

Perfect maneuver in mission control

Skylab now bow a stern

Two team leaders are in the back at the console.

"How much do we have if we can't execute it in enough time?"

"One minute."

He nods, "One minute," and takes another sip of coffee.

Up front, the ASCO controller is in contact with a tracking station. "I'm going to summarize the automatic command," she says. A row of 12 controllers stare quietly into CRT's, listening.

One of the Control Moment Gyros on Skylab was getting too cold. Shade from the space station's telescope mount was creating a lubrication problem, so controllers at Marshall and JSC wrote a maneuver to turn the Skylab around, putting the shaded CMG into the sun.

The maneuver took place Friday Nov. 3 on the second shift.

At 6:51, after days of simulation and practice, the operation was to begin as Skylab came over Ascension Island tracking station, just past orbital midnight.

At orbital noon, the station was to go into solar inertial, keeping its panels out facing the sun. As it continued to orbit, the radiator and workshop portion would move out into the front. At orbital midnight Skylab would be essentially flying backward. At the same time, the station would

roll so that telescope mounts and CMGs would remain in the sun.

Controllers would have less than an hour to carry out the plan.

The room is crowded. Controllers from other shifts are on hand to watch. There is conversation, joking, until the Ascension pass begins. 6:51. Movement and chatter stop. The only sound comes through earphones connected with Ascension.

"Load mark 00523 but do not transmit," says the ASCO controller.

"00523 loaded," comes a distant voice.

ASCO stares at the screen counting. At the precise second she commands, "Mark connect."

From Ascension, "Uplink complete."

There is no movement in the room but smoke circling from an EGIL's pipe. The seconds tick by. When the pass ends, the hard-copy machine hums printing out data, and controllers take a minute to relax.

In the next room, Hans Kennel and other controllers from Marshall monitor the maneuver. They are smiling.

"Momentum is good, momentum is good. Excellent," Hans is saying as he gets data from Goldstone and then Bermuda.

He holds a sheaf of papers in his

hands. "We predicted about 19, minus 36, and here it reads 19, minus 37. So that's close." He sounds like a proud new father. As more figures appear on the screen, he compares them, puts a checkmark in the margin, and turns to the next page.

"See," he says enthused. "We checked that our thrusters had not fired. We've got the same numbers as we had before. Everything is working." He puts another check in the margin.

Over a squawk box came controllers' voices. "Load mark 0888." "0888 loaded." "Transmit." "Uplink complete."

"We're six minutes from being in ZLV," says William Chubb.

All eyes are on the screen as the pass ends. Five minutes to the next pass. Empty static comes over the squawk box. No one talks. Then, as Ascension tracking station comes in, everyone relaxes. The numbers match up. Chubb's finger and thumb form the "OK" sign.

Back in the control room, the chatter has started up again. "We were able to do it right on the mark there, Debbie," someone calls out.

"Right," she answers.

The machine hums as more data prints out. Someone goes for coffee.



Ideas on the job earn awards in Cost Reduction

Innovative engineering and technology in Structural Test Article hardware have saved \$80 million for the Orbiter project, and earned two space center employees \$1,000 and cost reduction "Eagle" trophies.

Phillip C. Glynn and Thomas L. Moser, structural specialists, developed a plan to combine hardware from the STA with the ALT crew module. By preserving the STA structure and using a less costly method of testing, NASA avoided purchasing an additional Orbiter vehicle, saving the space program an estimated \$80 million.

Glynn and Moser received cost reduction awards Friday, Oct. 13, along with 25 other space center employees.

Since 1965, cost reduction awards have motivated space program workers to become cost conscious. Savings from \$5 to \$5 billion in the way an employee carries out his job are recognized regularly by certificates, trophies, and to the biggest savers, cash.

Anything from improving the design of an in-house memorandum to finding a more direct route to a distant planet can bring an employee recognition.

This year, the 27 employees cited saved the space program \$5000 to \$80 million with their ideas.

