

New unit allows mobility outside orbiter



Astronauts and engineers at JSC are evaluating a high fidelity mockup of a Buck Rogers style maneuvering unit designed to provide astronauts the ability to move around and work outside Space Shuttle orbiters in the 1980's.

The device, officially named the Manned Maneuvering Unit, fits on the back of a spacesuited astronaut and furnishes him or her the ability to move around in the weightless environment of space. Nitrogen gas jets controlled by the astronaut provide the directional movement. (See *Roundup* February 9, 1979.)

Ed Whitsett, manager of the maneuvering unit for the Center's Crew Systems division, said the new high fidelity mockup arrived two weeks ago from the manufacturer, Martin Marietta

Corporation, Denver, Colorado. Although this unit will never fly, it has all the working mechanical parts necessary for crew operation and evaluation. Evaluations are being conducted in the Crew Systems Building 7 laboratories.

The purpose of this three-month long evaluation and verification period, Whitsett said, is to check out the backpack with different sized astronauts, including some of the female astronauts. These tests include fit checks and the mechanical operation of the unit's extendible arms which telescope for individual fit. Tests will also determine astronaut visibility and reach while using the unit.

In addition, Whitsett anticipates tests will be made with the planned orbiter work station which astronauts may be called upon to use in the event of repairs or work outside the vehicle.

This is a third generation flying machine, an improvement over units designed for the Gemini and Skylab programs.

All systems of the unit, with the exception of the gas jets and the electrical

parts, are workable. This includes the mechanical latches, the folding arms, switches and hand controllers. The hand controllers are similar to the Apollo type used by astronauts to control the Apollo command module.

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Subject tests maneuvering unit

Umbilical not part of final design



Above left: Subject handles controls as though performing an EVA. Left: Operating a power switch. The gaseous nitrogen gauge is in view.

DSA Director Bill Tindall retires today

Bill Tindall, Director of Data Systems and Analysis, retires from NASA effective September 7, after 31 years of service.

Tindall, 54, joined the space program in 1948. A list of his accomplishments includes: real-time computer programming for project Mercury; developing Mercury orbit trajectories; developing techniques for the Gemini rendezvous, the first rendezvous of two vehicles in space; and improving methods for Earth, orbital, lunar, and interplanetary trajectories.

Tindall assumed his present duties in January 1974 when the directorate was formed during a reorganization at the Center.

Asked about his future plans, Tindall said he is going to relax and probably do some traveling.



Howard W. (Bill) Tindall, Jr.

Candidates get new title

The signs went up in Building Four about a week in advance. In a red felt-tip marker scrawl it read: "All Astros & Ascans meet w/Dr. Kraft Fri 31st 1500 to discuss new astro selection; issues & answers, etc."

Just another meeting, everyone thought, although when they arrived that afternoon and found the room crowded—film crews and audio men with lights and equipment ready to roll—it registered that there was something special about this meeting.

"There's really no reason why we shouldn't make you all astronauts," Christopher Kraft, Center Director said, and the word "candidate" was officially dropped from the titles of the 35 new recruits.

"I am extremely pleased with the work

that all of you have done," Kraft said. "Not only in your classwork, and learning to fly, but also in the public affairs work that you've been required to do. I've had nothing but good response.

"It's a real pleasure to tell you that you all are astronauts," Kraft said.

Change of the astronauts' status became effective 3 p.m. August 31. The training and evaluation period was to have been two years; this group reported to JSC in July of 1978.

Based on the experience with this group, future candidates in the astronaut program will also only undergo a one-year training and evaluation period.

There are now 62 astronauts eligible for selection for Space Shuttle flight crews.

Ice on Mars

Three years after NASA's Viking spacecraft landed on Mars, the mission has gone into its fourth stage—the Survey Mission, scheduled to continue through 1990.

The photo at left was taken by Viking Lander Two at its Utopia Planitia landing site on May 18, and relayed to Earth by Orbiter One on June 7.

It shows a thin coating of water ice on the rocks and soil. The time the frost appeared corresponds with Martian winter.

Viking Lander Two found frost on the planet's surface last Martian winter, two Earth years ago. Scientists then associated the frost with a major dust storm.

But this year there have been no dust storms observed, and no one is certain what triggered the appearance of frost.

