The Royal Astronomical Society of Canada
Vancouver Centre
1993 Observer's Calendar

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This calendar was produced with the aim of presenting information on astronomical events to observers in the Vancouver area. Data useful to observers, including Moon rising and setting times and phases, as well as listings of R.A.S.C. events, are given. No attempt has been made to give a complete list of interesting astronomical events, as this information is readily available in the *R.A.S.C. Observer's Handbook*. The data presented here mostly consists of events which require some effort to extract from the *Handbook*, such as local Sun and Moon ephemerides.

A 1994 calendar showing new Moon dates can be found on the back cover.

Corrections, suggestions, or other comments about the calendar may be directed to Rajiv Gupta, c/o R.A.S.C., Vancouver Centre.

How to use this Calendar

Astronomical data is given in the daily boxes. Every day, a pictorial representation of the Moon's phase at about 8:00 p.m PST (9:00 p.m. PDT) of that day is given, as are Moon rising and setting times for that day. The size of the Moon on the calendar varies from day to day reflecting the change in the apparent size of the Moon in the sky as the Moon in its elliptical orbit moves closer to or further from the Earth. On some days, there is no moonrise or moonset - this means that this event occurs the next day.

The times of the beginning of astronomical twilight before sunrise, sunrise, sunset, and the end of astronomical twilight after sunset are given once a week. These times can be interpolated for other days. A few special events, such as equinoxes, solstices, change between standard and daylight savings time, eclipses, meteor shower maxima, and planetary events are also given.

All event times are local Pacific time (PST or PDT).

Please note the following:

1. Rising and setting times are computed for Vancouver (latitude 49.2° North, longitude 123.2° West). For sites with approximately the same latitude, these times can be used with a correction factor. For example, subtract 2 minutes for Aldergrove Park, and subtract 10 minutes for Manning Park. For Victoria the actual rising and setting times will be within 5 minutes of those given in the calendar.
2. The given rising and setting times may differ significantly from observed times because of the difference between the observer's horizon and the theoretical horizon.
3. Astronomical twilight is defined as the interval of time before sunrise and following sunset during which the Sun is less than 18° below the horizon (measured from the centre of the sun's disk.) In practice, it is often dark enough to observe before twilight ends after sunset, or after twilight begins before sunrise. There is a period some days before and after the Summer Solstice when there is no astronomical darkness. This is indicated in the calendar by the absence of times for the beginning and end of twilight.

Observing Nights and Events

This calendar also includes the dates of the Aldergrove Observing Nights, the Manning Park Star Parties, and the Mount Kobau Star Party.

Aldergrove Observing Nights are held at Aldergrove Park which is also the site of the Dale McNabb Observatory. The park is located just south of Aldergrove and is about an hour's drive from Vancouver. To get there from Vancouver, take the 264th Street exit to Aldergrove from Highway 1, go past Aldergrove and turn left at 8th Avenue. Continue on 8th Avenue past 272nd Street, and take the first right afterwards. The site is about 100 yards past the gate. The key needed to unlock the gate to the park can be obtained from Lance Olkovick. His phone number is 253-0032.

Manning Park Star Parties are held at the Eastgate site which is just east of the eastern entrance to Manning Park.

The Mount Kobau Star Party is held on top of Mount Kobau, which is near Osoyoos.

Photographic Data

The photographs appearing in this calendar were taken by Rajiv Gupta (Vancouver) or J. C. Mirtle (Calgary), as indicated in the monthly captions. Gas-hypered Kodak Technical Pan film was used for all exposures. Equipment and exposure details are given below.

Cover: Lagoon nebula (M8), 5-inch f/6 refractor, 60-minute exposure taken in Baja California. Photo by Rajiv Gupta.

January: California Nebula, 5-inch f/6 refractor, 100-minute exposure with a Deep Sky Filter.

February: Rosette Nebula, 5-inch f/6 refractor, 65-minute exposure.

March: NGC 4565, 8-inch f/6 Newtonian, 50-minute exposure.

April: M59 and M60, 8-inch f/6 Newtonian reflector, 40-minute exposure taken at the 1992 Texas Star Party.

May: The Whirlpool Galaxy (M51), Calgary Centre C-14, 75-minute exposure with telescope working at f/7.

June: The Snake Nebula, 8-inch f/6 Newtonian, 40-minute exposure taken in Southern Utah.

July: M11, 5-inch f/6 refractor, 120 size (medium format) film, 30-minute exposure.

August: The North America and Pelican Nebulas, 5-inch f/6 refractor, 120 size film, 110-minute exposure with a red filter.

September: NGC 7023, 5-inch f/6 refractor, 60-minute exposure.

October: IC 1396, 180-mm telephoto lens at f/2.8, 60-minute exposure with a Hydrogen-alpha filter.

November: Andromeda Galaxy, 5-inch f/6 refractor, 120 size film, 80-minute exposure.

December: NGC 281, 5-inch f/6 refractor, 100-minute exposure with a red filter.

The Royal Astronomical Society of Canada
Vancouver Centre

Have you ever sat outside on a clear dark night and just gazed at the thousands and thousands of stars in the sky overhead? Do you remember the feeling of awe you had when you tried to fathom the immense distances between yourself and those tiny pin pricks of light? If you have, and you want to recapture some of that feeling, then consider getting involved in astronomy and joining the ranks of the Royal Astronomical Society of Canada.

The R.A.S.C. is open to anyone interested in astronomy. It doesn't require any special skills, education, or equipment to join. The only thing it does require is your desire to learn more about the stars and other celestial objects.

History

The R.A.S.C. has a long history, going back to the founding of the Toronto Astronomical Club by Andrew Elvins in 1868. The R.A.S.C. itself was established in 1903 in Toronto. Soon after that, the Society began expanding with the creation of new Centres in other cities. Today the R.A.S.C. has over 21 Centres across Canada and has over 3500 members world wide.

Since it was founded, the R.A.S.C. has filled a special role in astronomy. Its amateur and professional astronomers have made significant observational contributions to astronomical research. R.A.S.C. publications such as the Observer's Handbook are recognized as world-class publications. The R.A.S.C. also takes pride in the role it plays in educating the general public about astronomy. Programs that the Society sponsors include public lectures, public "star nights," instructional programs for groups such as Scouts and Guides, and Astronomy Day activities.

Monthly Meetings

The Vancouver Centre holds regular monthly meetings on the second Tuesday of each month usually starting at 7:30 p.m. in the auditorium of the H.R. MacMillan Planetarium. A typical meeting usually consists of a feature presentation given by a guest speaker along with several shorter presentations given by club members. The feature presentations cover a variety of astronomically related topics ranging from the history of astronomy to the latest advances in the space sciences. The shorter presentations also cover a variety of topics and could be an update on a recently discovered comet, the latest astrophotographs right out of the darkroom, or the unveiling of a new member-built telescope.

The Vancouver Centre Council meetings are held on the first Tuesday of the month in the Gordon Southam Observatory starting at 7:30 p.m.

Star Parties

The Vancouver Centre holds several Star Parties each year where both novice and expert astronomers trek off to a dark observing site for a night of star gazing. Even if you don't own a telescope it is well worthwhile attending since those members that do own telescopes are more than willing to share them with other members. It's a very relaxed, comfortable atmosphere where members share their knowledge and practical experience.

