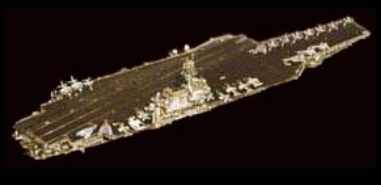
THE WRIGHT STUFF



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THE WRIGHT STUFF

Volume 24 - Number 2

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Publisher . . . . . J.R. Fisher
Editor . . . . . John Troan

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TOOL BOX: Dell D810; Lotus WordPro; Adobe Acrobat.

IMAGES - Title Banner

Wright Flyer from NASA/Ames PAO photo archive; *U.S.S. Kitty Hawk* (USN CV-63) from navicp.navy.mil; *Constitution* class cruiser from gwu.edu/~rljones/khawk.

IMAGE - Featured Front Page

Orbital Sciences Corporation's Antares rocket launching on its first test flight from Pad-0A at Wallops Island, Virginia, on April 21, 2013. From nasa.gov.

A View From the Catbird Seat

By J.R. Fisher

It is almost that time! A new STAR TREK movie! Once again we are invited to set up a table at the Raleigh Grande and recruit for Starfleet the first weekend of the new movie. That will be the 18th of May, from about 10 a.m. until we want to go home; probably around 10 p.m.

We are invited to come to the early showing of the film on the night of the 16th. There will probably be several times available that evening with the usual midnight show. IMAX theaters will be offering a midnight show on the previous Wednesday night for around $15.00. The Grande is not an IMAX, so that option is not offered to us.

If you do not want to attend the early midnight showings, you may attend one of the showings on the 18th if you are working our table. We and they prefer that you come in uniform. I know that some of us will have difficulty in getting into our old uniforms (including me). So this would be a good time to start dieting in order to achieve that goal. I started today! Other STAR TREK costumes are also welcome! Let's make this happen!

The Grande is planning on putting up advertising this week with the arrival of a banner. John Troan has printed a large letter for the ship's I.D. (NCC-1701) and the Grande is trying to get it printed in single sheets to be attached to the roof of their refreshment stand, which you may recall is saucer-shaped! They are also trying to restore the *Enterprise* that they built for the last movie and hang it in the lobby. There are several other efforts being made to enhance the lobby area for this movie. Some of their staff are expected to be in uniform/costume as well.

Expect a call to see if you are available for this event and when you can participate. We would like to have as many of you as possible. Any suggestions you have are welcome. We anticipate coverage by several media groups at this theater.

On other news, don't forget that the Region I Summit is the first weekend in May at Pigeon Forge, Tennessee.

The NC Lottery has a STAR TREK scratch-off ticket ($2.00) with a grand prize being a trip to Las Vegas to the huge STAR TREK convention this summer.

The ever-popular Shore Leave 35 is in August this year when we do not have a meeting. No further details available at this time. Con-Carolina is coming up soon as is ConTemporal in late June. Both should be fun.

We did not get the attendance at the UNC-TV Festival necessary to have a live ad but we did receive a shout-out. Maybe next year we can have a better showing.

I hope we see all of you at the May 4th meeting; usual time and place. We will talk further about our efforts to celebrate the new movie and plan the remainder of our summer.

Until then, remember you have the *Wright Stuff*, and act accordingly.

Esse Quam Videri

Science Report
By Spring Brooks

Space harpoon plan to nail orbital garbage

What do you do with 6,000 tons of space junk traveling at thousands of miles an hour? Harpoon it of course. It might sound like a scenario straight off the pages of a science fiction novel but it is a suggested solution to an increasing and potentially costly problem in space -- that of debris littering low earth orbit.

Engineer Jaime Reed, who is leading the harpoon project for the space technology company Astrium, explains that if a rogue satellite hits another, not only does it ruin the mission but it creates more debris and propagates the problem. This run-away scenario is often called the Kessler Syndrome, named after NASA's Don Kessler who first highlighted the risk.

"There's a lot of space debris -- 6,000 tons in orbit -- that could pose a threat," said Reed.

"Perhaps unwittingly, the average person relies a lot on space -- GPS in their phones, telecoms, TV, weather forecasts -- they are things people expect to have," he said.

Astrium's plan to tackle defunct satellites is to use an unmanned chase spacecraft to get in range, fire a barbed harpoon into the body of the rogue hardware and then use a smaller propulsion unit attached to a tether to tow it back towards the atmosphere where it will burn up safely on re-entry. Reed estimates that the system could tackle 10 targets per mission and says simulations show that if five to 10 objects were removed each year then that would "stabilize the debris population." He said he hoped the next step would be a demonstration mission to capture something small.