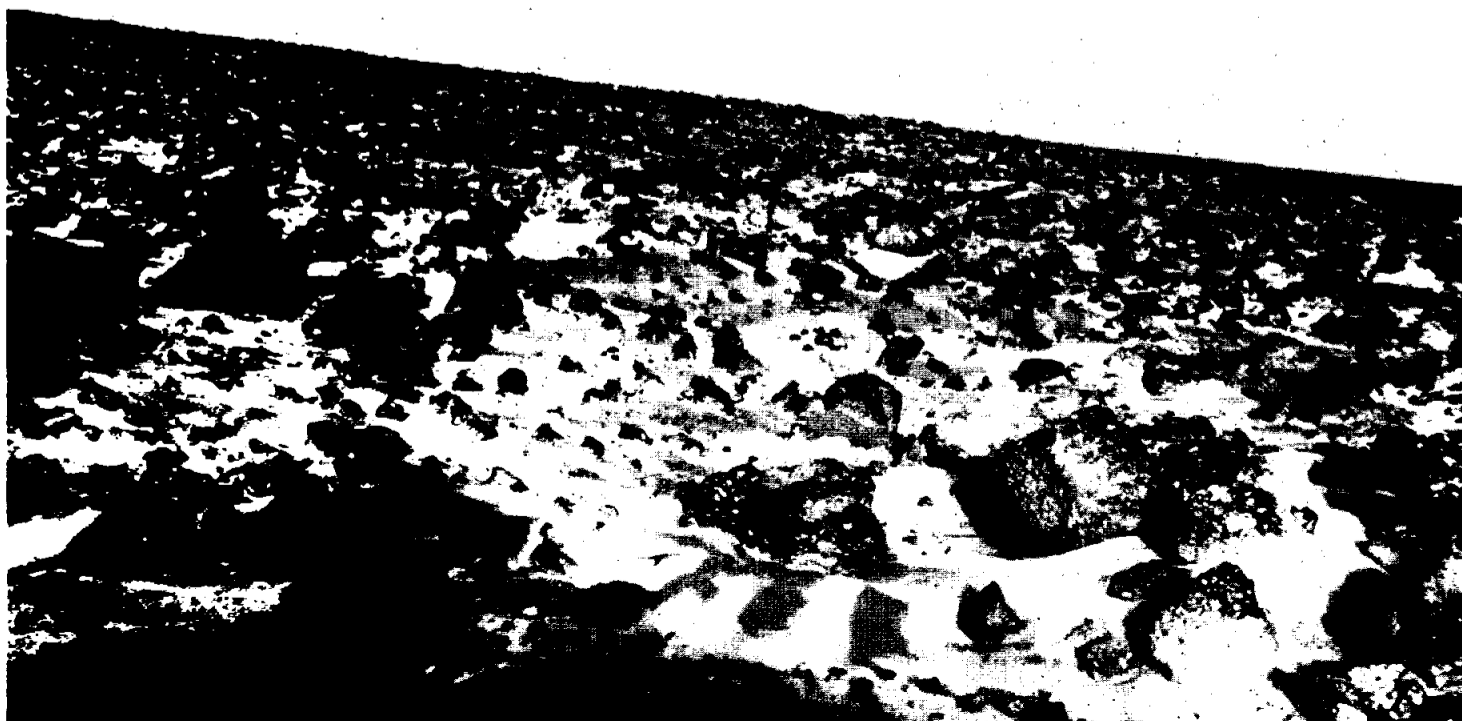


Photo courtesy of JPL

Mildew

It started at the flood
height max.

On all the walls

In all the cracks.

And spread above

And spread below.

With spores of green

On walls once clean.

Slowed only by X-14

or by:

One cup tri-sodium phosphate
mixed with one quart bleach
into two quarts warm water with
one-third cup detergent.

—Anonymous employee

Competition brewing

As of Wednesday, August 29, Personnel has mailed 19,909 astronaut recruiting brochures and 2766 astronaut applications.

They have received 2253 letters of inquiry and 727 phone calls, bringing the total number of inquiries to 2980.

Brochures went to 900 universities, associate administrators at Headquarters, EEO officers and Personnel officers at different NASA centers, professional organizations and aerospace industries and minority organizations around the nation.

The 5600 original applicants who met qualifications during the last recruiting also received brochures.

NASA will accept applications from October 1 through December 1. The number of new candidates selected will then be based on mission requirements.

NASA plans to establish astronaut hiring rosters annually. In order to keep the records accurate, refer all inquiries to AHX Greg Hayes, x-5907.

The first recruiting announcement went out August 1.

