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AIAA

April, 1997

Houston Section

Horizons

American Institute of Aeronautics and Astronautics

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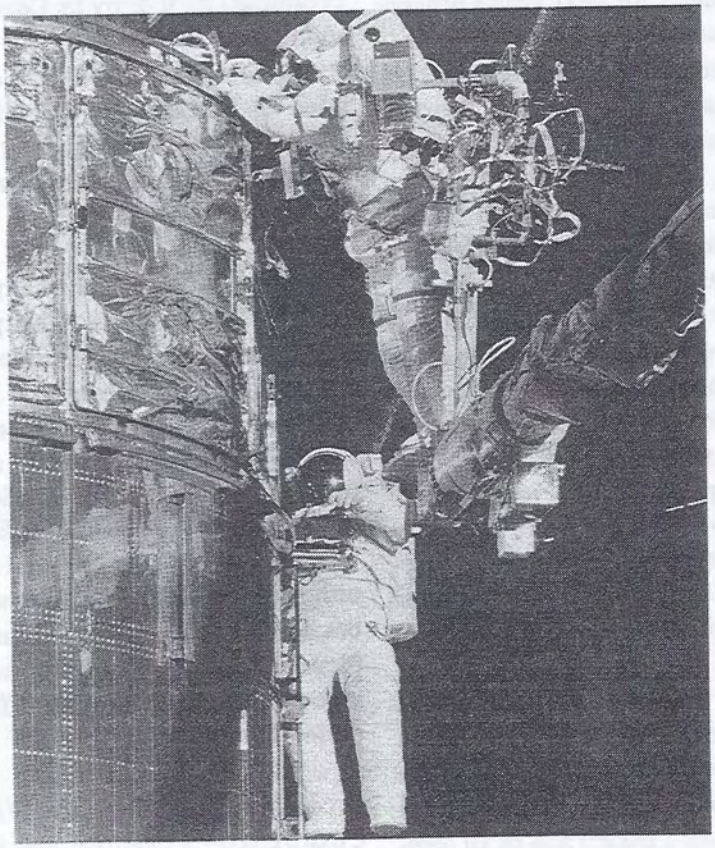

The servicing mission for the Hubble Space Telescope required five space walks.

Inputs for May's Horizons due no later than April 21st

Nominating Committee Formed for Houston Section

Steve King
VC-Technical

In accordance with Section Bylaws, a nominating committee has been formed to come up with nominees for next year's officers and council members. Nominating committee members include Steve King/Lockheed Martin, committee chairman, Bill Best/USA, Greg Deiter/Boeing, Larry Guderian/MDC, and Merri Sanchez/NASA. If you would like to nominate someone or be considered for one of the positions yourself, please contact one of the committee members prior to April 24. For the Section to be successful next year, we will need to have good people serving in the leadership positions. To help in understanding the responsibilities associated with each position, excerpts from the Bylaws are reprinted below:

Chairperson: The Chairperson shall be the Chief Executive of the Section. He/she shall be a member of the Council and of all committees, except the Nominating Committee. The Chairperson shall preside at all meetings and functions of the Council and of the Section and represent the Section in dealing with outside agencies, making all appointments and transacting all business of the Section as directed by it or by its Council, and in accordance with these Bylaws. The Chairperson shall continue to serve as a member of the Council as Past Chairperson for one year after completing his/her term.

Chairperson-Elect: The Chairperson-Elect shall assist the Chairperson in performing his/her duties as requested by the Chairperson. He/she shall attend Council and committee meetings to monitor and become familiar with the functions of the Section officers and the Section committees. He/she shall coordinate with all officers, Councilors, and committee chairpersons to prepare plans for the orderly transition for his/her term of office during the following year.

Vice Chairpersons: The Vice Chairperson-Operations and the Vice Chairperson-Technical shall be members of the Council and responsible for conducting the detailed planning in their respective areas.

Secretary: The Secretary shall be a member of the council and shall maintain minutes of all meetings of the Section and shall be custodian of all its records not specially assigned to others. The Secretary shall conduct the correspondence of the Section and the Council and send out all meeting notices.

Treasurer: The Treasurer shall be a member of the Council, shall have charge of the funds of the Section, and shall make all required financial reports and such expenditures as may be authorized by the Section or by the Council or by the Bylaws of the Institute.

Council - Composition: The Council shall consist of the Chairperson, Chairperson-Elect, Vice Chairperson-Operations, Vice Chairperson-Technical, Secretary, Treasurer, Program Chairperson, Membership Chairperson, Publications Chairperson, Past Chair-

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Horizons is the monthly newsletter of the Houston Section of the American Institute of Aeronautics and Astronautics. It is created by members of the Houston Section and reproduced at the Houston Offices of Lockheed Martin. Opinions expressed herein, other than by elected Section officers, are those of the authors and do not necessarily represent the position of AIAA or of the Houston Section. Please address all correspondence to the Chairman, Tom Mulder, McDonnell Douglas/MDC2-3156.

Chairman's Corner

- by Tom Mulder, Chairman

Did You Know?

"AIAA Facts" for your consumption:

- Did you know that while the Houston Section has seen a decline in membership over the past few years, we've actually moved from the "Large" to "Very Large" category among the AIAA's 65 sections. With 759 members, we're the eighth largest section, and largest within the Southwest Region. In actuality, the AIAA, like many professional organizations, has been shrinking and now has a total membership that numbers just under 30,000. AIAA headquarters, as well as the Southwest Region and Houston Section, have been working hard to reverse that trend. Hopefully, upturns in Aerospace employment will bring folks into the organization.

- Did you know that AIAA membership among international professionals has been on the rise? International members now make up 12% of the AIAA. As a result, the AIAA Institute Development Committee (IDC) considered a name change to "AIAA International". After careful review and hearing feedback from the various Regions and Sections, the IDC recommended to leave the name "AIAA" alone.

- Did you know that AIAA member dues will not be increased in fiscal year 1998 (beginning October 1997)? This will be the fourth consecutive year without an increase and is caused, in part, by by downsizing efforts at AIAA headquarters and a move away from the high-rent district of the Washington D.C. Capitol area. I've been told by members of the IEEE and other professional organizations that AIAA dues are quite reasonable.

- Did you know that a newly-incorporated education foundation was formed to increase donations to aerospace-related student scholarships and AIAA student conferences? A primary goal of the new organization is to create a more consistent education program. Funding is being solicited through corporate endowments.

