# ROUNDUP 

## Update: Working towards March launch date



Nearly all major testing is complete, projects are being solved, and the plan is to keep working for an end of March launch date, reports Ken Kleinknecht. He was speaking at an Orbiter status press briefing at Kennedy Space Center October 29.

Kleinknecht, of JSC's Orbiter Project Office, is on assignment to KSC as OV-102 Vehicle Manager.

He enumerated recent successful tests: "We have operated the payload bay doors under their own power; we have completed the ammonia boiler test and frequency response tests; we have completed spacesuit to vehicle integration.'

## Report to the President

## The program is technically healthy

Shuttle managers are getting ready for the transition from a technical development stage to an operating Space Transportation System, reads NASA Administrator Robert A. Frosch's report to the President.

Frosch and President Carter are to meet November 5 to discuss the Shuttle program. The Shuttle report, the result of

## US-USSR Meeting

Solving the problems of humans in space
With a regular program of exercise, massage to areas where calcium loss occurs, and time spent in a negative pressure suit, humans can remain in space for extended periods of time, reports Dr. Anatoliy Yegorov of the Soviet space program.

He spoke along with other scientists of the US-USSR Joint Working Group on Space Medicine and Biology at a press conference October 26. The group held its 10th annual session at JSC October 22-31.

A major topic of the meeting was data from bedrest studies conducted by both nations this year. Until recently, investigators were using dissimilar methods, making comparison of American and Soviet data difficult.

The agreement at last year's meeting to conduct bedrest studies under strict and identical conditions was lauded by members of the group as "a milestone in Soviet-American relations.'

At this meeting a charter to join efforts in solving the problems of man in space strengthened the harmony of the group. "Each year a better understanding and more cooperation results from the Working Group sessions," JSC's Dick Johnston, Director of Space and Life Sciences, said.

Soviet scientists will fly an experiment on Spacelab, he added.

Joint biological experiments are currently flying on the Soviet COSMOS satellites. One returned recently, and initial studies are showing that "bone growth in the rat ceased during spaceflight," reported Kenneth Souza of Ames Research Center in California.
"We are looking into that problem now," he said.

Please turn to Page 4
studies initiated last July, was delivered to the White House October 16.
Test criteria and test results will get a "detailed analysis" during the next six months "to support decisions on commitment to first flight," the report reads. Dr. Eugene Covert of MIT will continue his 'detailed critical oversight" of main engine development; and the Congres-sionally-chartered Aerospace Safety Advisory Panel will increase its attention to the overall integrity and safety of the Shuttle system.
'It must be recognized, however, that an element of risk always exists in space flight operations," the report adds.
"The review group for the thermal protection system has essentially completed its examination of Shuttle tile installation procedures, structural testing, and safety margins," the report reads. "The group concurs with NASA's current courses of action.
The report describes the creation of the Offices of Space Transportation

System Operation and Acquisition (Roundup October 19) adding that both offices will emphasize "financial and schedule management functions.'

Regarding communication within the program, "the information system is being reorganized to improve the accuracy and timeliness of technical and financial data provided from the contractors, to provide for rapid verification and analysis of these data, and to create an effective process for presentation and evaluation of status and forecast information."

It adds that there will be additional resources for "audit, review, and earlywarning functions.

All those who have examined Shuttle development agree that the program is technically healthy, the report says. "While there are problems to be solved and many unknowns still to be faced, there are no currently known serious problems that we do not know how to solve.'


## Solar Powered City

Construction techniques, new test articles, and where to house base personnel were among topics covered at a final briefing on solar power satellites held October 16 at the Space Center. "By the year 2000 we could have the first commercial projects," said Clarke Covington of System Design. "To do that we'd need test objects in low Earth and geosynchronous orbit by the late 1980s." Evaluations with the Department of Energy should be complete by mid-1980.

A number of tests are scheduled for November; among them the main propulsion system test firing this weekend, main engine modifications, and "equipment in vehicle" tests with the crew on the Orbiter
Vehicle rollout is scheduled for December $21,1979$.
The propulsion system static test firing was postponed from the original October 24 date because of a small hydrogen leak in the Orbiter aft compartment which surrounds the main engines.
"It is in an inert area," said Frank Stewart, test manager at Marshall in Huntsville, Alabama. "If we could have isolated it to one of the lines that can be disconnected after ignition, we could have safely fired the engines.
As of Roundup press time, the test firing is scheduled for November 1-4 at NASA's National Space Technology Lab in Mississippi. "There will be a 40 minute run of the total onboard hydraulic system," said Bob Gray of the Shuttle Projects Office at KSC.
At the briefing Gray also addressed the External Tank icing problem. "We

Please turn to Page 4

## Head Up Display

## Optical landing aid to go on Orbiter

An optical landing aid used by pilots of more than 20 U.S. and foreign jet aircraft will be installed on NASA's Space Shuttle Orbiters to assist astronauts in the final critical minutes of landing the 75 -ton spacecraft.

