

Triton Fun Company

Science Newsletter

July 2006

Science Newsletter

July 2006

Journey to Libya: The Total Solar Eclipse of March 29, 2006

D.P. Green

Special points of interest:

- Eclipse in Libya
- Great photos
- Capture of Neptune's moon
- Triton Fun stuff
- Superfluous questions

Like most people, I had never seen a solar eclipse. In the middle of 2005, I saw an ad for a Mediterranean cruise combined with a chance to see a total solar eclipse in, of all places, Libya. The United States had just lifted its sanctions and travel ban to Libya in 2004.

Still... this was *Libya* we were talking about. After several discussions with others, and finding a great article about travel in Libya in the L.A. Weekly, my wife and I decided to go.

In March 2006, we arrived in Genoa, Italy, where we board the MSC Sinfonia, an Italian sailing ship. Our traveling companions include about 1,500 astronomers from the USA, Europe and Asia.

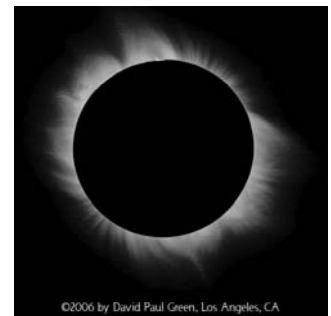
There were several astronomy notables on-board. Each day at sea, they gave lectures and presentations about viewing solar eclipses and the historical, astronomical significance of the cities we were visiting.

And what cities! We visited the ancient ruins of Pompei at Naples, the Greek and Roman ruins in Syracuse, Sicily, and more Roman ruins in Tripoli, Libya. We strolled the narrow streets of Malta, shopped in Salerno and saw the ancient

pyramids of Sakkara and the Great Pyramid complex at Giza, including the Sphinx.

As impressive as those sites were, though, nothing compared to the time we spent in Tobruk, Libya. Things began quite ostentatiously, as we were the first cruise ship to stop in Tobruk in over 30 years. A delegation of officials met the ship, giving the captain a huge bouquet of flowers. A large group of Girl Scouts and Brownies sang and chanted for us. Out of respect for Libyan laws, the duty-free shop was sealed and all the mini-bars were locked: Libya is a "dry" country! Several groups of us took shuttle buses into the city of Tobruk, where we were greeted like rock stars, with people waving and shouting, "Mahabura! Mahabura!" (Arabic for "Welcome!") Children spoke to us in perfect English, and many of our fellow passengers were invited into Libyan homes to break bread and share dinner. (Due to time constraints, few were able to accept.)

The next day, we boarded dozens of buses, and set off into the Libyan Sahara, which, unlike the beautiful dunes portrayed in movies,



Eclipse in an alien landscape, Libya, March 2006

was an endless, *flat* plain of hard, rocky sand as featureless as any alien landscape. Although the day started with, of all things, a thick and impenetrable desert fog, soon the sun broke through, and the temperature quickly began to rise.

Travelers from other tour groups joined us at the site called *Camp Ras Elhila*, bringing the number of eclipse-viewers to well over 2,000 people grouped right on the path of totality, where we expected to see the moon cover the sun for precisely four minutes. There were also Libyan locals who had driven out to the site, some of whom strolled among us, admiring our telescopes and asking lots of astronomy questions.

Excitement and camaraderie grew as the Big Moment approached. After first contact (when the moon first appears to "touch" the edge of the sun), there was a

We are always looking for contributors to the Science Newsletter. If you would like to write an article about a science subject you are excited about, or contribute a superfluous question, or if you would like to be on our mailing list for future newsletters, please e-mail us at:

science@tritonfun.com

Libyan Eclipse — continued:

noticeable “buzz” in the desert. People went from one group to another, comparing notes, giving advice to newbies, and sharing the experience. Moments before second contact (when the sun becomes fully covered by the moon), people started cheering, whistling, and shouting. “I see shadow bands!” This was quickly followed by, “There’s Bailey’s Beads!” and “The diamond ring!” as each of the notable features preceding totality occurred.

When the eclipse finally became total, the roar was as loud as for a rock concert. Cheering and screaming competed with honking horns from the cars of Libyans, as well as ululating from many Libyans. The very religious among the Libyans followed Islamic tradition and knelt on their prayer rugs; they never once looked at totality.

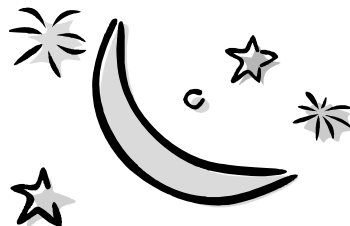
For those of us trying to take pictures of the event, the challenge to stay focused (no pun intended) was overwhelming. There was so much going on !

“I see Venus!”, someone shouted, and there was a rumble of appreciation from the crowd. “I see Mercury!” someone else shouted moments later, but I never found it myself and neither did many others I spoke to.

Then, all-too-quickly and as suddenly as it began, the second diamond ring signaled third contact and the end of totality, and shouts of bewildered disappointment gave way to whoops and cheers of exhilaration. The fleeing shadow of the moon passed over us, and in doing so, changed many of us.

I never thought it would happen to me: I am now an eclipse chaser. Fortunately for my bank account, there are no total solar eclipses until 2008. That one will be visible across Russia, China, Mongolia, and the Arctic Circle. 2009’s eclipse will again be visible from China. The total solar eclipse in 2010 will be visible from Easter Island, high above the island’s famous, giant stone heads.

