

The MARSTTM Pathfinder



Official Publication of MARSTTM, the Monroe Astronautical Rocketry Society,
Section 136 of the NAR[®]

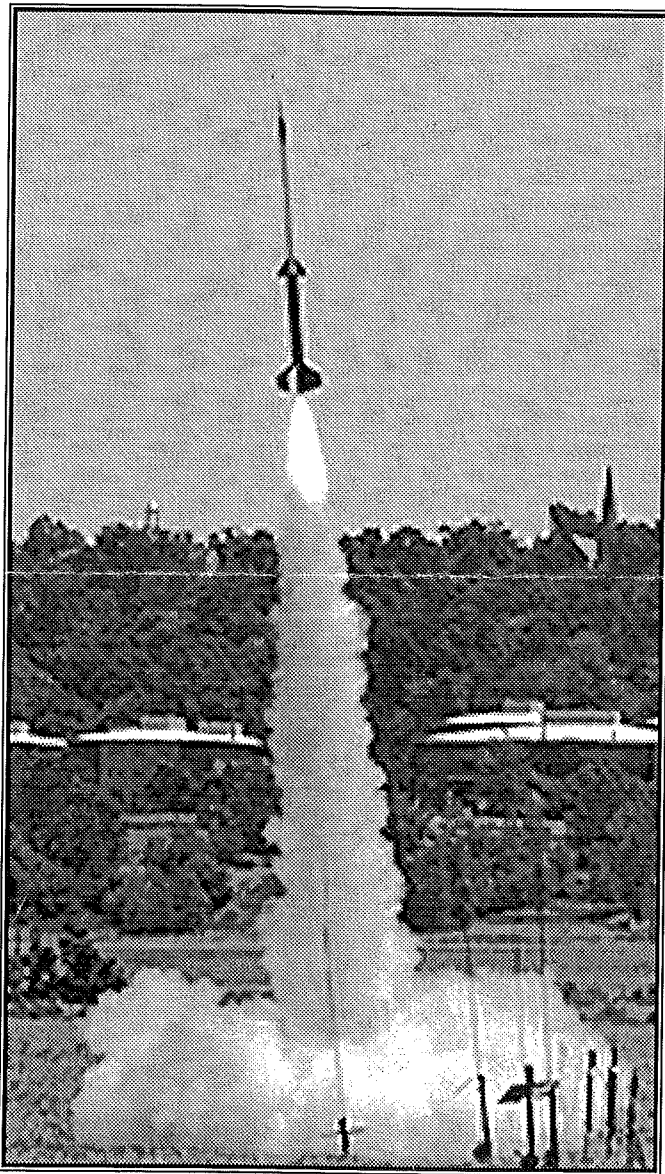


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MARS Does NSL!

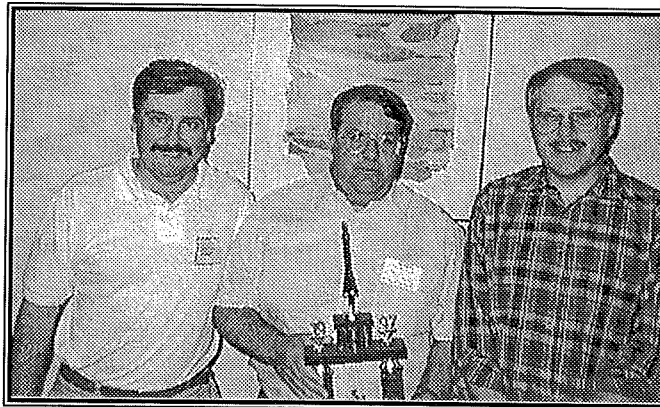


John Ritz's Taurus-Tomahawk lifts off on an I284. It was supposed to stage to an H73J, but the upper stage engine never ignited. John's altimeter saved the day. Photo by Rich Pitzeruse. ➤

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MARS Goes to NARAM!



SECTION TROPHY— The three representatives of MARS at NARAM-39 accepted, on behalf of the entire MARS membership, the 3rd place National Champ Section trophy. This is the highest MARS has ever placed! Photo by Mark Johnson. ➤

by John (Formerly Known As "I Ain't Flyin' No Helicopters") Viggiano

Three members attended the 39th annual National Championships (NARAM), held the last week of July in Tucson, Arizona. I had been down there in February, 1993, on a day trip before the NSL that year, and it was HOT! I could only imagine what it would be like during July and August! I was prepared for the worst.

As it turned out, the temperature never got above the teens (that's 113 to 119°F) the whole week, so things were reasonably comfortable. In fact, the weather was unusually cooperative — the thermal activity was a competitor's dream!

Our hosts were the Southern Arizona Rocketry Association (SARA) from Tucson and the Superstition Spacemodeling Society (SSS) from Phoenix. The very capable CD was Ric Gaff — err, I mean Steve Lubliner. (Ric, who was second-in-command at two NARAMs himself, was mistaken for Steve early in the week, so a running joke was underway!) Our field was about 25 Km northwest of town, on some desert land leased from the city for TIMPA, an aero-modeler's park. Parking, access roads, a shade-providing ramada, and a snack bar the first two days were provided by the TIMPA hosts.

Upon my arrival at the motel, I was surprised (if that's the word for what I felt, which it isn't, but this is a family publication, after all) to find water gushing out of a pipe in

continued on page 4

Op / Ed

IN MEMORIAM

G. HARRY STINE

1928-1997

On 3 November, 1997, G Harry Stine passed away in his Phoenix home, apparently of a heart attack.

