

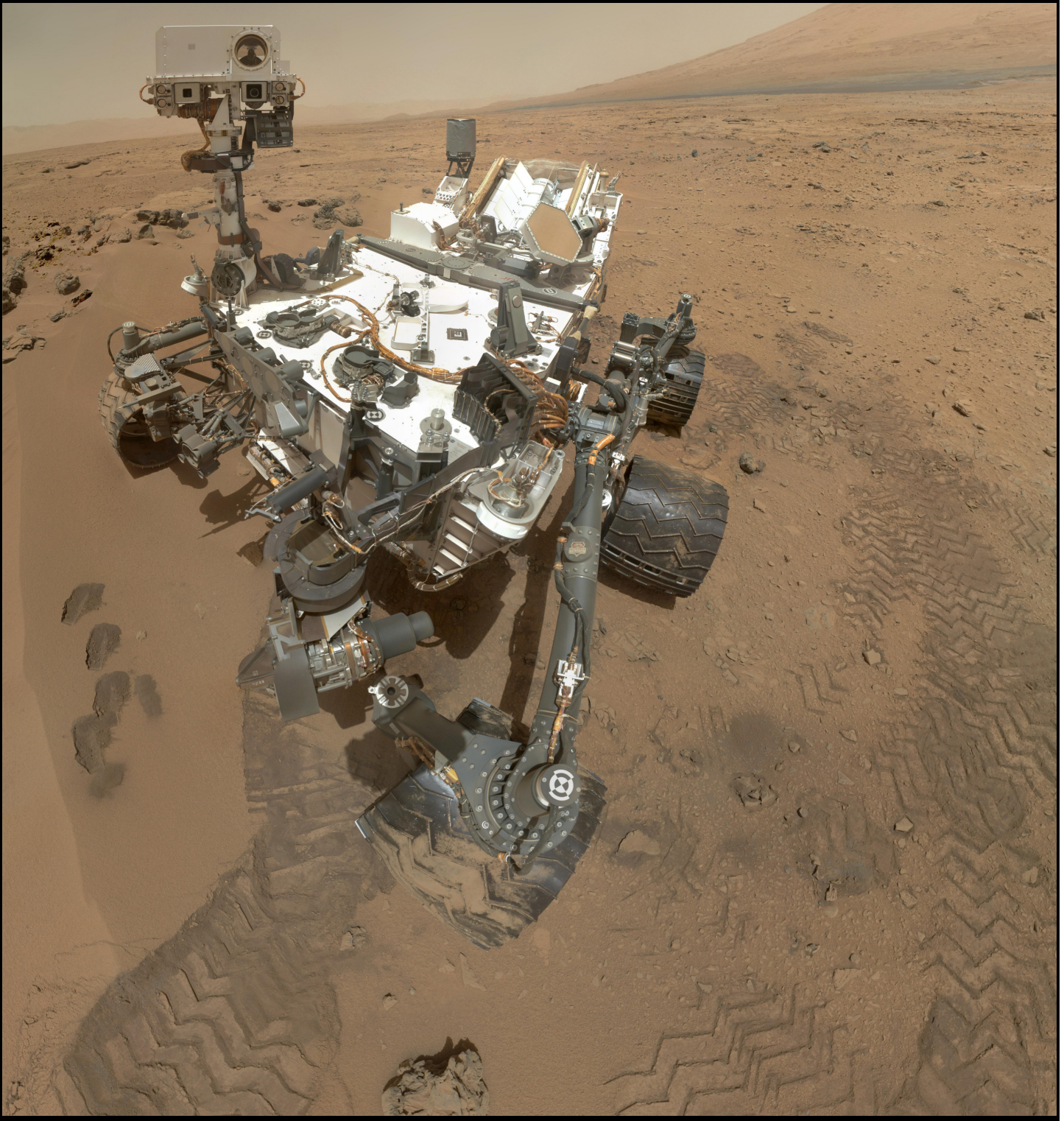
THE WRIGHT STUFF



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THE WRIGHT STUFF

Volume 24 - Number 5

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Publisher J.R. Fisher
 Editor John Troan



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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

Mosaic of images from *Curiosity*'s MAHLI (camera), taken on Oct 31, 2013, while the rover was at "Rocknest" in Mars' Gale Crater. (See page 5 for full detail.) From NASA/JPL.