Telescope Loaner Program

If you don't have a telescope of your own, you can take advantage of the Centre's Telescope Loaner Program. The Centre owns a number of telescopes ranging from a 3" refractor to the large 14" reflector housed at the Dale McNabb Observatory. All are available for loan to members under the Telescope Loaner Program.

Library

The Vancouver Centre maintains a sizable library of over 500 astronomical books. Many of these books are not available in public libraries since they are of special interest to the amateur astronomer. The National Library of the R.A.S.C. in Toronto has a much larger collection and loans can be arranged through the Vancouver Centre library.

Centre Newsletter

NOVA is the Vancouver Centre's newsletter and is published six times a year. NOVA contains all the regular announcements of upcoming meetings and other special events, and articles by members on their latest observations, useful observing techniques, and other astronomical topics. There is also a for sale/want ad section for telescopes and related equipment.

National Publications

The R.A.S.C. Observer's Handbook has been published since 1908 and is recognized world-wide as the leading handbook of its type. The Observer's Handbook lists the astronomical events of the year, useful astronomical data, star maps, and other information all of which is indispensable to amateur and professional astronomers alike.

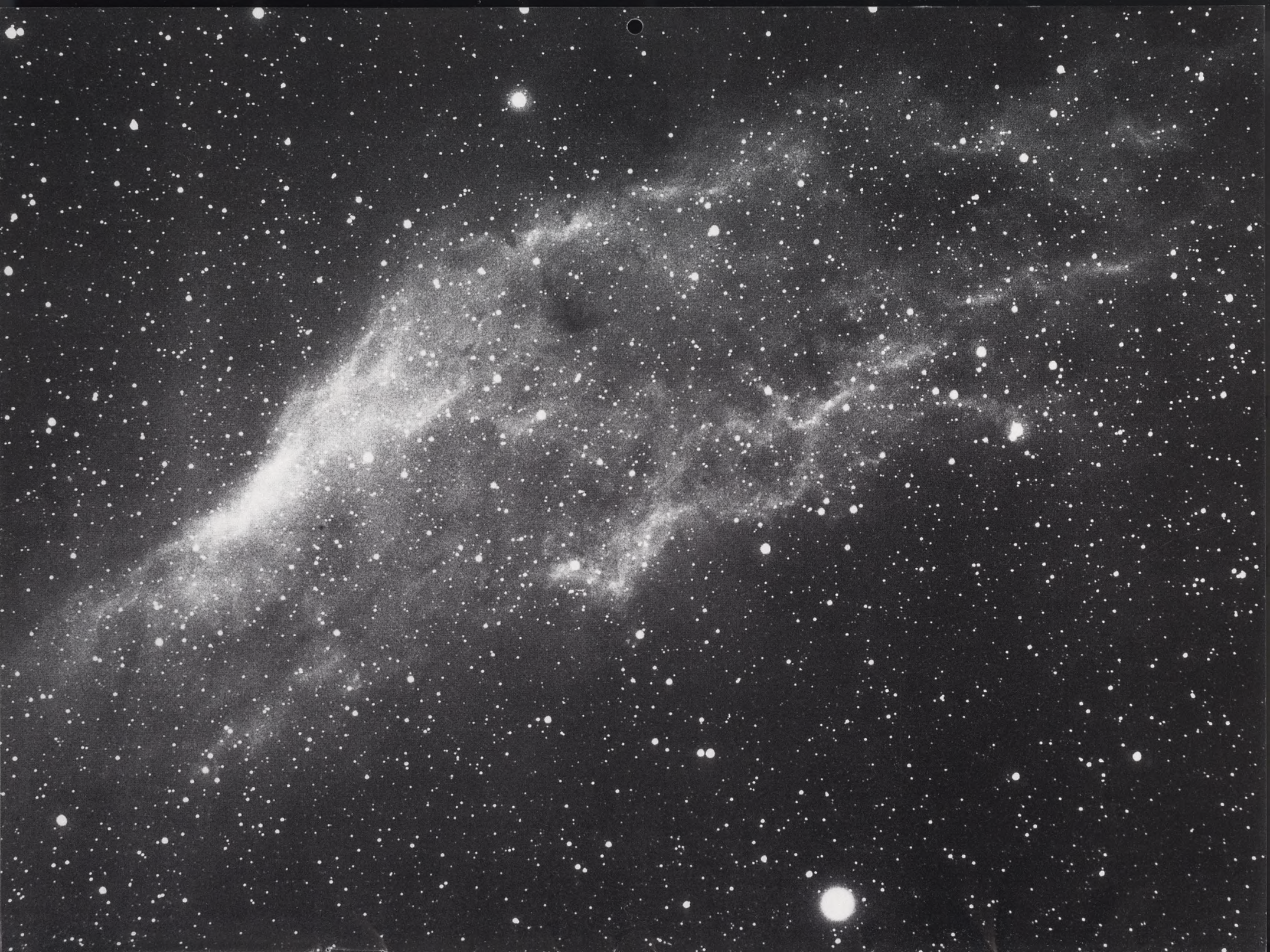
The R.A.S.C. Journal is published six times per year and contains professional papers on astronomy and news from Canadian observatories and planetariums.

The R.A.S.C. National Newsletter is the members' own place to exchange ideas and observations from across Canada.

For More Information

If you would like to find out more about the R.A.S.C. please feel free to attend one of our regular monthly meetings which are held on the second Tuesday of each month usually at 7:30 p.m. in the auditorium of the H.R. MacMillan Planetarium, 1100 Chestnut Street, Vancouver, British Columbia. Visitors and prospective members are welcome, free of charge. Or contact us at

R.A.S.C. Vancouver Centre
Gordon Southam Observatory
1100 Chestnut Street
Vancouver, B.C.
V6J 3J9
(604) 738-2855



The California Nebula in Perseus Photo by Rajiv Gupta

JANUARY

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28				*New Year's Day* **1** 12:56 am Moon sets 11:34 am Moon rises	**2** 2:02 am Moon sets 6:11 am Twilight begins 8:08 am Sun rises 11:58 am Moon rises 4:27 pm Sun sets 6:23 pm Twilight ends
3 3:10 am Moon sets 4 am **Quadrantid meteors peak** 6 am **Mars closet approach** 12:28 pm Moon rises	**4** 4:19 am Moon sets 1:05 pm Moon rises	*RASC Council Meeting* **5** 5:25 am Moon sets 1:52 pm Moon rises	**6** 6:26 am Moon sets 2:51 pm Moon rises	**7** 7:18 am Moon sets 3 pm **Mars at opposition** 4:02 pm Moon rises	**8** 4:37 am Full Moon 8:01 am Moon sets 5:21 pm Moon rises	**9** 6:11 am Twilight begins 8:06 am Sun rises 8:37 am Moon sets 4:35 pm Sun sets 6:30 pm Twilight ends 6:43 pm Moon rises
10 9:06 am Moon sets 8:06 pm Moon rises	**11** 9:31 am Moon sets 9:27 pm Moon rises	*RASC Members' Meeting* **12** 9:55 am Moon sets 10:48 pm Moon rises	**13** 10:19 am Moon sets -- Moon rises	**14** 12:06 am Moon rises 10:44 am Moon sets 8:01 pm Last Quarter	*Aldergrove Observing Night* **15** 1:23 am Moon rises 11:12 am Moon sets	*Aldergrove Observing Night* **16** 2:38 am Moon rises 6:08 am Twilight begins 8:01 am Sun rises 11:45 am Moon sets 4:45 pm Sun sets 6:38 pm Twilight ends
17 3:48 am Moon rises 12:24 pm Moon sets	**18** 4:52 am Moon rises 1:12 pm Moon sets	**19** 5:46 am Moon rises 8 am **Venus greatest elongation East [47°]** 2:07 pm Moon sets	**20** 6:31 am Moon rises 3:09 pm Moon sets	**21** 7:08 am Moon rises 4:14 pm Moon sets	*Aldergrove Observing Night* **22** 7:37 am Moon rises 10:27 am New Moon 5:20 pm Moon sets	*Aldergrove Observing Night* **23** 6:03 am Twilight begins 7:55 am Sun rises 8:02 am Moon rises 4:55 pm Sun sets 6:26 pm Moon sets 6:47 pm Twilight ends
24 8:23 am Moon rises 7:31 pm Moon sets	**25** 8:43 am Moon rises 8:35 pm Moon sets	**26** 9:01 am Moon rises 9:39 pm Moon sets	**27** 9:19 am Moon rises 10:42 pm Moon sets	**28** 9:39 am Moon rises 11:47 pm Moon sets	**29** 10:01 am Moon rises -- Moon sets	**30** 12:53 am Moon sets 5:56 am Twilight begins 7:46 am Sun rises 10:28 am Moon rises 3:20 pm First Quarter 5:07 pm Sun sets 6:57 pm Twilight ends
31 2:00 am Moon sets 11:00 am Moon rises						

