

AIAA HOUSTON SECTION 1981-1982 DINNER MEETINGS
HELD AT JOHNSON SPACE CENTER
ROBERT R. GILRUTH RECREATION CENTER

Social: 6:00
Dinner: 7:00
Program: 8:00

TUESDAY-MAR. 23, 1982



AMERICAN
INSTITUTE OF
AERONAUTICS AND
ASTRONAUTICS

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



ADVANCES IN EMERGENCY MEDICINE

JAMES H. DUKE, JR., M.D., F.A.C.S.

PROFESSOR
DEPARTMENT OF SURGERY

THE UNIVERSITY OF TEXAS
MEDICAL SCHOOL
HOUSTON, TEXAS

FOR DINNER RESERVATIONS, CALL:

HAZEL 333-6161 (Lockheed)	JOANNE 333-2030 EXT. 211 (Rockwell)	PATTY 488-5660 EXT.211 (MDTSCO)	NANCY 483-3995 (NASA)	SYLVIA 845-7541 (College Station)	ENTREE - SWEET AND SOUR PORK MEMBERS & SPOUSES \$7.50 NON-MEMBERS \$8.50 STUDENT DISCOUNT \$2.00
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RESERVATIONS DEADLINE IS FRIDAY - MARCH 19 at 12:00 NOON

DINNER CANCELLATIONS ARE REQUIRED

ALL ARE WELCOME

THERE IS NO CHARGE FOR ATTENDING THE PROGRAM ONLY

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
HOUSTON SECTION
NEWSLETTER

MARCH 1982

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The Houston Section NEWSLETTER is published periodically at the Houston Offices of IBM by the Houston Section AIAA. Address all communications to Carolynn Conley, Associate Editor, NASA-JSC, Mail Code CH4, Houston, Texas 77058.

W. A. Stewart, Editor

o EDITORIAL

The Young Professionals - The AIAA at the national and local level is putting renewed emphasis on the young professionals. While the average age has been creeping upward lately, there are definite signs that the new college hires are taking a liking to professional organizations.

Here in Houston, we see examples of the young professional coming forward to join and participate. I encourage everyone to speak with those in your area who would contribute and benefit career development by being involved in our section's

goal: Reporting STS flight results to the nation. Our experienced team of personnel has a lot to give. "Personal Contact" always works best. Listed below are the Houston Section statistics for 861 members age distribution:

Under 21 - 9	36 - 40 - 99	56 - 60 - 78
21 - 25 - 36	41 - 45 - 131	61 - 64 - 39
26 - 30 - 105	46 - 50 - 135	65 Plus - 27
31 - 35 - 95	51 - 55 - 105	Unknown - 2

-Jack C. Heberlig
Chairman

o MINI-SYMPOSIUM '82

By the time you receive this NEWSLETTER, the March 1 deadline for abstract submissions will have come and gone. We are going to hear some very interesting and informative papers this year, based on my quick look at the abstracts now in hand.

To name a few:

- o Trends in Soviet Manned Space Flight
- o Automated Planning and Problem Solving for Space Robotics
- o Shuttle TACAN Flight Performance
- o The Evolution of Space Shuttle
- o Evaluation of STS-1 Powered Ascent Flight Phase
- o Performance of Columbia's Flight Control System
- o What We Have Learned from SOC System Analysis Studies

Our conference subcommittees on paper screening and session architecture headed by yours truly and Chester Vaughan should have largely completed their work by this time. You who have offered abstracts should be hearing from the appropriate session chairmen shortly, advising of the disposition of your abstract.

These chairmen will be your primary contact from that point forward; and should advise you as to session and room assignment as well as the order of your presentation within a designated morning or afternoon time block. In the event of a communication breakdown, you may call me at 488-5660 (406) or Norman Chaffee, General Arrangements Chairman, at 483-3995.

All registered attendees will receive a copy of the Mini-Symposium Conference Manual upon registration at the Gilruth Center (8:00 a.m. - 9:00 a.m.) the morning of April 20. If you are an author, co-author, presenter, or student attendee; so advise the desk for waiver of the \$1.00 registration fee.

