



Special Edition

PULSAR

THE NEWSLETTER OF THE KITCHENER-WATERLOO CENTRE OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Astronomy Day Special Edition

In this Issue:

What's it all about?

Alfie isn't anywhere to be found, but the question still remains: What does an astronomy club really do? Quite a lot as it turns out!

Don't know an SCT from an SUV?

Refractor, reflector, Newtonian, Schmidt-Cassegrain: What does it all mean? A short introduction to the most popular types of astronomical telescopes.



Astronomy is for everyone, young or old, as this gathering of stargazers at one of the club's public star nights illustrates.

Editor's Corner

The late Carl Sagan once wrote, "We are star stuff." In that poetic statement he was expressing the remarkable fact that all of the elements in the universe heavier than hydrogen were born in the cores of stars. Cast out into space during the fiery death-throes of supernovae, these elements coalesced into other stars, around which formed planets, upon which – in at least one case we know of – grew life and intelligence, which now looks up at the universe revealed in our planet's night sky with wonder and awe. In a very real sense, we are the universe looking back at itself.

Astronomy Day celebrates the joy of looking at the stars. Professional astronomers observe them

to increase our knowledge, but we can simply enjoy the view. And there is no better way to do that than in the company of like-minded people, as a member of an astronomy club. In the next few pages you'll find a brief introduction to the activities of the Kitchener-Waterloo Centre of the Royal Astronomical Society of Canada. Hopefully, it will give you an idea of what it's like to be a member.

To paraphrase Max Ehrmann, author of the *Desiderata*, may the universe unfold as it should.

Alen Koebel, Editor

RASC K-W Centre

<http://kw.rasc.ca>

ROYAL ASTRONOMICAL SOCIETY OF CANADA

The Fellowship of the Stars

Almost anyone, young or old, can enjoy the stars. You don't even need special equipment: all you need is your eyes. But, as with many activities you can get far more out of the experience in the fellowship of others who share the same interest. That's the purpose of an astronomy club. But what does such a club do *exactly*? Here's what you can expect as a member of the K-W RASC.

First, of course, there are regular meetings. These happen monthly except in July and August, and almost always on the second Friday of the month.

Extremely well attended, the meetings are held in a lecture hall in the Science Building at Wilfrid Laurier University in Waterloo, Ontario. The hall provides complete audio-visual facilities, including an LCD projector for large-screen presentations.

Besides regular topics of discussion such as club news and current events, each meeting usually features a talk by a guest speaker. Past speakers have included Dr. Tom Bolton, the discoverer of Cygnus X-1, Dr. Slawek Rucinski, associate director of the David Dunlop Observatory, and science journalist Dan Falk, to name but a few. Although some of the speakers are scientists, the presentations are typically aimed at a general audience. Members of the K-W Centre and of other RASC Centres also



Club meetings are held in a lecture hall in the Science Building at Wilfrid Laurier University.



Members of the K-W RASC enjoy some festive cheer at the club's annual Christmas party.

regularly give talks on a variety of topics ranging from astrophotography to building your own observatory.

You don't need to know anything about astronomy to attend the meetings; you don't even have to be a member. But if you *are* an absolute beginner you might also be interested in the activities of the "Stargazing 101" group. They hold a separate meeting upstairs in the Zehrs on Ottawa Street in Kitchener each month a few weeks after the main club meeting. They also go out observing together on a regular basis, weather permitting.

Although you don't need a telescope or even binoculars to enjoy the night sky, they certainly help. That's where membership confers an advantage; the club owns several telescopes that are available for loan to members, ranging from small refractors to Dobsonian reflectors up to 14 inches in aperture. (For more about telescopes, see "The Telescope Menagerie: A Brief Guide for Beginners" in this issue.) Members can also sign out a variety of CCD cameras, special video equipment and other telescope accessories with sufficient training on their proper use. Training is available.

Some of the club's equipment is permanently installed in an observatory near Ayr, a few kilometres south of Kitchener. There are three buildings on the site, each housing its own telescope. The largest dome accommodates a sophisticated, computer-controlled 14-inch Schmidt-Cassegrain telescope.

The K-W Centre arranges a number of special events throughout the year. It all begins with the club "Christmas" party, which is usually held early in January rather than in the preceding December.

In April, the club participates in the International Astronomy Day initiative



Canadian astronomer Dr. Tom Bolton, one of the club's many past guest speakers.



