



DIGNITARY VISITS JSC

Sudanese President Gaafar Mohammed Nimeiri is shown here being briefed by Dr. Chris Kraft inside Building 30. Nimeiri was at JSC on June 21 for a tour and briefing. The space center continues to be a highlight for visiting foreign dignitaries.

What Is It About JSC That Attracts 750,000 Visitors?

Roundup reporter Bruce Bennett was out interviewing visitors during the week of Houston's flood and found that inclement weather didn't dampen their enthusiasm for NASA. JSC drew over three-fourths of a million visitors last year; so far this year over 350,000 have toured center facilities.

"I think the Visitor Orientation Center is fantastic", said Mary Chase, real-estate sales person of North Ridge, California. "In viewing the center there is a lot to learn and I'm sure it will help many people understand what the space program is about."



Even though there is a lot of excitement, there will probably be more when the scientists begin testing and launching rockets again, Chase said.

She added the only problem with the tourist guide is that there are not enough directions to other buildings.

In spite of the heavy thunder storms, more than 20,000 tourists visited JSC.

"A large percent of our tourists come from Texas and California", Bob McMurray, JSC protocol specialist said. McMurray added a substantial amount of travelers come from as far as Mexico and Japan. The center first opened to visitors in 1969 on Sundays, but now is open daily except Christmas.

The space program looks very impressive, Mike Rezmike said, University of Texas student and resident of Friona. "I felt as if I were actually a part of the space pro-

gram." The exhibits are very informative and the explanations of the various projects make the "Space World" a lot simpler. "I believe we must pursue this effort because it is an asset to mankind," Rezmike said.

"I think it's great. Before I came to the center, I reviewed some material that would refreshen my memory," said Marge Kirkmeyer of East St. Louis, Ill.

Kirkmeyer said her kids are really enjoying themselves. "Now since they have read and listened about the program, today they can actually see the machinery that was used to make it a reality."

The museum has given me a new outlook on the space program, Kirkmeyer said. "The only problem is that we were told that we did not have to make reservations."

Most of the travelers enjoyed the Visitors Orientation Center (Bldg. 2), which encompasses NASA movies, displays and artifacts, along with the Mission Simulation and Training Facility (Bldg. 5).

"The area I most enjoyed was Mission Control", expressed Joe Webster, insurance claims operator from Indianapolis, Minn. By the end of the lecture, the tourguide had answered all of the questions that once puzzled me, Webster said.

Webster believes, the Space program is important because many Americans are concerned if life really exists on other planets. He expressed hopes that the next mission will include some politicians.

(Continued on page 2)



ROUNDUP HAPPY 200TH BIRTHDAY AMERICA!

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SETD Saves Valuable, Flood-damaged Records

Among the flood victims of Houston's downpour June 15 and 16 were the famed and diverse institutions comprising the Texas Medical Center. Medical records for a large number of the hospitals and teaching schools were kept in the basements of the buildings. These same basements were inundated with as much as six feet of water, covering file cabinets containing the records.

James McLane Jr., chief Space

Environment Test Division, and others in the division were thinking about the problems caused by the flooding and decided that JSC's Space Environment Simulation Chamber B, Building 32, could be used to dry the records. Center management concurred in this suggestion.

On Thursday, June 17, officials of SETD contacted representatives of the medical center to determine if they were interested in trying this technique.

On Friday, June 18, records from the Methodist Hospital and some rare books and administration records from the Contemporary Arts Museum began to arrive at Building 32.

By Saturday, June 19, the CAM and Methodist documents were inside Chamber B waiting to be vacuum dried.

McLane said there wasn't enough time to sort the documents, which would have aided their drying, "because by the time they reached us many of them had already begun mildewing."

The documents were placed on heated shelves inside Chamber B and the pumps started at 4:00 pm Saturday.

Thermocouples were located inside the chamber to track the temperature, since in this drying process a higher temperature would indicate the records had been dried.

(Continued on page 4)

Security To Issue New Decals

On July 12 new JSC vehicle decals will be issued. The display of the decal will be required by August 23 for entry to JSC and EAFB. The schedule below establishes the issue points in the building lobbies. Personnel located in buildings not appearing on the schedule may obtain decals from the most convenient location listed. Persons on leave may obtain decals from the nearest issue point when they return.

DATE (8:30 a.m. to 4 p.m.)	BUILDINGS
7/12 and 13	1
7/14	13
7/15	14
7/16	45
7/19	16
7/20	30
7/21	4
7/22	5
7/23	7
7/26	31
7/27	37
7/28	227
7/29	32
7/30	49
8/2	44
8/3	9
8/4	419
8/5	350
8/6	276, EAFB
8/9	Bldg. 1 (Aero-nutronic-Ford), 1002 Gemini
8/9 (12:30 p.m. to 4 p.m.)	1100 Bldg. (Aero-nutronic-Ford), NASA Rd. 1
8/10	Alpha Bldg. (LEC), 1 6 8 1 1 E 1 Camino Real
8/11	Bldg. L-IX (LEC), 1812 Space Park Drive
8/12	Beta Bldg. (NSI), 1 6 9 1 5 E 1 Camino Real
8/13	Boeing/ Singer Bldg., 1300 Bay Area Blvd.
8/16	IBM Bldg. 1322 Space Park Drive



Intently monitoring the temperature readouts from Chamber B are (l to r) John E. Burton, Wayne W. Potter, and Don Thorson. The instrumentation provided a constant temperature reading for the material being dried in the chamber.