The Rosette Nebula in Monoceros Photo by Rajiv Gupta

FEBRUARY

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 3:05 am Moon sets 11:41 am Moon rises	*RASC Council Meeting* **2** 4:07 am Moon sets 12:32 pm Moon rises	**3** 5:03 am Moon sets 1:36 pm Moon rises	**4** 5:51 am Moon sets 2:50 pm Moon rises	**5** 6:30 am Moon sets 4:11 pm Moon rises	**6** 5:48 am Twilight begins 7:03 am Moon sets 7:36 am Sun rises 3:55 pm Full Moon 5:18 pm Sun sets 5:35 pm Moon rises 7:07 pm Twilight ends
7 7:31 am Moon sets 7:00 pm Moon rises	**8** 7:57 am Moon sets 8:23 pm Moon rises	*RASC Members' Meeting* **9** 8:22 am Moon sets 9:46 pm Moon rises	**10** 8:47 am Moon sets 11:07 pm Moon rises	**11** 9:15 am Moon sets -- Moon rises	*Aldergrove Observing Night* **12** 12:25 am Moon rises 9:47 am Moon sets	*Aldergrove Observing Night* **13** 1:38 am Moon rises 5:38 am Twilight begins 6:57 am Last Quarter 7:25 am Sun rises 10:25 am Moon sets 5:30 pm Sun sets 7:17 pm Twilight ends
Valentine's Day **14** 2:45 am Moon rises 11:11 am Moon sets	**15** 3 am **Mars stationary** 3:42 am Moon rises 12:04 pm Moon sets	**16** 4:30 am Moon rises 1:03 pm Moon sets	**17** 5:09 am Moon rises 2:06 pm Moon sets	**18** 5:41 am Moon rises 3:11 pm Moon sets	*Aldergrove Observing Night* **19** 6:07 am Moon rises 4:16 pm Moon sets	*Aldergrove Observing Night* **20** 5:26 am Twilight begins 6:29 am Moon rises 7:12 am Sun rises 5:21 pm Moon sets 5:42 pm Sun sets 7:28 pm Twilight ends
21 1 am **Mercury greatest elongation East [18°]** 5:05 am New Moon 6:49 am Moon rises 6:25 pm Moon sets	**22** 7:08 am Moon rises 7:29 pm Moon sets	**23** 7:26 am Moon rises 8:33 pm Moon sets	**24** 7:46 am Moon rises 8 pm **Venus 0.5° N. of Moon** 9:37 pm Moon sets	**25** 8:07 am Moon rises 10:42 pm Moon sets	*Aldergrove Observing Night* **26** 8:32 am Moon rises 11:47 pm Moon sets	**27** 5:13 am Twilight begins 6:59 am Sun rises 9:01 am Moon rises 5:53 pm Sun sets 7:39 pm Twilight ends -- Moon sets
28 12:52 am Moon sets 9:38 am Moon rises					JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

NGC 4565 in Coma Berenices Photo by J. C. Mirtle

MARCH

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 1:53 am Moon sets 7:47 am First Quarter 10:23 am Moon rises	*RASC Council Meeting* **2** 2:50 am Moon sets 11:19 am Moon rises	**3** 3:40 am Moon sets 12:26 pm Moon rises	**4** 4:22 am Moon sets 1:41 pm Moon rises	**5** 4:57 am Moon sets 3:01 pm Moon rises	*Annual RASC Dinner* **6** 4:59 am Twilight begins 5:28 am Moon sets 6:45 am Sun rises 4:25 pm Moon rises 6:04 pm Sun sets 7:50 pm Twilight ends
7 5:55 am Moon sets 5:49 pm Moon rises	**8** 1:46 am Full Moon 6:20 am Moon sets 7:14 pm Moon rises	*RASC Members' Meeting* **9** 6:46 am Moon sets 8:38 pm Moon rises	**10** 7:14 am Moon sets 10:01 pm Moon rises	**11** 7:46 am Moon sets 11:19 pm Moon rises	*Aldergrove Observing Night* **12** 8:23 am Moon sets -- Moon rises	*Aldergrove Observing Night* **13** 12:31 am Moon rises 4:44 am Twilight begins 6:30 am Sun rises 9:07 am Moon sets 6:15 pm Sun sets 8:02 pm Twilight ends
14 1:34 am Moon rises 9:59 am Moon sets 8:17 pm Last Quarter	**15** 2:26 am Moon rises 10:57 am Moon sets	**16** 3:09 am Moon rises 11:59 am Moon sets	**17** 3:43 am Moon rises 1:04 pm Moon sets	**18** 4:10 am Moon rises 2:09 pm Moon sets	*Aldergrove Observing Night* **19** 4:34 am Moon rises 3:13 pm Moon sets	*Aldergrove Observing Night* **20** 4:28 am Twilight begins 4:55 am Moon rises 6:15 am Sun rises 6:41 am **Spring Equinox** 4:17 pm Moon sets 6:26 pm Sun sets 8:14 pm Twilight ends
21 5:14 am Moon rises 5:21 pm Moon sets	**22** 5:33 am Moon rises 6:24 pm Moon sets 11:14 pm New Moon	**23** 5:52 am Moon rises 7:28 pm Moon sets	**24** 6:13 am Moon rises 8:33 pm Moon sets	**25** 6:37 am Moon rises 9:38 pm Moon sets	*Aldergrove Observing Night* **26** 7:05 am Moon rises 10:43 pm Moon sets	*Aldergrove Observing Night* **27** 4:11 am Twilight begins 6:00 am Sun rises 7:39 am Moon rises 6:37 pm Sun sets 8:27 pm Twilight ends 11:45 pm Moon sets
28 8:21 am Moon rises -- Moon sets	**29** 12:43 am Moon sets 9:13 am Moon rises	**30** 1:33 am Moon sets 4 am **Jupiter at opposition** 10:13 am Moon rises 8:10 pm First Quarter	**31** 2:17 am Moon sets 11:23 am Moon rises		FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

