

STARDUST

The newsletter of the ASTRE Model Rocketry club

www.astre471.org

Volume 17, Issue 3

July/Aug/Sept 2003

Book Review: Leap of Faith

by Clive Davis

Leap of Faith: An Astronaut's Journey into the Unknown

by Gordon Cooper with Bruce Henderson
Harper Torch, 2000

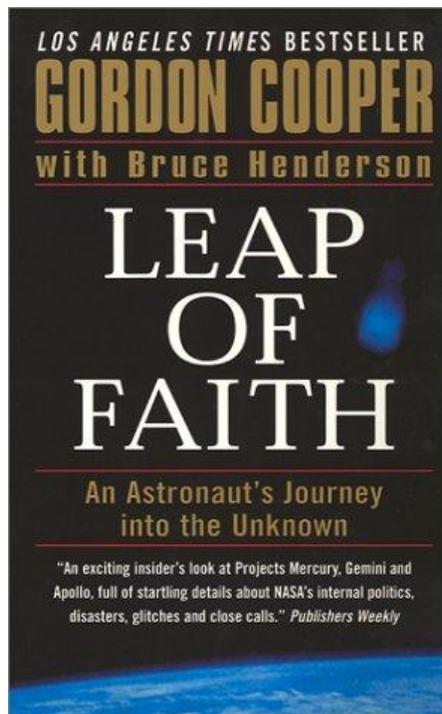
Paperback edition published in 2002.

314 pp. with 21 black and white photos

I picked up this book at our local Barnes & Noble in Pittsfield during my spring break. I had recently finished reading Jim Lovell's book, *Lost Moon* (of Apollo 13 fame), and was looking for more astronaut insider information.

Leap of Faith chronicles Gordon "Gordo" Cooper's Mercury flight and Gemini 5 flight while also touching on aspects of his personal life, marriage difficulties, NASA establishment, and his love of flying. Faith 7 is the name of his Mercury spacecraft. His flight was at one point the longest flight in space, with Cooper having spent 32 plus hours on the mission. The flight is highly detailed, including accounts of what he witnessed, tests he undertook, and the on-board electrical problems that curtailed the length of his mission and put his life in jeopardy. The Gemini 5 flight is a tale of close friendship with fellow astronaut Peter Conrad. Cooper also gives some detailed accounts and opinions about fellow astronauts Deke Slayton and Alan Shepard, including particularly juicy descriptions of how Deke and Alan were jockeying for power and position within NASA. Both Deke and Alan were grounded for medical reasons for a number of years. Alan Shepard finally commanded a mission to the moon aboard Apollo 14 while Slayton was on a Apollo/Soyuz friendship mission in 1975.

Gordon Cooper also spends some time talking about his various engineering contributions to NASA, his personal friendship with the great rocketmeister Wernher von Braun, and the Apollo 1 tragedy. Halfway through the book, Cooper leaves NASA behind and spins tales of UFO sightings, government cover-ups, and fellow ET believers. One chapter of particular interest involves the inventions of a Utah entrepreneur named Wendell Welling and his attempts to recreate a flying saucer. Cooper never met Welling, but met his son who allowed Cooper to enter Wendell's barn and test the flying saucers. The rest of the book takes even a weirder turn when the astronaut begins discussing telepathic powers, remote viewing, transmissions from outer space and fork and spoon bending. At one point in reading this book, I was faced with the dilemma that Cooper is either insane, absolutely honest and forthright, or a charlatan trying to make some money off of his fading fame of yesteryear.



Leap of Faith by Gordon Cooper

I will let other readers make their own judgments about this, but I must say Cooper does pose some interesting questions. He does not hesitate to criticize as well as keep an open mind. Suffice it to say, the book was a good read and caused me to think. It also gave me a greater appreciation for some of these early space explorers who sat on 260,000 pound rockets burning fuel at a rate of 2000 pounds a second. Anyone who has taken that kind of ride deserves a listen, or in this case, a read.