Samuel R. Weathersby of the Orbiter logistics office located pieces of equipment needed at Ames and KSC. He shipped the analyzer, theodolites, amplifier, and recorder out from JSC, saving the

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AAS hears pep talk on future

"When you say we've really come a long way, I'm sure we've hardly started. I hope there comes a time in my life when the Shuttle looks like a DC-3. And I firmly believe it will. It can't go any other way."

George Merrick, president of Rockwell's space systems group, was speaking to the AAS "Future Programs and Prospects—Projections to the Year 2000" session chaired by JSC Director Christopher C. Kraft, Jr.

Merrick's speech was a Space Shuttle

pep talk.

"We're really at the point now where we can't afford to slow down," he said. "We're gonna fly next year."

Merrick said we've just begun to tap the Shuttle's potential when we refer to it as a space truck. "But I think we're gonna use it for more than just hauling," he said. "It's not only a launch system, not just a laboratory."

With the enthusiasm of a U of H coach, Merrick speculated on future uses of the Shuttle. "When we get to building struc-

tures in space, the Shuttle is really gonna provide the basis.

"That's part of the work that has to happen in the next decade.

"The potential of what can be done in space is just endless. Energy, comm, materials processing, products.

"But if we want to stay with it as a viable society, we better go exploit this frontier. There aren't that many left. The things we've talked about this morning are gonna happen. It's just a matter of when."

operated continuously for 823 seconds, the longest burn time an engine should encounter during an actual Shuttle mission.

Each Orbiter will contain three main engines, and normal burn time is about eight minutes. The longer burn time would be required if one of the engines failed during flight.

The test took place Monday, Oct. 30.

Engineers reported that the engine appeared to operate normally and without problems.

The Shuttle Main Engine is being developed under the management of Marshall Space Flight Center by the Rocketdyne Division of Rockwell International. The test was conducted at the National Space Technology Laboratories near Bay St. Louis, Miss.

Shuttle Update

A single Space Shuttle Main Engine has successfully static fired for more than 13 minutes testing its ability to return Orbiter to its landing site in case of a mission abort during launch. The engine

LACIE proves to be productive

With volumes of abstracts, peer evaluations, and packets printed, with weekly organizing meetings to arrange everything from badges to buses, and with 50 employees plus a handful of Aggies breathing a sigh of relief, the LACIE symposium came to a conclusion after its Oct. 23-26 occupation of Building 2 auditorium, with over 700 persons attending.

The Large Area Crop Inventory Experiment began in 1974, with government agencies and private industries cooperating with NASA to see if data from Landsat could be used with conventional weather data to predict production of the world's most important grain crop—wheat. The project set a goal where crop estimates would be accurate within 10 percent of true production.

Tests over the U.S. Great Plains show the accuracy goal can be met. And with techniques monitoring the Soviet wheat crop in 1977, LACIE made a production

(Continued on page 4)



ASTRONAUTS OF THE FUTURE—A popular place for school children to visit after an educational program in Building 2 is the JSC Gift Shop. Each school year, the Public Services branch conducts two or three programs a week, each one attended by 6800 grade school students. Diners in Cafeteria No. 1 can see

them and hear them, their budding enthusiasm on display. The educational program uses audio/visual materials to tell the story of NASA—past, present, and future, and leaves the children excited about the role they may play in that future. (Photo by Patnesky).

EAA Attractions

PECAN HARVEST

Nature has extended our growing season this year. Indications are for a mid-November harvest, probably November 18. Unfortunately this will conflict with open deer season. We hope everyone will be fair to their fellow employees and honor the pecan orchard being OFF LIMITS until Harvest Day. The limit will be 10 lbs per family and your badge will be

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Photographer: A. "Pat" Patnesky

required for entrance. We have a good crop of exceptionally large pecans. The harvest will be supervised by a large EAA crew this year. Climbing trees or using bags other than those issued by the EAA will not be tolerated. Harvest will start at 10 AM.