M59, M60, and other galaxies in Virgo Photo by J. C. Mirtle

APRIL

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
MARCH S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			**1** 2:54 am Moon sets 12:38 pm Moon rises	**2** 3:25 am Moon sets 1:57 pm Moon rises	**3** 3:53 am Moon sets Twilight begins 5:46 am Sun rises 3:18 pm Moon rises 6:47 pm Sun sets 8:41 pm Twilight ends
4 2:00 am **Daylight Savings Time Begins** 5:18 am Moon sets 5:41 pm Moon rises	**5** 5:44 am Moon sets 11 am **Mercury greatest elongation West [28°]** 7:05 pm Moon rises	*RASC Council Meeting* **6** 6:11 am Moon sets 11:43 am Full Moon 8:28 pm Moon rises	**7** 6:41 am Moon sets 9:51 pm Moon rises	**8** 7:16 am Moon sets 11:08 pm Moon rises	*Good Friday* *Aldergrove Observing Night* **9** 7:58 am Moon sets -- Moon rises	*Aldergrove Observing Night* **10** 12:18 am Moon rises 4:35 am Twilight begins 6:31 am Sun rises 8:49 am Moon sets 7:58 pm Sun sets 9:55 pm Twilight ends
Easter Sunday **11** 1:16 am Moon rises 9:46 am Moon sets	**12** 2:04 am Moon rises 10:49 am Moon sets	*RASC Members' Meeting* **13** 2:42 am Moon rises 11:54 am Moon sets 12:39 pm Last Quarter	**14** 3:12 am Moon rises 1:00 pm Moon sets	**15** 3:38 am Moon rises 2:05 pm Moon sets	*Aldergrove Observing Night* **16** 3:59 am Moon rises 3:09 pm Moon sets	*Aldergrove Observing Night* **17** 4:16 am Twilight begins 4:19 am Moon rises 6:17 am Sun rises 4:12 pm Moon sets 8:09 pm Sun sets 10:11 pm Twilight ends
18 4:38 am Moon rises 5:15 pm Moon sets	**19** 4:58 am Moon rises 10 am **Venus 0.5° S. of Moon** 6:19 pm Moon sets	**20** 5:18 am Moon rises 7:24 pm Moon sets	**21** 5:42 am Moon rises 4:49 pm New Moon 8:29 pm Moon sets	**22** 1 am **Lyrid meteors peak** 6:09 am Moon rises 9:35 pm Moon sets	*Aldergrove Observing Night* **23** 6:41 am Moon rises 10:38 pm Moon sets	*Aldergrove Observing Night* **24** 3:56 am Twilight begins 6:04 am Sun rises 7:21 am Moon rises 8:19 pm Sun sets 10:28 pm Twilight ends 11:37 pm Moon sets
25 8:10 am Moon rises -- Moon sets	**26** 12:30 am Moon sets 9:08 am Moon rises	**27** 1:16 am Moon sets 10:14 am Moon rises	**28** 1:54 am Moon sets 11:25 am Moon rises	**29** 2:26 am Moon sets 5:41 am First Quarter 12:41 pm Moon rises	*Sidewalk Astronomy* **30** 2:54 am Moon sets 1:58 pm Moon rises	

The Whirlpool Galaxy, M51 in Canes Venatici Photo by J. C. Mirtle

MAY

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					*Astronomy Day* **1** 3:19 am Moon sets 3:36 am Twilight begins 5:51 am Sun rises 3:17 pm Moon rises 8:30 pm Sun sets 10:46 pm Twilight ends
2 3:44 am Moon sets 4:38 pm Moon rises	**3** 4:09 am Moon sets 5:59 pm Moon rises	*RASC Council Meeting* **4** 4:37 am Moon sets 5 am **Aquarid meteors peak** 7:21 pm Moon rises	**5** 5:09 am Moon sets 8:34 pm Full Moon 8:41 pm Moon rises	**6** 5:48 am Moon sets 9:55 pm Moon rises	**7** 6:35 am Moon sets 11:00 pm Moon rises	**8** 3:15 am Twilight begins 5:40 am Sun rises 7:30 am Moon sets 8:40 pm Sun sets 11:05 pm Twilight ends 11:54 pm Moon rises
Mother's Day **9** 8:32 am Moon sets -- Moon rises	**10** 12:37 am Moon rises 9:38 am Moon sets	*RASC Members' Meeting* **11** 1:11 am Moon rises 10:46 am Moon sets	**12** 1:39 am Moon rises 11:52 am Moon sets	**13** 2:03 am Moon rises 5:20 am Last Quarter 12:57 pm Moon sets	*Aldergrove Observing Night* **14** 2:24 am Moon rises 2:01 pm Moon sets 4 pm **Pluto at opposition**	*Aldergrove Observing Night* **15** 2:43 am Moon rises 2:54 am Twilight begins 5:30 am Sun rises 3:04 pm Moon sets 8:50 pm Sun sets 11:27 pm Twilight ends
16 3:02 am Moon rises 4:08 pm Moon sets	**17** 3:22 am Moon rises 5:12 pm Moon sets	**18** 3:45 am Moon rises 6:17 pm Moon sets	**19** 4:10 am Moon rises 7:23 pm Moon sets	**20** 4:41 am Moon rises 8:28 pm Moon sets	*Aldergrove Observing Night* **21** 5:19 am Moon rises 7:06 am New Moon **Partial Solar Eclipse** 9:30 pm Moon sets	*Aldergrove Observing Night* **22** 2:32 am Twilight begins 5:21 am Sun rises 6:05 am Moon rises 8:59 pm Sun sets 10:26 pm Moon sets 11:50 pm Twilight ends
23 7:01 am Moon rises 11:14 pm Moon sets	*Victoria Day* **24** 8:06 am Moon rises 11:55 pm Moon sets	**25** 9:16 am Moon rises -- Moon sets	**26** 12:29 am Moon sets 10:31 am Moon rises	**27** 12:58 am Moon sets 11:47 am Moon rises	**28** 1:23 am Moon sets 11:21 am First Quarter 1:04 pm Moon rises	**29** 12:12 am Twilight ends 1:48 am Moon sets 2:08 am Twilight begins 5:14 am Sun rises 2:22 pm Moon rises 9:07 pm Sun sets
30 2:12 am Moon sets 3:40 pm Moon rises	**31** 2:38 am Moon sets 5:00 pm Moon rises					

