

THE LEADING EDGE

Newsletter of the Northern Illinois Rocketry Association, NAR Section #117
Volume 13, Number 1 - January/February 1990



Mary Roberts Visits NIRA

Mary Roberts, Estes Industries marketing representative attended the November NIRA meeting when Estes came to town to participate in the Chicago Hobby Show. Mary has been working at Estes for 16 years. While at the show, she met with consumers, distributors, dealers and people who might be purchasing Estes.

This was Mary's first NAR section meeting. While many NIRA members see her at NARAM, it was great to see her again. Mary handled a lively question and answer period during the meeting.

Among Estes' new 1990 products are the Rascal, Rascal II, Meany, Magnum, Warp II, and a Science Kit. The Science Kit contains all items needed for the experiments listed in the 36 page projects manual.

When asked to describe the Estes target customer, Mary explained their age thrust has been toward ten years old and up, although 50% of their customers are adults. New products may be aimed at adults in the future. Some customers are interested in high power rocketry, but Estes feels D motors are powerful enough. Anything larger would be offered by Estes in another product line.

You can still enter the popular "Design of the Month" contest. It was inadvertently excluded from the current catalog. NIRA members then asked about how the entries were used. Mary said new products are NOT developed from the contest entries.

The 1991 products are just starting development now. A "wish list" is compiled by the sales and marketing people. Input from consumers, callers, NARAM competitors, sales

(Continued on Page 4)

Fox Valley Festivities

by Lawrence Bercini

Yorkville, IL is not the kind of place one would go to on a whim. It takes the enticement of BIG BIG rockets with BIG BIG motors to pull ten competitors and as many spectators to this rural area about 50 miles west of Chicago's Loop.

SATURDAY

The first day was the NAR competition. With F Altitude, F BG, G SD, and G Dual Eggloft on the slate, the results were unpredictable. Of the competitors, four had never competed before, and two more had never flown F and G motors!

The Iron Banana Team of Tim Marcy and Andy Apel started the day off with a conventional BG powered by an F10-2. The flight was great, but couldn't be returned as the breeze carried it away too quickly. Basically, G SD occupied the rest of the morning with varied success. The McBroom clan shredded and catooted their fleet while Harland Pell DG'd for a cone-sample flight. Glen Thiel had the best single flight for the event, but couldn't find the model. Lawrence Bercini and Dan Pasholk were the only ones to place, pulling times of 87 and 29 seconds respectively.

F Altitude was the most popular event. Unfortunately, there was only one experienced tracker, Tim Marcy. Consequently, getting closure was a big problem.

The Iron Bananas had quite a success story. After shredding their first attempt, they did some heavy "on the field" prepping and created a new model. Under F20-B power, they posted a 684 meter flight, good for second place. Glen Thiel flew a small NCR Phantom to 806 meters.

(Continued on Page 5)

T Minus 1 - NIRA Events

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 Lawrence Bercini at 561-8098 if you can help with ideas or can speak yourself.

January 5, 1990

OFFICER ELECTIONS - Please attend to vote for the officer of your choice. If you can't attend, you can mail in the ballot elsewhere in this issue. Make sure your mailing label is attached!

February 2, 1990

1990 EVENT PLANNING - The club will vote on NIRA's 1990 launch schedule of competition events. See the article elsewhere in this issue for suggested events. Let your imagination run wild and join us at this meeting for all the zaniness.

March 2, 1990

REFRESHMENT REMINDER

January - Dave Price

February - Ric Gaff

March - Bunny

1990 "LAUNCH" DATES

All launches or other activities start at 2:00 PM. Our launch site is located at Ackerman Park, intersection of St. Charles and Swift Roads in Glen Ellyn. BYOL (bring your own launcher). NAR Insurance required or else RSO must launch your model.

January 21, 1990

MOVIE MADNESS - Join the NIRA troops at the Museum of Science and Industry as we tour the Henry Crown Space Museum and take in whatever movie is playing in the Omnimax theater. Dinner at a local restaurant immediately following.

February 18, 1990

BOWLING - NIRA returns to the Heisterman Bowl, Main Street and Roosevelt Road, for another fun time of athletic ineptitude. See if you can top Ric Gaff's 140 score from last year. Dinner following, probably at the Seven Dwarfs.

