

Frosch reaffirms goal of March STS-1 launch

NASA has confirmed a decision made earlier this year to schedule the first Space Shuttle launch in March 1981. The announcement follows an intensive review of the Space Shuttle program carried out over the past several weeks.

NASA Administrator, Robert A. Frosch, said the decision to continue to drive toward a March launch was made even though the Shuttle program received a potentially serious setback on July 30 when fire damaged a Shuttle engine during a test in Mississippi.

Frosch said a separate study of the cause of the engine fire and its possible impact has already begun but that the engine study would not be allowed to impede the central effort to hold to the agreed-upon launch schedule.

"Our exhaustive program review led us to the conclusion that we can set a difficult but achievable schedule leading to a first launch in March," Frosch said. "The engine failure Wednesday could affect that decision, but we will make every attempt to assure that it does not. I am counting on the commitment and hard work of everyone in the program to reach a March launch date."

The decision by NASA to commit to the March launch schedule came last week after a series of meetings where NASA and contractor people examined the status of preparation of the hardware and software required for the first flight. Also examined was the progress being made on certification of engines, the results of a number of recommendations made by 13 special teams carrying out independent assessments of the flight certification program; the progress being made on Launch Complex 39 at Kennedy Space Center, Fla.; mission planning, crew training and the readiness of the communications and tracking network which will be used during the Shuttle mission.

Columbia, the Shuttle orbiter being prepared for the first flight, is expected to leave the Orbiter Processing Facility at Kennedy Space Center on Nov. 23 after necessary work on the thermal protection system has been completed. Other work to be accomplished on Columbia while it remains in the Processing Facility includes minor structural modification to the orbital maneuvering system pods, other subsystem modifications and completion of orbiter checkout. The Manned maneuvering unit and tile repair kit are not now scheduled to be flown on the first flight.

After Columbia leaves the Orbiter Processing Facility, a 15-week work schedule has been established leading to a March launch. Columbia will move first to the Vehicle Assembly Building at Kennedy Space Center where it

will join the solid rocket boosters and the external tank and undergo an integrated test in preparation for its journey to the launch pad. After the Columbia arrives at Launch Complex 39 Pad A, it will undergo another extensive series of tests to assure compatibility between flight and ground systems in preparation for the flight readiness firing, scheduled for February.

The firing, during which the main engines will operate for 20 seconds, will validate system readiness and rehearse the countdown in March. During the approximately five weeks between flight readiness firing and

the launch itself, all of the data from the test firing will be thoroughly analyzed, together with the final results of the flight certification program.

In discussing the 15-week work schedule from Orbiter Processing Facility rollout to Launch, Frosch said, "Experience from previous first launches of new vehicles tells us that original work schedules are seldom carried out in the time planned and may take several weeks longer. However, that same experience also tells us that the best chance of the earliest successful first flight comes in working to a tight but achievable work schedule."

If we set the schedule tight...

JSC Director Christopher C. Kraft Jr. was asked by *Roundup* for his views on readiness to fly first manned orbital flight by the March 1981 target date. Here are his responses.

Roundup: Do you personally believe that we can meet a March 1981 launch date?

Kraft: At this point in time we are reasonably confident that we

know the amount of work yet to be done. That puts us in a position where we really have two fundamental situations. One is the work to be done in the Orbiter in the OPF, both mechanical work and tile application work. We have settled on some technical decisions which define very accurately what that work is. With the experience we've had at the Cape during the past year, we are confident we can meet that schedule. We always have the proviso that some failure could take place in some qualification test, but we are reasonably comfortable with the date of November 23 for rolling the vehicle out of the OPF and over to the Vehicle Assembly Building (VAB). From there to launch, we've scheduled 15 weeks, and that is based on a seven-day, three-shift work schedule and assumes that we don't have any problems in the new ground equipment that must be connected with it and tested at the pad, and going through the stacking in the VAB and the pad ac-

know the amount of work yet to be done. We all know that a first vehicle has problems, but we think that if we set the schedule in that tight mode we have the best chance of making the earliest date. I believe it's the right approach and that people can keep that as a goal in front of them and do everything they can to make it.

Roundup: Then that's not inconsistent with the we'll-fly-it-when-it-is-ready philosophy that we followed in the past?

