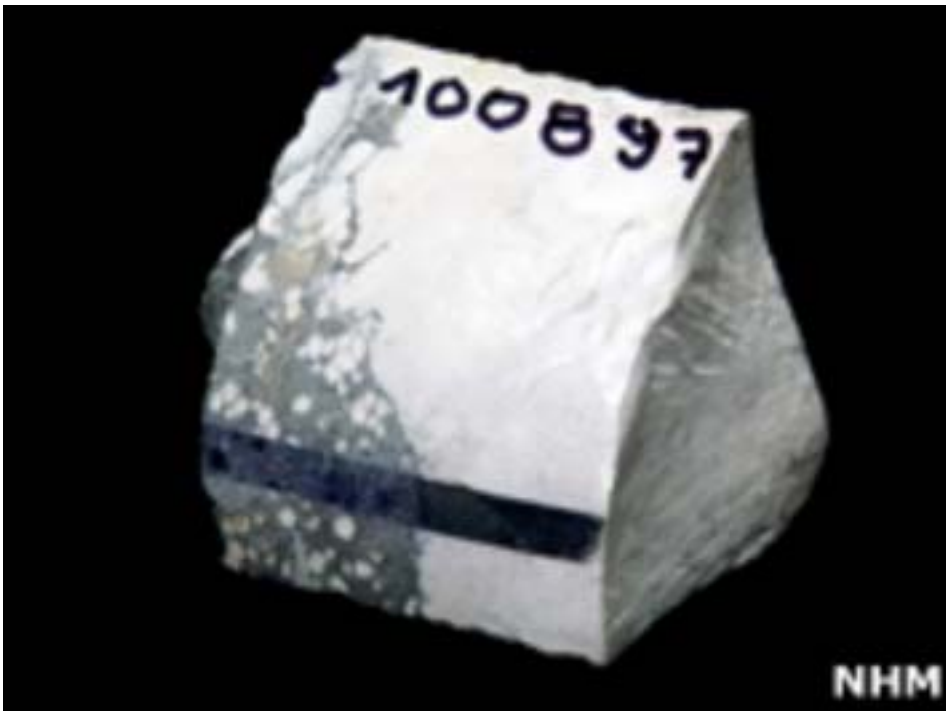
THE 206-43

The Newsletter of NARHAMS, NAR Section #139.
NAR National Champions 2001, 2004

JUNE 2007 VOL 29 ISSUE 06

‘Kryptonite’ discovered in mine

Kryptonite is no longer just the stuff of fiction feared by caped superheroes.



A new mineral matching its unique chemistry - as described in the film Superman Returns - has been identified in a mine in Serbia.

According to movie and comic-book storylines, kryptonite is supposed to sap Superman’s powers whenever he is exposed to its large green crystals.

The real mineral is white and harmless, says Dr Chris Stanley, a mineralogist at London’s Natural History Museum.

“I’m afraid it’s not green and it doesn’t glow either - although it will react to ultraviolet light by fluorescing a pinkish-orange,” he told BBC News.

Rock heist

Researchers from mining group Rio Tinto discovered the unusual mineral and enlisted the help of Dr Stanley when they could not match it with anything known previously to science.

Once the London expert had unravelled the mineral’s chemical make-up, he was shocked to discover this formula was already referenced in literature - albeit fictional literature.

“Towards the end of my research I searched the web using the mineral’s chemical formula - sodium lithium boron silicate hydroxide - and was amazed to discover that same scientific name, written on a case of rock containing kryptonite stolen by Lex Luther from a museum in the film Superman Returns.

“The new mineral does not contain fluorine (which it does in the film) and is white rather than green but, in all other respects, the chemistry matches that for the rock containing kryptonite.”

The mineral is relatively hard but is very small grained. Each individual crystal is less than five microns (millionths of a metre) across.

Elementary clash

Identifying its atomic structure required sophisticated analytical facilities at Canada’s National Research Council and the assistance and expertise of its researchers, Dr Pamela Whitfield and Dr Yvon Le Page.

“‘Knowing a material’s crystal structure means scientists can calculate other physical properties of the material, such as its elasticity or thermochemical properties,” explained Dr Le Page.

“Being able to analyse all the properties of a mineral, both chemical and physical, brings us

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ZOG-43

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NARHAMS is the oldest model rocket club in the United States!