March 18, 1990

BUILDING BULLET'S BASEMENT - NIRA's second year for christening basements and our annual winter building session. Bring your project, kit or problem and see what the rest of the club is constructing at the same time. Directions to Bullet Bob's new residence will be in the next issue or at the March meeting.

OTHER INTERESTING ITEMS

August 4-11, 1990 - National Sport Launch, NARAM-32, and USA-USSR Team Flyoffs, Dallas, TX; FAA Waiver to be sought for the Sport Launch, but only NAR legal models (3.3 lbs) please. NARAM events: 1/2A PD (Multi Round), 1/2A HD, B RG, A SD (Multi Round), D DEL Alt., B SR Alt., C Alt., R&D, B BG, Sport Scale (A&B Div), Giant Sport Scale (C Div), Pred. Dur.; FAI Flyoff events: S3A (A PD), S4B (B BG), S6A (A SD), S8E (E RC RG), to select 5 members for the team; Contact Scott Hunsicker, Box 551592, Dallas, TX 75355.

CONTRIBUTORS

Peter Alway, Ad Astra, Lawrence Bercini, Bunny Bundick, Dow Jones News, Houston Post, Doug Pratt, Matt Steele, Glen Thiel

STAFF

Bunny Bundick - Editor

Ric Gaff - Publisher

Barb Bundick - Artist

THE LEADING EDGE

is published bi-monthly by and for members of the Northern Illinois Rocketry Association, NIRA, NAR Section #117, and is dedicated to the idea that Sport Rocketry is FUN! Articles, plans, other newsletters, and news items of interest should be sent to Lawrence Bercini, Editor, 6033 Sheridan Rd. #33J, Chicago, IL 60660. Send membership applications (dues are \$3.00/year, including a six issue subscription to the Leading Edge) and non-member subscriptions (\$5.00 per six issues) to Mark Bundick, 1350 Lilac Lane, Carol Stream, IL 60188. Any item appearing in the Leading Edge may be reprinted by American Spacemodeling with proper credit given; all other uses require written permission of the Northern Illinois Rocketry Association.

Heard on the Street

Rumors and such, with apologies to the Wall Street Journal

Condolences

NIRA's hearts and thoughts go out to Ben Roberto and his family as Ben's dad passed away the week of December 4. Ben's dad had struggled with his recuperation from a triple bypass and never completely recovered. Cards and letters can be directed to Ben at 762 Oakwood Drive, Westmont, IL 60557.

Damon Notes

A sale of Estes could have been finalized by the time you read this. According to latest reports, three investment firms are still in the running, and the bid price is around \$50 million.

Titan Premier

Martin Marietta had a December 8 launch date for its first commercial Titan III space booster. Two Japanese communications satellites and a British satellite were due to be launched from Cape Canaveral. The company also won a \$1.6 billion Air Force contract for 18 more Titan IV boosters. The Titan IV is usually used to orbit the latest reconnaissance satellites.

Scale Search

Scale bugs desperate for data should try NASA documents. Many universities serve as Regional Federal Depository Libraries. They probably have 4-digit NASA Contractor reports (CR-number), Technical Notes (TND-number), and assorted other goodies. There are often dimensioned drawings of wind-tunnel models in the TN-D's. NASA's STAR (Scientific and Technical Aerospace Reports) has annual subject indexes going back to 1963. You can check out these by looking at the Government Printing Office purchasing utility on CompuServe; type GO GPO from any prompt.

Commercial Crash

The Starfire/Consort II commercial suborbital rocket was intentionally destroyed 37 seconds after liftoff November 15 at White Sands Missile Range. Oscillations shook the craft before first stage separation. As the second stage ignited the violent oscillations became stronger, tearing loose the Consort 1 payload. The RSD then destroyed the vehicle. The payload, including a dozen materials and biotechnology experiments sponsored by the University of Alabama/Huntsville parachuted safely back to Earth where it was impounded for further investigation.

Hi, Mom!

