THE LEADING EDGE

Newsletter of the Northern Illinois Rocketry Association,
NAR Section #117, Proud Winner of the 1996 and 1997 Rockwell Newsletter Trophy!

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Final Flight - NAR #2

by Mark Bundick

G. Harry Stine, NAR #2, died Sunday November 2nd, apparently of a heart attack.

Much of the technology, safety foundations and organizational structure of our hobby and Association rest on Harry's insight and hard work. His list of accomplishments and the body of work he leaves behind are too long to mention. Harry was one of a kind, a man we cannot ever hope to replace.

NAR members and modelers worldwide are encouraged to send their notes of condolence and remembrance to:

Barbara Stine
2419 West St. Moritz Lane
Phoenix, AZ 85023

Bill Stine
c/o Quest Aerospace
519 West Lone Cactus Drive
Phoenix, AZ 85989 -2390

Harry Stine's passing leaves a large void in our hobby. We can only hope to partially fill it ourselves. Harry covered so much ground over so many topics he truly was one of a kind.

Like many of you, my first intersection with Harry Stine was through "The Handbook of Model Rocketry". Many of the things I learned from there, I still use in the hobby. If you've not read it yet, run to the public library (Wheaton I know has a copy) and spend an evening or two with the book.

Harry was also a big help to my NAR work. He never failed to remind me that our obligation as leaders within the hobby was to pass along what we've learned to the next generation. His quiet insistence on that score was one of the main reasons I've become an NAR volunteer.

In 1992, the NAR Board met in Phoenix. Harry attended part of our meeting there, and accompanied us to the Superstition section's range for lunch and a launch. I brought along my SPEV and some D13 reloads. Harry joined me and prepped a F40 powered sport model. We went off adjacent pads, one after the other, both to perfect flights in the blue Phoenix skies. On returning from recovery, I met up with Harry downrange. As we walked back to the rangehead, I said "Damn it, Harry. You made this hobby too much fun.". Harry thought a second, looked at his bird, then grinned and replied "It is a lot of fun, isn't it?".

Next time you're on the range, make sure you think of this story, find someone and their rocket, and share the fun. Harry would be pleased if you did.

Harry Remembered - from Peter Alway

Mr. Stine's contribution to model rocketry--turning it from an idea that Orville Carlisle had been trying out into a consumer hobby (he was the one who hired Vern Estes to make engines for his Model Missiles company)--has had a colossal effect on my life.

I had the fortune of meeting him twice--at NARAM in Houston and NARAM in Tuscon this summer. Over this time, I had the honor of exchanging books with him. I had heard that G. Harry Stine was something of a curmudgeon--or worse. I was surprised by his soft voice overlaid with enthusiasm. Perhaps I had missed the "gruff exterior" or perhaps he saved it for when it was needed. My understanding is he engaged in his fair share of battles in making model rocketry legal.

On his last day at Tuscon, he called me into his room to show me something. He pulled out a little chunk of dark silverish metal. A disk with a shallow open box welded to it. It was an ash tray. He had gotten it from a friend he had worked with at White Sands Missile Range in the 1950's. On the bottom was a typed label. I recognized the friends name--he was one of Robert Goddard's assistants. It was made from part of a turbopump housing of one of Goddard's rockets. You cold tell this pump hadn't worked so well, because the screw holes in the disk had been stretched into ovals by the force of an explosion.

Stine is one of our most valuable links in a long lineage of rocketry. In 1957 he published a list of rocketry safety rules based on his White Sands experience in "Mechanix Illustrated." This link to professional rocketry triggered the creation of the hobby of model rocketry.

I happen to have this information on hand because I just received a paper on Japanese model rocketry from a correspondent in Japan. G. Harry Stine's contributions are known around the world, wherever the whoosh-pop of a model rocket or the WHOOOSSSHH----POP of a high power rocket is heard.

He had pointed out often that he believed in "paying forward" not "paying back." He told us what to do--pass on his gifts to the next generation. Give the next generation the chance to learn geometry from paper shrouds, history from scale models, trigonometry from tracking, calculus from a thrust-time curve, and safety from us.

T MINUS 1 - NIRA'S CALENDAR OF UPCOMING EVENTS

1998 CLUB LAUNCH DATES

Launches are BYOL (bring your own launcher). The location for our 1998 launches is the Greene Valley Forest Preserve. If you have questions prior to any launch, call the NIRA Infoline at (630) 690-6353 and leave a message, I will call you back.

December 14th - Holiday Party at Mark Bundick's. Call Mark (630-293-9343) to find out what kind of munchies you can bring. See map below for directions.

January 18 - Building session at Bob Kaplow's. See map below for directions.

February 15 - Building session at Peter Olivola's. See map in next newsletter for directions.

March 15 - 1st launch of 1998! If the weather is bad we'll hit some local hobby shops and get something to eat.

April 19 - Regular club launch.

May 24 - Regular club launch (1 week later than normal due to National Sport Launch on the 15-17).

June 20-21 - Midwest Regional Fun Fly.

July 19 - Regular club launch.

August 16 - Regular club launch.

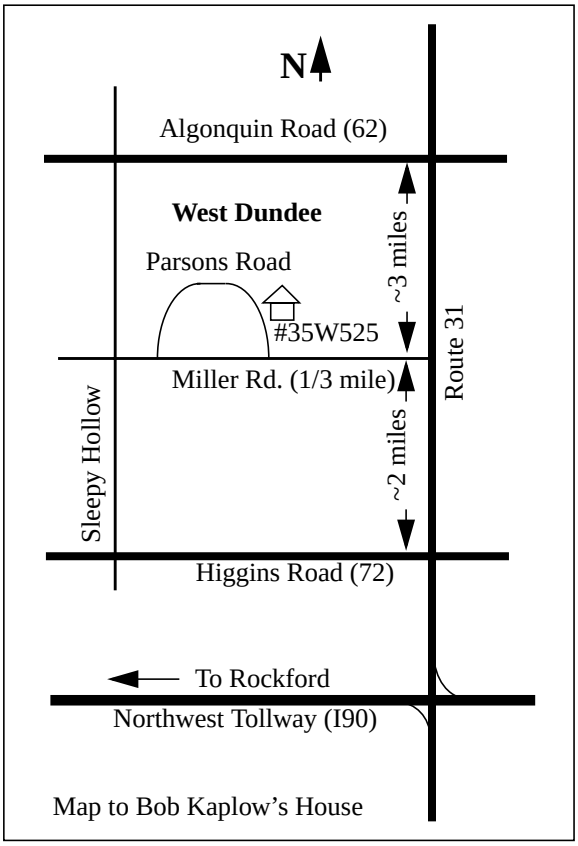
September 20 - Regular club launch.

October 18 - Regular club launch.

November 8 - RCHTA Launch.

November 15 - Regular club launch

December 13 - Holiday Party at Bundick's



MONTHLY MEETINGS

All meetings start at 7:30 PM, and include refreshments, entertainment and a brief business meeting. Don't forget a model for "Model of the Month" voting. We need volunteer speakers to entertain the troops after the business meeting, so call Bob Wiersbe at (630) 690-5442 if you can help with ideas or can speak yourself. The location is the Glen Ellyn Civic Center, 535 Duane Street (usually on the 3rd floor, but check the board in the lobby).

Currently scheduled meeting dates are: December 5. January 2, February 6, March 6, April 3, May 1, and June 5.

