Imaging at the Cutting Edge

A Visit with Rock Mallin

By Brian Straight

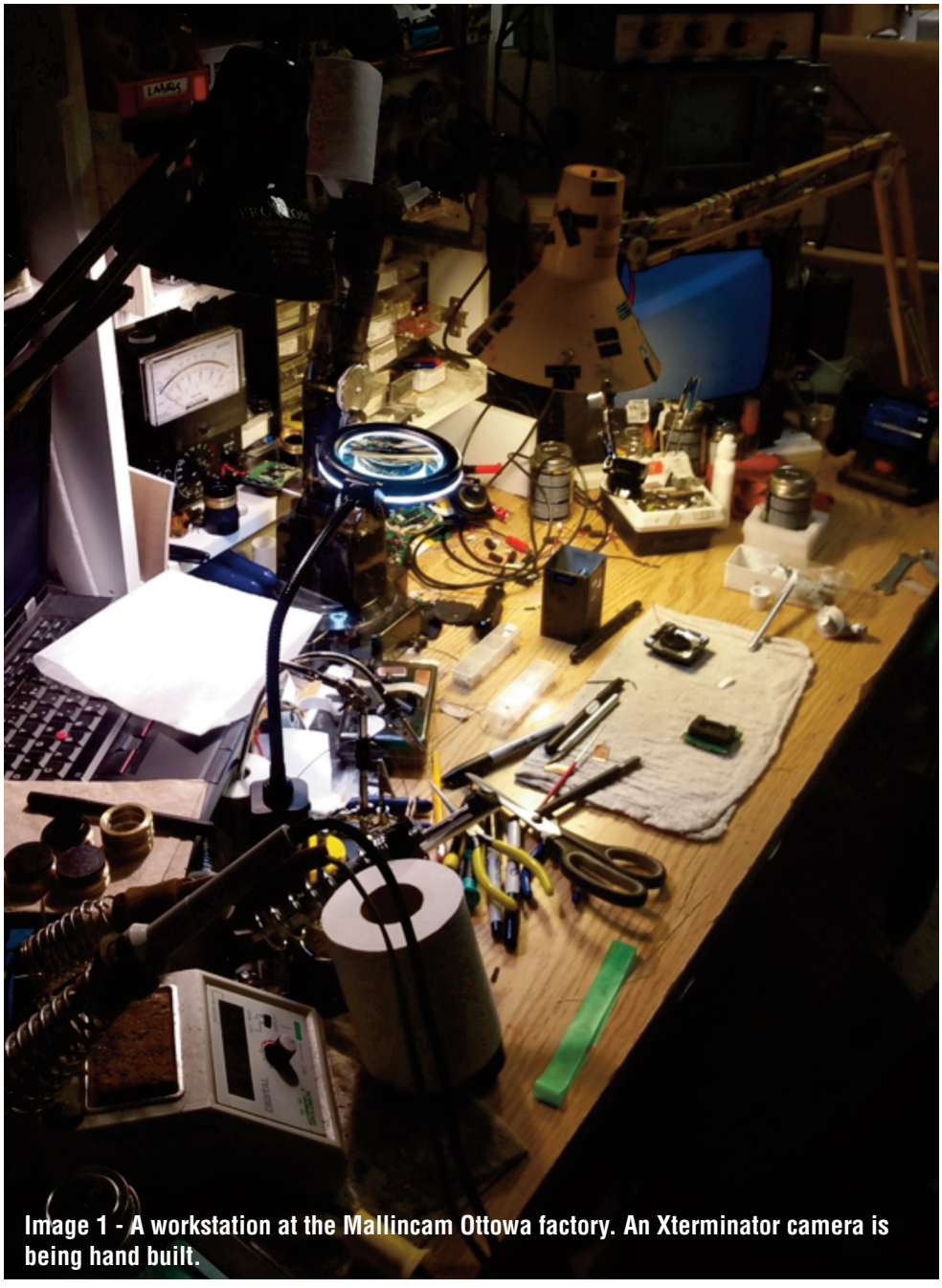

Image 1 - A workstation at the Mallincam Ottowa factory. An Xterminator camera is being hand built.

Like many amateur astronomers, I decided years ago to try my hand at imaging the faint, fuzzy objects I squinted to see against light-polluted skies. The result was frustration. Even the most sensitive imagers at that time required an equatorial mount or wedge, almost perfect polar alignment, long exposures, and hours of post-processing. That all changed one day when I found my way to the Night Skies Network (NSN) site, http://www.nightskiesnetwork.ca, and experienced for the first time the spectacular images produced by hand-built cameras made by a small Canadian company – Mallincam.

