POLARIS

Royal Astronomical Society of Canada
London Centre Newsletter
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So You Think You Know Astronomy?

By: Norman McCall

Many of the readers of this newsletter have been involved with astronomy for 5, 10, 20 or more years. Some having started in early teens, may be celebrating their Silver (25th), their Ruby (40th) or even their Golden (50th) "Astronomy Anniversary". For me, January 2018 marked my Candy "Astronomy Anniversary" – all of 6 years in this hobby! I however, have barely scratched the surface of this infinite subject. Hopefully after another 10 years, I will be able to say, "I think I know astronomy".

So, for all of you arm-chair, amateur, expert, semi-professional astronomers — or however you class yourself— here is a small quiz to test your knowledge.

The answers are located on the last page. However, do not look at the answers until you have completed every question.

Let the Questions Begin!

1) The fifth brightest star in a small constellation and one of the most famous multiple stars in the sky: a naked-eye double (ok, on a very clear, moonless night) that a 6-centimeter telescope with high magnification shows to be a quadruple system made up of two pairs of stars; it is commonly known by two names. What is the name of this object?

2) What is the name of the star that is the BRIGHTEST in the night sky? (a) Sirius, (b) Alpha Centauri, (c) Betelgeuse, (d) Canopus.

3) Visible to the naked eye in the Norther hemisphere, binoculars show its elliptical shape clearly, while larger scopes will begin to show the dust lanes that stretch across its disc.— name it.

4) Provide three names for the object shown below.

5) It is a supernova remnant recorded by the Chinese in 1054, located in Taurus approximately 6,500 ly from earth. It can be spotted with a small telescope, but it's best seen through a really large aperture instrument – only then does its fascinating texture start to emerge. Name the object.

6) What prominent pattern of stars is seen overhead after dark in the late Summer and throughout the Fall? (a) Orion's Belt (b) The Great Square of Pegasus, (c) Bootes, (d) The Summer Triangle

7) Name the object and the constellation where you find this view.

8) In what constellation do we find Betelgeuse?

9) A pulsar is actually a: (a) Black hole, (b) White dwarf, (c) Red giant, (d) Neutron star.

10) Which planet seems to be turned on its side with an axis tilt of 98 degrees?

11) The word Albedo refers to which of the following? (a) The wobbling motion of a planet. (b) The amount of light a planet reflects. (c) The phase changes of a planet. (d) The brightness of a star.

12) Galileo discovered something about Venus with his telescope that shook the old theories. Which of the following was Galileo's discovery? (a) Venus was covered in clouds. (b) Venus' surface was similar to the earth's. (c) Venus had phases like the moon. (d) Venus had retrograde motion.

13) In which constellation is Arcturus located? (a) Bootes, (b) Gemini, (c) Leo, (d) Lyra.

(Continued on page 2)

14) Name the astronomer who discovered that Mars orbits the sun in an elliptical orbit. (a) Copernicus, (b) Tycho Brahe, (c) Kepler, (d) Galileo.

15) In what year did Neil Armstrong make his historic walk on the Moon?

16) Who was the first man to classify stars according to their brightness? (a) Aristarchus, (b) Pythagorus, (c) Copernicus. (d) Hipparchus,

17) What is the star nearest the Sun?

18) A first magnitude star is how many times brighter than a second magnitude star? (a) 2.5, (b) 7.3, (c) 10.0, (d)12.0

19) A Galactic year is the length of time that it takes our sun to orbit the galaxy. In Earth years, (approximately) how long is a Galactic year? (a) 150 million years, (b) 225 million years, (c) 500 million years, (d) 640 million years.

20) The angle of degrees that the full moon takes up in the night sky is equal to which of the following values? (a) 1/8 degree, (b) 1/2 degree, (c) 1 degree, (d) 2 degrees

21) The period from one full moon to the next is: (a) 30.3 days, (b) 30 days, (c) 29.5 days, (d) 28 days.

22) Which of the following constellations has more bright stars than any other constellation? (a) Big Dipper, (b) Orion, (c) Cassiopeia, (d) Scorpion.

23) A line through the three stars in Orion's belt points toward which one of the following stars? (a) Mizor, (b) Polaris, (c) Sirius, (d) Rigel.

24) In the Milky Way it is estimated there are approximately: (a) 100 million ±50 million stars, (b) 400 million, ±100 billion, (c) 20 billion ±50 billion, (d) 250 billion, ±150 billion stars.

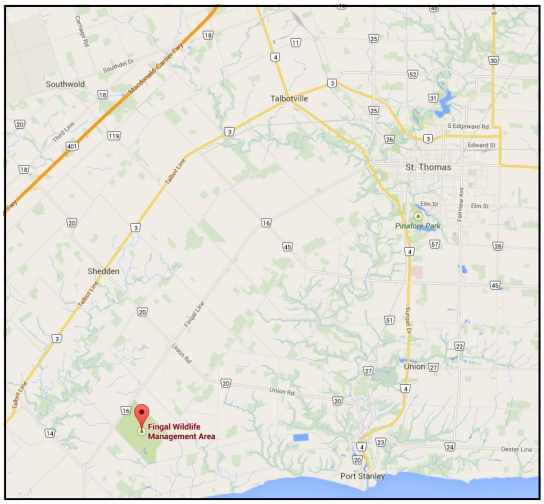
25) A star (or galaxy) moving toward the earth has a spectrum whose lines are: (a) continuous with no gaps in the band of color, (b) blurred, (c) doppler-shifted toward the violet end of the spectrum, (d) doppler-shifted toward the red end of the spectrum.