- Did you know we have one AIAA student chapter in the Houston Section? (Texas A&M University in College Station)

- Did you know that the current AIAA president is L.S. "Skip" Fletcher, Dietz Professor of Mechanical Engineering at Texas A&M University?

- Did you know I am not an Aggie? (in case you were starting to wonder)

- Did you know that all section officers, council members, and committee chairmen must be registered AIAA members? If you're not astounded by this requirement, you may be surprised to know that a number of regions have uncovered non-members in leadership positions (no, not here).

- Did you know that a wealth of national AIAA information is available at "www.aiaa.org"? Info regarding the Houston Section is kept up-to-date at "www.jsc.nasa.gov/aiaa". Try surfing on over, sometime.

If you know an interesting titbit or two you'd like to share, please e-mail it to the section editor, Cynthia Collins, at "collins_cynthia@semail.jsc.nasa.gov". She'll include it in the next issue of Horizons.

Congressional Visits Day in Washington, D.C. - A Report

Congressional Visits Day by Russell Filler

Tom Mulder and I participated in the AIAA Congressional Visits Day (CVD) in Washington D.C. on March 12th. The purpose was to provide a united AIAA message to Congress on the importance of continued Research and Development (R&D) in Aerospace. This was the first time the AIAA made an approach of this nature, to open a dialogue with Congress concerning issues impacting the Aerospace community. The AIAA has traditionally maintained a very limited interface with Congress, generally limited to annual testimony by the Public Policy Committee (i.e., Dr. Jerry Grey) in cooperation with technical information provided by the Space Systems Technical Committee. The Charter and Bylaws of the AIAA do not allow the AIAA to lobby Congress, but it can Òadvance the arts and sciences of the aerospace. This has been very narrowly interpreted and direct interaction with Congress by sections and individual members has been actually discouraged in the past.

However, given the need to balance the nation's budget, the threat to government-sponsored R&D has increased. Major changes in how Congress does business may have started with the Republican's Contract with American, but it is obvious the driving impetus has affected both parties now. This AIAA initiative was encouraged by Congress as well.

CVD had over thirty states represented. It reflected the interest we all have in how this nation's limited investment expenditures are allocated. The AIAA concentrated its efforts on the committees in Congress that have the greatest effect on NASA's budget: the Science Committees and Appropriations Committees for both the House and Senate.

Pre-CVD Workshop

We started CVD with an AIAA coordination workshop the evening before. This proved very useful and in fact more time was really needed. A presentation was given based on material prepared by the American Association for the Advancement of Science on useful tips in dealing with Congress. Some attendees had prior experience lobbying for their companies, but most people had never talked with Congress in this manner. It also became apparent to present a "united" message we, ourselves, had to actually be united - which we were not.

It was pointed out one thing that the Congress would be interested in would be the ISS and Russian issues associated with it. It became clear it was even a controversial issue among us. Many people worked in companies that have not seen a return on their investment yet from the ISS. Delays and redesigns have eaten away at profits or even cost companies money. Small companies or even small efforts in big companies cannot survive this type of environment. The program has not provided the type of career path growth conducive to maintaining the needed manufacturing capability or qualified personnel. Many there came from areas that have been planning on ISS utilization, but delays keep postponing their opportunities. Research grant funding demands to show some results in order to continue to receive continued funding. Many research have already "died on the vine." Many

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folks questioned the value of having the Russians in the program. It certainly was for the value of adding new technology to the program. There was great concern expressed on where things would head if the Russians do not deliver their hardware.

Fortunately, we recognized we needed to put a positive spin on our message. Expressing our internal problems to Congress would not result in their support. We were representing the industry and we needed to deliver a message reflecting that with continued Congressional support failure would not be an option. It was also pointed out that members of Congress, as well as their legislative aids, work on very tight schedules and we should expect to have no more than 15-20 minutes with them. Our message (assuming they did not do all the talking!) had to be short and to the point - so it better be on track the first time.

Breakfast with Congressman James Sensenbrenner

CVD started with breakfast and a talk by the Chairman of the House Science Committee: F. James Sensenbrenner (R-WI). He gave a very informative speech and gave us good insight about his goals and priorities for the committee.

He started his talk by commenting about what he had learned after his recent trip to Russia. He pointed out that if it were not for the American money from the Mir Phase One program they would not be able to support there ongoing Mir operations. He expressed concern about the Russian's ability to meet their commitments to the ISS. He pointed out the Russians did not meet their deadlines for getting money to their contractors to build the Service Module. This has caused great concern in our Congress. The committee would be studying closely the results from General Stafford's team review of the financial situation in Russia. The committee is looking for the Russian ability to meet all their commitments as an equal partner of the ISS program not just delivery of the Service Module. The committee expects them to provide the expected Soyuz vehicle crew rotation, Progress vehicles for resupply, their part of vehicle control, and their part of the operations cost.

Sensenbrenner feels the Russians are learning the principals of capitalism. They have learned they can charge for a cosmonaut visitor or foreign research on Mir. "Use Mir, You pay; Use Mir a lot, You pay a lot." The Russians are aware they can make money on a Russian Space Station, like Mir, but will probably not make money on the ISS.

He pointed out he is pleased with the progress NASA has made in "doing more with less. "He recognizes the challenges involved with company mergers and agency downsizing, but this is important to the overall need to preserve NASA in face of the need to balance the budget. He pointed out the government and NASA need to get out of the operations business through privatization and focus on research and development. He pointed out how important the privatization of Shuttle operations is and said Congress will be watching that transition closely. He stressed the need for us to understand the difference between privatization and commercialization efforts to reduce government costs. It will be important to commercialize ISS utilization. In response to a question, he indicated that NASA has not yet explained (to Congress) how it plans to operate or utilize the ISS.

He is pleased the agency has a mission statement. He pointed out what criteria a new program will have to met to be authorized. He said programs will have to be able to show a return to the nation. Shorter development periods and smaller startup costs are critical to funding. He emphasized that aerospace is not an entitlement - there are no guarantees outlays in this area. Science and technology communities are responsible for

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explaining their value to the taxpayers. This type of effort by the AIAA is important for Congress.