A View From the Catbird Seat

By J.R. Fisher



It is so good to be meeting with you again and seeing everyone in person. While the turnout was low for our October meeting, we

had a good time. The new management for the mall was setting up for the opening ceremonies the next day and there was plenty of activity and entertainment. The mall is really shaping up quickly.

We had hoped that we would have an inventory of what we have collected and donated to Ms. Poole's kids ready for this issue of the newsletter, but it seems there is a computer glitch keeping her from accessing the data. Therefore, she is trying to recreate the inventory from her handwritten notes. We hope to print it in the next issue of The Wright Stuff.

In the meantime, she does have a continuing need for certain items as she is in the fourth month of her year-round classes. The list is specific and includes:

- Notebook paper - college-ruled and wide-ruled
- Mechanical pencils (7 pt lead)
- Lead refill - 7 pt
- Colored pencils, preferably Crayola
- Dry erase markers
- Dividers (for organizing 3-ring binders)
- Manila folders (3rd cut)
- Copy paper
- Ink cartridges for Canon 6 printer
- Ink cartridges - HP 950 and HP 951
- Writing journals - usually black marble cover but now comes in several different designs
- (No spiral notebooks needed)
- Kleenex
- Large hand sanitizer

It is fall and time for the State Fair. We hope some of you will take advantage of this and the good weather and go out and have a good time and enjoy all the great food. Halloween is just around the corner and while we do not have plans for a ship's event, we hope that those of

you who do participate in the holiday activities will do so safely.

Our numbers are down with STARFLEET, so I must ask you to check your membership status and get current with them. We are below minimum strength of 10 at this time so please renew ASAP. If you are having a problem, please contact me personally.

The October meeting was two days short of our 23rd anniversary of our commissioning. It does not seem that it has been that long. We need to start planning for our 25th now, so as to make it a huge celebration! Speaking of which, our 24th anniversary of our launch, which we feel is more significant, is just two months off and we need to get that planned as well. When you come to the November meeting, we will need to make a final decision regards time and place and numbers. Give it serious thought between now and then.

Esse Quam Videri

Computer Operations Report

By John Troan

[StarTrek.com](#) has had a couple of interesting postings of late. Larry Cox (a member of the *K.H.* crew) let me know about this story about [Trek and NASA's Voyager](#) and I ran across an item about a [new small-scale Star Trek ship collection being released](#). (The picture at right shows some of the ships in the new collection.)

In picking through the NASA press releases for this issue, I noticed they stopped arriving once the calendar hit October. I also couldn't pull additional content (including pics) for any press releases from NASA headquarters -- they shut off their web services during the federal shutdown. Fortunately, JPL (run largely by CalTech) still had their web services available and I was able to get a great picture for this month's cover.



Security Report

By Spring Brooks

Number Crunching Shows Old Movies Are More Creative Than New Ones

Tell your film buff friends they're right: the most creative period in cinema history was probably the 1960s. At least that's the takeaway from a detailed data analysis of novel and unique elements in movies throughout much of the 20th century.

How do you objectively measure creativity in movies? Though there's probably no perfect way, the recent research mined keywords generated by users of the website the Internet Movie Database (IMDb), which contains descriptions of more than 2 million films. When summarizing plots, people on the site are prompted to use keywords that have been used to describe previous movies, yielding tags that characterize particular genres (cult-film), locations (manhattan-new-york), or story elements (tied-to-a-chair).

Each keyword was given a score based on its rarity when compared to previous work. If some particular plot point – like, say, beautiful-woman – had appeared in many movies that preceded a particular film, it was given a low novelty value. But a new element – perhaps martial-arts, which appeared infrequently in films before the '60s – was given a high novelty score when it first showed up. The scores ranged from zero to one, with the least novel being zero. Lining up the scores chronologically showed the evolution of film culture and plots over time. The results appeared Sept. 26 in *Nature Scientific Reports*.

The researcher behind the findings, physicist Sameet Sreenivasan of the Rensselaer Polytechnic Institute in New York, was at first somewhat surprised at some of his results.

"I always hear about how the period from 1929 to 1950 was known as the Golden Age of Hollywood," he said. "There were big movies with big movie stars. But if you look at novelty

at that time, you see a downward trend."

This result is likely familiar to any student of film history, who knows that this golden age also corresponded to a time when nearly all movies were produced and released by a handful of studios. The Big Five in particular reigned supreme through the practice of block booking. Studios produced several A-movies with big stars and high production values. But local theatres, which were monopolistically owned by the Big Five, were forced to also show the studio's B-movies, often starring rising or fading actors and featuring formulaic plot lines.