Wishingstar Video, Inc., P.O. Box 435, Parker, CO 80134 is offering a two hour NARAM-31 VHS video tape for \$25.00. The tape includes all of Harry Stine's reminiscence talk and slides, portions of the auction, a collage of shots of the Air & Space Museum and bits and pieces of each night's activities, and even a few rocket flights in as well. If you want 8mm or Super-VHS, send an additional \$5.00.

Deluge for Don

The 1989 AMA presidential election results are in. Don Lowe, incumbent defeated Howard Crispin, 11,947 to 3,216. NAR members have had lots of recent contact with Don, as he spent an entire week at the USSR-USA contest last September. Recognized as a patient and able president, Don tends to try to assist the NAR in its relationship with the AMA.

More Mir

The USSR orbited a 40 ton Kvant module to its Mir space station on December 2. One solar panel failed to deploy, forcing controllers to park Kvant until they could resolve the problem. When the rendezvous with Mir resumed, computer problems forced the automated docking to stop. Kvant eventually docked with Mir on December 6. The module contains a shower, a "space motorcycle" similar to the US MMU, and badly needed extra living space. Aleksandr Victorneko and Aleksandr Serebrov have been aboard Mir for three months now carrying out a mixed program of scientific studies.

NCR Moves

Due to a Post Office error, NCR had to change its Post Office Box. Effective 12/15/89, please address all correspondence to: North Coast Rocketry, P.O. Box 24468, Mayfield Heights, OH 44124

Hollywood Houston

According to reports in the Houston Post, a TV production company is preparing a pilot series centered on personnel at the Johnson Space Center. Structured much like the successful "LA Law" program, the company hopes to have a pilot produced in time for the start of the 1990 season. No word on stars or network yet.

Mary Roberts Visits NIRA

(cont. from Page 1)

reps and managers are all considered. "It's a big list," Mary remarked. A New Product meeting follows, and from this, 50 or 60 new ideas are chosen. Prototype models are built. In their first appearance, some of them are just white, but sometimes they are more detailed, particularly if the project has captured the imagination of the decorative or visual art people.

Dropping Kits is determined by several standards. It may not be feasible to buy special parts, the kit may not be worth the set up time on the assembly line, the kit may not be selling well. As an example, the MX missile was dropped because Estes considered it too warlike. The Trident was too costly to manufacture.

New kits are chosen not just because they are beautiful or popular or hold current public interest. Estes must consider the capital expense and the projected units sold. Usually 25 kits are chosen, catalog numbers are assigned to them, and engineers are assigned to the project. Molds and drawings begin, and the project develops. Even that isn't final. As the kit goes through these steps, the engineer may find the kit literally "won't fly!"

One NIRA member questioned the policy of an opaque package back, which can hide a dented body tube at time of purchase. Mary said clear backs had been considered, but Estes consensus determined that the information on the package back would be important to the shopper, as well as a greater perceived value if the consumer didn't simply see a cardboard tube, a sheet of plastic, rubber shock cord and nose cone.

Another member questioned the igniter failure rate. Mary reported Estes igniters have a very high success rate, and are even used by the pyrotechnics industry because of their dependability. Solar Igniters are effective even if the coating breaks, since the thin wires are welded to the main leads.

The design of the SDI Satellite kit was brought up. Mary replied that they wanted something exotic in the product line. "...and we had these extra parts...It's been selling like crazy!"

Other inquiries concerned new models or reissues of old favorites. Concerning the Nike-Zeus, Mary said "I just don't remember to put it on the wish list." A boost glider? "Since the Dragonfly was dropped, another will probably appear."

Estes has been working closely with the British Health and Safety Department to make model rockets legal in England. The government has tested A, B, and C engines and was impressed with their safety. Use is limited to those age 16 or older, and Mary is assisting in writing British standards for the hobby. In 1992, when the Common Market open up, it will become the European Standard.

A member inquired about replacement parts. Mary suggested identifying the part number as specifically as possible. If the part is currently used in a kit, Estes will sell it to you. Estes used to list part numbers in the kit instructions, but doesn't do so with a recent "streamlining" of instructions. They will try to correct this in future instructions.

The streamlining resulted from a test where children were given kits and then videotaped as they tried to build them. Estes worked over instructions that gave the kids difficulty.