ZOG- 43 is dedicated to model rocketeers of all ages, abilities, and interest. We are committed to providing the most current, up-to-date information on model and real world rocketry, and to provide educational material as well as entertaining information. ZOG -43 is published monthly and is available to anyone on a subscription basis. Current rates are $10 for meeting pickup or email or $15 for postal mail U.S. Funds for 12 issues a year, payable to NARHAMS Material in ZOG -43 is not copyrighted. Free and unlimited reproduction is granted with the proper credit to the author and/or ZOG-43.

For more information.....

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NARHAMS ON THE WEB

http://www.narhams.org

Send and receive E-mail with other NARHAMS members through NARHAMS Web page grouplist via yahoo-groups.

NARHAMS serves Baltimore, the state of Md., Washington DC and the surrounding Metropolitan areas. The club is a section of the National Association of Model Rocketry (NAR) and we are the oldest continuously active model rocket club in the United States, first established as a high school club in 1963, changing our name to NARHAMS when chartered as a NAR section in 1965. NARHAMS is the only five time winner of the NAR "Section of the Year" award.

Years won: 1997,1998,1999, 2001, 2004 and 2006

NARHAMS members regularly fly their model rockets at NASA's Goddard Space Flight Center on Soil Conservation Rd. in Greenbelt Md. The launches are open to the public and are held the first Sunday of every month (weather permitting), starting at 1 PM.

Sport Launches are usually held the third Saturday of every month at Old National Pike Recreation Park near Mt. Airy Md. Check the web page for updates.

NARHAMS welcomes all prospective new members to our monthly meetings. They are held on the third Saturday of the month from 5:30 to 9:30 PM at the College Park Airport Annex Building. Dues are 10 cents a week, with an initial 50 cents up front (good for 5 weeks) as a sign of good faith.

NEW: Monthly meetings available on-line via chat-room , simply go to the NARHAMS homepage and click on the link.

Directions to College Park Airport:

Follow I-495 to Kenilworth Ave. South. Make a right onto Paint Branch Parkway, then make a right on Cpl. Frank S. Scott Dr. At the airport entrance go straight to the Operations Building, the annex building is adjacent to the "Ops" building.

ZOG ROYAL COURT

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VETERAN ASTRONAUT WALTER SCHIRRA DIES

Pioneering astronaut Walter "Wally" Schirra, the only man who flew in all three of America's first human space projects - Mercury, Gemini and Apollo - died Wednesday night. He was 84. Schirra's family reported he died of natural causes.

Schirra was one of America's original seven astronauts, selected in 1959, and was commander of the first crew to fly into space aboard an Apollo capsule, Apollo 7, following the tragic launchpad fire that claimed the lives of the crew of Apollo 1.

"With the passing of Wally Schirra, we at NASA note with sorrow the loss of yet another of the pioneers of human spaceflight," NASA Administrator Michael Griffin said. "As a Mercury astronaut, Wally was a member of the first group of astronauts to be selected, often referred to as the Original Seven."

Schirra's first space flight was piloting the fifth Mercury mission on Oct. 3, 1962, orbiting Earth six times in 9 hours and 13 minutes. During the flight he took hundreds of photos of Earth and space phenomena. Schirra's capsule, Sigma 7, splashed down only 5 miles from the recovery carrier.

As commander of Gemini 6-A, which launched on Dec. 15, 1965, Schirra flew with astronaut Tom Stafford on a mission that included the first rendezvous of two manned, maneuverable spacecraft. Gemini 6-A and Gemini 7 flew in formation for five hours, as close as one foot to one another.

During his 11-day Apollo 7 flight, which began Oct. 11, 1968, he and fellow crewmembers Walt Cunningham and Donn Eisele tested the Apollo systems and proved Apollo was ready to take astronauts to the moon.

"We shared a common dream to test the limits of man's imagination and daring," Schirra wrote of America's early astronauts. "Those early pioneering flights of Mercury, the performances of Gemini and the trips to the moon established us once and for all as what I like to call a spacefaring nation. Like England, Spain and Portugal crossing the seas in search of their nations' greatness, so we reached for the skies and ennobled our nation."

Schirra retired from the Navy as a captain and from NASA in 1969 and became a commentator with CBS News. His enthusiasm and knowledge of the space program coupled with his charismatic on-the-air presence made him an even more widely known national and international figure. He complemented CBS anchorman Walter Cronkite and the two became a powerful space-coverage team. Schirra worked for CBS from 1969 to 1975. He also engaged in a range of business activities and in 1979 formed his own consultant company, Schirra Enterprises.