When the studio system crumbled in the mid-50s, there was a burst of creativity. Audiences were introduced to independent films of the American New Wave genre — such as *Bonnie and Clyde*, released in 1967 — as well as European art house, French New Wave, spaghetti westerns, and Japanese cinema. The novel styles, plot lines, and film techniques create a noticeable uptick in Sreenivasan's analysis.

Unsurprisingly, the research also suggests that unfamiliar combinations of themes or plots that haven't been encountered before (something like sci-fi-western) often have the highest novelty scores.

"I think this reinforces this idea that novelty is often variations on a theme," said Sreenivasan. "You use familiar elements broadly, and then combine them in novel ways."

Sreenivasan's analysis shows trends within particular genres as well. Action movies are essentially redefined in 1962 with the release of the first James Bond movie. Science-fiction films, on the other hand, show no similar creative uptick during the same period. According to the analysis, novelty in sci-fi has declined essentially since the genre first made it into movies. It's possible that this has to do with early science-fiction films codifying the major tropes seen in these movies.

Another part of the analysis seem to correspond to theories put forth by

social scientists about how much we enjoy novelty in creative works, said Sreenivasan. In general, humans enjoy new things. More specifically, there's a tendency for people to look at and like things that are new but not too new.

"If it's way out there, it's hard to palate," said Sreenivasan. "And if it's too familiar, then it seems boring."

A model known as the Wundt-Berlyne curve illustrates this result. The amount of pleasure someone derives from a creative piece goes up as its novelty increases. But at a certain point, there is a maximum of enjoyment. After that, something becomes too unfamiliar to stomach anymore.

Using the revenue generated by different films as a measure of its mass appeal, Sreenivasan found that more novel films sold more tickets until they reached a score of about 0.8. Afterwards, they appeared to decline in popularity and revenue.

"I thought overall this was quite an interesting study," said mathematician and computer scientist Erez Lieberman Aiden of Baylor College of Medicine and Rice University, who helped develop Google's Ngram Viewer.

Aiden added that he wondered if there was some bias in the way tags were applied to older movies. Modern day audiences might not notice certain subtleties or differences in movies from the '30s, '40s, and '50s, perhaps making them appear more uniform in the final result. As well, cultural events at the time when a particular tag became heavily used could skew the results. People tagging movies shortly after 9/11 might be more inclined to use the word "terrorism" for instance.

Even with these potential sources of bias, Aiden said the study was "a good starting point for thinking about this question in a quantitative way."

From *WIRED* (Oct 10, 2013)

Curiosity Location Benefitting Martian Science

From NASA/JPL

Science Benefits From Diverse Landing Area of NASA Mars Rover

[The full version of this press release is available with additional images at http://www.jpl.nasa.gov/news/news.php?release=2013-291&cid=release_2013-291.]

NASA's *Curiosity* rover is revealing a great deal about Mars, from long-ago processes in its interior to the current interaction between the Martian surface and atmosphere.

Examination of loose rocks, sand and dust has provided new understanding of the local and global processes on Mars. Analysis of observations and measurements by the rover's science instruments during the first four months after the August 2012 landing are detailed in five reports in the Sept. 27 edition of the journal *Science*.

A key finding is that water molecules are bound to fine-grained soil particles, accounting for about 2 percent of the particles' weight at Gale Crater where *Curiosity* landed. This result has global implications, because these materials are likely distributed around the Red Planet.

Curiosity also has completed the first comprehensive mineralogical analysis on another planet using a standard laboratory method for identifying minerals on Earth. The findings about both crystalline and non-crystalline components in soil provide clues to the planet's volcanic history.

Information about the evolution of the Martian crust and deeper regions within the planet comes from *Curiosity*'s mineralogical analysis of a football-size igneous rock called "Jake M." Igneous rocks form by cooling molten material that originated well beneath the crust. The chemical compositions of the rocks can be used to infer the thermal, pressure and chemical conditions under which they crystallized.

"No other Martian rock is so similar to terrestrial igneous rocks," said Edward Stolper of the California Institute of Technology, lead author of a report about this analysis. "This is surprising because previously studied igneous rocks from Mars differ substantially from terrestrial rocks and from Jake M."

The other four reports include analysis of the composition and formation process of a windblown drift of sand and dust, by David Blake of NASA's Ames Research Center at Moffett Field, Calif., and co-authors.