THE LEADING EDGE, published bimonthly by and for members of the Northern Illinois Rocketry Association, NIRA, NAR Section #117, is dedicated to the idea that Sport Rocketry is FUN! Articles, plans, photos, other newsletters, and news items of interest should be sent to Bob Wiersbe, 1835 Shetland Drive, Wheaton, IL 60187 (or electronically via Internet to wiersbe@lucent.com). Photos will be returned, other material returned if requested. Send membership applications (dues: $3/year, including a six issue subscription to the Leading Edge) and nonmember subscriptions ($5 per six issues) to Ken Hutchinson, 84 Jefferson Lane, Cary, IL 60013. Any item appearing in the Leading Edge may be reprinted by Sport Rocketry with proper credit given; all other uses require written permission of the Northern Illinois Rocketry Association. "There is no job so simple that it cannot be done wrong" - new motto of U.S. Rockets.

STAFF

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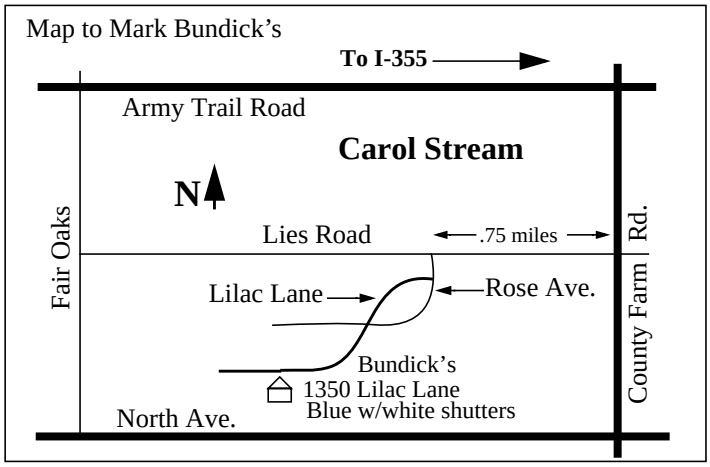
On the Cover - A last look at G. Harry Stine from NARAM 39 in Tucson. Harry's life has affected every person who has ever flown a rocket, even though they never knew the man himself. A Memorial Fund has been set up in his honor, see page 10 to see how you can help keep Harry's memory alive. (photo courtesy of George Rachor)



Club News!

Greene Valley Opens Up! - Thanks to the dedicated work of Cherie Chaney, Bob Kaplow and many others, the Greene Valley Forest Preserve site looks to be open for use by NIRA in 1998. According to our FPD contact Mike Palazetti, while "rockets" are prohibited by ordinance, "model rockets" are allowed at locations designated by the director, and Greene Valley has now been so designated.

NIRA Tops List! - According to figures compiled from NAR HQ, the Northern Illinois Rocketry Association ends 1997 as the NAR's largest section with 56 NAR members claiming membership in NIRA. Like many other NAR sections, non-NAR members push our total membership higher, and in all likelihood, the DARS section in Dallas may have a larger absolute membership. But, at least until the upcoming section renewal process is complete, NIRA can claim some short term bragging rights.

Cast Your Ballot! - Elections are coming up in January. At the November meeting the following people received nominations:

RSO: Bob Kaplow
Secretary/Treasurer: Ken Hutchinson
Vice President: Mike Ugorek, Steve Smith
President: Ric Gaff, Mike Ugorek
Newsletter Editor: Ralph the Wonder Llama

Nominations will also be taken at the December and January meetings. Voting will take place at the January meeting. Come early to vote once!

August NIRA launch
by Rick Gaff

The weather for the August launch seemed rather iffy, certainly the thunderstorms Saturday night were spectacular! The Beaver Run sod farm had received over 1" of rain and when I arrived at the farm the weather continued to promise more of the same. No doubt the lousy weather accounts for the low turn out of about 12 or so people.

One of the first rockets flown was Steve Smith's "Green Egg and Hams", an egg shaped model with tiny plastic pigs[1] stuck on the outside of the egg capsule. This was the same model he flew in July only this time he'd added some nose weight and it flew much better! He also flew his "Finless Wonder", a long slender model using a small tail cone for stability, quite neat.

Ken Goodwin and his 2 sons, Scott and Adam, made the best of a luke-warm day by flying the fins off their models. Ken had good flights with his "SR-71" and "Skywinder" but his launch pad "Maverick" had an excessively Launch Pad flight profile i.e. it weathercocked very sharply, and crashed into the sod, Ouch! Ken says the model will return but with more nose weight. Scott got in several good flights between rain drops with his "Ninja", "Viking" and "Flatcat" glider. Adam dynamically demonstrated the difference between A and C class motors by flying his "Bandit" with an A8-3 and C6-5.

The Guzik's (John, Kimberly and Michael) were out in force and not letting the weather get them down. John got in 6 flights including his "Sidewinder", "Hawkeye" and "SR-71. Kimber flew her "Stealth Interceptor" and "Black Brant II" while Michael flew his "Sidewinder" and "Green Wizard".

Bob Kaplow made us all scream for ice cream with his "Oberweis" food container conversion and continued to poke fun at the BATF with his "Fat Boy" conversion "OY! BATF".

My nephew, Drue Mills, had picked this weekend to come up for a visit (partly because of the launch). Despite the weather we managed to fly about 1/2 dozen models including my "ASPCA legal Mousenaut", 20+ year old Maxi Brute "Honest John" and the new Estes mini "R2D2".

Emil Bartholet rounded out a short soggy launch with 3 flights each of his Estes "Iris" and his Quest "Tomahawk".

After several quick trips to a convenient barn to escape small drizzles (we were die hards!), Steve Smith (with a weather sense second only to Bunny's, I think) warned us that he thought the next rain would be a big one and he was right! We barely had things packed up when the sky opened up on us! Shades of MRFF-96! No one got to fly everything they wanted, but I think we all had a good time.

[1] probably from American Science and Surplus...

Hobby Show Report and Launch
by Bob Kaplow and Bob Wiersbe

The 1998 Hobby Show (the show formerly known as RCHTA) was held on October 4 & 5 at the Rosemont Expo Center. As always, NIRA was on hand at the Model Rocket Make It Take It booth with 2000 kits and members to help build them. By the end of the day on Sunday around 1700 kits had been built! Attendance at the show this year seemed to be down, possibly because it was held so early in October and many people had schedule conflicts. Next year's show is October 31 and November 1.

The Estes booth was a big surprise and disappointment. Last year they had the largest booth at the show, probably 2000 ft^2 or more. This year it was 200 ft^2. Very few of the normal Estes crew were there, and not much was on display. What was there was the new RTF product line, which is not much more than an Omloid fin unit, body tube with sparkly decal, and a nose cone. There are at least 10 variations on this theme, which looked pretty boring. Estes is clearly going for the K-Mart and Walmart shopper, and true rocket hobbyists will be looking elsewhere for new rockets. G composite motors might make their debut sometime in 1998.

Quest was out in force, and had a much bigger booth than Estes. They were big with their RTF products, plus the new AREA 51 UFO ship, and a prototype of a Star Trek - First Contact ship.

The all new, all-plastic NCC 1701-E from Quest. You will be assimilated. (photo by R. Wiersbe)

"Rocket Row" was the brainchild of Ed LaCroix, who decided it would be a neat idea to get all of the rocket people in the same area. Not all of the manufacturers were interested, notably Quest and Estes. In "Rocket Row" were Aerotech, Public Missiles Limited, Apogee, and Custom Rockets.

AeroTech had a double booth with the established kits, econojets, reloads, and hybrids on display. In the middle was a 4" rocket with the sign that monster rockets would be out soon. The 4" rockets will still have the 29mm motor mount for the single use G or the 29/40-120 reload. The reasoning for this is that Aerotech doesn't want to confuse their dealers by having a rocket that uses HPR motors. The Aracus RC RG was actually one of Kevin McKiou's 'Cuda kits, but Ed LaCroix said that Kevin is kitting a version of the Cuda as the Aracus.