Those of you who wish to attend the end-of-day banquet must pre-reserve, unless you only plan to attend the after dinner talk by National AIAA President, Joe Gavin. The schedule for banquet dinner reservations (and any subsequent cancellations to avoid being billed) will be announced soon by Carolyn Conley, Vice Chairman-Operations

I predict you will find this year's Mini-Symposium well worth your time and of a quality commensurate with our AIAA Houston Section's Award as outstanding section of over 500 members for the 1980-1981 program year.

-C. V. Wolfers
VC-Technical

o CLEAR LAKE COUNCIL OF TECHNICAL SOCIETIES

Reports on Schedules - The CLCTS had its 16th meeting on February 18, 1982. The current member organizations (MO) and their respective representatives that are in good standing are: IEEE/Andy Lindberg-LEMSCO (483-3549); ACM/John Moore-Moore Engineering Co. (333-1022); TSPE/Quin-Shepperd, II-MDTSCO (483-2868); and LPI/Ron Weber-LPI (486-2172). MO's to be affirmed are AIAA/Ernie Hillje-JSC/EX4 (483-2783); ISA/W. R. Labby-LEMSCO (333-6313); L5/Fred Becker-MDTSCO (483-2566); AWA/Roger Bilstein-UHCLC; SETP/R. Gray-JSC; and ALPA/Dave Koch-UAL.

New organizations that would like to become part of the CLCTS should contact one of the above persons.

The CLCTS has its current prime objective, the dissemination of individual MO events, meetings, etc., information through each other MO's communication channels. To do this, a monthly calendar will be established to give an overview of the various happenings in the local area. Information (in addition to the MO representative information) can be sent to either Andy Lindberg/LEMSCO (JSC Code EE6) or Ernie Hillje/JSC-EX43.

An additional area that the CLCTS is working with is the local Spaceweek celebration. Each MO has been requested to sponsor at least one event. The response has been terrific! The IEEE, ACM, TSPE, LPI, AIAA, and L5 organizations will all sponsor one or more events this year. We are working on the others. Any related organization that would like to become part of the CLCTS should submit their organization's objectives and purpose to one of the representatives listed above. Individuals who want to become more involved as a representative or committee member of their MO should do likewise.

-Ernie Hillje
Chairman

o PANEL DISCUSSION AT DINNER MEETING

February Houston Section Dinner Meeting listened to a panel discussion of "Space Shuttle Challenge of 1982" by Dr. Glen S. Lunney, Aaron Cohen, and George Abbey. Dr. Lunney, starting the discussion, stated that we have a winner on our hands. The Shuttle really works and works the way it was planned. People who were more or less on the sidelines now want to be part of the activity.

Indications point to 24 flights a year by 1988; seemingly a convenient number. Presently 90 customers are actively dealing, according to Dr. Lunney. Of this number, DOD accounts for 15; commercial and foreign, 45; and NASA, about 30. Schedules have been made to STS-13. There isn't enough space for all those who want to "fly."

Aaron Cohen called attention to the design experience on the Orbiter. The problem involved integration of many systems. The results have proved excellent; the entire system operates very satisfactorily. The problems that surfaced and were given wide publicity have been brought under control. The problem of heat insulation, for which the application of tiles was developed, has been controlled. Figures were given to illustrate the decline in problem intensity: Tile replacement, loose tile, and scorched filler bar incidents totaled 729 for STS-1, but only 270 for STS-2.

Projected turn-around time has been set at 40 days; 212 days was achieved for STS-1, 129 days for STS-2.

Presently, there are no major design issues. Launch and flight teams are maturing. Manned interaction with payloads is developing. The "fleet" is coming along. STS-5 is anticipated. A possible problem, however, is foreseen; a problem may develop with the suppliers of present structures. Retaining the materials and other items necessary for the construction for several years may prove burdensome to the companies involved.

George Abbey reported a developing problem for future solution: it will prove advantageous to increase the flight crews to four. The difficulty will involve training of additional personnel quickly enough. The several procedures developed during training procedures permit crew-controller interaction at a suitable level to assure performance. The Orbiter is a very complex system; assurance is augmented during the training period.

Series of difficult experiments proposed for future flights will require attention of crew during flight. Six crewmen will be needed on flights with space lab.

