

JUNE 1972

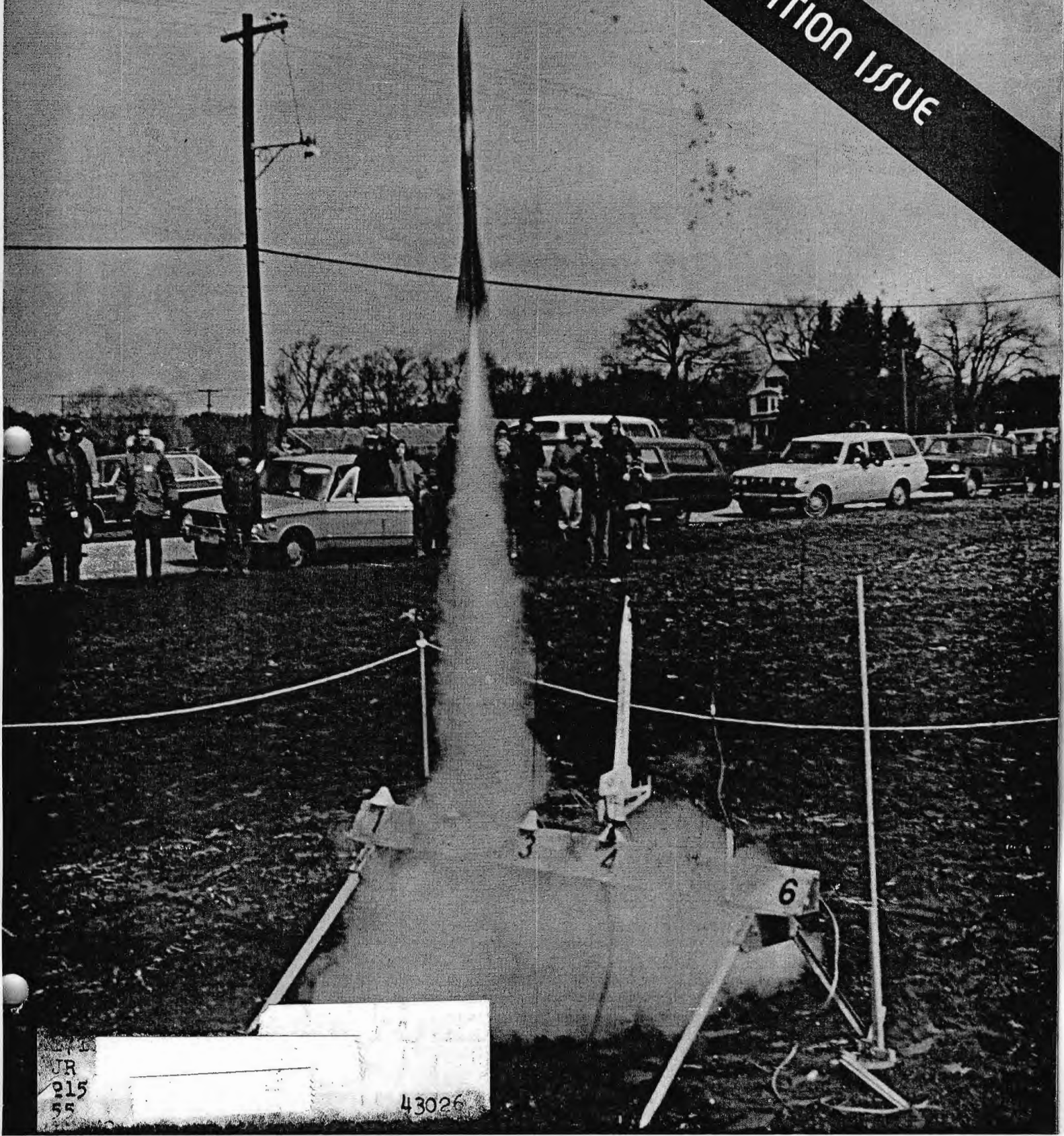
MODEL ROCKETEER

OFFICIAL JOURNAL OF THE NATIONAL ASSOCIATION OF ROCKETRY

Vol. XIV No. 5

50¢

SPECIAL CONVENTION ISSUE



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MODEL ROCKETEER

OFFICIAL JOURNAL OF THE NATIONAL ASSOCIATION OF ROCKETRY

Vol. XIV No. 5

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COVER PHOTO—

At the MIT Convention, an F-100-powered rocket takes off. (Photo by Bob Seufert, BAMR Photographic Committee)

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EDITOR'S NOOK

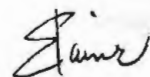
This month we have tried something different with the *Model Rocketeer*—a "special" issue. You will notice that we have omitted several of our regular features so that we could include more complete coverage of three special events. Please let us know how you like the idea of "special" issues and whether or not you'd like to see more of them in the future (for NARAM, perhaps).

We are devoting this issue to the Pittsburgh and MIT Conventions and the Pearl River Seminar for two reasons. First, last year's LAC survey indicated that people wanted more complete convention coverage, and second, because that survey also showed that people in areas of the country where conventions are not being held would like to see them in those regions. The Events Commission article can direct interested planners to sources of help and information on these events. The three other articles will, we hope, give those who have never attended a convention or symposium an idea of just what goes on at one. We hope that our readers will find this issue helpful, informative, and even entertaining.

Along similar lines, the Pascack Valley Section has asked us to remind potential convention/symposium planners that NETS-1, a booklet detailing the running of the Northeast Technical Symposium, is available from Steve Smargassi, 16 Appleton Road, Glen Ridge, New Jersey 07028, for 50¢. Excerpts from this worthwhile publication appeared in the October, 1971 *Model Rocketeer* (Lindsay Audin's "Notes on NETS-1").

For the latest twist in conventions, a HAM Modroc Convention, see the Contest Calendar on page 14.

Finally, we'd like to thank all the authors and photographers who helped on this issue. There was quite a rush to get everything finished on time, and your cooperation was greatly appreciated.



Elaine Sadowski

Send questions, ideas and gripes about NAR (don't forget about the "Loudly from a Broken Soapbox" and "If I Wrote the Pink Book" columns!) to:

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Any other articles, photographs, cartoons, ideas, etc. go to:

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NAR in ACTION!

NAR EVENTS COMMISSION

by Lindsay Audin

Lindsay Audin, NAR 953, is a Trustee and chairman of the NAR Events Commission. He was one of the founders and the first president of the Pascack Valley Section. He was chairman of the first Leader Administrative Council, and is currently LAC Trustee Advisor. He is a member and former chairman of the Publications Committee. Lindsay presently is an unemployed radical and defender of the working man.

On January 15, at the winter Trustees meeting in Pittsburgh, the Board of Trustees approved the formation of a NAR Events Commission (NAREC) and appointed me as chairman. NAREC is a special committee with four basic aims:

1. To promote the occurrence of major events (such as exhibitions, conventions, symposiums, etc.) in model rocketry;
2. To coordinate present events to maximize attendance;
3. To suggest ways to improve present events;
4. To attempt formation of conventions in all NAR districts on a regular basis.

To accomplish these aims, NAREC will circulate guidelines on setting up conventions, symposiums, etc. to all interested persons, be they individuals, groups, or sections. Aid in setting up these events will also be offered up to and including the date of the event by seasoned veterans of the convention circuit. At present, NAREC members are Jay Apt, NAR Secretary, Trustee and initiator of the first convention (Pittsburgh 1966); Gordon Mandell, Trip Barber, and Len Fehskens (of the MIT conventions); Arnold Pittler, Alan Stolzenberg, and Elaine Sadowski (of the Pittsburgh Conventions); Dave Klouser (of PACT); and Bob Mullane of NETS. By the time you read this, several other names will have been added to this list, probably from the West Coast and the Southwest. Anyone interested in holding an event and desiring aid is welcome to contact NAREC.

Hopefully, some funds for initial creation of new events will be made available after the

March quarterly accounting. Such funds would be on a returnable-with-interest basis from participants' entry fees. NAREC could become self-supporting from such returns if events become routine (as have several conventions and symposiums in the Northeast and Southwest).

The initial labors of NAREC are threefold:

1. To get itself organized;
2. To put initial guidelines for symposiums and conventions into print;
3. To begin study of a district convention system.

Any aid in these areas will be appreciated.

The Commission is being modeled after the World's Fair Corporation and will depend upon membership response for direction. Just as the World's Fair is made or broken depending upon the citizens of the world, NAREC will succeed only if it knows what *you* want. What kinds of events would you like held in your area? How would you improve present events? Which media do you prefer: slide shows, movies, taped lectures, discussion groups, problem-solving sessions, basic-science studies, R&D report dissertations, movies? The answers to these and other questions would help NAREC—so why not grab a pencil and send us a note? Write directly to me at my home address for a rapid response:

Lindsay Audin
121 South Highland Avenue
Apartment 6A
Ossining, New York 10562

Who knows, when you write down your ideas you may be designing your own convention!

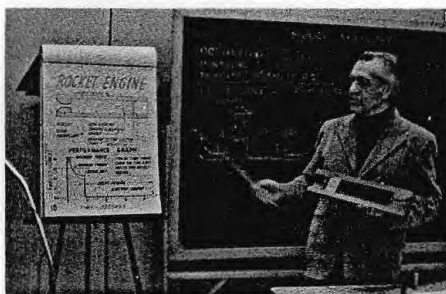
PEARL RIVER MODROC SEMINAR

by Robert Miller, NAR 20856
Photos by Eugene G. Miller

On February 26, 1972, the Pearl River Vulture Squadron hosted a townwide seminar in an effort to promote safe model rocketry. Discussion groups were held on construction techniques, finishing, and, for the more advanced modelers, scale, gliders, and launch systems. Our program began at 9:30 a.m. with opening remarks by myself and our senior advisor, Mr. Richard Nelson.