Clive Davis, NAR #80412

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Stardust is published quarterly by the Albany, Schenectady, Troy Rocket Enthusiasts (ASTRE), Section #471 of the National Association of Rocketry (NAR).

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Editor's Thermal:

Trail(er)s of Stardust Part Deux



The club trailer will be debuting at the Spooky Sport Launch in October! Come out and see it!

It's now completely painted white, enamel paint on the frame, and white latex on the wood.

There are essentially four panels available for logos and contact info, the two sides which are ROUGHLY 3 1/2 feet wide, and 2 feet tall, and the front / tailgate ends which are about 2 1/2 feet wide, and 2 feet tall. It would be nice to have either the sides painted with logo and website info, or to have signs made up, and fixed onto the side of the trailer.

All the current club gear in Alex's or my possession is in the trailer, and there is still plenty of room for more gear.

I've also added the 2 stands I made for the Air Show, they are suitable for display only at this point, and are unpainted.

I also have another high power launch pad I'm working on...

— Mark Hutchinson

Topics:

Want to write an article, but don't know what to write about? Here's a list of the topics/items you'll find in most issues:

NAR / Hobby News
Upcoming Event Calendar / Results / Info
Competition Corner / Event Hints
New Releases
Product Review
Tech Tip / Tips + Tricks
Plan / JimZ Archive
Websites
Flashback
Club/Member Projects

Stardust Schedule of Publishing:

Stardust Issue	Submissions by	Print Date
1-Jan/Feb/March Issue.....	Jan 25.....	Feb 10
2-April/May/June	April 25	May 10
3-July/August/September .	July 25	Aug 10
4-Oct./Nov./Dec.....	Oct 25.....	Nov 10

Club members who wish to may have ads, pictures or messages printed in Stardust, space permitting. Copy must be in good taste, with editor having final cancel option. Non-member or commercial ads will currently be handled at a mutually agreed compensation rate.

My first exposure to model rocketry was observing my Junior High School's model rocketry club launch rockets on the athletics fields of our school. I must say I never got involved or even approached the launch pads. Perhaps I was too shy. I also assumed that rocketeers were members of some secret pyrotechnic cult. How wrong I was! Fast forward to my first summer of teaching at a school in New Hampshire not too long ago. The science teacher of the school was a model rocket enthusiast. After I did my afternoon duties, I would often visit his rocket building class and observe students putting together rockets. One day while visiting a hobby store, I broke down and bought an Estes Ninja. After I changed jobs and moved to the Berkshires, I became friends with the physics teacher at my new post. He was really into model rockets and taught his class a segment using Alphas, Big Berthas and Fat Boys, among others. I assisted him with helping the students prep rockets while he manned the launch pads. His thanks for my help was the gift of a Big Bertha kit. That's how I started....

When I first got serious about building, I would put rockets together in a methodical but quick manner. At first, I was happy with my results, but after inspecting my work closely, I began to become critical of misaligned fins, balsa grain showing through paint, paint drips, lines on nose cones, spirals appearing on body tubes, and decals not placed correctly. On the field, I was concerned about scorched parachutes, short shock cords, stalling gliders, and long delays. When not building, I was scanning sites on the internet for more rocketry information. I also started gathering books and magazines on the subject. Then I had to find the best places to purchase rocketry supplies and motors..... which brings me to my next point.

Clive's recommendations for model rocketry supplies:

If you are just looking for one Estes kit to build or a one pack of motors for a quick launch, then by all means support your local hobby stores. I often will visit just to see what is available, or to pick up a pack of nose cones or kit or two.

If you are interested in buying motors in mass, I recommend purchasing from a internet/mail order hobby. The prices are 20% to 30% cheaper than a retail hobby store, and even though you pay for shipping, it still is cheaper than spending the full retail price. For instance, a pack of C6-5's can cost \$6.29. At a mail order hobby store, the price can be as much as a dollar or two less per pack. Add up five or ten packs, and you are

talking about substantial savings. Also, buying bulk packs is often a cheaper way of getting motors at a cheaper rate. Also, if you know what kind of kit you want to purchase, you can also internet/mail order for this.