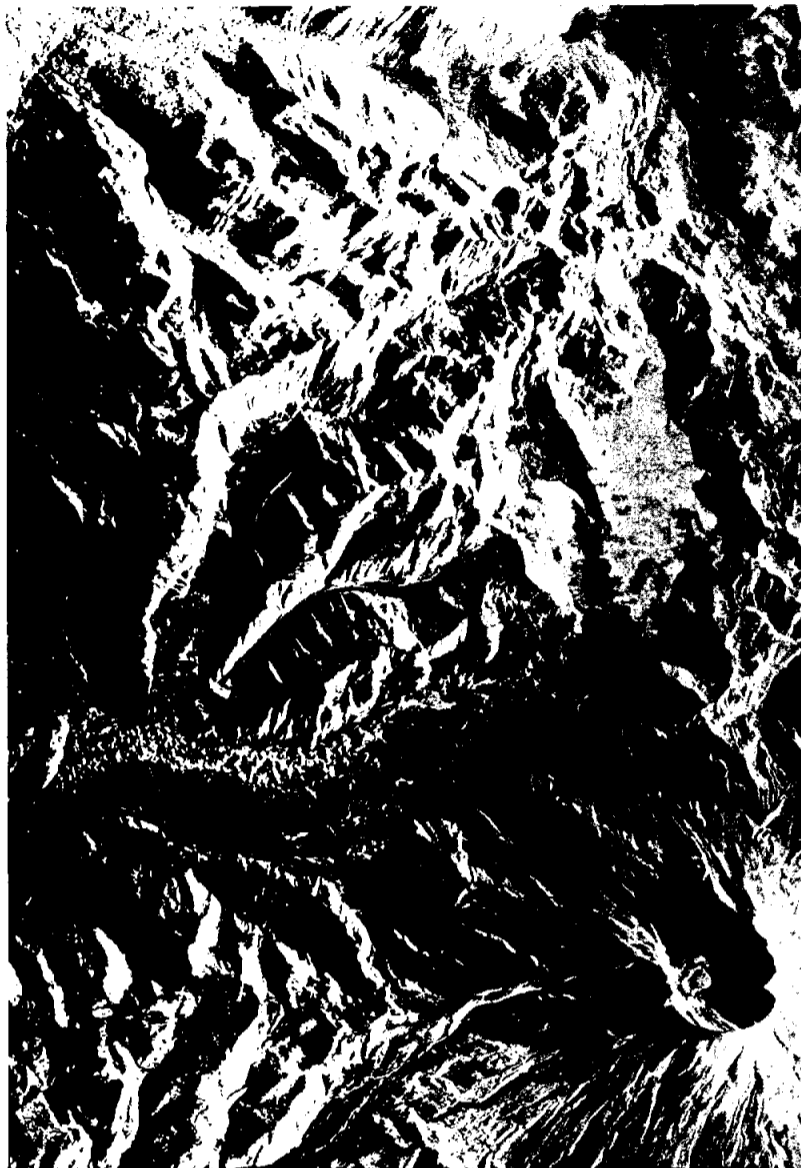
Kraft: Absolutely not! We're not going to fly until it's ready, and I don't think anybody wants us to do that. I don't think anybody is pressuring us to do that. I don't see any evidence that anybody wants us to foreshorten anything. But we believe that unless we set some tight schedules for ourselves, that are makeable, we are not going to get there.

Roundup: Have we learned anything from the Columbia tile problems that will help us do a faster, more efficient job of TPS installation?

Kraft: I certainly hope so. The problem that we have had has been twofold, maybe threefold. In the first place, we have not understood the tile material. And by using a sonic measurement test we've been able to define better what the strength of the material is before we put it on the vehicle. Secondly, as we applied the tiles, we later found a change in loads the vehicle will have to withstand, particularly thermal stresses and that caused us to revisit almost every tile on the vehicle to assure it had the proper strength.

Roundup: This new testing technique will probably bypass pull-tests in the future?

Kraft: I think so. It is our intent to densify all of the tiles from the outset as we apply them to the vehicle. Even though we have something like 4000 tiles on the vehicle that have not been densified, we intend to take them off between flights and densify them



THE MOUNTAIN THAT WAS — A JSC WB-57 high-altitude aircraft made this synthetic aperture radar image of Mount St. Helens volcano in southwestern Washington on July 7, some seven weeks after the May 18 eruption. The image was made from 60,000 feet and shows the northwest sector where the major devastation occurred. At lower right is the volcano crater with filled-in Spirit Lake above (north) the crater. Total forest destruction is imaged in the dark patches to the left (west) of the crater.

Ascans trek to Florida for survival training

Eight JSC astronaut candidates will spend three days in training at the Homestead AFB Water Survival School in Florida, beginning August 11.

Included in the eight that will take the training are two females and two European scientists who recently entered mission specialist training at JSC.

The activities will include classroom lectures on water survival techniques plus actual training in the water environment. Briefings on procedures precede each activity.

The two European scientists recently joined the NASA training program as mission specialists along with the 19 members of the new NASA astronaut candidate class. The Europeans are Claude Nicollier, 33, a Swiss astronomer who was formerly at the European Space Technology Center in the Netherlands and Wubbo Ockels, 31, a Dutch physicist formerly with Groeningen University, the Netherlands. They are employees of the European Space Agency, Paris, France.

Only six of the 19 new astronaut candidates are taking part in the water survival program. The other 13 have already had the sur-

vival training before entering the NASA program.

The training includes jumping from a tower wearing a tethered parachute harness while sliding down a wire to a landing in the water. The candidates will also be towed through the water in a parachute harness, simulating a parachute dragging one across the surface and having to release one's self.

The astronaut candidates also will be towed aloft under a parasail canopy, land in Biscayne Bay, and be picked up by a boat. On the final plunge into the water via parasail, the astronaut candidates will be coming down with full survival gear. A helicopter will pick them up from their life raft.

The USAF Water Survival School is operated by the 3613th Combat Crew training squadron with headquarters at Fairchild AFB, Washington.

The six NASA astronaut candidates taking part in the program are Franklin R. Chang, Mary L. Cleave, Bonnie J. Dunbar, William F. Fisher, Jerry L. Ross and Sherwood C. Spring. Additionally, scientist-astronaut Owen Garriott will take a refresher at the school.



