

# The **★**ASTERISM

*as' ter ism ~ a recognizable pattern of stars*  
*con stel la' tion ~ an internationally designated area of the sky*

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*Note: Use bookmark panel in Adobe Reader.*

## Castle Hohenzollern

This picture taken on March 15, at a site about sixty miles from Stuttgart, Germany turned out to be an ideal location for viewing comet PANSTARRS. You all had that view from your back yards, yes?

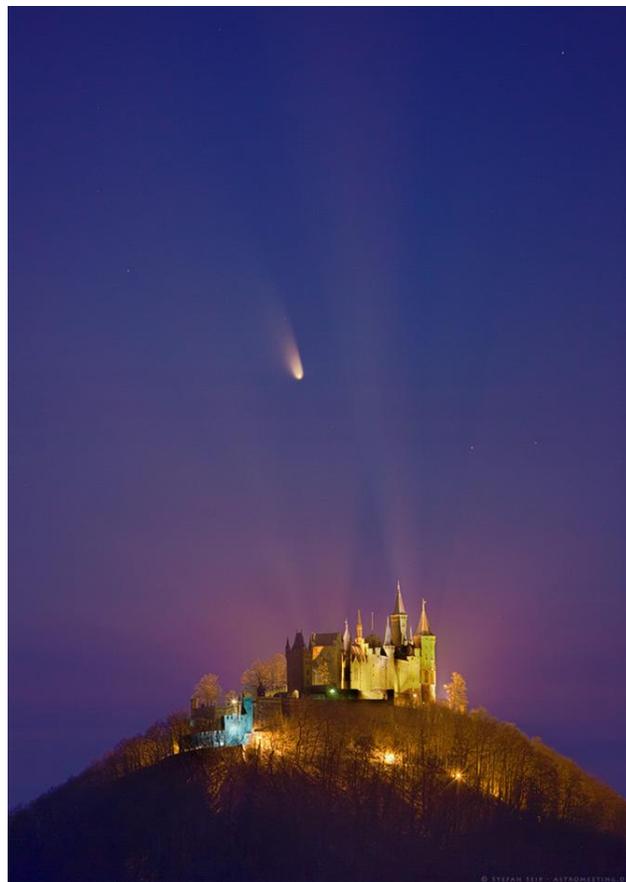


Image courtesy and © of Stefan Seip (TWAN)

**GENERAL MEMBERSHIP MEETING**

**MARCH 15, 2013**

**MAIN LECTURE HALL - UCC CAMPUS**

**8:00 p.m.**



**The Evolution of Galaxies.**

Dr. Peter Kurczynsky,

Rutgers, The State University

celestial backyard belie a more distant and turbulent past that is only just now being revealed. How galaxies formed and evolved is a current source of astronomical perplexity. Yet the mysteries behind their evolution connect the history of the entire universe to our own celestial habitat today. This is the story of our cosmic origins.

**PLEASE JOIN US!!!**

Exciting when first glimpsed through an eyepiece, majestic when imaged by great observatories, galaxies are in fact the tiny bits that make up our visible universe. The spirals and ellipticals found in our

**SOLAR OBSERVING AT TRAILSIDE SATURDAY APRIL 6 AT 1P.M. WEATHER PERMITTING**

Member attendance is welcome and appreciated, if you would like to assist this program please contact any officer or trustee at our Friday meeting.

If the weather is inclement a cancellation notice will appear on the AAI website by noon. Thank you.

**New Members**

Amateur Astronomers, Inc. welcomes **Elizabeth, Carolyn, and Christopher Jacinto** of Union.

We hope you enjoy using Sperry Observatory, know that as a member other opportunities are available such as seminars, lectures, training, observing, and research all at no or minimal cost. Our Qualified Observer course is a great place to start. It is equivalent to a college-level introduction to Astronomy, and it includes hands-on training on our 24-inch reflecting telescope. For all opportunities check the **Club Activities** section of the website.

Irene Greenstein, Membership Chair

**MEMBER ONLY STAR PARTY  
JENNY JUMP STATE PARK  
HOPE, NJ  
SATURDAY APR 13, 7:30PM**

**STAR PARTY  
SPERRY OBSERVATORY  
FRIDAY APRIL 12  
at 7:30 p.m.**

With the recent record close approach by asteroid 2012 DA 14 as well as the cosmic airburst over Chelyabinsk, Russia which shattered most of the windows in the city, wrecked a number of buildings, and injured hundreds of people, it seems like a good time to take a look at how cosmic impact has been viewed in popular culture (a discussion of the scientific aspects of cosmic impact can be found in my column in the November 2005 issue of the *Asterism*).