Walter M. Schirra, Jr., was born in Hackensack, N.J., on March 12, 1923. He graduated from the U.S. Naval Academy in 1945, and from Naval Flight Training at Pensacola Naval Air Station, Fla., in 1947. After service as a carrier-based fighter pilot and operations officer, he attended the Naval Test Pilot School at Patuxent River, Md. During the Korean War he flew F-86 Sabres under an exchange program with the Air Force.

Schirra was chosen as one of the original "Mercury Seven" from among 110 selected test pilots from the Air Force, Navy and Marine Corps after exhaustive physical and psychological examinations.

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NASA UPDATES SHUTTLE TARGET LAUNCH DATES

HOUSTON - During a meeting Monday at NASA's Johnson Space Center, agency officials revised the target launch dates for space shuttle flights during the next 12 months. The space shuttle and International Space Station programs agreed to the changes during a meeting to evaluate options following the STS-117 mission's delay, which was caused by hail damage to the external fuel tank.

Flights beyond April 2008 have not been assessed. Both shuttle and station program officials will continue to consider options for the remainder of the shuttle flights and those target launch dates are subject to change.

Upcoming shuttle missions:

-STS-117 targeted for no earlier than June 8, 2007, on Atlantis

-STS-118 targeted for no earlier than Aug. 9, 2007, on Endeavour

-STS-120 targeted for no earlier than Oct. 20, 2007, on Discovery instead of Atlantis

-STS-122 targeted for no earlier than Dec. 6, 2007, on Atlantis instead of Discovery

-STS-123 targeted for no earlier than Feb. 14, 2008, on Endeavour

-STS-124 targeted for no earlier than April 24, 2008, on Discovery instead of Atlantis

The shuttles for STS-120, 122 and 124 were exchanged to best meet the demands of the missions and to have the least amount of impact on the flight schedule.

The shuttle launch manifest is available online at:

http://www.nasa.gov/mission_pages/station/structure/iss_manifest.html

For details on upcoming shuttle missions and their crews, visit: http://www.nasa.gov/shuttle

R107: NAR S&T NEW MOTOR CERTIFICATIONS

The following motors have been certified by NAR Standards & Testing
as general use Model Power Rocket Motors effective March 23, 2007.

Aerotech: G69N 38mm x 106mm

136.7 Newton-seconds total impulse
87.3 Newtons Peak Thrust
72.7 Newtons Average Thrust
62.2 grams propellant mass

N = Warp 9 Propellant

R108: CONTEST MOTOR CERTIFICATIONS

The following model rocket motors have been upgraded by NAR Standards &
Testing to allow their use in NAR Contest events effective April 16,2007.

Aerotech/RCS: E11J-3 (R) 24 x 70mm

31.7 Newton-seconds total impulse
Propellant mass: 25.0 grams

J = Black Jack

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Veteran Astronaut Continued

Known for lively storytelling and practical jokes, one of his best-known anecdotes from astronaut training came when he and the others were continually being examined and subjected to demands for samples of body fluids. When one nurse insisted he provide a urine sample, Schirra reportedly filled a 5-gallon jug with warm water, detergent and iodine and left it on her desk.

"Levity makes life a lot easier," he once told a Houston reporter.

Griffin noted that "It was impossible to know Wally, even to meet him, without realizing at once that he was a man who relished the lighter side of life, the puns and jokes and pranks that can enliven a gathering. But this was a distraction from the true nature of the man. His record as a pioneering space pilot shows the real stuff of which he was made. We who have inherited today's space program will always be in his debt."

The Mercury Seven trained initially at NASA's Langley Research Center in Hampton, Va. In 1961 they moved to the newly established Manned Spacecraft Center (now the Lyndon B. Johnson Space Center) near Houston.

Schirra's Sigma 7 mission was called "the perfect flight" by space reporter and author Howard Benedict. After Schirra's

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Kryptonite Continued

closer to confirming that it is indeed unique."

Finding out that the chemical composition of a material was an exact match to an invented formula for the fictitious kryptonite "was the coincidence of a lifetime," he added.

The mineral cannot be called kryptonite under international nomenclature rules because it has nothing to do with krypton - a real element in the Periodic Table that takes the form of a gas.

Power possibilities

Instead, it will be formally named Jadarite when it is described in the European Journal of Mineralogy later this year.

Jadar is the name of the place where the Serbian mine is located.