Harry was founder of the NAR, and one of the founders (the other was Orville Carlisle, NAR #1) of our hobby.

Professionally, Harry was an engineer. He worked for the Douglas Aircraft Corporation at White Sands Missile Range. While there, he wrote a series of articles for the popular press about what he referred to as "the World's Safest Business." His aim was to discourage unsafe practices by those (youths in particular) yearning to know more about rocketry. He encouraged them to apply common-sense safety rules (which he enumerated in a list which was the direct forerunner of our current Safety Code) to their activities. As a result of this, so legend has it, he was discharged. In the meantime, he was contacted by an Omaha shoe salesman and amateur pyrotechnician, Orville Carlisle. Carlisle had read Stine's articles, and suggested that his paper, plastic, and balsa rockets, propelled by pre-loaded engines which Carlisle also developed, as a safe alternative to the bombs kids were at the time concocting. They decided to form a business, Model Missiles, Inc., to produce and market the rockets, and organized a hobby association.



Because of undercapitalization, Model Missiles folded, but the hobby association is still thriving, forty years later. It is an enormous legacy.

Harry was also a prolific and gifted writer. In addition to the *Handbook*, with which most of us are familiar, he wrote on technological subjects (frequently, but not always space-related), business, and science fiction. His most recent titles include *Living in Space*; *Halfway to Anywhere*; and *Starsea Invaders: Third Encounter*.

Of course, Harry was an inspiring teacher and leader. Through his tutelage and guidance, the sections with which he was actively involved were perennial National Champions between 1958 and 1971. He founded the YMCA Space Pioneers, which won the banner in 1968 and 1971. He often urged us to "pay forward, rather than pay back," meaning that we should do for others what he had done for us.

But, perhaps most importantly, Harry was a regular guy. He loved to drive an ancient candy-apple red Barracuda and an equally old white Rambler wagon. At launches, he was always wearing coveralls. Nevertheless, he did incredible things. And a regular person who does extraordinary things is perhaps the best definition of a hero. Harry was a hero to many.

Festina ad Astra, Harry Stine.

John
John

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Submissions from all people are welcome. We prefer electronic form; please contact us for details. We accept photographic slides, prints, and Photo CD.

Editors of other newsletters and journals are welcome to reprint material which appears in MARS Pathfinder, provided they extend to us a reciprocal privilege and they cite the author and this journal, unless the article, plan, or what-have-you indicates something to the contrary. Please contact the author if that's the case.

The Pathfinder actively supports the NAR Newsletter Exchange Program. Please participate in this important program by swapping with us and other sections! Contact the editor for more information.

MARS™ Homepage:

<http://web.syr.edu/~rmpitzer/mars/>.

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MARS™ Pathfinder

Founded in 1988 by Daniel W. Wolf as the Upstate Rocketeer

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President: Rich Savory

Vice President: Patrick Finan

Treasurer: Lloyd Wood

Secretary: John Viggiano

Immediate Past President: Andy Schecter

President Emeritus: Dan Wolf

Club News — December Meeting

Present: John Ritz Lloyd Wood, John Viggiano, Andy Schecter, Rich Savory, Mike Magurk, Jon Dussinger, Tom Dussinger, Brian Dussinger, Ken Keleta, Rich Pitzeruse, Jim Sekol, Rick Lombardo, Bill Guy.

Also in attendance: Jennifer Pitzeruse.

1998 Schedule

Change FLFC to FLFC 8, change rain date to 19-20 Sept

ADD DX Local, tentatively scheduled for 24 May, rain 31 May. *[Editor's Note: This has been changed to 31 May, because of a conflict with another event on the 24th.]*

NYPOWER

First meeting after 1 January launch. Launch motel is the Highland on Methodist Hill. They have just completed an extensive renovation program. Aside from five rooms, we have the run of the place. (22 double rooms, 32 single rooms, 1950's style park-at-your-door place). Book your room while they're available. (Red Roof Inn, Fairfield Inn are within walking distance; others are very close.) Possible catering of an evening meal by Rustler's Roost.

MARS Website

Now on-line at:

<http://web.syr.edu/~rmpitzer/mars/>

Range Equipment Transport

A trailer is being looked at. It needs sides and a roof. An alternative trailer has been located Mike Magurk for about \$700.

Issues of storing the trailer at Austin's, insurance, etc. were discussed. It is unlikely Austin will permit us to store the trailer at the field unless we obtain insurance for the trailer itself and the contents.

Charter Renewal

We need more insured members. Rich Savory, Ken Keleta, and Rick Lombardo have indicated their intentions to send in their insurance.

Meeting Site

Still looking for a new meeting site. Ideally, would have a VCR, beer, later hours. Contact a club officer if you have a suggestion.

For the good of the section

Pat Finan's father passed away. Please remember him and his family.

Jennifer Pitzeruse asked about membership benefits. One thing discussed which seemed popular was reduced launch fees. In order to help make this work, John Viggiano volunteered to make nice laminated membership badges.

Some discussion on offering a differential in launch fees

for members. Motion by Wood; seconded by Savory; passed.

Discussion on should we ask TWNY to host some of the Geneseo launches? Lloyd was pro; pointed out that it would relieve some of our manpower burden; helps spread the wealth. Rich Savory indicated he had an uneasy feeling turning over the safety, control, etc., to another group. Chief RSO should, ideally, be a MARS member. Lacking a plethora of qualified RSO members, it should at least be a person of our designation. At the same time, we should work towards bolstering our RSO talents. The NAR program will probably not be ready for another year.