Congressman Kevin Brady

Tom and I received plenty of exercise. The House buildings are on one side of the Capitol building and the Senate office buildings on the other. Our schedule showed we needed to be two places at the same time, so Tom visited staff members for Congressman Kevin Brady (D-TX, Woodlands) while I visited Congressman Tim Roemer (D-IN). Tom's meeting with Brady's staff went very well, as he found the Brady position on Space to be quite supportive. Brady is a freshman Congressman from the district formerly represented by Jack Fields. He carries very strong views regarding getting our arms around the nation's budget problems. Tom had the opportunity to briefly visit with Mr. Brady, himself, afterwards.

Congressman Tim Roemer

My first meeting was as interesting as I expected. Tim Roemer is the Congressman that submits an Amendment to the NASA Bill every year that would delete money for the ISS. Since I grew up in Indiana and went to Purdue, I hoped to offer him a unique perspective. I met with his LA, Mr. Pete Spiro. I pointed out that when I was growing up in Indiana there were two prominent Congressional leaders from the state that because of their support for the Space Program a lot of unique opportunities were opened up for young people in the state. Their leadership and support brought jobs, special programs and research in numerous educational institutions such as Purdue, and Notre Dame. Mr. Spiro does not share all the same views towards the ISS as Mr. Roemer, and pointed out he is limited in how far he can try to influence the position of his boss. It is important for people like me to discuss with the Congressman why a space station is good thing and especially how it is good for Indiana. After our discussion he felt it was important for me to meet with the Congressman. Even though I was keeping the Congressman from the organizational meeting of the Science Committee, Pete Spiro did arrange for me to talk with the Congressman. After Pete Spiro introduced me, the Congressman's first words were "You are not going to change my mind about the ISS." He went to say he supports 99% of what NASA is doing but the country cannot afford to waste a 100 billion dollars on a space station. He continued on with no problem elaborating on his position, but I could tell he was anxious to get to the committee meeting.

Once I finally took the opportunity to speak I commended him on challenging NASA and perhaps his efforts inspired others to be successful in getting additional Congressional support after a one vote margin. I went on to explain that his leadership may affect a lot of people in Indiana if they take on his position about a station. After I mentioned how I had looked up to Ed Roush (Congressman from the 4th district where I grew up) and pointed out how his support for the space program on the committee helped influence me to pursue an education in Indiana that would take me into the space program. I mentioned both Purdue and Notre Dame (The Congressman got his undergraduate degree from there) have benefited greatly from space research and have contributed many leaders to the space program. I added that the support Ed Roush along with Indiana Senator Birch Bayh gave during the Apollo era was crucial in a time when all of aerospace was not a popular thing to support. I know it influenced a lot of us to have the courage to go into a college science or engineering program with hopes of an Aerospace career when all our councilors advised against it.

I pointed out a lot of us in the field have reservations about the design, about the Russians being a part of the program, and about the challenges involved with assembly of

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the ISS, but we all believe the research that will be conducted aboard the ISS will be worth it. His message may influence some people in Indiana to decide not take the risks associated with ISS research. I pointed out that the President (and a member of his party) have reaffirmed the country's commitment to the program . The President also has made the project a symbol of the countryÕs ability to lead an international effort. The outcome of this effort will have a very long lasting effect on the country's efforts in areas other than just space.

Even though I was keeping him from the committee meeting he allowed me to continue with my line of discussion. His expressions and gestures told me were I hit nerves, but I also got the impression that I was making some good points with him. I took it as a good sign that he decided to continue to talk, and I felt we were listening to each other. We were not just throwing out one liners without concern for what the other was attempting to say.

After our discussion, I felt very good about the way things went. From my research before going in I knew he cared about the education of young people. I tried to point out how the ISS offers new educational and research opportunities. Time will tell how he reacts from my suggestion that he should challenge NASA about how the ISS will be utilized, rather than whether it should be built as all. I think it did make a difference coming from one Hoosier to another.

Senators Phil Gramm and Kay Bailey Hutchison

After Tom and I raced from the House side to the Senate side we met with the Science staff for Senators Phil Gramm (R-TX) and Kay Bailey Hutchison (R-TX). It was a welcome relief after my meeting with Mr. Roemer. They had questions about the ISS program which were easy to answer. We stressed the theme that the ISS is now a symbol of our country's effort to lead an international venture. The leadership of Senators may be needed to help the Russians meet their commitment. As we have to help the Russians adjust to doing business in a democracy, the Senators may have to work with their Russian counterparts to help them adjust. It may take some significant help from our side to assist the Russians in meeting their commitment; but it is important that we, as leaders, respond to the call.

Congresswoman Sheila Jackson Lee

We then meet with the staff of Congresswoman Sheila Jackson Lee (D-TX). We had a very useful meeting discussing the impacts of mergers and downsizing in the aerospace industry on small, disadvantaged, and minority businesses. I tried to echo the comments we have often heard from Dan Goldin and that morning from Mr. Sensenbrenner concerning how important these changes are for aerospace to survive the budget challenges. I also pointed out, however, that privatization provides an excellent opportunity to bring new and cost-effective ways into our business. Small business should be able to offer unique ways to bring costs down. I also pointed out that utilization of ISS offers unique research opportunities for those willing to be innovative. I pointed out that they had pictures of Wake Shield hung on their wall and how that is an excellent example of how smaller-scale efforts can produce valuable results.

Lunch with Congressman George Brown

Congressman George E. Brown, Jr. (D-CA) was the chairman of the committee before Republicans took the majority. He is now the ranking minority member. He started out by saying our involvement in the political process is important and talking to Congress is good first step. This type of involvement should be a permanent

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part of our activities. We should become an information source to help guide them in their policy decisions. We should participate both as constituents and as well as professionals.

He offered advice on how to work with Congress. He challenged us to talk in lay terms so they could understand the message. He emphasized that we should not underestimate the value of the legislative aids. He advised us to know the backgrounds of those we talk with and to find the R&D centers in their district.

He spent a lot of time explaining the points he made in his recent paper concerning research and development for government and how his bill will try to stabilize the amount going to R&D. Expenditures come in two forms- consumption and investment. Investment expenditures comprise a small part of the budget, but are major target as they try to balance the budget.