Immediately following the opening was a presentation on basic model rocketry by Mr. Gabriel Audin. (*Editor's note:* Mr. Audin is the father of NAR Trustee and Events Commission Chairman, Lindsay Audin.) The talk covered such topics as what a model rocket is, how a rocket engine works, and what makes a rocket stable. This session was very informative for both beginning and advanced modelers.

Next, we broke up for discussion groups. Gary Bossong led the group on scale. He explained how to obtain scale information from aerospace companies, how to get scale dimensions from photographs, and the actual building of the model. Gary demonstrated his technique on his own contest-winning model, Phoenix. The talk was quite interesting and drew a large group, but, unfortunately, many of the younger modelers found it to be too advanced.



Mr. Gabriel Audin explains the working of a model rocket engine.

Betty Bobé had the construction techniques discussion group. She explained how to build rockets that will last a long time and can be used over and over. This group gave all who attended it valuable knowledge that will help to make them better modelers.

Model rocket launch systems were discussed by Bob Mullane. He showed the group how to build a reliable, inexpensive launch system out of wire, a block of wood, and paper clips. He also discussed launch pads, multiple launchers, power systems, and igniters. This group was an excellent source of information for rocketeers who wanted to build their own launch systems.

Gary Lindgren spoke on boost/gliders. He talked on basic boost/glide design and on the construction and trimming of gliders.

Andy Pearce, a member of our club, gave a talk on finishing model rockets.

Lunch was followed by a talk on the NAR given by Trustee and NAR Treasurer Al Lind-

gren and Ralph Schiano. Several people who attended were sold on the NAR and joined.

Bob Mullane and Ralph Schiano then gave a lecture on safety with an emphasis on effective blast deflectors.

To top off the afternoon, the guest speakers set up a demonstration launch. One of the most unusual rockets was a two-engine flying saucer. The highlight of the launch was the flight of a

(Continued on page 11)



Gary Bossong prepares to launch the Saturn V.

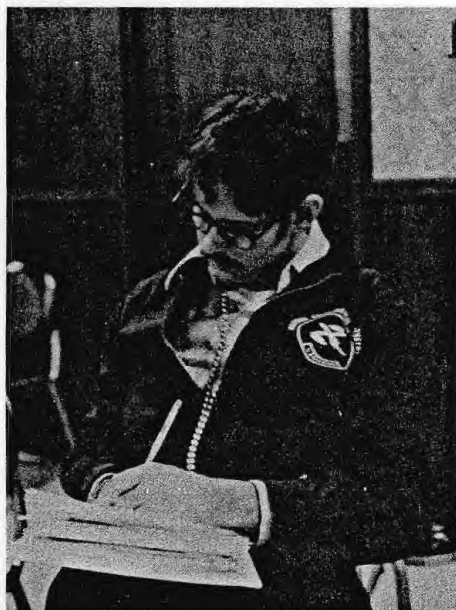
THE 1972 PITTSBURGH SPRING CONVENTION

as covered by Judy Barrowman, Jan Blickenstaff, Dottie Galloway, Dave Klouser, Al Lindgren, Bob Mullane, Ken Paul, Ron Roth and Mike Thomas; prepared by Ed Pearson

For the seventh year running, NAR's Steel City Section hosted the granddaddy of model rocket conferences—the Pittsburgh Spring Convention. Held at RDIC's Industrial Park Holiday Inn, this year's Convention attracted over 150 rocketeers from 13 states for the March 17-19 fete.

Upon arrival, modelers were greeted with a cheery smile, informed of their room numbers, and handed a registration package describing the theme of the Convention, "Learning From Each Other." For the next two days conventioners were treated to a variety of stimulating movies, lectures, discussion groups, and launches, while making friends, remeeting old buddies and talking to some of the NAR's best in organization, competition and modeling.

The convention formally opened at 7:30 St. Patrick's evening with Convention co-chairman, Elaine Sadowski, announcing that the facilities at the Inn were for the modelers use and advantage, and recommending that gobs of notes be taken on the talks. NAR president, Jim Barrowman, delivered the keynote address, entitled "Developments in Modern Cosmogony as Applied to General Relativistic Nutation." During this two and one half minute talk Jim reiterated the Convention's theme of working together and learning from each other. (He also confessed to falling asleep after reading his own keynote's title.) Bob Lieber, the Convention's coordinator and contest director, then spoke on Saturday's contests: one hour scale, a Lemans start affair where modelers have exactly one hour to build and paint a scale model from scratch, and rocket glider—unrestricted by engine classifications (to examine if one type of engine would work better than another).



The author (Ed Pearson) diligently taking notes during a lecture (Photo by Jan Blickenstaff)

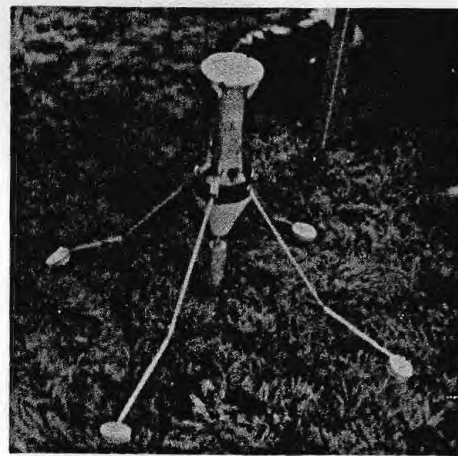
The first of six discussion periods followed Bob's talk on contest ground rules, and modelers spread themselves throughout the motel to participate in any of the four subject groups. A note on these talks: during the Convention six discussion periods were held—two each on Friday, Saturday and Sunday. Each period had four different groups running and modelers could visit the group which interested them the most. These discussion groups, as ever, dominated the Convention. This year there were twenty-four one hour groups, including clubs, photography, parasite B/G, R&D, instrumentation, community relations, scale, newsletters and others.

In the first period were clubs with Bob Mullane, plastic models with Tim Bray, beginners scale with Bob Hagedorn, and advanced scale with Jon Randolph. Dottie Galloway sat in on Bob's club group and noted that this discussion covered large areas of clubs' problems and normal activities. A club, it was said, was half business and half fun, education, entertainment and launches. Problems, however, arise from local legal ordinances, lack of funds, lack of activities and dictator-like club presidents. Group members threw out their ideas on raising money, e.g., car washes, selling soda, light bulbs, pens, social security plates, etc.; holding demonstration launches for town officials; selecting club members as recovery crews to cut down rocket loss rates; holding special events such as craftsman or plastic model contests to retain waning members; awarding "club points" for members' increased activity and so on. NAR insurance was explained, and members also asked questions about the U.S. International team, R&D, etc.

Across the hall, Mike Thomas took notes on Tim Bray's plastic model group. Basically, this group discussed the design modifications required in adapting an existing static display model airplane or rocket kit for flight. To those anticipating buying and building a plastic model, Tim talked about considering the plastic's ability to be worked upon (i.e., its ability to be cut and painted, the plastic's moldability, and the model's durability), predicting the kit's flight characteristics (e.g., plastic rockets are more likely than airplane kits to fly like paper model rockets, and fully deploying a parachute is almost always a difficulty with plastic models), and types of kits to consider, e.g., rocket planes vs. rockets. Construction tips were then discussed, such as use of internal "stuffer tubes," adding nose weights or clear plastic fins for extra stability, and using contact cement in gluing plastic to paper.

A third discussion group was raging down the hall in the conference room. Bob Hagedorn of DB Industries led his group on beginning scale, describing the what and where-to-get aspects of scale and how to do scale reduction, construction, etc.

In the Inn's large meeting room Jon Randolph (of NARAM-13 fame) delivered his address on advanced scale. NAR treasurer Al



Frank Walsh and Ed Golden display their soft landing air pollution sampling rocket at the R&D discussion group. (Photos by Jan Blickenstaff)

Lindgren covered this topic and said that Jon talked on preparation of body tubes and balsa parts, and the use of Aerogloss balsa filler coat and Dupont 30s surfacer as fillers. Acrylic fillers were mentioned as well as a warning on not mixing different paints and thinners. Moving to measuring devices, Helios and Sears verniers were compared as well as dial calipers (Jon prefers chrome clad rules for ease of reading, and caliper rules that are graduated at least in 100ths of an inch). Unimat and Sears lathes were then discussed, as well as drills and holders. Types and brands of wood were also examined (e.g., Pactra balsa has sufficient quality for sport modeling but not for scale, Sig contest grade balsa is best to use but hard to find, Midwest balsa is also of high quality, and plywood is good material but takes real skill to use).

The next hour brought the second discussion period. While Bob Hagedorn and Jon Randolph continued with scale, Guppy moved in with Tim Bray to lead a group on rocket gliders, and Rich Brandon and Bob Lieber talked on instrumentation.

SPECIAL CONVENTION FEATURE

In this last group Rich and Bob related their experiences with the Estes Transroc and cautioned that only electronically experienced modelers should attempt using one because of modification difficulties in adding and deleting sensors. Similarly, the two talked on Astro-communication's Foxmitter and their adventures with it (Rich rocked the group with laughter by intimating that the humidity sensor was actually a cleverly disguised bad breath sensor). Also, the two reviewed the ground equipment such as walkie talkies and cassette recorders necessary for receiving and recording telemetry signals as well as mentioning peripheral display devices such as oscilloscopes and chart recorders. Next, they gave a demonstration in setting up a sound cinroc and offered the excellent advice of adding a balsa block between the cinroc and the body tube to protect the camera in case of propellant blowthrough.