Elections

President: Rich Savory was nominated by Andy Schecter (seconded by Viggiano): 13:0: 1 abstention.

Vice President: Patrick Finan (nominated by Kaleta; seconded by Wood) 14:0:0

Treasurer: Lloyd Wood (nominated by Schecter; seconded by Savory): 13:0:1

Secretary: Tom Dussinger (nominated by Savory; seconded by Wood); John Viggiano (nominated by Pitzeruse; seconded by Magurk) 6:8

New Committee Chair

John Ritz is new Membership chair. All memberships go through Lloyd as treasurer. Lloyd will pass information along to John, who will maintain the membership list.

Dues

Motion by Viggiano to keep Dues at the 1997 level (\$1 per month for adults, \$0.50 per month for those under 18 years of age; payable in advance for the remainder of 1998) was seconded and affirmed 14:0.

Please get your dues to Lloyd as soon as possible.

Minutes

were read and accepted.

Reminder

New Years' Launch: 11:00 AM Setup, Noon Starting Time, First Flights. Directions on the Web Site.

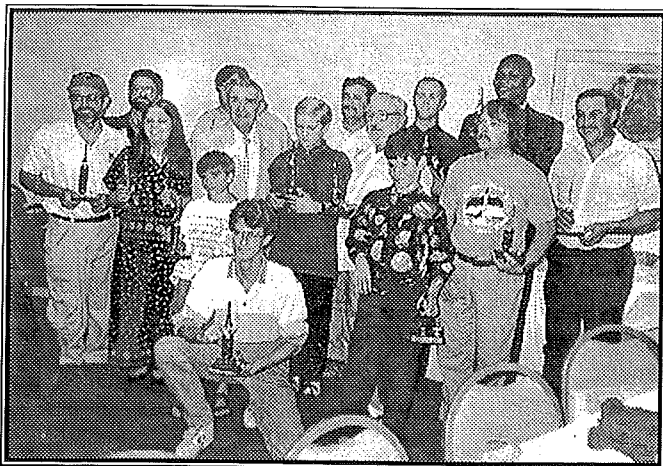
Respectfully submitted,

John Viggiano

➤

WELCOME, NEW MEMBERS!

Les Button, Brian Dussinger, Jon Dussinger, Tom Dussinger, Gary Fink, Bill Guy, Steve Lambert, Rick Lombardo, Mike Magurk, Jennifer Pitzeruse!



CHOPPER CHAMPS — You'll need a new sobriquet for John Viggiano (back row, center), as he took first place in Teams in Class 00 Helicopter Duration at NARAM. Photo by John DeMar.

NARAM-39, continued from Page 1

the wall directly across from my door. The front desk agreed to turn the water off, but that meant I had to delay a much-anticipated shower (and I had been hiking in Phoenix earlier that day)! Fortunately, for myself and my neighbors, they quickly fixed the problem.

First memorable quote of a memorable Nats: CD Steve Lubliner at the Sport Flyer's Briefing, on the daunting task of driving through Gates Pass, which has no guard rails and sports a 50 meter shear drop: "If the road gets noticeably smoother, you've probably blown it!"

Driving to the field was a pleasure, guard rails or no. The desert scenery was beautiful (I even saw a late bloom on a Saguaro), and the last few clicks were on a nice dirt road. "Physical" Ed LaCroix talked about "drifting" that sharp right turn just before the entrance. Driving a White Rocket (an Oldsmobile), I couldn't resist driving fast enough on the dirt road to smooth it out. But Bullet Bob Kaplow (who's called Bullet for precisely this reason) was surprised to find himself being passed on this very stretch of road while going 70! It turns out the daredevil was none other than Contest Board Chair Tom "the Lyon Hearted" Lyon, who races stock cars on dirt tracks (way to go, number 8!). The cops actually had radar out one morning, so we had to take it easy.

Lots of other friends were there, in addition to those I've already mentioned: Fran and Gary Miller from Green Bay, John Buscaglia from Massachusetts, and Barry Satterthwaite from Phoenix were again the "Good, Bad, and Ugly" team; Peter "Buy These Books" Alway and his brother Bob; the Beaches (Tom and Joyce Guzik); Tim Barr from SSS; Trip Barber and Jon Rains from NOVAAR; Vern and Gleda Estes; Tom Pasterick and the Bundicks from Chicago; Jim Cook and the Spadaforas from CMASS. I finally got to meet Jack Hagerty, who I've known from the net for years, and Lew Proudfoot, who is ably handling the NARTREK program, in person. And, of course, my RC flying buddies were there: Alex Seltsikas from London, Mac McGarrigle from Houston, and my teacher (a pilot in real life, for

Continental), Kevin Creamer. Dean Wakamoto from Hawaii also likes to hang out with this group, so we all set up shop together.

And it was definitely the social aspect I was looking forward to the most. Going into the Nats a thousand points behind last year's pre-NARAM total, I didn't think I had much of a shot at Big Hardware this year. As a result, I was of a mind to concentrate on being with the friends I see only on such occasions. Because of this, I was pleasantly surprised when the smoke (so to speak) cleared away at the end of the week!

Question: Bring a hundred contestants together in one spot, hold 6 C Engine Cluster Altitude, and what do you get? Answer: Every hobby shop in the neighborhood cleaned out of C6-7 engines. Dry. Picked clean. And they didn't realize why! John DeMar and I had pre-ordered our engines from an Arizona dealer, but the dealer left John's order behind, and (guess what?) didn't have enough C6-7s on hand! A mad rush around town Monday night yielded enough of the precious Propellant Actuated Devices for one flight. (And at a discount, no less!) Future NARAM CDs, please copy: If your Nats is going to be heavy on one or two particular engines, please put out an All Points Bulletin to local hobby stores regarding an expected surge in demand for same well in advance of the Big Dance!