Lovelace Named For NASA Deputy Post

President Ford nominated Dr. Alan M. Lovelace of Severna Park, Md., as Deputy Administrator of the National Aeronautics and Space Administration.

Lovelace, 46, is currently NASA's Associate Administrator for Aeronautics and Space Technology, where he has served since September 1974.

Lovelace has held various research management positions in the US government since joining the Department of Defense in 1954.

He served at the Air Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio, from 1954 through 1972. He was named director of that laboratory in 1967. From 1972 to 1974 he served as Director of Science and Technology with the Air Force Systems Command, Andrews Air Force Base, Washington, D.C. From October 1973 to September 1974 he also served as Acting Deputy Assistant Secretary of the Air Force (Research and Development).

Awards received by Lovelace include the Air Force Decoration for Exceptional Service (1973); the Na-

tional Civil Service League Career Service Award (1971); the Office of Aerospace Research Award for Outstanding Contributions to Research (1970); the Air Force Association/Air Force Systems Command Meritorious Award for Program Management (1969); the Air Force Commendation for Meritorious Civilian Service (1959); the Flemming Award (1958); and the AFML Charles J. Cleary Award (1956).

Author of numerous technical papers, Lovelace is a member of the American Institute of Aeronautics and Astronautics, Sigma Xi, American Men and Woman of Science, Phi Beta Kappa, National Academy of Engineering, the Air Force Association and is a Fellow of the American Astronautical Society.

Born in St. Petersburg, Fla., Lovelace holds bachelors, masters and doctorate of philosophy degrees in chemistry from the University of Florida.

Lovelace is married to the former Kathryn Logan of Bridgeport, Conn. They have two children, William M. and Denise T., who reside at home.

Co-ops Cited For Excellence

Robert Bishop

Robert H. Bishop is the July Cooperative student of the month. In nominating him for the award, Bruce Jackson, chief of the Engineering Analysis Division and Bob's supervisor, cited his willingness and quickness to learn, high overall performance and self-sufficiency as a worker.

Bob is a sophomore at the Texas A & M University, College Station, majoring in engineering.

Shelia Brandt

In recognition of excellent service as a cooperative student in the Planetary and Earth Sciences Division, Shelia Brandt was JSC Co-op Student for the month of May.

"The only way to accomplish anything is by becoming independent and stepping out striving toward your goal," she said.

Brandt who joined the NASA staff nearly nine months ago worked in the Physics Branch where she assisted in writing programs, testing parts of instruments and locating visible stars. "The most exciting experience was the trip to Palestine, Texas to launch the Balloon-borne Ultraviolet Stellar Spectrometer (BUSS) experiment," she added.

Shelia, an Electrical Engineering major at Texas A&M University, said while working at JSC, "the working experience has helped me with the theoretical approach and this achievement has really made me feel that I have accomplished something."

Tourists

(Continued from page 1)

"The center is very interesting. The family and I are enjoying everything." Lord Hulo, from the Republic of China, said. "The only problem is that there needs to be more explanation about the modules.

In an effort to be of better service to JSC tourists, the Special Activities Section, Public Affairs Office, has developed several new projects which could begin as early as September.

An installation of a Little Joe Rocket is underway. This project will show launches used to test the Apollo Spacecraft, rocket engines and a Redstone launch vehicle.

In the next five years plans call for a full size Saturn 5 vehicle and an astronaut memorial in dedication to those spacemen who lost their lives.

Another project planned is a reenactment of the lunar launching as viewed in the control room.

There are also plans to recreate the first manned lunar landing — the Apollo 11 mission. In Building 5 a closed-in walk-way will be added to allow viewing of the Shuttle flight simulations.

An additional project will involve opening several new buildings at the center which traditionally have been closed to the public.

ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS

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Photographer: A. "Pat" Patnesky

Burchard Ready To Return Home

After three and half years of duty with NASA as JSC flight medical physician Eduard Burchard will return home to rejoin the German Air Force on August 2.

Burchard has been stationed with the Flight Medicine Section of the JSC Life Sciences Directorate where he works closely with the astronauts and served as crew surgeon for Skylab 3 and 4 and the Apollo-Soyuz missions.

The surgeon is one of the two European physicians who came to JSC following requests from NASA to the European community for physicians to support Skylab and ASTP.

Upon his return to the German Air Force, Burchard said "I will be involved in Aerospace research and the selection and training of European payload specialists for the Space Shuttle program."

School of Aerospace Medicine, San Antonio.

