City Mouse and Country Mouse

by Geoff Gaherty, Toronto Centre (geoff@foxmead.ca)

Now you must know that a City Mouse once upon a time went on a visit to his cousin in the country. He was rough and ready, this cousin, but he loved his city friend and made him heartily welcome. Beans and bacon, cheese and bread, were all he had to offer, but he offered them freely. The City Mouse rather turned up his long nose at this country fare, and said: "I cannot understand, Cousin, how you can put up with such poor food as this, but of course you cannot expect anything better in the country; come you with me and I will show you how to live. When you have been in the city a week you will wonder how you could ever have stood a country life." No sooner said than done: the two mice set off for the city and arrived at the City Mouse's residence late at night. "You will want some refreshment after our long journey," said the polite City Mouse, and took his friend into the grand dining-room. There they found the remains of a fine feast, and soon the two mice were eating up jellies and cakes and all that was nice. Suddenly they heard growling and barking. "What is that?" said the Country Mouse. "It is only the dogs of the house," answered the other. "Only!" said the Country Mouse. "I do not like that music at my dinner." Just at that moment the door flew open, in came two huge mastiffs, and the two mice had to scamper down and run off. "Good-bye, Cousin," said the Country Mouse, "What! going so soon?" said the other. "Yes," he replied; "Better beans and bacon in peace than cakes and ale in fear."

— Æsop's Fables

Once upon a time there was a city mouse who was an amateur astronomer. He lived almost all his life in one city or another. When he was a young mouse, there was not much light pollution, and he was able to spend many nights on his back porch gazing at the stars. When he returned to astronomy as an older mouse he found that the city lights had become much brighter and that he was hard pressed to see all but the brightest stars. So he tried to visit his country mouse cousins as often as he could, but that was not often enough to satisfy his craving to observe.

Our city mouse studied many books on observing, and got much advice, some good and some bad. Some said "The perfect telescope for urban observing is a small refractor," but he found that he could see even less with this than with his larger telescopes. Thus he learned that, as in other locations, in the city, aperture rules. In fact it takes a significantly larger telescope in the city to equal the views of a quite small telescope in the country.

He learned to modify his observing targets in order to have satisfying observing experiences in the city. He concentrated on the Solar System, observing the Sun, Moon, and planets. When there were no planets around, he consulted his *Observer's Handbook* and tracked down a number of bright asteroids, and watched them move through the sky from night to night. He once spent a wonderful night watching Pallas pass through the outer edges of the star cluster Messier 47 (February 28/29, 2000). He discovered that the beauties of double and multiple stars were undimmed by light pollution, and observed all of the stars on the Astronomical League's Double Star Club list (www.astroleague.org/al/obsclubs/dblstar/dblstar1.html). One of his mouse friends named Richard encouraged him to observe variable stars, and this proved to be the most rewarding observing of all: no matter what the state of light pollution, moonlight, or seeing, there were hundreds of variable stars visible! He spent less time looking for deep-sky objects, as these were hard to find in his city skies and, once found, rather disappointing to look at, if they could be seen at all. He saved his deep-sky observing for those rare times he visited his country cousins, when the views were much more satisfying.

A little over a year ago, this city mouse decided to move permanently to the country. At first he spent a great deal of time observing those deep sky objects he had been deprived of for so long. But, by and by, he found that one faint, fuzzy galaxy looked much like every other faint, fuzzy galaxy. Then he heard that Jupiter's Great Red Spot had been joined by a smaller friend of similar hue, Red Jr. Soon our newly minted country mouse was back observing Jupiter with fresh enthusiasm. And as Jupiter disappeared into the twilight, he found himself returning to another of his city favourites, variable stars.

Just around the time the city mouse made his move, he acquired a 150-mm Dobsonian with digital setting circles (DSCs). With this, he discovered he could see variable stars as faint in the country as the faintest stars he could ever see in the city with his 280-mm reflector. He also discovered that he could move from variable to variable much more quickly with the help of the digital setting circles. He's now purchased DSCs for his larger scope. Some of his more conservative mouse friends say he's gone over to the Dark Side, but he doesn't seem to mind.

One of the things that surprised the city mouse on moving to the country is that he was much less bothered by wildlife. In

the city he'd shared his backyard with neighbourhood skunks and raccoons. In fact he almost lost an eyepiece to a marauding raccoon one night. The eyepiece had been deftly removed from its case and carried half way across the yard before it was retrieved! In the country, although our mouse hears rumours of bears and moose in the area, his most dangerous foe has been the lowly mosquito, which seems to exist in astonishing numbers.

But the transposed mouse's greatest pleasure is, no matter what he may be observing in his telescope, the opportunity to sit back from the eyepiece now and then, and just take in the beauty and richness of the dome of stars overhead. That's like having the cakes and ale *without* the fear!

Gizmos

Sun Screen

by Don Van Akker, Victoria Centre (don@knappett.com)

In our rush to see stars light-years away we tend to ignore the star next door — the Sun. True, it's hard to look at. You need special filters or even special telescopes, and the more you want to see the more you need to spend. But for simple sunspot viewing, this eyepiece projector is easy, safe, and inexpensive. We use ours in a Meade ETX 90 but it will work in almost any reflector. The components are from the plumbing department and from your eyepiece box.

Plastic pipe comes in two main flavours. ABS, the black stuff, is used for waste pipes, and PVC, the white stuff, is used for water. We used some of each in this project because not all the fittings are available in either type alone. You need a 3×1½″ ABS reducer, a 1½″ length of 1½″ ABS or PVC pipe (you can buy this by the foot and you can use either), a 1½″×1¼″ ABS reducer, a 1¼″×1″ PVC reducing bushing and an eyepiece. Put it all together like the picture. You don't need to use glue because the "interference fit" of these parts is snug enough to hold things together without it. The Meade 20-mm eyepiece we used is a friction fit in the 1¼″ reducing bushing. If yours isn't, wrap it with tape or try a different fitting.

The screen is made of ordinary copy paper. Treat it with vegetable oil applied with a paper towel. Wipe off all excess and let it dry for a few days. Wrap the paper over the open end of the big reducer and stretch an elastic band around it. Pull the paper as tight as possible and trim with scissors. That's all there is to it.

In use, remember that the Sun is the engine that powers our world. Sunlight can be dangerous. Focused into your retinas by even the smallest telescope it has so much raw energy that your eyesight can be destroyed almost instantly. Sunlight reflected from an 8-inch, 10-inch, or 12-inch mirror is more useful for boiling tea than for viewing. The image projected on the screen is far too bright to look at and there may even be a heat build up that could damage the eyepiece. The easy solution is just to cover most of your mirror with a mask. Make it out of a file folder or similar paper, cut a hole in it off-centre (2 inches or 3 inches in diameter is plenty), and tape it over the end of the tube. Aim your scope by watching its shadow. When the tube casts no shadow on any side the Sun will appear on the screen.

A 20-mm eyepiece is a good match for the 1250-mm focal length of the ETX. It projects a solar image about 50 mm in diameter on the screen. With a 1500-mm Dob it projects an image that almost completely fills the 3″ screen. A scope with a longer focal length will need a different eyepiece. Experiment, but don't use your Naglers for this, and don't use a refractor because there may be damaging heat issues.

Focus until you see a nice crisp edge and sunspots will appear as shadowy blobs. Check them out daily to watch their progress across the face of the Sun and go to SOHO (`http://soho.nascom.nasa.gov`) to compare with what the big money sees.