Called Head Up Display, the system has been in use in foreign jets since 1968 and American commercial and military aircraft since 1970. The Orbiter Head Up Display will project instantaneous displays of spacecraft speed, descent rate, altitude, and other critical flight parameters onto a transparent viewing glass located above the cockpit window. The display hangs down much like a sun visor on an automobile.

The system will be installed in Columbia in time for the first operational flight of Shuttle, which is expected early in 1981, following completion of the Orbital Flight Test Program (OFT)

NASA has authorized the Space Systems Group of Rockwell International, Downey, California, prime contractor for the Shuttle, to provide a head up display system for the commander and pilot for all NASA Orbiters, including the Columbia.

NASA's decision to equip Shuttle Orbiters with optical systems follows more than two years of research and evaluation which included dozens of test flights by NASA pilots in aircraft outfitted with one of several commercially available systems.

During landings, an aircraft pilot or a Shuttle astronaut must monitor his approach to the runway as well as watch the controls and displays which are below his direct line of sight. The pilot must move his head up and down in order to look out

Please turn to Page 2

# -Bulletin Board 

## Learning More

## About Your Rights

There are still spaces in Classes Two, Three, and Four of the Survey Law Course which was set up by the EAA. Class Number Two, Torts and A natomy of a Civil Law Suit, will be Novemser 13; Class Three Family Law, will be: November 20; and Class Four: Wills, rrusts, Probate, and Real Property will be November 27 Classes will be held in the Rec Cent from 6-8 p.m. The Survey Law Course is conducted in conjuriction with the NASA General Counsel Ciffice and the Con sumer Fraud Division of the District At torney's Office.

## Basketball Season

Coming Up
November 7 is the last day to registe your basketball tearn for the Fall-Winter Men's Basketball League. Games will be played on Tuesday, Wednesday, and Thursday evenings ait Gilruth Center Gym beginning in November. Fees for the seven week season are $\$ 90$ for EAA members and S14C for non-EAA members. A double elimination pre-season tournament is incluced in the registration fee. The league can accommodate 24 teams so registration will be on a first come first serve basis. Rosters may be picked up at the Reic Center, Bidg. 207. For additional information, call X-3594.

## Women's Volleyball <br> Teams Forming

Registrations for a new Women's Volleyball League are now being accepted at Gilruth Center. Games will be played on Monday evenings beginning November 15. The season will be 10 weeks long. Fees a e $\$ 45$ for EAA members and $\$ 90$ for non-EAA members. Rosters may be picked up at the Recreation Facility, Bldg. 207, or call X-3594 for more information. Registration deadline is November 11

## Watch for Them

## On Channel 8, P13S

The development of modern day rocketry was a direct result of Napoleon's need for an efficient way to store provisions. So says writer/narrator James Burke in episode eight of Connections, "Eat, Drink, and Be: Merry," to be aired November 28 at 7 p.m. on Channel 8 . He says Napolean discovered that gases in thermos flasks stored at low temperatures
would produce a tremendous force when ignited.

Other shows of interest: "The Real War in Space" at 8 p.m. November 12 will look at some expert predictions on the technology of space research and weapons development. On Nova November 13 at 8 p.m. "The Case of the Ancient Astronauts" examines the notion that years ago beings from other worlds visited Earth, and comes up with some surprisingly Earthbound explanations (repeated November 17 at 3 p.m.).

## On Sale at the

JSC Exchange Store
(Store Hours 10 AM to 2 PM)
Dean Goss Tickets-\$10 Single
\$20 Couple (Reg. $\$ 14.50$ each)
ABC Theatre Tickets- $\$ 2$ each General Cinema Tickets- $\$ 2.40$ each Six Flags Over Texas Tickets


## There must be a better way

There is an efficient computerized program in Houston that can help employees who want to carpool to and from work. The computer is housed in the CarShare office and provides immediate matching for carpool inquiries

The long gasoline lines seen last summer may have seemed temporary; but with recent developments in the international oil market, there's no assurance that lines won't get longer and prices won't go higher next year.
Carpooling can save a person more than \$1200 a year. And there are other
benefits: Carpooling boosts employee morale. A certain comaraderie develops when you make trips to and from work with passengers, rather than cursing the traffic to yourself. Also, car pooling relieves parking problems.