CHRISTMAS CANDY

Hey! Hey! Hey! Be watching the *Roundup*, bulletin boards, and flyers for information on our special Christmas candy sale. Russell Stovers candy will be sold by your EAA rep at a special discount all in time for Christmas giving (boxes will be gift wrapped!). For information see your EAA rep or call Sandy Burdsal at ext. 3511. Cutoff date for candy sales is November 28 at 4 p.m.!!!!

What's cookin' in the JSC cafeteria

WEEK OF NOV. 13 - 17

MONDAY: Cream of Celery Soup; Braised Beef Ribs; Chicken a la King; Enchiladas w/chili; Italian Cutlet (Special); Brussels Sprouts, Navy Beans. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

TUESDAY: Beef & Barley Soup; Turkey & Dressing; Country Style Steak; Beef Ravioli; Stuffed Cabbage (Special); Corn Cobette; Okra & Tomatoes; French Beans.

WEDNESDAY: Clam Chowder; Catfish w/Hush puppies; Roast Pork w/Dressing; 8 oz. T Bone Steak; BBQ Plate; Chinese Pepper Steak (Special); Broccoli; Macaroni w/cheese; Stewed Tomatoes.

THURSDAY: Cream of Tomato Soup; Beef Tacos; BBQ Ham Slice; Hungarian Goulash; Chicken Fried Steak (Special); Spinach, Pinto Beans, Beets.

FRIDAY: Seafood Gumbo; Liver w/Onions; Deviled Crabs; Roast Beef w/Dressing; Seafood Platter; Tuna & Noodle Casserole (Special); Whipped Potatoes, Peas, Cauliflower.

WEEK OF NOV. 20 - 24

MONDAY: French Onion Soup; Beef Chop Suey; Polish Sausage; German Potato Salad; Breaded Veal Cutlet (Special); Okra & Tomatoes; Green Peas. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

TUESDAY: Split Pea Soup; Shrimp Creole; Salisbury Steak; 8 oz. T Bone Steak; Fried Chicken (Special); Mixed Vegetables; Beets.

WEDNESDAY: Clam Chowder; Fried Catfish w/Hush puppies; Braised Beef Ribs; BBQ Plate; Weiners & Beans; Shrimp Salad; Stuffed Bell Pepper (Special); Corn O'Brian, Italian Green Beans, Rice.

Thursday: HOLIDAY

FRIDAY: Seafood Gumbo; Broiled Flounder; Liver w/Onions; Seafood Platter; Fried Shrimp; Meat Sauce & Spaghetti (Special); Green Beans, Buttered Broccoli, Whipped Potatoes.

Her capacity gets high marks



Freda Marks
Outstanding Secretary

With the development of career development programs and on-site and off-site employee training, the clerical workload has increased dramatically in the Employee Development Branch. The clerical staff was reduced one position a few years ago.

Still, the flow of training documents is more current today than it was with a larger clerical staff, says Jack R. Lister, Personnel Officer.

"This improvement in office management is due to Freda Marks' immense capacity for work," Lister said, "and her effectiveness in organizing the work."

Freda Marks was named Outstanding Secretary for the month on Oct. 25.

Working in employee development brings Marks into contact with employees at all levels at JSC. "I frequently receive favorable comments regarding her helpfulness, courtesy, and efficiency," Lister said.

"Members of the professional staff in this office have remarked on the assistance and support they have received from Freda. Her pleasant and businesslike manner project a positive image for the office."

As Employee Development Clerk, Marks performs the full range of duties of a Branch Secretary. She directs the work of a junior secretary and a VOE student. She helps administer on-site and off-site training programs, maintains the branch budget, prepares routine and special reports, and assists with special programs such as VOE and College work-study.