Following this period modelers were treated to punch and cake in the banquet room. Then on came the movies, those highly imaginative tidbits of model rocket art. Several "straight" films were shown by modelers from across the country, and the North Royalton Rocketry Society displayed a very funny whimsy spoofing model rocketry. But the crowning touch came from the Steel City Section's "Model Rocketry—the Educational Space Age Hobby," which Bob Lieber—one of the culprits behind the film—afterwards described as a "satirical laugh on model rocketry." In this film Steel City's cameras captured hundreds of unstable and crashing rockets while a synchronized cassette recorder played selections from "100 Great Music Masterpieces" as a background soundtrack. Also receiving good attention was the first of NAR's slide and sound packages. Revised twice before showing, this LAC and Publications Committee project consisted of 36 slides with a running tape narrative describing NAR and model rocketry. Producer Bob Mullane was relatively pleased with the show, but afterwards expressed interest in making a third revision such that compressed ideas could be illustrated in more than just one or two slides.

At 12:30 the film and slides were over and conventioners returned to their rooms, but not necessarily to sleep. Bull sessions and hall gatherings continued throughout the night. The last modelers bedded down around 6:00 a.m. and looked forward to three hours sleep before Saturday's heavy schedule began.

Saturday brought a choice for the modelers staggering around at 9:00 a.m. They could either listen to Bob Mullane give a lecture on how to write R&D reports or show up for the one hour scale contest.

Those who chose the former were treated to a fine lecture on what makes up a R&D project and step by step details on how to document the research paper—including securing a notebook, estimating costs, setting a timetable, constructing equipment, doing original research, testing, and writing. Bob was especially helpful in specifying reference sources for the R&D beginner. (Passing on some of these sources, for those interested in R&D, Bob recommended the *R&D Methods Guide* and *NAR Technical Review* from NARTS, *Writing Technical Reports*, by Bruce M. Cooper (a Pelican Original) and *U.S. Army Manual of Mechanical Drawings* TM-5-230 TO-0025103).

The one hour scale contest brought in 12 contestants and about 30 onlookers. Bob Lieber officiated and every ten minutes yelled out how much time everyone had left. Between



Bob Lieber (far right) tells the one-hour scale participants how much time they have left. (Photo by Ken Paul)

yells modelers built Arcases, a Nike Smoke, a couple of V-2s and even a modified Alpha (Scale?) to mention a few models. With the exception of John Fleisher, who glued together a Rohini, the contestants were in their ninth grade or less, giving a junior flair to the event. The High Flyers—a Union Gap, Pennsylvania junior high rocket group—put in three team entries and built a V-2, an Arcas, and a Wac Corporal.

One of the contest originators—Brian Dolezal, showed up as a spectator. When asked how he thought of making an event out of building a one hour scale bird, Brian answered, "Well, in most contests it usually happens like that anyway."

At 10:15 the building ended. All that remained was the flying and judging two hours away.

Modelers moved on to discussion period 3 to participate in club, R&D, construction techniques, or basic B/G talks. Bob Mullane led the club group again, once more tackling problems, e.g., apathy among members at meetings.

Jan Blickenstaff took notes on the R&D discussion group led by Jim Barrowman. Jan notes that after a preliminary talk on the importance of defining data points, sensitivity of equipment and reporting and recording observations, the modelers sat about exchanging ideas such as pin wheel fins for recovery, measuring the strength of engine ejection charges, and converting the X-24 Bug (Centuri) into a lifting body glider. Two fellows from Wilkes-Barre, Pennsylvania, Frank Walsh and Ed Golden of the Luzerne County Model Rocket Club, displayed their ecology R&D project—a rocket carrying vaseline coated slides to capture air pollution samples.

Taking notes, Ron Roth attached himself to the construction techniques talk led by CMR's Howard Kuhn and Laurel, Maryland's Bill Werre. Ron noted that their group talked about high performance birds and how to make them—for example, by airfoiling and using boat-tails and smaller body tubes, overall weight and drag can be reduced. Sealing and finishing techniques were discussed, including the merits of balsa vs. plastic vs. plywood fins and enamel vs. dope vs. acrylic paints. Also dealt with were towers vs. pop launch lugs, number of fins to use, and types of engines available—in short a good discussion on how to make and launch a high performance model rocket.

Across the hall Ken Paul and others were busy taking notes on Dr. Gregorek's basic B/G

talk. Ken says about 40 people sat in on the discussion which was a learn-from-my-mistakes type lecture. The basic purpose of this discussion was to instruct beginners in building a boost/glider that would work. The resultant model wouldn't necessarily be a contest winner, but was bound to give the average beginning modeler satisfaction. To do this Dr. Gregorek gave his discovered "rules of thumb" and equations, and illustrated his ideas via strobe photography slides. (Later Dr. Gregorek's talk was summarized in a convention issue of "Starburst"—Steel City's Newsletter. The Mag's last page contained drawings, reference formulas and a dimension table for all those modelers who had been away at other talks).

In the midst of discussion period 3 Convention staff members handed out a socioeconomic survey to determine the personality type of the modelers. Sample questions included, "How much money have you wasted on this dumb hobby?" and "Have you ever been sued by the ASPCA?"

At 11:15 the modelers moved into the meeting room. Dr. Jerry Gregorek had just finished with his B/G group and now launched himself into a talk on the Blue Flame—the land-speed-record car clocked at speeds greater than 650 mph on the Bonneville Salt Flats. Dr. Gregorek and associates at Ohio State helped develop/design this rocket car (22,000 lbs. of thrust and from 0 to 800 mph in ten seconds) so Jerry was uniquely qualified to show slides and deliver this crowd pleasing lecture.

Afterwards the conventioners pressed their way into the banquet room for lunch, and press



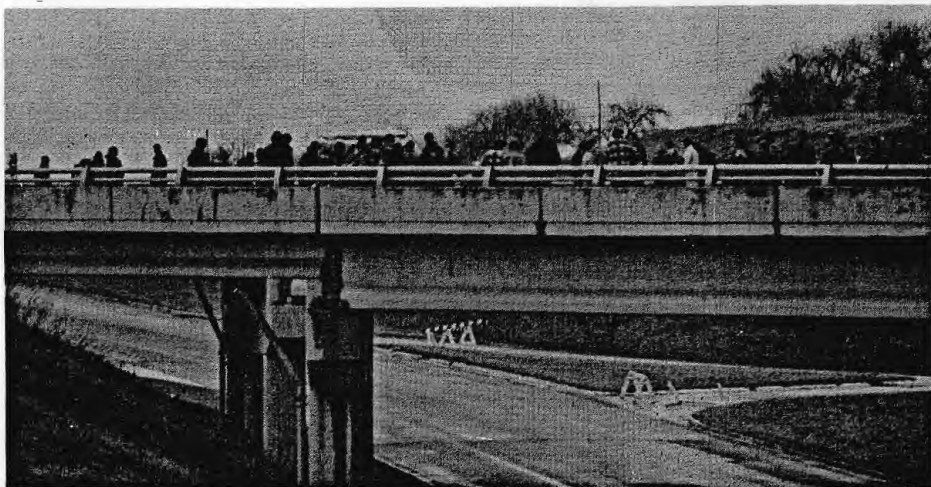
Convention launch supervisor (and Steel City Section President) Dave Crafton inspects some of the rockets. (Photo by Ken Paul)

(Continued on page 8)

SPECIAL CONVENTION FEATURE

they did. Two sections of movable partition walls came tumbling down into the conference room revealing a startled Howard Kuhn busy setting up the CMR display. No one was hurt to spoil model rocketry's safety record, and lunch continued uninterrupted.

After lunch, modelers donned warm coats and trotted to the launch site—an unused overpass on an unfinished road adjacent to the motel. Five launch racks continually coughed shreds of balsa into the sky for the three hours we fired, providing a thoroughly entertaining contest/demonstration. Larry Brown of Centuri was really having uncanny bad luck—the models he was able to get off successfully were being retrieved by boys on bicycles who were never seen again (sound like Bob Atwood at NARAM-11?).



The launch was held, for the second year, on an unopened highway overpass near the Motel (By Jan Blickenstaff)

The launch was supposed to continue until 5 o'clock but was cut short around 3:30 as few people had models left and the cold weather took its toll. Instead, manufacturers displays filled the remaining allocated contest time. These included CMR (who sold supplies hand over foot), Centuri, Contest Products, and Astro-Communications. Doug Ball and Bob Hagedorn of DB Industries were on hand, but had no public display. Modelers seemed disappointed that no one from Estes, SAI, Cox, or MPC showed.

Supper arrived at 6:15 and modelers squeezed back into the banquet room for a ham or steak dinner of sorts.

Howard Galloway followed with a talk and movie on the Applications Technology Satellites (ATS)—those navigational and communication aids to mankind. Howard explained how ATS kept watch on hurricanes, provided information on the migration of elk, supplied India with television language classes and saved lives in Alaska via medical communication hookups in remote areas.

It was mid evening now (8:15 p.m.) with still more to do. Rocketeers filed out of the banquet room with a choice of resting up, attending an NAR By-laws Revision Seminar, or listening to Larry Brown in a talk called "The Ark—Building a Starship with Present Technology."

By-laws Revision Committee member Doug Ball had been named to lead the seminar, but

unfortunately was called away to give testimony before protest decision meeting of the Contest Board. Jim Barrowman fielded the seminar on suggestions of changes within the NAR. Later these suggestions would be relayed back to the Revision Committee for individual consideration (Manning Butterworth is our Revision Committee chairman. One does not have to wait for a convention to make revision suggestions. By-laws are available from NARTS and Manning's address is Room 315, 5540 Hyde Park Boulevard, Chicago, Illinois 60637). One of the Seminar's more popular discussions concerned junior, leader and senior member voting rights. One rocketeer suggested all NAR members should be permitted to vote for trustees (currently only leader and senior members have the privilege), but only after each

member has been in the NAR at least one year.