Dr Stanley said that if deposits occurred in sufficient quantity it could have some commercial value.

It contains boron and lithium - two valuable elements with many applications, he explained.

"Borosilicate glasses are used to encapsulate processed radioactive waste, and lithium is used in batteries and in the pharmaceutical industries."

Story from BBC NEWS: http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/6584229.stm

Calendar of Events for 2007

Jun 02	05:30 – 10:00 pm	Monthly meeting, missile building session
Jun 03	01:00 – 02:00 pm	Goddard public launch
Jun 16	10:00 – 40:00 pm	Sport Launch, C-Cargo Copter fun event
~~Jul 01~~	~~01:00 – 02:00 pm~~	~~Goddard public launch~~
Jul 02	05:30 – 10:00 pm	Monthly meeting, UFO building
Jul 15		Goddard Contest
Jul 21	10:00 - 04:00 pm	Sport launch
Jul 28 -		NARAM-49
Aug 03		NARAM-49
Aug 04	05:30 – 10:00 pm	Monthly meeting
~~Aug 05~~	~~01:00 – 02:00 pm~~	~~Goddard public launch~~
Aug 18	10:00 – 04:00 pm	Sport Launch
Sep 01	05:30 – 10:00 pm	Monthly meeting, build "A rocket"
Sep 02	01:00 – 02:00 pm	Goddard public launch
Sep 15	10:00 – 10:00 pm	Sport Launch, night launch, R/C fun fly 2 pm
Oct 06	05:30 – 10:00 pm	Monthly meeting, Sputnik building session
Oct 07	01:00 – 02:00 pm	Goddard public launch
Oct 20	10:00 – 04:00 pm	Sport launch, FAI Practice
Nov 03	12:00 – 05:00 pm	Planning meeting
Nov 03	05:30 – 10:00 pm	Monthly meeting, glider building session
Nov 04	01:00 – 02:00 pm	Goddard public launch
Nov 17	10:00 – 04:00 pm	OPOSSUM-12, Sport launch
Dec 01	05:30 – 10:00 pm	Potluck Dinner
Dec 02	01:00 – 02:00 pm	Goddard public launch
Dec 15	10:00 – 04:00 pm	Sport launch

Sport launches are held at Old National Pike Park from 10am-4pm, waiver up to 3.3 lbs and "G" motors not exceeding 62.5 grams of propellant. All flights "E" power and above are restricted to 5 degrees from vertical. Questions? Call Club President Jennifer Ash-Poole at 410-674-6262 or visit NARHAMS online at http://www.narhams.org

Apogee: D10-3,5,7 (S) 18 x 70mm

8.3 Newton-seconds total impulse
Propellant mass: 9.8 grams

Apogee: E6-4,6,8,P (S) 24 x 77mm

37.8 Newton-seconds totalimpulse
Propellant mass: 22.0 grams

Apogee: F10-4,6,8 29 x 93mm

74.3 Newton-seconds total impulse
Propellant mass: 40.0 grams

R = Reloadable, S = Single Use Motor

splashdown near the carrier USS Kearsarge near Midway Island in the Pacific, he pronounced himself "healthy as a bear" and "happy as a lark."

Schirra's Gemini flight with Stafford was something of an improvisation. They had been scheduled to rendezvous in orbit with an unmanned Agena to be launched 90 minutes before the Gemini liftoff. But six minutes after the Atlas-Agena left the pad it exploded, and the Gemini 6-A launch was postponed.

Eventually it was decided to use Gemini 7 as a rendezvous target for Gemini 6-A. Both were to be launched from Pad 19 at Cape Canaveral, so a record turnaround of the launch pad was necessary. Working around the clock, crews got the pad ready in just eight days after the Gemini 7 liftoff.

The Gemini 6-A countdown reached zero on Dec. 12, 1965, and the rocket engines ignited - then shut down. The two astronauts had to wait almost half an hour atop the fueled rocket before getting out of the capsule. The problem turned out to be minor, the failure of an electrical connection.

Three days later, Gemini 6-A was launched without a hitch. The mission proved the spacecraft could be readily maneuvered. It was an encouraging development in the race to reach the moon.

By the launch of Apollo 7 in October 1968, the moon landing seemed to be coming within reach. The success of the flight proved that it was. Accomplishments of the mission commanded by Schirra resulted in the next flight, Apollo 8, being sent around the moon.

