

Horizons

Houston, Texas

June 1995

Chairman's Corner

George Nield
Chairman

Since this will be my last chance to address many of you as Section Chairman, I'd like to thank you for your enthusiastic support throughout the last year. I really appreciate the time and energy that all of our officers, Councillors, and committee members have given in order to keep things running smoothly. The Houston Section has a lot of very talented folks as members, and we are very fortunate that so many of them have volunteered their services in support of our society.

Looking back at these last 12 months, I feel like we've had a very successful year. I am particularly pleased with both the number and the wide variety of activities that we have sponsored. Hopefully, one or more of them have been of interest to each of you. Here is a quick listing of some of our accomplishments: regular monthly dinner meetings, each featuring an outstanding speaker; a first-class monthly newsletter (Thanks for the great work as our editor, Lou!); several informal Lunch & Learn sessions put together by our local technical committees; numerous special seminars and workshops; five technical conferences and symposia, including the first national AIAA conference ever hosted by a local section; four local facility tours, plus a field trip to Texas A&M to visit the Student Branch there; development of an AIAA Houston Section Home Page on the World Wide Web; initiation of an AIAA News Flash e-mail system; school visits during Engineer's Week; presentation of

awards during the Houston Science Engineering Fair; and operation of a video and audio tape library. By the end of June, we also expect to have awarded a \$1000 Spirit of Apollo Scholarship and published a Section Membership Roster.

Not a bad record for a bunch of volunteers!

My only real disappointment this year has been the continued decline in our membership numbers. This has obviously been a very challenging time for the aerospace industry, and unfortunately, many people believe that in tough times, professional society membership is a luxury. I strongly disagree with that assessment. In times like these, I think it's more important than ever for both individuals and organizations to continue the support for education, technical information sharing, and professional growth opportunities that groups like the AIAA can offer. With government and industry cutting back on training dollars, corporate knowledge disappearing due to retirements and cut-backs, and honors and awards not being as plentiful as one might like, membership in and support for professional societies can offer real benefits both to the individual and to the organization.

What do you think? If you have some ideas as to what we could do to be more successful in attracting new members (or in retaining current members!), please let us know. Give me a call at (713) 483-1364, or send an e-mail note to gfield@jscprofs.nasa.gov.



Who's Who

Section Election Results

Dr. George C. Nield
Chairman

BASED ON THE RESULTS of the recently completed Section elections, AIAA Houston Section Officers and Councillors for 1995-96 are listed below:

Chairman: Don Probe*

Chairman-Elect: Clayton Shadeck

Vice Chairman - Technical: Charles Teixeira

Vice Chairman - Operations: Merri Sanchez

Secretary: Makoto Jeff Sugano

Treasurer: Rudolf Balciunas

Councillors:

Elizabeth Bains

Larry Bell

Jill Fabricant

Lou Livingston

Ellen Ochoa

Michael Stanford

Dave Criswell*

Carl Huss*

Joe Loftus*

Jim Oberg*

* Elected in 1994.

Thanks to all who agreed to run, and to all those who voted. Several of the races were extremely close. The new council members will begin their terms of office on July 1, 1995.

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Welcome to Houston!

Dr. George C. Nield
Chairman

WE ARE PLEASED TO WELCOME three new members to the AIAA Houston Section: Scott Bleisath, who is transferring from the Orange County Section; Roy Nakagawa; and John Harcinske, who is transferring from the Rocky Mountain Section.

If you would like to know more about any of our local activities, please give one of our officers a call. We'd be happy to talk to you about upcoming events and how you can get more involved in Section activities.

In This Issue...


Chairman's Corner	1
Who's Who:	
Election Results	2
New Members	2
Committee News:	
Space Transportation TC	3
Vote of Thanks	3
International Activities	3
Events:	
Space Transportation Lunch & Learn	3
AIAA Technical Symposium	4
CLCTS Awards Banquet	5
National Conferences Set	5
Young Members Tour B-17	6
Virtual Reality Lab	6
Crossword	7
Cranium Cruncher	8
From The Editor	8
AIAA Calendar	9

Committee News

Commercial Launch Safety Standard


Charles Teixeira
Space Transportation TC Chairman

AIAA MEMBERS HAVE BEEN ASKED through several of the technical committees, including Space Transportation, to participate in establishing the basis for the future regulation of commercial space launches. The Commercial Space Act requires that public safety be protected during preparation for and conduct of commercial launches. In cooperation with the Department of Transportation/Office of Commercial Space Transportation, AIAA has commissioned the preparation of a draft standard for commercial launch safety.