Meanwhile Larry Brown was spinning a yarn about a space ark. Larry had delivered his talk a dozen times previously at schools and NASA workshops, but for us first time listeners his



Centuri's Larry Brown (on left), Bob Lieber and Rich Brandon (right) prepare to launch the Centuri demonstration birds. (By Ken Paul)

lecture proved an imaginative thought provoking lecture/discussion. Larry led the rocketeers through the social and engineering problems associated with the building of a starship designed to discover a new habitable planet for colonization. Modelers of both social and physical science persuasions joined in on the fun of tackling futuristic technical and human engineering problems. Larry finally brought the modelers back to earth from their adventures and reminded his listeners that although the group had been talking about an imaginative project for the near future (1986), the problems discussed were the same ones facing earth today. He concluded by asking the rocketeers to think how their futuristic solutions could be applied in 1972.

Space movies came next and conventioners were treated to excellent scale footage of V-2s and a rocket nostalgia film from Gulf Oil called "We Came in Peace" narrated by Frank McGee.

Discussion period 4 followed at 10:15 p.m., and modelers wishing to visit the photography room uncovered an enthusiastic By-laws revision seminar still going strong. Other groups slated for this period were newsletters, R&D, and construction techniques.

Bob Mullane finally did get to lead the photography discussion and explained photo effects of varying film and shutter speeds, F stops, etc. For example, Bob noted that good modroc photos are taken with exposures of a 30th and 60th of a second. Slower speeds should be used when anticipating blowing up (wrong choice of words?) the rockets' photo—finer grain with slower film. Larry Brown added that good rocket thrust pictures could be obtained from beneath a launch rack (but please be careful) and most everyone dropped hints or asked questions at this informative discussion. (Bob's work can be seen on the March, April and May covers of *Model Rocketeer*).

The newsletter group was handled by Rich Baier and Jan Blickenstaff. They discussed what types of information goes into a newsletter (contest news, NAR news, engine information, club history, tidbits, etc.), compared print media (Xerox vs. offset vs. mimeo vs. ditto etc.). Both group leaders have had fine newsletter experience; especially Jan whose other avocation is printing.

During the photography and newsletter discussion loud laughing could be heard in an adjoining room. It turned out to be one of those bull sessions that go on constantly to the side throughout a convention. Buddy Smith from Davenport, Iowa, and friends were recounting their rollicking experiences driving through Texas from NARAM-12.

The R&D discussion group met further down the hall in the conference room. Jim Barrowman and a group of eight reflected on contest strategy and the role of the R&D event within the NAR.

Across the hall Howard Kuhn was also talking on contest strategy, as related to construction techniques. For those interested in competition, Howard was giving the do's and don'ts of competition philosophy. For example: do build one bird for each event and class you intend to fly; don't bring an untried experimental bird to a contest and expect to win; do "go for broke," "go for max" and put in the best performance possible; don't try to outguess the weather conditions when launching, because weather is fickle. And so discussion period 4 went on until 11:15.

At 11:30 p.m. more movies were shown. Steel City repeated that "Educational Space Age Hobby" footage along with their original

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Howard Kuhn and Guppy (from right to left) discuss rocketry with other conventioners in the Holiday Inn lobby. (Photo by Ken Paul)



NAR Trustees (from left to right) Al Lindgren, Jerry Gregorek, Howard Galloway, Jay Apt and Jim Barrowman, answer questions at the open forum on Sunday morning. (Photo by Jan Blickenstaff)

model rocket explanation film. Larry Brown showed shots of a model rocket boat, and Gordon Mandell presented MIT film of rolling resonance airfoil tips in water. Other "pics" were seen, including shots of the Montreal convention, NARAM-13, and Tannenbaum. Quite a surprising number of modelers brought home movies, and Bill Cunningham was one of the last modelers to show footage—around 12:40 a.m. Sunday.

Seven-thirty in the morning phones started to ring. Desk Service and Jay Apt had begun a campaign to ring each rocketeer's room to begin Sunday's planned schedule. By 8:45 enough modelers had assembled in the motel's meeting room to hear last minute announcements: departure schedules, transportation arrangements, etc.

At 9 o'clock discussion period 5 was underway with two new groups added in addition to previously discussed construction techniques and instrumentation topics. These were parasite glider with Tim Bray and community model rocket programs with Jim McDaniel and Bob Mullane.

Tim had really pulled a fast one on the modelers attending his group. Guppy and he were originally scheduled to talk on variable geometry B/Gs, but Guppy had fallen sick—something he had drunk the night before—so Tim switched topics. Even so, Tim was able to deliver a rousing talk on parasites as they relate to higher engine class competition. Tim observed that the "Destruction Ratio on Eagle and Condor B/G is really high"; ergo a fairly sure way of placing or winning in a contest would be to have a qualified time. Since such flights are more likely to occur with parasites than most other designs, parasites seem good choices for high engine class B/G competition. (Here Tim was presenting an excellent example of considering state-of-the-art technology in competition, and illustrating that more ground work is needed for conventional Eagle and Condor B/Gs.)

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Meanwhile Jim McDaniel and Bob Mullane were speaking on community model rocket programs—a discussion relating to personal experience with civic, educational, and industrial organizations. They were saying that in a group of fifteen rocketeers, at least one member would know someone or knew someone else who would know a person "fairly high up" in a community organization, be it the Y, 4H, PTA, Knights of Columbus, (NARHUNS, ROB) or what have you. To this contact one could suggest a model rocket program, possibly along the lines of keeping kids from more dangerous endeavors or model rocketry as a predecessor to an aerospace career. From there a demonstration could be held and the program subsequently implemented. They also suggested a clever way to clear a demonstration area near the end of a launch. Their method is to announce to the spectators that whoever recovers the last bird gets to keep it. The last bird launched is an alpha or similar model with a C engine. While the youthful spectators are chasing the model, Jim and Bob quietly take down the range without hindrance. (An article about Jim McDaniel—"The Cop Who Loves Rockets"—may be found in the December *Model Rocketeer*.)

Howard Kuhn continued with construction techniques and high performance birds, emphasizing the advantages of staging for this session.

The instrumentation group with Rich Brandon and Bob Lieber were throwing out ideas for miniaturizing the Cameroc and Foxmitter and suggesting that coupling a Foxmitter with a Cineroc makes a good R&D project.

During these groups modelers frequently poured over page two of Sunday's *Pittsburgh Press*. The Convention had made the papers.

Discussion period six followed at the heels of these last talks and was in fact the last of the convention's discussion periods. The remaining topics consisted of rocket movie cameras with Bob Lieber, slow motion modroc photography

with Larry Brown, newsletters with Rich and Jan again, and variable geometry B/Gs with Guppy and Tim Bray.

Bob and Larry combined their groups so modelers were able to see experimental 8 mm. photography from both fast and slow speeds.

The newsletter group had gathered entirely new faces for their discussion, so they launched into the previous night's talk anew.

Guppy was up and about by now; Tim and he reviewed contest strategy and advances in variable geometry boost gliders.

The Trustees forum followed at 10:45 a.m., and included NAR Trustees Jay Apt, Jim Barrowman, Howard Galloway, Jerry Gregorek, and Al Lindgren. Jim Barrowman acted as the forum's moderator fielding and referring questions—the bulk of which were associated with how the international team is set up, how a NARAM site is chosen, what's new with the Pink Book, and the congeniality of NAR/Manufacturer relations. Jim Barrowman closed the session at 12:15 with this message, "We (the Trustees) want to know what your ideas are . . . complaints, suggestions. The NAR is interest oriented."

Award ceremonies came next with John Fleisher winning one hour scale on the Rohini. John Pollock who had a 21.5 second flight with a 1/4A took the R/G award. Larry Brown's last rocket adventures did not go unrewarded—he received the Dorpal Hawk award (a cliquish paganistic consolation prize). But the best award was saved for last. Marvin Liberman, Jay Apt and Alan Stolzenberg, all past Convention chairmen, awarded Elaine Sadowski a bouquet of red roses on behalf of the Steel City Section for her outstanding efforts in handling the Convention as co-chairman. Rich Baier was the other Convention co-chairman.

All that was left was an invitation for all to go to TRANSPO 72—May 27 through June 4 at Dulles International Airport near Washington, D.C.—and the conventioners were on the way back home—with fond memories.

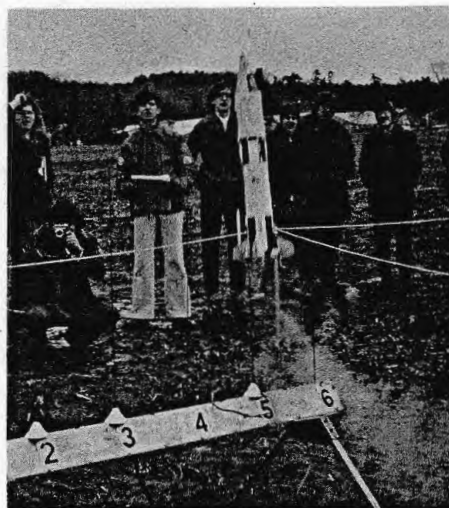
THE FIFTH ANNUAL MIT TECHNICAL CONVENTION

by Guppy, Chris Flanigan, and Trip Barber
Photographs by Robert Seufert, BAMR Photo Committee

The Convention began around 1:00 p.m. on Friday, March 24, when rocketeers began accumulating in the West Lounge of the MIT Student Center. Once the registration materials arrived (an hour or so later), a few informal activities got underway. The favorite was gobbling the cookies and punch that were put out by the registration desk, but a few of the more studious souls were observed to disappear upstairs for a series of draggy aerodynamics movies M.C.'d by Guppy. These hardy individuals emerged several hours later, bleary-eyed, but better educated. As a last resort, several groups went on hour-long tours of the MIT campus led by MITMRS members.

At the formal opening ceremonies at 7:00 p.m., Convention Chairman Trip Barber briefed the 98 rocketeers who were registered on some last minute schedule changes, and thanked his three deputy Chairmen, Chris Flanigan, Paul Giguere, and Paul Leiberhan, for their assistance in co-ordinating and running the event. The first and second of the Convention's six one-hour discussion group periods were the main activity for the rest of the evening. A few hungry individuals who had missed supper stayed in the registration area finishing off the cookies. The evening ended with a two-hour model rocket movie session.