Second memorable quote: At the NSL earlier in the month, NAR VP Trip Barber and I talked about the D Boost Glider event. I mentioned that I appreciated Steve's interest in promoting R/C by not running separate divisions for R/C and free flight, but wished he'd do it anyway, to which Trip responded that he'd put his light ships up against heavy R/C birds any day. And, of course, with Trip, it's not just bravado — he's definitely got the skill. I visited Trip after the first day's flying at NARAM — he was fussing over his gliders, building dethermalizers and muttering about how tough it was going to be going up against the R/C flyers. I asked him if he remembered our conversation of three weeks earlier, to which he replied, "That was before I saw that the field here has thermals that can suck up sheets of plywood!"

The thermal activity was incredible, and the wind direction was nearly always favorable all week long! On Monday morning, when I made my first Helicopter flight, there was a gentle breeze from the south, which carried the air over the parking lot (with all those hot cars), the ramada's tin roof, and a couple of paved runways, just for good measure. Launching from a piston, I put my bird in the mother of all boomers for a 73 second flight, which isn't bad in the 00 class, and is a pending US record in Teams division. I DQed my second flight (just like my badge said!), but still had enough time for a win.

Tuesday was my day to sport what every well-dressed NARAM tracker wears. (If you don't know, believe me, you don't want to know!) Dr. Gary Miller and I pulled the first shift at West, so we had to be there *extra* early! (This, with the range opening at 7:00 AM!) My tracker was right over an anthill. Every time I had to track a rocket, hundreds of

ants would scurry up my leg (which, of course, was bare). Fortunately, there were not too many birds to track so early in the day. Those that we did see headed towards us, because the wind had shifted to the southwest, which was fine for altitude flying. Gary's tracker was a fancy new job with a 0-360 azimuth protractor. I had opted for the trusty old, 0-180 version. A similar pair of trackers was at East, where long-time NAR member John Langford was teamed with NAR Trustee George Rachor. I caught an error as George called in John's azimuth as "34.6 degrees" — the rocket had crossed the baseline, and, after all were done talking, I piped in that they should verify that the correct azimuth wasn't 346.0 degrees. Maybe placing similar trackers at each station would have avoided this problem; I don't know.

By the middle of the day, the wind had shifted so it was coming from the west, which was where it was when I made my flights. In my first 6xC Cluster flight, I got a good altitude, but DQed for dropping an engine. Second time around (thank goodness I had enough go-go sticks for another flight!) I lashed the suckers in with 30# test Kevlar thread. Not only did they all stay put this time, but I even got a better altitude (enough to win, and enough to set another pending US record). Bill Spadafora, who at other times keeps NARTS humming along smoothly, flew Phobos & Deimos's entry for them, as John DeMar didn't arrive until the following evening. And they placed second!

I wish we could say we did as well in E Dual Eggsmash. Phobos & Deimos were robbed of a place by a hairline crack that only the returns official could see. As for International Rescue's performance in this event, well, all I've got to say is it's a good thing their charter doesn't extend to rescuing the ova of *Gallus gallus* — both flights were DQed. (The front egg was broken on the first flight; the rear on the second.) Memorable quote number three, from Yours Truly, when asked by Trip Barber how I fared: "First flight, I killed the pilot. Second flight, the REO bought the farm." Trip, who knows about Navy jets, just had to laugh. So did I.

On Wednesday, the breeze had shifted back to the southwest, so it had the benefit of hot cars, tin roofs, and blacktop runways for glider day. Up went the Sparrow R/Gs, the D B/Gs, and the odd bowling ball or two. At least the parts of my D B/Gs went up — and promptly came back down, in convenient kit form! Chalk up another 2 in the DQ category. John DeMar didn't know what to enter in this event, until he had the inspiration to build and enter the QCR folding wing D R/G he won at last year's Nats. In B/G, it is okay to separate the engine pod from the gliding portion as long as it recovers safely, but as an R/G, the whole magilla stays in one piece. It didn't make much difference.

Memorable Quote Four was by Mark Johnson, who was watching as I proxy flew John's entry: "Tell John DeMar he's one lucky S.O.B.!" One of the rubber bands which unfolds the wings had gotten torched from the ejection charge of an Estes "Mighty D". As a result, the glider *didn't* until it got down to about 20 meters above the deck, at which point the wing unfolded of its own accord, the glider *did*, and Phobos



QUICK, WATSON, THE NEEDLE! — Scale Rocketry junkie Peter Alway demonstrates a different type of "Rocket Shoot." "I'll Nike no lies, if you ASP me no questions" Photo by John DeMar. >

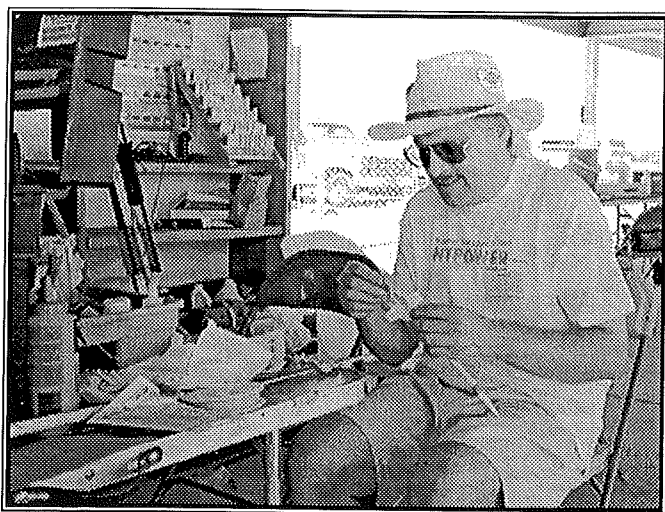
and Deimos qualified.