Ed LaCroix and one of the new 4" "Monster" kits Aerotech will be introducing next year. (photo by R. Wiersbe)

Public Missiles had a double booth right next to AT with lots of slick rockets. It was their first appearance at RCHTA, but had nothing new to show to those of us familiar with PML. For those unfamiliar with High Power, it was an impressive booth.

Custom Rockets had a much spiffier booth than past years, and had several new kits on display. There are two new two stage rockets, the Aztec and some kind of Russian SAM. There are a couple of fantasy ships, and an egglofter too. Custom Rockets has now been in business for 10 years!

Apogee was back with their competition and sport models designed around the 10.5mm mini motors. New for this year are a Micro V2 and a gliding SR-72 Darkbird. Balsa Machining Service wasn't exhibiting this year, but owner Bill Saindon was helping out in the Apogee booth.

New was Mach One, a mix and match rocket system built around balsa ply that is very durable. The models featured mid-ejection and baffle systems for wadding free flying with standard 24mm motors.

The launch took place the following Sunday at the Greene Valley Forest Preserve, a site that NIRA now can use for our regular monthly launches beginning next year!

Since the wind was blowing north we had to set the range up at the far south end of the field, which made for a long walk with the range equipment. It also made for some interesting recovery conditions, with thermals and gusts sending rockets every which way.

There were two goals for the day, 1) to help people from the hobby show fly their rockets, and 2) demonstrate to the Forest Preserve what the hobby of rocketry is about, and how it can be done safely. NIRA members Mike Ugorek, Adam Elliott, Bill Thiel, Bob Kaplow, John and Kimber Guzik, Jonathan Charbonneau, Kleve Slouber, Mark Soppet, Rick Gaff, Rick Kramer, Steve Smith, Tom Pastrick, Ken Hutchinson, John Kallend, Cheri Chaney, and Bob Wiersbe were on hand to help with the rockets from the Hobby Show and demo their own rockets. (If I missed your name, my apologies).

Left - one of the new 2 stage rockets that Custom Rockets will be bringing out next year. I don't remember what the name of this is, but it does look cool!

Right - the new Apogee SR-72 Darkbird (it glides!) and Micro V2. Displayed between the rockets are the nose and tail cones of the V2.

(photos by R. Wiersbe)

62 people from the Hobby Show made the trip to Greene Valley to fly their rocket, and for many this was the first time they had ever seen a rocket fly. In all, 98 Windy City Specials were flown, with only a few of the normal mishaps like separations. Ken Hutchinson recovered a few models that had been captured by rocket-eating trees.

NIRA members put up a total of 37 flights during the three hour launch. Here's a brief summary of the flights to give you an idea of what kinds of models and motors this field can support:

Exocet (B4-4), SR-71 (B4-4), Air Mail (C5-3), Marble Rock (D12-3), Neon Whistler (C6-5), Spaulding Football (A10-3T), Texas Mosquito (D12-3), Happy Meal (D11-P), Ladyhawk III (E18/E6), Phoenix RC/RG (F?), Juno 1 (B6-2), Lamprey (B4-4), HL-20 (C6-3), Mercury Atlas (C6-3), Pyramid (D12-0), Tube-O-Copter (C5-3), Blob Boy (C6-3), Groove Tube (D12-3), Initiator (F20-4), Totally Tubular (D12-3), Green Eggs and Ham (C6-5), Big Bertha (B4-4)

That's a fair range of rockets and motors, and as far as I know they were all recovered (even the Initiator on an F!). It appears that the field is suitable for our regular monthly launches, but we might need to be more restrictive about the type of rockets and motors we fly there. It really depends on the wind direction. If the wind is blowing north or east there is adequate recovery area. If the wind is south we have to be careful about rockets landing on 75th street. If the wind is blowing west we have to watch out for the houses. At least we don't have to worry about soccer games.

John Guzik (left) and Ray Chesi (right) help some new rocketeers get their rockets ready for their first flight. (R. Gaff photos)

SMURFF II
By Rick Kramer

Just like SMURFF I, NIRA was well represented at SMURFF II September 13 & 14th. on the AMA Field, in Muncie, Indiana. The weather both days was absolutely perfect for launching and recovering rockets. Saturday was sunny and warm with calm winds. Sunday was mostly cloudy, warm and just light breezes from the north.

Saturday morning began with Bob Kaplow and daughter Rachel flying dual Intruders on D-11 and A-10 motors followed by the ever present Happy Meal. Afterwards, Bob pulled shift duty at the LCO table.

Norm and Nancy Heyen flew several large rockets. A LOC EZI-65, a VB Extreme 38, a Warp II, an Aerotech Cheetah and an Estes Broadsword topped the list. The EZI-65 flying on an H-112 spit the nozzle and broke a fin when it landed horizontally. The Warp II booster CATOed at ignition but the upper stage fired for an interesting flight to say the least. Bunny Wabbit flew his traditional SPEV three times and also did a turn at LCO on Sunday morning. Ken Hutchinson repeatedly flew a couple of large models I didn't recognize at first. It turns out that these were a Mountainside Viking 1 kit conversion and a LOC Magnum. Ken's purpose was to burn up his 38 mm reloads before new BATF regulations take effect. The Magnum suffered from partial parachute deployment. (Aw Chute!!!)

Pierre Miller flew a couple of his scale models, Saturn V and Mercury Atlas, but mostly walked around with Mike Guzik and tried to get the dealers to lower their prices on extinct motors.

John Barrett flew his complete arsenal of Launch Pad kits as well as his large assortment of Aerotech and Estes models. John flew nearly dawn to dusk on Saturday putting up a flight every 15 minutes, and did almost the same on Sunday until about 3:00 o'clock pm.

Rick Gaff flew several scale models including a Hawk Missile, an Aerobee 150, an Air Force Maverick, and his usual assortment of odd-rocs;

Norm Heyen's Warp-II has a core breach on the pad, but the upper stage ignited and made a safe flight. The booster can be seen at the bottom, and the booster motor mount is in the circle. (photo by N. Heyen)

the IFO, staged Pair-of-Dice, Flying Pyramid of Death and the new Estes exploding Death Star. Speaking of the Death Star, Rick and I teamed up to fly a tube-finned Death Star. I cut the nose cone off my BT-50 Custom Razor and used Rick's Death Star for a nose cone. Everyone except me said the combination would be unstable due to the short length of the Razor's body tube. Once again the extra stability inherent in tube fins proved them wrong. It was a great flight with a C-5-3 to handle the extra weight of the styrofoam pieces and five streamers appeared at apogee as the Death Star disintegrated.

I flew my 3 inch diameter Ultimate Loop and 4 inch diameter LOC IV models on G-80-4's and my 2.6 inch Initiator and LOC Graduator models on Aerotech's new F-20's. I am really impressed with those Econojet F-20's They are great motors. They generate lots of smoke and noise, provide lightning quick acceleration, and have a relatively long burn time. I also flew a bunch of D-12 and C-6 powered tube finned rockets. I won't bore you with the minute details except for the flight of my 3 foot long BT-60 "Totally Tubular." It launches straight as an arrow on D-12-3's and at apogee it deploys a 6 inch X 60 inch nylon streamer. It looks so graceful as it floats down to a gentle landing every time. For a while on Sunday John Barrett and I were exactly 180 degrees out of phase. We kept passing each other regularly going back and forth from the prep area to the launch area.