So how big is the problem? According to NASA there are about 20,000 pieces of space junk bigger than 10 cm (3.9 inches) and its chief scientist for orbital debris Nicholas L. Johnson says most robotic satellite missions are vulnerable to particles as small as 5 mm (0.2 inches) -- there are thought to be millions of those in orbit.

The NASA scientist said the odds of an operational satellite being disabled by space debris remain quite small, though he points out that two have been lost after being hit by man-made debris -- a French satellite in 1996 and an American craft in 2009. Last month, CNN reported that space debris left over from a 2007 Chinese missile test had collided with a Russian satellite, according to a researcher at the Center for Space Standards & Innovation.

And in 2012 the crew of the space station were ordered into escape capsules as a precaution after a piece of debris passed close by.

The focus over the last 30 years has been on mitigation but NASA and other space agencies are looking at ways to remove large derelict spacecraft and rocket launch stages from low earth orbit.

The harpoon is clearly aimed at capturing the larger objects but many other solutions have been proposed, including the use of lasers to nudge space junk out of the way, or using giant nets and space tugs.

"It's a very active area," said Reed. "Lots of people are coming up with ideas."

From CNN

Computer Operations Report
By John Troan

It's been a couple of issues since I wrote something, so I figured I'd do a little space-filling in this issue.

A couple of the next generation of NASA rocket scientists are currently studying the F-1 engines from the Apollo-era Saturn V rockets. They've already done a full-resolution scan of an unused F-1 NASA has at Marshall Space Flight Center in Alabama. They then did a test fire of the gas generator from another F-1 (previously on display at Udvar Hazy). The gas generator is simply a secondary engine that was used to power the fuel and oxidizer pumps that fed the main engine. (They had wanted to test fire a full F-1, but it would've been interestingly bad to do it at Marshall.) The full story with a couple of videos is on-line.

Several recent NASA press releases have caught my attention and are very interesting reading --

- How JPL works through the math in targeting asteroids for impacts.
- The *Kepler* mission has discovered its smallest planets in their respective habitable zones.
- Testing has started on a new communication system (SCaN) that links the space station to the support systems on the ground.
- Travel along with the *Voyager* probes, using a web-based video game.
- The *Cassini* mission has sent back the first pictures of meteors colliding with Saturn's rings.

NASA Partner Orbital Sciences Test Launches Antares Rocket

From NASA

[This is the NASA press release that's (loosely) associated with this month's cover image.]

NASA commercial space partner Orbital Sciences Corporation Sunday launched its Antares rocket at 5 p.m. EDT from the new Mid-Atlantic Regional Spaceport Pad-0A at the agency's Wallops Flight Facility in Virginia.

The test flight was the first launch from the pad at Wallops and was the first flight of Antares, which delivered the equivalent mass of a spacecraft, a so-called mass simulated payload, into Earth's orbit.

"Today's successful test marks another significant milestone in NASA's plan to rely on American companies to launch supplies and astronauts to the International Space Station, bringing this important work back to the United States where it belongs," said NASA Administrator Charles Bolden. "Congratulations to Orbital Sciences and the NASA team that worked alongside them for the picture-perfect launch of the Antares rocket. In addition to providing further evidence that our strategic space exploration plan is moving forward, this test also inaugurates America's newest spaceport capable of launching to the space station, opening up additional opportunities for commercial and government users.

"President Obama has presented a budget for next year that ensures the United States will remain the world leader in space exploration, and a critical part of this budget is the funding needed to advance NASA's commercial space initiative. In order to stop outsourcing American space launches, we need to have the President's budget enacted. It's a budget that's good for our economy, good for the U.S. Space program -- and good for American taxpayers."

The test of the Antares launch system began with the rocket's rollout and placement on the launch pad April 6, and culminated with the separation of the mass simulator payload from the rocket.

The completed flight paves the way for a demonstration mission by Orbital to resupply the space station later this year. Antares will launch experiments and supplies to the orbiting laboratory carried aboard the company's new Cygnus cargo spacecraft through NASA's Commercial Resupply Services (CRS) contract.