By Thursday, the breeze had swung all the way around, now coming from the north, so the Hot Stuff On The Ground that seems to delight the thermal gods was downwind from the range. Bad news? Not always! We were flying 1/2 A Streamer Duration (multiround) that day, and them little tiny birds went a ways up there, especially if you launched 'em off a piston! Although my first flight missed a max (60 seconds) by 6 seconds, I managed to catch thermals in flights 2 and 3 on the way back down. Flight 3 was timed for 121 seconds, which may be a pending US record. I also had the pleasure of sharing first place with my friends in the Good, the Bad, and the Ugly team. Of all the teams with which to tie, if it couldn't be Phobos & Deimos, I'm glad it was them!

John DeMar, who arrived the night before (saving me from a Competitor's Forum that seemed to go on forever), was flying vellum models supplied by his teammate, Bill Owens. Apparently, Bill is the only one who can get them to work, because John was having a grand old time trying to keep all the parts together.

Thursday's Sportsmanship Award goes to John DeMar, who helped me find my Streamer Duration bird after its third (and best) flight, so I could get a return and (hopefully) a record. He deserves the nod for this because the record which was being broken was held by Phobos & Deimos Team!

We were pleased we were both in the running for Research & Development. John and I both presented on Thursday night; the judges were three left-handed engineers



John DeMar preps the Phobos & Deimos entry in 1/2A Streamer Duration. Photo by John Viggiano. >

(just like da Vinci): John Langford, Sid "Vicious" Maxwell, and Jim Fackert. My presentation involved an eigenvector analysis to encode the shape of time-thrust curves, which leads us to the best non-quote of the week: As Tom Beach and Joyce Guzik entered during my presentation, John DeMar was tempted to pipe up, "Finally — people who can understand what he's talking about!"

Earlier that day we went out to Kitt Peak National Observatory, which was visible in the distance from the field. It was a fascinating place — as we wound up the mountain switchbacks, we watched as the flora changed dramatically with the altitude. Of course, after a week-long exercise in sleep deprivation, I was tempted to take a nap. Our tour guides were a retired couple from New York. The husband kept asking me if I was going to be okay. Finally, I reassured him in my best New York accent, "I'll be okay as soon as I have a glass tea." Although they didn't have tea, the visitor's center did have an espresso machine, which was put to good use.

Naturally, the wind waited until Sport Scale day to start blowing in earnest. (What would Oscar Wilde have to say about that?) After Static judging, I was third in teams, with my Peanut-scale Indian SLV-3, and John DeMar was fourth with his Peanut scale Astrobee-D. (We both opted to travel light, at least on the westbound portions of our journeys!) Before NARAM, we agreed that it would be worth the trip just to finish first and second in this event, and first and second in R&D. So much for the Sport Scale end of that proposition!

But wait! The two entries ahead of us, NAR President Bunny's Atlas, and former *American Spacemodeling* editor John Pursley's magnificent Saturn-V, both pranged and were DQed. The Saturn-V was a lost cause, but the Atlas was potentially salvageable. I tried to persuade Bunny to patch it up and fly it again, but he decided to call it a day. I did want to win, but not that way!

Alas, it was not to be. George Gassaway, who had built



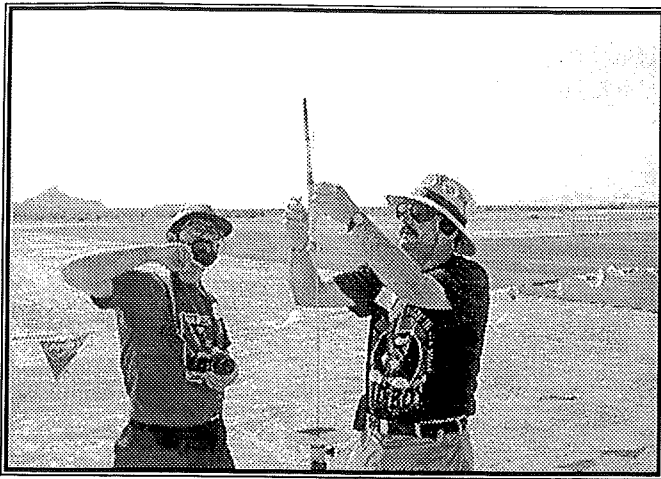
DAY SLEEPER — After a week-long exercise in sleep deprivation, a NARAM contestant curls up for a much-needed nap at Kitt Peak National Observatory. Photo by John DeMar. >

an R/C model of the Bell X 1, somehow managed to finagle the RSOs into allowing him to launch it from an angle of 45° from the vertical, in clear violation of contest rules. He had enough mission points to edge past our entries and take first place. I don't mind when I have to give up first place to a better modeler with a better model, but let's all play by the rules, for chrissakes!