The draft document (S-061-1995) is in the form of an AIAA Standard, and a copy is available for review and comments. All AIAA members have a unique opportunity to participate in the formulation of this Standard. So if you can, take advantage of the opportunity by providing constructive comments preferably directly to James E. French, Director of Standards, AIAA Headquarters, or to Charles Teixeira at 483-4647. 

A Vote of Thanks


Bill Best
Mailing Chairman

ON BEHALF OF THE SECTION, I would like to thank the mail team workers without whose help the membership would not receive their newsletters in a timely manner. The section members who perform this service on a regular monthly basis, in addition to their other section duties, are Dr. George Nield, Jim McLane, Steve Zobel, Shirley Brandt, and John Trebes. Others who have helped include Dick Bennett, Michael Begley, and Tek Shrini. My thanks to them all and to any others whose names I may have omitted. 

International Activities

Joe Loftus


THE AIAA IS EMBARKED UPON A CAMPAIGN to assist the Russians in establishing an organization comparable to AIAA. At present there are no professional associations in Russia comparable to those in western nations. There are now seventy persons in Russia for whom membership dues have been paid by U.S. companies or individuals.

It may be fruitful for some of the JSC members who have dealings with Russian colleagues in the Shuttle, Mir or Station activities to consider enrolling them in AIAA. It would facilitate their participation in AIAA activities as well as their participation in some of the international activities such as the International Astronautical Federation for which AIAA is the U.S. member. 

Events

Lunch & Learn Scheduled

Charles Teixeira
Space Transportation TC Chairman

ON JUNE 14, THE SPACE TRANSPORTATION TC will sponsor a Lunch & Learn, "SORT: A Generalized Trajectory Optimization Program," with an overview of capabilities and demonstration of a new graphical interface. The presentation, by M. Berning of Lockheed Engineering & Sciences Company, will be at JSC, Bldg. 17, Room 143, from 11:30 to 12:30. 



Guest speaker Richard Allen, left, and Bill Best chat at the April dinner meeting.

Technical Symposium A Huge Success!

Dr. Kamlesh Lulla
VC-Technical

THE HOUSTON SECTION of the American Institute of Aeronautics and Astronautics (AIAA) organized its 20th annual Technical Symposium at the Center for Advanced Space Studies on May 19, 1995. The Technical Symposium was chaired by Dr. Kamlesh Lulla, AIAA Houston Section Vice Chairman - Technical, and Brenda Ward, Assistant Manager, Space Station Program.

This year's symposium was quite different from our usual format, but it was certainly very successful and well attended. The opening sessions featuring Randy Brinkley and Douglas Stone provided the community an opportunity to learn about the latest developments in the International Space Station Program. The two panel discussion sessions with Douglas Cooke, Jerry Crum, Chuck Lloyd, William Bates, Dale Thomas, Chiold Epp, Michelle Brekke, Harold Taylor, Susan Creasy, David Schurr, Dan Jacobs, and other managers and team leaders, were extremely informative and included questions and

answers related to the vehicle assembly, EVA, international partners, science and technology issues, and other topics.

One new feature of the symposium was having a luncheon speaker. This year's speaker was William M. Shepherd, Deputy Manager of the Space Station Program, who gave an excellent presentation on the latest station assembly sequence.

Over 140 people attended this session. This was followed by four technical sessions that were also well attended. The symposium ended with a traditional wine and cheese reception.



Technical Symposium keynote speakers Randy Brinkley, above, and Douglas Stone.



Technical Symposium panel members preparing for their session.

All photos by George Nield

AIAA Salutes Three at CLCTS Awards Banquet


Dr. George C. Nield
Chairman

THE CLEAR LAKE COUNCIL OF TECHNICAL SOCIETIES held its annual awards banquet on May 26, 1995, at the Gilruth Center. Each of the member societies, including AIAA, was allowed to submit nominations for the Technical Person of the Year, the Technical Administrator of the Year, and the Technical Educator of the Year.

Our Nominee for Technical Person of the Year was Clifford Hess, based on his work in developing the SAFER EVA maneuvering unit. The winner of this award was Charles Dusold, nominated by ISA.