When asked what advice he would give prospective surgeons who have the desire to work with the space program, Burchard remarked, "You must have a good feeling for personnel involved in flying activities. It's also useful to have background as a flight surgeon in either one of the military services so you will be familiar with the problems involved in flying activities.

He added, "I would like to see the space program pushed beyond the Shuttle era because we need a continuous orbiting laboratory to perform several experiments and tasks during long periods of time."

As a world traveler, Burchard hopes his new job will enable him to return to America so he can work for JSC once again.



DR. EDUARD BURCHARD is shown here during earlier days preparing for his position as one of the Skylab flight surgeons. The good doctor returns to his native Germany at the end of the month.

Burchard believes he has had a great opportunity in working very closely with the astronauts and the full range of flight activities during missions.

Besides sharing the work load with the other physicians, Burchard was active in preflight and post-flight examinations and with the various medical experiments flown. Presently, he is in the process of conducting an extensive survey covering 15 years of astronauts experience in space.

"NASA has a great program and I predict Europe and the rest of the world will play a key role in its future," expressed Burchard.

Prior to joining the German Air Force in 1962, Burchard received his doctorate in Medicine from the University of Frankfurt; he then served as an intern at Youngtown Hospital Association in Ohio. From there he enrolled in the U.S.A.F.

Exchange Store Offers New Service

JSC Exchange is an associate member of the National Industrial Recreation Association, a non-profit organization of company recreation directors.

Many programs and beneficial activities are available through NIRA. One such benefit is the new Wise-Buy program through which JSC employees can obtain bargains in purchasing certain items.

Four or five times each year NIRA members will receive the Wise-Buy Bulletin which contains articles on topics such as recreation, health and safety, and how to get more for your dollar. Each issue will also contain brand name products and services offered at substantially reduced prices. EAA representatives and the Bldg. 11 Exchange Store will receive these bulletins.

Each employee must do his own purchasing using order forms enclosed in the bulletin. Master Charge or BankAmericard as well as personal checks can be used. Items will be mailed directly to the buyer's home. All orders must include \$3.00 postage charge.

The first issue of the Bulletin has three items offered at reduced cost: Benrus LED watches for \$39.95; General Electric Smoke Alarms for \$37.88; Imperial 4-piece Cutlery Set for \$13.88.

Information or bulletin copies can be obtained from your EAA rep or the Exchange Store.

Survey Shows Sports Participation Varied

This past February the EAA surveyed JSC employees concerning their interest and participation in sports, clubs, facilities, social activities and youth activities.

The EAA has completed tabulating the results of that survey and the Roundup will be running these tabulations in a five-part series. The first survey results concern sports. Next issue we will present the results for the EAA club survey.

EAA Athletic programs have historically been limited to organized team sports, with some attempts to provide equipment for those requesting it for unorganized activities such as horseshoes and badminton.

The development of the Gilruth Recreation Center has provided an exceptional opportunity to increase employee participation in the unorganized athletics. A major observation in the survey results is the apparent lack of knowledge by employees as to the availability of equipment and facilities offered at the Rec Center.

This observation is based on the large numbers of employees indicating a desire to participate in activities such as badminton, ping pong, horseshoes, archery, volleyball and physical fitness programs, whereas very few are actually participating. These activities are presently provided for at the Rec Center and information about the availability of equipment or facilities can be obtained by calling X3594.

The greatest response concerning improvements in presently offered activities was for tennis. More and better tennis courts was the major concern. The Exchange Council has been repeatedly appraised of this request and plans for adding one court, resurfacing the existing three courts, and rearranging the lighting have been initiated by the Exchange with funding the only impediment. In response to other tennis questions, it needs to be pointed out that JSC has a very active tennis club which offers frequent tournament play as well as the opportunity to meet other players of any caliber through ladder matches or simply by reviewing the large membership list.

Lessons are offered periodically by the Rec Center and private lesson information could be obtained by contacting JSC Tennis Club members. With the active club available to employees and the limited facilities at JSC, EAA league tennis is not considered to be an immediate need, however, potential formats and feasibility are being considered.

The second greatest response by employees showed high interest in shooting activities such as skeet, trap, pistol and rifle ranges. The feasibility of these activities on the limited facilities of JSC is questionable, however, a trap and skeet range was proposed by the EAA last year only to be disapproved by Center Management due to the safety hazards and the initial facilities installation cost.

Similar facility constraints negate inquiries concerning swimming and fishing ponds and it is suggested that participation in such activities would better be handled by individuals on their own.

Another high interest area with a facility constraint is handball. The cost of indoor four-wall facilities would be prohibitive, however, feasibility of a facility is being investigated. Insufficient interest in soccer and flag football does not warrant EAA activity in those areas.

In summary, even though facility limitations exist, athletic activities are offered which allow employee participation on a come-as-you-will basis or a highly competitive organized basis.

If you have any questions about activities available to you, or suggestions about these activities, do not wait until the next survey, see your EAA representative today.