Dance dance dance

Want to get more out of life? Join the JSC Dance Club and enjoy 1979 dancing. A session in ballroom begins Nov. 29 at Gilruth Rec Center sponsored by JSC Dance Club. Bob and Rae Calvert, are the instructors. The Phase I (Introductory) class, begins at 6:45 and includes lessons in the Rumba, Fox Trot, Cha Cha, Tango, and Swing Disco. A continuation class includes the Waltz, Polka, Slow-Slow, Swing, Samba, and further development of the Swing Disco. Other scheduled classes include a high intermediate and an advanced class, both at 8:15. Cost of this series is \$40 a couple, with \$1 per person Dance Club dues for new members. For further information, contact Lyyle Jiongo, ext. 3445.

better yet, boogie

Disco Dance Lessons, sponsored by the JSC Dance Club, started Nov. 6, but it's still not too late to join. Spaces are still available in the late class held each Monday night, 8:30-9:30 in Room 204 of the Gilruth Rec Center through Dec. 11. Cost is \$21.00 per person, with \$1.00 per year dance club dues. Instructor is Candi Walker. Some of the steps she plans to teach are Night Fever, Bus Stop, New Yorker, etc. For further information, contact Lyyle Jiongo, extension 3445.

Seasat scientist to speak at LPI

Dr. Peter G. Black of the NOAA National Hurricane and Experimental Meteorology Laboratory, will speak on "Preliminary Seasat Measurements of Surface Winds in Hurricane Conditions," on Wednesday, Nov. 15, at the Lunar and Planetary Institute, 3303 NASA Road One.

The lecture will be held in the Berkner Room of the LPI at 4 p.m., and the public is invited.

Seasat is a NASA satellite launched this past June with a mission to determine if a spacecraft carrying microwave instruments can provide useful information about the sea surface and atmosphere, and how they interact.

Dr. Black is a member of the team studying data from the radar scatterometer.

His initiative profits Orbiter

The work of co-op student Steve O'Neill enabled the Flight Activities Branch to see that the Plasma Detector Package on one of the first Shuttle missions has to be relocated in the Orbiter cargo bay so the Remote Manipulator System can deploy the PDP. His work has also shown that grapple fixtures can possibly be eliminated.

O'Neill started on the project when he realized the need for this computer capability, and he "proceeded with a minimum of direction," Ted A. Guillory, his supervisor, said. "In so doing, he not only demonstrated a significant degree of initiative and competence, but is providing the branch with what will be a very useful analytical tool," Guillory said.

O'Neill was named co-op student of the month for October. He is a junior at the University of Michigan majoring in aeronautical engineering.

Woman: From clerical jobs and colleges, females come to JSC and find new professions



Jocelyn Tripp at work in machine shop; "just another employee."

(Editor's note: The following story was submitted to *Roundup* by the Federal Women's Program Committee.)

When Ruth Cole, Jocelyn Tripp, and Cathleen Currie discuss models, they mean metal, wood, and plastic models, not the latest fashions from Dior. The three are employed in the Technical Services Division at JSC—Ruth as an electronics technician, Jocelyn and Cathleen as engineering technician trainees. All three have been in military service and have another trait in common as well: patience. Only in recent years has the type of work they enjoy become available to women.

Ruth Cole was working for the Public Health Service when she saw an announcement for the Technician Training Program at JSC. She joined NASA in 1973 and received training in such diverse tasks as layout, fabrication, wiring, calibration and testing of electromechanical equipment, preparation of circuit designs, and setting up laboratory tests. Continuing her education through Project IQ (Increased Qualification), she expects to receive her bachelor's degree in two years. She says she does not regret her decision to switch careers, because the field she is in now has not yet

reached its maximum potential for women.

Six months ago, Jocelyn Tripp was working as a personnel clerk at JSC. Now she is participating in a four-year program to qualify as an engineering technician in model making. Wood and plastic modelmaking, bench work, template construction, and general shop work do not faze her. She had the impression at first that everyone in the shop was waiting for her to drop something but believes now that she is accepted as just another machine shop employee. She is attending San Jacinto College as part of her training.

Cathleen Currie was a senior at Texas A&M University when she saw a poster announcing NASA's four-year technician training program. She applied, was accepted, and now is attending University of Houston as part of the training which she began on August 21. She looks forward to being an engineering technician in model making upon completion of her training.

All three women are enthusiastic about the work they have chosen and believe they have made the right career decisions. They encourage interested women to enter this field.