The Snake Nebula (B72) in Ophiuchus Photo by J. C. Mirtle

JUNE

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	*RASC Council Meeting* **1** 3:07 am Moon sets 6:18 pm Moon rises	**2** 3:42 am Moon sets 7:34 pm Moon rises	**3** 4:24 am Moon sets 8:42 pm Moon rises	**4** 5:15 am Moon sets 6:02 am Full Moon 9:42 pm Moon rises	**5** 12:45 am Twilight ends 1:38 am Twilight begins 5:10 am Sun rises 6:14 am Moon sets 9:13 pm Sun sets 10:30 pm Moon rises
6 7:19 am Moon sets 11:09 pm Moon rises	**7** 8:27 am Moon sets 11:39 pm Moon rises	*RASC Members' Meeting* **8** 9:35 am Moon sets -- Moon rises	**9** 12:05 am Moon rises 10:42 am Moon sets	**10** 12:27 am Moon rises 6 am **Venus greatest elongation West [46°]** 11:47 am Moon sets	*Aldergrove Observing Night* **11** 12:47 am Moon rises 12:51 pm Moon sets 10:36 pm Last Quarter	*Aldergrove Observing Night* **12** ** Twilight begins 1:07 am Moon rises 5:07 am Sun rises 1:55 pm Moon sets 9:18 pm Sun sets ** Twilight ends
13 1:26 am Moon rises 2:58 pm Moon sets	**14** 1:47 am Moon rises 4:03 pm Moon sets	**15** 2:11 am Moon rises 5:08 pm Moon sets	**16** 2:40 am Moon rises 6:14 pm Moon sets	**17** 3:14 am Moon rises 10 am **Mercury greatest elongation East [25°]** 7:17 pm Moon sets	*Aldergrove Observing Night* **18** 3:57 am Moon rises 8:17 pm Moon sets	*Aldergrove Observing Night* **19** ** Twilight begins 4:50 am Moon rises 5:07 am Sun rises 6:52 pm New Moon 9:09 pm Moon sets 9:21 pm Sun sets ** Twilight ends
Father's Day **20** 5:53 am Moon rises 9:53 pm Moon sets	**21** 2:00 am **Summer Solstice** 7:03 am Moon rises 10:30 pm Moon sets	**22** 3 am **Mars 0.8° N. of Regulus** 8:18 am Moon rises 11:02 pm Moon sets	**23** 9:36 am Moon rises 11:29 pm Moon sets	**24** 10:53 am Moon rises 11:53 pm Moon sets	**25** 12:11 pm Moon rises -- Moon sets	**26** ** Twilight begins 12:17 am Moon sets 5:09 am Sun rises 1:29 pm Moon rises 3:43 pm First Quarter 9:22 pm Sun sets ** Twilight ends
27 12:42 am Moon sets 2:47 pm Moon rises	**28** 1:10 am Moon sets 4:04 pm Moon rises	**29** 1:42 am Moon sets 5:19 pm Moon rises	**30** 2:20 am Moon sets 6:29 pm Moon rises			