MAKE THE EAGLE SCREAM — Their collective penny-pinching saved NASA a bundle — \$227-million bundle. Cost reducers at the July 14 award ceremony wait to receive their eagle trophies, certificates and the Director's handshake. Front row, left to right, are Eddie L. Burrell, Melvin H. Kapell, Donald B. Cherry (accepting for Lyn Gordon-Winkler), Thomas E. Ohnesorge and Charles M. Vaughn. Second row: James C. Lamoreaux, Edward E. Lattier, Alexander W. Pajak, Glenn M. Ecord, Calvin Schomburg, Margaret Coward, Patrick M. Duffin and Dean W. Allen. Third row: Gary D. Nealis, Paul P. Coan, R. L. Sinderson, Donald E. Rhoades, Richard E. Coblenz and James P. Ledet. Not in photo: Clyde J. Stoker, Lyn Gordon-Winkler, Samuel R. Weathersby, all of JSC-Houston; and Gene W. Frye and Leonard A. Schluter of JSC-White Sands.

Cost-cutters save JSC \$227 million

More than \$227 million has been saved by JSC employees since October 1979 through improvements and conservation under the cost reduction program. The savings are reprogrammed to projects short of funding to lessen budget crunches in these areas.

Top saver for the 10-month reporting period was Charles M. Vaughn of Spacecraft Payload Integration and Development Program Office who received a \$500 cash award and a golden eagle for the use of a standard mixed-cargo wiring harness for Spacelab.

Vaughn and 23 other JSC cost savers contributing to the Center's \$227,168,100 thrift received awards July 14 from JSC Director Christopher C. Kraft, Jr.

Other golden eagle recipients were Glenn M. Ecord, Calvin Schomburg, Dean W. Allen, James C. Lamoreaux, Donald E. Rhoades and Edward E. Lattier. Ecord and Schomburg each

received \$150 cash awards, and Allen, \$100.

Bronze eagles went to Eddie L. Burrell, Paul P. Coan, Gary D. Nealis, Samuel R. Weathersby, Thomas E. Ohnesorge and Dean W. Allen.

Certificates signed by Kraft went to all the above eagle winners, plus Leonard A. Schluter, Melvin H. Kapell, Clyde J. Stoker, R. L. Sinderson, Alexander W. Pajak, Donald E. Rhoades, Patrick M. Duffin, James P. Ledet, Lyn Gordon-Winkler, Gene W. Frye, Richard E. Coblenz and Margaret Coward.



I'd be willing to fly on any vehicle we've ever flown....

Continued from page 1

as well. Although it may sound at times, particularly to the people who are working on the vehicle, that we don't know what we are doing, I believe we are over that and am hopeful that we can keep the loads picture stabilized and be comfortable with the aerodynamic and vibroacoustic loads that the vehicle is going to see.

Roundup: What is the outlook for a second-generation thermal protection system?

Kraft: Langley is looking at the question of a substitute for the material we presently have on the vehicle — more reliable, stronger, more impervious to workers, things being dropped on them, and ice and so forth. I think it is unlikely that they're going to come up with a material which is more resistant to damage than the present tiles. However, we are working on improvements in the tile material, making it stronger and lighter and working on the coating, and on the material itself so that if it were to lose its coating it still would not be destroyed totally dur-

ing entry. By making it darker, so that its emissivity is more akin to a coated tile than the present system. Some of these improvements may get on the OV-103, but more than likely they would get on the third vehicle, OV-103.

Roundup: Administrator Frosch said that there are not now any plans to fly the manned maneuvering unit and tile repair kit on STS-1. Are we going to continue with early delivery of the kit and MMU just in case?

Kraft: Yes. It is our intent to bring that equipment on as fast as we can with the resources we have — they are somewhat limited — but I don't think money is a problem. We intend to have that equipment ready in a contingency mode so that if something were to happen in a qualification test which would cast a doubt on our present tile situation, we would be in a position to fly the tile repair kit if necessary. The reason we chose not to put in any of the equipment at this time is because we did not want to in-

terfere with mainstream scheduling. We figured that the team would become preoccupied with the EVA mission and we did not want to be in that position. We are confident that the tile system will work, and until proven otherwise we are going to stay with the present mainstream schedule. When we make a decision that we have to fly the tile repair kit, then we'll take the schedule hits required to do the training and put the equipment on the vehicle.

Roundup: Do you have full confidence now in the main engines?

Kraft: No, I don't. I think several problems have developed in recent weeks that demand a certain amount of retest, of the main propulsion test article and single-engine tests at NSTL. Although there are some indications that a fix is being developed for particularly the burn-through on the main propulsion test article, until that has been proven we are not in a position where we say we fly the engine. Hopefully, we can make some fixes to the present engine design which would develop a confidence level by additional tests we can make between now and the end of this year. If that is the case, then I think we could regain the confidence that is necessary to fly those engines.

Roundup: If there were a "jump seat" on Columbia, would you be willing to fly in STS-1 with Young and Crippen?

Kraft: I'd be willing to fly any vehicle we've ever flown, and I still feel that way. I'd like to be given the opportunity to fly on the first flight, because I'm confident that when we get ready to go that it's about as safe as you can make anything. That isn't to say that I don't think there are not a lot of risks associated with the first flight of any vehicle; I think there are. But I think that if I could go and fly in space, I'd certainly be willing to take it myself. I wish somebody would give me that opportunity.

Roundup: After STS is operational, will ambitious projects like space operations center and solar power satellite ever see the light of day in view of the economic and

political conditions that exist?