Installing the club's computer-controlled 14-inch telescope in the main observatory dome.

with a display at a local Waterloo shopping mall, followed by a public star party, usually at Waterloo Park. Come June the club holds a picnic for members at the observatory, with complimentary hot dogs and hamburgers. A telescope-making party is typically held in July.

August brings with it the annual *Starfest* star party near Mount Forest, Ontario, which many members regularly attend. Organized by the North York Astronomical Association, this event brings together more than 1,000 enthusiasts in a private campground to



Club members camp out at the annual *Starfest* star party near Mount Forest, Ontario.

stargaze and share information, making it one of the largest star parties in North America. There are astronomy talks and how-to sessions in the daytime, and guided tours of the sky at night.

Commercial vendors sell their wares at the event, often at special prices; deals can also be had at the popular swap tables. If you want to buy a telescope but aren't sure what kind, there is no better opportunity than at a star party to look through a wide variety of different models.

Many enthusiasts choose to make their own telescopes rather than buy them. It's easier than you might think and the results can be superior to commercial models. You don't have to wait until a telescope-making party to start, either: Several club members who are bona-fide experts in this craft are more than happy to share what they know with others. Similarly, there are members with experience in planetary observing, solar-eclipse chasing, astrophotography – you name it!

Speaking of astrophotography, a number of members enthusiastically participate in this challenging but very rewarding activity. The club holds an astrophoto contest each year to recognize their best efforts.

Whatever your particular interest in astronomy, chances are good that you can read about it in the *Pulsar*, the club's quarterly newsletter. This is written by and for members but is accessible to anyone on the club's web site (<http://kw.rasc.ca>) as a downloadable pdf file. The web site is also the place to go for up-to-date news about club events and activities.

Members of the RASC automatically receive three other publications, all of them professionally printed. The first is the *Observer's Handbook*, which comes out each fall and is jam-packed with information on celestial events for the



Astrophotography is a popular activity within the club. A member took this photo of M42, the Great Nebula in Orion, through an inexpensive 6-inch telescope.

coming year. Every two months, members also receive the *RASC Journal* and *SkyNews*, Canada's premier astronomy magazine.

It's always nice to read about astronomy, especially during those cold winter months, but there's no substitute for getting out there and doing it. First and foremost, observing the night sky is what the K-W RASC is all about.



Members kick back and relax at the annual summer picnic held at the club's observatory.

The Telescope Menagerie: A Brief Guide for Beginners

Confused when you hear “SCT,” “refractor,” “Dobsonian,” or “apochromat?” You’re not alone! Here’s a brief guide through the telescope menagerie.

Refractor: This is what most people think of when they hear “telescope.” A lens in the front of the tube, called the objective, focuses light into an eyepiece at the back, often first reflecting off a small diagonal mirror to make it easier to view when pointing straight up.

Reflector: Instead of a lens to focus the light into the eyepiece, this uses one or more mirrors. There are many different designs, but the primary mirror is always concave.

Catadioptric: This type of telescope uses an objective lens in combination with mirrors to focus light. Most examples have very compact tubes for the size of their primary mirrors.

Achromat: This is a type of lens that can bring two colours of light together to a sharp focus. Most inexpensive refractors use an achromatic objective.

Apochromat: This is a type of lens that can bring three colours of light together to a sharp focus. This produces better images than an achromat, but is much more expensive.

Newtonian: This is a type of reflector that uses a second, flat mirror to redirect the light



Amateur telescope maker Peter Pekur looks through his beautifully designed 12.5-inch Dobsonian reflector. This is the most popular type of telescope.

reflecting off the concave primary to the side, where it can be viewed with an eyepiece.

Dobsonian: This is a type of Newtonian reflector that moves in a low-friction assembly called a rocker box, allowing it to be easily pointed at stellar objects. Most homemade telescopes use this design.

Schmidt-Cassegrain: This is a very popular type of catadioptric telescope, often abbreviated as “SCT.” Celestron and Meade sell commercial examples, with objectives ranging from five to sixteen inches in diameter.

Maksutov: This is yet another type of commercially made catadioptric telescope, this one characterized by a deeply *concave* objective lens. Both Maksutov-Newtonian and Maksutov-Cassegrain models are available.



The K-W Centre of the Royal Astronomical Society of Canada usually meets on the second Friday of every month excluding July and August. Meetings are held in the Science Building at Wilfrid Laurier University in Waterloo, Ontario. All residents of the Milky Way are welcome but must supply their own transportation.

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Want to join our club?

To become a member please call John Beingessner at 519-884-2425 or send e-mail to johnbein@gto.net

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