The Houston Federal Executive Board sees the CarShare Program as one of the best solutions to federa employees' transportation problems.

If Swap Shop ads and cards tacked on bulletin boards haven't worked for you, call the CarShare office at 227-0003. They will start right in finding a ride-to-work match for you.

## Blood Drive

## Continues

The JSC Blood Drive WANTS YOU-to contribute on Thursday November 8 at Gilruth Center. For an appointment call Jim McBride at X-2541 or Bob Jones at X-6251
$\$ 7.25$ for one day (Reg. \$9.25)
$\$ 9.25$ for two days (Reg. $\$ 13.25$ ) Astroworld Tickets-\$7.25 (Reg. \$9.25) Magic Kingdom Cards-Free
Sea-Arama Marineworld Fun-Time Card-Free
FBA presents "Entertainment 80" Available at the Exchange Store Nov. 1, 1979 $\$ 15$ per book.

## Get away from that rattlesnake

JSC engineer Emmit Fisher is taking his speech "Encounter With a Rat tlesnake" to the top of Toastmasters pyramid, winning the Eastern Division Humorous Speech Contest October 20 after taking first place at the Area One contest September 22 and at the local Spaceland Club contest September 12.

There are two things you must know about that old rattlesnake," Fisher advises in his speech. "Number one: He has poor vision. Number two: He bites at jus about anything that moves.
"So first thing you want to do is to stop. Next thing you want to know is, How long do I have to stay here?
"The thing is to divert that old boy's attention away from you,' Fisher continues advising that you remove an article from your pocket-"Don't get that pant leg dancing in front of that rattlesnake"; draw an imaginary line about a foot and a half


## Sunwatching Satellite

The solar power array of the NOAA-A advanced weather satellite is pointed toward the sun in this artist's concept from RCA. NOAA-A, second in the advanced series of weather satellites, is launched from the Western Test Range at Vandenberg AFB in California. The spacecraft was designed and built by RCA Astro-Electronics through NASA's Goddard Space Flight Center in Maryland. The program is funded by NOAA, which operates the satellite after checkout by NASA.
away from the snake's head--"Mind you I said an imaginary line'; then drop the article and "If he takes that bait, you get on out of there.

Fisher will repeat the speech in competition at the District 56 Toastmasters International Conference in Galveston November 2-4. For more information about the club, contact Anngie Johnson at $\mathrm{x}-6134$.


## Spacesuit donning

Anna Fisher completes a donning exercise with the extra-vehicular mobility unit. Onboard the Orbiter, the unit is on the airlock module wall The astronaut backs up and into the unit and life support system.

## Head Up Display Ordered

the window and glance down at the displays.

Pilots refer to visual transition, out the window and at the controls and displays, as two different worlds-the real world as seen through the cockpit window and the instrument world located about 30 inches below the pilot's direct line of vision.
Visual transition from the real world (head up) to the instrument world (head down) is a problem during both clear weather and visually restrictive weather conditions. During the final moments of landing, the pilot's workload increases because of more frequent visual switching required between the two worlds.

The optical display system permits the astronaut to look out the cockpit window at the approaching runway. At the same time he has the projected displays in front of him. The data projected on the look-through glass panel will include air speed, altitude, and descent rate-which in effect shows the astronaut where the

## Travel Plans?

Make reservations now for the best rates during Christmas season. Flights are filling up fast. Call the Travel Office at $\mathrm{x}-3305$

## Need Extra Christmas Money?

Turn in a Cost Reduction idea by Thanksgiving and you can earn ex tra money by Christmas, Send a Form 1150 to Mail Code BE3.

Orbiter is aimed, where it should be aimed, and the vehicle's critical flight parameters.
The display information projected on the viewing glass is generated by the on board computer. It is then fed through a cathode ray tube (CRT), into a folding mirror, then to a collimator optical device and then onto the viewing glass in front of the pilot.

