The Herschel 400 – How To Do It And Not Completely Lose Your Mind

In February of 1994, I was at the Winter Star Party in the Florida Keys. As I was working on the observing list I had planned for the week, a woman next to me had an atlas spread out on an observing table, and was carefully logging certain objects. Curious, I went over and asked her what she was doing. The woman turned out to be Jackie Wade and she told me that she was working on the Herschel 400. Of course, I had to ask what that was, and Jackie explained it. She then added that only 4 women held the certificate at that time, and that I might want to try for it.

That was all it took. It was time for a fifth woman astronomer to get that certificate. I vowed I would be that woman.

In May of that same year, my husband Steve, and I went to the Texas Star Party. Steve, aware of my ambition, purchased a Herschel logbook for me that had all 400 objects in order by NGC number. I was on my way! From that time on, I worked on the Herschel in earnest.

During the next three months, it became apparent that I had a number of problems. For one thing, living in Florida meant dew; and dew is deadly on hand-written logs. Even though I was smart enough to use pencil, I continually had to go back and forth between eyepiece and log sheets to record my observations. Inevitably the paper became soaked with Florida dew. And then there were the numerous trips back and forth, from eyepiece to log, and back again. I had to turn my red flashlight on brightly enough so that I could see what I was writing, which, in turn, blew my night vision. This caused the inevitable pain in the drain.

Again, Steve came to my rescue. First, he purchased a small hand-held tape recorder that I could use to record my observations right at the eyepiece. Then he did something that was sheer genius. Using Word 2.0, he set up a template for my log, with macros that would prompt me for the variables, such as date, time, location, magnification, and description. He also set it up so that it would produce a list; once an object was recorded, the list would show the object in gray; all objects not recorded would appear in bold black. I continue to marvel at his creativity; I would have never been able to accomplish this feat on my own.

At about the same time, Bob Nederman also lent a hand. At the Great Plains Star Party in 1994, he had for sale at his booth Astronomical Innovations the OGTU – the Observer's Guide to the Universe. This wonderful atlas, in a loose-leaf notebook, had all of the Messier and Herschel 400 objects sorted by constellation, as well as star maps for location – and they were all laminated! Between Steve and Bob, I figured that one would have to be a total moron not to be able to do the Herschel.

I started working on the Herschel with my 10" f/10 LX-200. A good night for me was being able to log 20 objects. With the tape recorder in hand, I would stand at the

eyepiece and describe the object and surrounding star field in excruciating detail. Pretty soon, other observers began to catch on; when I transcribed my observations into the computer, I would invariably hear voices in the background that said, "There's Susan, talking into her hand again!"

By the spring of 1995, I was making some progress. My observing partner, and fellow sufferer Dave Gracey, was also working on the Herschel. Spring of 1995 found both of us at Chiefland, FL, working on our list. Spring meant Virgo and Coma Berenices, both veritable treasure troves of Herschel objects. We had great skies, and set up within about 15 feet of each other.

Dave was using a 15" f/5 Tectron for his Herschel; I was still using my 10" LX-200. Dave was doing it the hard way; no DSC's, no goto. I was busily dictating my description of yet another elliptical galaxy in Virgo when Dave approached. He had just found the first object on the list in Coma Berenices, and asked if I could verify his position with the LX-200. No problem, I said, and slewed the scope to the object.

When I looked through the eyepiece, I exclaimed "What a piece of s**t!" This turned out to be immortal. Dave looked through my scope, I looked through his, and we both agreed we had the same object in the eyepiece.

As Dave and I suffered through Coma Berenices together, it became apparent to us that our descriptions of the objects were in serious need of revision. We couldn't very well turn in logs that described these objects as "What a DOG!" or "Good GRIEF, what a piece of crap!" So we invented our own private rating system for HPOS's (Herschel Piece Of S**t – I don't have to draw a picture here).

We came up with the "Charmin" rating. One square was bad; two was worse, and so on. The worst rating was five squares; needless to say, a five-square rating meant that the object was a real bottom-feeder. As time went on, we realized this rating system wasn't quite adequate, so Dave came up with the Imodium AD rating system. I don't think I need to go into detail on that one; suffice it to say, objects that fell into this category were well beyond the bottom-feeder stage.

It took us the better part of that week to get through Coma. Then summer came, and good deep-sky observing went down the drain. Florida skies are marvelous for their steadiness and, in the winter, transparency, but the summer skies just aren't conducive to deep-sky observing because of the rain and haze that comes with summer. Of course, full moon nights are invariably as clear as well water.

By the fall 1995, I had purchased a 12.5" f/5.4, and then, in 1996, a 10" f/6, both Starmaster Dobsonians. The 10" f/6 was much easier to handle and I could set it up myself. It came equipped with a Sky Commander; but I only used it occasionally to verify position in case of doubt.