Technical Administrator of the Year was won by John Muratore, nominated by AIAA in recognition of his role in developing the new mission control center complex.

Our nominee for Technical Educator of the Year was Jim Oberg, Houston Section Councillor, who has been very active over the years in educating the public on space activities through his books, articles, and speeches. This award was won by Liwen Shih, nominated by IEEE.

Congratulations to all of the nominees. We proudly salute you and your accomplishments! 



Luncheon Speaker William Shepherd, left, and Co-Chair Brenda Ward at the Houston Section's 20th Annual Technical Symposium.

National Conferences Set

THE AIAA WILL COSPONSOR the AIAA/SAE/ASME/ASEE 31st Joint Propulsion Conference and Exhibit at the Sheraton Harbor Island, San Diego, California, July 10-12, 1995.


This conference provides a forum to discuss and exchange the latest information in the propulsion field. Over 800 presentations in 128 sessions will address air-breathing propulsion, electric propulsion, future concepts, hybrid rockets, liquid propulsion, nuclear thermal propulsion, propellants and combustion, and solid rockets. Four short courses will also be offered.

In conjunction with the conference, there will be a spectacular exhibit. Admission to the exhibits is free of charge and is open to the public. Rockwell International, TRW, GE Aircraft Engines, Thiokol, United Technologies, and Lockheed Martin Corporation are among the companies displaying their technology breakthroughs.

The 1995 Space Programs and Technologies Conference and Exhibit will be sponsored by the AIAA at the von Braun Civic Center in Huntsville, Alabama, September 26-28, 1995.

The conference and exhibit provides a unique opportunity to review what has been recently accomplished and to see what lies ahead that will challenge our current methods of conducting space business.

In conjunction with the conference will be an exhibition featuring a comprehensive presentation on the proposed reusable launch vehicle technology and the transfer of NASA space technology to American industry, as well as other high-technology exhibits from major aerospace and subsystem companies.

For more information about either meeting, call AIAA Customer Service at 1-800/639-2422. 

B-17 Tour Mission Report

Edward Jablonski

"Ah-tench-HUT!" roared the Tech Sergeant as the Army Air Corps Colonel entered the briefing room.

"Good morning gentlemen," he responded to his staff. "Take your seats, please. And what is the topic for this meeting, Adjutant?"

"Well, sir, it's the debriefing you requested on our last mission," said the young major.

"Very well, go ahead then."

"Right. As you know, the target for Saturday morning, May 13, was the Confederate Air Force's Ghost Squadron Bomber Base at Ellington Field in Houston. Approximately 30 folks, from the very young to the not so young, participated in this training mission. The cloud cover was minimal, flak was light, we were 100% on target, and no bandits were sighted at all!"

"What about casualties?" asked the colonel, as gently as dignity would allow.

"None at all, sir."

"Amazing! When has Headquarters scheduled our next mission?" asked the squadron commander.

"I don't know sir, but I hope it's soon!"

Many thanks to Paul Judas, Young Member Committee Chairman, for organizing this event, and to Carl Huss, Houston Section Councillor, and the other Confederate Air Force members who hosted the tour. Following a few war stories from one of the B-17's pilots and a brief description of Confederate Air Force organization and operations, we all had an opportunity to climb up into this magnificent war bird and see how it looks from the inside. It was an experience we won't soon forget!



Virtual Reality Tour

Charles Halliman

THE HOUSTON SECTION OF THE AIAA sponsored a tour of the NASA Virtual Reality Laboratory on April 21, 1995. Dave Homan of NASA led the tour. Approximately nineteen tour attendees were given the opportunity to experience the simulated reality of an astronaut engaged in an EVA.

Attendees were allowed to wear complex headgear, bodygear, and gloves. The headgear allowed exterior shuttle images to be fed into small screens in front of the wearer's eyes. The gloves and bodygear were equipped with sensors that transmitted changes in body orientation, as the wearer apparently moved within the exterior shuttle environment. The Virtual Reality lab tour was fascinating. Although a limit of fifteen had been placed on the number of attendees, Dave Homan and his group graciously accommodated all in attendance, answering questions and providing assistance.