Apollo 7 had not been all smooth sailing. All three astronauts had colds. Schirra was occasionally firm in rejecting requests from the ground to insert additional events in the already-crowded flight plan.

"Television will be delayed, without any further discussion, until after the rendezvous" (with a spent rocket stage), he said. He subsequently was even more critical of efforts to add events to the flight plan. Eventually the almost daily television transmissions from Apollo 7 became popular mainstays of the mission coverage. Schirra subsequently apologized for the tone of some of his criticisms, though not for their content.

After leaving NASA, he participated in a number of television presentations and films, and served as national spokesman for several organizations and companies. He also held numerous directorships for a variety of businesses, in addition to his consulting work. He also wrote two books, "We Seven" published in 1960 and "Schirra's Space" published in 1988.

Schirra's military awards included the Navy Distinguished Service Medal, three Distinguished Flying Crosses, three Air Medals, two NASA Distinguished Service Medals, the NASA Exceptional Service Medal and the Philippines Legion of Honor.

He was awarded honorary doctorates by several institutions of higher learning.

He was active in a number of organizations. He was on the Advisory Committee of the Oceans Foundations, the Advisory Board/Council of U.S. National Parks, the Advisory Board of International "Up With People" and was a founding member and director of the Mercury Seven Foundation.

He also was a director of the San Diego Aerospace Museum, a trustee of the Scripps Aquarium, and a member of the International Council of the Salk Institute.
Schirra lived in Rancho Santa Fe, Calif. Survivors include his wife Josephine, his daughter Suzanne and son Walter Schirra III.

Images and video from Schirra's years with NASA can be seen at: http://www.nasa.gov/vision/space/features/walter_schirra.html

NASA Space Place

THE IONS OF DAWN

By Patrick L. Barry

This summer, NASA will launch a probe bound for two unexplored worlds in our solar system's asteroid belt—giant asteroids Ceres and Vesta. The probe, called Dawn, will orbit first one body and then the other in a never-before-attempted maneuver.

It has never been attempted, in part, because this mission would be virtually impossible with conventional propulsion. "Even if we were just going to go to Vesta, we would need one of the largest rockets that the U.S. has to carry all that propellant," says Marc Rayman, Project System Engineer for Dawn at JPL. Traveling to both worlds in one mission would require an even bigger rocket.

This is a trip that calls for the *un*conventional. "We're using ion propulsion," says Rayman.

The ion engines for the Dawn spacecraft proved themselves aboard an earlier, experimental mission known as Deep Space 1 (DS1). Because ion propulsion is a relatively new technology that's very different from conventional rockets, it was a perfect candidate for DS1, a part of NASA's New Millennium Program, which flight-tests new technologies so that missions such as Dawn can use those technologies reliably.

"The fact that those same engines are now making the Dawn mission possible shows that New Millennium accomplished what it set out to," Rayman says.

Artist's rendering of Dawn spacecraft, with asteroids. Largest are Vesta and Ceres. Credits: Dawn spacecraft—Orbital Sciences Corporation; background art—William K. Hartmann, courtesy UCLA

Ion engines work on a principle different from conventional rockets. A normal rocket engine burns a chemical fuel to produce thrust. An ion engine doesn't burn anything; a strong electric field in the engine propels charged atoms such as xenon to very high speed. The thrust produced is tiny—roughly equivalent to the weight of a piece of paper—but over time, it can generate as much speed as a conventional rocket while using only about 1/10 as much propellant.

And Dawn will need lots of propulsion. It must first climb into Vesta's orbit, which is tilted about 7 degrees from the plane of the solar system. After studying Vesta, it will have to escape its gravity and maneuver to insert itself in an orbit around Ceres—the first spacecraft to orbit two distant bodies. Dawn's up-close views of these worlds will help scientists understand the early solar system.

"They're remnants from the time the planets were being formed," Rayman says. "They have preserved a record of the conditions at the dawn of the solar system."

Find out about other New Millennium Program validated technologies and how they are being used in science missions at http://nmp/TECHNOLOGY/infusion.html . While you're there, you can also download "Professor Starr's Dream Trip," a storybook for children about how ion propulsion enabled a scientist's dream of visiting the asteroids come true is available at http://spaceplace.nasa.gov/en/kids/nmp/starr.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

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Launch Schedule

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 2:00PM

June 3rd

SPORT LAUNCH
Old National Pike
10:00AM - 04:00PM

June 16th

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 3:00PM

July 15th