 Topham refractor with its setting circles.

eyepiece in Figure 1) and I, on a Saturday morning, would look up the coordinates of the Sun and Venus, and then offset the scope by the difference in coordinates to find Venus in the blue daytime sky. We once even found Mercury that way.

Myself, I continued starhopping. First the Messiers, then the Finest NGCs, then the Herschel 400. When I took up variable-star observing a few years ago, I starhopped to all of "my" stars. I defended starhopping stoutly as an educational and aesthetic tool against the hordes of GoTo scope users who invaded the hobby. I prided myself on being able to locate dozens of objects by heart. I tested a couple of GoTo scopes for a local dealer, and found them frustratingly slow and noisy, and I had to install a fresh set of batteries each night.

Then last year, I was given for testing purposes an Orion 6-inch Dobsonian equipped with IntelliScope digital-setting circles. This took only a couple of minutes to align on two bright stars, and I had fun looking at various deep-sky objects, including a few I hadn't looked at in years because I'd forgotten the starhop to them. Unlike a GoTo scope, finding things was fast, because I moved the scope myself until the hand controller read "0.0 0.0". It was totally silent: no motors. The batteries seemed to last forever because they weren't powering those noisy motors.

I wrote my review and moved on, but a little idea started teasing the back of my brain. Observing variable stars involves



Figure 2 — The Argo Navis controller.

a lot more time in locating and identifying the variable's field than in actually estimating its brightness. The IntelliScope controller has a user database where you can enter the coordinates of up to 99 objects. Why not enter the coordinates of my variable stars? I entered a couple dozen, which proved to be quite easy. The next clear night I timed myself, and found that I could observe three variables using the digital setting circles in the time it took me to observe two stars by starhopping. Since quantity of estimates is important in variable-star observing,

this meant a major increase in productivity.

I quickly found myself using the little 6-inch far more often for my variable-star sessions than my 11-inch Starmaster. So I recently made the decision to install digital setting circles on my Starmaster. Friends locally in the Toronto Centre and online all strongly recommended the Argo Navis system, made by Aussie Gary Kopff. Though more expensive than the competition, it offered advanced electronics, a simple and elegant user interface, and, best of all from my point of view, a large user object database (up to 1100 objects), easily updateable from a computer using software provided. Gary recommended an installation kit from Sky Engineering for my scope.

Installation took under an hour, even for a technoklutz like me. The 228-page manual looks daunting, but in fact only about 30 pages are required reading, which took about an hour with the Argo Navis computer in hand. Then all I had to do was wait until a clear night (few and far between at this time of year) and I was up and running.

In practice, the Argo Navis has proved extremely accurate and easy to use. Alignment (set horizontal and then two stars) takes a minute or two. Moving from one object to the next takes under a minute. My ratio of observing time to finding time is going up really fast. The user interface consists of two buttons and a dial, perfect for operation in Canadian temperatures with heavy gloves on. The red LCD screen is easily readable, even with my astigmatic eyes without glasses.

The main problem with Argo Navis for me has been what I call "the peanut factor." At the end of the observing session, when I'm beginning to feel a bit tired and cold, I'll say, "Oh well, I'll just observe *one* more object..." Half an hour later, I'm still playing. So, even for this crusty old starhopper, the Argo Navis has proven a double benefit: it increases my productivity, but it also increases my fun. When I'm done my variable-star "work," I'm still out there looking at deep-sky objects that I haven't viewed in ages, because the starhops are too obscure. Or double stars in out-of-the-way places. Or having a peek at Uranus and Neptune because the nearer planets are all on the far side of the Sun. But mostly, having fun! ●

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