John, Kimber and Michael Guzik made several flights with a LOC Stovi, a Standard Arm, and a Little Nuke, and then they stocked up on a bunch of Magnum and Robby's Rocket kits. Looks like they are trying to stay proficient at winning "Model of the Month" awards.

Some of the other fliers included the Hart's from the Ft. Wayne club and Robert Alway from the Michigan club. There were more high power motors flown here than I had ever seen before at a Midwest launch. The most popular motor sizes were H, I and J. with a few K's thrown in and 3 M's were flown. One of the M-1939's was flown in a huge plastic sphere with PVC pipe legs to simulate and commemorate the 40th. anniversary of Sputnik I back in 1957. It launched with a great roar, fire, billowing smoke, and cheers from the crowd as the sphere separated and safely recovered under dual parachutes.

There were several successful level I and II certification flights. Also a few flights got into the air and were not so successful as they spun around and around or blew out engine nozzles or plummeted into the ground without a chute.

All in all it was a spectacular two day event that will become a three day event next May 15, 16, and 17th., 1998 as SMURFF III will include the NAR National Sport Launch. Make your motel reservations NOW for this three day weekend extravaganza before the Indy Racing-fans book all the rooms!!! This is the same weekend the Indy cars qualify for the Memorial Day race. I want to thank all the SMURFF participants for their quick E-Mail responses which allowed me to accurately complete this report.

Falling Leaf Contest Report
by Mark Bundick

The HUVAARS section in central Michigan hosts an annual open meet in October to close out their contest flying season. The Jackson County Community College field is a bit marginal, but the HUVAARS hosts are great, and the event list is structured so you can fly the meet in one day. Falling Leaf is a perfect example of how much fun contest rocketry can be.

Fourteen competitors took the field, 3 in A, and 11 in C. The bulk of the A Divisioners, Jenny Bundick and Dawn Wilfong were content to fly one event, then spend the rest of the day off playing other games. The adults were left to do more serious flying.

A Parachute Duration turned out to be a bad event for the conditions. The wind was strong, so many competitors made the mistake of waiting for a calm period before launching. The calm just mean there was a thermal around, and both Roger Wilfong and Yitah Wu lost their birds. Andy Tomasch chose to fly his 30mm dia. models left over from the recent AMA fly-offs. Constructed of drafting vellum paper, they are very light and can house an enormous chute. Using a tower and an apparently well sealed piston, he equaled the altitude of many competitors flying smaller diameter models. Alas, Andy had problems with chute tangles and fell to a second place. In the same vein, Bunny tried using 18MM vellum models based on the FAI birds. He needed stronger fins however, as a shred kept him in DQ country. Mark Chrumka had two decent flights on a ho-hum rocket, recovered them both, and won the event. Sneaky, using that old technology.

1/2 A Streamer Duration produced the closest finish at a rocket contest I'd seen in years. The top three places went 71, 70, and 69 seconds. Times had the potential to be longer; nobody really got any streamers to whip around like the really hot shot SD flyers do. Andy again flew his 30MM models, this time to a second. Nice consistent flying. Bunny flew his 18MM models and finished 3rd to Andy. Mark Chrumka pulled the same quietly sneaky stunt he had in PD and flew two decent flights in an OK model to win. Sigh.

A Rocket Glider was a tough event to attempt on a small field, with a lot of wind. Jim Fackert of Totally Tubular flew the most interesting model, an Edmonds Aerospace Ecee canard model. Didn't get high, but it worked nicely both flights. Gotta rebuild mine that crashed in Muncie. Andy won the event flying an autoelevator bird of his own design. Flight #2 however was a bust, as he pulled the "I forgot to hook up the rubber band" trick, and left the door open for others to take the win. Bunny flew an old slide wing RG he built in college, complete with a WWI tissue patter featuring German cross insignia. Alas, it landed in the trees across the road and was swallowed up for a no return.

Plastic Model had Bunny and Pete Alway doing the judging chores. They spent 45 minutes or so pouring of a Pink Book and the models before emerging. Bob Alway tried to sneak into his brother's heart by modeling a small Vostok model. Pete took a quick check of the CG location before launch and retreated to a safe distance. The flight would be properly described as a "two and half, tuck position". Crunch. Mark Sinicki had a 1/48 scale F104 in some sort of target drone colors. A C6-3 produced a rip snorting flight to 5th place. Andy Tomasch pulled a Glencoe Jupiter from his shelf, pronouncing it his old "reliable" model. The curse of modelers everywhere, the bird produced a marginally stable flight and busted two fins on landing for 4th place.

Jim Fackert tried to win with humor. His Space Shuttle was a Hasagawa kit that comes from a series of caricature models. Shaped like an egg and flown off a piston, it looked to spin more than fly, but it went straight up and recovered nicely. Bunny thought this was the funniest thing he'd seen in years and spent the better part

of two minutes after the flight trying to stop laughing before awarding Jim a third. Roger Wilfong's nicely done DML V-2, in 1/35 scale flew great, but was attracted by the infamous "Concrete Magnet" to a small manhole cover in the midst of the grassy field. Concrete grinds down nose cones pretty nicely, and in this case ground down Roger to a second place. Mark Chrumka's 1/48 scale F14 featured excellent workmanship, a perfect cluster takeoff, and twin chutes ejected out of the intakes. Only the landing damage in the parking lot marred the otherwise perfect flight.

Overall placings ran Mark Chrumka, Andrew Tomasch, Roger Wilfong with the rest of the troops bringing up the rear. I ended up 6th, dead in the middle of the pack, about what to expect when you're flying models you built in college. Maybe next year I'll return to my 1993 form when I won this contest going away.

The rest of you should consider making the trek to Jackson, MI next October, flying on Saturday, and then taking advantage of central Michigan's abundant tourist attractions on Sunday before easing back to Chicago. It's a great way to combine a rocket event and family outing into a relaxing weekend away.

Confused Stages - Stage 4
by Jonathan Charbonneau

This is the fourth stage of the series (pun intended). You may have learned that some rockets have more than three stages (e.g. Trailblazer 1, Juno II, Titan IIIE), and wish you could make all the stages operable for maximum FX, but bugged by the fact that a model rocket cannot have more than three stages.

You need not despair. There are ways around it, and get this - they are legal. For starters, the three stage limit rule applies only in NAR competition. You can have four or five stages when flying just for fun if you really know what you are doing.

For competition, you can do any of the following: 1) Make the fourth stage into a dart. That is, have it separate from the third stage at third stage burnout, but fly it totally unpowered. Don't forget to put a recovery device in it and have it deploy at apogee. 2) If the rocket is a parallel stager with a three stage central core, put live engines only in the central core stages and just configure the boosters as dummies that fall away at mid burn of the first stage. 3) do both 1 and 2.

As long as only three of the stages have live engines, you're within the three stage limit rule. Any stage that contains no live engines (e.g. darts and/or dummy strap-ons) are not counted when determining compliance with the three stage limit rule.

Sputnik Orbits Again!

The Sputnik-40, as it's called, was hand-released by the Mir crew during a space walk on November 3. The mini-satellite transmits a "beep-beep" 1288 Hz signal on 145.825 MHz (FM) from its 200-mW onboard transmitter.

Earlier this year, an agreement was signed between Russia and France to commemorate the 40th anniversary of the launch Sputnik 1, and two groups of high school students cooperated in building the one-third scale model of the original Sputnik 1. Students in Russia built the satellite itself, while students in France built the 2-meter transmitter that will "beep" from space following its launch from Mir. The mini-satellite flew as cargo to Mir last month aboard a Progress rocket.

Following launch, the scale model of Sputnik will remain close to the Russian space station. It's estimated that its batteries will hold up for up to two months. It's unclear what will happen to the satellite when it's no longer operational.