Bob Kaplow and Harry Stine were also disappointed with George and his teammate, Ed LaCroix. Bullet was LCO while George was setting up, and was faced with a moral dilemma. Harry was muttering that George, of all people, should know better, so Bullet asked him to tell the story about the time he destroyed the Aerobee at White Sands that some bone-headed project manager insisted on launching, even though the winds were too high for it to remain on the reservation. Harry *loved* telling that story (which is recounted in some editions of his *Handbook*), so this was all the encouragement he needed. "One-and-a-half million bucks — kerchick!" he ended, accenting this with a button-pushing motion.

Sportsmanship Award for Friday goes to Mark Johnson, whose larger-than-life Rohini-75 scale model was damaged as it fell from the launch pad to which he had been assigned. The pad was too small for the rocket, but Mark just shrugged it all off.

John and I paid a brief visit to the Saguaro National Park (Tucson Mountain Division), which was on the way home. It was there that John, who was not yet acclimated to the Upper Sonoran environment, came up with the next memo-



Andy Jackson, of the Big ASP Hams team from Florida, assists John with the "1/2 zero-length" launch of his Indian SLV-3 Sport Scale model, which finished second in Teams. Photo by Tom Lyon. >



TWO JOHN'S HARDWARE STORE — The stash on the bed is the fruits of the week's effort for our intrepid warriors. They're wondering, "Now, how in heck are we gonna get this home?" Photo by Merrell Lane. >

able quote of the week: "You know you're in the desert when even hot water is refreshing!"

After the *de rigueur* daily dip in the pool, I went to the Results room to see if I could help out. I screened the day's flight cards, checking for any inconsistencies. After having found one (a number had been crossed out and incorrectly copied), I asked the judge to come to clarify it, which he did. That gave me the feeling of making a difference (if only a small one).

Those who have been to upstate NY contests will be familiar with John DeMar's style of making the last flight, but at NARAM he has a different tradition: He has yet to make it on time to an Awards Banquet. He is always tied up poring over the results, calculating the meet and yearly point totals. Fortunately, someone remembered to send dinners to him, George Gassaway, and Ed LaCroix in the results room.

And, of course, he was the first to know just how the chips fell. (George Gassaway knew a couple of days earlier that Phobos and Deimos had a lock on the championship, and encouraged John to enjoy himself, but John was unconvinced.)

Best chow in Tucson: El Charro, an old-time Sonoran-style Mexican restaurant. I went there Sunday night with the rec.models.rockets group, and again at the end of the week with John DeMar for lunch on Saturday. Funny — the only Hominy I had ever eaten in the past was in the form of grits, and now I'm getting it whole, and loving it! Definitely try the *burro carne secce* if you have the chance.

Saturday morning it was time to say goodbyes, arrange for all that hardware to be shipped home (thanks, Barry!), grab a *burro carne secce* at El Charro, and head back to Phoenix. I was on the same flight as Tom Lyon, daredevil of rocket ranges and dirt roads. We had a three hour layover there before our connections, and we compared notes for the

week. I mentioned that my rental car (the White Rocket) had gotten all dusty from the dirt road. Naturally, Tom's did too, and he confessed that he went to a carwash before returning it!

Again, I doff my wide-brim hat (essential survival gear in the Upper Sonoran Desert) to Steve Lubliner and his assistants for a job well done.

Next year's NARAM: 8 - 14 August, in Muncie, Indiana. Glen Feveryear will be CD, so you know it will be very professionally run. The AMA field is great. The events look like fun. See you there! >

Product Review: Aerotech Econojet Engines

John (I could be an Aerotech salesman) Ritz, NAR# 64217 T-217 "Glassmasters"

Flying the Econojet motors

New on the rocket motor market right now is the new Econojet from Aerotech. Currently there are two motors available, the F20 and a G35, both with a white lightning formulation. They come with 4 and 7 second delays. I picked up a package of these motors from my local hobbyshop and waited for the Colby launch in 97 to test these motors on my Initiator or ISQY Tomahawk. The Colby launch was too early so I took the opportunity to fly at least the F20 Econojet on one of the beautiful April weekends at Geneseo in 97. The sky was cloudy and cold but of the launch pad blasted my Initiator on the F20 and it was quite an impressive flame. I later flew it on the old Aerotech F25W and from a personal point of view, I thought the F20 Econojet was a cool motor. The G35 come in a package of two motors each and the list price is \$19.95. The F20 also

come in a pack of two motors each and list price is \$17.95. The G35 was even better on the Aerotech Initiator and it blasted to the skies at Geneseo.

How much flame and thrust do we get for the buck?

Later I thought about how one would actually measure how effective ones motor was in relation to the price. We have the measure of ISP, which tells us how much total impulse we get for each unit of propellant weight, i.e.:

$$\text{ISP} = \text{Total Impulse} / \text{Propellant Weight}$$

Note that the unit for ISP is then lb-sec / lb = sec. It seemed natural to me then to take as a measure of "how much flame for the buck" as price\$ divided by ISP, i.e.

$$\text{Value} = \text{Price in cents} / \text{ISP}$$

[Editor's note: John and I had some interesting technical discussions on just how closely this quotient tracks value. We were unable to come to an agreement. What do you think?]