EAA SURVEY

ACTIVITY	NOW PARTICIPATING	NOT INTERESTED	WOULD PARTICIPATE IN ORGANIZED ACTIVITY			
			UNORGANIZED BASIS	LEAGUES	TOURNAMENTS	
Softball	103	559	73	105	51	
Volleyball	43	573	124	98	46	
Basketball	66	613	73	52	25	
Tennis	135	420	311	80	84	
Badminton	4	630	94	32	20	
Flag Football	4	695	28	36	12	
Soccer	3	671	43	42	13	
Handball	3	557	212	59	48	
Ping Pong	5	598	156	20	17	
Horseshoes	3	530	103	25	22	
Shuffleboard	-	671	70	11	9	
Archery	3	608	135	27	19	
Billiards	2	566	181	32	30	
Skeet	2	556	196	83	65	
Trap	1	568	179	81	60	
Pistol	2	522	213	75	53	
Rifle	1	507	249	75	56	
Physical Fitness (Weights, Jogging, etc.)	81	381	312	35	20	

Fly High With the Best Buy U.S. Savings Bonds

Roundup Swap-Shop

Swap Shop advertising is open to JSC federal and on-site contractor employees. Goods or services must be offered as advertised, without regard to race, religion, sex or national origin. Non-commercial personal ads should be 20 words or less, and include home telephone number. Typed or scribbled ad copy must be received by AP3/Roundup by Thursday of the week prior to publication.

PROPERTY AND RENTALS

Choice wooded lot on Lake Livingston at Waterwood. Marina, golf, tennis, stables, etc. Buyers terms. Boone x 5336 or 488-6380.

Two bedroom apartment, By-The-Sea Condominium. West Beach, Galveston, fully equipped and furnished, few summer weeks left for unusually low price of \$260 per week for firm reservation, Clements 474-2622.

House for lease - Fairmont Park in excellent condition, available Aug. 15th, brick Colonial, double garage, living room, family room, 3-bdr, 2 baths, central heat/air, fenced yard, private pool privileges available, \$250/month, 1st and last months rent req'd plus damage deposit. By appointment only, 471-3762.

Wooded waterfront lot on Lake Rayburn, 12x50-ft mobile home w/8x28-ft screenporch, all utilities, \$14,500. Beaumont 713/892-8826.

Lease - Beautiful 2-bdr condominium, fireplace, balcony overlooking Clear Lake, tennis court, pool, sauna, marina access, available immediately, \$400 + deposit, includes all utilities, 538-2354.

PETS & LIVESTOCK

AKC registered female beagle, champion sired. 333-2436.

AKC Dachshund stud service, true miniatures and champion standard; red or B&T, 5 quality males for your consideration. 645-3722.

Horses for sale - one gentle gelding, excellent for novices and children, one half-Arab yearling filly, reasonable. 534-4900.

HOUSEHOLD

Dark Blonde bdrm suite, double bed (hdbrd, mattress & box springs), dresser, chest-of-drawers, \$200. J.S. Alexander x 3281 or 482-0920 evenings.

Scott stereo amplifier (18 watts/channel rms) and Sony am/fm stereo tuner, \$125. 488-6930.

Beautiful round antique coffee table \$250, custom made gold velvet bench \$50, large oil painting in antique frame (biblical scene) \$45, also several garage sale items too numerous to mention, 488-5564.

Refrigerator with freezer compartment, good running, quiet, \$55. Horton x 5270 or 474-2305.

Gas dryer, Lady Kenmore, 3 cycle, exnt condition, coppertone, \$110, antique English marble washstand, \$185, Spanish coffee table, 60 inches, w/2 doors \$65, walnut coffee table, 60 inches, w/inlays, \$35, antique bard-on Hickory chair/table set, 36 inch round table, straight & rocking chairs, \$140. 554-7052.

Wanted - twin bedroom set & Spanish style den furniture. 474-2081.

VEHICLES

72 Audi Super 90, red, 2-dr, 38000 actual miles, \$1500. 488-0189.

72 VW Superbeetle, Lt blue with dk blue interior (very clean), radio, 39,000 miles, good mechanical condition, \$1550. 481-5243.

For Rent - Deluxe Coleman camper, slps 6, cranks-up and down. Low profile, hard top, complete kitchen. Reservations accepted for July and August vacations! 488-2387.

73 Honda 350 twin, 3500 miles, like new, luggage rack, backrest, \$595. 482-5607.

73 Kawasaki 750 - Cafe Racer, custom midnite blue with Pacifico 1/2 farring, 3 into 1 exhaust, drag bars. One adult owner. Quick, 40 mpg, \$1200. 538-2354.

71 Buick Skylark, V-8, air, radio, power steering, vinyl top, new tires \$1400. 339-2035 after 5 p.m.

75 tractor type riding mower, 8 h.p., B/S engine, 34' floating head w/twin blades, electric start w/lts, 30 hrs run time, all pneumatic tires, \$450. M. Alexander x 4126 or 488-8583 after 5 p.m.