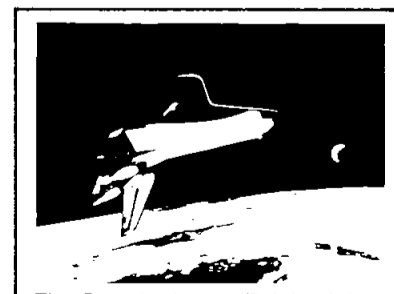
Kraft: Trying to be clairvoyant and say what's going to happen to the space program is very tough to do in terms of time. It's inevitable that we are going to do manufacturing in space and therefore have continuous space operations, habitability modules — call them what you will — but they will be space stations in various inclinations around the earth being supplied by the Space Shuttle. There's a very strong need for a structure which has power and has the capability for man to live there, so that you can attach various modules such as manufacturing devices. McDonnell Douglas already had in mind a pharmaceutical device for producing pharmaceutical materials. I think you're going to see those sorts of things come along very rapidly once the Space Shuttle begins to fly. There is going to be a large demand for putting things into space. It makes sense to me to pull them together in several central locations, because that allows you to conduct a lot of experiments in space, for new products, for observing the earth and the universe. I would assume that JSC would be intimately involved with anything that had to do with manned operations and building the equipment to do all that. As we all know, there's bound to be a hiatus between that time and when we have that hardware, because it takes a certain amount of time for the development of that equipment, and we'll probably end up using a lot of equipment we have on hand to shorten that time period. We may have to build other equipment with new technology later.

Roundup: What do you have to say to career JSC employees to get them to "hang in" without changing careers or otherwise bailing out?

Kraft: In the first place, I hope they all realize that we've got to pull together to get the first Shuttle flight off, and I know they will. The people here are used to doing that sort of thing and I have every confidence that they will support what we're trying to do. Regarding their

future, I have to be a little nostalgic about that because having spent all my life in Government, and working in the kind of work that we have for the last 20 years in space, I think it's an extremely rewarding career. If you're looking for large sums of money, you're not in the right business, but there are more things to being rich than money. I feel that the association with the people we have at JSC — their commitment to what they do and their honesty in how they go about it — is extremely unique in the world we live in. I think that's worth more than money can buy. I believe that if people would step back and take a look at that aspect of the job they have, they would be even more pleased with where they are. Therefore, I think that a career in our business is one of, if not the most rewarding, places you can work in the United States. I do believe that a large number of the people who work at JSC already realize that. That's the reason they are still here. You'll find that as people leave JSC and get out into industry, and make that money, they're very sorry that they made the trade, that the money really isn't worth it. The feeling of reward and satisfaction that you have when you go home from this place, compared to what it is after they leave here, is very, very profound.

Roundup deadline is the first Wednesday after publication.



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.

Editor Emeritus

Terry White

Cookin' in the cafeteria

Week of August 11 - 15

Monday: Chicken & Rice Soup; Texas Hot & Beans; BBQ Ham Steak; Steak Parmesan; Beef & Macaroni (Special); Green Beans; Carrots; Au gratin Potatoes. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches & Pies.

Tuesday: Tomato Soup; Potato Baked Chicken; BBQ Spare Ribs; Mexican Dinner (Special); Squash; Ranch Beans; Spanish Rice; Broccoli.

Wednesday: Seafood Gumbo; Baked Turbot; Liver & Onions; BBQ Ham Steak; Baked Meatloaf w/Creole Sauce (Special); Beets; Brussels Sprouts; Green Beans; Whipped Potatoes.

Thursday: Beef & Barley Soup; Chicken & Dumplings; Corned Beef w/Cabbage; Smothered Steak w/Cornbread Dressing (Special); Spinach; Cabbage; Cauliflower Au gratin; Parsley Potato.

Friday: Seafood Gumbo; Pork Chop w/Yam Rosette; Creole Baked Cod; Tuna & Salmon Croquette (Special); Brussels Sprouts; Green Beans; Buttered Corn; Whipped Potatoes.

Week of August 18 - 22

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 & Pies.

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

Wednesday: Seafood Gumbo; Catfish w/Hush Puppies; Roast Pork w/Dressing; 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.

Bulletin Board

McGinnis Speaks to Lunarfans

The Lunarfans Scuba Club August 20 will hear guest speaker Jan McGinnis speak on his 28 years in scuba diving at 7:30 pm at the Clear Lake Park Building on NASA 1. McGinnis will illustrate his commentary with a slide show. Lunarfans sponsor Gulf dive, international diving trips and basic scuba certification courses. Call 480-1340 after 5 for more information.

CSC NMA Chapter Meets August 12

Computer Sciences Corporation's National Management Association Chapter will hold its monthly dinner meeting August 12 at the Gilruth Recreation Center. Astronaut Loren Shriver will speak on the Space Transportation System. Social hour is at 5:30, dinner at 6:30 and program at 7:30. Guest tickets are \$7 and today is the reservation deadline with Lynda Peterson at 486-8153, ext 153.

JSC Blood Drive

The second JSC Blood Drive for 1980 will be held in the Gym at the Gilruth Recreation Center on Thursday August 14 starting at 8 a.m. Remember one donation insures you and your family for all blood requirements for one year. If you are already insured, you can donate for someone who is unable to for physical reasons. For an appointment call Jim McBride at 2541 or Rachel Windham at 6493.

Mets Run Home With Softball Title

Wayne Whittington hit a two-out, two-run triple to tie the score and Mickey Donahoo followed with a game-winning single as the Mets scored 6 runs in the bottom of the seventh inning to defeat the Styx 12-11 in the EAA Men's Competitive Softball League. Mike Slack led the Mets offensively 4-4 and scored the tying run, Whittington with 3 triples, shortstop John Allen 3 hits, including 1 in the 7th inning. Met outstanding defenders were outfielders Rich Kruse, Al Morrey and Jim Smith who also had a home run. The Mets were stymied for the first 6 innings by the Styx defensive play. Styx also hit 3 balls over the fence. Mets have won the title eight times in 10 years, and have won 400 games since formed in 1966.