The Isp of an Aerotech F25W with 80Ns = 18 lb-sec and a propellant weight of 0.35 lb we get an ISP of 228 sec, which is pretty high for a commercially made motor (The J800T has an ISP of 212 sec). Using the technical data from Aerotech motor list and the Econojet data, I produced the following table of interest:

Table of values for Single Use motors:

Motor	Prop.wt.	Impulse	ISP	Price	Cost/lsp	Price/Impulse
F20EC	0.066 lb	65 Ns	221 sec	\$8.98	4.1 cents/sec	13.8 cents/Ns
F25W	0.091 lb	80 Ns	196 sec	\$11.95	6.1 cents/sec	14.9 cents/Ns
	(0.078 lb)	(80 Ns)	(228 sec)	(\$11.95)	(5 cents/sec)	(14.9 cents/Ns)
G35EC	0.110 lb	104 Ns	212 sec	\$9.98	4.7 cents/sec	9.6 cents/Ns
G40W	0.138 lb	120 Ns	196 sec	\$13.95	7.1 cents/sec	11.6 cents/Ns
	(0.121 lb)	(114 Ns)	(211 sec)	(\$13.95)	(6.6 cents/sec)	12.2 cents/Ns

(The numbers within parentheses are from Tripoli motortesting data.) I used the old and popular single use Aerotech F and G that matches the Econojet F and G as close as possible to give a fair comparison. Note that it only makes sense comparing the values for motors in the same impulse range. The ISP can be compared between any impulse range (a G motor to a K motor) but obviously since the weight is different the value that we have formulated above should only be compared to motors with similar impulse. Another measure is the one that ignores motor performance but merely gives us the price in cents per gram of propellant. The F20 Econojet is 18 cents a gram, the F25W Aerotech is 29 cents a gram, the G35 Econojet is 20 cents a gram and the G40W Aerotech is 22 cents a gram. Also manufacturers use cents per Ns as a measure of cost per impulse (see table). So it seems that the best flame, thrust and roar for the buck would be the new Econojet F20. In the meantime I'm looking for an opportunity to fly an Aura on the other G35 Econojet at Geneseo some time this summer... (did that already too at the HAG 1941 airshow in July 97).

Straighten up and fly'em fast!

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Finger Lakes VII Contest Results

After a number of postponements, our traditional Autumn contest was flown in Livonia on 18-19 October. We were rewarded with a pristine weekend — perhaps the nicest for FLFC ever. Here's the event-by-event summary:

1/2 A Super Roc Altitude: WF = 14

(Each flight is listed first with length in centimeters, then altitude in meters. Score for each flight is product of length and altitude; score for event is best flight.)

Pl Name	Fl. 1	Fl. 2	Best	Pts
Div A/B				
1. Lisa DeMar	100x TL	100x 37	3700	420
2. Laura DeMar	93x 27	DNF	2511	252
2. Steven DeMar	93x 27	DNF	2511	252

Div C

1. John DeMar	100x 65	(Misfire)	6500	420
2. Rich Savory	100x 56	DNF	5600	252
3. Wolfram Kiparski	90x 57	90x 59	5310	168
4. Elliot van Antwerp	100x 46	DNF	4600	84

Teams

1. Boland Brothers	100x138*	100x 78	13800	420
2. Wallace & Gromit	100x 82	100x 89	8900	252
3. Glassmeisters	99x NC	99x 36	3564	168

* Pending US Record: Boland Brothers Team, 100 cm, 138m altitude, score = 13800
(DNF = Did Not Fly; TL = Track Lost; NC = Track Did Not Close)

Analysis: Baseline was too far away from rangehead, and perpendicular from baseline to rangehead should be more centered between trackers, not right on top of Tracking East. (The fact that our rangehead was on Runway 3/21, instead of 18/36, definitely had a "trompe l'oeil" effect!) In spite of that, nearly all tracks closed! The first flight was lost by one of the trackers, and another flight, which went a little squirrely, did not close. The record-setting flight used a full length of Eclipse PT-6, a long skinny home-turned balsa nose, balsa fins, a light weight paper adapter shroud, and just enough 10.5mm ID tubing to bring the finished length to 100 cm. It was LIGHT!

Hummingbird (B) Eggloft Duration WF = 17

(Score for event is time of best qualified flight.)

Pl Name	Fl. 1	Fl. 2	Best	Pts
Div A/B				
1. Laura DeMar	17	DNF	17	510
2. Lisa DeMar	13	DNF	13	306
3. Steven DeMar	5	DNF	5	204

Div C

1. Rich Savory	128	DNF	128	510
2. Wolfram Kiparski	47	DNF	47	306
3. John DeMar	22	DNF	22	204
4. Elliot van Antwerp	11/SEP	10	10	102

Teams

1. Wallace & Gromit	106	DNF	106	510
2. Boland Brothers	73	55	73	306
3. Glassmeisters	15	35	35	204

(DNF = Did Not Fly; SEP = Separation)

Only one DQ in eggloft, and it was because a snap-back caused a fin to come loose. No eggs broken all weekend on the contest range! Rich Savory, who took first in C Division, also deserves an Honorable Mention for the Best Decorated Chute! Thanks to Brian Dussinger and John "Child of the Corn" Ritz for scouting up this rocket from the cornfield.

1/2 A Helicopter Duration WF = 19

(Event score is sum of qualified flights, at least one of which must be returned to place in event.)

Pl Name	Fl. 1	Fl. 2	Sum	Pts
Div A/B				
1. Laura DeMar	24	DNF	24	570
2. Lisa DeMar	7/ND	14	14	342
3. Steven DeMar	4	5/SEP	4	228

Div C

1. Wolfram Kiparski	41	80	121	570
2. Elliot van Antwerp	39	33	72	342
3. John DeMar	35	27	62	228
Pat Perella	29	DNF	29	114
Rich Savory	17	6	23	57

Teams

Wallace & Gromit	35	29	64	570
Glassmeisters	14	14	28	342
Boland Brothers	23/ROT	18	18	228

(DNF = Did Not Fly; ND = No Deploy; SEP = Separation; ROT = No Rotation)

Every single contestant entered in the contest entered and qualified in this event. Excellent job!