Co-ops design hardware, write handbooks, define payloads, and run avionics sims

May's Co-op of the Month was **Robin Mills** a Junior at the University of Illinois majoring in Astronautical Engineering who worked in Crew Systems. Mills assisted in the design phase of hardware for a Shuttle Contingency EVA—taking part in the overall development plan, monitoring water immersion tests, and writing test reports for an astronaut's procedures manually closing the payload doors while the Shuttle is in orbit. She "demonstrated exceptional capability during this assignment," says supervisor Jim Bilodeau.

June's co-op is **Mary Bellemare** who worked for Flight Operations in the Mission Control Center. Assigned to the Communications Section, Bellemare developed schematics for the Spacelab

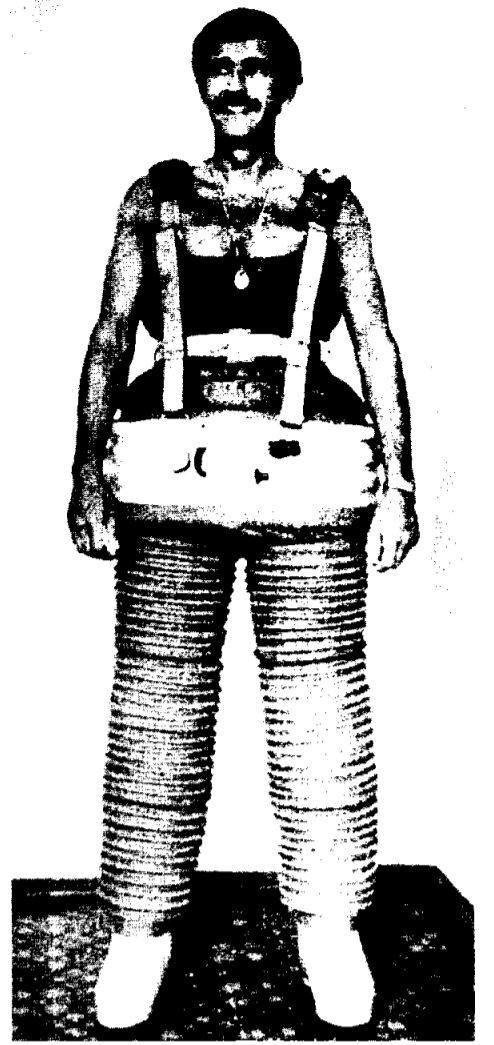
Handbook, covering the audio TV system, high rate multiplexer, and high data rate recorder. She then set out defining the control center requirements to support these items. Bellemare is a Senior in Electrical Engineering at George Washington University in St. Louis.

Gayle K. Weber holds the honor of Co-op of the Month for July. Weber has been working with Earth-looking payloads that will fly with the first Shuttle—taking part in simulations in Mission Control Center, and helping to prepare the Flight Controllers' Console Handbook for the payloads. Specifically, she has been preparing "systems briefs" which define the science aspects of an experiment for flight controllers. Weber is a Junior in Physics at the University of

Houston Central Campus.

James Y. Takayesu is Co-op of the Month for August. Takayesu, a Junior in Electrical Engineering at Mississippi State University, worked in Avionics Systems on computer simulations for both the Shuttle and the solar power satellite projects. He worked in applying beam tracing techniques through a "disturbed" ionosphere, and aided in developing antenna simulation programs for microwave power beams from an SPS. "His work has enabled these programs to run on the JSC computers with a considerable savings to the government," says supervisor G. D. Arndt.

Co-ops are students who earn college credit for a semester or quarter's work with NASA.



Alexander in the 'chibis'

Physiologist moves to Cape to direct office

Carter Alexander has left JSC's Physiology Lab to be Director of the Life Sciences Integration Support Facility at the Cape.

His work there will be heading up a staff that prepares Life Sciences payloads for operation on the Shuttle, "such as getting the monkeys into the cages," Alexander said.

They will perform pre- and post-flight testing with the payloads and actually install the experiments on the Shuttle.

Alexander recently returned from a biomedical working group in the USSR at the Institute of Biomedical Problems. He believes he is the first American to wear the Soviet lower body negative pressure garment (pictured above).

This garment, called a "chibis," is used by Soviet cosmonauts during reentry.

Wolfe to sign *The Right Stuff*

Tom Wolfe's new book about the age of rockets, the early astronauts, and the world of military flying is about to be released, and the author will be at Allen Maxwell Books on Upper Bay Road Thursday September 13 to sign copies.