The outlook for the future of the space transportation system looks good.

o AIAA PUBLIC POLICY COMMITTEE

A revised draft of the AIAA's proposed National Space Policy has been obtained from Dr. Jerry Grey of the AIAA's New York office. A copy of this draft is included here. Persons wishing to recommend changes to this draft may do so by contacting Mr. Jim Visentine at extension 6376.

An AIAA position paper addressing needs for a fifth Orbiter and requirements for permanent manned presence in space is being prepared by the Public Policy and Space Systems Technical Committees. Chairman of both committees have met to discuss how the paper should be organized and to establish completion deadlines. It is anticipated that a review draft will be available by mid-March.

-Jim Visentine
Chairman, Public Policy Committee

o SPACE POLICY: AN AIAA VIEW

Prologue - The modern world is influenced in every sense by technology. Space activities involve some of the most advanced technical innovations, and offer some of the most significant beneficial returns. They have brought us much of our present microelectronics capability, as well as more accurate forecasting of weather and natural disasters, low-cost global communication and navigation, and the surveillance from space which is so essential to our national security.

Space opens unbounded opportunities for the expansion of mankind's understanding and utilization of the resources of the universe, and for the improvement of the quality of human life. It is necessary that the U.S. decide if it will be in the forefront of these activities, or if it will allow other nations to direct the world's destiny through economic and military dominance of the "high ground" of space.

The Apollo program, one of this nation's greatest technological achievements, has been an immense source of pride and national prestige to our citizens. Although it was stimulated by a perceived external threat rather than the realization of

societal benefits, we found that its benefits were extraordinary; indeed, they ranged far beyond anyone's expectations. But they would never have been realized without the long-term commitment we made to Apollo.

Today, more than a decade later, the benefits of another long-term commitment, the space Shuttle, are beginning to be realized. Our challenge now, therefore, is to design a space policy, and a program to implement that policy, which will include utilizing the space Shuttle to the fullest extent possible as a major element in a rational and orderly overall program of space activities.

Theme - President Reagan said in his inaugural address, "It is time for us to realize that we are too great a nation to limit ourselves to small dreams." He thereby enunciated the theme that our nation is embarked on "a new beginning" to revitalize its economy, strengthen its defense, improve its institutions, reassert technological leadership, and regain national self-esteem.

We believe that the exploration, utilization, and development of space, the 20th century's frontier, provides an ideal focus for that "new beginning."

Policies - Space exploration, development, and utilization are vital to free-world economic, social, defense, and political strategies. The AIAA therefore contends that the Administration should make a firm recommitment to the principles of the National Aeronautics and Space Act of 1958. One of these principles is that the U.S. be preeminent in space activities. This principle, in conjunction with the others stated in the Act, forms the cornerstone of the policies we propose herewith:

- o The maintenance of peace and the defense of the United States and its allies has top priority. The "high ground" of space, a key element in the overall program of national security, must be utilized to the greatest extent possible. Vital space operations in support of national security must be maintained under all conditions, consistent with the basic principle separating civil and military space activities.

- o The return on our past and future investments must be maximized, and the U.S. must remain competitive with increasingly competent commercial space capabilities overseas. This requires vigorous and sustained cooperation among the government, industry, and university communities, each fulfilling the role to which it is best suited.

The federal government should continue to provide the primary support for space research and exploration and the development of new and long-range research and exploration and the development of new and long-range technology, both in its own laboratories and in those of the universities and the industry. It should support, by cooperation and appropriate incentives, entrepreneurial investment by the private sector in high-risk applied research and development, and should foster the entry of space applications into the commercial marketplace.

- o International cooperation should be supported and encouraged, consistent with the abovestated economic and national security requirements, particularly in space science and exploration. Further, the freedom to travel and operate in space should not be endangered, so that the benefits of space accrue to all mankind equitably and economically in accordance with the 1967 Outer Space Treaty, to which the U.S. is a party.

Goals - Goals implied by the above-stated policies are as follows:

- o Define integrated and mutually supporting overall civil and military space programs encompassing both long-term and short-term elements of U.S. space policy.