Saturday's fun started early, with everyone piling into two yellow school buses at 7:30 a.m. for transportation to the Concord, Massachusetts dairy farm launch site. This replaced the Convention's traditional Hanscom Field site after the Air Force had decided that use of Hanscom for rockets interfered with the field's operations. The site preparation crew and most of the people who had private vehicles arrived on schedule and had the range set up by 8:15. As the morning wore on, concern was expressed for the buses and their contents, which by 9:30 were still missing. It was felt that further delay could lead to total submersion of the entire range layout, which had been gradually settling into the mud. The appearance of the missing rocketeers at 9:45 was greeted with a chorus of cheers, as the starved early arrivals brushed aside the dazed modelers stumbling from the bus and descended upon the donuts within. Later explanations revealed that both buses had been handicapped by poor guidance from the native guides who had been hired for the occasion and that one bus had been slowed by a steadily increasing number of flat tires. The first person to emerge from the bus and step into the field paid for his brazen act by sinking ankle-deep into a muddy quagmire. From that point on, conditions sank fast. The field was so muddy that only the most hardy souls dared plumb its perilous depths, leaving the more timid (and sensible) lined up along the road. Among the more interesting flights of the day were an F.7 flexwing RG by Bernard Biales, which almost pranged into a greenhouse, and several Cineroc flights, none of which worked due either to the cold weather or D.13 explosions.



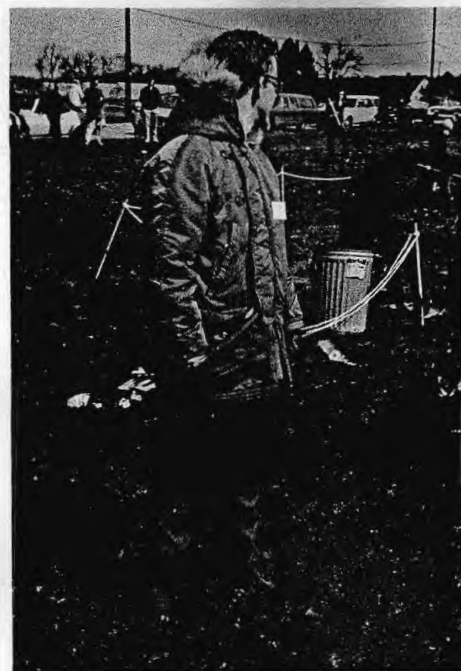
Larry Brown's Saturn V/X-24 Bug combination lifts off.

Larry Brown of Centuri (alias Joe Enerjet) flew his X-24 Bug many times, as it was the only rocket he had left after being ripped off so vigorously at the Pittsburgh Convention (apparently it was so weird that nobody wanted it). As a grand finale, Guppy's Gargoyle, the terror of NART-1, was revived for another attempt. Although it had been worked over the night before by Bob Parks and Guppy, it didn't quite make it, as only one of the two canted engines ignited. It described a pinwheel about five feet in the air.

The launch was concluded by the return of the previously lamed bus (now as good as new). The cold, muddy rocketeers then retired to the MIT Student Center for the afternoon's activities, leaving behind them a trail of dried mud. R&D presentations started about an hour later. Among the top projects presented this year was Tom Milkie's report on the corrected version of "Throw Your Rockets Out the Window to Find the CD" which was based on his article in *Model Rocketry* magazine. Andy Bennett took first place in Junior division with a project on piston launchers. His report, which included tracking data, seemed to prove that the use of piston launchers can significantly increase the altitude of a model rocket. Trip Barber's project on closed breech launchers, which had some interesting conclusions, captured first place in Senior division.

("The Proceedings of the 1972 MIT Technical Convention", a compilation of the summaries of all the projects entered in the competition, along with a 9-page article by Gordon Mandell on basic wind tunnel theory is available from MITMRS for \$1.50. Write to MITMRS, MIT P.O. Box 110, Cambridge, Massachusetts 02139 to obtain a copy.)

At the same time that the presentations were going on, small groups of participants were taken on a tour of the MIT low turbulence



Trip Barber slowly sinks into the mud at the Convention launch.

and anechoic wind tunnels, where they were guided by Gordon Mandell, and of the MITMRS static test facility, where the test equipment was demonstrated by Charles Bruno. After the R&D presentations Len Fehskens set up a portable computer terminal at the registration desk for an altitude prediction service. His program could handle any kind of rocket or boost/glider and could account for interstaging delays and allow for variations in engine performance from catalog values to give an idea of how rockets really perform.

The banquet on Saturday night was highlighted by George Flynn's speech on "The Future of the Model Rocket Industry". George spoke of the changeover of model rocket sales from mail order to distributors and local hobby shops. "The way the mass merchandise market will go," he said, "will determine the direction that manufacturers will take in the sales of model rocket supplies." The problem of maintaining a large inventory for mail order customers forces manufacturers to evaluate the intrinsic worth of mail order selling. Nor do hobby shops, he said, find it profit-



George Flynn gave the keynote address, "The Future of the Model Rocket Industry".

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able to carry these inventories, preferring higher-priced parts assortment packages to many small individual components. Manufacturers also face problems in developing new items for serious rocketeers (i.e., cameras, transmitters) due to high R&D cost and low potential market. Small companies, like CMR, can more feasibly develop and produce newer and more advanced items for the smaller serious market.

George's topic was continued into one of the evening's discussion groups, led by Larry Brown, Dane Boles of Estes, and Jim Barrowman, President of the NAR. Both manufacturers stated definitely that, while serious and advanced modelers constitute only about 4% of their market, they attach great importance to satisfying this 4%, even at the risk of losing money making advanced kits, as it is these people who are responsible for most of the innovations in the hobby. Furthermore, the publicity surrounding their activities tends to expand the beginners market. Despite the opinions of this "elite", the beginners are necessary to the hobby, if only to provide the manufacturers with enough profits to support the advanced new product development. These beginners were felt by some of the audience to be something of a safety risk, and they urged that the manufacturers promote the NAR to counterbalance this.

Among the most interesting and popular of the other groups at the Convention was Bernard Biales' "B/G Construction Techniques". Bernard emphasized the importance of selecting the right materials for building and finishing competition gliders. The first step in building a good B/G is selection of the lightest weight balsa wood that will hold together within the intended power limits. Once this has been selected, it is important to use the proper tools to work it over. A single X-acto knife and one grade of sandpaper are inadequate, he said, as he displayed the impressive array of sanding blocks, balsa planes, knife blades, and steel rules that he used for his models. He ended the hour with a discussion of the merits of various finishing methods.

Len Fehsken's "Altitude Prediction Techniques" compared the merits of iterative solutions to the use of analytical Bernoulli equations used by Doug Malewicki in his altitude prediction charts. Iterative solutions may require less time to evaluate with computers, and are more accurate, he said, as they do not contain hyperbolic function approximations, and they account for thrust variations and propellant mass loss.

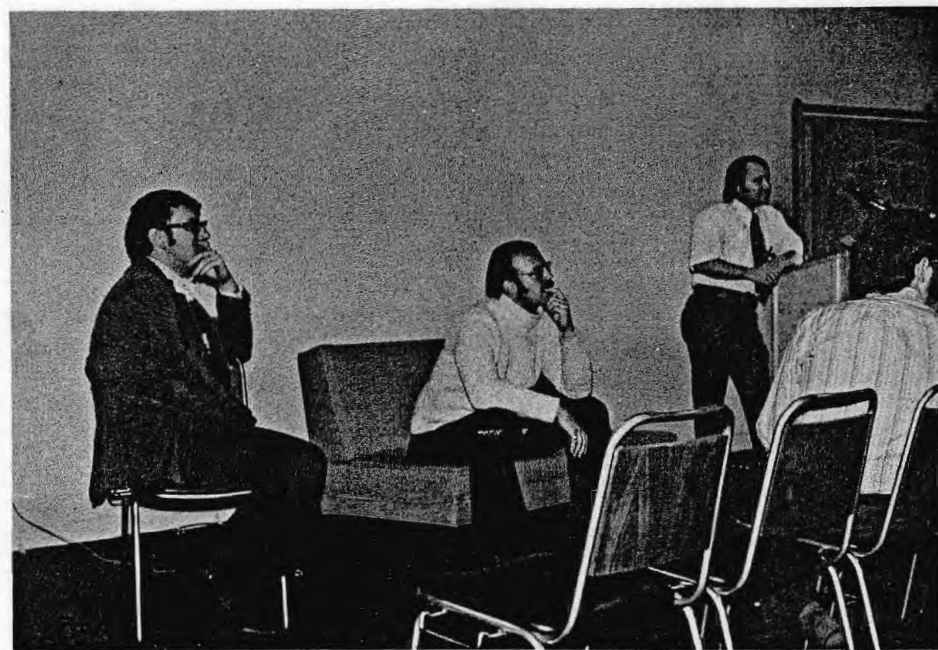
Trip Barber and Tom Milkie discussed the various means of increasing the velocity of a rocket by using its exhaust gases in a Saturday night group on closed breech launchers. The true closed breech launcher, which completely encloses the rocket, was concluded to be of doubtful value. Piston-type launchers seemed

At the MIT Convention, Bob Seufert's camera was stolen. The *Rocketeer* received the following from him:

"I would sincerely like to thank all those MIT participants who so generously contributed to the collection for my new camera. I would especially like to thank Jay Apt and Jim Barrowman for organizing the collection. The generosity of these people will never be forgotten. I only hope that I will be able to continue to provide them with the services I have in the past. Thank you."



Guppy leads a very informal discussion group on "Drag and Its Minimization".



(L to R) James Barrowman, Larry Brown, and Dane Boles led discussion on the model rocket industry.

more attractive because of the greater simplicity and demonstrated effectiveness.