While one member was disappointed to hear Manta nose cones weren't available any more, BT101 is in stock. Astrocams are expensive due to expensive custom molded plastic parts. Mary closed her discussion by describing the incredibly diverse printing capabilities at Estes, and their analysis of parts which may lead to getting in-house molding equipment.

At the conclusion of the meeting, Bob Kaplow, NIRA's secretary - treasurer presented Mary with a NIRA patch, to the applause of the group. The patch was symbolic of an honorary membership for Mary in NIRA. Mary Roberts was a delightful guest and gave us all insight into the diversity and complexity of Estes and the manufacturing end of our hobby. Thanks for visiting!

(Continued from Page 1)

G Dual Eggloft generated a similar fight for places. Rich McBroom's two staged design suffered a devastating detonation on his F20-4 booster. The force of the blast "readjusted" his tower, but curiously, did not activate his mercury switch staging system. The Iron Banana's entry went squirrelly, and disappeared behind the chicken coop. (Yes, Mama. I'm coming back to you!) Glen managed a successful 417 meter flight, but broke an egg in the process. Lawrence boosted his cackleberries to 438 meters for the only qualified flight in the event.

Immediately afterwards, he strapped a Pterodactyl to the side of his egglofter, inserted an F motor, and put up the glider for 132 seconds. The breeze kept the bird moving quickly away from the launch area. Fortunately, Chris Spink offered use of his pickup truck. Lawrence shouted directions from the back of the truck and the two were able to recover the glider in spite of all the predictions to the contrary. With that flight, the contestants called it a day.

SUNDAY

Five miles north of Saturday's festivities was an open HPR sport launch. If any motto can be coined from the day, it would be "Big rockets make BIG thuds". Many a time one of those monsters would have a recovery failure and appear to be floating down safely. Then a resounding WHUMP would echo across the range, even from dozens of yards away. Unfortunately, I didn't keep track of who used what motors in what models, so all that can be reported here is approximate data.

Mark Bundick, of NAR Trustee Fame, achieved his Class B certification when he successfully flew his NCR Phantom 4000 HD with a Vulcan Smokey Sam H motor. (Since when is doing NAR volunteer work a ticket to fame? - Bunny) Ric Gaff managed one of the more interesting advanced flights when he CHRD staged three D12-0's to three D12-3's in his NCR Quantum 3. The effect was really great, as the three boosters "peeled away" just like the Shuttle's SRB's. Perhaps the prettiest flight of the day belonged to Tim Marcy's BT-55 D-Region Tomahawk with uncertified G-60. It was a beautiful straight up flight to the limits of vision. Bunny pronounced it "just like the sounding rockets at Wallops."

Many successful flights sporting multiple F's, G's and H's got to be "old hat" to the spectators because those heavy models just didn't go that high, and nothing about the function of these "3 or 4 fins with a nose cone, parachute recovered" rockets was that interesting. It's no wonder the spectators lusted for good prangs.

There were a couple of noteworthy failures. Rich McBroom's H Squared model refused to airstart the second H. The upper stage was destroyed almost completely. The award for the most hair-raising went to an 8' monster sporting three G's and two F's. The G's were supposed to ignite on the pad, and the F's were to be airstarted. Only the central G ignited, and the bird lumbered off the pad, taking rod and launch leads with it. After arcing over, the two F's kicked in, and it roared to impact at the far edge of the launch area.

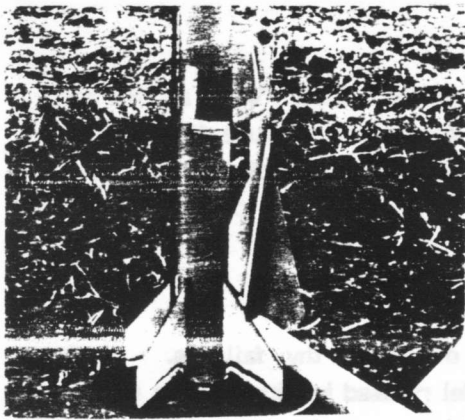
One last failure bears mentioning. Rich McBroom turned his converted Phantom 4000 into a comet by catoing the central G, and igniting two of the 6 outboard D12's from the top. The effect was quite impressive against the darkening sky.