The Afternoon

Tom attended a hearing by the House Committee on Science during the first part of the afternoon. The committee heard testimony from Mr. Gary Payton and Dr. Whitehead concerning the status of NASA's X-33 and X-34 advanced technology demonstrator projects. Mr. Payton explained that X-33 design had experienced weight gains that would reduce its high-Mach number test velocities, but without significant impacts to the objectives of the program. He also stated that the program is on schedule to begin flight tests in two years. Mr. Payton explained to Dana Rohrabacher (R-CA), Chairman of the Committee, that Lockheed Martin was developing a new type of engine to power the Reusable Launch Vehicle.

Congressman Tom Delay

I visited the staff of my Congressman and House Majority Whip, Tom Delay (R-TX). He also serves on the powerful Appropriations Committee. I was expecting to have 10-15 minutes, but our discussion went on for 50 minutes. His interests covered a broad range including the Russian ability to meet ISS commitments, what I thought the Russians offered to the program, how I felt about the downsizing, privatization and commercialization, and ISS utilization.

I got the impression Mr. Delay was relying on Congressman Sensenbrenner to handle the Russian issue on ISS, but they were very interested in where I felt things were headed. They were obviously interested in the money flow situation and also mentioned they were anxious to hear the results from General Stafford's trip. I inquired since the ISS Program was being used a tool of foreign policy was it possible to provide funds from non-NASA budgets. It was a very clear NO. The ISS is capped at $2.1 billion per year and even any need to reallocate other NASA money to compensate for Russian shortfalls will have to be looked at very carefully by Congress. I suggested how helpful it might be if the Congressman were able to help his Russian counterpart in the Russian Duma understand how important an effective budget process is for funneling money to the contractors that need it to develop the hardware.

Congressman Nick Lampson

We met with Tom Mulder's Representative, Congressman Nick Lampson (R-TX), late in the afternoon. He was very glad to welcome us to Washington and to learn how well our interaction with Congress was going. He said he was extremely pleased to learn he was named to the House Science Committee and as freshman Congressman he welcomed our insight into our aerospace concerns. The hospitality to us was certainly recognized.

When asked about his aerospace-related interests, Mr. Lampson replied, "Manned Space". Tom then asked about his Space-related pri-

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orities outside NASA-JSC. Mr. Lampson responded that he had not yet formulated opinions about those areas. Tom offered the AIAA as an objective resource in developing positions related to all areas of Space and Aeronautics. Mr. Lampson welcomed the offer.

Summary

Tom and I felt the event was extremely positive. We were surprised by how young the legislative assistants were that are so important to the political process. I learned at the evening reception that it was, in part, influenced by the Republican turnover. I sensed that as constituents, what we felt was very important. I felt we were treated as a resource for them and not as lobbyists. The need to balance the budget is real and they are serious about the need to do it. Investment expenditures are critical to a healthy Gross Domestic Product. They are concerned with what we feel concerning changes the industry is going through and what they can do to help.

They want to do the right thing for NASA and country. They are very impressed with Dan Goldin. They are impressed that NASA has defined a mission statement and established a strategic plan. They seemed surprised and wondered if I was unique because I expressed some concern and a lack of total excitement for the mission statement and the plan. They also lacked an understanding of what the process is for an agency to establish its mission statement and strategic plan. They offered little insight into how the people of an agency, the Congress, or the American people participate in the debate to develop these documents.

In my mind, that is why we have a political process. That is why we must participate. That is why the AIAA and we as professionals have a responsibility to become involved in the process. I hope this was only our a first step.

Employment Opportunities

The AIAA Houston Section is now beginning to make aerospace-related employment opportunites available. If you are looking for employees, and you would like for the AIAA Houston Section to help your company make employment information available, please contact Charles Halliman (of Information Uncover) at (713) 991-1654.

LOCKHEED MARTIN

Lockheed Martin Space Mission Systems & Services,
a Division of Lockheed Martin Corporation,
located in the Clear Lake area,
has immediate openings for:

SOFTWARE ENGINEERS (minimum 2+ yrs. experience), SYSTEMS ENGINEERS (minimum 3+ yrs. experience), HARDWARE ENGINEERS, ENGINEERING SYSTEMS ANALYSTS and PROGRAMMERS (minimum 1+ yr. experience).
Positions require a degree in: Aeronautical Engineering, Aerospace Engineering, Computer Science, Computer Engineering, Physics, Math, or Electrical Engineering.

Qualified applicants are asked to submit resumes and cover letter, in strictest confidence, to:

Lockheed Martin Space Mission Systems & Services
P.O. Box 58487
Houston, TX 77058

Responses may be sent via fax to (713) 335-5030.

Barrios Technology

Barrios Technology, a woman-owned small business located in the Clear Lake area, providing Space Operations, Information Technology, and training services to NASA, DoD, and commercial businesses, has immediate openings for:

SYSTEMS/OPERATIONS/TRAINING ENGINEERS (Exp.: 0-8 yrs. technical environment; Degree: BS EE, ME, AE, Engineering, Science, Math, Physics, MS Instructional Technology Media);

WORKSTATION ENGINEER (Exp.: 5+ yrs. Macintosh, PCs, Windows 95; Degree: BS Math, EE, Computer Science);

NETWORK ADMINISTRATOR (Exp.: 5+ yrs. Novell 3.12/4.0 Network Administration; NT 3.5.1/4.0 experience a plus; Degree: BS Math, EE Computer Science);

ORACLE PROGRAMMERS/DEVELOPERS (Exp.: 1+ yrs. PL/SQL; SQL *Loader; Oracle Webserver; Oracle Developer 2000; Oracle 6 or 7).

For consideration, fax your resume to:

Dept. SMS,
(281) 280-1901

or EMAIL to:

cheri.stewart@barrios.com.

For more information about Barrios Technology, Inc., Go to the Barrios HOMEPAGE at www.barrios.com.

Spirit of Apollo Scholarship Program for 1997-98

by Ellen Ochoa
Scholarship Committee Chair

The AIAA Houston Section is again sponsoring the Spirit of Apollo scholarship program which provides a $1000 scholarship during the academic year. Applicants must have defined a scholastic plan that provides entry into some field of engineering or science pertinent to AIAA technical activities and must meet other specified eligibility requirements.

The selection process will begin in March when we mail out packages to colleges and universities within our region. The package includes a description of the application process, selection criteria, and application forms. This year's applications must be postmarked no later than May 3, 1997. The scholarship committee will evaluate the completed applications and select a recipient by June. The first half of the scholarship amount is mailed to the school's financial office at the start of the fall term; the second half is provided at the start of the spring term.