Seen from Mir, a replica of Sputnik tumbles in space (wtn)

THE ONE-PAGE SCALE MODELER
by Kevin Wickart

Welcome to the first in a series of plans for small scale model rockets. The whole point of this series is to provide the means for rocketeers to build scale model rockets from which are exactly the same size as the drawing in the plans, without the use of over-complicated instructions. In other words, Peanut Sport Scale models.

To this end, I am assuming that the rocketeer has achieved at least basic skill in reading plans and building rockets, and does not need to be reminded to include a launch lug, recovery system, etc. Most of these OPSM plans follow standard construction order: motor mount first, mark tube exterior, cut and sand fins, attach fins (and launch lug), assemble and install recovery system, seal and paint. Any non-standard steps will be covered in the notes accompanying each plan.

This series was inspired by the books of Peter "Man Of Books" Alway, these being "The Art Of Scale Model Rocketry" and "Rockets Of The World" (both of which are available from NARTS). I recommend them highly. I owe a debt of gratitude to Peter, not only for providing the information which led to this series, but for his support and encouragement of it.

I hope you enjoy The One-Page Scale Modeler.

PLAN 1: ASTROBEE 500 AT 1/28 SCALE

My fondness for this particular rocket is becoming well known. It seemed only fitting to begin the series with it. There are three assemblies of note:

(1) The nose is made from scrap balsa. I glued a "blank" into the 6mm tube, cut it to length, and hand-sanded it to shape.

(2) Make the nose section by wrapping masking tape around the 6mm tube until it fits snugly into the 3/8" section of 18mm engine casing. Glue it in place. Slide the upper shroud down the 6mm tube and glue it in place against the 18mm casing. Glue the dowel piece into the aft end of the 6mm tube and mount a screw eye in it.

(3) Though this is a single-stage model, I have designed the plans to simulate the separation point between the first and second stages. The lower stage assembly is built conventionally using the 13mm engine casing section as a tube coupler/engine block. It is glued into the forward end of the lower stage tube so that the motor will protrude 1/4". Fins are attached in the usual manner. Snugly fit--BUT DO NOT GLUE--the lower stage into the upper stage assembly. Attach the upper stage fins, using the lower stage fins as alignment guides.

FINISHING: Separate the stage assemblies, seal the wood, and paint both assemblies gloss white. When dry, fit the two stages together so that the matching sets of fins (one upper, one lower) match up. Mark one set of fins with a pencil, separate the stages, paint the marked fins gloss black, and let dry. NOW you can glue the stage assemblies together, with the black fins lined up.

Take the plan page to your local copy shop and have them photocopy it on "one-up clear label stock." This is crystal-clear, super-thin, adhesive-backed stuff which will yield wonderful quick decals. Now you know one of my secrets. Cut out the kit name and apply it to the model as shown in the photo. It goes one fin to the right of the black fin, with the word "Astrobee" centered over the white fin.

FLYING: Fly the Astrobee on any 13mm motor, though you're liable to lose it with anything over a 1/2A. Though the model is light enough to use nose-blow recovery, I recommend using a small (1/2" by 18" or so) mylar streamer to improve visibility.

NOSE MADE FROM SCRAP BALSA

WRAP MASKING TAPE AROUND 6mm TUBE TO FIT IN 18mm CASING. GLUE IN PLACE. GLUE DOWEL IN BOTTOM OF 6mm TUBE. WHEN DRY, INSERT SCREW EYE IN DOWEL.

18mm CASING

LUG HERE, CENTERED BETWEEN FINS

520 CENTERING RINGS

PARTS LIST

- 31mm BT-5 tube
- 42.5mm BT-5 tube
- 40mm BT-20 tube
- 155mm of 6mm tube
- RA-520 Centering Ring (Heavy Duty)
- RA-520 Centering Ring (Flat)
- 20mm of 3/16" dowel
- 3/8" of 18mm motor casing
- 3/8" of 13mm motor casing
- 1/32" plywood stock for fins
- Bond paper (NOT CARDSTOCK) for transitions

LOWER SHROUD

R1 .849"
R2 1.155"
θ 114.7°

13mm CASING

MAKE 4 OF EACH FIN

UPPER SHROUD

R1 .524"
R2 1.607"
θ 82.44°

Aerojet-General Astrobee 500

ACTUAL SIZE DECAL used with permission of Peter Alway

THE ONE-PAGE SCALE MODELER ASTROBEE 500

DRAWN BY K. WICKART
REVISED
SCALE: FULL SIZE
APPROVED BY:
DATE: 19 OCT 97

MODEL IS AT 1:28 SCALE TO THE PROTOTYPE

DRAWING NUMBER 1 of 1

HPR Kitbashing
by Ken Hutchinson

Normally when rocketeers talk of kitbashing, they have in mind that fun(ny) contest event where teams of people combine the contents/ instructions/packaging of several normal rocket kits into creative stews of elegant and implausible design elements. The stability of the resulting models also ranges from elegant to implausible!

In the model railroading culture the term kitbashing has an entirely different meaning however. Everything on a model railroad is a scale model to some extent and model railroaders frequently take a premanufactured model or kit and convert it into something else. This is what they call kitbashing and the result is not something weird but an ordinary looking model that is different from the original. I have no idea which camp originated the term, perhaps we both stole it from someone else. Model railroaders kitbash for several reasons. They may convert a ready to run generic boxcar into an accurate model of a real boxcar that ran on a specific railroad. They may convert an accurate model of a certain locomotive into a model of a similar locomotive which isn't available as a ready made item. Or, they may take a building kit and modify it so that it doesn't look exactly the same as the kits 10,000 other model railroaders have purchased for their layouts. The advantage of kitbashing is that by starting with a premade model or kit, you can save 90% or more of the effort that would have been required to build the same model from scratch.

Goofy model rocket kitbashing would not mix well with high power rocket motors, but the model railroader's style of kitbashing does and it works for lower power rocketry as well. With the limited number of scale kits available at all levels of rocketry, the notion of saving effort by modifying one scale kit to represent another prototype is applicable, but not to the extent it is for model railroaders. The driving force for this type of kitbashing in rocketry is more often pragmatic: I've had XYZ kit unbuilt in my basement for three years, I'm no longer interested in it, what else could I make from it?; or economic: frequently the cheapest way to buy a body tube, motor tube, centering rings, parachute, and a nose cone is to just by a kit that has the items you want. And if you can get the kit on sale, even better!

This was the situation I found myself in early this year. I wanted to build a 4 inch HPR model, I was partial to building a sport scale model of a Viking 1 sounding rocket, and the late Mountainside Hobbies was having a sale that included a 4 inch sport kit. The first thing to do is to study the information on the kit and make sure that you can use most or all of the components, otherwise you might be better off buying the parts separately after all. In this case the fins were useless, but I might be able to cut some small centering rings from them later. The motor tube was 29mm in diameter and I wanted 38mm, but I can always use the 29mm later in another model. This meant that the centering rings were also wrong for a 38mm motor tube. I could have set these aside for use in a later model, but I felt that I could bore them out to take a 38mm tube, more on this later. In short virtually everything in the kit had at least some use to me so I bought it.

There is one other point to consider before you send in your order however, and given the paucity of local shops that carry HPR supplies you will often be buying through mail order. The model was way too short to be a Viking 1. The obvious solution is to order extra body tubes and couplers. The point is that you should draw up your plans and determine the parts list before you order so that you can get everything at once. Otherwise you will be half way done with the model, and really on a roll, only to be put on a two week hold because you just realized you need a bulkhead plate to finish the bottom of that payload section you added.

