Adirondack Stargazing

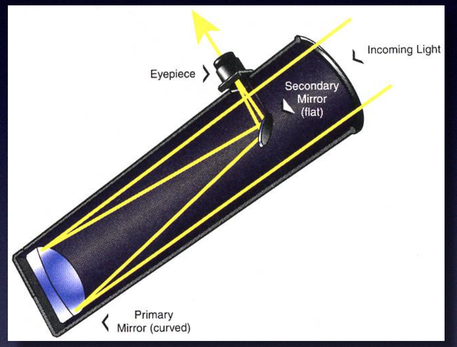
David Craig

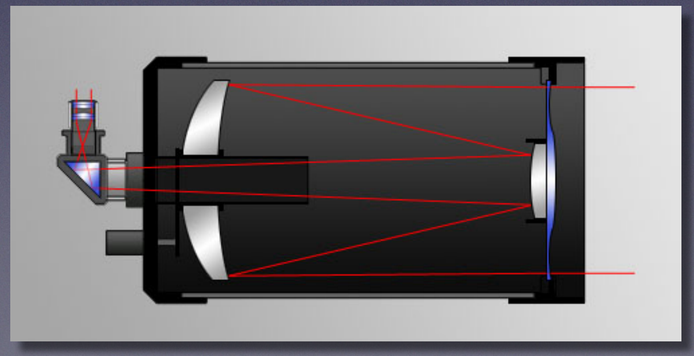
Adirondack Stargazing

- Visual observing, telescope techniques and astrophotography from Norton Cemetery
  - David Craig - *neophyte* astronomer (www.neophyteastronomer.org)
- Observing and show & tell
  - Kevin O'Neill - Keene Valley Library @ 8:30
  - Chris Sappah - Keene Town Library @ 8:30

Adirondack Stargazing

- Moved from Boston area in 1999
- Discovered our dark Adirondack night sky
- Light pollution, though still an issue - is amazingly low
- First viewed the Milky Way
- Started with 4.5” Newtonian reflector
- Graduated to 8” Celestron Schmidt–Cassegrain