JSC Softball Team Goes to State Tournament

JSC softball players from the recreational and competitive EAA leagues have formed a team to compete in the August 16-17 ASA major industrial state tournament in Houston. Led by Richard Kruse and Al Morrey, the team out-slugged Houston Post Office 25-24 in an extra inning with Wayne Whittington belting the winning run. The team is the second EAA-sponsored team to qualify for state in three years. Team members are John Allen, Dan Brandenstein, Jack Botkin, Mickey Donahoo, Nat Hardee, Steve Hawley, Rich Kruse, Al Morrey, Jim Pawlowsky, Mel Richmond, Mike Slack, Wayne Whittington and manager Rich Holtje.

Bowling League Holds Start-up Meeting

The NASA Mixed Team Bowling League will meet August 12 to form team rosters, hash over rules, and set the season schedule. NASA and industry bowlers are invited to attend the meeting at 5 p.m. in room 206 of the Gilruth Center. Steve Paddock at 4271 or 482-8781 is the contact.

Bikers Plan 20-miler

The JSC Bike Club Sunday will sponsor a 20-mile ride from Clear Lake City along Bay Area Boulevard to the Seabrook waterfront and return. Riders, novice and experienced, should meet with brown-bag lunches at 9 a.m. August 10 in the northwest corner parking lot at Bay Area and Space Center Boulevards.

On Sale at the JSC Exchange Store

(Store hours 10 a.m. to 2 p.m.)

Dean Goss tickets: \$10 single, \$20 couple (reg. \$14.50)
ABC Theatre tickets: \$2 ea.
General Cinema tickets: \$2.40 ea.
Astroworld tickets: \$8 (reg. \$9.95)
Six Flags Over Texas tickets: \$8 for one day (reg. \$9.95)
\$9.95 for two days (reg. \$14.94)
Magic Kingdom Cards: Free
Sea-Arama Marineworld Fun-Time cards: Free

Secretary of Month

Excellence is Jiongo's norm

Excellence is the norm for Lyyle M. Jiongo, according to Wayne E. Koons, manager of the Orbiter Project Office Manufacturing and Test Office. "When she is assigned a task, it is accomplished in a timely

manner with a minimum of instruction," said Koons in his nomination write-up. Jiongo received the Outstanding Secretary Award for June.

Toastmasters Hear Champion Speaker

Toastmasters speech contestants all seem to aspire to win the title of international speaking champion. Houstonian Kathleen Smith claimed that title recently at the Toastmistress international contest in St. Louis. Smith spoke August 6 at the Spaceland Toastmasters Club and used the speech, "Romance of Words," with which she won the international contest.

Smith competed against 24 speakers from Australia, Bahamas, Hong Kong, Scotland, Japan and Greece. She is the first Houstonian ever to win an international contest.

Members of Spaceland Toastmasters feel that somewhere at JSC there is a potential international speaking champion waiting to come out of the closet. The club meets first and third Wednesdays of each month at Franco's Pizza, 1101 NASA Road 1. Call Steve Jacobs at 3561 or Emmet Fisher at 3278 for further information.



One of the qualities cited by Koons is Jiongo's ability to lessen the impact of paperwork on his group of engineers through a comprehensive filing systems that allows quick information retrieval. He also lauded her knack for making sure that the office covers all meetings by juggling schedules, people and travel.

"Her outstanding capabilities and exceptional maturity have contributed highly to a very smooth-operating organization," said Koons.

Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Property & Rentals

Rent: one furnished bedroom in a 3-br house. Conscientious and nonsmoking person preferred. \$160/mo, 6 mi from NASA. Jeff x7429 or 482-5393 after 5

Rent: vacation at Lake Livingston, Cape Royale, custom furnished home, 3-2-1; fish, ski, tennis, pool, golf, etc. Reserve early. 488-4487

Rent: Forest Bend, unfurnished 3-2-2, carpet, drapes, fenced backyard, formal den, vaulted ceil livrm, fireplace. Available Sept. 1 482-7355

Rent: Water front condo, Dickinson. Just remodeled 2 bed 1 bath covered parking. \$325 + deposit. 337-2304 or 534-6739 eves.

Lease: Sagemont, 4 br, 2 1/2 bath, townhouse, 2 car garage, Swimming pool, priv. wash/dryer. \$525/mo. Ed x5841 or 481-0679

Sale: Walden on Lake Conroe, 1-br condo, 700 sq ft, \$17,500 equity, assume \$29,000 balance, 9 3/8 mortgage. 485-5762 after 6

Rent: Lake Livingston 3-br lake front cottage, all amenities. 554-6093 or x4207

Rent: Lake Livingston, Cape Royale 3-br waterfront cottage by marina, tennis, pool, golf, boat ramp, 3 day min. 488-3746

Lease/Sale: 3-2-2 on quiet cul-de-sac, fenced, very nice, \$425/mo plus deposit or assume 8-1/2% loan. Jeff 484-1514

Lease/Sale: Heritage Park 3-2-2 fenced with refrigerator, very nice, \$425/month. Wing 483-3586 x457 or Wilson 471-2771 x442