M11 and part of the Scutum Star Cloud Photo by Rajiv Gupta

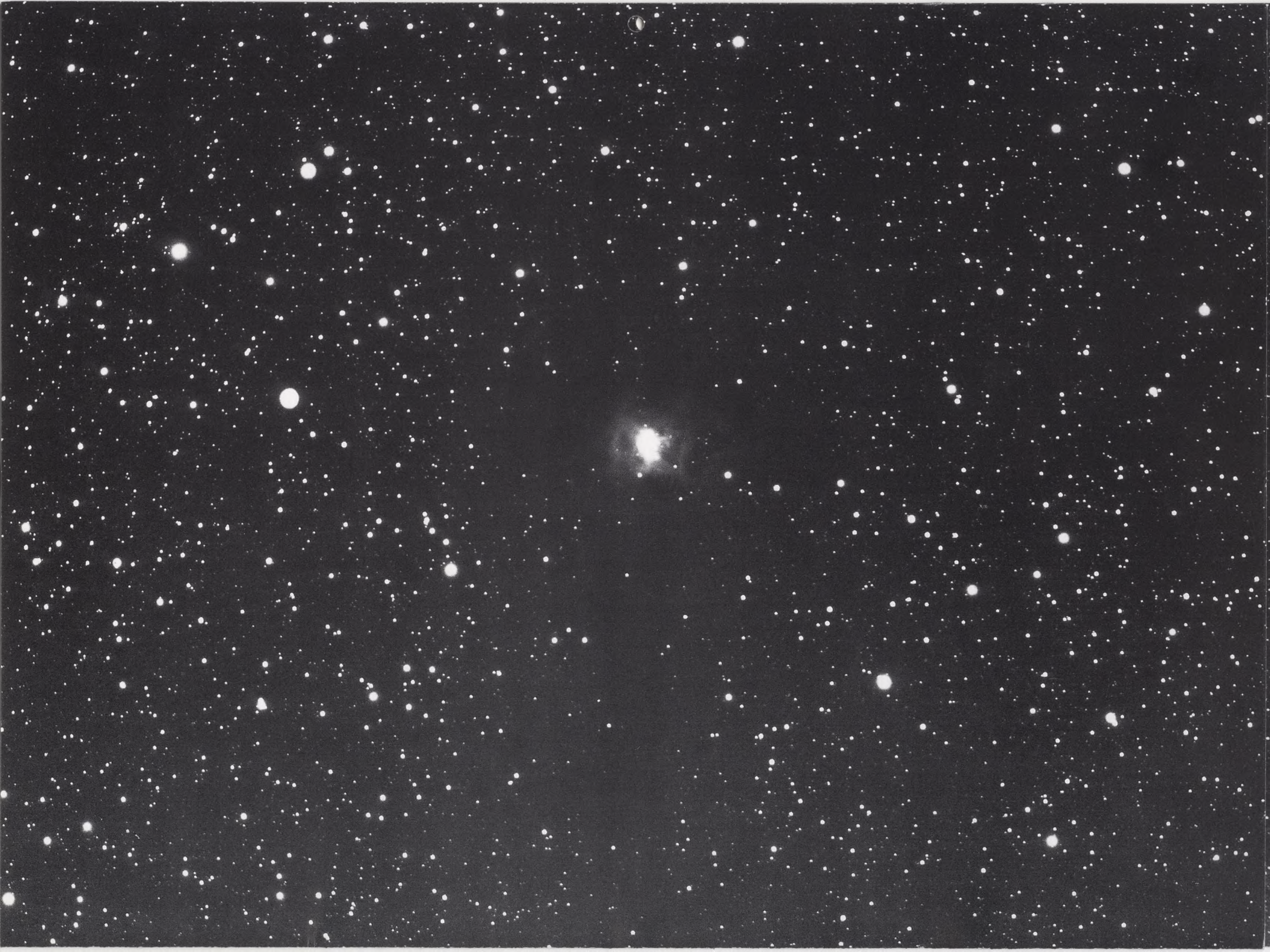
JULY

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			*Canada Day* **1** 3:06 am Moon sets 7:31 pm Moon rises	*RASC General Assembly (Halifax)* **2** 4:01 am Moon sets 8:23 pm Moon rises	*RASC G.A.* **3** ** Twilight begins 5:03 am Moon sets 5:13 am Sun rises 4:45 pm Full Moon 9:05 pm Moon rises 9:21 pm Sun sets ** Twilight ends
RASC G.A. *National A.G.M.* **4** 6:10 am Moon sets 9:39 pm Moon rises	*RASC G.A.* **5** 7:18 am Moon sets 10:07 pm Moon rises	*RASC Council Meeting* **6** 8:26 am Moon sets 10:31 pm Moon rises	**7** 9:32 am Moon sets 10:52 pm Moon rises	**8** 10:37 am Moon sets 11:12 pm Moon rises	**9** 11:41 am Moon sets 11:31 pm Moon rises	**10** 12:37 am Twilight ends 1:59 am Twilight begins 5:19 am Sun rises 12:44 pm Moon sets 9:17 pm Sun sets 11:51 pm Moon rises
11 1:48 pm Moon sets 3:49 pm Last Quarter 8 pm **Neptune at opposition** -- Moon rises	**12** 12:14 am Moon rises 7 am **Uranus at opposition** 2:53 pm Moon sets	*RASC Members' Meeting* **13** 12:40 am Moon rises 3:57 pm Moon sets	**14** 1:11 am Moon rises 5:01 pm Moon sets	**15** 1:50 am Moon rises 6:02 pm Moon sets	*Manning Park Star Party #1* **16** 2:37 am Moon rises 6:58 pm Moon sets	*Manning Park Star Party #1* **17** 12:11 am Twilight ends 2:27 am Twilight begins 3:35 am Moon rises 5:26 am Sun rises 7:47 pm Moon sets 9:11 pm Sun sets
18 4:43 am Moon rises 8:27 pm Moon sets	**19** 4:24 am New Moon 5:58 am Moon rises 9:02 pm Moon sets	**20** 7:16 am Moon rises 9:31 pm Moon sets	**21** 8:37 am Moon rises 9:58 pm Moon sets	**22** 9:57 am Moon rises 10:23 pm Moon sets	*Aldergrove Observing Night* **23** 11:16 am Moon rises 10:48 pm Moon sets	*Aldergrove Observing Night* **24** 2:51 am Twilight begins 5:35 am Sun rises 12:35 pm Moon rises 9:03 pm Sun sets 11:15 pm Moon sets 11:44 pm Twilight ends
25 1:53 pm Moon rises 8:25 pm First Quarter 11:45 pm Moon sets	**26** 3:09 pm Moon rises -- Moon sets	**27** 12:21 am Moon sets 4:20 pm Moon rises	**28** 1:04 am Moon sets 8 am **S. Aquarid meteors peak** 5:23 pm Moon rises	**29** 1:55 am Moon sets 6:18 pm Moon rises	**30** 2:53 am Moon sets 7:03 pm Moon rises	**31** 3:13 am Twilight begins 3:57 am Moon sets 5:44 am Sun rises 7:40 pm Moon rises 8:53 pm Sun sets 11:23 pm Twilight ends

The North America and Pelican Nebulas in Cygnus Photo by Rajiv Gupta

AUGUST

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 5:04 am Moon sets 8:10 pm Moon rises	*Civic Holiday* **2** 5:10 am Full Moon 6:12 am Moon sets 8:35 pm Moon rises	*RASC Council Meeting* **3** 7:18 am Moon sets 7 pm **Mercury greatest elongation West [19°]** 8:57 pm Moon rises	**4** 8:24 am Moon sets 9:17 pm Moon rises	**5** 9:28 am Moon sets 9:37 pm Moon rises	**6** 10:32 am Moon sets 9:57 pm Moon rises	**7** 3:33 am Twilight begins 5:54 am Sun rises 11:35 am Moon sets 8:42 pm Sun sets 10:18 pm Moon rises 11:02 pm Twilight ends
8 12:39 pm Moon sets 10:43 pm Moon rises	**9** 1:42 pm Moon sets 11:11 pm Moon rises	*RASC Members' Meeting* **10** 8:19 am Last Quarter 2:46 pm Moon sets 11:45 pm Moon rises	**11** 3:47 pm Moon sets 10 pm **Perseid meteors peak** -- Moon rises	**12** 12:28 am Moon rises 4:44 pm Moon sets	*Aldergrove Observing Night* **13** 1:20 am Moon rises 5:35 pm Moon sets	*Aldergrove Observing Night* **14** 2:22 am Moon rises 3:51 am Twilight begins 6:03 am Sun rises 6:20 pm Moon sets 8:30 pm Sun sets 10:41 pm Twilight ends
15 3:33 am Moon rises 6:57 pm Moon sets	**16** 4:50 am Moon rises 7:30 pm Moon sets	**17** 6:10 am Moon rises 12:28 pm New Moon 7:58 pm Moon sets	*Mount Kobau Star Party* **18** 7:32 am Moon rises 8:25 pm Moon sets	*Mount Kobau Star Party* **19** 8:55 am Moon rises 4 pm **Saturn at opposition** 8:51 pm Moon sets	*Mount Kobau Star Party* **20** 10:17 am Moon rises 9:18 pm Moon sets	*Mount Kobau Star Party* **21** 4:08 am Twilight begins 6:14 am Sun rises 11:37 am Moon rises 8:17 pm Sun sets 9:48 pm Moon sets 10:21 pm Twilight ends
22 12:56 pm Moon rises 10:23 pm Moon sets	**23** 2:10 pm Moon rises 11:04 pm Moon sets	**24** 2:57 am First Quarter 3:17 pm Moon rises 11:53 pm Moon sets	**25** 4:14 pm Moon rises -- Moon sets	**26** 12:49 am Moon sets 5:02 pm Moon rises	**27** 1:51 am Moon sets 5:41 pm Moon rises	**28** 2:56 am Moon sets 4:24 am Twilight begins 6:24 am Sun rises 6:12 pm Moon rises 8:03 pm Sun sets 10:02 pm Twilight ends
29 4:02 am Moon sets 6:39 pm Moon rises	**30** 5:08 am Moon sets 7:02 pm Moon rises	**31** 6:13 am Moon sets 7:23 pm Moon rises 7:33 pm Full Moon			JULY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30



NGC 7023 in Cepheus Photo by Rajiv Gupta

SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		**1** 7:18 am Moon sets 7:43 pm Moon rises	**2** 8:21 am Moon sets 8:03 pm Moon rises	**3** 9:25 am Moon sets 8:24 pm Moon rises	**4** 4:38 am Twilight begins 6:34 am Sun rises 10:28 am Moon sets 7:49 pm Sun sets 8:47 pm Moon rises 9:43 pm Twilight ends
5 11:31 am Moon sets 9:14 pm Moon rises	*Labour Day* **6** 12:34 pm Moon sets 5 pm **Mars 0.9° S. of Jupiter** 9:46 pm Moon rises	*RASC Council Meeting* **7** 1:35 pm Moon sets 10:24 pm Moon rises	**8** 2:32 pm Moon sets 11:11 pm Moon rises 11:26 pm Last Quarter	**9** 3:25 pm Moon sets -- Moon rises	*Aldergrove Observing Night* **10** 12:07 am Moon rises 4:11 pm Moon sets	*Aldergrove Observing Night* **11** 1:12 am Moon rises 4:52 am Twilight begins 6:44 am Sun rises 4:51 pm Moon sets 7:34 pm Sun sets 9:25 pm Twilight ends
12 2:24 am Moon rises 5:25 pm Moon sets	**13** 3:41 am Moon rises 5:55 pm Moon sets	*RASC Members' Meeting* **14** 5:02 am Moon rises 6:23 pm Moon sets	**15** 6:24 am Moon rises 6:50 pm Moon sets 8:10 pm New Moon	**16** 7:48 am Moon rises 7:17 pm Moon sets	*Manning Park Star Party #2* **17** 9:11 am Moon rises 7:47 pm Moon sets	*Manning Park Star Party #2* **18** 5:05 am Twilight begins 6:54 am Sun rises 10:34 am Moon rises 7:19 pm Sun sets 8:21 pm Moon sets 9:08 pm Twilight ends
19 11:52 am Moon rises 9:01 pm Moon sets	**20** 1:04 pm Moon rises 9:49 pm Moon sets 11 pm **Venus 0.4° N. of Regulus**	**21** 2:07 pm Moon rises 10:44 pm Moon sets	**22** 12:32 pm First Quarter 2:59 pm Moon rises 5:23 pm **Fall Equinox** 11:45 pm Moon sets	**23** 3:41 pm Moon rises -- Moon sets	**24** 12:49 am Moon sets 5 am **Mercury 2° S. of Jupiter** 4:15 pm Moon rises	**25** 1:55 am Moon sets 5:17 am Twilight begins 7:04 am Sun rises 4:43 pm Moon rises 7:04 pm Sun sets 8:51 pm Twilight ends
26 1 am **Mercury 1.1° S. of Spica** 3:01 am Moon sets 5:07 pm Moon rises	**27** 4:06 am Moon sets 5:28 pm Moon rises	**28** 5:10 am Moon sets 5:49 pm Moon rises	**29** 6:13 am Moon sets 6:09 pm Moon rises	**30** 7:16 am Moon sets 11:54 am Full Moon 6:30 pm Moon rises		