49 PA-16 Piper Clipper, 108 hp LYC, 575SMOH, 300 NAV COM, \$5000. Ray Nuss x 3071, or 332-5892 after 5.

75 Granada, 2-dr, power steering and brakes, 302 V-8, air, am. Boone x 5336 or 488-6380.

3 bike mtr. cycle trailer, overload shocks, floored, big wheels, Shelby Owens 554-2969, \$175.

74 Duster, AC, PS/PB, auto, trans., vinyl roof, radio, fold down rear seat, \$2500. x 4393 or 333-4606.

67 Chevy Impalla station wagon, 9 pass, AC radio \$250, Hinnens, x 4291 or 334-1639.

71 Volvo 164, auto, air, AM/FM stereo, pwr steering & brakes, extra clean, \$2595. Sampsel 471-0172.

MISC

Used automobile air conditioner, under-dash mounting, all parts except hoses. \$20. Readiger, 479-2979.

20 inch three speed girl's bike excellent condition \$30. Jill Clements 474-2420.

Zodiac 6-man inflatable raft, removable wood floor, foot pump, patch kit \$225. Ray Nuss x 3071 or 332-5892 after 5.

Car radio-push button, AM solid state, removed from 1974 Pontiac Catalina, \$50. 482-7138.

Complete set of Electro Lux vacuum cleaner including carpet beater, \$75, complete set of Sunbeam mixer including all dishes, \$30, Briggs x 3121 or 333-2717.

Firewood, summer sale at \$45/cord. Seasoned oak, you pick it up. Allgeier, 474-3961.

Magnetic CB antenna with coax cable, base loaded, new; radar sentry; 1/2 hp electric motor; 8-track tape deck; \$25 each, 333-2395.

LOST & FOUND

Lost - size 8 gold band with black inlays, inscription on inside "NK to CN 71" Dan Nietupski 789-4438.

Found - 20 yr NASA Service pin. Richard Davidson x 4966.

LATE ADS

66 GTO 93,000 miles best offer Phone 488-7127 after 5 p.m.

For Sale: Lot, Lake Rayburn, wooded, lake access, all utilities, \$4,995. Colton, 488-2962.

Sears G78-14 tires (2). 2 fiberglass, 2 polyester belts. Less than 50 miles on each. Williams x 3538 or 938-4911.

Wanted: Ride wanted by Industrial Vocational student from Sunnyside (Blue Ridge) addition, Worthing High School area. Work hours 7:30-4:00. Jenkins x 2261 or 733-2587 (Bldg. 10).

Wanted: Carpool from Jersey Village, Mrs. Hagedorn, 466-3449.

Anyone witnessing a car back into a white Thunderbird at the Gilruth Rec Center on June 23, 1976, between 9 a.m. and 12 noon, please contact H. C. Mandell x 4551.

Wards 8 hp riding lawn mower with floating 34 inch mower. Excellent condition, \$195. Tiedt 334-2294.

Lease - 3-2-2 contemporary home in Seabrook, atrium, shade, fenced, 482-5482.

For sale: 64 Grand Prix, Good work car, driven each day \$150 cash, Poindexter x 2938 or 474-2203.



WE, OF THE GUIDANCE SYSTEM SECTION, CONTROL SYSTEMS DEVELOPMENT DEPARTMENT, LOCKHEED ELECTRONICS COMPANY, ARE PROUD TO EXPRESS OUR GRATITUDE THAT WE LIVE IN AMERICA AND CAN:

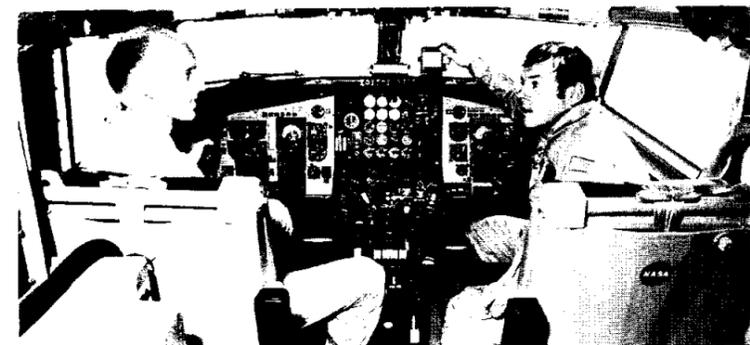
- ENJOY OUR FREEDOM OF LIFE, LIBERTY AND THE PURSUIT OF HAPPINESS
- ENJOY THE FREEDOM OF SPEECH, RELIGION, AND OTHER INALIENABLE PRIVILEGES GUARANTEED THROUGH THE BILL OF RIGHTS

OUR PRAYER, HOPE AND ASPIRATIONS FOR OUR NATION IS THAT IT MAY CONTINUE TO BE BUILT UPON THE FAITH OF OUR FATHERS, LIVING STILL, AND NOT BE ALLOWED TO BECOME DOWNTRODDEN BY INDIFFERENCE OR UNDERMINED BY SLOTHFULNESS, BUT CONTINUE TO RISE TO NEW HEIGHTS AND CONTINUE TO BE THE FORERUNNER OF TRUE FREEDOM FOR MANKIND EVERYWHERE.