- o Unify military space doctrine and architecture for maximum effectiveness in defense operations of the U.S. and its allies during periods of peace, crisis, or warfare, and provide convenient access to operational space systems for all military services and commands in accordance with that plan.

- o Implement and maintain a federal program for the practical utilization of Earth orbit through cooperative efforts with the private sector, appropriate incentives, and rewards to successful entrepreneurs.

- o Extend man's capability to live and work in space by developing the orbital facilities and support systems necessary for uninterrupted operations in Earth orbit.

- o Assure routine access to space through continued commitment to an operational space transportation system sized to meet both current and projected needs for defense, commercial, science, and foreign users.

- o Continue programs aimed at future substantial cost reductions and improvements in efficiency of all space operations, particularly transportation. Such programs will require vigorous, sustained development of advanced technology and attention to emerging problems such as geostationary orbit crowding and the proliferation of space debris.

- o Continue to engage in the systematic exploration of the Earth, the Moon, and the solar system using unmanned spacecraft, and in the extension of our knowledge of the Universe beyond through the use of both unmanned and man-tended Earth-orbiting astronomical observatories.

Actions - Initial actions proposed to accomplish certain of the goals set forth above are as follows:

- o Establish a firm commitment to a specific national space program plan for the next two decades, identifying scheduled milestones for (1) operation and expansion of the space transportation system, (2) civil and military operations in Earth orbits, (3) research and exploration, and (4) development of the enabling space technologies.

- o Establish programs to develop and implement technologies not only to improve surveillance and military communications functions, but also to support and assure survivability of U.S. satellites, transports, and military ground systems against hostile action.

- o Initiate vigorous technology programs in the enabling technologies which are essential to all space activities, particularly in large space structures, power generation, life-support systems, and robotics to support extended-duration space operations.

- o Expand and intensify present efforts to establish specific private-sector incentives for public-service satellite communication services, Earth observation systems, research in space materials processing, and operation of prototype and demonstration commercial space manufacturing facilities.

- o Establish a firm program commitment for a permanent manned space facility in low Earth orbit to serve as (1) an operational base for Shuttle Orbiters and orbital transfer vehicles, (2) an orbital storage, power, and servicing depot, (3) a research laboratory, (4) a construction center, (5) an assembly station for higher Earth orbit missions and outbound deep space flights, (6) a support facility for low-orbit free-flying satellites, and (7) a staging area for the construction and servicing of both commercial and public-service multi-purpose geostationary platforms.

- o Continue and expand the evolutionary development of a versatile operational space transportation system, incorporating elements to improve the efficiency and reduce the cost of carrying freight and personnel not only from the Earth into orbit, but also between various Earth orbits and other trajectories.

- o Initiate procedures by which operation of the space transportation system can be operated by a dedicated federal, semi-federal, or private organization, once the system is fully operational.

- o Establish a specific plan for the next two decades to include (1) a stable program for planetary exploration, (2) investigation of comets and asteroids, (3) reestablishment of lunar exploration activities, (4) continued development of space-based platforms for scientific observation of the Earth, the Sun, the stars and the Universe, and (5) integration of scientific studies wherever possible in spacecraft or space platforms launched primarily for other purposes.

By making such a firm commitment to a comprehensive space policy, a set of reasonable and attainable goals which crystallize that policy, and a consistent action plan to implement these goals, the U.S. can continue to maintain its leadership in many of the space activities it has pioneered. We thereby will ensure that the exploration and utilization of space bring maximum returns to the nation's citizens and to all the peoples of the world.

o PUBLIC AFFAIRS COMMITTEE

Speaker's Group - The Speaker's Group needs a Chairman. Elmer Fridia's workload precludes his availability to continue with this activity. The procedures required to run this group have been established; therefore, anyone interested would have a running start. Call Ernie Hillje at 483-2783 for more information.

Tour Group - Butch Kirby, Chairman of the Tour Group, has been transferred to Hamilton Standard in Connecticut. He is in the process of finding a new Chairman for this active and interesting group.

Space Week - The Public Awareness Group (Troy Welch-Chairman) has been busy supporting Space Week, both the local and the national organizations.