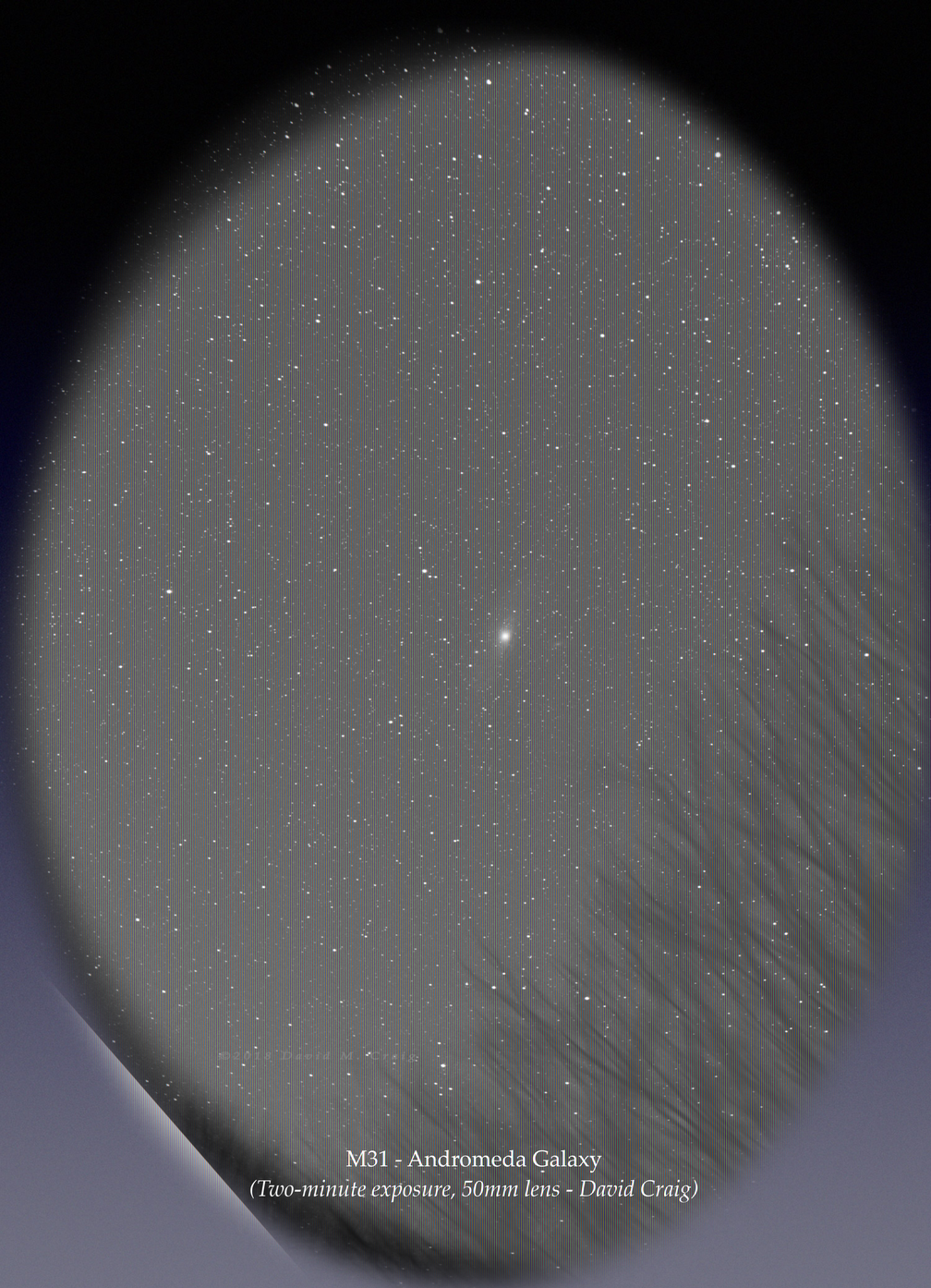




Why Norton Cemetery?

- Home view limited by trees (but trees are good - let's keep them!)
- Norton Cemetery offers easy access and clear views
- *Rare* dark skies!
- Coyotes, owls, a telescope and - the night sky
- Always use the area respectfully
- But I get lonely…you're invited to join me!

- The Night Sky/Light pollution
- Naked Eye Objects
- Telescope/Binocular Objects
- Photographs
- Telescope Demo