## **In the Beginning (Sort of)**

The idea of cosmic impact actually predates Hollywood. In fact, it started even before anyone knew that asteroids existed. Edmund Halley claimed, in a paper presented to the Royal Society in December of 1694, that the flood chronicled in the book of Genesis was caused by the Earth having a run-in with a comet. This idea was elaborated on in William Whiston's 1696 book "A New Theory of the Earth".

The idea of cometary impact was revisited in the 19<sup>th</sup> century. In 1838, a man known as S. Austin Jr. wrote a story titled "The Comet". This concerned a vast comet that approaches Earth, causing enormous tides that destroy humanity. One of the people who read this story was none other than Edgar Allan Poe. Poe had a problem with that premise as he knew comets were low density objects that could never raise a tide. So, he wrote his own story, "The Conversation of Eiros and Charmion" (1839) where Eiros, the soul of someone who perished when a comet collision causes Earth's atmosphere burst into flame, explains what happened to Charmion, the soul of someone who died prior to the comet's arrival.

In 1857, a German almanac writer caused a major bout of hysteria when he wrote in the June 13<sup>th</sup> entry for his almanac "About this time, expect a comet." Many people, especially in France, interpreted that to mean a comet impact. Others saw through the hype. Jacques Babinet, a leading French astronomer of the period, explained that comets were rather insubstantial and could not be a threat. French artist Honore Daumier, in a series of satirical drawings, parodied this comet hysteria.

Then, Jules Verne wrote "Off On a Comet" (1877). In this story, an enormous comet, about 2300 miles in diameter (roughly Pluto-sized) almost

impacts Earth and, through strange circumstance, winds up with a group of nearly forty people on it as it leaves. The unwilling astronauts struggle to survive the environment of the comet, which has a breathable atmosphere but is extremely cold. They soon discover that the comet will near Earth again in two years, this time on a collision course. In the original draft, Verne had the people remain on the comet and die in the impact. However, Verne's publisher disliked the idea, citing the youth demographic Verne's work appealed to, and instead had the people fashion a balloon to escape the comet in the nick of time. In reality, an impact of any object this large would at the very least sterilize the planet. Most literary critics feel this was one of Verne's weakest and most farfetched stories.

Curiously, even though asteroids were known since 1801, it seems they were not considered potential impactors in the 19<sup>th</sup> century. Rather, asteroids were thought to have formed as the result of a cosmic impact. During much of that century, the prevailing thought as to why there were so many little asteroids instead of one planet sized object was that there once was such an object, but it somehow exploded or was shattered and the resulting debris became known as asteroids. And this theory might have even influenced literature.

Those who believed the destroyed planet debris theory felt that, if one could study the orbits of asteroids with high precision and work them backwards in time, one could gain an insight into the original body and maybe even the cause of its destruction. One of these astronomers was Simon Newcombe. Therefore, it was natural that this Newcombe-inspired character would write a paper titled "The Dynamics of an Asteroid". The character was Professor James Moriarty, created by Sir Arthur Conan Doyle as the archenemy of Sherlock Holmes.

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## 20<sup>th</sup> Century

In the early part of the 20<sup>th</sup> century, the then-new field of science fiction took on the subject of disastrous impacts on Earth. One example was "Deluge" (1928) by S. Fowler Wright. This story had a comet causing a global flood that, for some odd reason, spared the English Midlands. The protagonist of the story believes that his wife was killed in the catastrophe and hooks up with a woman who survived the flood. Some time later, it is discovered that the wife wasn't dead yet, creating quite a few complications.

As most AAI members know, there was a major impact event in 1908 located in the Tunguska region of Siberia. However, the region was very sparsely populated and Russian government had more pressing issues, such as preventing a revolt like the one in 1905 and European diplomacy, to deal with. When Leonid Kulik went on his expeditions to the area starting in 1926, his findings drew little, if any, public interest.

Another asteroid related event got a bit more press. On October 28<sup>th</sup>, 1937, German astronomer Karl Wilhelm Reinmuth discovered a fast moving asteroid and observed it for five nights. This asteroid was given the name Hermes. Further calculations indicated that it was making a close approach to Earth, passing only about 485,000 miles away. But Hermes was soon lost and not seen again for 66 years. This close approach did generate some interest as there was a famous illustration showing a sphere the size of Hermes sitting on Manhattan Island to give an idea of the size and there was an artist conception some years later indicating what was thought would happen had Hermes hit New York, though the artist did not know too much about the cratering process.