After the final discussion group on Sunday morning, everyone gathered for the R&D awards ceremony. In addition to the trophies,

Estes Industries generously supplied Cinerocs, Transrocs, and Camrocs to the lucky winners. Closing remarks by Trip Barber and a stiff demand for completed questionnaires officially ended MITCON-5.

(Continued from page 5)

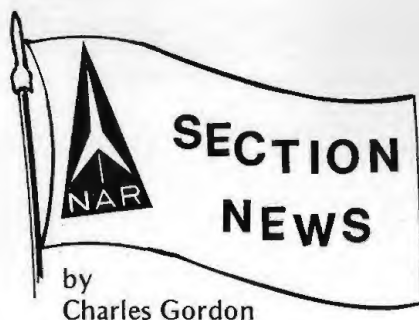
Saturn V using a D engine. The model worked beautifully, with the parachute deploying just after apex.

At the conclusion of the seminar, the speakers and discussion group leaders were treated to dinner, and everyone discussed the day's experiences. All in all, the seminar was a success, reaching its goal of promoting safe model rocketry.

Our thanks go to our guest speakers, and to Centuri Engineering Co., L.M. Cox Manufacturing Co., Inc., and Estes Industries, Inc., the companies that provided kits for door prizes.



Betty Bobé answers a rocketeer's question during her construction techniques discussion group.



ZENITH INFORMS PUBLIC

Shortly before Christmas the Zenith Section (167) Mankato, Minnesota, sponsored a rocket display at Madison East—a giant shopping center in Mankato.

They put up a huge exhibit of thirty of the finest rockets from the club members plus many more simple rockets which they offered for sale. The members selected their best built rockets and had an interesting variety of sizes, classes and types for the public to see.

Nearly 800 people stopped in to learn more about model rocketry. It developed into a fabulous public relations activity, for it generated a great deal of curiosity, and all the club members talked with visitors as they stopped at the display, answering a myriad of questions about rocketry. Many visitors left their names and requested that they be contacted the next time the club met or had a launch. It was an enriching experience for everyone.



Mr. Les Butterworth (NAR 3520, and an honorary Trustee) explains model rocketry to Miss Carol Buska, a speech therapist with the Mankato Public Schools.

S.P.E.A.R.

The Philadelphia area has been very weak when it comes to organized, active NAR members. The old Pottstown Missile Minders Section (133), which still had the basic rocket club equipment, along with a lot of dispersed NAR members in the Philadelphia area, have formed the South-eastern Pennsylvania Establishment for the Advancement of Rocketry (Section 286). The section as it now stands has two districts: Pottstown and Philadelphia.

The purpose of this new setup is to build up the areas where there seems to be clumps of dispersed members into semi-organized groups by exposing the neighboring public to model rocketry. The entire club (both districts) would therefore shift launch sites to these areas. When a launch does occur and the entire club is there, it will provide an awesome sight to spectators who are wondering if it is just another fad.

Interested prospective members will have activities such as this and the regular meetings to let them see that they won't be alone in this club. Also, they can see that their ideas will be heard in the planning of all section activities.

By motivating the new members more, the section hopes to see more competition, more good ideas and designs, and more dues to really build on any good ideas that come up.

Eventually it is hoped that the Philadelphia area group will become strong enough to start its own separate NAR-chartered section.

POINT SYSTEM

The Shawnee Rocket Association Section (285, Rosiclare, Ill.), reports in their February newsletter, "THE HOTLINE", a method to induce better attendance. This method is their point system.

In order to be able to go to a certain planned meet that they have in the Spring, it will be necessary for each member to accumulate a certain number of points.

The point values for various club activities are as follows:

Regular meetings — 5 points

Non Scheduled meetings — 2½ points

Launches — 2½ points

In this particular case the member had to accumulate 25 points to be able to attend the special meet.

If you need it, why not try out this system in your section.

As of April 1, 1972 the following section membership totals have been received:

Section Name	Section #	No. of Members
Pascack Valley	143	40
NARHAMS	139	38
NARGAS	238	29
NOVAAR	205	26
Gemini M.R.S.	116	20
M.I.T.M.R.S.	134	20
Silver State Section	288	20
ARK-LA-TEX	284	15
Harford Area S.M.	248	13

Thanks to the above listed sections for their cooperation in the compiling of this listing.

ANSWER TO LAST MONTH'S PUZZLE

The A.A.R. is devious, and the YMCA Space Pioneers own the Mini-Max.

NOVAAR FORMS DISTRICT

NOVAAR (205) of Fairfax, Virginia, plans to take the South Arlington Association of Rocketry, not a sanctioned section, in as a district until they are strong enough to subsist as a sanctioned section.

The Arlington district will hold their own meetings and collect dues, but will be governed by the overall club membership as to which sanctioned meets they compete in. The 15 members of the SAAR will have all club rights and privileges including the 10% discount from CMR and the 15% discount at Sullivan's Toy Store, NOVAAR's main source of engines.

WHAT IS YOUR NAME PLEASE?

Rumor has it that many old NAR Sections have changed their old name while requesting their 1972 charter renewal. This can be quite a confusing process for many of us who know the old names and do not hear of the change.

If your section has changed its name at any time in the past 6 months or so, please send in notice of that change to NAR Section News for publication as soon as possible.

VIRGINIA STATE REPORT

The March 1972 issue of the NOVAAR FREE PRESS, newsletter of the NOVAAR section (205) in Fairfax, Virginia, reports on some of the activities now being coordinated by State Director Roland Gabeler and the members of the NOVAAR and Viking (203) Sections.

The first is a planned Virginia State Championships for all Virginia rocketeers to be held on a weekend sometime this coming summer. The meet would consist of two preliminary elimination rounds on Saturday and the finals (with the 8 remaining rocketeers) on Sunday for the top places and prizes.

The second planned activity is a "Civil War Regional Meet," which would pit the North against the South in modroc combat. It would be held the second weekend after NARAM-14 to give those East-coast NAR members who couldn't make it to the Nats a chance to compete early in the new contest year.

The exact states competing as the North or the South have not been completely decided, but the meet would be held either at Appomattox or Manassas, Virginia, both important historical sites of the Civil War.

CONTEST alendar

May 13-14, 1972—Columbus, Ohio. Central Ohio Regional Competition (CORC-72). Events: Class O Parachute Duration, Class 2 Streamer Duration, Sparrow Boost/Glide, Sparrow R/G, Robin Eggloft, Class O Drag Efficiency, Peewee Payload, Scale, Superscale. Contact: Fred Long, 456 Bigelow, Hilliard, Ohio 43026. Telephone: (614) 876-7628.

May 14, 1972—Fairfax, Virginia. Name: Washington Area Record Trials (WART-1). Host: Northern Virginia Association of Rocketry 205. Events: Records in any timing class may be attempted. Competition events: Condor B/G, Swift R/G, Class O P.D., Class 2 S.D. Trophies and ribbons will be awarded to winners. Meet fee (to cover cost of trophies and ribbons) is \$2.50. Contact: Randy Thompson, 10814 First Street, Fairfax, Virginia 22030.

May 20, 1972—Geneseo, Illinois. Name: HAWK-72-4. Host: Blackhawk Section 110. Events: Class 1 Streamer Duration, Hawk R/G, Sparrow Boost/Glide, Condor Boost/Glide, Peewee Payload, Robin Eggloft, Class 1 Parachute Duration. Contact: Glenn Scherer, Jr., 1427 7th Avenue, Rock Island, Illinois 61201.

May 20-21, 1972—Rosiclaire, Illinois. Name: RAM-I. Host: Shawnee Rocket Center 285. Events: Robin Eggloft, Class 2 Streamer Duration, Open Spot Landing, Hawk Rocket Glider, Scale, Sparrow Rocket Glider, Swift Boost/Glide. Contact: Joe Hamon, P.O. Box 548, Rosiclaire, Illinois 62982.

May 20-21, 1972—Anaheim, California. Name: Titan Pacific Regional Meet. Events: Swift and Hawk Boost/Glide, Pigeon Eggloft, Class O Parachute Duration, Class 2 Streamer Duration, Peewee Payload, Design Efficiency, Scale, Sparrow Rocket Glider, Plastic Models. Contact: Norm Wood, 3234 Charinda, West Covina, California 91791.

May 27-28, 1972—Pittsburgh, Pennsylvania. Name: PghRANG III Regional Meet. Hosts: Three Rivers and Steel City Sections. Events: Class III Scale Altitude, Plastic Model, Hawk Boost/Glide, Roc Eggloft, Spot Landing, Eagle Rocket Glider, Hornet Boost/Glide, Class III Streamer Duration. Contact: David Crafton, 5307 Westminster Place, Pittsburgh, Pennsylvania 15232.

May 27-28, 1972—Pottstown, Pennsylvania. Name: AARDVARK-I. Host: S.P.E.A.R. 286. Events: Predicted Altitude, Dual Payload, Class 00 Altitude, Hawk Boost/Glide, Class 3 Parachute Duration, Robin Eggloft, R & D, Peewee Payload, Condor Boost/Glide, Class 3 Streamer Duration, Class 0 Streamer Duration. Contact: Carl J. Warner, 665 Woodland Avenue, Pottstown, Pennsylvania 19464. Telephone: (215) 323-4296.

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May 27-28, 1972—Davenport, Iowa. Name: Records Trial. Host: Glen and Carol Scherer. Events: Condor Boost/Glide, Sparrow Rocket Glide, Pigeon Eggloft, Class O Parachute Duration, Class O Streamer Duration, Eagle Boost/Glide, Hornet Boost/Glide, Design Efficiency, Class III Parachute Duration, Class II Streamer Duration. Contact: Glenn Scherer, Jr., 1427 7th Avenue, Rock Island, Illinois 61201.