Slowly but surely signs of the Bicentennial are emerging within the confines of JSC. This poster (which is actually 5 feet square) resides inside Building 16. If there are any more of these hidden commemorative placards hiding out there, the Roundup would appreciate a photo.



Pictured are contestants from Ft. Worth and Texas City clubs who participated in the June 19, Quickie 500 radio control model airplane races sponsored by the JSC/Radio Control Club behind Bldg. 14. Quickie 500 fly at speeds of 80-90 mph. The race is 2.5 miles long consisting of 10 laps. Fastest time for this race was 1:54.



GORDON C. FULLERTON, flight crew member for the Shuttle Approach and Landing Tests and Harold "Bud" Ream, JSC flight operations pilot are shown here at the controls of the KC-135 Zero-G aircraft. The ALT test pilots (Fullerton, Richard H. Truly, Fred W. Haise, Jr. and Joe H. Engle) have recently spent part of their flight time behind the controls of the KC-135.

EAA ATTRACTIONS

TICKETS

On sale bldg. 11 - 10 am to 2 pm.

Windmill Dinner Theater, \$14 couple - May 25 thru June 7; Dwayne Hickman - in "Natalie Needs a Nightie". Dean Goss, \$16 couple - May 18 thru June "Night Watch" a mystery. ABC Interstate Theatre - \$1.50.

Theater Under the Stars Cabaret Theater, *Dames at Sea*, musical comedy at the Shamrock Hilton, Wed and Thurs June 16 and 17, and 23 and 24. Regular \$6.50 tickets \$3.25. Limited quantity.

Tickets are on sale now for SeaArama \$3.25 adults and \$2.25 children. Free Disney Magic Kingdom cards. Houston Astros gift coupons, \$4 boxseats and \$3.15 reserve seats.

Six Flags Fun Seekers Club cards, good for \$1 off each Astro-world and Six Flags Over Texas ticket, are now available. The FSC cards are also good for a 10-percent discount at hotels listed in the club guide and for family vacation packages.

PICNIC

Two meetings of the 1976 JSC Bicentennial Picnic Committee have been held since the first report. The following resolutions were passed: food will consist of a barbecue plate which may be purchased with the admissions ticket. If you decide to make your own picnic, an "admission only" ticket will provide for everything except food.

The committee has asked for bids on beverages and food.

The 1976 JSC picnic will be held at the Gilruth Center on October 16, 1976.

LEAGUE SPORTS

Mens and womens volleyball will start the week of August 2. Team captains are asked to turn in rosters and entry fees between July 7 and July 21. No entries will be accepted after the 21st. Fee is \$45.00. This is a subsidized league.

Mens and womens softball; the third season will begin the week of August 16. Registration will be from July 14 through August 3. Mens entry fee is \$55.00 and the womens will be \$45.00. This is an unsubsidized league.

JOGGING

On June 9, 1976 various NASA centers took part in the First Annual Intercenter Postal Jogging Competition. 28 JSC runners participated that day. The final results have now been tabulated. JSC ranked 5th in the mens competition and 6th overall. The results are as follows: (1) HQ 68.5pt. (2) AMES 62.0pt. (3) FRC 44.0pt. (4) LaRC 43.5pt. (5) JPL 32.0pt. (6) JSC 29.0pt. (7) LeRC 12.0pt. (8) GSFC 5.0pt. (9) MSFC 0.0pt.

A total of 161 men and 10 women participated in what promises to be a most interesting annual event.

BOWLING

The JSC Men's Bowling League finished another successful season at Clear Lake Fairlanes bowling alley. Final standings show the Hexes, sponsored by Franco's Italian Restaurant, the winners of the league with 799.5 points. The complete rundown by team was as follows:

TEAM	POINTS
Hexes	799.5
Chokers	774.5
Spoilers	756.5
Quagmires	736
Alley Oops	731
Pin Pounders	725
Jokers	710.5
Clowns	690
Mixers	669.5
Pubjags	666.5
Fireballs	658.5
Strikeouts	633
Ascenders	626
X	623.5

The 40 point system was used for the first time this year. It is based on 5 points per game and series per team and 1 point per game and series per man for each night of bowling.



The NASA Mixed Bowling League has completed the 1975-1976 season. The league bowled a split season with a play-off on the final night of bowling. The standings after the playoff were: (1) Pin Smashers, (2) Auschittes, (3) E-Z Dozit, and (4) Pin Givers.

Trophies were presented to the top three placing teams. Individual trophies were also given for scratch and handicap scores. Scratch: Jim Lawrence - High Series (615); Charlie "The Tuna" Price - High Game (247); Barbara Shrouds - High Series (579); and Jo Ann Prior - High Game (212). Handicap: Ed Domenick - High Series (731); Bob Fricke - High Game (271); Alma Easterly - High Series (685); and Charlotte Lorio - High Game (258). Most improved bowler awards were received by Dale Lorio (+21 pins) and Theresa Kaiser (+17 pins).