JSC golfers wind up season, McIntyre & Miller make finals

On Oct. 21, the JSC Golf Association held its final regular competitive tournament. The points earned in this tournament determined the Group winners and the qualifiers for the championship tournament.

Both groups of the JSCGA got off to a late start because of the heavy fog. As the lead foursome of Group I at Friendswood C.C. prepared to tee off into the fog, one of the members let out a loud whistle. Back came a plaintive "Not yet!" from the fog. Guess the foursome in front hadn't gotten very far.

The 1978 winners for their flights, based on points earned in the best 7 of 9

tournaments during the year, are: Group I - Steve Gorman, 203 points, and Jim Poindexter, 188.5; Group II - Al Ligrani, 212.5 points, and Tom Matuszewski, 212.

The following week, the top 12 golfers from each group, based on points earned during the regular tournaments, played in the Ed Mitros Championship tournament held at Brock Park. The 1978 champion is Al McIntyre with a net 142 for the 36 holes. Second place was won by Bill Miller, net 145.

The final event for 1978, a scramble tournament, will be held November 10 at Lake Houston C.C.

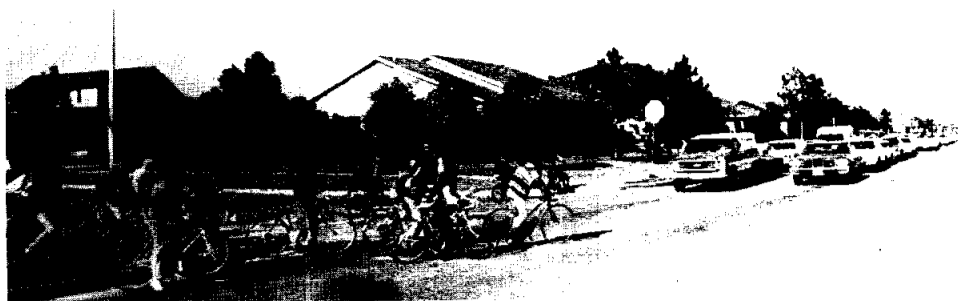


Photo courtesy of Daily Citizen

Schools nearby with no signs

Commuters, use caution

A "potentially tragic" traffic condition has developed in the Clear Lake area, and space center employees might be able to help by being made aware of it, GiGi DeGrace, JSC tourguide and member of the Clear Lake Community Association, said.

School signs have been removed along El Dorado and along Reseda. "I implore drivers to be aware there is still a school there," DeGrace said.

"About 400 bikes leave the Clear Lake Intermediate School at 4:00 each day," she said. At the same time there are "all these cars coming down El Dorado at 40 to 45 miles per hour," she said.

DeGrace feels employees leaving the space center at 4:00 contribute to the problem. Since the school zone signs have been removed by the City of Houston, she and members of the associ-

ation are trying other ways to advertise, such as contacting *Roundup*.

At Thunder Bay and El Dorado, "there is one teacher on the corner," DeGrace said. "When traffic lightens up, all he can do is tell the kids to move and move fast."

She said there is another case at Bay Area and Reseda in the mornings, where elementary students have ten seconds to cross the street. The association is trying to get the time extended to 20, but until then, she asks space center employees to "be aware of the problem."

"The speed limit on El Dorado is 35 miles per hour," DeGrace said. "We would appreciate it if NASA personnel would help by slowing down during this period of time in the afternoons."

"A child was injured, not seriously, on Oct. 17. These are potentially tragic situations."

Let them take you away

Three nights in Puerto Vallarta. Six days in Cancun. A week in Des Moines with Aunt Bess and Uncle Joe.

When the ground gets too cold for bare feet and decorated trees appear in picture windows, the mind turns to flights south or to the fires of home.

The Scheduled Airline Traffic Office can handle reservations and tickets for personal as well as official travel. They also have brochures and fliers if you haven't made up your mind yet where to go. You don't have to drive out to Intercontinental to make arrangements; you don't even have to drive off-site.