By the time the Winter Star Party of 1997 rolled around, both Dave and I were down to the wire. Both of us were taking advantage of the marvelous skies in the Florida Keys, and pulling as many all-nighters as we could. After one such all-nighter, I was putting my scope to bed when Dave sauntered by. He said, "Ask me how many Herschels I have left to do." I smelled a rat immediately, but asked anyway. Dave triumphantly announced, "ZERO!" and proceeded to roll around on the ground like a dog scratching its back, while singing a three-verse ditty that emphasized the fact that he was done and I was not. At 5:30 a.m., after a full night of observing, I was far less inclined to burst out laughing than I would have been otherwise.

By the next night, I, too, had finished. When I got home, I quickly transcribed my tapes into my log, looked it over carefully to make sure I hadn't missed anything, and printed it. However, Dave's little performance on the beach at WSP was still ringing in my ears, so I did the only logical thing; don't get mad, get even!

As it was already well known that I tended toward excess verbiage when describing the Herschel objects, I cooked up a plot that would floor even Dave. I obtained a perfectly sized 15" log from the local nursery and painted "Herschel" on it. I then packed it, with several bricks and stones, into a box that was labeled "Herschel Log – Volume 1". It was addressed to Dave with my return address, and I hand-delivered it to him at the Highlands Star Gaze in March of 1997.

When Dave returned to his trailer, there were about 8 witnesses present. Dave spied the box and grinned. Then he hefted it. The brief look of astonishment on his face, not to mention total shock, was well worth the pains I had taken. When he opened the box, he found my "Herschel Log". To his credit, he had a good laugh over it. I then handed him my "real" log, which was in a loose-leaf notebook and was 149 pages long.

Although both of our logs were turned in together, somehow Dave wound up with certificate #149, and I was #151. I then loftily informed Dave that the numbers were singularly appropriate; they represented his weight, and my I.Q., in that order. Nobody believed this, of course. After all, Dave did weigh more than 149 lbs.

So here are some hints that I learned that might help those of you considering taking on the Herschel 400.

First, sort your list by constellation, rather than by right ascension. Some type of database program is ideal; but a spreadsheet can be used as well. Working in one constellation at a time means that you don't have to continually move back and forth in declination. Once you have all of the objects in that constellation done, you can check that one off your list and move on to the next.

Second, invest in a small hand-held tape recorder. This is invaluable because you can dictate your descriptions right at the eyepiece, instead of walking back and forth trying to log by hand. A tape recorder that has a "pause" feature is ideal. Just don't forget to turn the pause off when dictating. I did this a number of times, and wound up repeating at

least 75 objects. Also, make sure you have spare tapes on hand, and spare batteries for the tape recorder. Running out of juice in the middle of an observing session can drive one to pulling out hair; this is usually accompanied by a lot of unprintable language.

Third, draw up a plan of action. Figure out what constellation(s) you want to work during your observing session. It's best to have at least three planned; that way, if some errant clouds obscure one, you can move on to the next one.

Fourth, when recording your observations, describe what you SEE, not what you are supposed to see or what the object is supposed to look like. Descriptions can include the surrounding star field, the orientation of the object in the eyepiece, any color visible, and shape. For orientation, a great way to do this is to think of the FOV as the face of a clock. An elongated spiral galaxy might, say, run from 2 o'clock to 8 o'clock in the eyepiece. For open star clusters, try to look for different colored stars, or shapes and patterns within the cluster. An estimate of the range of magnitude of the stars within the cluster is also worth description, as well as the approximate number of stars within the cluster. On planetary nebulae, look for color, shape, and relative size, and try to spot the central star. An estimate of its magnitude is always a good practice. Having trouble seeing the object at all? Get into the habit of using averted vision. This can prove invaluable when you've got a real faint fuzzy in the eyepiece. Sometimes a couple of light taps on the OTA of your scope will reveal a particularly stubborn object. And don't be afraid of powering up; although 100x is, in general, a good starting point, many of these objects will take quite a bit more than that before they reveal any detail. Try two or three different magnifications if you need to.

Fifth: Take your time! Don't just glance at the object; take a good long look and see how much detail you can discern. Think of the Herschel list as an exercise in honing your visual observing skills. Train your eye to see detail. At what power does a globular cluster begin to resolve? How is a spiral galaxy oriented – face-on, edge-on, or somewhere in between? Is that planetary nebula round, or irregular? Is that elliptical galaxy more round, or more oval? And don't forget color. Training your eye to see color in deep-sky objects is well worth the effort.

The Herschel 400 is a list that is well worth doing, if for no other reason than to improve your visual observing skills. Many of the objects present quite a test and several are real dogs. But this is what makes the list a challenge, and a rewarding one at that. So don't be afraid to tackle it. It's a great way to improve your visual observing skills, and you can actually have a lot of fun with it.

Susan Carroll