So why visit hobby stores? I have found that there really is no substitute to visiting a really exciting hobby store. For me, my Mecca is Countdown Hobbies (www.countdownhobbies.com) in Bethel, CT. It takes me almost 2 hours to travel to the store, so I make the pilgrimage only about once or twice a year. Let me tell you, it is definitely worth the trip! The store specializes in rocketry and has kits from such manufactures as Estes, Custom, Quest, Aerotech, Vaughn Brothers, Binder, LOC, Public Missiles, BSD and North Coast Rocketry (Ok, NCR are no longer in production, but Kevin has a few) on display. In addition to this, Kevin has a huge supply of parachutes, kevlar cord, nomex heat shields, centering rings, piston ejection systems, balsa wood, body tubes, nose cones, monokote, adhesives, motors, the works. Ah, the daydreaming that takes place when I enter the store! I

am not writing this to promote Countdown Hobbies, but I think there really is value to spending quality time in a hobby store dedicated to model rocketry. It was here that I discovered Apogee Components kits, Nomex heat shields, X-form parachutes, and the non-standard 24 mm F32 motor produced by Aerotech. What also makes for good learning is sharing ideas with model rocketry friends who are on a shopping spree with you. So, the next time you decide to head to Bethel, CT, call me up. Maybe we can organize an ASTRE trip!

I also assumed that rocketeers were members of some secret pyrotechnic cult. How wrong I was!



Clive Davis and his pug Lulu

The following are hobby store websites which offer motors at a competitive price:

Discount Hobby Center (www.discounthobbycenter.com)
Discount Hobby Center has not updated their website in a while. When I e-mail them, I never get a response. It is easy, however, to check prices on-line and then order over the phone.
Countdown Hobbies (www.countdownhobbies.com)
Valueland Hobbies (www.valueland.com)

Clive Davis has been a member of NAR since 2001. He builds and flies whenever he gets a chance. Feel free to contact him at cdavis@bsn.net

Rocket Suppliers

by Alex DeMarco
and Mark Hutchinson

Michael's Coupon Reminder
<http://www.michaels.com>

Just a reminder to everyone that Michaels publishes a sales flyer in the Sunday Times Union and possibly the Schenectady Gazette. Just about every week they have a 40% off coupon on any non-sale item. On long holiday weekends they also have a 50% off coupon. This is a great way to stock up on motors, paints or to purchase the occasional new kit! Keep in mind they also sell balsa, airbrush accessories and various other tools and gadgets that can be useful.

Alex

A.C. Moore Coupon Reminder
<http://www.acmoore.com>

Just a reminder to everyone that A.C Moore also publishes a sales flyer in the Sunday Times Union and usually the Schenectady Gazette. Just about every week they have a 40% off coupon on any item. On long holiday weekends they also have a 50% off coupon. This is a great way to stock up on motors,

paints or to purchase the occasional new kit! Keep in mind they also sell balsa, dowels, airbrush accessories and various other tools and gadgets that can be useful.

A good source for hackable parts are the clearance isles at Wal-Mart, Big Lots, and such stores. See <http://www.biglots.com>

Also, there are shops around that will honor a discount for ASTRE club members in good standing.

JP's is one such store. Members enjoy a 10% discount on purchases.

We hope to approach more shops and stores about extending the same to ASTRE members. While I doubt that Wal-Mart would be able to, there are many local hobby shops and general stores that have expressed interest when I've spoken with them.

Look to the next issue for a review of one such store.

Mark

Cartoon Corner



"It's time we face reality, my friends...
We're not exactly rocket scientists."