Cars & Trucks

73 Catalina auto, a/c, ps, pb, engine exc, front two fenders and bumper damaged, \$700 or offer. x5835 or 332-4627

78 Cadillac coup deville, exc cond, Schneider x4251 or 1-426-4749

75 Maverick, red, exc cond, A/C need some work, \$1400. 331-4327 or 333-6402

68 Chevrolet, 6-cylinder, standard transmission. Engine economical, runs

good, car needs work, \$100. John x4202 of 488-2272

VW Bug: mechanically excellent, engine rebuilt, new tires and paint, \$2000, or have your own bug recycled. Don x5817

75 Lancia Beta Coupe, good mechanical condition, 25 mpg on reg gas. Way below book value at \$2500. Returning to school, must sell. 333-5815

Go Kart, low slung for track racing, good condition, helmet included, \$125 firm. 482-2810

71 Marque, pwr seats, windows, brakes, cruise control, A/C, stl bltd tires EXC condition everything works. \$750. 488-5079

74 Monte Carlo, air, pb, ps, tilt wheel, FM stereo, needs engine work, \$600. Janet x2666 or 334-4972

74 Pinto, 4 speed, A/C, radio, 24 mpg, reg gas. 485-5106

67 Opel/Kadett, 1100cc, 63K mi, 28 mpg, good body and eng, \$495, Don J. x4901 or 488-5342 after 5

72 Olds Delta Royale, good cond, \$1200. 337-2759

77 Ford 4x4 pickup, 3 tanks, long range, \$3500 or make offer. T. J. Cash, 474-2391.

8-ft truck camper, stove, oven, 3-way refrig, \$2000. T. J. Cash, 474-2319.

74 4-dr Galaxie, auto, PS/PB, air, AM/FM stereo tape, equalizer hitch, new tires, good cond, \$1500. 946-1965

Ford Galaxie 500. 1972 with a/c, pb/ps, AM/FM stereo, tape deck. Good condition. \$950. David 554-2401

Household Articles

J.C. Penney 20-cu ft chest freezer, avocado green, exc cond, \$150. Larsen x5049 or 334-3432

Love seat \$125, solid oak dining table, 2 months old, paid \$500 asking \$300 firm. Janet x2666 or 334-4972

8-ft pool table, slate top, heavy, \$350. 482-7965

Maple bunk beds or twin beds W/2 bunkie mattresses, good condition, \$125. 482-2810

Wagon Wheel light fixture, 3 lights, 20" diameter, \$25. E. Rubenstein x3116 or 334-2354

33 square feet of Solar x window film, \$10. 334-3370

Baby items: wind-up swing with canopy, like new \$15, infant scale, \$9.50, G.E. Electric dish, \$5, Tubby bath, \$3.50. John x4202 or 488-2272

Antique walnut dining room set w/buffet and mirror. Jan 482-4340 eves/weekends

Large 36/60 wooden desk with metal organizer, \$250. 488-0140

20 x 30 ft brown plush carpet with padding, like new, \$450. 488-0140

Red shag carpet, xint cond, 16 x 20, 12 x 16 and smaller sizes \$2/yard, Mosel, 4271 or 482-6786.

Crystal, 8 comp place settings, 140 pieces, Ingrid by Seccna. 334-2461.

9 x 6 mini-blinds, new, Bartlett green, easy install, \$50. 946-4059.

Cowboy boots. Brand new! Laredos. Brown, snake-skin look. Men's size 8 D. \$40. Lora 483-6343, after 4, 488-4012.

Pets

Wanted: Good home for male Belgian Sheepdog, 14 months, must have fenced yard, Sharon x4941 or 481-8979

Mini Dachshund puppies, AKC, pedigree, smooth, will be under 10 pounds, black & tan, red, \$175. 337-2043

Finches: 5 zebra finches with 9 tier bamboo cage, \$50. 3 society finches with cages \$55. 729-5481 after 6

Registered Cairn Terriers, female, 10-wks old, all shots, \$175. Swingle, 488-2421.

Lost & Found

Man's Silver Seiko watch, lost on grounds at Gilruth rec center during Lunar space run Sat., 26 a.m. Curry x4048

Wanted

Playpen and high chair. Tom 946-4827

FOD's ContraBand is looking for trumpet and saxophone players for

their stageband. For info, contact Milt Hefflin x2491

78 Blazer or Jimmy 2WD, 305 or 350, air, pwr, cruise, tow pkg, pref lite color. White x5111 or 332-5177

Engine stand, electric welding rig, oxy-acety line cutting rig. Hauck x3856 or 486-8826. Car ski rack. 488-5079

Boats & Planes

11' sailboat, great beginner boat, good cond, 380 lb capacity, fits on cartop, \$250 or best offer. Lou x2970 or 334-6001

Outboard motor, 1 1/2 hp Evinrude, exc for canoe or for trolling. Less than 25 hours total run time. \$190. 333-3071

Luscombe airplane for sale, new fabric new paint, 65 hp, best offer. Bob Colvin x 4235 or 654-8416

Luscombe flying club starting, \$500 for membership, \$20 per month, \$12 per tackhour. Bob Colvin x4235 or 654-8416

Stereos & Cameras

Kenwood 75 w/ch amp, \$200, Yamaha FM/AM tuner, \$130. All units prct. 488-3966

Superscope stereo, 8 track, record changer combo w/separate 3-way speakers, good cond, exc for teens, \$120 firm. 482-2810

Marantz receiver and turntable, like new, \$450. Bryant 554-2693

35-watt stereo rcvr, good sound, \$100. T. J. Cash, 474-2319.

