



PRODUCT REVIEW

by Glenn Norman

MallinCam VSS+ Colour Video Camera: A New Window on the Universe From Your Backyard

Our reviewer says: ‘After I got over the shock of what I was seeing, I clearly remember thinking, “I am ruined.” I mean, how do you go back to grey fuzzy spots through an eyepiece after you’ve seen *this*?’

BY WAY OF BACKGROUND, I fell in love with astronomy when I was 9, joined The Royal Astronomical Society of Canada when I was 12 and have been sharing my passion for astronomy—an activity often called public outreach—ever since (I’m now 61). Over the decades, I’ve helped well over 10,000 folks take their first look at the wonders of the universe through a telescope. But along the way, three problems have consistently frustrated me: (a) the prolonged wait between viewing objects when long lines of people are involved; (b) the constant repetition of the description of the object in view by the presenter; (c) the fact that most people have a very hard time grasping the reality that “the fuzzy grey spot” in the middle of the eyepiece view is actually a galaxy 26 million light-years away.

The Moon, Saturn and Jupiter are impressive and memorable, but to someone who knows next to nothing about astronomy and is looking through a telescope for the first time, comets, galaxies, planetary nebulas, etc., all look exactly the same—a fuzzy grey spot.

For years, I have thought that the average person would really only “get” backyard astronomy if the image being viewed through a small telescope was close to the full-colour images seen in magazines or astronomy documentaries on the National Geographic Channel. Yet I always assumed that that was impossible. But as it turns out—much to my utter amazement—I’ve lived long enough to see it happen. And it’s better than I ever imagined.

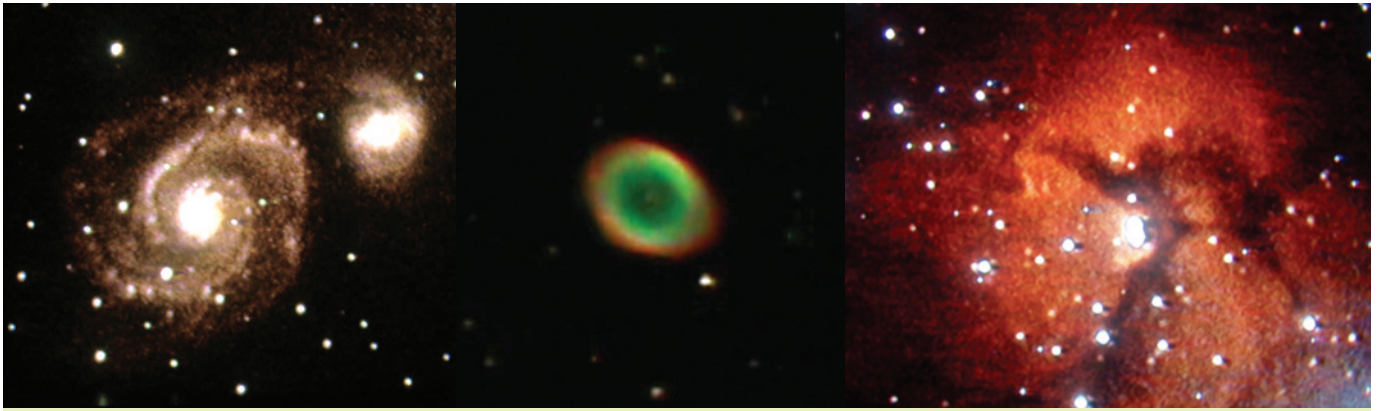
When the first \$89 black and white low-light security cameras became available, I bought one immediately. It didn’t disappoint. That little unit gave spectacular views of the Moon and even managed passable views of Jupiter and Saturn. But when it came to deep space . . . forget about it.

So you can imagine my delight when I was asked to review the MallinCam, a whole new kind of video camera for astronomy—one described by supporter Mike Harvey as “enhanced observing” rather than imaging celestial objects. Even better, the MallinCam is hand-crafted right here in Canada by electronics guru Rock Mallin.