"Today's successful test flight of Orbital Sciences' Antares rocket from the spaceport at Wallops Island, Virginia, demonstrates an additional private space-launch capability for the United States and lays the groundwork for the first Antares cargo mission to the International Space Station later this year," said John Holdren, director of the Office of Science and Technology Policy. "The growing potential of America's commercial space industry and NASA's use of public-private partnerships are central to President Obama's strategy to ensure U.S. leadership in space exploration while pushing the bounds of scientific discovery and innovation in the 21st century. With NASA focusing on the challenging and exciting task of sending humans deeper into space than ever before, private companies will be crucial in taking the baton for American cargo and crew launches into low-Earth orbit.

"I congratulate Orbital Sciences and the NASA teams at Wallops, and look forward to more groundbreaking missions in the months and years ahead."

Orbital is building and testing its Antares rocket and Cygnus spacecraft under NASA's Commercial Orbital Transportation Services (COTS) program. After successful completion of a COTS demonstration mission to the station, Orbital will begin conducting eight planned cargo resupply flights to the orbiting laboratory through NASA's $1.9 billion CRS contract with the company.

NASA initiatives, such as COTS, are helping to develop a robust U.S. commercial space transportation industry with the goal of achieving safe, reliable and cost-effective transportation to and from the International Space Station and low-Earth orbit. NASA's Commercial Crew Program also is working with commercial space partners to develop capabilities to launch U.S. astronauts from American soil in the next few years.

For more information about the upcoming Orbital test flights, and links to NASA's COTS and Commercial Crew programs, visit http://www. nasa.gov/orbital .

For information on Orbital's Antares launch vehicle, visit http://www.orbital.com/Antares .

Hubble Sees a Horsehead of a Different Color

From NASA

Astronomers have used NASA's Hubble Space Telescope to photograph the iconic Horsehead Nebula in a new, infrared light to mark the 23rd anniversary of the famous observatory's launch aboard the space shuttle Discovery on April 24, 1990.

Looking like an apparition rising from whitecaps of interstellar foam, the iconic Horsehead Nebula has graced astronomy books ever since its discovery more than a century ago. The nebula is a favorite target for amateur and professional astronomers. It is shadowy in optical light. It appears transparent and ethereal when seen at infrared wavelengths. The rich tapestry of the Horsehead Nebula pops out against the backdrop of Milky Way stars and distant galaxies that easily are visible in infrared light.

Hubble has been producing ground-breaking science for two decades. During that time, it has benefited from a slew of upgrades from space shuttle missions, including the 2009 addition of a new imaging workhorse, the high-resolution Wide Field Camera 3 that took the new portrait of the Horsehead.

The nebula is part of the Orion Molecular Cloud, located about 1,500 light-years away in the constellation Orion. The cloud also contains other well-known objects such as the Great Orion Nebula (M42), the Flame Nebula, and Barnard's Loop. It is one of the nearest and most easily photographed regions in which massive stars are being formed.

In the Hubble image, the backlit wisps along the Horsehead's upper ridge are being illuminated by Sigma Orionis, a young five-star system just out of view. Along the nebula's top ridge, two fledgling stars peek out from their now-exposed nurseries.

Scientists know a harsh ultraviolet glare from one of these bright stars is slowly evaporating the nebula. Gas clouds surrounding the Horsehead already have dissipated, but the tip of the jutting pillar contains a slightly higher density of hydrogen and helium, laced with dust. This casts a shadow that protects material behind it from being stripped away by intense stellar radiation evaporating the hydrogen cloud, and a pillar structure forms.

The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency. NASA's Goddard Space Flight Center in Greenbelt, Md., manages the telescope. The Space Telescope Science Institute (STScI) in Baltimore, Md., conducts Hubble science operations. STScI is operated by the Association of Universities for Research in Astronomy Inc., in Washington.

For images and more information about the Horsehead Nebula, visit:

- http://hubblesite.org/news/2013/12
- http://heritage.stsci.edu/2013/12
- http://www.spacetelescope.org/news/heic1307/
- http://www.nasa.gov/hubble

Voyager - *The Seven*
By Brad McDonald

ACT ONE

FADE IN:

(NOTE: Episode credits fall over opening scenes.)

EXT. SPACE - VOYAGER

Voyager is at warp speed, we hear Janeway's voice in the B. G.

JANEWAY
Captain's log, star date 59540.6. We have entered an area of space which is regarded by the local inhabitants as haunted.

INT. BRIDGE

JANEWAY
(continuing)
However, in over a weeks travel, we have found little evidence to support their beliefs.

KIM
Captain, I've got something very interesting on my sensor readings.

JANEWAY
Not a ghost, I trust.

KIM
Better than that. A quad star system, dead ahead.