While waiting for the UPS man to arrive, there is some important work that you can do. Anytime you scratch build, or modify a model, the burden is on you to do it safely. This is especially important with HPR models. Now is a good time to do a stability analysis using the Barrowman equations. If you don't know how to do this, you need to learn. Ask around NIRA, there are a number of tools you can use from the bare equations and a calculator to a nice little freeware program called VCP. Once you have determined the most rearward stable location for the center of gravity, it is a good idea to mark it on the finished model. Be sure to check it before every flight.

Another safety issue is motor selection and weight. You want enough thrust so that the model accelerates off the pad at 3g's, bare minimum. This means the motor thrust for the first half second should be at least four times the model's weight. This is to give the model enough speed when it leaves the launch rod for the fins to be effective, and is especially important on windy days. Simulation programs available from NARTS can help with this, and with delay time selection, another important issue. Make sure you do the engineering work before you press the launch button.

I wanted to make the upper section of the Viking a payload section so I needed a bulkhead plate. I decided to make it instead of buying it. Careful work with hand tools would probably suffice to make a bulkhead or even a centering ring. If you have a drill press there is another option. I bought an adjustable circle cutter, sometimes called a fly cutter. It consists of a 1/4 inch drill bit mounted in a mandrel that also holds a cross arm with a steel cutter at its end. The steel cutter makes a vertical cut on one side of the kerf and a chamfered (45 degree angle) cut on the other. Mine was set up to cut circles, that is the vertical cut is formed on the inside so that the piece you are cutting has a nice square edge while the hole you leave in the stock has the chamfered edge. This is fine for making the bulkhead, to make a centering ring you need to reverse the cutter somehow.

These cutters are typically made from a small piece of square steel rod. Merely turning the cutter around would not work because the cutter would be spinning the wrong way to cut correctly. My cutter had an edge on one end and nothing on the other end. I studied the working end of the cutter carefully, turned it around in my mind, and ground the blank end of the cutter to the correct shape to leave a square edged hole. Now I had a cutter which could make either cut for a centering ring just by swapping it end for end, although in the process I had moved from kitbashing rockets to kitbashing power tools!

I needed the new cutting edge to bore out the centering rings for the 38mm motor tube. To do this I put the circle cutter in the drill press, slapped a scrap piece of plywood underneath it and used the cutter to drill just the 1/4 inch pilot hole in the scrap wood. Then I placed the centering ring on top of the scrap wood and adjusted the circle cutter for the diameter of the motor tube. By lowering the cutter through the pilot hole and turning it by hand, you can use it as a guide to carefully position the centering ring so that the 29mm motor tube hole is centered on the pilot hole and clamp both the centering ring and the scrap wood to the drill table. Now you can adjust the diameter, turn on the power and cut the hole for the 38mm tube. I hope that you enjoyed that because you have to do it again for the other centering ring. I found the process to be fairly easy and accurate.

Making the bulkhead plate for the payload section was a simple matter of reversing the cutter to make disks instead of holes and setting the correct diameter. I used 3/16" model aircraft plywood purchased at a local hobby shop for both the bulkhead and the fins. The quarter inch hole the circle cutter leaves in the center of the disk is perfect for mounting an eyebolt to attach the shock cord for the recovery system. On the other hand an eyebolt can be pulled open by the stress of the parachute opening, so I like to drill a second hole and use a U bolt instead, when the diameter of the rocket permits.

Through the wall fin mounting is virtually a requirement on an HPR rocket. I like to use the method LOC uses on their Magnum kit. Tabs are added to the outline of the fins so that the fin can extend through the outer body tube all the way to the inner motor tube. I made the fins from the plywood mentioned above. Cutting plywood fins can be tiresome, a bandsaw or jig-

saw helps tremendously, if you have access to one. Any sanding of the fins to clean up the outlines and shape the leading/trailing edges is best done next. Shaping plywood fins is also tough, a power belt sander will earn your undying friendship. Then the fins and centering rings are attached to the motor tube with well filleted epoxy joints. Be careful to get the fins on square and straight. Two hour epoxy is preferred because it is thin enough to wick into the wood and cardboard parts before it sets, giving a strong bond, and because it resists the heat of the motor better than the quicker setting grades. Since HPR tubes are usually wrapped in an epoxy proof glassine layer, like low power body tubes, you need to remove the glassine coating from the areas you want the epoxy to bond to. Sandpaper works well, though at the risk of sounding too much like "Tool Time" I will note that a little sanding drum in a Dremel tool does the job quicker and easier.

Since the fins are already attached to the motor tube, the only way to insert this assembly into the main body tube is to cut the slots for the fins so that they extend all the way to the rear end of the body tube. This isn't a problem for a rocket like the Viking whose fins extend all the way to the rear of the body tube anyway. When building a rocket whose fins don't extend to the rear, the rear end of the slots will have to be filled in after the fin assembly is attached. The scraps of material you cut out to make the fin slots in the first place should do nicely. The rear end of the body tube needs to be glued to the rear centering ring. Four pieces of masking tape stretched across the diameter of the tube do a nice job of holding the semi-independent pieces of the tube in place while the epoxy sets. You will also want to add external epoxy fillets to the fin/tube joints. Accuracy in cutting the fin slots will reduce the number of holes you have to fill to prevent the epoxy from leaking away while the fillets set.

This wasn't intended as a step by step construction article. I hope I have given you some useful tips, though. While I wasn't able to complete all of the detail work, or even do a decent paint job on the Viking in time for the recent Muncie launch, I did get it flight worthy. It was quite a kick to see the Viking lift smartly off the pad and fly arrow straight. And instead of being one of several Mountainside ADR owners, I was the only one on the field with a Viking 1 model.

Kit Review: Apogee Micro V-2
from an RMR posting by Frank J. Burke

I just finished putting together my Apogee V-2 and wanted to post a few comments.

The kit came bagged nicely with a nice set of instructions. The body and tail tube were a nice quality white tube, but the body tube wasn't cut cleanly. I recut the ends and CA'd them for toughness.

The tail cone is pre drilled, and other than needing some sanding on the end to square it up, and to make it fair into the body tube, was really nice. The fit of the motor tube was a little loose, but when I used carpenters glue, it seemed to bond fine.

The nose cone is balsa also, and after minor sanding looked great. It too is pre-drilled for nose weight. A bead is tied to the end of the kevlar line and glued into the cone for attachment. I used CA for this, and applied the clay nose weight, and secured it with CA.

I decided not to attach the other end to the thrust ring, but to tie it around the burnout CG of the bottom half, and avoid any body tube damage on ejection, since there is no elastic used. The line is plenty long, and a plastic streamer is used for recovery.

The fins were really nicely laser cut balsa, and needed really minor sanding and shaping of the leading edges. After I glued in the motor tube and tail cone, I marked the body, and applied the fins. There are two really neat alignment jigs in the kit that make aligning the fins easier. The root edges of the fins fit perfectly and after making fillets, I put on the launch lug.

I can't wait to get out and fly it, as it looks great, and fits in perfectly with my collection of micro scale Boyce rockets, and my Seattle Rocket works Nike Smoke. No offense to Michael Park, but I think the micro V-2 is even cuter than the Nike Smoke, and goes together even faster. Total build time was about 1 hour, not including finishing. Finished height is around 6 3/4" and I have some 1/4A 10.5mm Apogee motors to try in it. They worked great in my Centrix, and they have changed the igniter design to be more robust.

I think this would make a great frenzy candidate, as the kit with three 1/4A motors was only $14 or so with shipping.