When the camera arrived, I felt like a kid on Christmas morning. But, of course, the mandatory two weeks of snow and bad weather immediately moved in. I used that time to try to figure out how to hook up the camera and to determine

DEEP-SKY GROUP OBSERVING A regular television displays “live” MallinCam images. The screen is overexposed here to properly show the equipment in action in a group setting. Actual screen images are shown on the facing page. PHOTO BY MICHELLE GOODEVE





MALLINCAM 28-SECOND EXPOSURES From left: M51, the Whirlpool Galaxy; M57, the Ring Nebula; M20, the Trifid Nebula. Because the highly sensitive MallinCam VSS+ colour video camera can often grab a fully saturated image in 28 seconds or less, there is minimal wait time for the next image to display. Camera is designed for group visual observations rather than for recording images. PHOTOS BY GLENN NORMAN

what on Earth all those buttons were for. My one complaint (a very small one) about the MallinCam is that the instructions aren't exactly easy to understand for techno-dummies like me. However, I soon discovered that there are tremendous patient and friendly support groups out there, including an extraordinary on-line network that Mallin has specifically created to share views and solve problems. More on that later.

The MallinCam version I received is the VSS+ colour video camera with the

new external hand controller. This is a great accessory that I highly recommend, as it allows you to change settings without touching the MallinCam itself (which inevitably leads to a smeared image on your next acquisition).

I wanted to attach the MallinCam to my 22-inch LCD monitor, and while I did ultimately succeed, the reality is that the MallinCam works better on an older CRT TV/monitor (available used everywhere—cheap). A lightweight ordinary television would be a good choice.

But I'm getting ahead of myself.

When the sky finally cleared, there was still a lot of snow on the ground, but I couldn't have cared less. I shovelled off my telescope pad, dragged everything outside, hooked it all up and waited for night.

I decided to start on the famous Whirlpool Galaxy (M51), which was nicely positioned in the dark skies over my home in the hamlet of Cedarville, Ontario (100 kilometres northwest of Toronto). I was scratching my head, trying to figure out whether the two reddish elongations on the monitor could possibly be galactic cores, when our neighbour Sandy Thornton wandered over. Sandy

has a real interest in astronomy and was curious to see what I was up to—especially as I appeared to be watching TV instead of looking through the telescope.

I was trying to explain the MallinCam to her, but at the same time, I was worried, because there were some faint blue curves on the monitor and I didn't know what they were. It dawned on me that they might be spiral arms, but as we were still in twilight, I passed off the thought with a self-reproaching "idiot!"

It was right about then that I remembered I was acquiring images at the rate of one every 3.3 seconds (the minimum, other than the "live" setting used for the Moon, planets and solar-filtered Sun). So I spun the little knob up to its full 56 seconds, then talked to Sandy while I waited for the new image. My back was to the TV, so when Sandy's eyes suddenly grew wide and she said, "Oh, my God!" I assumed one of the local skunks had snuck up behind me.

I turned cautiously and saw nothing but our usual array of cats. Then the picture on the monitor caught my eye and made me gasp. There on the screen was a bright, full-colour, highly detailed image of M51 and its neighbour galaxy

THE SETUP The MallinCam VSS+ colour video camera (the white box is inserted like an eyepiece) is the unit tested here. For full specifications and prices, see <http://mallincam.com>



TECH STUFF, PART 1

Let's start with the only real negative. Rock Mallin warrants the MallinCam for two years. But, as the CCD chip provided by Sony comes with no guarantees, Mallin cannot promise that you'll get a camera with no hot pixels (although he uses only class-1 sensors, which exceed industry standards). Would that stop me from buying a MallinCam? Not for a second. The only thing this forces me to do, out of honesty, is to give the MallinCam a rating of 10 out of 10, as opposed to the 11 out of 10 I would prefer to proffer.

TECH STUFF, PART 2

Bonus! The MallinCam makes collimating an SCT a one-person snap. Just centre a star on a monitor facing the front of the telescope, take the image out of focus, tweak the adjusting screws and immediately see the response on-screen. No more dashing back and forth to the eyepiece to see the results. They're right there on the screen. And you can collimate to amazing accuracy in a matter of minutes.



TOURING WITH EASE

Identifying deep-sky objects and features on the Moon is easy.

PHOTO BY MICHELLE GOODEVE

NGC5195—all the spiral arms, the dust lanes, the H-II regions, everything! In my 50+ years of observing, I have never seen anything like this. And here I was, using my friend Gord Skerratt's 10-inch Meade Schmidt-Cassegrain telescope in my own backyard.