The local Space Week (see the JSC ROUNDUP of February 5, 1982) will be directed by Joe Bufkin/EP2 (483-5437). Events are being planned to make this the best Space Week yet! The national organization (Space Week, Inc.) is revising the popular SPACE WEEK HANDBOOK to include more detail on fund raising and marketing. This will assist the local Space Week Directors in three critical areas.

Ben Bova (see the JSC ROUNDUP of February 5, 1982) of OMNI magazine has accepted the position of Chairman, Board of Advisors. Anyone interested in assisting the National Space Week, Inc. organization can call Dennis Stone (333-8246), Troy Welch (488-5514) or Ernie Hillje (483-2783).

Science and Engineering Fair - The 1982 Science and Engineering Fair of Houston is set for March 18-20, 1982, in the Astrohall. The Public Affairs Committee, working with the Student Affairs Committee, is increasing both the "Career Booth" activities and the number of awards that will be issued. The object is to interest more of these bright young students in seeking careers in aeronautics and astronautics. NASA, IBM, Rockwell, and others will be supporting the Public Affairs Committee with displays, photos and handouts. Anyone interested in the judging aspect can call David Bell at 333-2340, or for assistance with the Careers area call Ernie Hillje at 483-2783.

o AIAA HOUSTON SECTION - NEW MEMBERS

Gregory E. Desobry

Russell Knaus

W. B. Evans
Eagle Engineering

Keith Davis McGee

Peter E. Fogerson
Lockheed

Bryan D. O'Connor
NASA

Arvil H. Hebert
Ford Aerospace & Communications

Navaratna S. Rajaram
Lockheed

David M. Henderson
GN&C

Alan M. Shinkman
Singer Company

Thomas H. Henderson
NASA

Johnny L. Stubbs
Northrop Services

Patrick H. Horsley
Lockheed

George Ulrich
Rockwell International

John A. Jones.
Northrop

Clark P. Wright
Ford Aerospace and Communications

UPGRADE TO FELLOW:

Capt John Watts Young, JSC

NOTE: Information is lacking as indicated in the foregoing. Please send Company name, mail code and phone number of Marvin E. White, Section Secretary, Lockheed/C24, 333-6161.

o SPACIAL OCCASIONS

L&P Science Conference - March 15-19, 1982, "The 13th Lunar and Planetary Science Conference" will be held at the Johnson Space Center and represents a key annual conference in planetary science. The program will bring together scientists in the fields of petrology, geochemistry, geophysics, geology, and astronomy. Contact: Lunar and Planetary Institute, 3303 NASA Road One, Houston, Texas 77058.

NSI Houston Regional Meeting - March 20-21, 1982, "NSI Houston Regional Meeting" inaugurates the 1982 NSI lecture series. The 2-day event features member and public activities, including special lectures, films and a tour of the NASA/Johnson Space Center. The program will also include a lecture by an astronaut.

To be held on the campus of the University of Houston at Clear Lake City.
 Contact: Susan Satterfield, NSI, West Wing Suite 203, 600 Maryland Avenue,
 S.W., Washington, D.C. 20024. Phone (202) 484-1111.

Outer Space and Society - April 14-16, 1982, "Outer Space and Society" will include several panels on: Space, Society and U.S. Government, International Relations, Engineering, Business, Chemistry, Biology and Psychology. Paper proposals, requests to serve as discussants or panel chairs are requested by the conference organizers. To be held at University of Texas, Austin, Texas. Contact: Dr. Nathan Goldman, Department of Government, University of Texas, Austin, Texas 78712. Phone: (512) 471-5121.

o THE IDES OF MARCH --- BEWARE: ANOTHER CRUNCHER

I have to hang my head in shame! The January puzzle about the Sultan's children was much too easy, and I was buried with correct answers. David Mercier from Singler-Link was the first correct responder and he gets the free dinner for correctly figuring out that the Sultan had 231 kids (11 harems with 7 wives in each harem; each wife had 3 children; each child received 15 gold pieces). With 77 wives, it's no wonder the old boy died, and with only 3465 gold pieces left to his name. I got other correct answers from:

C. R. Murdock - Lockheed	Tom Chambers - Eagle Engineering
Mike Rasmussen - MDTSCO	Charles Campbell - Lockheed
Jim McCoy - NASA/SN3	Bill Best - Rockwell
Suren Singhal - Shell Devel. Co.	Ralph Hite - MDTSCO
Paul Anna - Texas A&M	Marian Edson - NASA/JM24
Jim Thompson - MDTSCO	Steve Bernhardt - MDTSCO
J. A. Yannie - Aerospace	Earl Crum - NASA/EB
Jose Spencer - CSC	Henry Schneider - MDTSCO
Ron Hesel - Boeing	David Bowers - MDTSCO
P. B. Schoonmaker - MDTSCO	Jim Clement - MDTSCO
Carolyn Blacknall - NASA/CH6	M. M. Wahbah - MDTSCO
Bruce McCandless - NASA/CB	Ben Krajmalnik - Texas A&M
Gerry Norvell - Texas A&M	J. Granahan
Norman Gwinn - Texas A&M	Michael Martin - Lockheed
Curtis Chapin - Texas A&M	Bill Thomas - Vaught Corp. (Dallas)
Ron Gyorfi - MDTSCO	Paul Morris - Texas A&M

Congratulations to all of you --- and I'm glad to see some answers coming in from the Aggies (nobody at Rice or Prairie View has gotten one right yet). Since this issue was on a "short fuse" I haven't heard any response from the February puzzle yet. So here's your March challenge!

"If a certain six-digit number is split into two parts, one constituting the last three digits (neither part may begin with zero), and if the two parts are added and the resultant sum is squared, it is found that the result is the original six digit number. What is the number?"

This one should be a little tougher! Send your answers to Norman Chaffee, NASA/JSC, Mail Code EP, Houston, Texas 77058. First correct answer gets a free dinner at an upcoming AIAA meeting.

FLASH!

The winner of the February contest is Ms. Karen Godek of Lockheed who correctly determined that the Program Manager was buying numerals (for the mail box or front door) at 10¢ apiece. Congratulations to Karen! I've received a bunch of other correct answers -- I'll list them all next month.

-Norm Chaffee

AIAA HOUSTON SECTION MEMBERSHIP OPPORTUNITY

Name _____ Home Address _____
 City _____ State _____ Zip _____
 Full Title _____ Department/Division _____
 Company (or organization) _____
 Professional Telephone No. _____ Mail Stop/Station _____
 Company Address _____
 City _____ State _____ Zip _____
 Birth Date _____ College or University Attended _____ Degrees _____ Major _____

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 (under 31 years of age) \$40 _____
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RAP Application/Revised 4-80 MC-8



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 Receive 10 Issues Of Houston Section Newsletter

M1
 F2
 M1
 Acceptance
 Number

FOR AIAA'S FISCAL YEAR 1982, (OCTOBER 1, 1981-SEPTEMBER 30, 1982)
 THE FOLLOWING RATES ARE IN EFFECT:

To Each Member:
 Select someone to enroll
 prior to the MAY 21, 1982
 50th Anniversary Celebration!!!
 Jack Hebeelig
 Chairman

MEMBER PRICES:		NONMEMBER PRICES:
<u>Optional Subscriptions:</u>		
AIAA JOURNAL	\$14.50	\$130
JOURNAL OF AIRCRAFT	\$13.50	\$115
JOURNAL OF SPACECRAFT AND ROCKETS	\$10.50	\$ 60
JOURNAL OF GUIDANCE AND CONTROL	\$10.50	\$ 60
JOURNAL OF ENERGY	\$ 9.00	\$ 60
AIAA STUDENT JOURNAL	\$ 7.00	\$ 17

↖ P.S. Excellent for high school and college level. 4 ISSUES/YR.

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.....
HOUSTON SECTION

newsletter

UPCOMING AIAA HOUSTON SECTION MEETINGS

DATE

March 23	Advances in Emergency Medicine	Dr. James H. Duke, Jr., M.D. Professor, Dept. of Surgery The University of Texas Medical School, Houston
April 20	Mini-Symposium	Space Shuttle Development and Flight Results
April 20	Planning Priorities and Politics	Joseph G. Gavin, Jr. AIAA President Dinner Speaker
May 21	50th Anniversary Celebration - Bldg. 2 Auditorium	



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