May 28, 1972—Fairport (Rochester), New York. Name: MARS SECTION MEET II. Host: Monroe Astronautical Rocket Society 136. Events: Scale, Sparrow Rocket Glider, Eggloft (Class to be announced), Open Spot Landing. Contact: Lee Howick, 2424 Turk Hill Road, Victor, New York 14564. Telephone: (716) 223-2927.

June 3-4, 1972—Toledo, Ohio. Name: TOLEDO I. Host: Point Place Model Rocket Club of Toledo 178. Events: Class 1 Streamer Duration, Robin Eggloft, Hornet Boost/Glide, Scale, Class O Parachute Duration, Peewee Payload, Hornet Rocket Glider, Plastic Model. Contact: Joseph McBride, 1019 Cady Street, Maumee, Ohio 43537. Telephone: (419) 893-8482.

June 4, 1972—New Canaan, Connecticut. Name: SPAM-5. Host: YMCA Space Pioneers 166. Events: Class 1 Scale Altitude, Scale, Sparrow Boost/Glide, Sparrow Rocket Glider, Class O Drag Efficiency, Plastic Model. Contact: A.A. Jacobsen, 351 Springwater Lane, New Canaan, Connecticut 06840. Telephone: (203) 966-0870.

June 11, 1972—Milford, Maine. Name: Nerfsec-4. Host: The New England Rocketry Federation 236. Events: Scale, Superscale, Open Spot Landing, Condor Rocket Glider, Hornet Boost/Glide. Contact: Patrick Griffith, Legion Street, Milford, Maine 01757. Telephone: (617) 473-7654.

June 17-18, 1972—New Canaan, Connecticut. Name: SPQR-6. Host: YMCA Space Pioneers 166 and sections in Connecticut, Southeastern New York and New Jersey. Events: Class O Drag Efficiency, Peewee Payload, Superscale, Class 2 Streamer Duration, Sparrow Rocket Glider, Robin Eggloft, Scale, Class 1 Parachute Duration, Sparrow Boost/Glide. Contact: A.A. Jacobsen, 351 Springwater Lane, New Canaan, Connecticut 06840. Telephone: (203) 966-0870.

June 17-18, 1972—Davenport, Iowa. Name: MAR '72 (Mid-America Regional '72). Host: Hawkeye Section 178. Events: Predicted Altitude, Pee Wee Payload, Robin Eggloft, Scale, R&D, Hornet Boost/Glide, Swift Boost/Glider, Class O Parachute Duration, and Open Spot Landing. Contact: Dan Leckington, 2018 Marquette Street, Davenport, Iowa 52804.

June 23, 24, 25, 1972—Houston, Texas. Name: Second Annual Southwest Regional Model Rocket Meet. Host: Apollo/NASA Section 103. Events: June 23—Discussion day. Super Scale, Scale, Robin Eggloft, Hornet Boost/Glide, Swift Rocket/Glide, Plastic Model, Class 3 Streamer Duration, Predicted Altitude, and Parachute Spot Landing. Contact: John Dressel, 8608 Robindell, Houston, Texas 77036.

June 23, 24, 25-1972—New Castle, Delaware. Name: TRI-SEC III. Host: Gemini Model Rocket Society 116. Events: Scale, Design Efficiency, Pigeon Eggloft, Eagle Rocket Glider, Swift Boost/Glide, Class O Parachute Duration, Class O Altitude, Class 1 Streamer Duration.

Contact: James McGraw, 2800 Millcreek Road, Wilmington, Delaware 19808. Telephone: (302) 998-2993.

June 24, 1972—Pottstown, Pennsylvania. Name: Last Chance I. Host: S.P.E.A.R. 286. Events: Sparrow Boost/Glide, Swift Boost/Glide, Sparrow Rocket Glider, Class 00 Altitude, Design Efficiency, Class 4 Altitude, Class 3 Parachute Duration, Class 3 Streamer Duration, Single Payload, Class 0 Streamer Duration. Contact: Carl J. Warner, 665 Woodland Avenue, Pottstown, Pennsylvania 19464.

June 24-25, 1972—Columbus, Ohio. Name: Midwest Model Rocket Regional (MMRR-72). Events: Class 1 Parachute Duration, Class 1 Streamer Duration, Hornet Boost/Glide, Hornet Rocket Glider, Swift Boost/Glide, Robin Eggloft, Peewee Payload, Design Efficiency, Plastic Model, Scale. Contact: G.M. Gregorek, 4451 Danforth Road, Columbus, Ohio 43224. Telephone: (614) 267-4156.

July 8-9, 1972—Shawnee, Kansas. Name: Heart of America Regional Meet II. Host: Midwest Rocket Research Association 168. Events: Roc Eggloft, Robin Eggloft, Pee Wee Payload, Class 0 Parachute Duration, Hawk Boost/Glide, Sparrow Boost/Glide, Sparrow Rocket Glider, and Scale. Contact: Mark Pemberton, 10911 West 70th Terrace, Shawnee, Kansas 66203.

MIT B/G POSTAL CONTEST

Postal Contests, in which people compete at a convenient time and place and mail in the results, have been run successfully by the National Free Flight Society and other free flight groups. Bob Parks suggested that the MIT Model Rocket Society bring the postal to model rocketry. We hope it will provide a low pressure way for both the single, isolated modeler and the club member to compete with others here and abroad. Furthermore, this contest is intended to encourage the multi-round form of boost/glider contest. Entries may be flown any time between July 7 and 22.

The winner of the contest will receive a trophy, with ribbons going to the second and third place winners. Everyone entering will receive a copy of the results, which we also hope to publish. Copies of the rules may be obtained by sending a self-addressed envelope to the MITMRS. Send all correspondence to:

MIT Model Rocket Society, Parks Trophy
Box 110, MIT Branch Post Office
Cambridge, Massachusetts 02139

CONVENTIONS, EXHIBITIONS, SEMINARS

June 30-July 2—Easton, Pennsylvania. Name: Second Annual Philipsburg Convention and Trial (PACT-2). Host: PARC Section 258. Events: Class 00 Parachute Duration and Streamer Duration, Class 1 Parachute Duration and Streamer Duration, Gnat Boost/Glide and Rocket Glider, Sparrow Boost/Glide and Rocket Glider, Swift Boost/Glide and Rocket Glider, Hawk and Eagle Boost/Glide, A Engine Heli Duration, D Engine RC Boost/Glide, Night A Engine Boost/Glide and Rocket Glider. Also: Discussion groups, demonstrations, manufacturer's displays, and banquet. Contact: David Klouser, 383 Warren Street, Stewartville, New Jersey 08886. Telephone: (201) 859-3092.

HAM MODROC CONVENTION

July 15, 1972. Name: 1st National Modroc Convention Ham Radio Net to be held on frequency 3992 KC± and 14300 KC± 5 KC. Net control WATNIC; Net call up CQ Model

(Continued on page 14)

SOUTHWEST REGIONAL II

MODEL ROCKETRY MEET

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MANNED
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HOUSTON, TEXAS

JUNE 23, 24 & 25, 1972

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having trouble finding Hams, write:

Tom Belisle, 534 Fuller Street
Ludlow, Massachusetts 01056

June 17-18, 1972—Toronto, Canada. Name:
Toronto Regional-TRRM-2.. Host: The Cana-
dian Rocket Society. Theme: Space Explora-
tion via Model Rocketry. Presentation:
Diamond Rocketry Trophy. Events: Class 1(A)
Parachute Duration, Class 2(B) Streamer Dura-
tion, Swift Boost/Glide, Hawk Rocket Glide,
Class 4 Eggloft, C/S Landing, R & D, Scale.
Contact: Canadian Rocket Society, Adelaide
Street P.O. Box 396, Toronto 1, Ontario,
Canada.

June 25, 26, 27, 28, 1972—Albuquerque, New
Mexico. Name: 1972 Southwestern Model

Rocketry Conference. Events: Lectures, discus-
sion groups, flight competition, night launch, R
& D competition, and manufacturers displays.
All activities, housing and meals will be on the
University of New Mexico campus. Contact:
SWMRC 72, Physics Department, University of
New Mexico, Albuquerque, New Mexico
87106.

July 7-9, 1972—Montreal, Canada. Third
National Canadian Model Rocket Conference.
Convention and competition open to all model
rocketeers from Canada and the United States.
Events: Discussion Groups, contests in Scale,
Condor B/G, Sparrow B/G, Hawk R/G, Open
Spot Landing, and Class O PD. Contact: Cana-
dian Conference 1972, c/o Steven J. Kush-
neryk, 7800 des Erables Ave., Montreal 329,
Quebec, Canada.

NAR NEWS

CZECHOSLOVAK NATIONAL MODEL ROCKET RECORDS

With the world championship rocket meet
coming up this fall, U.S. competitors might like
to know how rocketeers in some of the other
countries are doing. Harry Stine has been acting
as "scout" (and Liaison Committee Chairman)
and has supplied us with these records from
Czechoslovakia. They originally appeared in
"Modelar", January 1972.

Absolute Records

Flight Duration: 16 min. 45 sec., Jan Polak,
Trnava, 9 May 1968.