I don't wish to overstate what I saw, so I think it's best to simply describe the image as staggering! As far as I'm concerned, the MallinCam takes just about any decent amateur telescope halfway to Hubble.

There is one drawback. After I got over the shock of what I was seeing, I clearly remember thinking, "I am ruined." I mean, how do you go back to "grey fuzzy spots through an eyepiece" after you've seen *this*?

Other than using a standard 26mm eyepiece to line up the Telrad and finder, I haven't touched any of the scope's expensive selection of eyepieces since the MallinCam arrived. Why bother, when I can sit comfortably in my chair, use the scope's keypad GoTo controls to flit from one dark-sky object to another, then use the remote MallinCam hand controller to fine-tune the image as it appears?

(As Francois van Heerde, one of Rock Mallin's army of helpful on-line volunteers wrote to me, adjusting the

numerous settings is where the MallinCam "becomes an art more than a science." I agree. And, strangely enough, this quickly turns from frustration—"Why is everything blue?"—to a lot of fun as you tweak settings and make the image your very own.)

Once I got the hang of the MallinCam, I saw more detail in more deep-space objects in one night than I have during a half-century of observing. It's almost impossible to stop looking. Every time something new rises over the eastern horizon, your immediate thought is, "If I wait just a little longer, I can see the Ring Nebula... or the Dumbbell"—both of which are breathtaking.

And, if you like, you can even operate the whole setup from a laptop inside your house! Think how *that* would affect your observing come next February.

But what about star parties? That was my main interest. How big a difference would the MallinCam make? To find out, I planned several gatherings, with the biggest one held at Humber Bay Park in Toronto under a truly awful light-polluted sky.

Humber Bay Park overlooks the glowing skyline of Toronto and, on this night, had the added disadvantage of a first-quarter Moon (combined with the shortest night of the year). Our 30 or so guests were taking in live views of the Moon before sunset, then being awestruck at the rings of Saturn just a few minutes later. And even though only a handful of stars were visible, I turned the scope toward M13. The globular cluster fairly exploded with brilliant stars. I actually had to turn the sensitivity down so that the core was not overexposed. Incredible!

How would the MallinCam handle something more diffuse under this far-from-ideal sky? I decided to try the Ring Nebula. I could already see a vague outline of the nebula at the lowest sensitivity setting. By tweaking a few of the MallinCam's settings, I soon had an image that rivalled what I'd seen under the dark skies

at my rural home. But this was in Toronto!

The Ring Nebula was spectacular: a field full of stars, brilliant colours in the nebulosity and the 15th-magnitude white dwarf star at its centre easily seen. When I hit Zoom, doubling the image's size, an audible gasp went up from the crowd—me too!

It was a great star party. All guests comfortably seated. No lines. One explanation. Everyone "got it."

My conclusion? When presented with this awesome new technology, the in-

TECH STUFF, PART 3

The instructions are hard to follow if you're not technically inclined (that would be me!). But not only is there an entire community of "MallinCam folk" ready to help you at the drop of an eyepiece (you won't use the eyepiece anyway), there is also www.nightskiesnetwork.com/. This is a live site Rock Mallin has created that allows you to visit any number of MallinCam users while they observe. You can watch, listen, post questions and get immediate answers as they move from object to object on most clear nights (Mallin himself often weighs in with suggestions).

credibly beautiful wonders of deep space have the power to reach all viewers, whether they believe they're looking at the handiwork of a deity, trying to make sense of our universe or simply sightseers being blown away by the view.

For me, the MallinCam has changed the era we live in to: Amateur Astronomy, Part Two, Day One.

It's *that* impressive. And I am ruined. ■

Glenn Norman became an amateur astronomer when he was 9 and has been involved in astronomy public outreach for more than half a century. He is currently editor-in-chief for the website www.whyfly.aero.

TECH STUFF, PART 4

Mike Harvey wrote on one of the forums, "I'm so unimpressed with most posted images that I've even advocated MallinCam users NOT POST, because almost none of the images give a true presentation of what is actually seen." I agree completely. The images accompanying this article—even the on-line images at Mallin's "nightskiesnetwork"—only hint at what you will see. Really.