Bonus Question

Who was the first person who formulated a model of the universe that placed the Sun rather than the Earth at the center of the universe?

Now go and mark your score. The answers are on the last page.

Fingal Dark Sky Observing Site



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Sky Events for Late January and early February

Jan. 19 Double shadow transit on Jupiter
Jan. 24 First Quarter
Jan. 27 Aldebaram 0.7° S of Moon, occultation
Jan. 31 Full Moon
Jan . 31 Total Lunar Eclipse (visible from N.A.)
Feb. 2 Zodiacal light visible in West after evening twilight for next 2 wks.
Feb. 9 Vesta 0.9° N of Moon, occultation
Feb. 7 Moon last quarter

Planets
Mercury: Opens 2108 at greatest elongation, 23° from the Sun
Venus: Too close to the Sun to be seen throughout the month.
Mars: Passing 0.7° N of double star Zubenelgenubi in morning sky with Jupiter just to the east in same FOV.
Jupiter: Situated in central Libra is joined by Mars in first part of month.
Saturn: Emerging from the Sun visible in the morning sky.
Uranus: Well places in evening sky in Pisces.
Neptune: Begins 2018 just 0.5° south of lambda Aquarii. Will spend the year between lambda and phi Aquarii.

R.A.S.C. London Centre Library — Books of the Month, January 2018

By Robert Duff

As always, these "Books of the Month" are available for loan to members, to be returned at the following monthly meeting. The books for January 2018 are as follows:

- *Here be Dragons: the Scientific Quest for Extraterrestrial Life*, by David Koerner & Simon LeVay. c2000.
- *Kepler's Witch: an Astronomer's Discovery of Cosmic Order Amid Religious War, Political Intrigue, and the Heresy Trial of His Mother*, by James A. Connor. c2004.
- *The Quest for Comets: an Explosive Trail of Beauty and Danger*, by David H. Levy. C1994 (1995 printing).

For a complete listing of our RASC London Centre Library collection please click on the Library menu at the top of the RASC London Centre main Web page: http://rasclondon.ca/

If there is a particular book or video you wish to borrow, please feel free to contact me by telephone at (519) 439-7504 or by e-mail at **rduff@sympatico.ca**

Cronyn Observatory Public Nights, Exploring the Stars & Special Events, December 2017 and early January 2018

There were no public events during this time.

Answers to Quiz Questions

Q1) Epsilon Lyrae, The Double-Double.

Q2) (a) Sirius

Q3) Messier 31, Andromeda.

Q4) Messier 45, Pleiades, the Seven Sisters.

Q5) Messier 1, Crab Nebula.

Q6) The Summer Triangle, which consists of Deneb from the constellation Cygnus, Vega from Lyra and Altair from Aquila.

Q7) The Leo Triplet – in Leo.

Q8) Orion.

Q9) Neutron Star

Q10) Uranus.

Q11) (b) The amount of light a planet reflects.

Q12) (c) Venus had phases like the moon.

Q13) (a) Bootes

Q14) (c) Kepler.

Q15) 1969.

Q16) (d) Hipparchus

Q17) Alpha Centauri or Proxima Centauri

Q18) (a)" 2.5

Q19) (b) 225 million years

Q20) (b) 1/2 degree

Q21) (c) 29.5 days

Q22) (b)Orion

Q23 (c) Sirius

Q24 (d) 250 billion, ±150 billion stars

Q25) (c) a doppler-shifted toward the violet end of the spectrum

Bonus Question Answer

Aristarchus of Samos (c. 3100 – c. 230 BC) was an ancient Greek astronomer and mathematician who presented the first known model that placed the Sun at the center of the known universe with the Earth revolving around it. Nicolaus Copernicus who may have been the expected answer, attributed the heliocentric theory to Aristarchus.

Brief History of Aristarchus of Samos

Aristarchus of Samos was influenced by Philolaus of Croton, but Aristarchus identified the "central fire" with the Sun, and he put the other planets in their correct order of distance around the Sun. Like Anaxagoras before him, he suspected that the stars were just other bodies like the Sun, albeit further away from Earth. He was also the first one to deduce the rotation of earth on its axis. His astronomical ideas were often rejected in favor of the incorrect geocentric theories of Aristotle and Ptolemy.

Quiz Scoring

Score one mark for each correct answer (one mark per question).

1 to 5 correct: Fail. Maybe you should think about another hobby.

6 to10 correct: Stick around, there is lot more for you to learn.

11 to 15 correct: Passing grade. You are making good progress. Come out to public events and share your knowledge.

16 to 20 correct: Very good. You should be writing articles for Polaris!

21 to 26 correct: Expert! You should be presenting at our monthly meetings.

Polaris On-Line

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