Wolfe started *The Right Stuff* in 1973. He came to JSC, interviewed more than 30 astronauts and pilots,

and became fascinated with the dangers of being an astronaut or test pilot, individuals who, he says, "go up in a hurtling piece of machinery and put (their) hide on the line and then have the moxie, the reflexes, the experience, the coolness, to pull it back in the last yawning moment—and then to go up again *the next day*, and the next day, and the next day."

These persons have "the right

stuff" says Wolfe, in a book that promises more of his mind-twisting style: "The New Journalism," a term he coined.

Allen-Maxwell books is in the Nassau Bay Shopping Center across the street from JSC, and Wolfe will be there from noon to 1:30. Watch a future issue of *Roundup* for a review of *The Right Stuff*.

Still smoking, want to quit?

Cigarette smoking is an enigma. Why does this habit continue to have such widespread appeal in light of well known, thoroughly publicized health hazards?

What is the public reaction to smokers? Is there evidence suggesting a change in numbers and percentages of smokers by sex or age groups? Is nicotine a narcotic and are smokers addicts?

What about the future? Where are the trends leading us as a nation? Is there hope for the smoker?

These questions and many more will be answered at the next JSC Health Education Program, "Strategic Withdrawal from Smoking," to be held September 19 at 10 a.m. and again at 1 p.m. in Building 30 Auditorium.

Leave crush-proof packs of high or low tars in the office, please.

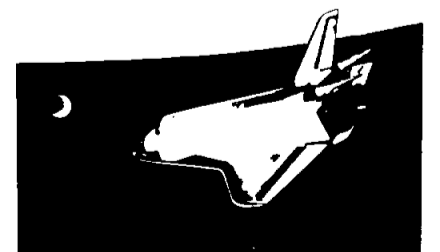


Early on a summer morning, Garrett Battise rises with the sun, hikes three miles to the lake, and spends the hours until lunch swimming. He lives on the Alabama-Coushatta Indian reservation in the idyllic country between Livingston and Woodville. But this summer, he and two other tribesmen, Kevin and Linus Battise, have been waking up to an alarm clock shrill. They've driven three miles through the exhaust fumes and clamor of NASA Road One to the Space Center each morning to spend the day in the multi-decibel level hum of Building 12 as Summer Junior Co-ops. It's the first time members of the Alabama-Coushatta Indian tribe have worked at JSC. Pictured above, Garrett (right) and Linus pull tapes in the computer room where they've worked this season. The tribe has visited JSC the past two years for American Indian Awareness Week (coming up in October). Garrett says it takes a lot of work preparing for the trip to the Space Center. "In one day you make only four feet of a harness (strip of beads) that is part of the costume." Both graduated this year from high school. Garrett plans to major in architectural drafting. Linus says, "Aeronautical engineering...no, diesel mechanics." He's not sure yet.

NEBA FACT

In 1969 the U.S. Supreme Court held insurance not to be a transaction in commerce, and affirmed the validity of state regulation of insurance.

483-6281
Hurricane Code-A-Phon



The *Roundup* is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all Space Center employees.

Writer/Editor: Kay Ebeling

Bulletin Board

Please limit announcements to 10 lines, double-spaced copy

Auto Mechanics Courses Offered at Gilruth Center

Auto Mechanics-Basic covers the operating principles of the automotive engine, drive train, and running gear. Upon completion of the course a student should be able to inspect a car relating to its safe operation, **save money** by doing preventative maintenance, and have some understanding of **repair work** that must be done by a mechanic.

Auto Mechanics-Intermediate is designed as a follow-on to the basic class. Here the student learns to perform minor tune-ups, carburetor overhauls, and light repair. Sign up in person at the Rec Center; deadline is September 14. For further information call x-4921.

Astro Ballgame Tickets Will Help Send A Woman to College

The Bay Area American Business Women's Chapter has a Ways and Means Project to send a needy woman to college on a scholarship with funds raised by selling tickets to the **Astro game September 21 against Cincinnati**. They have 1000 tickets in the Mezzanine Section behind first base that are selling for \$4.50 and can be upgraded if traded at the window early enough. If they sell 300 tickets, they earn 50 cents a ticket for the scholarship. If they sell 1000, they earn a dollar a ticket. Call Elaine Stermerick at x-4239 or 334-2402; Sharon Hardy at x-4161 or 488-2629, or Mary Beth Westover at x-3556 or 481-9754 for tickets. Call the office numbers between 11:30 and 12 only, please.