"Most flights are already booked for excursions," said George Weller of the airlines office. "Even if you want to fly first class or coach, you'd better make your

reservations soon," he said, referring to the Christmas rush.

So call Extension 3305 or go by Room 126 in Building 1 as soon as possible to arrange that Christmas trip. Or you might end up singing "Jingle Bells" at Maribelle's, like any other weekend.

To your health

FLU SHOTS: If colds and fever of winter worry you, the Clinic in Building 8 may have the solution. Flu shots are being given to

employees between 10 and 11:30 in the morning and 3 and 4:30 in the afternoon.

Like last year, this reminder: If you are allergic to chicken eggs, do not get the shot.

DIABETES INFORMATION: A speaker from the American Diabetes Association will conduct a program Nov. 15 at 1 p.m. in the Building 30 Auditorium.

Roundup Swap Shop

CARS & TRUCKS

'74 Dodge van, B-200, 360 V8, power, air, automatic, custom interior, new tires, 47,000 mi., \$3400. Cassetti 474-2923.

'74 VW Dasher, 4-door, auto, air, 37,000 mi., \$1200. Cassetti 474-2923.

'71 Cadillac, fully loaded, power windows and seat all work, stereo, 8-track, leather seats, xint cond., no rust, uses no oil. \$999. Peacock 486-0154.

'71 15-ft. travel trailer, air cond., complete kitchen, toilet, awning, new TV antenna. Sleeps 6. \$2200. 482-2091 or 482-7642.

'71 Datsun pickup, low mileage. \$1295. Presnell 482-7786.

'74 Dodge custom van. 318 STD. No air, FM-CB, icebox, plush brown shag int, custom paint, many xtras. \$2000 firm. 488-5037.

'72 Duster, auto, AM/FM cassette, PS, Slant 6, economical. \$700 or best offer. Larry x3871.

'74 Porsche 914, 2.0 litre engine, air, 5-speed, AM/FM radio/8-track tape player, \$1300 cash and you assume payments. Linda 488-3579.

'73 Chevy - Chevelle station wagon - PS/PB/AC, air shocks, cond. xint, 90K miles. Brenton 488-4372.

'76 Monte Carlo, 2-dr. Landau top, fully equipped inc. swivel seats. 40K miles. \$4295. 933-9730 before 6 p.m.; after 7 p.m. 376-9445.

'78 Fiat X1/9, fully equipped Michelin radials, spoke wheel covers. Uses reg. gas, 26 mpg. \$5200. 933-9730 before 6 p.m.; after 7 376-9445.

'75 Mercury Grand Marquis - white with burgundy int. loaded (tilt, cruise) all power, good tires, CB antenna, low city miles. 488-1745.

'74 Six Pac over-cab camper for short or long bed compact truck. Sleeps four, stove, ice box, sink, storage. \$400. 333-4418.

'78 Datsun B210 hatchback. Radio, A/C, Std. trans., Avila after 5. 481-4837.

'73 Chevy Impala, PS, PB, new tires, good cond. \$1400. 334-2358.

CYCLES

'75 Bultaco, 250 Persang, dirt bike, eng. needs minor work. \$175. 482-7820 after 5.

'76 Yamaha Y280 dirt bike for kids, helmet incl. \$245. Presnell 482-7786.



BOATS & PLANES

'77 MonArk alum xtra-wide fishing boat, 35 hp Johnson, and tilt trailer, used very little, xint cond. \$1500. 482-2091 or 482-7642.

Used Mainsail. xint cond. Less than one year service. Luff dimension is 34'6" x 36'6" x 10'6". \$300. Bill Folkes 641-0143.

16' sailboat w/trailer. 95 sq. ft. sail, good cond. \$350. Larry x3871.

17-ft. fiberglass racing canoe incl. paddles and car top rack. \$75. Mike Young. 948-3804.

HOUSEHOLD ARTICLES

B&W Zenith console swivel base 23" screen \$75. Gold & beige stripe 84" sofa (Broyhill) \$125. 1 sq. console lamp table, Mediterranean, \$50. 1 matching coffee table \$75. Call Don after 6. 486-1151.