Janeway stands and moves to Kim.

JANEWAY
Really? What configuration?

KIM
(off work station)
A white dwarf orbited by a blue giant. There are two smaller stars, a red dwarf and a Sol type orbiting the blue giant.

CHAKOTAY
Now that's what I call a find.

JANEWAY
You never disappoint me, Harry. Can we get a visual?

PARIS
Bringing it up now.

ANGLE ON MAIN VIEWER

The quad systems appears just as Kim has described.

JANEWAY
(absently)
One in a million.

TUVOK
More like a billion. Fewer than a half dozen quad systems have been discovered in the Alpha Quadrant.

CHAKOTAY
I know we're in a hurry to exit this space --

JANEWAY
(interrupting)
Save the sales pitch, we must take a closer look. I'm not going to miss an opportunity of a lifetime.
(to the others)
Anybody care to join me?

Kim is very excited and eager.

KIM
Absolutely... I mean, affirmative.

JANEWAY
Relax Harry, you're attitude is completely understandable.
Besides, you found it. We should let you name it as well.

PARIS
How about 'Kim's Quad'?

The others groan and complain loudly.

KIM
Has a nice ring to it. Wouldn't it be better to get a look from several angles?

JANEWAY
I agree. Let's launch several shuttles. Each one can approach from a different vector.

CHAKOTAY
Analyze magnetic field intensity, and gravimetric influences that star has on the other. Plus the radiation, solar flares, loss of material from the other stars to the white dwarf...

He leaves the statement unfinished, mesmerized by the sight.

JANEWAY
I'm glad to see everyone agrees. Harry, you take a shuttle and I'll go as

well. I'll bet Seven would like a look as well. Chakotay, mind the store and continue the readings from Voyager. Tom, come to a stop just outside a safe distance from the quad.

PARIS
Understood. May I join the team?

She smiles at him in understanding. An N.D. CREW PERSON takes Kim's place.

JANEWAY
Can't resist? Why not? Come along.

Janeway and Kim move to exit.

CHAKOTAY
(joking)
Don't be too long. I hate being in 'haunted' space alone.

She's amused by the statement, but understands the concern.

JANEWAY
I hear you, Commander. Just long enough to satisfy the scientist in your captain. Fair enough?

An N.D. PILOT takes Paris' post and he joins Janeway and Kim.

CHAKOTAY
Fair enough. We'll study the local worlds and how they are influenced by the quad.

JANEWAY
Sounds like a full day ahead. You have the conn.

The three exit.

SHUTTLE BAY

Janeway, Kim, Paris and Seven are grouped; Janeway hands out data padds to each, while explaining.

JANEWAY
Here are your operational parameters. I've divided the work equally. Voyager will coordinate and provide a data link. Communication will be difficult near the white dwarf, so take a lot of readings and we'll compare notes later. Contact Voyager every half hour.

They all nod in agreement.

EXT. SPACE - VOYAGER AND SHUTTLES

We see the shuttles as they exit Voyager and head off in various directions.

INT. SHUTTLE

Janeway is fascinated by the Quad Star System. Her comm badge sounds and she taps it, still intent on her work.

JANEWAY
Janeway here!

CHAKOTAY'S VOICE
Captain, just a friendly reminder, don't get too close, no matter how interesting it gets.

She's amused by the observation.

JANEWAY
You're a mind reader, Commander. How are things going with your study of the local planets?

CHAKOTAY'S VOICE
Believe it or not, there are two class M planets nearby. The life forms there are very different.

JANEWAY
No doubt. No darkness, constant radiation and magnetic fields, it's a wonder anything could exist.

CHAKTOAY'S VOICE
We'll have a complete catalog for you when you get back. Voyager out.

EXT. SPACE - SHUTTLE AND WHITE DWARF

The shuttle is moving slowly across the white dwarf's equator.

INT. SHUTTLE

Janeway is absorbed in her work.

JANEWAY
Computer, how long before my next scheduled communication?

COMPUTER
Communication was scheduled for seven minutes, twelve seconds ago.

Janeway looks up from her work, realizing her error.

JANEWAY
Oops! Computer, open a channel to Voyager.
(to self)
I'm surprised Chakotay didn't check on me.

COMPUTER
Channel open.

JANEWAY
Janeway to Voyager, Chakotay?

After a brief pause:

JANEWAY
Computer, is the white dwarf interfering with communications?

COMPUTER
At current distance and conditions, there is a fifty per cent possibility of communication interference.