Curiosity examined this drift, called Rocknest, with five instruments, performing an onboard laboratory analysis of samples scooped up from the Martian surface. The drift has a complex history and includes sand particles with local origins, as well as finer particles that sample windblown Martian dust distributed regionally or even globally.

The rover is equipped with a laser instrument to determine material compositions from some distance away. This instrument found that the fine-particle component in the Rocknest drift matches the composition of windblown dust and contains water molecules. The rover tested 139 soil targets at Rocknest and elsewhere during the mission's first three months and detected hydrogen -- which scientists interpret as water -- every time the laser hit fine-particle material.

"The fine-grain component of the soil has a similar composition to the dust distributed all around Mars, and now we know more about its hydration and composition than ever before," said Pierre-Yves Meslin of the Institut de Recherche en Astrophysique et Planétologie in Toulouse, France, lead author of a report about the laser instrument results.

A laboratory inside *Curiosity* used X-rays to determine the composition of Rocknest samples. This technique, discovered in 1912, is a laboratory standard for mineral identification on Earth. The equipment was miniaturized to fit on the spacecraft that carried *Curiosity* to Mars, and this has yielded spinoff benefits for similar portable devices used on Earth. David Bish of Indiana University in Bloomington co-authored a report about how this technique was used and its results at Rocknest.

X-ray analysis not only identified 10 distinct minerals, but also found an unexpectedly large portion of the Rocknest composition is amorphous ingredients, rather than crystalline minerals. Amorphous materials, similar to glassy substances, are a component of some volcanic deposits on Earth.

Another laboratory instrument identified chemicals and isotopes in gases released by heating the Rocknest soil in a tiny oven. Isotopes are variants of the same element with different atomic weights. These tests found water makes up about 2 percent of the soil, and the water molecules are bound to the amorphous materials in the soil.

"The ratio of hydrogen isotopes in water released from baked samples of Rocknest soil indicates the water molecules attached to soil particles come from interaction with the modern atmosphere," said Laurie Leshin of Rensselaer Polytechnic Institute in Troy, N.Y., lead author of a report about analysis with the baking instrument.

Baking and analyzing the Rocknest sample also revealed a compound with chlorine and oxygen, likely chlorate or perchlorate, which previously was known to exist on Mars only at one high-latitude site. This finding at *Curiosity*'s equatorial site suggests more global distribution.

Data obtained from *Curiosity* since the first four months of the rover's mission on Mars are still being analyzed. NASA's Jet Propulsion Laboratory, a division of Caltech in Pasadena, Calif., manages the mission for NASA's Science Mission Directorate in Washington. The mission draws upon international collaboration, including key instrument contributions from Canada, Spain, Russia and France.

For more information about the mission, visit <http://www.jpl.nasa.gov/msl>, <http://www.nasa.gov/msl> and <http://mars.jpl.nasa.gov/msl>.

Front Cover Image Details. On Sol 84 (Oct. 31, 2012), NASA's *Curiosity* rover used the Mars Hand Lens Imager (MAHLI) to capture this set of 55 high-resolution images, which were stitched together to create this full-color self-portrait.

The mosaic shows the rover at "Rocknest," the spot in Gale Crater where the mission's first scoop sampling took place. Four scoop scars can be seen in the regolith in front of the rover.

The base of Gale Crater's 3-mile-high (5-kilometer) sedimentary mountain, Mount Sharp, rises on the right side of the frame. Mountains in the background to the left are the northern wall of Gale Crater. The Martian landscape appears inverted within the round, reflective ChemCam instrument at the top of the rover's mast.

Self-portraits like this one document the state of the rover and allow mission engineers to track changes over time, such as dust accumulation and wheel wear. Due to its location on the end of the robotic arm, only MAHLI (among the rover's 17 cameras) is able to image some parts of the craft, including the port-side wheels.

Orbital Sciences Completes Inaugural Station Docking From NASA

NASA Partner Orbital Sciences Completes First Flight to Space Station as Astronauts Capture Cygnus Spacecraft

Astronauts aboard the International Space Station (ISS) used a robotic arm to capture and attach a Cygnus cargo resupply spacecraft Sunday, marking several spaceflight firsts for NASA and its partner, Orbital Sciences Corp. of Dulles, Va.