Last Chance to Subscribe To Alley Theatre is September 14

Contact Doris Wood, EF1 (x-2161) for Corporate Coupon Subscriptions to the Alley Theatre. For \$24.50 you receive **coupons good for five plays**, your choice of performance. You phone in your reservations for the date of your choice and you will be given the best ticket available regardless of price. The 1978/80 season begins October 18, but deadline for subscriptions through JSC is September 14.

Explore the World Beneath the Sea

The JSC Scuba Diving Club, **Lunarfins**, will offer a six-week basic **scuba course beginning September 18**. The course includes classroom lectures at Gilruth Center and supervised practical experience in a local indoor pool. Students who successfully complete the course will be certified by NAUI. Enrollment is limited. The club schedules regular boat trips to coral reefs, sunken wrecks, and platforms in the Gulf—plus favorite diving locations in the Caribbean. Lunarfins training officer, Brad Hillaker, at 676-8029 or 481-0935, has more information about the course.

Computer Club To Attend Faire

The JSC Computer Hobbyist Club will attend the Microcomputer Faire on Saturday, September 8, at the University of Houston Cullen College of Engineering Building (Main Campus). The Faire starts at 9 a.m. and lasts all day. Both commercial and hobby exhibits are planned. Admission is free and drawings for door prizes will be held. Refreshments can be purchased at the Faire. The Faire is sponsored by the Microcomputer Clubs at College of the Mainland and U of H. The Faire **will take the place of the regular JSC Club meeting** originally scheduled for the first Thursday in September. The **next meeting** of the JSC Computer Hobbyist Club will be 5 p.m., September 20, in Room 209, Gilruth Center.

On Sale at the JSC EXCHANGE STORE

(Store Hours 10 am to 2 pm)
Dean Goss tickets - \$10 single
\$20.00 couple (Reg. \$14.50)
ABC Theatre tickets - \$2 each
General Cinema tickets - \$2.40 each
Six Flags Over Texas tickets
\$7.25 for one day (Reg. \$9.25)
\$9.25 for two days (Reg. \$13.95)
Astroworld tickets - \$7.25 (Reg. \$9.25)
Magic Kingdom Cards - Free
Sea-Arama Marineworld Fun-Time Card - Free



A Group Achievement Award went to the Shuttle Orbiter Active Thermal Control Subsystem Vacuum Test Team after successful completion of subsystem tests for the Space Shuttle orbiters. From left to right are: Richard Jerome Piotrowski, Marion M. Lusk, James C. Leblanc, Noel C. Willis, Jr., Christopher C. Kraft, Jr., Arthur H. Hinners, Jr., Walter Williamson Guy, James V. Correale, James C. McLane, Jr., Maxime A. Faget, James R. Jaax, and David H. Owen, Jr. The tests demonstrated for the first time that operation of the subsystems will be able to maintain temperature control of orbiter mechanical and electrical equipment, in addition to providing heat rejection throughout the vehicle. The award was presented Monday, July 23, in Dr. Kraft's office. (NASA Photo)

Lots of Shrimp & Trimmings And the Money Goes to Charity

The Space Center Rotary Club is holding its sixth annual Shrimporee & Auction at the County Park on Highway Three, League City, on **Saturday September 15**. All proceeds are distributed to local charities with the principal beneficiary

being the **Palmer Drug Abuse Program**. Lots of shrimp and fish and trimmin's; bring the whole family. Advance tickets: adults \$5, children \$3. Gate prices \$1 more. Tickets available from **Rotarians** and local area banks. It's the bargain of the year with lots of items to be auctioned.

What's cookin' in the JSC cafeteria

Week of September 10 - 14

MONDAY: French Onion Soup; BBQ Sliced 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 Corn; 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 Broccoli; Carrots in Cream Sauce.

Week of September 17 - 21

MONDAY: Cream of Potato Soup; Franks & Sauerkraut; Stuffed Pork Chop; Potato Baked Chicken; Meat Sauce & Spaghetti (Special); French Beans; Buttered Squash; Buttered Beans. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches & Pies.

TUESDAY: Navy Bean Soup; Beef Stew; Liver w/Onions; Shrimp Creole; Smothered Steak w/Dressing (Special); Corn Cabbage; Rice; Peas.

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.

Roundup Swap Shop

Property & Rentals

Rent: Kirkwood South, \$500/month. 4 bdrm, miniblinds, covered patio, fenced yard, fireplace and wet-bar, immaculate condition. 486-5367.