In addition to its placement in all flight Orbiters, the optical system will be in stalled in the Shuttle Avionics Integration Lab and the Shuttle Training Aircraft, Mission Simulator, and Shuttle Software Development Lab at JSC.
Installation and checkout of the head up display optical systems in four Orbiters, SAIL, and other NASA-JSC simula tors and trainers is expected to cost approximately $\$ 17,000,000$


## Letters to the Editor:

Our "Opinions: Readers Write In" department (Roundup September 7), spurred more dialogue on the Metric vs. English systems of measurement. Following are excerpts from some of the more lucid letters (others could not be printed here).

## The whole country could reap a benefit now

It is high time the Roundup and the rest of NASA stopped pussyfooting around with dual systems of measurement. Instead we (you) should lead a cold-turkey change into metric measure. Decades ago, Henry Ford gained a signal advantage in productivity by employing only decimal parts of inches. No other system suited both micrometer readouts as required to fit moving parts and carpenter-type specifications. The whole country could NOW reap a needed increase in productivity at the relatively small cost of using a single decimalbased system.

One reason that two systems in parallel is bad is that usually one of the numbers is rounded off while the other is not. This constitutes only one of the ways

Roundup or any other writer can err; but if a number stands alone, it will usually be carefully checked for reasonableness by its primary author. Our engineers wil soon think metric in very concrete terms. Indeed, chemical engineers have long done so.
Yours for the time when a 35 degree temperature means a hot day
-Richard Rosencranz, FD6

## The STPTPTIAO <br> would surely approve

We could use the binary system-two fingers; octal-eight fingers; hex-16 fingers; sexagesimal -60 fingers, etc. The STIRN, STIIN, AND STITN, which are notable divisions of the STPTPTIAO (Society to Include Rational Numbers, Society to Include Imaginary Numbers, Society to Include Transcendental Numbers, and Society to Place the Periodic Table in Alphabetical Order) have recommended the number bases; 4/3, $i$ and $e$, where the latter has been shown to be the most efficient of all.

With preference to proliferation, then

## AIAA on Gossamer wings

In the past two years the dreams of Daedalus and Icarus nearly came true. The Gossamer Condor and Gossamer Albatross did not aim for the sun, but accomplished feats that had been attempted for years.

Last year the Gossamer Condor maintained a figure eight for one mile, never coming lower than 10 feet from the ground. And recently the Gossamer Albatross was flown from England to France.

Both man-powered aircraft used recently developed aerospace materials to keep the craft lightweight.

At the American Institute of Aeronautics and Astronautics meeting

November 8, Dr. George Palmer of Purdue University will speak on "Man-Powered Aircraft-The Story of the Development and Flight of the Gossamer Condor and Gossamer Albatross.

Social hour for the meet at Gilruth Center starts at 6 p.m.; dinner is at 7 ; and the program begins at 8 . Cost is $\$ 6$ for members and $\$ 7$ for nonmembers, with students getting a $\$ 2$ reduction.

Make reservations by noon November 6 by calling Miriam at 333-2030 or Paula at 488-5660 ext. 201. Dinner cancellations are required.

There is no charge to attend the program only.
written to the base $N$ is written 10 , unless N is one. Alas, a finger is a finger.

## Russell Anania

Singer-Link

## How about an

## even better method

I am not averse to having a day divided into 10 equal parts. And 100 degree circles? How about 400 grad circles? The grad already exists and my calculator can handle it.

Trekkies owning a Star Fleet Tech Manual will note that the navigational system of the Starship Enterprise is based on a circle divided into 400 parts. The grad? Possibly.
If Mr. Ryder finds uniformity of language or money boring, let him remember that a language difficulty was responsible for the dropping of the second atomic bomb

- Nancy Scott Damren
Ford Aerospace and
Communications, Corp.

JUST FILL OUT A COST REDUCTION REPORT ON A JSC FORM 1150 AND SEND IT TO COST REDUCTION OFFICE BE-3!
DON'T LET HIGH COSTS


## What's cookin' in the cafeteria

Week of November 5-9
Monday: French Onion Soup; Sliced BBQ Beef; Parmesan Steak; Spare Rib w/Kraut; Chili Beef; Parmesan Steak; Spare Rib w/Kraut; Chili $\&$ Macaroni (Special); Ranch Style Beans:
English Peas; Mustard Greens. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.
Tuesday: Split Pea Soup; Meatballs \& Spaghetti; Liver \& Onions; Baked Ham w/Sauce; Comed Beef Hash (Special); Buttered Cabbage; Cream Style Com; Whipped Potatoes.
Wednesday: Cream of Tomato Soup; Cheese Enchiladas; Roast Pork w/Dressing; BBQ Link (Special); Pinto Beans; Spanish Rice; Turnip Greens.
Thursday: Beef \& Barley Soup; Roast Beef w/Dressing; Fried Perch; Lasagne w/Meat: Chopped Sirloin; Chicken Fried Steak (Special); Whipped Potatoes; Peas \& Carrots; Buttered Squash.