The station's Expedition 37 crew reported the spacecraft -- loaded with about 1,300 pounds (589 kilograms) of cargo -- berthed at 8:44 a.m. EDT, following an 11-day journey to the orbiting laboratory.

Orbital's Cygnus was launched on the company's Antares rocket on Sept. 18 from the Mid-Atlantic Regional Spaceport Pad-0A at NASA's Wallops Flight Facility in Virginia. This was the first flight of a spacecraft to the space station from the state.

The maiden flight of Cygnus included a number of systems tests prior to rendezvous with the station. The cargo includes student experiments, food and clothing, which will be unloaded by the station crew following hatch opening Monday.

Future Cygnus flights will ensure a robust national capability to deliver critical science research to orbit, significantly increasing NASA's ability to conduct new science investigations to the only laboratory in microgravity.

After a series of tests designed to demonstrate Cygnus' ability to navigate,

maneuver, lock on to the station and abort its approach, NASA cleared the spacecraft to approach the station Sunday morning. European Space Agency astronaut Luca Parmitano and NASA astronaut Karen Nyberg captured Cygnus with the station's robotic arm, then attached the capsule on the bottom of the station's Harmony node, completing installation by bolting the Cygnus to Harmony.

The capsule will remain attached to Harmony until a planned unberthing on Oct. 22 sends the spacecraft toward a destructive re-entry in Earth's atmosphere.

Cygnus had been scheduled for a rendezvous with the space station on Sept. 22. Due to a data format mismatch, the first rendezvous attempt was postponed. Orbital updated and tested a software patch to fix the issue. Cygnus' arrival also was postponed pending the Sept. 25 arrival of the Expedition 37 crew. Flight Engineer Michael Hopkins of NASA and Soyuz Commander Oleg Kotov and Flight Engineer Sergey Ryazanskiy of the Russian Federal Space Agency (Roscosmos) arrived at the space station aboard a Soyuz spacecraft Wednesday.

Orbital built and tested its Antares rocket and Cygnus spacecraft under NASA's Commercial Orbital Transportation Services (COTS) Program. The successful completion of this COTS demonstration mission will pave the way for Orbital to conduct eight planned cargo resupply flights to the space station

through NASA's \$1.9 billion Commercial Resupply Services 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 low-Earth orbit to meet the needs of both commercial and government customers. NASA's Commercial Crew Program also is working with commercial partners to enable the availability of U.S. commercial human spaceflight capabilities in the next few years.

The International Space Station is a convergence of science, technology and human innovation that demonstrates new technologies and makes research breakthroughs not possible on Earth. The space station has had continuous human occupation since November 2000. In that time it has been visited by more than 200 people and a variety of international and commercial spacecraft. The space station remains the springboard to NASA's next great leap in exploration, including future missions to an asteroid and Mars.

For more information about the Orbital demonstration mission, visit <http://www.nasa.gov/orbital>.

For more information about the International Space Station, visit <http://www.nasa.gov/station>.

Boeing Tests Thrusters For CST-100 Spacecraft

From NASA

NASA Commercial Partner Boeing Tests CST-100 Spacecraft Thrusters

Boeing's CST-100 spacecraft is one step closer to liftoff after a gauntlet of test firings of its steering jets at White Sands Space Harbor in Las Cruces, N.M.

Boeing and Aerojet Rocketdyne recently completed the tests, which simulated the demanding environment of space. The tests assessed how the thrusters -- which fire with 1,500 pounds of force -- will speed up, slow down and move the spacecraft while carrying NASA astronauts in Earth' orbit.

Boeing is developing a fully integrated crew transportation system, which includes the CST-100 spacecraft and the United Launch Alliance Atlas V rocket, in partnership with NASA's Commercial Crew Program (CCP). New commercial spaceflight capabilities being developed by NASA partners through commercial crew initiatives eventually could provide services to transport astronauts to and from the International Space Station, launching from American soil. Boeing is working on development milestones that are part of NASA's Commercial Crew Integrated Capability (CCiCap) initiative.

"Boeing and Aerojet Rocketdyne continue to show a path forward for NASA's low-Earth orbit crew transportation needs by implementing cutting-edge technologies and showcasing

decades of human spaceflight experience," said Ed Mango, CCP manager.