That first NSN session was the beginning my love affair with the exquisite cameras designed and built by Rock Mallin and his Mallincam team. I remember when I got my first Mallincam imager, the Jr Pro. I attached it to my 14 inch Meade ACF scope, running in alt-azimuth mode, hooked the camera up to a monitor (no computer required!) and "drove" to the Ring Nebula. And suddenly, there it was on the monitor – a color image of the Ring, showing fine detail and even the central, 15th- magnitude star with a 3.0-second exposure!

Image 2 - A custom-built imager assembly is readied for integration into a camera.

Image 3 - Listening for a change of pitch—argon is added to the imaging chamber of an Xterminator camera.

At last I could see images on my scope that were like the bright, colorful images on so many scope boxes.

As the years passed, Rock added more and more cameras with different capabilities to his product line, and I added several to my collection. Then, in September of this year, Rock invited me to visit his factory in Ottawa to see for myself how his cameras are made.

The Ottawa factory is an imaging nerd's dream: Inside are stacks and shelves of boxes of components – camera cases, lenses for focal reducers, circuit boards, Peltiers and controllers, power supplies, and even a tank of argon used in the imaging chambers of some of the cameras. Rock himself is an imposing figure with long, grey hair. He is friendly, energetic, and above all, passionate about his products and about astro imaging.

As Rock showed me around, I got a sense of just how complicated his business is, from managing the complexities of importing to building the cameras themselves. Many of the components for the cameras are custom manufactured off-site to exacting specifications, and they must undergo rigorous quality testing before they are assembled into the final cameras.

It's obvious that building cameras is a labor of love for Rock, and he is constantly working to improve his products, from the innovative use of aerogel for insulating the imaging chip, to an advanced Peltier cooler and control module that uses a tiny amount of current to produce optimal cooling for noise-free images.

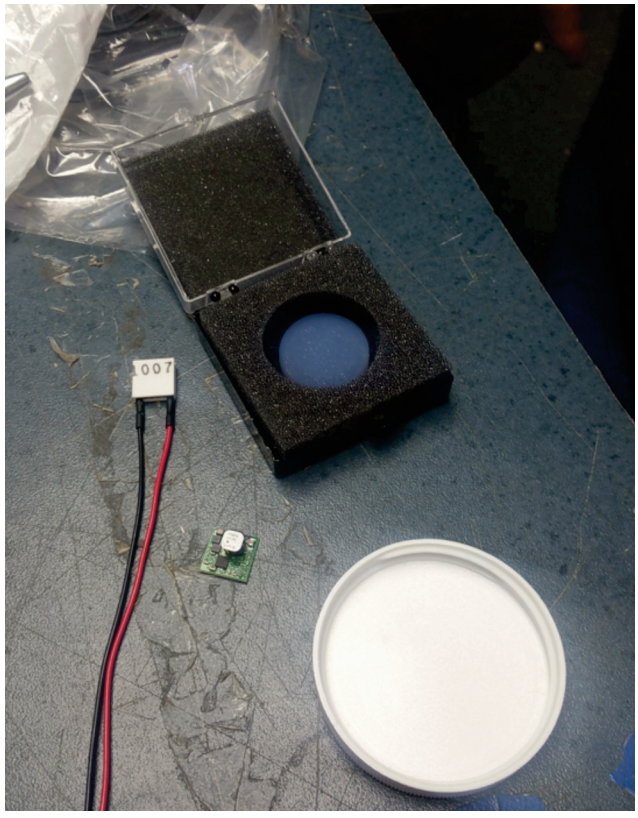

Image 4 - Advanced technology: a Peltier cooler, custom control board and aerogel.

Image 5 - A look at the business end of the new 16-megapixel DS16C camera prototype.

Image 6 - A blue beauty—the new DS16C prototype.

I also got to see Rock add argon into the imaging chamber of an assembly destined to be part of an Xterminator camera. The process involved a cylinder of the gas and two hypodermic needles and a good ear for pitch changes! His cameras are a unique blend of high tech and old-fashioned skilled craftsmanship.

But the ultimate driving force behind Mallincam's imagers is sensitivity – the ability to get a high-quality image on a screen within seconds, rather than in minutes or hours. This sensitivity means that almost anyone with even an entry-level go-to scope can produce excellent images of dee- sky objects in close to real time. Public outreach sessions take on a whole new dimension. I still remember the gasps I heard the first time I used my Mallincam Jr Pro at such a star party when the scope was moved to the Orion Nebula. The 2.0-second exposure showed bright details, such as the Trapezium, as well as the faint, colorful outer edges of the nebula and dark dust lanes.

It was a huge pleasure and an honor to be invited to see Mallincam's inner sanctum. What I saw there was an impressive dedication to offering the highest-quality solutions to the amateur astronomy imaging community. In a world where mass-production of cheap technology is the rule, it's good to find a place where pride and craftsmanship not only survive, but flourish. ATT