Friday: Seafood Gumbo; Fried Shrimp Baked Fish; Beef Stroganoff; Fried Chicken (Special); Okra \& Tomatoes; Buttered Broc coli; Carrots in Cream Sauce.

## Week of November 12 <br> - 16

## Monday:

## Holiday

Tuesday: Navy Bean Soup; Beef Stew; Liver w/Onions; Shrimp Creole; Smothered Steak w/Dressing (Special); Com, Cabbage; Rice;

Wednesday: Clam Chowder; Roast Beef; Baked Perch; Chicken Pan Pie; Salmon Croquette (Special):Mustard Greens; Italian Green Beans; Sliced Beets.
Thursday: Beef \& Barley Soup; Beef Tacos; Diced Ham w/Lima Beans; Stuffed Cabbage (Special); Ranch Style Beans: Brussels Sprouts; Cream Style Corn.

Friday: Seafood Gumbo; Fried Shrimp; Deviled Crabs; Ham Steak: Salisbury Steak (Special); Buttered Carrots; Green Beans; June | Peas. |
| :--- |
| Peal |

## Roundup Swap Shop

Property \& Rentals
Sale: Heritage Park, 3-2-2, fenced, approx 1630 sq ft, 2 years old, $8-1 / 2 \%$ VA assumption. Don x2197.
Sale: CLC Oakbrook West, immed poss, 2 year old energy efficient, 4-2-1/2-2 w/pool, custom drapes, landscaped. 488-5876.

Rent: CLC private convenience, totally furnished 1 bedroom apt, fireplace, patio, pool, pany approved. 333-3489.
Sale: Glenbrook Valley, 2000-SF, 3-2-2, fireplace, new roof, furnace, air, dishwasher, Pasadena schools, trees, quiet street, dry, \$79,500. Erickson 649-0396.
Sale: 3-2-2 with basement, 2 acres, 9000 capacity broiler house, 2 shop buildings, garden, Spring Branch, pecan trees, near town in N.W. Arkansas, $\$ 62,500$. 947-9385

Perfect for active family, 4-3-2, 5-1/2 acres, pool, trees, barn, no flooding, financing available. 331-8418.

Sale: CLC, Baywind condo, 1-1, must sell immediately, make offer, asking $\$ 25,500$. Rer 488-8282
Rent/Lease: Forest Bend, immaculate 3-3-1 ownhouse, maintenance free, all appliances including washer and dryer, \$450/mo. 488-6119. Galveston West End, 2-bdrm, By the Sea condo, furn, $\$ 210 /$ week off, $\$ 280 /$ week in season. Clements 474-2622.
Friendswood, $1 / 2$ acre lot for sale, all utilities available, no water during flood. 482-1702.
Rent/Lease: Sycamore Valley, immaculate, 3-2-2, near Ellington, nearly new, $1700+$ sq ft, F.P., microwave, many extras, $\$ 475 / \mathrm{mo}$. 488-6119.
Sale: Above flooding, 2 -story townhouse near NASA. Exc cond, large bdrms, 3 baths, low $\times 4005$; 482-3596 or 486-5900.

## Cars \& Trucks

77 Fiat X-1-9 Convertable, Moon roof, cb, air, AM/FM
$921-1715$.

75 Mustang Silver Ghia, 41,500 miles, aux gas tank, $22+\mathrm{mpg}, 4 \mathrm{cyl}, 4 \mathrm{spd}$, stereo, factory air, $\$ 3000$ firm. 488-4727 day, 488-1554 nite.