After spending 6 weeks working on some RC airplanes, it was great to build something in an hour. Great quality kit, and you just can't have too many V-2's. Now I have a .7", 2.6", 4", 5.5", and (formerly) a 7.6". I think I can squeeze one of the 10.5mm motors in the pod of my 1/48 scale Tamiya V-1 buzz bomb with a little modification. Hey, micro PMC, what a concept!

NARCON 98

After a fairly successful NARCON 97 with over 50 in attendance, the CIA has been asked to do it again. NARCON 98 will be held at the same location, the Springer Cultural Center in Champaign, IL on March 27-29, 1998. Details are still be worked out, but this is a preliminary message so you can mark it on your calendar. If you are interested in being a presenter at the conference contact Conference Director Greg Smith at gdsmith@uiuc.edu or by phone at 217/352-9655. If you would like to have a vendor display at the conference contact CIA President John Page at johnrock@uiuc.edu or by phone at 217/356-8981.

NSL 98

NSL 98 will be at the AMA National Headquarters and flying field near Muncie, Indiana on Friday May 15th through Sunday May 17th.

You need to call the Ramada directly and mention AMA to get the rate which is $49 per night. The Ramada is closer to the field than the Amerihost. Call 1-800-2RAMADA or 765-288-1911. You are urged to book early and secure with a credit card.

NARAM 40

The 40th National Association of Rocketry Annual Meet (NARAM-40) will be held August 8 - August 14, 1998 at the Academy of Model Aeronautics (AMA)national model airplane flying site in Muncie, Indiana. This site is 1000 acres of mowed grass, and it has become a favorite rocket flying site recently as the location of the International Spacemodeling Team flyoffs and the 1998 NAR National Sport Launch. There are several motels very near the field, and the AMA site has extensive range support built-in.

Contest Director for NARAM-40 will be Glenn Feveryear, a long-time competition flyer, NARAM competitor, and contest director for the RAMTEC regional meets in Center Valley, PA. Glenn can be reached at:

Glenn Feveryear
RD #1, Box 1-C
Delta, PA 17314
(717)456-5570 (voice)
(717)456-6522 (fax)
feveryear@cyberia.com (internet)

The events for NARAM-40 have been approved by the NAR Contest Board. The competition events will be flown August 10-14, and they are:

- 1/4A Parachute Duration
- 1/2A Flexwing Duration (multiround)
- A Boost/Glide Duration
- B Helicopter Duration
- B Streamer Duration (multiround)
- B Altitude
- D Dual Eggloft Altitude
- Sport Scale
- Research and Development

Glenn will be announcing more details on NARAM-40 as they are developed.

Memories of the Mentor

I "met" Harry my freshman year in high school when I found his "Handbook of Model Rocketry" on the library shelf. Over the next 4 years, I probably checked that book out dozens and dozens of times. It was my constant companion.

I first met Harry for real at NARAM-19 in Kansas City. The NAR was in a state of turmoil. He made one of his typical speeches at one point; those of you who've known Harry know what I mean: blunt, opinionated, maybe even pig headed, and right on target. You could always count on Harry to point out when something was wrong. He certainly wasn't the most diplomatic person, but in retrospect he was usually right.

At NARAM-31, the debate over HPR continued, until Harry got up to speak. He pointed out that when he founded the NAR back in the 50's, it wasn't the National Association of Rockets under one Pound, but the National Association of Rocketry, all inclusive. It certainly wasn't what I expected to hear from Harry, but it probably changed the future of the NAR. NARAM-32 was the first NARAM with a waiver for 454-1500g rockets, and NARAM-33 became the first NARAM to fly HPR.

Harry was back at NARAM-36 to plug what must now be the final edition of his classic book. Following one of his old traditions, he asked all the participants to autograph his copy. I'm proud to say that my name is on his copy, on the page with the egglofter.

I last saw Harry at NARAM-39 this summer. In spite of his recent health problems, he looked better than I'd ever seen him. In retrospect, I'm so glad we all got one more time to visit with this great man.

I just can't imagine what my life would be like today if it weren't for the influence this man had on it for the past 34 years. Thru my hobby, Harry has shaped my education, my career and much of my life. It's saved countless young lives. It's lead many, like myself, thru their lives on paths that have taken them as far as man's imagination can go. We all owe him a huge debt.

Bob Kaplow, NAR #18L

These thoughts come late at night, when children are long off to sleep, and the day's chores finished. For most of the last twenty-five years, I've spent the daylight hours inventing the future and preserving it with pencil and ink and paint, and at night have attempted to find at least a few free moments to stop and think clearly. This particular night is a torrent of recollections about a friend and teacher with whom I should have stayed in much closer touch...

How far we have come! When I first met Harry, I was a scattered teenager literally banging out polite letters to NASA and little science fiction stories on a Remington manual, and drawing all manner of rockets, spacecraft, robots, and flying saucers. Personal computers were still the stuff of science fiction, and space exploration had barely begun. Back in Connecticut, a very tiny article in the Stamford Advocate spoke of a local model rocket event. This quickly caught my eye. My dim memory tells me the year was 1964, the article mentioned Harry, and even gave a telephone number, which I called. I didn't know it then, but I was hooked. As Harry was fond of saying, "Model rocketry was invented the day you discovered it." To a kid who had previously known only home-grown pyrotechnics, model rocketry offered an activity where the goal was not a deliberate catastrophe, but rather the avoidance of one, and mimic the best of what was happening at Cape Canaveral and Baikonur.

Over the next few years, a goodly number of us space-minded kids learned the sport under Harry's patient guidance, whether directly at the local launches or through his words and pictures in the "Handbook of Model Rocketry" (it was his fault that we all had relatively low NAR numbers). We built rockets from kits, we built our own designs, and we built scale models of the Real Things, sometimes based on Harry's technical artwork. Before computers started edging out the rapidograph pen, he turned out some very clean blueprints which still impress me today. And anyone who could handle a Leroy lettering guide I consider a genius.

I've said on many occasions that my father taught me to draw from the age of two, and recognized that I did indeed take to all things visual and technological. If you could understand the workings of his favorite steam locomotive, you could understand any piece of machinery. I received a steady diet of books about space and the future, even before Sputnik and Explorer went into orbit. As I progressed in model rocketry, and Dad continued to support my interests, I got to know about Harry as a real-life rocket engineer who seemed to keep his feet firmly on the ground and his head in the stars. My artistic and mechanical grounding came from my father, and I got a real education in space from Harry. The people I have most respected have been those who have been great teachers, and Harry was one of the best. I will always be thankful for the visits with him at his home in New Canaan; for the hospitality of his family, Barbara, Ellie, Connie, and Bill. The years and miles have also cultivated the belief that there was more than a dash of tolerance afforded me in that time, for which I am also grateful.

People who knew Harry have been talking about "paying forward," passing on knowledge and experience, and if I can rightly say that I had a mentor, Harry was it. He reinforced what artist Paul Call made me openly promise; I must take the time to pass along my knowledge. Harry's exuberance about the future and technology was infectious. He had the "sense of wonder" so often attached to readers and writers of science fiction. He taught us about things to come, how we would do things and go places, not only in space but here on Earth.

At the same time, he emphasized the realities of the world, how projects weren't going to run as fast or come in on budget as people might think. He spoke of the possibility of a shuttle disaster before Challenger. He studied the nuts and bolts of his own airplane, and I had absolutely no fears of flying with him, especially on one long haul from Phoenix to Boston. He knew how things worked, and I'm glad to have had some of that rub off on me. For all his pragmatic anchoring, though, he seemed to keep an open mind about the scientifically offbeat, often with a dose of humor. I'm sure that the collection of Walt Kelly's Pogo books he gave me accounted for some of that. Pogo's lessons rubbed off as well.