The CST-100's orbital maneuvering and attitude control (OMAC) system has 24 thrusters, giving it the ability to perform critical maneuvers in space such as those required to refine the CST-100's orbit, as well as the braking maneuver near the end of a mission that slows the spacecraft down before re-entry. The OMAC thrusters will be jettisoned when the service module is released from the capsule just before re-entry. Positioned in four clusters of six on the service module of the spacecraft, the thrusters could steer the spacecraft in case an emergency calls for it to separate from its rocket during launch or ascent.

During the tests, the OMAC thrusters were fired in a vacuum chamber that simulated the space-like environment at an altitude of 100,000 feet. These evaluations put the thrusters through the burns and stresses they would encounter during a real flight. Engineers equipped the jets with a host of instruments to measure changes in the smallest components.

"The CST-100 OMAC thrusters are an example of leveraging proven flight hardware solutions to ensure mission supportability," said John Mulholland, Boeing vice president and manager for commercial programs. "We are very pleased with the data collected during this second series of tests and with our overall team performance as we

continue to progress through CCiCap milestones on time and on budget."

Previous tests of the OMAC thrusters verified their durability in extreme heat, evaluated the opening and closing of their valves and confirmed continuous combustion and performance. Designers are using the results of these tests to validate or adjust their complex computer models that predict how a thruster and spacecraft will work during a mission.

"The OMAC engines met CCiCap test objectives," said Terry Lorier, Aerojet Rocketdyne's CST-100 Service Module Propulsion Program manager. Rocketdyne and Boeing are both pleased with the results and look forward to continuing our partnership."

With the completion of Milestone 9, Boeing is on track to meet all 20 of its CCiCap milestones by summer 2014. All of NASA's industry partners, including Boeing, continue to meet their established milestones in developing commercial crew transportation capabilities.

For more information about NASA's Commercial Crew Program and its aerospace industry partners, visit <http://www.nasa.gov/commercialcrew>.

Voyager - The Seven

By Brad McDonald

ACT FOUR

FADE IN:

EXTERIOR - SPACE - PLANET SEVEN

INTERIOR - DETENTION CELL

Chakotay, Kim, Seven and Paris are seated on built in benches. Janeway is pacing back and forth.

JANEWAY

So basically, we're here to provide unlimited labor for a race we know nothing about, for a purpose we are unsure of.

SEVEN

And we are not the first.

Seven kicks at an alien artifact.

CHAKOTAY

We haven't seen other beings, but it could be they're working somewhere else on the planet.

PARIS

Or they died long ago. I'd say that was possible, judging by the dust and the age of those artifacts.

KIM

Maybe they were just moved to another location long ago.

Janeway smiles at Kim's statement.

JANEWAY

Always the optimist, right Harry? Maybe they escaped. Any chance we can do the same?

CHAKOTAY

I checked that out today. Although we can't see our captors, they keep an eye on us. I tried to move outside our assigned work

area today and got a fairly potent electric shock for my efforts.

PARIS

There are sensors all over the mine we're working and the field workers said there's a similar system for their area too.

JANEWAY

Where did you see the others?

KIM

On our way to work, we get fed on the way to work and after. At least, that was the routine today.

PARIS

And the food is really bad.

CHAKOTAY

Three breaks for water and personal hygiene, no more. So we all have to pace ourselves for hard labor.

JANEWAY

What are the conditions like?

PARIS

Abysmal.

SEVEN

We are mining borite, a particularly high grade ore.

PARIS

Even under the best of conditions, it's tough work. But we have no protective clothing and all digging is done by hand.

KIM

The mines are unsafe structurally as well. No reinforcements or supports.

Janeway is frustrated and sits hard next to Chakotay.

JANEWAY

Our people are in danger. We must get them out of here. Does anyone have any functioning instruments?

CHAKOTAY

Torres has an engineering tricorder. She was performing preventative maintenance when we were abducted. It's how we located the sensors. Tuvok has another, he's checking out the fields for weaknesses.

SEVEN

We've located a large power source, but no humanoids other than our own fellow crew members.

KIM

Either our captors are well shielded or they're unlike anything we've encountered before.

CHAKOTAY

There is another problem. While we were scanning for sensors, we discovered this planet is being bombarded by heavy radiation.

Janeway nods in understanding.

JANEWAY

I found it during my scans while on the shuttle. The white dwarf is giving off heavy berthold rays, as well as high levels of standard gamma and alpha radiation.

CHAKOTAY

Correct. Once every standard rotation of the planet.

KIM
The shielding we discovered may be for our own protection.

SEVEN
They'd have to be fairly heavy shields, the pulses I discovered were very strong.