78 Buick Skylark, 2 door, fully equipped xc cond, $25,500 \mathrm{mi}, \$ 4300.472-2118$ after 5 2 Pontiac Lemans wagon, air, PB, PS, R\&H $\$ 900$ George Peters 482-3678
78 Fiesta, one owner, 28,000 miles, exc cond 4 speed FM \& cassette Jimmy 479-1541, ext. 526 or $488-4321$ after 6 .
78 Chevy van, fully loaded, captain's chairs tc, reg gas, cruise control, AM/FM stereo, tape deck, \$6,695. Win $\times 2968$ or 554-7353. 67 VW Karmann Ghia as is. Ideal fo mechanically inclined. Best offer. Kay x5111 or 333-3104
77 Mustang II, auto, V-6, AM/FM stereo 8track, new tires, clean, $\$ 3,800$. $\times 3705$ or 322-5060.

76 Mercury Capri, V-6, air, AM/FM stereo, 4 speed, $\$ 3400$. R. Davidson $\times 5545$ or $946-2523$ fter 6 .
79 Chevrolet van short W/B series 20, V-8 auto, air, PS, PB, tilt, interior customizing tarted, 1 month old. 334-2214 after 6
75 Nabbi, 4 door deluxe, Air, AM/FM cassette, 37,000 miles, tuned up and clean
59 Mercedes, 190 , reg gas, $20+\mathrm{mpg}$. a or 554-2702 after 6

## Household Articles

16 cu.ft. upright freezer, white, very good,
ostless, \$175. 488-2613 after 5 .
General Electric (whte) self-clean oven regular oven, cooktop and hood, $\$ 100$ each. ee $\times 2761$ or 482-7698.
Oversize black couch, recently cleaned and scotchguarded, $\$ 300$. Three coffee and end tables, chrome with smoked glass, $\$ 60$. Kaltenbach $\times 4505$ or $331-5751$.
Bob Allgeier at 488-0397 after 6 /sheets, $\$ 30$ Whirlper at 488-0397 after 6 . ostfree, new. 538-1710 Apartment-size washer, $\$ 50$. Dining table 472-2118 atter 5 .
sed basket patio doors, natural, \$20. Never Hoosier kitball backboard, \$20. Antique, oak ing light fixture, \$25. Roxanne 488-0228.

Ads should be under 20 words, double spaced, typed or printed, one ad per person. Deadline for submitting or cancelling ads is $5: 00$ p.m. the first Wednesday after publication. Send ads to AP3 open to JSC federal and on-site contract, Bupling 2 annex. No phone-ins, please. Swap Shop is services must be offered as advertised without regard to race, religion, sex, or national origin

## Pets

Free to good home: adorable part cocker spaniel puppies, male and female. Cindy $\times 7236$ or 944-4896
Free Siamese, spayed, declawed, one year old. 332-2

## Wanted

Junked female bicycle frame. Samouce x 2568 .
Small inexpensive rock tumbler for a child's
Christmas present. Ed 333-4119
Outboard motor, $40-60 \mathrm{hp}$ and controls

## Boats \& Planes

Air Boat Mud Hen last of series made floundering lights, extra heavy duty generator, exc cond. 333-2442.
Fiberglass boat $16 \mathrm{ft}, 76$ Johnson 70 HP engine ready to fish or ski, exc cond. Waite $\times 4241$ or 333-2442.

17 ft Thunderbird, cathedral hull, 70 HP Evinrude, exc cond, $\$ 1600$. Bob Allgeier 488 0397 after 6 .
14 aluminum boat, 33 ho Evinrude galvanized bit wheel trailer, swivel seat, depth finder, trolling motor, never in salt water, $\$ 975$ 645-6267 evenings

## Musical Instruments

Vintage Gibson flat top guitar, 1956, original case, $\$ 350$. 488-2613 after 5 .

King Cornet (like new) cost \$285, sell $\$ 75$ Louise $\times 3183$ or 339-1793

## Carpools

Want to join or form carpool from Texas City - NASA 7:30-4. Nell $\times 5592$.

Carpool from Pasadena Rayburn and Strawberry area, $7.30-4$. Dive once a week,

## Personals

The Clear Lake Emergency Medical Corps seeks volunteers, 18 years or older for community emergency medical service. 488-0663 Clear Lake 1 wol 18 years ad community service 488 -0023