Musical Instruments

Drumset for sale, Ludwig wooden-shell drumset in exc cond, Base drum-wingtom-floor tom. Hi hat stand and crash stand. Kevin McCreary 488-7636

Piano, exc for beginner or intermediate, nice maple finish, \$450. 332-2205 after 5

Misc

Ladies Samsonite luggage, 6 pieces: 29", 21", garment bag, tote

bag, shoulder tote, and makeup case, exc cond, \$300. 332-3234 after 5

50 ft coil of new copper tubing, 1/4 inch O.D. suitable for water hook-up to icemaker, \$10. St. Leger x2626

Need parts for 74-77 Camaro? Junking out 1976 with good 305 V/8 and auto transmission. Good sheet metal also. Jeff 487-2978

Beautiful macrame plant hangers, very reasonable. Ruby x4995 or 944-5944 evenings.

Camper top, model 30 imperial, aluminum exterior, mahogany interior, exc cond, \$200. 337-3811

Larry Dykes art collection, limited, signed and numbered. 1st 15 paintings. No. will 90 to buyer, \$1500. 554-2693 after 4:30

Royal deluxe portable typewriter, with case, \$25. 80 National Geographic magazines, new condition, \$10. 34 harlequin paper backs, \$2. 488-3618

Time-Life World Library, 33 vol set, like new, great buy at \$65. Dell x3205 or 946-6431

Fresh locally-produced honey. Quarts \$3, Gallons \$11. Larger quantities available. Ward x4976

Coleman 13 x 10 tent (fair), stove, lantern and heater \$100, Bill x4153 or 944-5611 after 5

Used golf balls, exc cond, like new Dunlop, Tkleist, Hogan, Palmer, Pro Staff, etc. 35¢ each. Smith x4463

Garden tractor, Gravely, 8 hp electric start x/40" mower, cultivator, rotary plow, \$1800. Hauck x3856 or 486-8826

Sears exercise bike, row action, adj seat, xint cond, \$50. Steve, 4061 or 480-3845.

Carpools

Need 4th for carpool, 8-4:30 shift, Bowling Green (Pasadena/Red Bluff) to Bldg. 12 (reserved spot). Lois x4735

Cycles

79 model 175 Yamaha motorcycle with all equipment (boots, pants, gloves, helmet etc) \$850. Jeff 487-2978

Center apprentices start careers early

"This shows you that people really do have to get up and work eight hours a day. It's good experience." Connie Carr was talking about the Research Apprenticeship Program, under which she and 14 other high school students from Houston are working at JSC for the summer, getting hands-on experience with science and engineering jobs.

The program was developed by the Office of Management and Budget last year, with help from presidential advisers. Its goal is to stimulate youth interest in careers in science and engineering.

The first two weeks the students alternate days of hands-on laboratory research and workshops conducted by JSC aerospace education specialists. They then moved into various directorates at the space center four days a week, with the fifth day reserved for review reports and field trips.

Roundup recently talked with six of the students.

Sergio Davila goes to Stephen F. Austin High School and Lionel Castro goes to Milby. The two



Lionel Castro

"We help them wire the panel, we solder the wires, and then take the data," Davila said.

"We do practically all our work together, because mostly it takes two people to do the wiring," said Castro who plans to study engineering or astrophysics at The University of Texas. "Then I might like to come back to work here."

Davila plans to study aerospace engineering in college and hopes to work at NASA.

Connie Carr, from Yates High School, has been working in Building 17 in Earth Observations with Robert Musgrove. Carr looks at maps and films from Agristar readings to delineate the corn from the wheat fields. "Then I take the time of the film and I count the frames," she said. Her work means long hours bent over a fluorescent light table, and she is learning about the rigors of holding a job.

Carr plans to go to A&M or UT to study engineering or architecture, but she hasn't pinpointed a career choice yet.

Patrick Joseph has been working in Building 12 in the Mission Data Computer System area at JSC. He is helping to set up a document file for the Space Shuttle that is similar to the data recording system in the Apollo and Gemini programs. It will keep a day-to-day record of everything done during a Shuttle mission.

Joseph is programming on a Univac 1100 computer in Building 12. He plans to study computer

sciences or engineering in college, and he wants to come back to NASA to work on the Space Shuttle program. He goes to Austin High.

"I want to go up," he says with unfiltered enthusiasm.

Brenda Williams attends Yates High School. She is the only Junior in the program to be selected by counselors and instructors. Williams is working with Carolyn Leach in the Biochemistry Lab on astronaut annual physicals.

Her biology courses in high school gave her some background for the job at JSC, but like the others, she has found the hands-on experience with real work invaluable. As for college, "I'm not sure yet, but I am interested in chemistry," Williams said. "I hope to go into some kind of medical field."

In the TV lab of Tracking and Communications, Byron White of Milby high is helping out this summer. "I put together a microprocessor, I finished that about two weeks ago," he said. "There's nothing much to it," he says with modesty, "if you can build a model airplane you can build one of these."

He got this job because "I just like science," he said. White plans to stay close to home, going either to the University of Houston or Rice.

All 15 are enthusiastic about the program, and many hope to



Connie Carr

come back next year as interns. The program gives them an early introduction into the real world of work.

"In high school we had a computer course, but it didn't use the same kind of language as the things we're doing right now.

Joseph said, "Up here you really have to apply yourself to get done what you want to do. On the Space Shuttle they have to really work, do a lot of reading and studying, because one mistake and that's the whole program."