CHAKOTAY
So we may endanger ourselves if we leave the protected areas. The electrical shock may be for our own protection. A warning or a reminder for our own protection, rather than a punishment for trying to escape.

JANEWAY
The Kobyashi Maru scenario, a classic no win situation.

EXT. SPACE - VOYAGER AND THE QUAD STAR

INT. VOYAGER - BRIDGE

Present are Doctor, Doctor 4, Doctor 5, Doctor 6 and Doctor 7. Doctor is at the Conn with the others at their respective posts. Doctor is settling into his position and quite full of himself.

DOCTOR
Very well, let's begin. All ahead.

DOCTOR 4
What heading?

DOCTOR
Towards the seventh planet, of course.

DOCTOR 4
And speed?

Doctor is getting irritated.

DOCTOR
I want to get there as fast as I can, the crew may be in danger. Warp seven!

DOCTOR 4
Inside a solar system and so close to the gravitational fields of multiple stars?

Now Doctor is aggravated.

DOCTOR
Very well, sublight then.

DOCTOR 4
Sublight, that's all? Would you care to be more specific?

DOCTOR
Full impulse! Satisfied?

DOCTOR 4
So far, now, do you wish to enter orbit when we arrive?

DOCTOR
Well of course --

DOCTOR 5
If you're going to give commands, you'll have to be more specific.

DOCTOR
Great, sixty seconds of command programming and you're another James T. Kirk.

DOCTOR 5
James Kirk, no, but I am considerably more adept than you. Any first year cadet would be.

DOCTOR
Theoretically that may be true. However, I have experience on my side.

DOCTOR 5
We all have that, for what it's worth. But I have an edge with the command programming.

DOCTOR
Very well, what do you recommend?

DOCTOR 5
Enter into a high orbit, scan the planet for any signs of the crew, then determine the possibilities of either

transporting them here or using the shuttles.

DOCTOR 4
Of course, it would be wise to ascertain whether the indigenous life forms are open to discussion or will need to be persuaded --

DOCTOR
Enough! Let's get going!

All of the bridge crew turns to face him and confront the vague command.

EXT. PLANET SEVEN - OPEN FIELD

The crew persons are walking together in a single file.

JANEWAY
Is this the way to work?

CHAKOTAY
First, we eat.

PARIS
If you can call it that, it's pretty bad.

JANEWAY
But you never see our 'hosts'?

SEVEN
All instructions are via the camp's intercom system.

JANEWAY
What if we get sick or injured?

CHAKOTAY
Evidence suggests, that's not a good idea. We've found remains of other species in the caves.

KIM
They were caught in a cave in long ago. It doesn't look like they made an effort to rescue them.

JANEWAY
The owners of those artifacts from our holding cell?

Kim just shrugs at the suggestion.

NEW ANGLE

We see a large covered area, open on all four sides, with free standing replicators every twenty feet. Voyager crew persons are visible either lined up at the replicators or already seated and eating. Janeway stops to survey the scene.

CHAKOTAY

Better move along. We're on a tight schedule. Yesterday, half of us didn't get to eat.

Janeway spots Torres and waves.

JANEWAY

I don't care if I eat. I want to talk to B'Elanna and the others first. The rest of you fan out and see what the others have learned since your last meeting.

Janeway goes to Torres who is seated and eating.

COMMISSARY PAVILION

As she speaks, Janeway takes a seat next to Torres.

JANEWAY

How are you doing?

TORRES

Sorry to see you here. What happened?

JANEWAY

Same as you, as soon as I returned from my survey. Didn't you have a tricorder?

TORRES

Tuvok has it; he should be here shortly.

JANEWAY

Have you learned anything else?

TORRES

The technology here is very advanced but it is old, very old. On the order of ten thousand years. And, it's beginning to deteriorate.

Janeway perks up.

JANEWAY

Can we use that to our advantage?

TORRES

Possibly, but it may work against us. Did Chakotay tell you about the radiation levels?

JANEWAY

Yes. From my survey, I'm surprised anything can live on this world.

TORRES

You're right. It can't, at least not under normal circumstances, but this entire sector is shielded.

The others join Torres and Janeway.

CHAKOTAY

Captain, several of our people are very ill. I'm not a doctor, but I'd bet on radiation exposure.

Janeway is concerned.

JANEWAY

From the borite?

SEVEN

No, they are field workers.

TORRES

It's what I've feared. The camp's shields are failing.