## Cycles

77 Suzuki GS-550, four, 5000 miles, exc cond. $\$ 1300$. Cottle $\times 6226$ or 482-5365.

## Miscellaneous

Girls 20" bicycle, good cond, \$10. Jones 2394 or 471-3303.
Two Eico 60 -watt mono amplifiers (tube), and Fisher FM100 tuner Jones x2394 or 71-3303
Red wing hunting boots, vebram soles waterproof, insulated, 70, 2 years old, $\$ 35$ rebes $\times 6313$.
$\$ 90$ a cord, fire wood for sale, oak, split or logs. Taking orders now for delivery. Bungan x4017 or 944-7828.
Basketball hoop and backboard, neve 986-7360
Family membership in Bay Area racquet Club. Eggleston $\times 5584$
Wards $22^{\prime \prime}$ rotary mower, good cond, $\$ 40$ Class I trailer hitch, fits most large cars and wagons, \$25. Ed 333-4119.
78 Wellcraft Airslot 190, 4 cyl, I/O, w/skiing accessories, take over payments JSC Credit Union, or trade for Buick Park Avenue, $\times 4433$. Trailer hitch (lightweight) for $76 / 77$ Olds Cutlass, Buick Regal or like GM car, $\$ 20$ 3-1/2 hp 22"
$3-1 / 2 \mathrm{hp} 22$ " self-propelled Wards mower 332-2229.
Man's 14 K Gold etched wedding band size -1/2 never used. $\$ 150$. Annette 334-2521 or 486-5791
Rotortille, Sears, $3.5 \mathrm{hp}, \$ 50.47$ 2-foot cement scalloped lawn edging blocks, \$10. Nering x7204 or 481-0608.
76 Shasta 21' travel trailer (w/extras), stored inside, hardly used, exc cond, sleeps 7 , $\$ 4000$. Handley $\times 6196$ or 482-7041.
4 Shelby $13^{\prime \prime} \times 5-1 / 2^{\prime \prime}$ alloy wheels, 4 -bolt pattern, fits Mustangs, etc, $\$ 125$. Eleta $\times 255$ Ed 488-6315.
HP-67 calculator and reserve power pack RF signal generato
RF signal generator, Heathkit IG-102

# Hinners sees manned lunar base in 1990s as a goal NASA needs for the next decade 

Dr. Noel Hinners, Director of the National Air and Space Museum and former Associate Administrator for Sciences of NASA, spoke at a symposium in the Senate Caucus Room, "Next Steps for Mankind-The Future in Space," held July 19. The following are excerpts from his speech.

We're in a period of real transition in the space program, going from a period of high-focus event orientation to one of steadier activity throughout the 1980's.

It is in the nex: five years that the course for 1985 to 1990 will be firmly established. That course can be one of "let's study it" untraconservatism, leading to relative stagnation and a limited choice for the 1990's; or it can be one which takes a bold and imaginative approach with commitments which allow the country to make the 1980's a decade of development.

The knowledge acquired about the Moon through Apolio and its precursors is indeed formidable. As in all science endeavors, however, the research and exploration generate more questions than they answer. The new questions are more sophisticated and many could not have been posed before

Based upon the demonstrated value of astronauts conducting Apollo science tasks, I believe most such investigations are ideally conducted from a manned lunar base. Science will not be the total raison d'etre for establishing a lunar base, but it most certainly will be the chief
beneficiary in the near-term and it can lead the way in establishing requirements.

To aim for the first phase of lunar base activity, months in duration per mission in the early 1990's, strikes me as reasonable, probably building up in a modular fashion. Lunar bases will be a reasonable step in the progression of sustaining life away from planet Earth. It requires that the 1980's see additional steps in development of space transportation, some version of a reusable orbital tug, and research into regenerative life support systems. Many of these developments are analogous to those required for space stations.

I am guessing that it will take another three years after the Shuttle becomes operational for the user community of scientists, engineers-including indus-try-Government, and academia, to adequately evolve their thinking and equipment to take full advantage of the Shuttle and the Spacelab.

High priority should be assigned to experiments which require the use of rudimentary space construction techniques. The development of space construction techniques is crucial to any consideration for major projects such as space platforms or solar power satellites.

The temptation will be to modify existing hardware. The implications of yielding to that temptation should be examined very carefully. There's a point at which it truly pays to start from scratch. Changing the sparkplugs of your car testifies to that these days

President Carter, in his July 15 energy address to the Nation, decried the general crisis of confidence, including the erosion of confidence in the future. He pointed out that we ourselves are the same Americans who just 10 years ago put a man on the Moon.

It's clear to me that the U.S. civil space program has provided one of the key elements for the future of our country. It's an
"It may be that the old astrologers had the truth exactly reversed when they believed that the stars controlled the destinies
indicator of the great capability of American technology, of the inventiveness of her scientists, of the exploring spirit of her people, and of the openness of her society.