Shortly after Hermes, interest in cosmic impacts waned. People had other matters to worry about, first World War II, and then the Cold War that followed. There were still the occasional collision stories, such as "When Worlds Collide", but these dealt with objects the size of planets and stars and are outside the topic of this column.

## New Interest and New Media

However, interest in cosmic impacts began to resurface, slowly at first. In Sir Arthur C. Clarke's story "Rendezvous With Rama" (1972) a very destructive cosmic impact occurs in Italy, prompting

the creation of the Spaceguard defense system that would, years later, detect Rama. "Lucifer's Hammer" (1977) by Larry Niven and Jerry Pournelle chronicled an asteroid impact on Earth that pretty much wipes out civilization and the struggles of those who survive to maintain some semblance of order.

Impact stories also appeared on the small and silver screens. In 1978, possibly inspired by the 70<sup>th</sup> anniversary of the Tunguska impact, NBC aired a made-for-TV movie titled "A Fire in the Sky" where Richard Crenna portrayed an astronomer who learns that a comet is due to strike the Earth and that the impact point would be in Arizona, near Phoenix. Despite valiant efforts, the astronomer cannot get any authorities to listen to him and the movie ends as the comet hits and causes heavy damage to the Phoenix area.

Interest in cosmic impacts to really took off when, in 1979, Luis and Walter Alvarez deduced from enhanced iridium abundance in rocks from the Cretaceous-Tertiary boundary that a large cosmic impact caused the extinction of the dinosaurs and many other species.

This inspired a number of films and stories. However, the writers, producers, and studio executives felt that there had to be some means of stopping the impactor. One of the first of these films was "Meteor" (1980) where the asteroid Icarus is implausibly sent on a collision course with Earth. The heroes wind up using clandestine American and Soviet orbital nuclear missile platforms to try to destroy Icarus. But they only succeed in reducing Icarus to a few fragments that strike the Earth and create localized havoc.

In later years, other movies had similar themes. Evidently due to Hollywood's love of explosions, nuclear weapons were often the chosen method to deal with the impactor. In "Armageddon" (1998), the strategy is successful and the Earth is saved. But in "Deep Impact" (1998), it falls short and only reduces the amount of devastation from the impact to a level that people can hide from in vast underground shelters.

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But the above films seem plausible compared to the made-for-TV movies on the subject where entirely inappropriate devices were used to blow up asteroids as if they were incoming ballistic missiles.

However, some people realized that the nuclear option wasn't the best way to go. In a short story and later "The Hammer of God" (1993), Sir Arthur C. Clarke used the more logical idea of putting a spacecraft on the offending asteroid and using the spacecraft as a thruster to alter the asteroid's course.

One of the more unusual recent books on the impact theme has been "Terraforming Earth" (2001) by Jack Williamson. In this book, a cosmic impact hits Earth, wiping out almost everything. However, there is a base on the Moon that has DNA from many forms of Earth life and the means to clone organisms. A small group of impact survivors reach the base and the story chronicles the attempts at restoring the Earth.

## **Resignation?**

The latest cosmic impact stories have humanity pretty much resigned to its doom. "Melancholia" (2011) is one example, though the impacting body is practically planet-sized. Another is "Seeking a Friend for the End of the World" (2012). The novel "The Last Policeman" (2012) by Ben H. Winters chronicles a police detective investigating a murder while Earth is only months away from a destructive impact by an asteroid. This book is interestingly enough, the first part of a trilogy.

## **The Impact of Chelyabinsk**

Will Chelyabinsk inspire more stories and films? Or will it just be regarded as an odd, flashy, soon-to-be-forgotten event (except for the residents of the city)?

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IF YOU WROTE AN ARTICLE IT COULD HAVE BEEN HERE

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## MEMBERSHIP DUES

Regular Membership:	\$21
Sustaining Membership:	\$31
Sponsoring Membership:	\$46
Family Membership:	\$5
First Time Application Fee:	\$3
<i>Sky &amp; Telescope:</i>	\$32.95
<i>Astronomy</i> subscription:	\$34

(Subscription renewals to *S&T* can be done directly. See "Membership-Dues" on website for details.)