Wimberly Hill Country, 12-1/2 acres on Blanco, views, deer, \$500 cash, take over 8% loan. 482-4866 after 5:30.

Lease: Middlebrook, 3-2-2, fireplace, near school, \$500 month. 474-2738.

Sale: Wooded waterview lot at Pt. Lookout on Lake Livingston, 75 x 137, utilities, restrictions, \$3750. 946-7587.

Rent: Waterfront vacation retreat by marina at Cape Royale on Lake Livingston new 3 bdrm, tennis, pool, golf, boat launch. 3 day min. 488-3746.

Lease: CLC, 3-2-2, new carpet, fresh paint, quiet cul de sac, \$475/month plus deposit. Monica 332-1765.

Cars & Trucks

77 Mercury Bobcat wagon, ac, 4 cyl, economical, runs well. 481-6487.

74 Ford Mustang 4-speed, 4 cyl, new tires, AM/FM/CB and stereo, good cond. 481-6487.

Camaro, black vinyl bucket and bench seats, door and trunk panels, exc cond. Horton x3734.

76 silver Nova hatchback with red interior, good cond, new paint, new tires, \$3750. 485-3521 after 5.

70 Oldsmobile 88, no flood, very good condition, \$600. 484-1794.

77 Lincoln Continental Town Coupe, burnt orange, loaded, exc, \$7800. Mandell 334-1982

78 Datsun "Z", blue, exc cond, air, AM/FM, Ziebarted. 488-3377.

73 Plymouth 9 passenger SW, only 48K miles, new a/c and tires, PS, PB, cruise control, not flooded, \$1100. Owens 554-2969.

71 Buick Skylark 4-door, \$550/best offer. 333-2182.

58 MGA, runs good, new conv top. 479-6766 after 6.

71 Ply Barracuda, runs good, mag wheels. 479-6766 after 5.

Boats & Planes

New Piper six-300 full IFR, club seats 6 - want pilots to share flight time - first trip to KSC 4-6 Sep. F. Austin x6291.

78 Kona 18 ft. jet boat, 454 chevy engine, basset headers, tunnel ram intake, holly 780 carb, berkley jet, \$5500. 534-2785.

Musical Instruments

Combo organ. Overton 534-2476.
King Cornet, used two years, exc cond. \$90. Stoker x6301.

Miscellaneous

Set of golf clubs with bag: MacGregor/Jack Nicklaus; 3 woods, 8 irons and 1 putter; Leather grips, Less than 2 years old, \$125. Felipe x2303.

Extensive collection of TRS-80 software for loan or trade. Also have new line printers with modem, RS232 and ASCII keyboard for \$600. Taylor x2796.

Typewriter, Penncrest, manual, exc, just like new, \$39. Spencer 481-0150.

For van, two barrel chairs, \$50 each; one swivel table, \$20. Used four months, exc cond. Beckly x3491.

75/76 Ford shop manual, never used, \$10. Bankey 481-2794.

Black and Decker Workmake, standard single height, new, \$30. 482-1635.

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 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-ins, please. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads. Goods or services must be offered as advertised without regard to race, religion, sex, or national origin.

Carpools

Need nonsmoking carpooler/s from the Dobie High School area for 8:30-5 shift. McConnell x2091 or 484-1794.

Sears Ride-on mower, bedroom furniture, typewriter, recliner chair, cyclist's helmet. Maloney 482-7688.

19" Color TV, exc cond (maintained under full service contract), 13 years old, headphone jack, \$100. Castle x3527 or 332-4209.

Zenith 12" black and white TV 2 months old, new \$105 sell \$75. Wright x2408 or 471-0990 after 5.

Hoover Guardsman vacuum, automatic cord reel, attachments; like new (used twice), \$100. Antique English curio cabinet, \$300. Scott x3438 or 344-1720 after 5.

Drop-in electric stove, poor cond, but works, \$10; double sink, 2 lavatories, \$5 each; black and red Spanish chair, \$25. Jim 1-925-3036.

1 pr. twin bed frames, hd board/ft board are solid cherry. 1 twin box spring free with above, \$50. x4382 or 488-1256 after 5.

Gray metal secretary's desk, formica top, \$100; Bookcase top, \$20. 481-1469.

Clarification

There is a 20-word limit per person on Swap Shop ads. If you have more than one ad, please limit the total words to 20. Longer ads will be cut down to the maximum. Please cooperate, as this keeps the Swap Shop from taking over the page. —Ed.