Professor Carl Sagan's speech at the Senate symposium will be featured in the next issue of Roundup.
of men. The time may come when men control the destinies of stars."

Arthur C. Clarke


Ames theme art of an agriculture base in orbit

## Profile

## Multi-faceted and marked for success

Some people get a bachelor's degree; take the required hours of foreign language, math, and badminton; get an entry level government job; and feel like they've "arrived." That's it. Ready to work the eight to five routine and plan vacations.

Then there are individuals like Joseph Degioanni, M.D., who at age 33 has three lifetimes' worth of accomplishments behind him and is still working on more.

Degioanni got a Ph. D. and an M.D. within a week of each other in 1973. He did the course work in astronomy. then went into medical school taking one quarter off a year to work on his thesis.

His friends told him the going might be rough, but "the worst thing about it was having to take the Illini Central commuter train between Chicago and Champaign,' he says.

To meet the requirements for aerospace medicine, Degioanni picked up a Master's in Public Health, then launched his career. "I stacked al the cards on my side to be sure l'd make it," he says.

From his perennial grin and enthusiasm you can see he's breezed through it all and knows he's only begun.

Degioanni is a flight surgeon at JSC. "It's a mixed bag thing," he says. "We do so many jobs. Make sure the astronauts stay in good health-of course, they do that anyway.
"We're also responsible for medical support for the Shuttle," he says


Dr. Joseph Degioanni
pulling out a blue lightweight doctor's bag. "Like this Space Shuttle medical kit we just finished designing.'

He points out injectibles and tablets in the kit. "I gave Young and Crippen nine hours of medical training. Oh, I didn't mention but I have another specialty which is emergency medicine." He still works an occasional weekend in Houston emergency rooms "to maintain my currency," he says.

His biggest pride today is the aerospace medicine residency program he is setting up and will supervise. NASA-JSC will train physicians over a two-year period, in conjunction with the University of Texas.

The students would after that time be eligible to take the boards for aerospace medicine," he says. "And it's happening. We're being certified by the AMA, and we have our first resident coming in January.'

With all these projects, Degioanni still finds free time to fly in his plane and ride around in his boat. And he has a family: a two-year-old child, and another on the way.

Flying is a hobby and part of his job. He rides in the backseat of T-38's, flies parabolas in the KC-135, and goes on missions on the Shuttle Training Aircraft. "Being a flight surgeon, you have to get some firsthand exposure to what the pilots go through," he says.

Degioanni speaks four languages (all with a sense of humor). He was born in Italy and grew up in France, Africa, and South America. He looks forward to being a crew surgeon for a Spacelab mission so he can go to Europe and use his languages.

His family moved to Canada when he was 16 , and there he first went to college and spoke his first English.
"That's how I got into physics and astronomy," he says. "It was the only language I could communicate in He shrugs. "Otherwise maybe would have majored in literature.'

## Flu Shots

Flu shots are available at the JSC Clinic on a drop-in basis, 10-11:30 a.m. and 3-4 p.m.

## Update

## Continued from Page 1

 have two or three designs for a concept of expandable devices that go around the vents to collect the gases," he said. We've run quite a few tests on it and are pretty well convinced it will work."Gray too stated that all work is geared for an end of March launch date.
"If enough people talk about schedule slips, they will happen," Kleinknecht said. "If we don't keep up the dedication and work to meet the schedule, it will slip.
'We have the plan and we have the resources to stay on schedule," he said.

## US-USSR

Continued from Page 1
The group is comparing atmospheres onboard spacecraft, and discussing ways to produce atmospheres in flight by biological means. Cosmonauts, like astronauts, are still encountering motion sickness in the first three to five days of flight.
"We hope to get a better handle on this in the Shuttle series," said JSC's Dr. Lawrence Dietlein.

The day after the recent 175-day mission, Soviet cosmonauts were able to "stroll about," Yegorov said. "They were in good health and soon able to start their routine vacations," he added, attributing the lack of muscle deterioration and calcium loss to an exercise program and "inertial stress strokes" to the heels.
The group will continue to fly animals, plants, and insects on COSMOS satellites; conduct hypokinesia (bedrest) studies; and search for the optimal spacecraft atmosphere in the next year.
"Our goal is to settle problems so humans can, without deterioration of health, carry out long-duration space flights," said the American co-chair, Gerald Soffen of NASA Headquarters.