IC 1396 in Cepheus Photo by J. C. Mirtle

OCTOBER

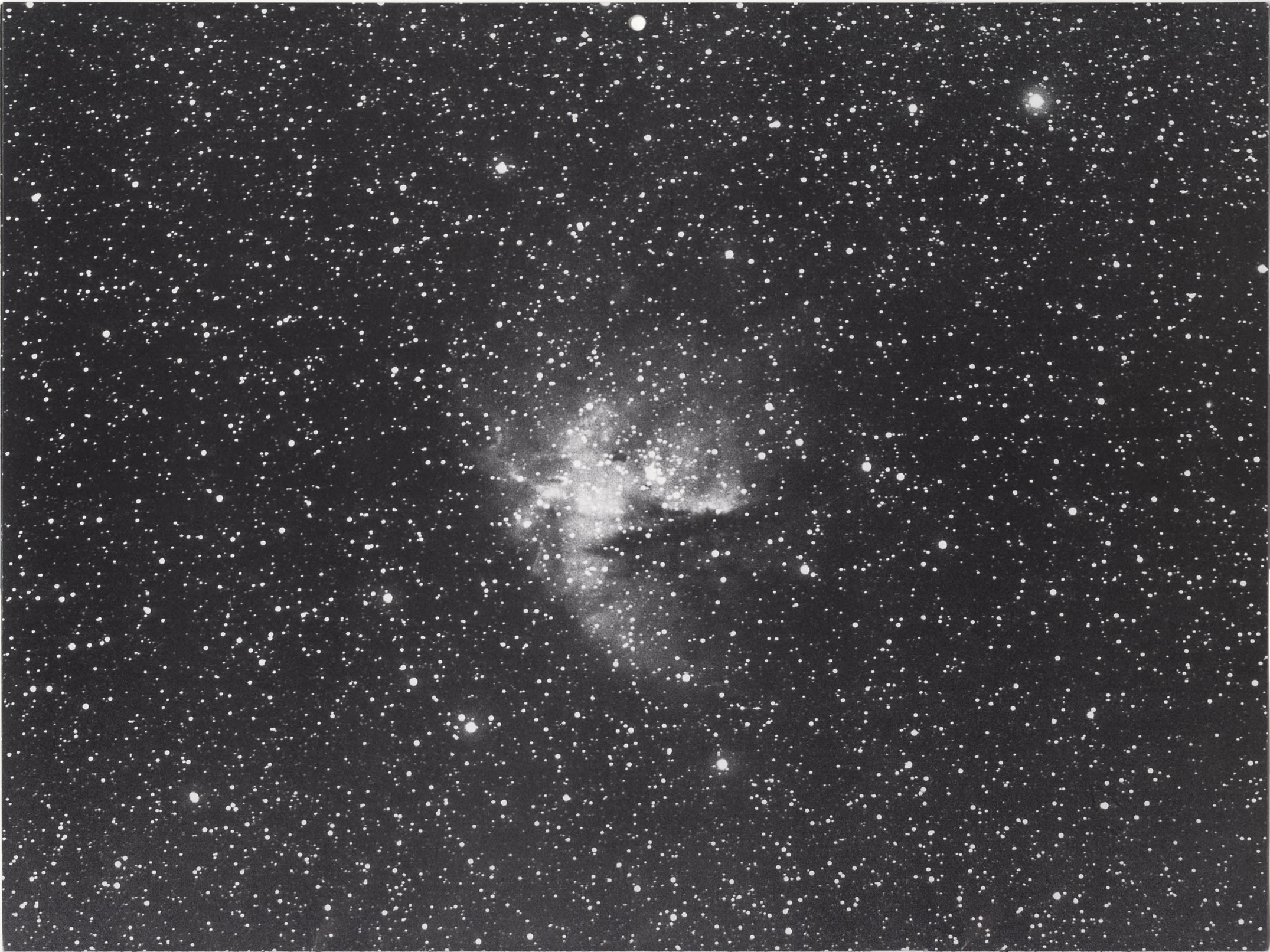
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SEPTEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				**1** 8:19 am Moon sets 6:53 pm Moon rises	**2** 5:28 am Twilight begins 7:14 am Sun rises 9:23 am Moon sets 6:49 pm Sun sets 7:18 pm Moon rises 8:35 pm Twilight ends
3 10:25 am Moon sets 7:49 pm Moon rises	**4** 11:27 am Moon sets 8:25 pm Moon rises	*RASC Council Meeting* **5** 12:25 pm Moon sets 9:08 pm Moon rises	**6** 10 am **Mercury 2° S. of Mars** 1:18 pm Moon sets 10:00 pm Moon rises	**7** 2:05 pm Moon sets 10:59 pm Moon rises	*Aldergrove Observing Night* **8** 12:35 pm Last Quarter 2:46 pm Moon sets -- Moon rises	*Aldergrove Observing Night* **9** 12:06 am Moon rises 5:39 am Twilight begins 7:25 am Sun rises 3:21 pm Moon sets 6:34 pm Sun sets 8:20 pm Twilight ends
10 1:19 am Moon rises 3:52 pm Moon sets	*Thanksgiving Day* **11** 2:35 am Moon rises 4:20 pm Moon sets	*RASC Members' Meeting* **12** 3:54 am Moon rises 4:47 pm Moon sets	**13** 5:15 am Moon rises 5:14 pm Moon sets 9 pm **Mercury greatest elongation East [25°]**	**14** 6:38 am Moon rises 5:42 pm Moon sets	*Aldergrove Observing Night* **15** 4:36 am New Moon 8:02 am Moon rises 6:15 pm Moon sets	*Aldergrove Observing Night* **16** 5:50 am Twilight begins 7:36 am Sun rises 9:24 am Moon rises 6:20 pm Sun sets 6:53 pm Moon sets 8:06 pm Twilight ends
17 10:42 am Moon rises 7:39 pm Moon sets	**18** 11:51 am Moon rises 8:32 pm Moon sets	**19** 12:50 pm Moon rises 9:33 pm Moon sets	**20** 1:37 pm Moon rises 10:38 pm Moon sets	**21** 3 am **Orionid meteors peak** 2:14 pm Moon rises 11:45 pm Moon sets	**22** 1:52 am First Quarter 2:45 pm Moon rises -- Moon sets	**23** 12:52 am Moon sets 6:00 am Twilight begins 7:47 am Sun rises 3:11 pm Moon rises 6:07 pm Sun sets 7:53 pm Twilight ends
24 1:58 am Moon sets 3:33 pm Moon rises	**25** 3:02 am Moon sets 3:54 pm Moon rises	**26** 4:05 am Moon sets 4:14 pm Moon rises	**27** 5:08 am Moon sets 4:35 pm Moon rises	**28** 6:11 am Moon sets 4:57 pm Moon rises	**29** 7:14 am Moon sets 5:22 pm Moon rises	**30** 5:38 am Full Moon 6:10 am Twilight begins 7:58 am Sun rises 8:17 am Moon sets 5:51 pm Moon rises 5:55 pm Sun sets 7:42 pm Twilight ends
Halloween **31** 2:00 am **Daylight Savings Time Ends** 8:20 am Moon sets 5:26 pm Moon rises						