Many thanks should be given to Ric McBroom for organizing the event, and smiling the whole time. Thanks also go to Tim Marcy and Dennis Bishop for tracking, and to the folks at Tripoli Chicago (Prefecture 13) for assisting on Sunday.

Wadding, Anyone?

A good winter project for all NIRA member is making your own wadding. Mix 1 tablespoon of borax (sold as "20 Mule Team Borax" in the detergent section of the supermarket), 1 teaspoon of boric acid powder (sold as eyewash solution in the drugstore), 4 teaspoons salt and one quart water in a large jar. Screw on the lid tightly and shake until everything is dissolved. Now pour the mixture into a flat pan. Get some cheap wadding material of your choice, i.e. paper towels, cotton balls or bathroom tissue. Soak the material in the pan for a few minutes, allowing it to soak thoroughly. Allow the material to dry on several sheets of old newspaper overnight.

FOX VALLEY FESTIVITIES PHOTO PAGE



Hitchiker's Guide: Bercini's BG, the only successful F BG flown.



Tim Marcy of the Iron Banana Team & F Altitude model that went "Shread City".



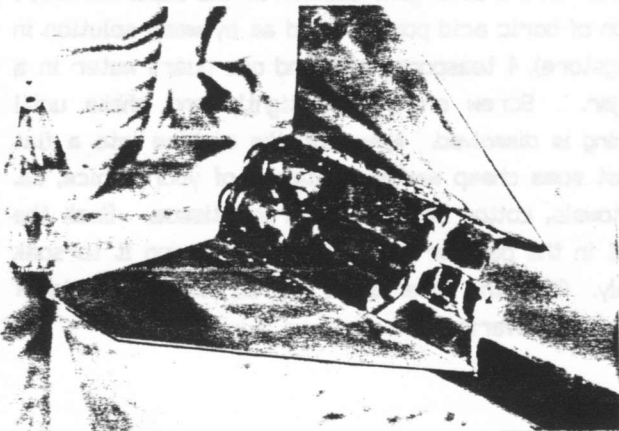
H Squared that didn't quite compute. Rich McBroom loads the ill-fated flight.



Who's that hiding behind those Foster Grants? Liz, Barb, Bunny, and Jenny prep Dad's Class B qualification flight.



Big Rockets make Big Prangs. LOC Magnum came straight back in.



Rich McBroom's "comet" made from a catcoed G and Phantom 4000 kit. Not recommended.



"Of course I'm having fun". Ric Geff preps while Harland Pell freezes.

1990 Events Mania

Led by the Price's, with help from many other NIRA members

As we plan for the 1990 flying season, Dave Price wondered aloud if discussing the events in advance would bring up some new and interesting events. Dave, Tom and Matt began their own discussion of possible wacky events, then passed them along for publication so all you NIRA members can have fun thinking about these and then come up with some of your own. The February meeting will be the time for voting on our 1990 launch schedule, so until then, here's some new fun for your consideration.

1. **SCRAMBLED EGG DURATION:** Maximize your duration, but **BREAK** the egg. You get from 0 (unbroken) to 20 (fragments in egg, broken egg) points for egg damage, and your seconds of duration as a flight score. Use B engines, and have the egg completely enclosed. Or subtract points from damaged models?

2. **BIPLANE BG OR RG:** Your glider must have at least two sets of wings. The object is to maximize the duration. NOVAAR is proposing this as a real competition event. Dave suggests A engines or lower.

3. **FATROC:** We'll pick a minimum diameter limit, as measured thru motor axis of the rocket. Static points are the square inches of frontal area. Flight points are seconds of duration. You must return the model, and C or D engines are suggested.

4. **FISH SCALE:** Or Office Scale, School Scale, Postal Scale, Food Scale: Dave and other members couldn't stop coming up with this "craftsmanship" event. Points are "standardized" now as follows: 500 - creativity; 250 - craftsmanship; 500 - flight; 250 - safety/damage.

5. **SOUNDING ROCKET:** Here, we'll measure the maximum DB of noise by a Radio Shack sound meter as observed from 15' from pad. Your noise maker must be non electronic and the rocket powered by C or D engines. (NOTE: Dave thinks we might not be able to measure the sound very well; can anyone comment on this?)

