

Featherweight Champion of the World? Starlight Instrument's New Ultralight Focuser

By Doug Reilly

In the novel (and film) *A River Runs Through It*, Normal Maclean relates a story about how his father taught him to write. He would hand in an essay and his father would study it silently, hand it back and say: "That's great...now half as long." It's no wonder *A River Runs Through It* is about 100 pages long. (The movie doesn't adopt the same philosophy, however, running over 2 hours.)

Amateur astronomy has been in a "half as long" phase for quite a while. Refractors have gotten shorter, and less expensive (for what you get). Reflectors as well have seem to have been weaned on *both* growth hormone and slimfast for the last couple of decades, and we're seeing larger and faster mirrors in lighter and more portable containers. This crop trial seems to have reached a peak with the ultralight telescopes. Taking the now-classic truss dobsonian form (which were similarly developed to address the earlier generation of tank-like, heavy solid-tube dobs), the ultralights cut off *all* the fat in an attempt to create the essential telescope, *non plus ultra*.

One of the forerunners of the ultralight movement is the famed Portaball telescope designed and manufactured originally by Peter Smitka. The Portaball aimed to perfect the "ball telescope" design where essentially the telescope has one bearing, a sphere. Part of the idea's seductiveness is the simplicity; one of the ramifications of the ball design is the need to keep the top end of the truss as light as possible. Mag1 (the company that makes Portaballs) even produced it's own helical crayford focuser in an effort to keep weight down.

The Portaball is a justifiably famous telescope and has a legion of devoted fans. It's a top-end telescope and thus it's natural for buyers to look for top-end accessories. And in the world of focusers, the top end is occupied by just a few players, including Starlight Instruments and their Feathertouch line of focusers, which come in a dizzying array of sizes and configurations (and adapters, oh my, but not as dizzying as a Hutech Borg catalog...)

Mag1 and Starlight Instruments are both in their second generation of owners. Dave Jukem took over Mag1, and John Joseph took over Starlight. Both appear to be dynamic leaders building on the tradition of their forebears with smart innovation. As the story goes, Dave Jukem and Paul Lueba approached John Joseph at the 2010 NEAF and asked him about producing an ultralight version of their famous 2" Feathertouch focuser.

Which happens to be my favorite focuser. I have found nothing like it in terms of the feeling it provides. The action is smooth, almost fluid. A lot of crayford designs feel dry, but the Feathertouch defines the word *buttery*, and it seems to do this without the use of actual butter. (The original designer of the Feathertouch was right not to choose "I can't believe it's not butter" as a name for his product.). As I was putting

together a 10" f4.5 solid tube design to sit on a Discmount DM6, the new trimmed-down Feathertouch focuser was a natural choice. Although I was not building an ultralight dob, I was still trying to keep the OTA as light as possible.

So I contacted Wayne at Starlight Instruments and asked for a review unit of the first version of the Feathertouch lightweight focuser. Wayne agreed to send it to me, though with a warning. The first iteration of the focuser used a delrin drawtube to help reduce the weigh. It was a bold move, and ultimately not the right one. Wayne reported that the delrin didn't hold its shape (and we're probably talking a tiny fraction of an millimeter) when it got cold and the drawtube would bind around any 2" eyepiece or 1.25" reducer. They were working on a new design.

I received and used the first iteration lightweight focuser for a few months this winter and two things were evident. (Image 1) First, it had the same feel as the regular old Feathertouch and second, the delrin draw tube did indeed shrink in very cold weather. I did some observing nights for my college's astronomy 101 class in 12° weather. I never pinpointed the exact temperature the drawtube would bind; at 12° I could barely pinpoint Jupiter.

One of the things I love about the amateur astronomy industry is the interaction between users and designers, and the way that so many small companies can directly respond to consumer input. I tried telling Sony what I wanted in a professional camera and couldn't even figure out from their 978 websites which one to contact, or even how. But with small companies like Mag1 and Starlight Instruments, you can usually get the designer or owner (or both if they cohabitate the same brain box) on the phone for a chat.

Anyway, I imagine a lot of communication took place between Mag1 and Starlight and people who were using the first iteration lightweight focuser. And it yielded results: at NEAF 2011, Starlight Instruments and Mag1 introduced the second iteration Feathertouch lightweight focuser. This was a pretty radical redesign from the original (and came less than a year after the first). The delrin drawtube is gone, replaced by aluminum, and the focuser housing has almost disappeared entirely. My understanding is that those folks that had the first iteration were given the option to swap it out for the newer design.

As you can see from the Image 2, the new design is quite different though the silhouette is still unmistakably a Feathertouch. The focuser body has disappeared almost completely. The drawtube, now in aluminum again, is pocket milled to reduce some of its weight. The focuser weighs .4 pounds less than their standard focuser. It works perfectly and is indistinguishable in use from the now-classic Feathertouch. I even tested it on a 12° night. No binding, same buttery and precise motion. Same world-class machining and design.

I can't really think of any downside to the lightweight design other than the additional cost. If I handed this review to Norman Maclean's father, he'd look it over,

hand it back and say “Great, now half as long”. The final version of that editing process would read like this:

New Feathertouch Lightweight focuser: it's the same Feathertouch you love, but not as heavy.

And that would be the truth. If you're building an ultralight optical tube assembly, be it a dob or some other configuration, and you want one of the best focusers on the market, give the Feathertouch lightweight a look.

Doug Reilly is an amateur astronomer in the Finger Lakes region of New York State. He blogs about sharing astronomy with the public and organizes star parties at punkastronomy.com and he's building a bicycle-transportable ultralight 10" dob.