The Andromeda Galaxy, M31 Photo by Rajiv Gupta

NOVEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 9:19 am Moon sets 6:07 pm Moon rises	*RASC Council Meeting* **2** 2 am **S. Taurid meteors peak** 10:14 am Moon sets 6:56 pm Moon rises	**3** 11:03 am Moon sets 7:53 pm Moon rises	**4** 11:45 am Moon sets 8:57 pm Moon rises	**5** 12:22 pm Moon sets 8 pm **Transit of Mercury** 10:06 pm Moon rises	*Aldergrove Observing Night* **6** 5:20 am Twilight begins 7:09 am Sun rises 12:53 pm Moon sets 4:43 pm Sun sets 6:32 pm Twilight ends 10:36 pm Last Quarter 11:18 pm Moon rises
7 1:21 pm Moon sets -- Moon rises	**8** 12:33 am Moon rises 1:47 pm Moon sets	*RASC Members' Meeting* **9** 1:50 am Moon rises 2:12 pm Moon sets	**10** 3:09 am Moon rises 2:39 pm Moon sets	*Remembrance Day* **11** 4:30 am Moon rises 3:09 pm Moon sets	*Aldergrove Observing Night* **12** 5:52 am Moon rises 3:43 pm Moon sets	*Aldergrove Observing Night* **13** 5:30 am Twilight begins 7:13 am Moon rises 7:20 am Sun rises 1:34 pm New Moon 4:25 pm Moon sets 4:34 pm Sun sets 6:24 pm Twilight ends
14 8:27 am Moon rises 5:15 pm Moon sets	**15** 9:33 am Moon rises 6:14 pm Moon sets	**16** 10:27 am Moon rises 7:20 pm Moon sets	**17** 9 am **Leonid meteors peak** 11:10 am Moon rises 8:29 pm Moon sets	**18** 11:44 am Moon rises 9:38 pm Moon sets	*Aldergrove Observing Night* **19** 12:13 pm Moon rises 10:45 pm Moon sets	*Aldergrove Observing Night* **20** 5:39 am Twilight begins 7:31 am Sun rises 12:37 pm Moon rises 4:26 pm Sun sets 6:03 pm First Quarter 6:18 pm Twilight ends 11:51 pm Moon sets
Astro Swap at GSO **21** 12:58 pm Moon rises -- Moon sets	**22** 12:55 am Moon sets 8 am **Mercury greatest elongation West [20°]** 1:19 pm Moon rises	**23** 1:58 am Moon sets 1:39 pm Moon rises	**24** 3:01 am Moon sets 2:01 pm Moon rises	**25** 4:04 am Moon sets 2:25 pm Moon rises	**26** 5:07 am Moon sets 2:52 pm Moon rises	**27** 5:47 am Twilight begins 6:10 am Moon sets 7:41 am Sun rises 3:25 pm Moon rises 4:20 pm Sun sets 6:14 pm Twilight ends
28 7:11 am Moon sets 4:04 pm Moon rises 10:31 pm Full Moon **Total Lunar Eclipse**	**29** 8:09 am Moon sets 4:51 pm Moon rises	**30** 9:00 am Moon sets 5:47 pm Moon rises			OCTOBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Vancouver Telescope Centre 102-2220 West Broadway, Vancouver, B.C. 738-5717 "Astronomy Spoken Here"



NGC 281 in Cassiopeia Photo by Rajiv Gupta

DECEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JANUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		**1** 9:45 am Moon sets 6:49 pm Moon rises	**2** 10:24 am Moon sets 7:57 pm Moon rises	**3** 10:56 am Moon sets 9:09 pm Moon rises	**4** 5:55 am Twilight begins 7:50 am Sun rises 11:25 am Moon sets 4:16 pm Sun sets 6:11 pm Twilight ends 10:22 pm Moon rises
5 11:51 am Moon sets 11:36 pm Moon rises	**6** 7:49 am Last Quarter 12:16 pm Moon sets -- Moon rises	*RASC Council Meeting* **7** 12:52 am Moon rises 12:41 pm Moon sets	**8** 2:10 am Moon rises 1:08 pm Moon sets	**9** 3:28 am Moon rises 1:39 pm Moon sets	*Aldergrove Observing Night* **10** 4:47 am Moon rises 2:16 pm Moon sets	*Aldergrove Observing Night* **11** 6:01 am Twilight begins 6:03 am Moon rises 7:58 am Sun rises 3:01 pm Moon sets 4:14 pm Sun sets 6:11 pm Twilight ends
12 7:12 am Moon rises 3:55 pm Moon sets	**13** 1:27 am New Moon 8:12 am Moon rises 4:57 pm Moon sets 9 pm **Geminid meteors peak**	*RASC Members' Meeting (A.G.M.)* **14** 9:01 am Moon rises 6:06 pm Moon sets	**15** 9:41 am Moon rises 7:16 pm Moon sets	**16** 10:12 am Moon rises 8:26 pm Moon sets	*Aldergrove Observing Night* **17** 10:39 am Moon rises 9:34 pm Moon sets	*Aldergrove Observing Night* **18** 6:06 am Twilight begins 8:04 am Sun rises 11:02 am Moon rises 4:16 pm Sun sets 6:13 pm Twilight ends 10:40 pm Moon sets
19 11:23 am Moon rises 11:44 pm Moon sets	**20** 11:44 am Moon rises 2:26 pm First Quarter -- Moon sets	**21** 12:48 am Moon sets 12:05 pm Moon rises 12:26 pm **Winter Solstice**	**22** 1:51 am Moon sets 3 am **Ursid meteors peak** 12:28 pm Moon rises	**23** 2:54 am Moon sets 12:53 pm Moon rises	**24** 3:57 am Moon sets 1:24 pm Moon rises	*Christmas Day* **25** 4:59 am Moon sets 6:10 am Twilight begins 8:07 am Sun rises 2:00 pm Moon rises 4:19 pm Sun sets 6:17 pm Twilight ends
26 5:58 am Moon sets 2:44 pm Moon rises	**27** 6:53 am Moon sets 3:36 pm Moon rises	**28** 7:41 am Moon sets 3:05 pm Full Moon 4:37 pm Moon rises	**29** 8:23 am Moon sets 5:45 pm Moon rises	**30** 8:59 am Moon sets 6:57 pm Moon rises	**31** 9:29 am Moon sets 8:11 pm Moon rises	

1994

January

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	***11***	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

February

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	***10***	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

March

S	M	T	W	T	F	S
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6	7	8	9	10	***11***	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April

S	M	T	W	T	F	S
					1	2
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17	18	19	20	21	22	23
24	25	26	27	28	29	30

May

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	***10***	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June

S	M	T	W	T	F	S
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5	6	7	8	***9***	10	11
12	13	14	15	16	17	18
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26	27	28	29	30		

July

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3	4	5	6	7	***8***	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August

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	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September

S	M	T	W	T	F	S
				1	2	3
4	***5***	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October

S	M	T	W	T	F	S
						1
2	3	***4***	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

November

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		1	2	***3***	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

December

S	M	T	W	T	F	S
				1	***2***	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

*New Moon dates are displayed in **bold-italic**.*