Those interested in joining for the 1976-1977 season should contact George Spengler, ext. 5896.

SCUBA DIVING

The JSC SCUBA Diving Club, Lunarfans, will offer a certified course in the use of SCUBA beginning the last of July. The course will include classroom lectures and supervised practical experience in the use of SCUBA.

Lunarfans have access to the Clear Creek High pool each Monday between 7 and 9 p.m., at which time informal tutoring to improve swimming abilities will be offered. Also, training in skin diving and related swimming skills will be offered for persons desiring to prepare for the SCUBA course. Anyone interested in the club's training activities should call Mike Slack at 4393.

And What If We Do Find Life On Mars?

By Carl Sagan Director,
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There are some people who will bet on anything, gamblers by temperament, oddsmakers inveterate. Even some scientists have this gaming instinct and have been heard quoting odds on the chances of life on Mars and the prospect that this summer Viking will find it. The odds I have heard quoted range from even to a million to one against. When I hear such high odds, I always lay my dollar down. It is not that I am convinced there is life on Mars. In fact, I think, short of missions such as Viking, there is no way to find out. But

when such high odds are offered the significance of a success, it seems to me, far outweighs the uncertainty of the issue: If I win, I win big; if I lose, I lose only a little.

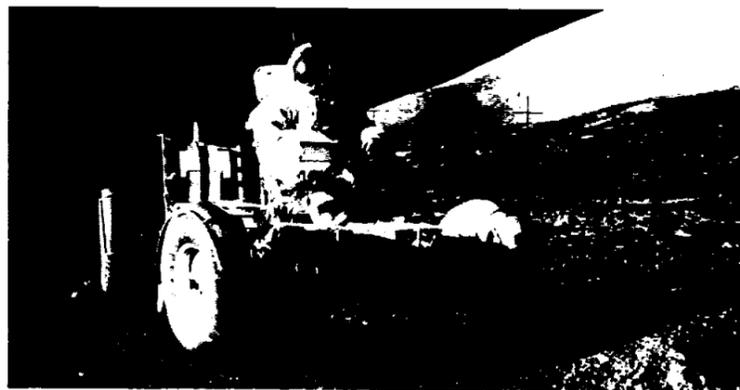
The same is true about the Viking mission itself. The investment represented by the Viking mission is very large by scientific standards. If Viking succeeds, it will have been a great bargain. The mission will be asking one of the epochal questions in human history: Is there life on other planets?

But there are many other aspects of Viking besides biology. By determining the interior structure and surface chemistry of the planet Viking holds the promise of illuminating our knowledge of the formation and evolution of planets in

general. By studying, both from lander and from orbiter, the meteorology of the planet, Viking has a significant chance of improving our knowledge of weather in general. The environment of Mars is significantly different from the environment of the Earth. Any theory which pretends to predict, much less control, weather must be able to account for the weather on Mars — a place with enormous temperature contrasts, no oceans, pronounced topographical relief and sand and dust storms on a colossal scale.

But even if the landing sites are safe and Viking works as hoped, it is difficult to gauge the probability of ultimate success. We do not know whether there is life on Mars. We do not know whether life on Mars, if it exists, is detectable by the Viking instruments. We also do not know whether life is present over the whole planet or only in a few favorable micro-environments.

After all, we are only landing in two places on Mars. If we were



HUMAN EXPLORATION has been the last activity in man's exploration of space. It was the first activity in man's exploration of his own planet.

rover is of extraordinary interest because it greatly enhances the scientific capability of the mission. It could also command public attention on a day-to-day basis — a kind of cooperative, if vicarious, exploration of Mars by the American and world public.

A Viking rover could traverse many hundreds of miles during a reasonable lifetime and is, I think, a mission which could command worldwide attention and enthusiasm.

would be a ghastly error to send to Mars a spacecraft contaminated with terrestrial bacteria, which would then look for life on Mars and succeed only in detecting its own contaminants.

But now the opposite possibility exists as well. Could Martian microorganisms, if they exist, when transplanted to Earth cause disease and plague or ecological disruptions here? No one knows the answer to this question. Some think that, because of the evolutionary differences expected between terrestrial and martian organisms, there would be no chance for Martian pathogens to gain a foothold here. But others think that, precisely because of the lack of past evolutionary contacts between organisms from the two planets, terrestrial hosts will have inadequate biological defenses against Martian pathogens. This is again an issue where our uncertainty is large and the possible consequences immensely serious.

For myself I would urge a vigorous program of unmanned exploration of Mars with roving vehicles, deferring the more expensive and possibly dangerous returned sample and manned missions to a later time.

I am confident that there will be such a later time — a period where remoter worlds in the solar system are being explored by intelligent roving vehicles, the descendants of the first Vikings; a time when at least serious consideration is being given to the possibility of establishing human outposts on other worlds, the chief of which is likely to be Mars. People of that time will look back to this, I think, in the same way that we in America look back to the first voyages of exploration and discovery in the "New World."