A copy of this year's application package is included in this issue of Horizons. For additional copies, please contact me at ellen.ochoa1@jsc.nasa.gov or during the day at (281) 244-8809.

Spirit of Apollo Scholarship

AIAA Houston Section Scholarship Program, 1997-98

The Houston Section of the AIAA is pleased to announce the Spirit of Apollo Scholarship for the 1997-98 school year in the amount of $1000. The first half ($500) will be available for the Fall Semester. The second half ($500) will be available for the Spring Semester. Eligibility requirements must be met for both the Fall and Spring semesters.

OBJECTIVE

The objective of the American Institute of Aeronautics and Astronautics (AIAA) is to advance the arts, sciences, and technology of aeronautics and astronautics.

The AIAA encourages original research, furthers dissemination of new knowledge, fosters the professional development of those engaged in scientific and engineering activities, improves public understanding of the profession and its contributions, fosters education in engineering and science, promotes communication among engineers and scientists and with other professional groups, and stimulates outstanding professional accomplishments.

ELIGIBILITY

The following eligibility requirements shall be met by the applicants for the AIAA/Houston Section Scholarship award:

1. Applicant must have completed at least one academic year of full-time college work at the time of receiving the scholarship.

2. Applicant must have a college grade point average of not less than 3.0 on a 4.0 scale.

3. Applicant shall be enrolled in an accredited college or school.

4. Applicant shall be pursuing a course of study in any field of engineering or science (i.e., physical science, mathematics, or computer science) which is pertinent to the technical activities of the AIAA.

5. Applicant shall not have, or subsequently receive, any other scholarship award which, combined with the AIAA award, would provide a stipend greater than the tuition plus direct educational expenses (such as books, lab fees, etc.) estimated by the educational institution he or she plans to attend.

6. Students who receive an award are eligible to reapply in succeeding years. It should be stressed that regardless of GPA, renewal is not automatic. To apply for renewal, an individual must follow the applica-

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tion procedure indicated below.

7. Applicants must be either U.S. citizens or permanent residents of the U.S.

SELECTION CRITERIA

The recipients of the scholarship awards will be selected using the following criteria, which are listed in order of importance:

1. Scholarship
This criterion will be evaluated on the basis of the applicant's grade point average or equivalent. A grade point average of not less than 3.0 (B) is be required.

2. Personal Assessment of Career Goals
This criterion will be evaluated through a 500-1000 word typewritten essay. The essay should specify the career objectives of the applicant and should outline the academic program required to achieve those career objectives.

3. Recommendations
Each applicant will be judged on personal and academic merit, based on letters of recommendation.

4. Extra-curricular Activities
Each applicant's high school, college, and community activities, offices, awards, and work experience will receive due consideration.

APPLICATION PROCESS

Each applicant will provide the following information:

1. A completed application form.

2. A current college transcript.

3. Each new applicant must include three typewritten letters of recommendation. Individuals seeking renewal need only supply two letters. Recommendations from relatives will not be accepted. The letters of recommendation may be attached to the application if sealed by the writer or sent under separate cover to the address indicated below. Recommendations must be postmarked no later than the due date of the application.

4. A 500-1000 word typewritten essay as described in selection criteria.

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The Applications (including transcripts, essays, etc.) for the next academic year must be post-marked no later than 2 May of the current academic year.

Applications and related materials should be addressed to:

Scholarship Committee Chair
AIAA-Houston Section
American Institute of Aeronautics and Astronautics
P.O. Box 57524
Webster, TX 77598

ADMINISTRATION OF THE SCHOLARSHIP PROGRAM

The AIAA-Houston section's scholarship committee will be responsible for selecting the recipients of the awards.

SELECTION OF THE SCHOLARSHIP RECIPIENTS

The decisions of the AIAA Scholarship committee are considered to be final and the winner for the next academic year will be advised of the outcome by 6 June of the current academic year.

DISBURSEMENT OF THE SCHOLARSHIP FUNDS

Disbursement of the scholarship awards shall be made in the form of a check in the name of the recipient and sent to the educational institution of the selected candidate. Educational institutions attended by the recipients will be notified of the scholarship awards, so that the institutions can coordinate the financial resources of the recipients.

Application for the Spirit of Apollo Scholarship 1997-98

American Institute of Aeronautics and Astronautics
- Houston Section -

[Please print or type. If additional space is necessary, continue on a separate sheet.]

Personal Information

Name: _____ Soc. Sec. number: _____

Local Address: _____
no. & street

_____ Telephone: (____) _____
city state zip

Date of Birth: _____ School Telephone: (____) _____

Citizenship: [ ] U.S. Citizen [ ] Permanent Resident of the U. S.

Current Class Rank: _____ out of _____

List your educational experience to date:

Name of High School or College	Dates Attended	Graduation Date	Degree	GPA
				out of ____
				out of ____
				out of ____
				out of ____

Indicate the school year for which the scholarship is requested:
[ ] Sophomore [ ] Junior [ ] Senior [ ] Graduate

Degree sought (major): _____

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Activity and Employment Information

List High School, College, and Community activities, including offices held and/or awards:

Organization	Offices/Awards	Dates of Involvement

List work experience during the last four years:

Type of work	Employer/Company	Dates of employment

Signature of applicant _____ Date_____

Call for E-Mail Addresses

by Mike Begley and George Nield

The Houston Section uses our database of member e-mail addresses to keep you informed of upcoming events, especially opportunities that arise on too short a notice to be placed in the Horizons newsletter. We have only 20% of our members' addresses, and with recent reconfiguration of the Boeing and NASA mail systems, that percentage is dropping rapidly! If you wish to receive Section e-mail updates and reminders, please send your current e-mail address to Mike Begley at begley@pat.mdc.com or call Mike at (281) 212-9339. You will also find a reminder on the AIAA web page!

Volunteer Judges Needed for Student Paper Conference

by Darby G. Cooper

WHAT; 45th AIAA Region IV Student Paper Conference, Ramada Inn/NASA

WHEN: Audio Judges - Friday, April 11, 1997
Paper Judges - NOW!

HOSTS: AIAA Houston Professional Section, University of Texas at Austin Student Branch

Volunteers are needed to provide written and verbal feedback on the student papers being presented at this conference.