(Is that Jim Flis of <http://www.fliskits.com> in the middle?
Note rockets striking similarity to the A.C.M.E. Spitfire...)



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Latham, NY 12110
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Estes · Quest · Aerotech · North Coast
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Current members of ASTRE receive
10% discount on purchases at JP's!

Upcoming events & Challenge!

By Mark Hutchinson

October 25th

ASTRE “Spooooky Sport Launch and NAR Competition”

Spot Landing - Open (Section 60.7.3)
1/2A Helicopter Duration
1/2A Boost Glider Duration

The artwork challenge is still open. Take a look at the artwork to the right. Build a real model rocket that looks like this. I'll have a prize for first place, and something for second and third. Competition is open until the Spooky Sport Launch in October, when your model will be flown.

The only real rule is that the rocket you build **MUST** fly, and be recovered. Contestants will have photos printed in the following **STARDUST** issue.

Mark Hutchinson



Events with FAA NOTAMS

By Alex DeMarco

Some background first. As you know, we have been limiting flights at our Johnstown field to models that weighed less than one pound. Due to our close proximity to the airport we are not able to obtain an FAA Waiver which would allow us to fly any sized model as long as we stayed within the waiver's maximum altitude. And since our field isn't that big, flying the smaller stuff increases our chances of getting them back. However, by posting notification to the FAA and the Johnstown airport we can fly models up to 3.3 lbs. and engines with 62.5 grams of propellant or less (G motors).

Given our close proximity to the airport and the size of our field we have imposed the following rules and procedures for flying models that are above 1 lb. but less than 3.3 lbs.

Flying Rules

- Please park in the designated parking area.
- Maximum Impulse G (62.5 grams).
- Max Altitude 2000 ft. substantiated either by a RockSim printout or vendor supplied data. (YOU MUST HAVE THIS TO FLY!)
- Only currently certified listed motors shall be flown.
- Only NAR and Tripoli members in good standing can fly F & G, you must have your membership card.
- Sport Flight Cards for all F & G flights **MUST** be filled out, including repeat flights.
- Given the varying wind conditions the LCO has the option to cancel any F & G flight at any time.
- Each model will go through a thorough safety inspection before each flight and will be weighed.

On December 18, 2001, ground controllers at JPL commanded NASA's Deep Space 1 (DS1) spacecraft to go to sleep. "It was a bittersweet moment," recalls Marc Rayman, the DS1 project manager. Everyone was exhausted, including Deep Space 1, which for three years had taken Rayman and his team on the ride of their lives.

DS1 blasted off atop a Delta rocket in 1998. Most spacecraft are built from tried-and-true technology-otherwise mission controllers won't let them off the ground. But Deep Space 1 was different. Its mission was to test 12 advanced technologies. Among them: an experimental ion engine, a solar array that focused sunlight for extra power, and an autopilot with artificial intelligence. "There was a good chance DS1 wouldn't work at all; there were so many untried systems," recalls Rayman.

Nevertheless, all 12 technologies worked; the mission was a big success.

Indeed, DS1 worked so well that in 1999 NASA approved an extended mission, which Rayman and colleagues had dreamed up long before DS1 left Earth-a visit to a comet. "We were thrilled," says Rayman.

And that's when disaster struck. DS1's orientation system failed. The spacecraft couldn't navigate!

What do you do when a spacecraft breaks and it is 200 million miles away? "Improvise," says Rayman.

Ironically, the device that broke, the 'Star Tracker,' was old technology. The DS1 team decided to use one of the 12 experimental devices-a miniature

camera called MICAS-as a substitute. With Comet Borrelly receding fast, they reprogrammed the spacecraft and taught it to use MICAS for navigation, finishing barely in time to catch the comet. "It was a very close shave."



This was the final image of the nucleus of comet Borrelly, taken just 160 seconds before Deep Space 1's closest approach to it. This image shows the 8-km (5-mile) long nucleus from about 3417 kilometers (over 2,000 miles) away.