Cycles

76 Suzuki RE-5, \$1000, like new, 2000 miles. Blucker x3533 or 488-4188.

Mercier 27" men's 10-speed. New Sun-Tour rear derailleur. New simplex front derailleur. Clean and fast. Drews x4326 or 486-5208 evenings.

Household Articles

Pool table, 4 x 8. This is your cue for untold hours of recreation. Rubenstein x5461 or 334-2354.

French Provincial furniture: dining table, 4 reg chairs, 2 arm chairs, china cabinet, sofa, chair, end tables, lamps and accent chair. Overton 534-2476.

Wanted

Super-8 movie camera in good condition. Gillen 334-2993.

Persons interested in bicycling and establishment of safe bike routes. Brian Morris x5293.

Want to reproduce someone's copy of Ted Allen's plan for increasing car gas mileage through water injection and fuel heating. Will pay for the privilege. Ed 333-4119.

Travel trailer for approximately 2 months (will pay weekly rent). Must have air conditioning, stove, refrigerator, and accommodate 2 adults. Helen Stutz x3821 or 482-7607.

Good used baby hi-chair, reasonably priced. Ruby x4995.

Opinions: Readers write in

Roads unsafe for bicycles

Club will petition for area bikeroutes

To the Editor:

The physical fitness craze and the energy crisis have combined to form an ideal climate for increased use of bicycle transportation.

Countless persons would ride to work, ride to visit friends, ride shopping—provided the route was safe for cyclists. Few persons could pass up the opportunity to get a few minutes of physical exercise on the way to work or shopping if the route were safe, smooth, and convenient.

The problem is that our streets and highways are not safe for bicycle travel and we are doing little or nothing in our communities, states, and counties to help the situation.

Every bicycle ridden to work or shopping eliminates one car from that same route and takes about one fourth the room on the street. A bicycle on a convenient route can be ridden five miles to work in



Sharon Sanders, computer programmer, commutes daily by bike

20 to 25 minutes. Assuming the average car gets 15 miles per gallon, 1000 bicycles could save 173,333 gallons of gasoline per year.

Petitions will probably be required to prove the extent to which the public is interested in supporting bicycle routes. It should be no problem getting signatures, even from non-enthusiasts. People want safe cycling.

I have decided to form a Bay Area Cycling Club if enough persons show interest. If things work out, we may have one of the most interesting and entertaining clubs around, and may make some progress toward establishing bicycle routes in the process. Please let me know if you or a friend might be interested in joining.

Brian Morris EP6

Decimals vs. non-decimals

'Let's make the world as boring as possible'

To the Editor:

"An Anachronism Lives On" (*Round-up* June 29) is an unfair treatment of non-decimal measurement systems. That the size of a barleycorn was originally the critical measure has no bearing on the current standard for an inch which is not barleycorn size.

Eight, 12, 16, and so on are more logically divisible than 10 for most purposes. Twelve is divisible by two, three, four, and six; whereas 10 is divisible only by two and five, and five is not such a common number to divide by anyway.

There are no weird fractions such as $11/64$ or $21/32$ in decimals, true, but the weird numbers 0.171875 and 0.65625 are not necessarily an improvement. And $2/3$ is certainly clearer than 0.6666666666 for ever and ever, amen.

Perhaps the ardent decimalists will soon be demanding 10-hour days and 100-degree circles. Then we can have 3.3333333333 recurring working hours to the day or, heaven forbid, lengthen or shorten the working day. Equilateral triangles can have three unwritable angles.

There are advantages to the decimal system, don't get me wrong. Without decimals we'd have to change the design of our calculators, and there are certainly advantages in a worldwide uniformity of measurement. Perhaps we should also strive for a worldwide uniformity of language and money, too! Let's make the world as boring as possible. The decimal system is certainly a boon to those of us who need to count on our fingers and to use calculators for even trivial calculations, but let us not decry other systems of measurement, which have a logical beauty of their own, merely out of ignorance of them.

Graham Ryder
Northrop Services, Inc.

ERRATA

The picture of the Enterprise on Page one of the last *Roundup* was taken at the St. Louis stopover, not in Tulsa as the caption read. As one caller said, "There were no trees in Tulsa." Also the aircraft under the NASA 747 wing is a model of the Spirit of St. Louis brought out for the event. *Roundup* regrets the error.

What happened to survey on bus need?