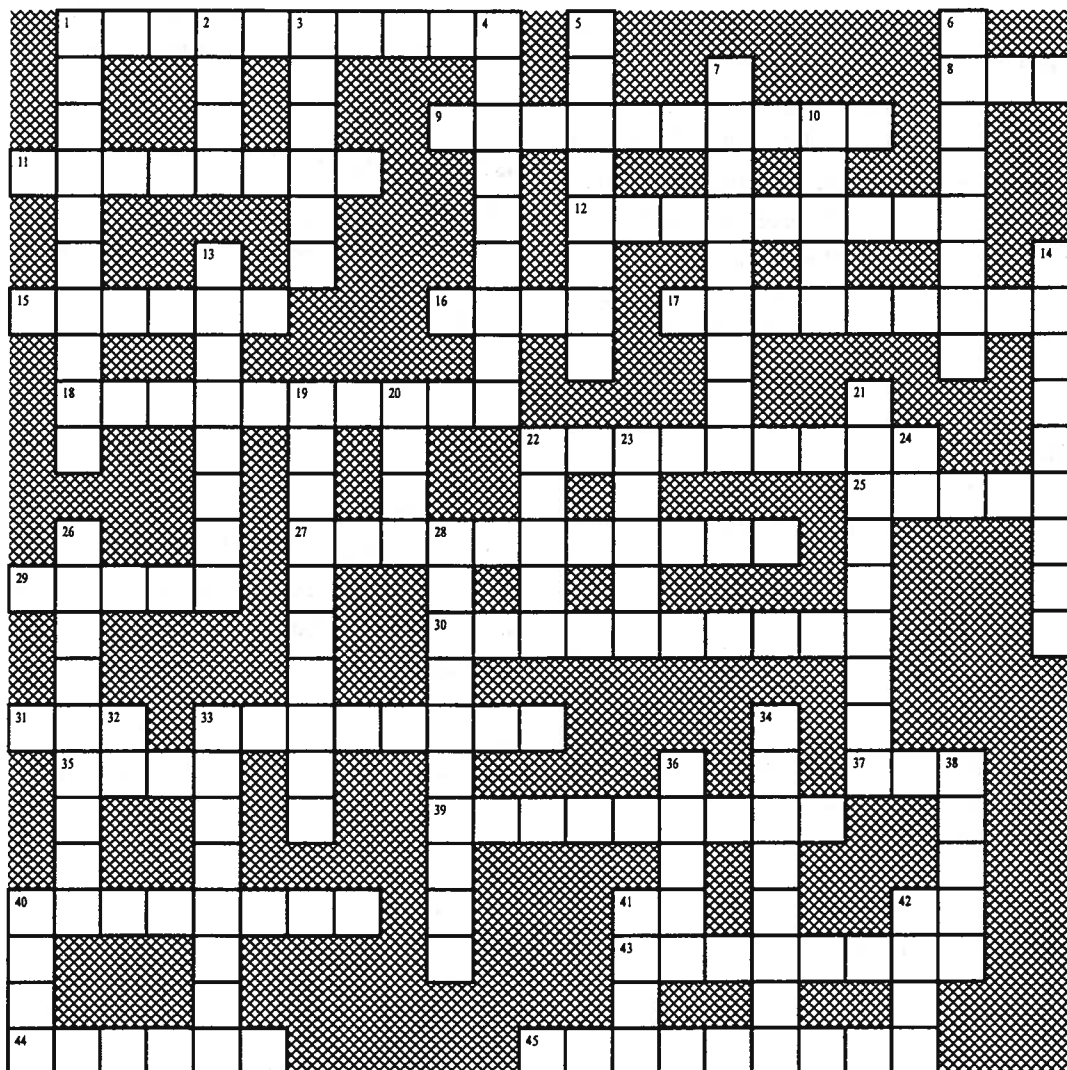
The tour was well received and very much appreciated by all!



Young Members examine B-17 during Confederate Air Force tour.

Crossword

Most of the words in this puzzle are taken from this year's *Horizons*.