In September 2001, DS1 swooped past the furiously evaporating nucleus of Comet Borrelly. "We thought the spacecraft might be pulverized," Rayman recalls, but once again DS1 defied the odds. It captured the best-ever view of a comet's heart and emerged intact.

By that time, DS1 had been operating three times longer than planned, and it had nearly exhausted its supply of thruster-gas used to keep solar arrays pointed toward the Sun. Controllers had no choice but to deactivate the spacecraft, which remains in orbit between Earth and Mars.

Rayman has moved on to a new project-Dawn, an ion-propelled spacecraft that will visit two enormous asteroids, Ceres and Vesta, in 2010 and 2014. "Dawn is based on technologies that DS1 pioneered," he says.

Even asleep, DS1 continues to amaze.

Find out more about DS1 at:

<http://nmp.jpl.nasa.gov/ds1>

For kids, go to:

<http://spaceplace.nasa.gov/ds1dots.htm> to do an interactive dot-to-dot drawing of Deep Space 1.

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

CALENDAR						
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

CALENDAR						
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Calendar of Events

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 Jeff Vincent 439-2055 jvincent@acmenet.net

The meetings are usually informal bull sessions where club business is discussed first, followed by either general "what's new," or a predetermined topic or activity. This schedule can change, and it is advisable to contact Alex DeMarco to find out about any last-minute changes.

UPCOMING EVENTS

Note: ASTRE events appear in **bold type**.

October 25th Spooky Sport Launch

Watch the ASTRE web site

(<http://www.astre471.org>)

or ASTRE471 on eGroups

(<http://groups.yahoo.com/group/ASTRE471>)

for announcements of more meetings/launches.

For more NAR Northeast Region meet info, see:

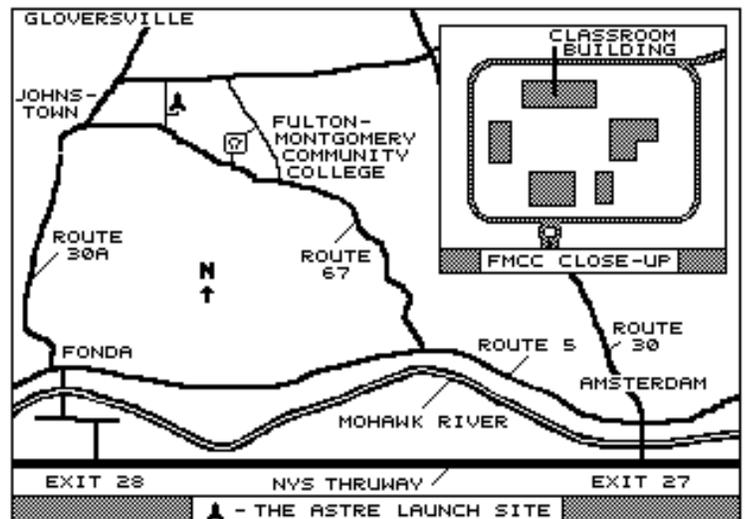
<http://www.acmenet.net/~jvincent/nercb.html>

Is your
 Membership
 up to date?
 Visit www.astre471.org
 to download a form!

How to get to ASTRE's Flying Field

Our field is just outside of Johnstown, NY.

- From the east, take the Amsterdam exit (#27) off the NYS Thruway.
- Take a right and follow Route 30 North for one mile.
- Take a left at the second light after the bridge onto Route 5 West.
- Follow Route 5 for three miles. Take a right onto Route 67.
- Follow Route 67 for 5.5 miles. Shortly after passing FMCC, take a right onto the small road by Ed's RC shop. After one half mile you will see a white fence on your right. Follow the driveway just before the fence, and park in the parking lot. Walk to the range.



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NASA's Space Place—Careful Planning and Quick Improvisation Succeed in Space Biz

Calendar of Events

Coming up in the next issue: My Foray Into Paper Rocketry

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