6. **STRUCTURAL SEPARATION:** Parts that are counted must be part of the structure of the rocket. Whoever drops the most structural parts, wins. Bunny claims to have a model of over 200 parts on the drawing board.

7. **RENDEZVOUS:** Bunny read too much space history on

Gemini flights and came up with this one. You get to fly two models. The first one lands and become the target for flight #2. Whoever lands closest to his first rocket's nose, wins. Sorta like a "pick your own spot, spotlanding contest.

8. **LEMANS START SQUARED:** Just like the classic LeMans Start, you hook up your model, fly it and recover it, but do it twice! Minimum time wins. Should we allow igniters in engines at start, or make people completely re-prepare the model?

9. **LEMANS EFFICIENCY:** We'll score this as time to hook up, fly and return divided by prepping time + time to hook up, etc. Dave suggests forcing everyone to fly first, then start timing when the model hits the ground. This way, you have to retrieve and completely re-prepare the model before you can hook up, and finish. The person with the highest percentage score wins.

10. **FEDERAL EXPRESS:** This is an express mail event. Two man teams set up launcher a fair distance apart with the open space in between them representing the Atlantic Ocean. Team Member One writes a message, puts it into a payload section of a rocket, fires the model across the imaginary ocean to his partner. His partner retrieves the model, reads the message, replies, and refines the rocket back to his partner. The shortest time to do all that wins!

11. **TRIVIAL PER-SHOOT:** Like Federal Express, except the message is a trivia question that must be answered correctly before you can stop or we award points for correct answers that reduce the time part of the score. (Thanks to C.D. Tavares for this one.)

12. **MILITARY SYSTEMS:** Bunny's latest answer to the Cold War direct from the old "Purple Book". You flyoff against another member. Each one fires a rocket trying to land his closer to his opponent's launcher. Whoever lands closer wins that round and moves on to another "war". The winner of the heat between the last two guys is the overall winner.

13. **LAUNCH AN EYESORE** - Want to get rid of something you find personally disgusting (current NIRA members do NOT count!)? Here's your chance. A craftsmanship event per standard scoring listed above.

RCHTA Hobby Show

by Glen Thiel

The RCHTA Hobby Show was held at the O'Hare Expo Center November 3-5. Thousands of hobbyists flowed through the show looking at new products and ideas. The show was well organized. Manufacturers were not allowed to make sales to the public (though I did see some transactions). This reduced congestion that normally occurs with sales, and left more time for questions.

NIRA manned a booth and rocket display in the static model area. This was an excellent opportunity to recruit new members. Much interest was shown for the flying model rockets. Thanks to Mariand Pell, Lawrence Bercini, Mike Junglass, Tom and Dave Howe, Tim Marcy, Glen Thiel, Andy Apel and Bunny for manning the NIRA booth. Special thanks to Ric Gaff who worked the entire show!

Here's a summary of rocket company displays, presented in a "Manufacts" type of format.

LOC/PRECISION - First thing noticeable at this display was the huge "Top Gun" rocket. Standing over 7' tall and housing seven 2.25" motors, "Top Gun" has been flown twice. At LDRS-6, seven motors provided 6,500 Nt-sec., while three motors at G-4 totaled "only" 1920 Nt-sec.

Even without the "Top Gun", LOC had a impressive display. All models were well built and beautifully finished. The staff was friendly and enthusiastic about answering questions. Quality is the word that comes to mind when talking about LOC's kits and components. Annoying preliminary rocket work is reduced through the seamless airframes, precision motor mount adapters, pre-marked fin and launch lug lines on smaller rockets and the pre-slotted, thru-the-wall fin mounting on larger rockets.

Seven new LOC kits, Dynx, Forte, Norad, Caliper, Tri-star and Ultimate Max round out the established LOC line. A videotape of building, finishing and flying techniques will be available in May 1990. President Ron Schultz has extended a personal invitation for us to come out and launch with LOC. NIRA may want to consider an Ohio field trip!