Across

1. Assurance
8. Not in
9. Water landing
11. Neglect
12. Supply
15. Academy
16. Large cat
17. Study of the stars
18. Automatic control of a process
22. Former Texas Air Force Base
25. Wastelands
27. Honored

Down

29. Admission
30. Direction
31. Able
33. World EVA record-holder
35. Travel
37. And so forth (abbr.)
39. One who cherishes?
40. Request
41. The fourth note
42. Not you
43. A communication system
44. Not big
45. Totality

Down

1. For profit
2. Enemies
3. Mean
4. Blast
5. Latest allowable time
6. Discussion group
7. Entry
10. Hydrogen oxide
13. — degree
14. Meeting
19. Making suitable
20. Not busy
21. Group
22. — water

Down

23. Prevaricating
24. Negative
26. Establish
28. Imitation; pretense
32. At
33. Russian space module
34. Lune
36. Russian shuttle
38. Mark of omission
40. Compressed medication
41. Solid
42. Average

(Solution on page 9)

Cranium Cruncher

Lou Livingston
Editor

April Cruncher

IN THE MAY ISSUE, I REPORTED ONE CORRECT solution, by Mike Lounge, to the April Cruncher (finding one counterfeit coin out of twelve in three weighings). I am happy to report receiving one additional correct solution, by Frank Baiamonte, since going to press. The coin toss was won by Mike Lounge, who is entitled to a free dinner at an upcoming meeting.

May Cruncher

Each lane of a highway goes under an arched bridge. The arch is in the form of a semiellipse with the height equal to the width. A truck 6' wide and 12' high can just fit under the bridge. How high is the bridge?

May Solution

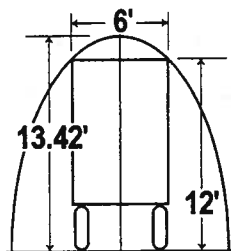
Placing the origin at the centerline of the lane, the equation of the elliptical arch is

$$[x / (h/2)]^2 + (y / h)^2 = 1$$

or

$$4x^2 + y^2 = h^2$$

where h is the height of the arch.



Since $(x = 6/2, y = 12)$ is a point on the arch, the height is

$$h = (4 \times 3^2 + 12^2)^{1/2} \\ = 13.42'$$

Mike Lounge and Cruncher champion Frank Baiamonte, with six correct solutions this year, submitted correct answers. Frank Baiamonte won the toss this time, and the free dinner (the second for

him this year). Congratulations, Frank!

With his solution, Mike notes that he couldn't tell how high the *bridge* was, but that the *arch* was 13.42' high. I stand corrected, and reluctantly (I *had* wanted to go to Atlanta this summer) yield to him my berth on the Olympic Nitpicking Team.

June Cruncher


Here's a little gem suggested by Mike Lounge. I saved it for June so you'd have the summer to work on it.

Let

$$\overset{\cdot}{\underset{\cdot}{\underset{\cdot}{\underset{\cdot}{\underset{\cdot}{x^x}}}}} = c$$

(i.e., an infinite "stack" of x to the $x^h = c$).

For what range of x does the limit c exist? Simply computing a numerical answer won't do; a mathematical proof is required.


Send your solutions by August 15 to Lou Livingston, 1911 Pepper Hill Way, Houston, TX 77058; e-mail to louliv@aol.com; or via office mail to Vice-Chairman of Operations Merri Sanchez, EAX. 

From The Editor

Lou Livingston
Editor

AT THE END OF THIS SECTION YEAR, I would like to express my appreciation to all the members who have made my job much easier. In particular, Chairman George Nield and Jim Oberg have done more than their share with articles that are informative, instructive and entertaining.

We all owe a special tip of the hat to Bill Geissler, who arranges the meeting flyers; Jeff Tave, who handles our printing; Bill Best, our mail chairman; and Mike Begley, who as VC-Ops collects *Horizons* inputs. And these guys don't even get a byline.

My sincere thanks to one and all. *Horizons* wouldn't be here without you. See you next fall! 

AIAA Calendar

THE AIAA CALENDAR is intended to encompass all Houston Section events and significant dates. This includes Executive Council meetings, which are open to interested members, and *Horizons* deadlines. It will also include committee meetings, Lunch & Learns and similar events if *Horizons* hears about them in time for inclusion. Please send pertinent details to Merri Sanchez, JSC/EAX, to Lou Livingston, 1911 Pepper Hill, Houston, TX 77058, or e-mail to louliv@aol.com.

June

14 - Wednesday

Space Transportation Lunch & Learn.
"SORT: A Generalized Trajectory Optimization Program," M. Berning, LESC.
JSC Bldg. 17, Rm. 143, 11:30-12:30.

15 - Thursday

Executive Council meeting,
Center for Advanced Space Studies, 5 PM.