She sighs and moves over to the pilot's seat and begins to operate the controls.

EXT. SPACE - SHUTTLE

The shuttle moves away from the white dwarf, soon we see Voyager in the distant B. G.

INT. SHUTTLE

JANEWAY
Janeway to Voyager.

After a moment she taps her comm badge.

JANEWAY
Chakotay, respond please.

After another pause, she becomes concerned.

JANEWAY
Computer, is the communications equipment working?

COMPUTER
Affirmative, systems are fully functional.

NEW ANGLE

She now is very concerned and settles into the pilot seat, heading the shuttle directly for Voyager.

JANEWAY
Computer, establish communication links to the other shuttles.

COMPUTER
Unable to comply, other shuttles not within communication range.

JANEWAY
(to self)
Meaning they returned to Voyager or they are behind the quad suns.

JANEWAY'S P.O.V.

We see Voyager getting larger, she taps her comm badge more vigorously, very worried.

JANEWAY'S VOICE
Janeway to Voyager, anybody, please respond.

There is a pause, then Janeway poses a question, afraid of the possible answer.

AS BEFORE

JANEWAY
Computer, scan Voyager. What is the location of the crew?

COMPUTER
Scan complete. There are no life signs aboard Voyager at this time.

Janeway is shocked.

JANEWAY
What? Where did they all go?

COMPUTER
Unknown, incomplete data.

Janeway now poses another question, equally afraid of the answer.

JANEWAY
Computer. Are the other shuttles aboard Voyager?

COMPUTER
Affirmative. All shuttlecraft are accounted for.

Janeway now sits back in her seat, defeated.

JANEWAY'S P. O. V.

Voyager is motionless in space.

JANEWAY'S VOICE
(to self)
Then my entire crew is gone and I'm alone.

Off her statement...

FADE OUT.

END OF ACT ONE

Puzzle - ST:TNG Mix and Match (Episodes)
From U.S.S. Kitty Hawk Puzzle Book

Match the plot line to the episode title.

1. ___ Data's daughter
2. ___ First encounter with the Borg
3. ___ Picard on Risa
4. ___ Crystalline entity destroyed
5. ___ Troi almost marries
6. ___ Emotions out of control
7. ___ Altered soldiers
8. ___ Troi's son
9. ___ Different points of view
10. ___ Riker's coma
11. ___ Data's sentience proved
12. ___ Inquisition out of control
13. ___ Worf returns to Starfleet
14. ___ Communication problem
15. ___ Exchange program
16. ___ Worf mates
17. ___ Powerless Q
18. ___ Locutus emerges
19. ___ Picard's nephew
20. ___ Cellulary altered killer
21. ___ Alexander's mother dies
22. ___ Homes and Watson
23. ___ Data's friend
24. ___ Rite of Ascension
25. ___ Data dances
26. ___ Boothy visited

A. *Silicon Avatar*
B. *A Matter of Perspective*
C. *The Hunted*
D. *Captain's Holiday*
E. *The Child*
F. *Redemption II*
G. *The Measure of a Man*
H. *The Offspring*
I. *Shades of Gray*
J. *Haven*
K. *Darmok*
L. *Q Who*
M. *The Drum Head*
N. *Sarek*
O. *Deja Q*
P. *Family*
Q. *The Vengeance Factor*
R. *Elementary, Dear Data*
S. *The Emissary*
T. *The Icarus Factor*
U. *A Matter of Honor*
V. *The Best of Both Worlds*
W. *Data's Day*
X. *Pen Pals*
Y. *Reunion*
Z. *The First Duty*

Answers to last issue's puzzles --

ST:TNG Character Mix and Match
1. J 2. Q 3. A 4. L 5. C 6. M 7. T 8. B 9. F 10. P 11. D
12. K 13. O 14. S 15. E 16. H 17. R 18. I 19. N 20. G

ST:TNG Planet Mix and Match
1. I 2. H 3. L 4. F 5. A 6. K 7. E 8. C 9. G 10. D 11. B 12. J

Upcoming Events

May	**4**	**4 p.m. Ship Meeting, Triangle Factory Outlet**
	17	**Theatrical Release of *Star Trek Into Darkness***
	18	***Kitty Hawk* table at Raleigh Grande (see JR's article for details)**
Jun	**1**	**4 p.m. Ship Meeting, Triangle Factory Outlet**

DON'T FORGET TO CHECK YOUR STARFLEET STATUS

THE WRIGHT STUFF
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