ALIEN VOICE

The work period begins. Begin your duties. Begin your duties.

Many N.D. crew persons begin to move out. Janeway is annoyed at the announcement.

JANEWAY

And if we don't?

Chakotay rubs his neck and shoulders.

CHAKOTAY

Then we get shocked. You won't like it any better, believe me.

JANEWAY

What about the sick crew persons?

KIM

Tom looked at them, but there's not much he can do.

TORRES

They're part of my group. I'll look after them.

Tuvok now approaches with a tricorder in hand.

TUVOK

Captain, I've concluded a survey of our situation. It seems our mining operation supports the power generation for the shields, while the field operations are solely for our benefit. The harvest from the various orchards supply the camps replicators.

CHAKOTAY

If we stop working, the shields fail and we die.

KIM

Talk about a work incentive.

ALIEN VOICE

Final warning. Report to work.

JANEWAY

For now, we'll go along with this, but I want each of you to stay alert. Watch out for anything that can be useful to us. We'll compare notes at the next dinner hour. Dismissed.

The crew members break off and head to work.

FADE OUT.

END OF ACT FOUR

Puzzle - ST:TOS Mix and Match

From U.S.S. Kitty Hawk Puzzle Book

Episode Names

From the hints provided, what is the Classic Star Trek episode name?

Example: Manna and Clowns -- "Bread and Circuses"

- | | |
|-----------------------------|--------------------------------|
| 1. Feline Foot | 8. Sugar and Spice |
| 2. Large Contest Enclosure | 9. Red-Skinned Fruit |
| 3. Part of a Monarch's Mind | 10. My Own Small Conflict |
| 4. Bars and a Lock | 11. Trip for Talking |
| 5. Zoo Animals | 12. A Birthday-suited Clock |
| 6. Days Reversed | 13. Opposite of Outside Friend |
| 7. Crazy Clock | 14. Teetering Infinite Town |

Match Planets to Their Planetary Classifications

- | | |
|-------------------------------------|--|
| 1. _____ Sol I (Mercury) | A. Gas supergiant - Failed star |
| 2. _____ Sol II (Venus) | B. Gas giant - Less dense than GSG |
| 3. _____ Sol III (Terra) | C. Reducing - Greenhouse effect |
| 4. _____ Sol III-A (Luna) | D. Geo-plastic - Extremely young |
| 5. _____ Sol IV (Mars) | E. Geo-metallic - Heavy metal rich |
| 6. _____ Sol V (Jupiter) | F. Geo-crystalline - Light crystal rich |
| 7. _____ Sol VI (Saturn) | G. Desert - Heavy crystal rich |
| 8. _____ Sol X (Persephone) | H. Geo-thermal - Forming |
| 9. _____ Delta-Vega II | I. Asteroid-moon - Barren and cratered |
| 10. _____ Rigel XII (Hell) | J. Geo-Mortuus - Sun-baked inner world |
| 11. _____ Delta Pavonis I | K. Sub-terrestrial - Small, dome-adaptable |
| 12. _____ L244-8 (Excalabia) | L. Outer gas giant - Layer frozen gases |
| 13. _____ Janus VI (Motherlode) | M. Terrestrial - Carbon/Oxygen life cycle |
| 14. _____ Alpha Centauri V (Rhodes) | N. Pelagic - Class M, but 90%+ water |

Answers to Last Issue's DS9 Crossword

ACROSS

- DEEP SPACE 9
- BORG
- NEUTRINO
- SISKO
- PAGH
- ROOM
- BAJOR
- ODO
- QUARK
- KAI
- ONE
- GAMMA
- TRILL
- ODN
- FERENGI
- RIO GRANDE

DOWN

- DENORIS
- BASHIR
- TIME
- ORB
- SARATOGA
- OPAKA
- GUL
- JAKE
- KUMOMOTO
- PLANITIA
- O'BRIEN
- MILES
- KIRA
- MAN
- DAX
- NOG

Upcoming Events

Nov	2	4 p.m. Ship Meeting, Triangle Factory Outlet
Dec	14	4 p.m. Ship Meeting, Triangle Factory Outlet
	20	Articles Due for <i>Wright Stuff</i>

DON'T FORGET TO CHECK YOUR STARFLEET STATUS

THE WRIGHT STUFF
U.S.S. KITTY HAWK
5017 Glen Forest Dr.
RALEIGH NC 27612