19" Philco port. b/w tv (1964). Not working. Can be used for parts. \$20. 488-0079 aft 5:30.

Oak bedroom suite, bookcase headboard, dresser, mirror, nightstand, \$100. Blue chair, \$20. Linda 488-3579.

Twin beds w/mattresses and triple drawer dresser for boy's room. Walnut color. good cond. \$150. 482-7669.

Box springs and mattress (Sleepee) good cond. \$20. 488-0079 aft. 5:30.

WANTED

Bird dog trailer needed - large wheel (13, 14, or 15-in.) utility trailer w/bare frame and springs would be sufficient. 337-1840 after 6 p.m.

Join or form carpool from Texas City, 8-4:30. Mike Young, x4949 or 948-3804.

Wanted: Shop smith. Call Wade 483-7236.

PETS

Free to good home, puppy, part Cocker Spaniel & Terrier. Very good with kids. Cindy 483-7236.

Free puppies, part Cocker Spaniel, part Terrier. approx. 2 months old, female, very lovable, great with children. 534-2234 after 6. Beth.

MISCELLANEOUS

Mossburg, 20-ga. shotgun, xint cond. \$80. 482-7820 after 5.

Macrame hangers: Will make to suit your needs. Prices vary from size and labor. 534-2234 after 6. Beth.

Little used golf cart, bag, all clubs & balls, tees, etc. \$135. New 7-piece black fireplace set \$35. 6 diff elec. TV video games (new) \$35. Lady Remington elec. leg shaver w/case \$12. Schick elec warm & creamy facial kit (new) \$12. 333-3894.

Antique trunk, metal w/wood slats. \$50. 488-3288.

Go-Kart. 5 hp engine. Needs minor work. \$95. 645-7329 after 7 p.m.

Leather golf bag, new. \$50. 333-2547 after 5.

Barbie clothes ready for Christmas. Nov. 16, 17, 18. Fosbrink, 954 Seagate, C.L.C. 488-1130.

Roll of foil faced fibrglass insulation. 3 1/2 in. x 15 in. x 70 ft. (88 sq. ft.). \$18. 481-6928.

Bearcat 210 Auto Scanner \$200. Burt 333-2117.

General tubeless blackwall tire. 7:75 x 14, \$10. Thompson 483-4823.

CAMERAS & STEREOS

Marantz 2215B, stereo receiver, 15-watts, xint cond., sounds great, \$145. 482-7820 after 5.

Chrysler AM/FM stereo car radio. \$40. Linda 488-3579.

Vivitar E-33 enlarger, complete w/accessories, \$70. 482-7820 after 5.



MUSICAL INSTRUMENTS

Evette Schaeffer clarinet, 5 RV mouth piece, ail wood, xint cond. \$125. Bernhard 333-2968. 6-string Goba guitar. xint cond. \$30. Call Ron 488-1550.

PROPERTY & RENTALS

Lease: Forest Bend, 3-2 1/2 - 2 CP Townhouse, formal LR and den, pool, park, \$375/mo. avail. Jan. 1. 482-5482.

Lease: Baywind II Townhouse, 1-1-1. ref. w/icemaker, drapes, W/D connect. fireplace. Very charming and alongside pool, club, and 2 tennis courts across the way. \$350/month plus deposit. 334-2402.

Trade: \$8630 worth of land on Lake Livingston for mini motor home of equal value. Tex Ward. 488-5445.

Rent: Lakeside vacation retreat at Cape Royale on Lake Livingston. New 3-bdrm waterfront home compl. furn. Facil. inc. tennis, pool, golf, boat launch. 3-day min. 488-3746.

Lease: Sagemont. Lovely townhouse 3-2-1/2 - 2 w/refrig., washer-dryer, dishwasher, fenced backyard; free water, yardwork, swim pool. 20-min. to NASA. \$395/mo. plus dep. 481-5659 eves.