'Let's have another survey and act on it'

To the Editor:

We'd like to see an article in the *Roundup* about the survey that was done last year to determine how many people would be interested in a bus from Houston to JSC. Whatever came of that survey? The response may have been negligible last year, but times have changed. So let's have another survey and act on it!

Paula R. Holton
Kathryn Kropp
Theran Groves
Carolyn Carmichael
SD4/NSI

Personnel, working with the Transportation Branch, took a survey in 1975 using the Sagemont area as a sample group. Out of 150 questionnaires sent out, less than 25% came back, and over 70% of those responding said they would not be interested in riding an employee bus to work. The idea was dropped.

It is against the law for a government agency to provide "transporta-

tion of officers and employees between their domiciles and places of employment" using appropriated funds, according to the U.S. Code 637a(c).

The most cost-effective way is for a group of employees to chip in and vanpool.

However, a private bus line could set up bus routes (the idea dropped in 1975) and provide commuter service for a fee—if it looked as though there were a potential profit.

In the meantime, the Department of Energy has done studies and concludes that the most cost effective way to solve commuter problems in a large organization such as JSC is for a group of employees to get together on its own, buy a van (perhaps with financing through the Credit Union), and then share the cost of running it

back and forth to their neighborhood—"vanpooling." Many large industries are encouraging employees to take up vanpooling—even providing financial aid. But NASA has the U.S. Code that keeps it from providing any funds.

Another recourse: A major rent-a-car firm has informed the GSA it plans to invest \$50 million into the purchase of vans that it will then rent out to employee organizations—like JSC's EAA—for groups to use for vanpooling. The firm will maintain the vans, and replace them on three-year intervals.

Roundup is soliciting opinions. Would you like to sit by a window reading *The New Yorker* on your way to work? Or do you prefer the mobile freedom of driving your own car in every day? Would you pay a monthly fee for commuter service? Do you have any alternative solutions?

Responses will be printed in a future edition.

Maneuvering Unit

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One of the verification tests recently performed by astronaut Bruce McCandless is the compatibility of the maneuvering unit with the astronaut and his self-contained portable life support system (backpack). This has the suited astronaut back into the maneuvering unit as it would be located in the cargo bay of the Shuttle orbiter. This action completes the mechanical latching of the unit to the life support backpack, like backing into a phone booth with a large knapsack on your back.

The test went well and McCandless said he was very pleased with the operation. It is one thing looking over detailed engineering drawings but it is another thing having a high fidelity mockup to work with, he said.

If during this evaluation period changes or modifications are determined necessary, such changes will be forwarded to the contractor for inclusion in the flight units. Delivery of the first flight unit to Kennedy Space Center in Florida is planned for early 1980.

Some puzzled, amazed at UFOs

Fund raiser to cover facts, opinions

By John F. Schuessler

Unidentified Flying Objects are more than lights in the sky. They are apparently solid flying things that are tracked on radar, chase airplanes, cause automobile engines to fail, leave traces on the ground, and occasionally abduct Earthlings.

Nearly everyone has some opinion about UFOs or flying saucers, as they are often called. Those opinions range from "hogwash" to "true belief." Some individuals feel they have the answers to this mystery, while others frankly admit they are puzzled and even amazed. Those are just opinions; the real answers are yet to come.

Three facts cannot be denied: UFO reports exist and persist; the reports are global; and many are from highly credible, responsible witnesses. It is now

socially acceptable for us to talk about UFOs. That is a first step. The next is to make it scientifically acceptable. Leaving the study to non-scientists is ridiculous. The topic is worthy of intense study.

Response to UFO

Employees at McDonnell Douglas Technical Services Company are presenting "The Houston UFO Connection" Tuesday, September 18, at 7:30 p.m. in Clear Lake High School Auditorium, to raise funds to aid students at Prairie View A&M in preparing a getaway special for the Space Shuttle.

The fund raising event is a special UFO presentation by John F. Schuessler, who is Deputy Project Manager for MDTSCO's Shuttle Flight Operations Support to JSC.

"Recent sightings in France, Spain, and South America are quite serious," says Schuessler, "but almost unknown to the American public. On the homefront, two separate abductions in Texas will be discussed at the September 18 session, and evidence will be presented.

"And that is only the beginning." Tickets will be available at the door for a donation of \$2.50 (Students \$1.25). Proceedings will go to support an experiment to be launched on a future Space Shuttle mission by Prairie View A&M University students.

Send letters to AP3 Roundup. Copy will be edited for space and clarity.