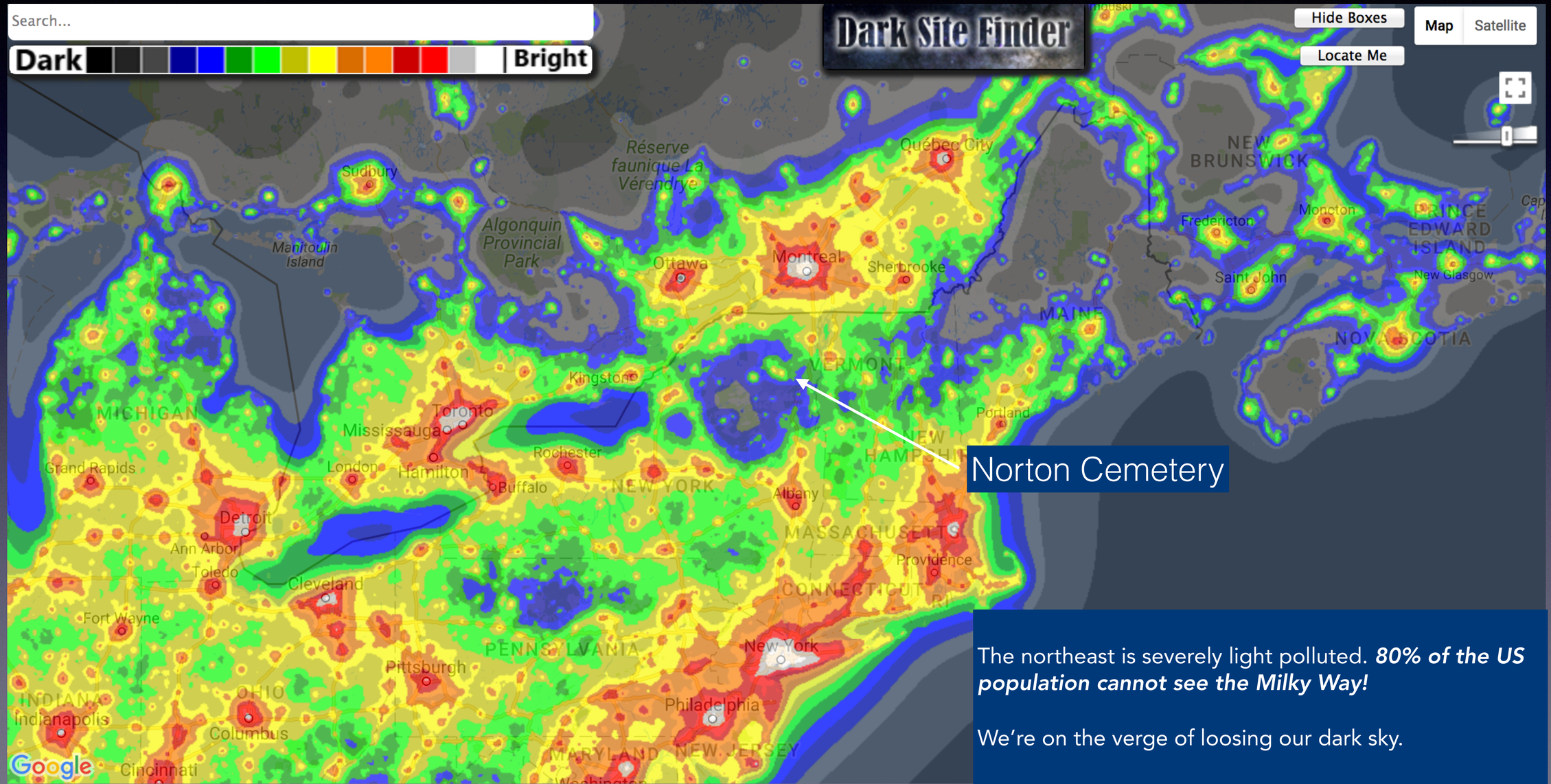


M31 - Andromeda Galaxy
(Two-minute exposure, 50mm lens - David Craig)

The Night Sky

- Darkness
  - Natural darkness: lunar cycle, natural sky glow - stars, ionized gases, zodiacal light
- “Seeing”
  - Atmospheric turbulence - upper level winds, moving air masses and thermal boundaries
- Transparency
  - Humidity and low-level fog, dust, thin clouds and high smoke (distant forest fires)
- Light Pollution
  - Streetlights, commercial lighting, and residential lighting
  - Satellites

Northeast Light Pollution



The northeast is severely light polluted. ***80% of the US population cannot see the Milky Way!***

We're on the verge of loosing our dark sky.

Skyglow

28 mm F3.5, 60 seconds, ISO 800

North

East

South

West

Naked Eye Objects

- Stars and the Moon
- Venus, Mars, Jupiter and Saturn
- “Deep sky objects” (beyond our solar system)
  - Orion Nebula, Pleiades
  - The Andromeda galaxy

Telescope/Binocular Objects

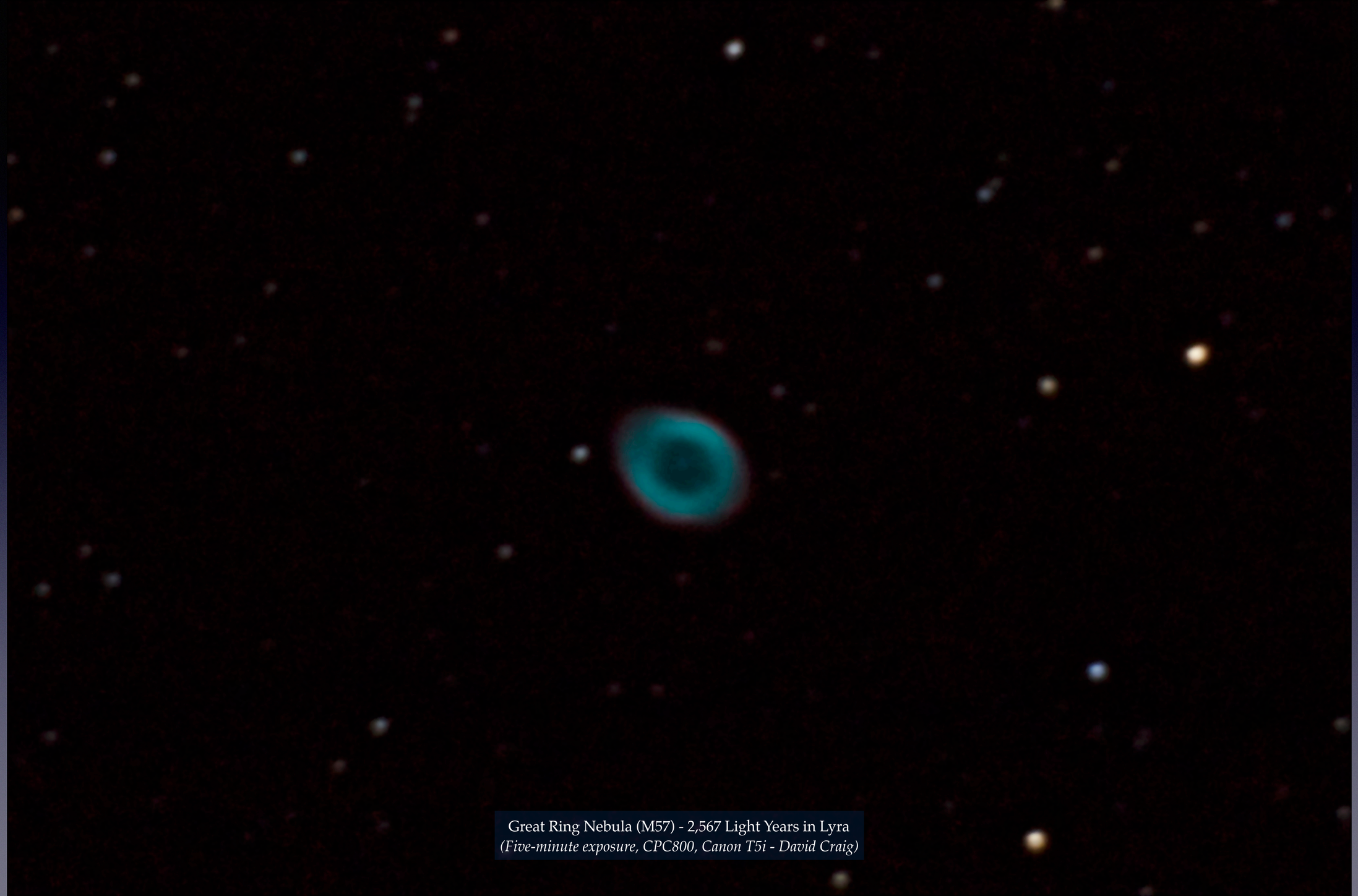
- Moon craters and mountains
- The planets
  - Rings of Saturn
  - Clouds and Moons of Jupiter
  - Venus in its various phases
- Comets
- Star Clusters: Hercules, Wild Duck
- Nebulae: Great Ring, Lagoon, Dumbbell, Swan