It can be also said with little doubt that Harry was the reason I got any kind of a start in space art and science fiction covers, a conspiracy engineered with then Analog editor Ben Bova, who tells the story of "discovering this artist in Harry Stine's basement." Harry asked if I could leave some art to show Ben while I was out of town. My first cover for Ben illustrated Harry's "A Program for Starflight," a look at the exciting prospects and practicalities of interstellar travel. The author-artist relationship lasted through a number of projects, including "Shuttle Down," "Third Industrial Revolution," and "The Handbook for Space Colonists." For me, this last book fortified my notion of Harry as teacher, imparting fascinating and crucial information about the rigors of space flight.

Harry's enthusiasm and encouragement meant a great deal to me, for which I say thank you. I will miss his advice and his tutelage and his friendship, always present even when my personal difficulties disconnected me from most of the people I counted as friends. We can best honor his memory by recalling his life and his work, learning new things, and teaching what we know.

Rick Sternbach
Senior Illustrator
Star Trek Voyager

G. Harry Stine's philosophy was not to "pay back" but for each of us to "pay forward". To fulfill this wish the Stine family has founded the "G. Harry Stine Space Pioneers Memorial Fund". The fund will be used to establish scholarships for young people whose interests lie in pioneering the next great frontier...space.

Donations in Care of:

Bill Stine
6012 East Hidden Valley Drive
Cave Creek, AZ 85331

Heard on the Street (with apologies to the Wall Street Journal)

What's In a Name - A simple Web search turned up the following organizations currently "stealing" our club's initials:

National Institute for Research Advancement

NorthAmerican Industrial Representatives Association

National Investors' Rights Association

National Insurance Recruiters Association

Nationwide Information Research Associates

If you find any others, send 'em in.

Welcome to the Club! - Ed Austin, Bill Carpenter, John Costopoulos, D. S. Daniels, Eugene Dougherty, Stephen Jarzombek, Daniel Kaye, Pat Kuhl, Kyle Newman, Alan Rognlie, Dean Roth, Kurt Schachner, Warren Stern, Gloria Strickland, James Wilson, and Bill Wisvader have joined NIRA in recent months. Welcome!

Do You Feel A Draft? - The outer Kvant-2 EVA hatch on Mir is still leaking. A new outer hatch seal will be delivered by the next Progress cargo ship. Meanwhile, the inner airlock compartment is safely sealed and will continue to be used for external spacewalks.

Changing the Oil and Rotating the Tires - Space Shuttle Atlantis has arrived in Palmdale, CA for its Orbiter Maintenance Down Period. This is a regularly scheduled period in which the orbiter is fully inspected and new equipment installed. For Atlantis, new cockpit displays will be installed, and the airlock will be relocated to the payload bay docking system area. Atlantis will return to the fleet in approximately 9 months and is scheduled to fly a construction mission to the International Space Station immediately after its return to the Kennedy Space Center.

Bank by Satellite - A Krunichev Proton was launched from Baykonur on Nov 12 with a geostationary payload, the first Kupon comsat for the Russian banking system. Kupon is the first commercial comsat made by the Lavochkin group, who usually make planetary probes and early warning satellites. The satellite will relay financial data for the Russian banking network.

Electronically Connected? - Send an email message to Bob Wiersbe (wiersbe@lucent.com) to be added to the NIRA member email list. Also, check out these web sites:

NIRA Home Page - http://ourworld.compuserve.com/homepages/Mark_Bundick/

NAR Home Pate - http://www.nar.org/

NAR S&T NEWS

This announcement contains two types of model rocket motor decertifications.

It supersedes the combined NAR/TRA certified motor list as published in the November/December 1997 issue of "Sport Rocketry" magazine.

NAR Contest Decertifications

The following motors will lose their certification for NAR contest use effective July 1, 1998 but are certified for use at NARAM 40. They remain certified for general sport flying for a period of three years.

Estes ----- A8-5 B4-6 B8-5

NAR General Use Decertifications

The following motors, having been out of production for more than three years, will lose their NAR certification for general use effective July 1, 1998.

Aerotech -------- E15-10 E25-10 E30-10 F14-9 F25-12 F44-20 F50-12 G40-13 G80-13

Apogee ------ 1/4A3-2T

Estes ----- A3-2T,6T

MRC --- B4-2

Jim Cook, Secretary for NAR Standards & Testing <JimCook@AOL.COM>

Jack Kane, Chairman

New NIRA Reprint Series Booklets by Richard Gaff

Six new booklets have been added to the reprint series this issue bringing the count to 47 available booklets.

Available after the November NIRA meeting:

Thiokol Rocket Basics. File downloaded from the Thiokol Corp. web site present a brief history of rockets and a long description of how a rocket functions. 27 pages

Ancient Rocket plans of Estes Industries from the 60's, 70's & 80's Vol. 4. Orbital Transport Laboratory, 2 versions of the lookdown Astrocam, Gigantiroc 2-A and the Saturnian.

Technical articles from Sport Rocketry, Vol.2 Dynamic Stability, Wind effects on MR flight, 3 articles on delayed staging, and 6 other technical articles.

Available after the December NIRA meeting:

Ancient Rocket plans of Estes Industries from the 60's, 70's & 80's Vol. 5. Tartar, Argus II, Nimbus, Newfoundland Space Tanker, Harpoon, The Lizard B/G.

Phantoms of space - The Secret Dead Russian Cosmonauts by James Oberg. A long article from the internet about the myth of secret dead cosmonauts written by one of the foremost authorities on the Soviet space program.

Frequently asked questions Mini Reprints:

FAQ #6) Model rocket Construction and finishing

FAQ mini reprints are excerpted from the internet newsgroup Rec.Models.Rockets:

NIRA's Scale Data reprint service:

Scale data published in Model Rocketry Magazine and Sport Rocketry magazine is now available from the NIRA reprint service. Data for over 30 rockets is available including the incredible Beach-Gassaway Little Joe II data. Just ask for a scale data reprint request form.

The Reprint editor recommends:

2) Science Fiction Rocket Plans from Sport Rocketry. Artoo-Detoo, X-Wing Fighter, mini Mars Lander and four other plans with a futuristic flavor.

16) Technical articles from American Spacemodeling et. al. Vol.1 Articles about design efficiency, elliptical fins, boat-tailing, CP calculations and 7 others. Most of these articles are concerned with building more efficient rockets.

18) High Power Rocketry - An Introduction. Nine articles from Sport Rocketry on High Power Rocketry. Includes plan for HPR model

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The reprint series is an effort to get interesting useful information out of the collections of "old timers" and into the hands of people who don't have access to the original material.

Sources for the reprint series include back issues of Model Rocketeer, American Sportmodeling, Sport Rocketry, Model Rocketry Mag. main stream magazines, rocket manufacturers and the Internet's Usenet rocket group Rec.Models.Rockets (R.M.R) just to name a few.

Reprint booklets are FREE to members at club functions. If you want them by mail simply send 52 cents in stamps or cash for EACH booklet you order. Or a large 9x12 self addressed stamped envelope (the SASE can be used for several at once, be sure to include the proper postage) to;

Richard Gaff
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Streamwood, IL 60107
(630) 483-2468

Email: rickga@ix.netcom.com
or G12091@email.mot.com

A complete up to date list is also available in person, by mail or email.

October Model of the Month Winners

John Guzik (left) won in Adult with his nicely done Super Vega.

Pierre Miller (right) won in Youth with his very nice scratch built copy of the Estes U.S.S. Casseopia.

Contract negotiations break down at the North Pole.