*AAI Dues can be paid in person to our Membership Chair, or by mail to: AAI, PO Box 111, Garwood, NJ 07027-0111*

## DOME DUTY

Mar	22	Team E
Mar	29	Team A
Apr	5	Team B
Apr	12	Team C
Apr	19	Team D

## FRIDAYS AT SPERRY

**Mar 22 2013**

**Stalking the Wild Paraboloid**

Bill Whitehouse

**Mar 29, 2013**

**Comet PanSTARRS**

Alan P. Witzgall

**Apr 5, 2013**

**What's Up? A Down to Earth**

**Sky Guide** Kathy Vaccari

**Space Missions Briefing**

Bill Whitehead

**Apr 12, 2013**

**Dark-Matter Search Gets Started**

**Deep In Sanford Lab**

Dr. Al Gottlieb

*All schedules above were accurate at time of publication. Please check [www.asterism.org](http://www.asterism.org) for latest information (click on "Club Activities")*

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The next **General Membership Meeting** is the third **Friday, April 19, 2013**. Our speaker is Dr. Orsola DeMarco, her topic is Planetary Nebula, she will appear by Skype from Chile after a presentation drawn from Macquarie University, Australia.

**Please join us.**

# Theater<sup>in</sup>the Sky

by Ron Ruemmler

April 2013 finds **Saturn** dominating the night sky. The Ringed Planet reaches opposition from the **Sun** near the end of the month, officially becoming an evening object. At almost zero magnitude, **Saturn** rises at sunset and doesn't leave the sky until morning twilight.

If you haven't gotten your fill of **Jupiter** over the past ten months, there's still time. The Giant Planet is low in the west at the end of evening twilight, setting around 11:00. This gives us a chance to get an early ticket to an interesting show.

For the past five years, **Jupiter** and **Saturn** have been so far apart that it has been a challenge to see them at the same time. This month their separation is down to 150 degrees. By catching **Jupiter** about 90 minutes before it sets just north of west, and making an about face, you should be able to spot **Saturn** the same distance above the horizon just south of east. But be careful. Spica is still to the upper right of **Saturn** as it has been since last summer, but is not nearly as bright as **Saturn**. A good time to try this is on the 24th when the **Moon** is very near Spica, or the 25th when the **Moon** is near **Saturn**.

For the next seven years the two largest planets will very slowly move closer together until their Great Conjunction on December 21, 2020. Their last conjunction was on May 31, 2000 when they were 1.2 degrees apart but too close to the **Sun** to observe. In 2020 they will be only a tenth of a degree apart and fairly well placed in the evening sky. You will be able to say you followed the whole journey starting this month.

Meanwhile, **Mercury** is in the middle of a poor morning performance, **Venus** is just beginning to enter the evening sky and **Mars** is totally lost behind the **Sun**. Even **Uranus** and **Neptune** are hiding in morning twilight. The only other notable feature this month is a pathetic partial lunar eclipse where the **Moon** only reaches across 1.48 percent of the diameter of the **Earth's** shadow, and even that is only visible from the hemisphere centered on Madagascar.

A calendar oddity might also be noted. 4/5/2013 is the first date that has no repeated digit since 6/5/1987, almost 26 years ago. To add the time to the mix, we have to wait one day until 7:58 AM on 4/6/2013. To get all ten digits, can anyone beat 8:59 AM on 6/17/2034?

## April (times are PM unless noted)

3 Wed 12:37 AM	Last Quarter <b>Moon</b>
7 Sun 1:00 AM	<b>Venus</b> 0.64 degrees below <b>Mars</b> (2 degrees from the <b>Sun</b> )
10 Wed 5:35 AM	New <b>Moon</b>
14 Sun 8:45	<b>Jupiter</b> right of thin crescent <b>Moon</b>
17 Wed 8:00	<b>Mars</b> at conjunction with the <b>Sun</b> , entering morning sky
18 Thu 8:31 AM	First Quarter <b>Moon</b>
20 Sat	<b>Astronomy Day!</b> Many observatories open to the public
24 Wed 8:45	Spica 1.6 degrees above the <b>Moon</b>
25 Thu 3:57	Full <b>Moon</b> ; very partial lunar eclipse, not visible from USA
25 Thu 8:45	<b>Saturn</b> 3.5 degrees upper left of the <b>Moon</b>
28 Sun 4:00 AM	<b>Saturn</b> at opposition from the <b>Sun</b> ; up all night