200 run in NASA Intercenter

Rains early in the week did not stop runners in the NASA Intercenter held Oct. 23-27. Hoofing against the clock on 2-mile and 10 km tracks behind Gilruth Center, 200 space program employees added points to JSC's total in four races. Similar runs took place at NASA centers around the country, part of a bi-annual competition. JSC results ranged from 10/38 (winner in the 2-mile Herb Cottle of McDonnell Douglas, shown below) to a few who didn't finish. Be watching *Roundup* for nationwide results, to see who will hold the trophy the next six months.



Awards...

(Continued from page 1)

government the \$15,000 it would have taken to purchase new ones.

Alan L. Farrow noticed that JSC utility systems and laboratories were running, as he said, "without serious regard for energy consumption." He set actions in motion from window treatment to individual air scheduling, saving the space center an estimated \$4 million annually, and garnered himself \$200.

N. Scott Morris found alternative methods for word processing that will save the government \$27,000 over the next five years. J. H. Levine cut labor costs and response times in the Space Shuttle certification system, saving \$40,000 in 1978. B. R. Baker designed a Spacelab mockup environmental control system. William W. Seibert developed a traveling wave tube power-down circuit.

The list is long. Pride levels are high. Merv Hughes of the cost reduction office wants more employees to get involved.

So analyze your daily workload. If there is a way to cut down on dollars, put it on Form 1150 and send it to Hughes at BG3.

Some of those dollars you save may end up in your checkbook.

LACIE Symposium...

(Continued from page 1)

estimate less than 1 percent below the actual amount released later by the Soviets.

In some areas of the U.S. and Canada, long narrow wheat fields are hard to distinguish, and at times wheat can be confused with other spring-planted crops in the satellite data. LACIE scientists con-

cluded that with improved resolution these problems can be overcome. A peer evaluation team reviewed the LACIE techniques and presented their report at the symposium, saying "LACIE results to date clearly demonstrate that remote sensing can be combined with or substituted for conventional methods of information collection to improve crop production estimates."

October was a month of high esteem for numerous space center employees. In the week of the 31st, JSC workers received honors at the AAS awards luncheon, and Dr. Robert Frosch presented citations at an awards ceremony on site.

At the awards luncheon, the W. Randolph Lovelace II award was given to **Dr. Sigurd Sjoberg** for sustained contributions to space technology. **Mr. Ronald L. Berry** received the Dirk Brouwer award for significant technical contributions to space flight mechanics and astrodynamics.

ALT Crewmen **Joe H. Engle**, **C. Gordon Fullerton**, **Fred Haise, Jr.**, and **Richard Truly** received Flight Achievement awards, presented for efforts in flight testing that have contributed the most to the advancement of manned space flight.

More honors for the center

15 cited for service and flight

Also at the AAS luncheon, the following space center employees were named Fellows of the AAS: **Mr. Aaron Cohen**, **Mr. Donald D. Arabian**, and **Mr. Clifford E. Charlesworth**.

The next day on site, Robert Frosch presented medals to those employees whose exceptional work won them national recognition.

Forrest G. Hall received the NASA Exceptional Scientific Achievement medal for his contributions to LACIE. Then five space center employees were pinned with Exceptional Service medals:

retiree **Archie Beckett** for his work preparing White Sands Test Facility for Orbiter propulsion systems testing; **James L. Dragg** for managerial and technical contributions to LACIE; **R. Bryan Erb** for managing the development of LACIE;

Frank H. Samonski, Jr. for work on environmental control and life support for Project Mercury and the Space Shuttle; and **F. Lee Tilton, III** for managing the development of applied remote sensing technology.

For the efforts of these workers, all space center employees have a right to be proud.



EXCEPTIONAL SERVICE—Honored at the NASA Awards Ceremony Nov. 1 were (left to right) Frank H. Samonki, Jr., R. Bryan Erb, Archie R. Beckett, James L. Dragg, Forrest

G. Hall, and F. Lee Tilton. NASA is the best-managed agency in the country, Administrator Robert Frosch said, and these men helped make it so.