Written judges read each paper and provide a numerical score based on technical content, practical application, originality of the content, and style and form used in the paper. Volunteers are needed to read and score 2-6 papers each between now and April 10th.

Audio judges evaluate the presentation of the papers at the conference based on technical content, practical application, originality of the paper, delivery of the paper, and the subject knowledge the paper's author(s) demonstrates. Volunteers are needed to attend the paper presentations on FRIDAY, April 11th.

Members are needed to fulfill these roles - if you would like to volunteer to help judge this year's student conference or if you have any questions, please contact Darby Cooper at (281) 538-6048 or by e-mail at dgcooper@space1.siihou.com.

Blaha to Speak at 1997 Student Paper Competition

by Kirsty Reidy and Eric Duncan

The 1997 AIAA Student Paper Competition Co-Chairs are pleased to announce that USAF Retired Colonel John E. Blaha has agreed to be the Keynote Speaker for the Student Paper Competition. Colonel Blaha earned his Bachelor of Science in Engineering Science from the United States Air Force Academy and his Master of Science in Astronautical Engineering from Purdue University. He was selected as an astronaut in May 1980, and has since logged 161 days in space, including 4 shuttle missions and, most recently, a 4 month stay aboard the Mir Space Station.

The Student Paper Competition will be held at the Ramada Inn/ NASA, 1301 NASA Road One, on April 10-12, 1997. Eight colleges and universities from Region IV will be participating, with students presenting papers throughout the day on Friday, April 11 beginning at approximately 8:00 AM. Awards will be presented on Saturday morning during an Awards Brunch. A luncheon Friday will be held between the morning and afternoon paper presentation sessions during which Colonel Blaha will deliver his keynote address. The agenda for Colonel Blaha's presentation has yet to be set. For more information please contact either Eric N. Duncan at 281/483-7537 (W) or Kirsty E. Reidy at 281/244-7897 (W).

M,S & D Tech Committee Meeting Held

by Steve King

The Materials, Structures & Dynamics Technical Committee had a Lunch-N-Learn on March 18, 1997. Tim Cao of NASA presented a talk entitled "Ritz Vectors and Their Application to Structural Damage Detection" and based on two papers that he has co-authored with Dr. David Zimmerman of the University of Houston. The event was held in JSC's Building 13. Eleven people attended.

This Technical Committee is continuing to collect video tapes from the NASA-JSC Structures & Mechanics Division Lecture Series at a rate of two per week. The library is now quite extensive. Please contact Dave Forrest at (281) 280-4504 about checking out these tapes.

TAMU AIAA Spring Banquet

by Michael Begley

Attention AIAA members,

The AIAA student chapter at Texas A&M University would like to announce an open invitation to all interested parties in attending their 1997 Spring Banquet.

This year's banquet has a special theme directed toward the retirement of Professor Thomas McElmurry for the Aerospace Engineering Department at TAMU. The students and faculty are all rallying together to give a special farewell towards their distinguished colleague and professor. The AIAA officers are planning to surprise Professor McElmurry with their sendoff, which will include personal reflections of his influence and impact upon members of the faculty and students.

Those at TAMU also realize that Professor McElmurry has left his mark in various locations throughout the aerospace community and would like to include anyone interested in sharing their own experiences with Professor McElmurry as an added surprise for the banquet. Such appearances by friends and colleagues from the past are what the AIAA officers are hoping to include in the banquet, and any assistance that can be offered in accomplishing this goal is appreciated.

The banquet is scheduled for Thursday, April 24th, at 7:30, in the College Station Hilton ballroom. Anyone interested in attending this special retirement party, please contact the TAMU AIAA Chairman, Brian Moeller, via e-mail at: trainman@tamu.edu. Please forward this mesaage to anyone else whom you know would be interested in attending this event.

RSVP as soon as possible. Thank you for your time.

Sincerely,

Brian Moeller

Nominating Committee

continued from page 2...

person, and ten elected councilors. The Council shall have general supervision of the work of the section.

Councilors: Councilors are responsible for providing advice and recommendations to the Council. They are encouraged to take an active part in committees and other Section activities. They shall take office at the beginning of the administrative year for terms of two years and shall continue in office until their successors qualify and take office. Councilors shall be limited to two consecutive two-year terms. One position in alternate years shall be set aside for a member who is under the age of thirty-one at the time of the election.

GN&C Technical Committee Working Lunch

by Steve King

The GN&C Technical Committee had a working-lunch meeting on Friday, March 28, to discuss details of the design of an "AIAA Houston-Area GN&C Web Site." Topics discussed were:

- The general design of a Houston-area guidance, navigation and control web page (scope and limits of contents to be included, guidelines for development)

- Aspects of some of the specific web page contents, which can be categorized under two headings:
  - a "Historical Houston-area GN&C" section
  - a "Current Houston-area GN&C technical projects" section

- Logistics of development of this web page, and new action items.

It was resolved that:

- Committee member Dan Selters (LMSMSS) would "assemble" the web page;

- Committee member Russell Carpenter (JSC) would investigate a non-space-related Houston-area GN&C project, for possible inclusion in an early version of the web page;

- Committee member John Dees (SysCom) would obtain or generate an electronic version of a list of abstracts of "classical" technical papers and memoranda written by Bill Lear (formerly of Draper Labs and JSC) as an early contribution to the "historical" archive section of the web page; and

- Committee Chair Mike Lisano (MDSSC) would assemble information about recent and current Shuttle GPS experiments for inclusion in the web page.

Technical Committee Hosts Mongolian Cosmonaut

by Steve King

The In-Space Imaging and Astronaut Observations Technical Committee of the AIAA Houston Section hosted the Mongolian cosmonaut, Dr. Ganzorig, on March 13, 1997.

Dr. Ganzorig gave an excellent talk and his host from the University of Kansas, Professor Robert McColl, also gave a talk after Dr. Ganzorig's presentation. Lockheed Martin Vice President Ken Reightler was invited to make a presentation of a NASA photograph to Dr. Ganzorig. Astronaut Mario Runco joined the group as well. We had a good turn out - about 30 NASA JSC and contractor personnel attended the reception and about 25 were present during the seminar. Not a bad showing on Friday afternoon at 4:30 p.m.!