Plastic Model Conversion WF = 26

(Model is static judged for craft and difficulty, then is flown. Score is sum of Static and Flight scores. The modeler may elect to make a second flight, but their event score will be the better of the two totals.)

Pl Name	Model	Static	Flight	Score	Pts
Div A/B					
1. Lisa DeMar	Colonial Viper			465	780
2. Laura DeMar	Nike-Hercules	350	90	440	468
3. Steven DeMar	Redstone	265	90	355	312

Div C

1. Wolfram Kiparski	X-15	500	85	585	780
1. John DeMar	LM Ascent	550	35	585	780
2. Rich Savory	Apollo-Sat. V	500	60	560	468

Teams

1. Boland Brothers	X-15	495	95	590	780
2. Wallace & Gromit	Tiger	545	40	585	468
3. Glassmeisters	X-1	280	95	375	312

If these results are the start of a new trend, we shall have to retire the joke names for this event, as all contestants qualified. This is not an easy event, but even A and B Divisioners entered and did well in it.

Open Spot Landing WF = 4

(Score is in centimeters. Minimum distance wins; must be within 50 meters to place. One flight per contestant.)

Pl Name	Dist	Pts
Div A/B		
1. Steven DeMar	1463	120
2. Laura DeMar	2720	72
3. Lisa DeMar	3726	48

Div C

1. Wolfram Kiparski	823	120
2. John DeMar	1247	72
3. Rich Savory	1650	48

Teams

1. Wallace & Gromit	407	120
2. Boland Brothers	1082	72
FP Glassmeisters	5000+	12

Analysis: Measuring the distances with that 1 meter tape, after the Albany folks left with their metric tape measure, was a drag! Fortunately, only a few flights needed to be measured that way.

Meet Results By Contestant:

Div Name	Section	Pts
1. A Laura DeMar	UNYROC	1872
2. A Steven DeMar	UNYROC	1116
1. B Lisa DeMar	UNYROC	1896
1. C Wolfram Kiparski	UNYROC	1944
2. C John DeMar	UNYROC	1704
3. C Rich Savory	IND	1335
4. C Elliot van Antwerp	IND	528
5. C Pat Parella	IND	114

1. T Wallace & Gromit Go UNYROC 1920
To NARAM (Jeff Vincent & Chuck Weiss)

2. T Boland Brothers UNYROC 1806
(John Viggiano & Michael LaFleur)

3. T Glassmeisters IND 1038
(John Ritz & Merrell Lane)

1. S UNYROC 12258
2. S Independents 3015

Thanks to Brian Benson, whose hospitality is deeply appreciated.

Have fun & fly 'em high!

Official MARS™ Calendar

Jan	1	Colby Farm	First Flights Sport Launch
	13	Library	Regular Club Meeting
Feb	10	Library	Regular Club Meeting
Mar	10	Library	Regular Club Meeting
	15	Colby Farm	Sport Launch
Apr	4	Geneseo	Sport Launch (Rain: 5 April)
	14	Library	Regular Club Meeting

ALSO COMING UP IN 1998:

May 15-17	Muncie, IN	National Sport Launch
May 16-17	Maryland	ECRM-25 (Contest)
May 23-24	Syracuse	NYSACE (NY Championships)
May 31	Livonia	DX-Local (Contest)
Jul 3-5	Geneseo	NYPOWER International
Aug 8-14	Muncie, IN	NARAM-40

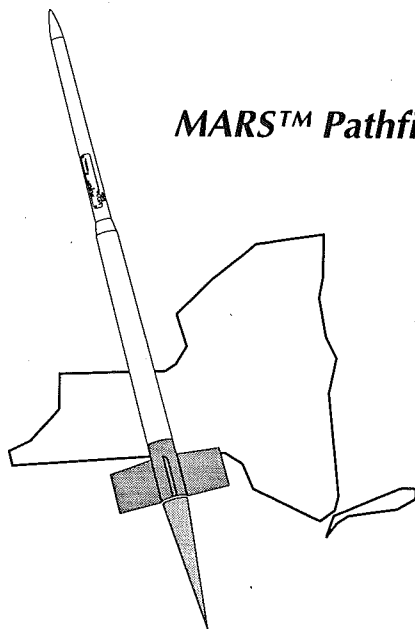
NEW YEAR'S DAY SPORT LAUNCH — FIRST FLIGHTS

We plan to start setting up at 11:00 AM, and have the first launch at Noon. Come fly the new toys you got for Christmas. FAA 101.22 limits (3.3 pounds, 125 grams) will apply. Directions:

From I-90 or Rochester, take I-490 to Spencerport Expressway (NY 531) west. Take Union Street (Rt 259) exit, go south to first light. Turn right onto Colby St. Go about one mile. Just past Vroom St. you'll see the flying field off to the left. Take a left on the dirt driveway (about 50 yards before the Colby's house at 261 Colby St.) and drive back to the field.

MARS Meetings begin at 7:00 PM (6:00 for committee meetings) and are held at the Henrietta Public Library, Calkins Road (just south of Marketplace Mall). Take I-390 to Exit 13 (Hylan Drive). Take Hylan Drive away from the Mall, to its southern terminus. Take a left on Calkins Road, then right at the next light to the Library. ➤

MARS™ Pathfinder
c/o John Viggiano
35 Mickens Bend
West Henrietta, NY 14586



MARS™ Pathfinder