Altitude: 611 meters, Otakar Saffek, Most, 27
June 1970

Class Records

Altitude, 0-2.5 Nt.-sec.: 286 meters, Jan Polak,
Trnava, 26 June 1971

Altitude, 0-5 Nt.-sec.: 415 meters, Ivo Jelinek,
Trnava, 26 June 1971

Altitude, 5-10 Nt.-sec.: 223 meters, Miroslav
Hecko, Trnava, 26 June 1971

Altitude, 10-40 Nt.-sec.: No record

Altitude, 40-80 Nt.-sec.: No record

Payload, 0-2.5 Nt.-sec.: 188 meters, Anton
Repa, Trnava, 26 June 1971

Payload, 0-10 Nt.-sec.: 399 meters, Emil
Praskac, Trnava, 26 June 1971

Payload, 10-40 Nt.-sec.: 602 meters, Emil
Praskac, Trnava, 26 June 1971

Payload, 40-80 Nt.-sec.: 611 meters, Otakar
Saffek, Most, 27 June 1970

Parachute Duration, 0-10 Nt.-sec.: 16 min. 45
sec., Jan Polak, Trnava, 9 May 1968

Sparrow Boost/Glide: 3 min. 31 sec., Otakar
Saffek, Most, 27 June 1970

Swift Boost/Glide: 2 min. 54 sec., Milan
Jelinek, Trnava, 26 June 1971

Hawk Boost/Glide: 4 min. 30 sec., Premysl
Kyncl, Most, 27 June 1970

Eagle Boost/Glide: 6 min. 30 sec., Milan Straka,
Most, 27 June 1970

Condor Boost/Glide: 2 min. 23 sec., Otakar
Saffek, Most, 28 June 1970

Scale Altitude, 0-2.5 Nt.-sec.: No record

Scale Altitude, 2.5-5.0 Nt.-sec.: No record

Scale Altitude, 5-10 Nt.-sec.: 348 meters, 745
scale points, 1093 total points, Otakar Saffek,
VIKING, Slavnica, 29 May 1971

Scale Altitude, 10-40 Nt.-sec.: 372 meters, 791
scale points, 1163 total points, Otakar Saffek,
SCOUT, Slavnica, 29 May 1971

Scale Altitude, 40-80 Nt.-sec.: No record

U.S. Record Attempts

The following are record attempts; they are not
yet records, but they are being printed here to
give you an idea of what you'll have to beat to
set a record.

Class O Streamer Duration—B Division: Michael
J. Lenhard, 27 February 1972, 31.4 sec.

Class O Streamer Duration—C Division: David
Zuchero, 27 February 1972, 54.4 sec., John
Omachel, 21 November 1971, 55 sec.

Class III Parachute Duration—C Division:
Arthur T. Babiarz, 27 February 1972, 252 sec.

Sparrow Boost/Glide—Division B: Alan Bland
Team, 27 February 1972, 60.5 sec.

World Championship Meet to Be Held in Yugoslavia

The 1st World Championship of Rocket
Modelers will be held in Vrsac, Yugoslavia,
from September 22nd to 25th, 1972. The
competition will be held at Vrsac's Federal
Aeronautical Centre, a school for training
sporting pilots and parachutists, in the aro-
drome, a grass-covered field approximately
1500 meters by 3000 meters in size. Entries
are expected from Yugoslavia, Bulgaria,
Czechoslovakia, Poland, the United States,
Canada, Egypt, and Rumania, and possibly
from Australia and Norway. Events (to be
flown according to the FAI's Model Rocket
Sporting Code) include Parachute Duration
with total impulse up to 5 newton-seconds,
Boost/Glide with total impulse up to 5 new-
ton-seconds, and Scale, with no total impulse
restriction. Each competing nation may send
a ten-person team consisting of three com-
petitors for each event and a team leader.

Three More Elected to U.S. Team

NAR International Team Selection Com-
mittee Chairman George Pantalos has an-
MODEL ROCKETEER

nounced the election of three more people to the U.S. International Team. The following are those most recently elected: for Parachute Duration, Jon Randolph and Shirley Lindgren; for Boost/Glide, Crag Street.

Election by the Committee does not constitute official selection. The elected individuals must first accept the election. Upon receipt of the acceptance, the Committee Chairman will notify the NAR President of the action of the Committee, and he will then officially designate the U.S. Team members.

Good News on Black Powder

The model rocket engine manufacturers have found a new source of high quality black powder. The good news was announced at the MIT Technical Convention discussion group concerning the future of the model rocket industry. Dane Boles and Larry Brown, from Estes and Centuri, respectively, were the manufacturers' representatives.

The supply of black powder for model rocket engines was jeopardized when the Dupont Chemical powder plant exploded in late 1971. The new source was located after a world-wide search. While a number of sources

were quickly found, the need for high quality dictated that the search continue. According to Dane Boles, the quality of the new black powder is such that rocketeers will notice no difference in engine performance.

NARAM Head Scale Judge Named

NARAM-14 Contest Director Jess Medina has announced that Robert C. Pommert, NAR 22231, of Tacoma, Washington, will be head scale judge at NARAM.

Misunderstanding on Membership and Charter Renewal

A lot of our members have misunderstood the new 12 month membership policy. This policy applies only *after* you have renewed for 1972. Anyone who is carrying only a 1971 membership card is not a NAR member. Please pass this on to any old NAR member you know who has not renewed.

Another misunderstanding floating around is that a section must have both a leader and a senior member to charter. Wrong! A minimum of ten members, including a Senior Advisor, and a decent set of by-laws are the requirements for sectionhead. Of course, all section

members must be NAR members in good standing.

Forming a Team?

If you would like to form a team, send for a team application from Dottie Galloway, the National Contest Board Chairman (428 Ben Oaks Drive, West, Severna Park, Maryland 21146). Fill out the form completely and return it to the above address. You will receive a team number by return mail. Remember, if the membership of a team changes, it is no longer the same team and must apply for a new number.

Effective 1 July 1972, each team must register at the beginning of the contest year (1 July). An annual team fee of 50¢ per person must be paid when registering. The current team form lists the 50¢ fee. However, it is not applicable until after 1 July 1972.

Russell to Remain as LAC Chairman

Chas Russell has notified the *Model Rocketeer* that he has *not* resigned as LAC Chairman as was reported in the minutes of the February 15 Trustees meeting. Chas has joined the Air Force and resumed his duties as Chairman after completing basic training.

Speak out on the by-laws!

by Manning Butterworth

ARTICLE XI, Other Committees

Section 1: In addition to the Nominating Committee, the President shall appoint, subject to ratification of the Board of Trustees, the Chairmen of the Standing Committees and the Chairmen of such Special Committees as the President shall, from time to time, deem necessary or desirable to achieve the aims and purposes of the Association.

Section 2: The Standing Committees shall consist of the following: (a) Membership Committee, (b) Standards and Testing Committee, (c) Contest and Records Committee, (d) Liaison Committee, (e) Section Activities Committee, (f) Education Committee, (g) Public Affairs Committee, (h) Publications Committee, and (i) Technical Services Committee.

Section 3: The Membership Committee shall have as its duties the promotion of membership in the Association, the certification as to class of a potential member, and the conduct of membership campaigns under the direction of the President.

Section 4: The Standards and Testing Committee shall have as its duties the establishment and revision of the standards and regulations of the Association, the establishment and revision of the Safety Code of the Association, and the testing and certification of equipments as called out in the standards and regulations of the Association.

Section 5: The Contests and Records Committee shall have as its duties the certification of applications for sanction of contests by the Association, the certification of results of contests sanctioned by the Association, and the homologation of records established or surpassed by members under the standards and regulations of the Association.

Section 6: The Liaison Committee shall have as its duties the close liaison of the Association with other organizations of a similar nature, co-ordinating activities where necessary, and providing for an exchange of information between the Association and similar groups elsewhere.

Section 7: The Section Activities Committee shall have as its duties the formation of new local Sections of the Association, the chartering and re-chartering of such Sections, the maintenance of communications between the Sections and the Board of Trustees, and such clerical and administrative duties related to Section affairs as may from time to time be requested by the Secretary of the Association.

Section 8: The Education Committee shall have as its duties the planning, programming, implementation, and supervision of education programs in which the Association may become involved; and co-ordination, co-operation, and assistance with and to educators in all matters relating to education that will further the aims and purposes of the Association.

Section 9: The Public Affairs Committee shall have also as its duties the publication of any and all affairs of the Association in any and all outside communications media that shall assist the Association in the furtherance of its aims and purposes; and the editing and publication of the Association's newsletter, THE MODEL ROCKETEER.

Section 10: The Publications Committee shall have as its duties the encouragement of the membership to author and submit technical and/or educational reports or papers relating to the aims and purposes of the Association; the screening and editing of such acceptable reports and papers, and the co-ordination of the publication of such reports and papers with the Technical Services Committee.

Section 11: The Technical Services Committee shall have as its duties the acquisition, publication, promotion, and sales to Association members of membership insignia, technical reports, and other materials as may from time to time be approved by the Board of Trustees.

Section 12: The President may assign additional duties to each Committee in line with their regular duties as may be required.

Section 13: The President shall be an ex officio member of all Committees. All Chairmen of Committees shall serve until their successors are appointed and qualify.


The following amendment is under discussion by the By-Laws Revision Committee; change Article XI, Section 3 to read:

Section 3: The Membership Committee shall have as its duties the promotion of membership in the Association, the procurement of membership applications and other promotional materials, the certification as to class of a potential member, and the conduct of membership campaigns under the direction of the President.

Rationale: The additional responsibility which has been assigned, viz. "the procurement of membership applications and other promotional materials" evidently has not, as one might have thought from the phrase "promotion of membership", been charged in the past to the Membership Committee. The importance of applications, flyers, and so on argues that attention to them be ensured; it would seem appropriate that such attention be given by the Membership Committee.

This series of By-Laws articles started with Article II in the February *Model Rocketeer*, and it will be completed in the July issue. If you have missed any of the installments, or if you would like a complete copy of the By-Laws all in one place, you can obtain a copy from NAR Technical Services, 511 South Century, Dept. F, Rantoul, Illinois 61866.

If you have any comments on Article XI or any other part of the By-Laws, please send them to the Committee member nearest you or to the Chairman. The Committee members' addresses are: Doug Ball, 415 Houck House, 61 Curl Drive, Ohio State Univ., Columbus, Ohio 43210; William Boggs, 730 East Dartmouth St., Gladstone, Oregon 97027; Manning Butterworth (Chairman), Room 315, 5540 Hyde Park Blvd., Chicago, Illinois 60637; A.W. Guill, 32 Gerdes Rd., New Canaan, Connecticut 06840; Harold Mayes, 712 Kansas Ave., Olathe, Kansas 66061.



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