University of Houston

Cullen College of Engineering
Office of the Dean

GRADUATE DEGREE PROGRAMS IN
INDUSTRIAL ENGINEERING AND AEROSPACE/MECHANICAL ENGINEERING

SUMMER 1997
CLASSES BEGIN TUESDAY, MAY 27, 1997

GRADUATE COURSE VIA INSTRUCTIONAL TELEVISION
RECEIVED AT BUILDING 45 AT NASA/JSC

INDE 6390/4677	Mngt. Issues in Systems Engineering	Dr. B. Ostrofsky
4:00-6:00 PM	Tuesday/Thursday	

(Room assignment to be posted in Building 45/Room 146 at NASA/JSC)

Prospective students must submit the following to the department of their intended major by the deadline: graduate application and fee, official transcripts from each institution attended, official test scores, and letters of reference. Applicants should contact the department of their interest.

REGISTRATION/ENROLLMENT BY VOICE INFORMATION PROCESSING SERVICE

April 21 - May 7

FEE PAYMENT DUE BY MAIL

May 27, 1997

Call Cullen College of Engineering at 743-4200 or NASA/JSC Training Office at 483-3075 for admission and registration information.

University of Houston

Cullen College of Engineering
Office of the Dean

GRADUATE DEGREE PROGRAMS IN
INDUSTRIAL ENGINEERING AND AEROSPACE ENGINEERING
COURSE OFFERED AT UH-CLEAR LAKE

FALL 1997
CLASSES BEGIN MONDAY, AUGUST 25, 1997

Course in Industrial Engineering

INDE 6332/11003 4:00 - 7:00 PM (Room to be assigned)	Engineering Project Management Wednesday	Dr. J. Hunsucker

ADDITIONAL GRADUATE COURSES VIA INSTRUCTIONAL TELEVISION
RECEIVED AT BUILDING 45 AT NASA/JSC

ELEE 6367/02478 11:30 - 1:00 PM	Computer Architecture Tuesday/Thursday	Dr. M. Herbordt
ELEE 7373/10988 12:00 - 1: 30 PM	Advanced Topics in Computer Archtecture Monday/Wednesday	Dr. P. Markenscoff
INDE 6339/10980 4:00 - 5:30 PM	Materials Handling Tuesday/Thursday	Dr. C. Donaghey
INDE 6372/10972 5:30 - 7:00 PM	Oper. Research & Analysis of Systems Tuesday/Thursday	Dr. D. Deal

(Room assignment to be posted in Building 45/Room 146 at NASA/JSC)

Prospective students must submit the following to the department of their intended major by the deadline: graduate application and fee, official transcripts from each institution attended, official test scores, and letters of reference. Applicants should contact the department of their interest.

REGISTRATION/ENROLLMENT BY VOICE INFORMATION PROCESSING SERVICE
April 21 - May 7
May 12 - August 6

FEE PAYMENT DUE BY MAIL
AUGUST 25, 1997

Call Cullen College of Engineering at 743-4200 or NASA/JSC Training Office at 483-3075 for admission and registration information.

Voyage, A Novel of What Might Have Been

A Book Review by Bill West

What if, in 1969, the Nixon Administration decided that development of a re-usable space shuttle was too difficult and expensive? Instead, at the urging of the Space Task Group, chaired by Vice President Agnew, it was decided that the United States should embark on a Manned Mars Program using Apollo technology. That is the premise of a new book by Stephen Baxter entitled *Voyage, a Novel of What Might Have Been* (1996, Harper Books).

The book opens in 1986 with the launch of the final component of the manned Mars craft, named *Aries*, with a crew of three. The book then alternates back an forth between the lives of the three crew-members, plus a large group of supporting characters, and the ongoing mission. Space history aficionados will recognize many characters in the book, most of whom are based on historical characters from the Apollo Program. Mr. Baxter has borrowed liberally from such books as *Apollo, The Race to the Moon*, by Charles Murray, and *Angle of Attack, Harrison Storms and the Race to the Moon*, by Mike Gray. The book traces an interesting path of alternate history loosely based on the Post-Apollo Plans: upgraded Saturn Vs, Skylabs, and Orbital Moon Labs, development of a NERVA Propulsion System, etc.

Mr. Baxter does not spend a lot of time developing his characters, but instead uses them to tell a tale of what might have been if history had been different. For instance, what might the public reaction have been in 1979 to the development of space nuclear propulsion systems at the same time of the Three Mile Island Accident? Mr. Baxter also examines the impact a Mars Mission would have had on other planetary science missions during a time of reduced NASA budgets following the Apollo Program. In a way, I found that the book argues that the Space Shuttle was the correct decision at the time, taking into account NASA's budget, the other missions it was attempting to accomplish, and the political reality of the time. That may not have been the intent of the author when he wrote the book, but I feel that the book makes a strong argument for that case.

The world that Mr. Baxter describes in his book from 1970 to 1986 is exactly the world we have experienced (Vietnam, Watergate, etc.), except that he has substituted a Mars Mission for the Space Shuttle Program. His characters are fairly two-dimensional and the tale he tells is essentially Apollo re-done, but his story is based on a solid technical ground (something that cannot be said for most new science fiction authors today), and is an easy and enjoyable read for someone interested in the subject.

I give it ★★★ out of 4★s.

AIAA Calendar

The AIAA 1996-97 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 Tom Mulder/MDC2-3156.

April

4,5 - Friday & Saturday
1997 Science Engineering Fair of Houston, Astroarena

7 - Monday
Executive Council meeting, 5:00 PM, Center for Advanced Space Studies.

10 - 12 Thursday - Saturday
45th AIAA Region IV Student Paper Conference, Ramada Inn/ NASA. Col. John Blaha, Keynote Speaker.

21 - Monday
Horizons inputs for May due COB.

23 - Wednesday
Monthly dinner meeting, NMA/ AIAA Joint Dinner, 5:00/6:00/6:30.

May

3 - Saturday
Deadline (postmarking) for Spirit of Apollo Scholarship applications

5 - Monday
Executive Council meeting, 5:00 PM, Center for Advanced Space Studies.

22 - Thursday
Monthly dinner meeting.
Gilruth Center, 5:30/6:30/7:30.

27 - Tuesday
Horizons inputs for June due COB.

June

2 - Monday
Executive Council meeting, 5:00 PM, Center for Advanced Space Studies.

26 - Thursday
Monthly dinner meeting. Gilruth Center, 5:30/6:30/7:30.