22 - Thursday

Monthly dinner meeting,
Annual Honors and Awards Banquet.
Gilruth Center, 5:30/6:30/7:30.

August

21 - Monday

Input deadline for September *Horizons*.

September

14 - Thursday

Executive Council meeting,
Center for Advanced Space Studies, 5 PM.

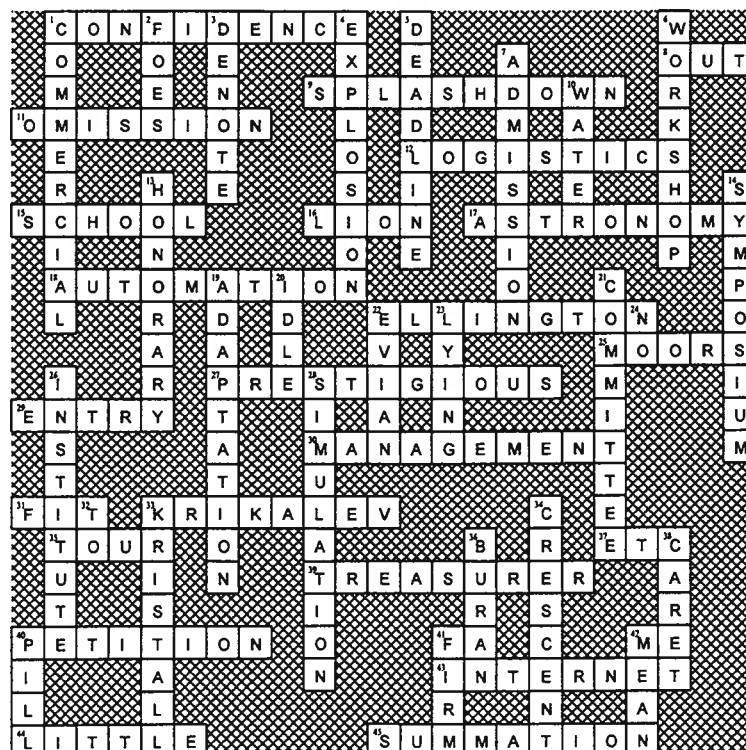
18 - Monday

Input deadline for October *Horizons*.

21 - Thursday

Monthly dinner meeting.
Program TBD.
Gilruth Center, 5:30/6:30/7:30.

Crossword Solution:

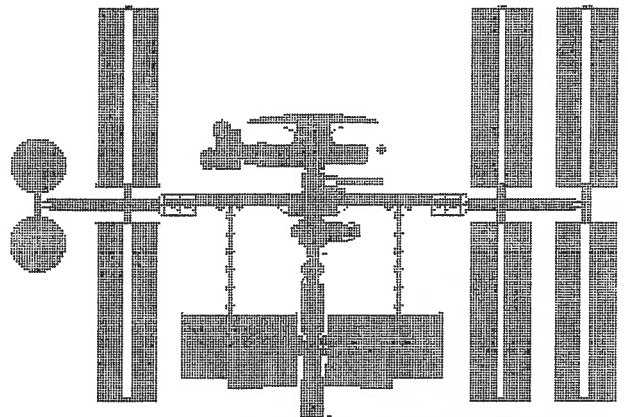
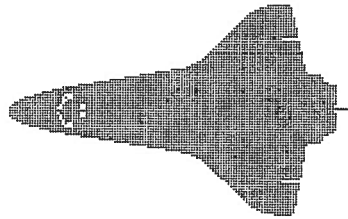
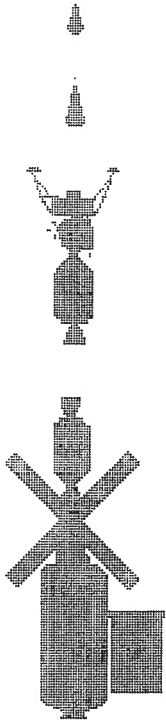




Horizons

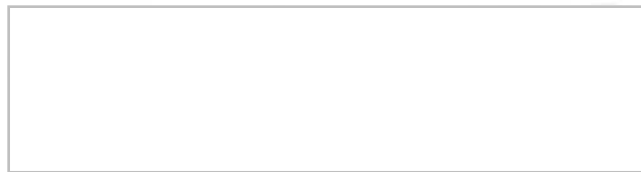
The mission of the Houston Section of the AIAA is to promote the advancement of the aerospace profession, with special emphasis on the following tasks:

- To provide the membership with opportunities for continuing education, professional growth, and recognition for their accomplishments.
- To stimulate the exchange of information within the scientific and technical community.
- To provide support and encouragement for students in learning mathematics, science, and engineering.
- To assist the general public in understanding the benefits of aerospace systems and technology.