In fact the year of Viking is auspicious. It is the 500th anniversary of the first glimpse of the great untraversed Atlantic Ocean by a young Genoese sailor named Christopher Columbus. I believe that the ultimate historical importance of Viking, if it succeeds, is comparable to that of the Nina, the Pinta, and the Santa Maria.



MARS

what secrets does its soil and air hold?

SETD Saves Records

(Continued from page 1)

McLane said it was fortunate that Chamber B was not being used during this time. The chamber had been used the previous week in testing Shuttle Orbiter radiator panels.

In securing center management concurrence for this project McLane said that the Chamber B operation could be done with minimum impact on other tests being prepared for Chamber A.

The SETD estimate for drying time for the first batch to go in the chamber was 72 hours. That turned out to be slightly under the required time. When Chamber B was re-pressurized on Tuesday, June 22, and the documents examined, many of those in the middle were still damp.

However, by that time St. Joseph's hospital had brought some of their damaged records to Building 32 so when the chamber was pumped down again to finish drying the CAM and Methodist Hospital records, it also contained the St. Joseph material.

McLane said they changed the process slightly based on experience from the first 72 hours. The heaters on the shelves were hotter and the thermocouples were placed inside the document containers rather than on the shelves.

The overall effect of this alteration was to speed up the drying process. Without the heaters estimates ranged up to several weeks to dry the documents.

Inspection of the restored documents showed them to be perfectly usable, albeit some of the pages were wrinkled because of the manner in which they were stored while wet, and, many of the documents had a fine coating of silt on them — the reminder of a once and wet condition.

SETD personnel who assisted in this quiet but important effort were: Don Wiseman and Richard Piotrowski serving as liaison with the Medical Center and CAM; John Ogden, Wayne Potter, Al Tales, George Kelly, and Gene Burton serving as test engineers; Rick Hawkins, Leo Haass, Don Kilpatrick, Stoney Conner, Chester McKithan, Hank Schmelze, Mike Clark, Jack Hensley, Gene Vickers, Bill Summers, James Benefield, and Bobby Callaway serving as Northrup Services technicians-on-shift; and Pete Gist, Bert Leecraft, Haskell Dunn, Charles Casey, Aubrey Bishop and Herb Sherwin as NSI shift supervisors.

The technique of using a space environment vacuum chamber had been used previously in St. Louis where McDonnell Douglas Corporation did much the same for an Armed Forces Records center when their records were water-logged after a fire.

The SETD personnel received guidance from both McDonnell Douglas and the General Electric Company, Valley Forge, Pennsylvania, which had done the same type of restoration for some Temple University documents.



MAN'S PRESENCE on the moon is dramatized by this footprint, taken during the Apollo-11 exploration. Boulder tracks on the moon have endured hundreds of millions of years; chances are very high that this footprint will be on the moon, still, in the year 10,001,976.

landing in only two places on the Earth, how likely is it that we would be able to characterize thoroughly the geology or meteorology, much less the biology, of our planet?

This is one of many reasons why Viking is not a definitive search for life on Mars, but, rather, only a significant first step. This is true on many other levels. I have had several nightmares about the Viking mission. In one of them I dream we see footprints beside the lander every morning, but we never see anyone who makes the footprints. The situation could have been remedied had Viking included a search light for nighttime television. But despite its cost, Viking was severely constrained fiscally and a searchlight simply cost too much. Another nightmare I have is that a little more than 3 meters (10 feet) away from the lander is something astonishing — say a regular purple geometric pattern on the ground — something we would dearly love to scoop up and analyze. But the mechanical arm which retrieves such samples is only 3 meters long. Viking is not a rover. It stays put where it lands.

These examples illustrate one important future direction for successor missions to Viking. A Mars

If biology is found on Mars by the Viking of 1976 the follow-on missions would, of course, be dedicated to characterizing life on Mars. What does it look like? What is its biochemistry? Is it based on the same sorts of molecules as life on Earth (where all of us — viruses, tadpoles, turnips, trees and human beings — work off two kinds of molecules — nucleic acids and proteins.) What are the similarities and differences in the evolution of life on the two planets? Is there really a much broader range of adaptations possible than we are familiar with on Earth?

Eventually, whether or not we find life on Mars, we will want to return a sample of Mars to the Earth for more detailed study. There are some scientific instruments so complex, massive and expensive that it is difficult to envisage them being miniaturized and sent to Mars at any time in the foreseeable future. Returned sample missions are expensive — probably significantly more expensive than a Viking rover — but perhaps not ruinously so. However, a serious question about Mars returned samples is what is called back contamination. We do not know whether terrestrial microbes can survive and reproduce on Mars, but we consider it not impossible. It



Sticking his hand inside one of the records' containers, Mike Clark used the oldest monitoring system known to man — personal observation — to check whether the material was dry. Instrumentation readings, because of placement of the sensors, didn't quite correspond to exact material conditions.