Section Nominees

As of 3/31/97, the following nominees will be included in the balloting for a 1997/98 term Section office or council position. The final ballot, to be mailed to all Section members in late 4/97, may include some late additions approved by petition.

Chairperson: George Nield/ NASA

Chairperson-Elect: Russ Filler/ USA

Vice Chairperson-Operations: Bill Hartwell/USA

Vice Chairperson-Technical: Ed Jablonski/Dynacs

Treasurer: Steve King/Lockheed Martin

Secretary: Mike Theoret/ Lockheed Martin

Councilor:
Mick Culp/NASA
Bonnie Cooper/Oceaneering
Greg Deiter/Boeing
Larry Friesen/Lockheed Martin
Jim Geros/Boeing
Nick Johnson/NASA
Mike Lisano/MDAC
Karin Loftin/Krug
Phil Puddy/Independent
Merri Sanchez/NASA.
DARBY COOPER / SPACE INDUSTRIES

AIAA
Houston Section
P.O. Box 57524
Webster, TX 77598

Non-Profit Organization
U.S. POSTAGE PAID
PERMIT NO. 1
Webster, Texas

023645 MH -HO
Steven R King
Lockheed Martin Engrg & Sci
M/C B14
2400 Nasa Rd 1
Houston TX 77058-3711

AIAA

INNOVATIONS '97

Seminar Organized by Clear Lake Council of Technical Societies for JAIPCC Executive Board

FRIDAY, APRIL 11 11:30AM - 6:00PM

Gilruth Center, NASA Johnson Space Center

11:30 - 12:00 **REGISTRATION**
Cost $12.00(Includes Lunch & Reception)

12:00 - 12:45 **LUNCHEON**

12:45 **PLENARY SESSION** DR. R. BRYAN ERB
Assistant Director Canadian Space Station Program
"THE SPACE FUTURE WE NEED-HOW WILL WE CREATE IT?

1:30 - 3:00 **Technical Sessions 'A'**
A1 AIAA "Aerospace Showcase for The Future"
Chair: Steve King, Lockheed-Martin
A2 ASQC "Quality Innovations for '97 Part I
Chair: Bill Weatherspoon
A3 ISSA "Information Security Solutions"
Chair: Carolyn Hopkins, USA

3:00 - 3:15 **BREAK**

3:15 - 4:45 **Technical Sessions 'B'**
B1 AIAA "Space Station Communications and Tracking"
Chair: Chuck DuSold, MDA
B2 ASQC "Quality Innovations for '97 Part II
Chair: Bill Weatherspoon
B3 INCOSE "System Engineering in Dilbert Space"
Chair: Mark A. Powell

4:45 - 5:15 **SPECIAL PRESENTATION:** MANZURUL AMIN
Past Director General of National Television, Gov of India
"SATELLITES FOR DEVELOPMENTAL COMMUNICATIONS IN INDIA"

5:20 **RECEPTION** - Sponsors: AIAA
Dynacs Engineering
Lockheed-Martin
United Space Alliance

REGISTRATION FORM and SESSION DETAILS on REVERSE

TECHNICAL PROGRAM

Session Paper/Author

A1 An Autonomous Doppler Shifted Ultrasound Bubble Detector for EVA"
Dr. Michael R. Powell, NASA JSC
"Plume Impingement Heating to ISS"
William Rochelle, Lockheed-Martin
Spacecab: A Multipurpose Spacecraft
Andrew Petro, NASA JSC

A2 "Design of Experiments: Study on the Factors Affecting Variability in the Melt Index Measurements" Sudhir Bafina, Solvay Polymers Technical Center
"Raising the Bar-Doing ISO 9000 for Yourself"
Wali Alam

A3 "Certification of High Integrity Software: An Automated Approach"
Philip Bandy, Lockheed-Martin
"Auditing Network Servers"
Mike McMullan, American General Life

B1 "Space Station Video Subsystem"
Eric Obleman, MDA
"Space Station S-Band Subsystem"
Dr. Zafar Taqvi, Dynacs Engineering
"Space Station C&T Verification Planning"
Tom Morrow, MDA

B2 "The Power of The System: How ISO14001 Provides Greater Assurance of Environmental Protection" Jack McVaugh PE, Environmental Technology and Management
"Re-Engineering Systems Approach"
David Stoner

B3 "The ISS Timeliner Software Development Engineering Process"
William K. Dwyer
"The Life of A Requirement"
Jonette Stecklein
"Integrated Product Teams-Lessons Learned From The ISS"
William V. Rates

REGISTRATION for INNOVATIONS '97

NAME/SOCIETY.....

ADDRESS .....

CITY .....ZIP.....PHONE.....

COMPANY..... .....

FAX .....EMAIL.....

Please register me for Innovations '97 (registration includes conference, abstract proceedings, lunch, and post seminar reception @ $12.00/person. DUE APRIL 4, 1997

Signature.....

Please send this form with your check to either:
Andy Lindberg, 218 Wynwood, Seabrook, TX 77586 (281-532-4450)
or:
Bill Best, USA USH-436B (281-282-6970)

American Institute of Aeronautics and Astronautics
HOUSTON SECTION P.O. BOX 57524 WEBSTER, TEXAS 77598

TOM MULDER
CHAIRMAN 1996-97

JOINT MEETING WITH NMA
Wednesday, April 23, 1997

Aerospace Management Challenges into the Next Millennium

Panel Discussion

Richard Thorson - JSC (Moderator)
George Davis - Boeing
Clint Denney - Lockheed Martin
Glynn Lunney - USA
John O'Neill - JSC / SOMO
Randy Stone - JSC / MOD

Dinner Meeting

Social:	5:00
Dinner:	6:00
Program:	6:30

MENU: TEXAS BAR-B-QUE BUFFET
(Includes Beef, Chicken & Sausage)

MEMBERS	$ 6.00
NON-MEMBERS	$12.00

Robert R. Gilruth Recreation Center Ballroom

DANITA THOMAS
483-2348
NASA

PAM SISK
483-8341
NASA

MISTY ARMSTRONG
333-4419
DYNACS

CALL ONE OF THE ABOVE FOR RESERVATIONS
DEADLINE IS THURSDAY, APRIL 17, COB.
ANY CANCELLATIONS ARE REQUIRED PRIOR TO DEADLINE. NO-SHOWS WILL BE BILLED.
ALL ARE WELCOME.