AEROTECH - Gary Rosenfield has obviously been very busy coming up with some totally innovative model rocket concepts. The Copperhead (tm) is a single lead igniter made from a copper and mylar laminate. A silk screening process is now used to label engines, instead of the old

paper labels which fall off. Aerotech has branched out from engines only with its Initiator (tm) advance model rocket systems package. The package includes the Initiator kit, Mantis (tm) launch pad, Interlock (tm) launch controller, an E15-4 motor, and an F25-6 motor. Purchase price is about \$145.

ESTES - Down to just a few bidders, Damon is trying hard to sell Estes and its kite flying subsidiary, Hi-Flyer. Estes plans to introduce 15 new kits in January 1990, but was very secretive as to the names and types of rockets.

COX - Eighteen years ago, Cox got out of the engine making and rocket making business when a static discharge caused the engine manufacturing plant to explode. Now they are set to re-introduce their ready to fly line of rocket kits: X-15, Saturn IB, Saturn V, Honest John, and Shuttle America. The Little Joe II model will not be introduced because the original tooling has been lost and Cox does not plan to re-tool.

MRC - A new line of kits, Concept II was introduced. Ejection baffles, Kevlar shock cords and cloth chutes are standard. Each kit also contains three interchangeable engine mounts, one for 18mm, one for 24mm, and another for one 18mm engine and two FX-10 "engines". The FX-10 are dense smoke throwers and do not have enough thrust to boost a rocket. They are there for pre-launch "fire and smoke" effects. MRC has also introduced Tracker (tm) engines, with added smoke on boost and delay. Six new kits are available in the line. This reporter has a non-favorable opinion of previous MRC products, but the new line showed some imagination and interest.

GLENCOE MODELS - (Box 846, Northboro, MA 01532) This cottage industry plastic kit maker plans a Summer 1990 introduction of a 1/48 scale Jupiter C. You could convert this alone, or, while not legal for NAR competition, buy the Revell 1/48 scale Mercury Capsule and make a plastic Mercury Redstone.

TODAY'S HOBBIES - (41 East Lincoln Ave, Hatfield, PA 19440) Their line of balsa jet fighters are constructed like small Comet airplane kits. The F-4, F-5, F-14, F-16, and F-18 models appear light enough to convert, without the normal risk associated with heavier plastic kit conversions. For sport flying, they could be terrific.

Events (cont. from Page 7)

14. OUTA SIGHT: The shortest timed flight wins, but the timers must lose track during flight, then reacquire the model later to start timing again. Weird with no obvious strategy.

15. SECTION MEET: A radical idea for this club, eh? We'd pick events to minimize the number of models required and try to fly a full NAR section meet in one day.

16. POST-LANDING OPERATIONS: Have the model do something, i.e. take a soil sample, lift off (!), or raise the flag AFTER landing. You must of course declare what post-landing operation you intend to perform.

17. Possible reruns from prior years: Paper Airplane BG, Kithash (almost certain for the April Launch).

Please look these over and come to the February meeting prepare to discuss these and any other events you might have in mind for 1990's season!

NIRA'S BIRTHDAY CORNER

Donald C. Linder - January 10

Jasper Hausner - January 25

Dan Travis - January 25

Harland Pell - February 19

Tom Howe - February 23

Gregg Maryniak - February 25

Ric Gaff - February 27

NIRA'S CLASSIFIEDS

ECONOMY HPR TUBING

Heavy duty airframe tubing, 3.275" OD, .125" wall thickness, 36" lengths. Uniquely suited for high power use, this tubing is TOUGH! Yours for \$2 each, or six for \$10. Custom made centering rings, couplers and nosecones available from DARE. Rockets at reasonable prices. Contact Rich McBroom, 708-553-6553, 71 Charity Lane, Bristol, IL 60512

NEED TO PLACE A CLASSIFIED?

Remember, classified ads are free to any NIRA member! Just get your ad to Lawrence before the next issue.

Ballot for 1990 NIRA Officers

President: () Ric Gaff () write-in:_____

Vice President: () Mike Junglass () Don Linder

Secretary/Treasurer: () Mark Bundick () write-in:_____



Attention NIRA Members! Mail Ballot Enclosed

Ric Galt
10386 Michael Todd Terr #2S
Glenview, IL 60025

THE LEADING EDGE
C/O Lawrence Bercini
6033 N. Sheridan Rd. #33J
Chicago, IL 60660