Whether you are a complete novice, or a serious amateur astronomer, you will love seeing a total solar eclipse, and so will your family. This is not the “faint fuzzy” of a deep sky object, or the “fine detail” of a planet at 400x. This is visceral astronomy that grabs you by the throat and shakes all your senses. And unlike other astronomy, even if you get clouded out, the journey itself can be amazing. Start planning now!



Triton Fun Company - Science and Astronomy-related products for the whole family

Triton Fun Company: Science and Astronomy gifts. Our mission is to develop products and gifts for the enjoyment and pursuit of science activities. We have products for astronomers, geologists, physicists, birdwatchers, naturalists, hikers, campers, and anyone who loves science.

*** See our online catalog for T-shirts, jewelry, hats, sun visors, binoculars and many other science-related products. We offer great deals and fine products every month:

<http://www.tritonfun.com>

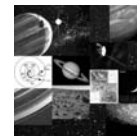
SPECIAL FOR JULY: still on sale for a limited time

Magnacraft 10 x 50 Camouflage Binoculars:

These fun binos have great features, such as: 1) superb optics - 10 x 50's - 10 X magnification_ 2) hinged barrels_ 3) centerwheel focusing _ 4) rubber eyecups - which provide comfortable viewing 5) easy adjustments for differing eye strength__ 6) optical ruby-red coating on the lenses assuring a sharp, clear, untinted view_ 7) soft vinyl zippered carrying case with adjustable carrying strap and pocket for instructions, brochures and cleaning cloth__ 7) Lightweight - only 3 pounds !

Regularly \$67, On SALE NOW for \$60. Order online on our website:
<http://www.tritonfun.com>

We are a new company. 5% of our profits go to wildlife conservation organizations. Please help us by buying our products and protecting the animals. Thank you.



TRITON CAPTURE

Thor Dockweiler

Neptune is a ringed planet with 13 known moons. Its location was predicted mathematically by Adams and Le Verrier. It was visually discovered Wednesday, September 23, 1846 by Lassell, Galle, and d'Arrest in Aquarius within one degree of its prediction. Discovery credit was controversial.

Two weeks later on Saturday, October 10, 1846, Lassell discovered its largest moon Triton (also known as Neptune I). Triton is 2,706 kilometers in diameter (almost 4/5 the Earth's Moon).

Triton, a mythological sea god and messenger of the deep is usually represented as a merman (human upper body and tail of a fish). He was the son of the god Poseidon for the Greeks and Neptunus [Neptune] for the Romans. Poseidon was the god of the sea, earthquakes, and horses. Flammarion proposed the name Triton for Neptune's largest moon.

Triton orbits Neptune in just under 6 Earth days in a retrograde (backward) orbit in relation to the rotation of Neptune, and as compared to the majority of orbits of celestial bodies in our

Solar System. This retrograde motion indicates possible capture by Neptune. Its orbital energy is decaying over time due to gravitational tidal interaction causing it to orbit ever closer to the planet Neptune.

The Voyager 2 spacecraft visited Triton in 1989. Voyager found that Triton is volcanically active, having ice volcanoes which eject plumes of gaseous material 4 miles high. These plumes, primarily composed of nitrogen vapor, then freeze upon their exit from the planet's surface where the temperature is -391 degrees Fahrenheit. The plumes generate an extremely thin, pure nitrogen atmosphere with a trace of methane. Nitrogen-methane ice caps occur at both its poles.

Triton is relatively smooth and part of its terrain has the appearance of a cantaloupe with extensive patterns of ridges and valleys produced by cyclical thawing and freezing events of unknown origin.

An intriguing technical paper appeared recently in *Nature*, (2006 May 11, Letters, pp. 192-4) which seems to solve the capture process of many celestial bodies, and apparently proves that Triton was gravitationally captured as part of a slowly passing binary object with Neptune early in its history. Such passing binary objects may be common in the formation of protoplanetary disks around stars, (page 4 —>)

Mailing Address:

Triton Fun Company
P.O. Box 1522
La Canada Flintridge, California 91012

Phone: 800-778-0560
E-mail: science@tritonfun.com
Website: <http://www.tritonfun.com>



Triton Fun Company

Science and Astronomy-related products for
the whole family

We're on the Web !
<http://www.tritonfun.com>

CAPTURE, continued, from page 3

both objects being somewhat similar in size, although the captured object is likely the smaller of the two. The gravitational exchange capture or swap is determined by the velocity, mass, and trajectories of the involved objects and is favored greatly over a collision capture. The Pluto-Charon system may be similar to the Neptune-Triton system.

Superfluous Questions:

- 1.. What was the name of Spock's betrothed who he fought for in the Star Trek episode "Amok Time" ?
a) Andwoon b) T'Pau c) Ston d) T'Pring
2. How fast does the Space Shuttle fly ?
a) 90,000 mph b) 12,000 mph c) 17,000 mph d) 50,000 mph
3. Who was the first American to fly in space ?
a) John Glenn b) Walter Schirra c) Alan Shepard d) Neil Armstrong

---> ANSWERS in next months issue of the Science Newsletter ! <---

** ANSWERS to June's Superfluous Questions: 1. d) Stickney 2. b) Uranium 3. a) Apollo 8 4. d) Tiberius