Astrophotography

- Long exposures reveal features that are invisible through the eyepiece
- Careful tracking is necessary (for > 30 second exposures)
- The telescope tracks; but active correction (auto-guiding) is often required
- Exposures of up to ten minutes!
- Telescope/Camera combo provides a narrow field of view
- Wide-angle photography without a telescope is also rewarding (Milky Way)
- Canon DSLR camera from eBay (Astrophotography cameras are expensive!)


Photos

The Moon



Great Ring Nebula (M57) - 2,567 Light Years in Lyra
(Five-minute exposure, CPC800, Canon T5i - David Craig)

Andromeda Galaxy (M31 and M110) - 2.5 Million Light Years

(Five-minute exposure, 50mm lens - Canon T5i - David Craig)

Bodes Galaxy, Cigar Galaxy (M81 and M82) - 12 Million Light Years, 90,000 Light Years Diameter

(Five-minute exposure, CPC800 & F6.3 focal reducer, Canon T5i - David Craig)

Jupiter with imperfect “seeing"
(30 fps second exposure CPC800, Canon T5i - David Craig)

Jupiter “Lucky Shot”
(1/30th second exposure CPC800, Canon T5i - David Craig)

Wild Duck Cluster (M11) - 6,120 Light Years in Scutum
(One Minute exposure CPC800, Canon T5i - David Craig)

Dumbbell Nebula (M27) - 1,227 Light Years in Vulpecula
(Five Minute exposure CPC800, Canon T5i - David Craig)

Sagittarius Wide-Field through Canon “Nifty Fifty” lens
(Five-Minute exposure 50mm lens - Canon T5i - David Craig)

Lagoon Nebula (M8) - 4,100 Light Years in Sagittarius
(Three, Five-Minute exposures CPC800, Canon T5i - David Craig)

Owl Nebula (M97) - 2,030 Light Years in Ursa Major
(11, Ten Minute exposures CPC800, Canon T5i - David Craig)

Whirlpool Galaxy (M51) - 23 Million Light Years in Canes Venatici
(A Ten Minute exposure @ 800 ISO - Canon T5i - David Craig)

Comet 21P - July 22, 2018

(Four, Three Minute exposures CPC800, Canon 40D - David Craig)

Moon/Venus Conjunction May 17, 2018
(1/13th Second exposure - Canon 40D, EF 18-55mm - David Craig)

Moon/Venus Conjunction July 15, 2018
(1/13th Second exposure - Canon 40D, EF 18-55mm - David Craig)