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GEORGE NIELD
CHAIRMAN 1994-95

American Institute of Aeronautics and Astronautics

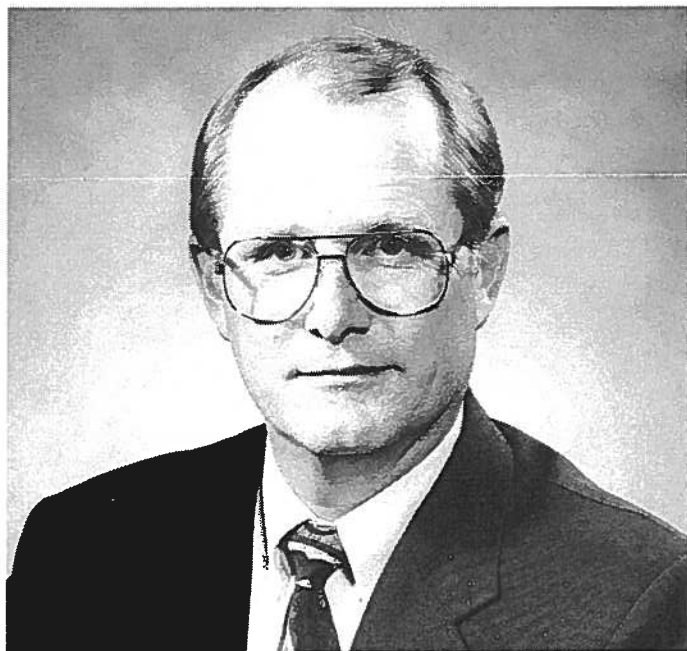
HOUSTON SECTION P.O. BOX 57524 WEBSTER, TEXAS 77598

HOUSTON SECTION ANNUAL HONORS AND AWARDS BANQUET

Thursday, June 22, 1995

**MISSION OPERATIONS:
PAST, PRESENT, & FUTURE**

BROCK R. STONE
Ass't Director for Operations,
MOD / Johnson Space Center



ROBERT R. GILRUTH RECREATION CENTER
JOHNSON SPACE CENTER

PRESENTER

Brock started at JSC in 1967 in the Landing and Recovery Division. Between 1970 & 1981 he was with the Flight Control Division where he was Guidance Officer for all Skylab Missions and for the Apollo-Soyez Test Project. He was also Data Processing Officer for STS-1, 2 & 3. He became a flight director in 1981 where he was responsible for planning, directing, and controlling the activities of the ground support team during the conduct of real-time missions operations. From 1989 and 1992 he was Chief, Flight Director Office. In his current job as Ass't Director for Operations, Brock is responsible for planning, scheduling, and flight operations support activities for Shuttle missions and the ISSA flight preparation objectives. He is a graduate of U. of Texas at Austin and is married to the former Susan K. Golden. They have two children, Kari, a senior at U. of Texas, and Allison a senior at Clear Lake High.

DINNER MEETING

SOCIAL: 5:30
DINNER: 6:30
PROGRAM: 7:30

MENU: 12 OZ. STRIP STEAK

MEMBERS & SPOUSES	\$12.00
NONMEMBERS	\$15.00
STUDENTS/YOUNG MEMBERS	\$ 6.00
UNEMPLOYED MEMBERS	\$ 6.00

TANYA BRYANT
483-1175
NASA

SARAH LEGGIO FOLLETT
282-3160
ALLIEDSIGNAL

CALL ONE OF THE ABOVE FOR RESERVATIONS.

NOTE: RESERVATION DEADLINE IS MONDAY, JUNE 19, AT NOON.
ANY CANCELLATIONS ARE REQUIRED PRIOR TO DEADLINE. NO-SHOWS WILL BE BILLED.

ALL ARE WELCOME

DINNER RESERVATIONS ARE NOT REQUIRED FOR ATTENDING THE PROGRAM ONLY.