Air Force assigns one of first female grads to JSC

A 23-year old blue-eyed blonde and a May 1980 graduate of the Air Force Academy is a new face in the Air Force's Manned Space Flight Support Group at JSC. Dianne Langmade, a newly-commissioned Air Force second lieutenant is "very excited to learn about the Space Shuttle program from the ground up."

Langmade, one of the 98 women in the Academy's first class to graduate women, earned degrees in engineering and humanities. She said she applied for admission to the Academy "on a dare from friends — they didn't think I would make it. It was tough but well worth it, you get a good education and meet people from all over the United States."

Langmade is also the first female Air Force officer to be

assigned to JSC. "We were looking for someone with a technical background; we liked her credentials and offered her the position," said Lt. Col. John M. Reece, Air Force test and evaluation manager at JSC.

Langmade will join NASA flight controllers to learn to operate the thermal systems console in the Mission Control Center during Space Shuttle missions. She will be responsible for monitoring performance of the Orbiter's passive and active thermal control systems.

"Although I'm kept busy with training and stacks of reading material, I find the atmosphere at JSC much more relaxed than at the academy," she said. "Everyone has been very friendly and helpful since I've been here."

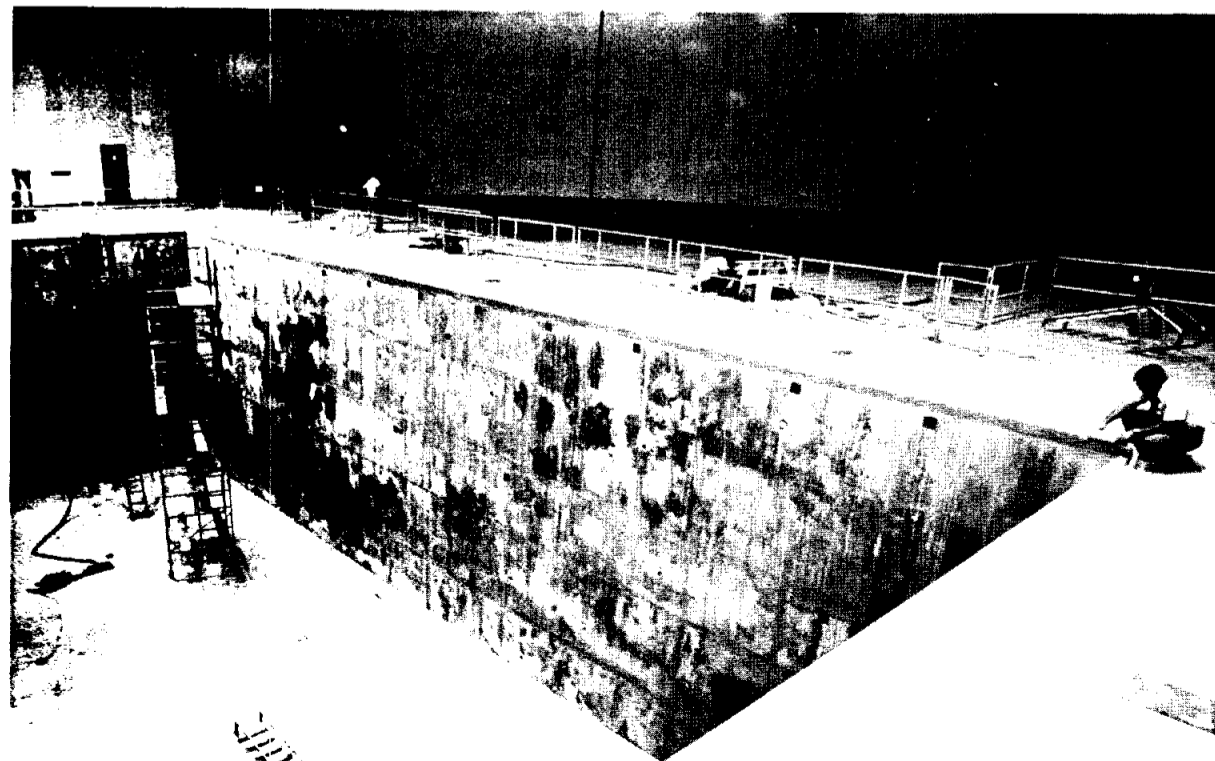


Sergio Davila

work together in the Space Environment Test Division with Jim McLane on tests with solar arrays in the vacuum chambers. "They shoot ions at the solar panels to see how they collect them, and we take that data."



Byron White



MARK SPITZ, EAT YOUR HEART OUT! — JSC's water immersion facility, known acronymically as the "Wif," nears completion in building 29 where at an earlier time the Apollo manned centrifuge whizzed around the roundhouse. It was tough and go early last year when subsurface muck ran amuck and threatened the building's underpinnings. Well-point pumping and shoring in the excavation stabilized the gumbo until the floor and wall concrete could be poured.

GSFC unveils STS payload

The first scientific and applications payload for NASA's new Space Transportation System was unveiled Tuesday, July 22, at Goddard Space Flight Center, Greenbelt, Md.

Primary objective of the test flight mission is to evaluate performance of the Shuttle systems in planned modes of operation and to measure the environments associated with operation of the Space Transportation System. Its secondary objective is to provide early demonstration and verification of Space Shuttle's research capabilities for science, applications and technology.

Experiments on OSS-1 cover the disciplines of space plasma physics, solar physics, astronomy and life sciences all of which are represented by one or more instruments.



Langmade, who considers herself the "out-of-doors type" plans to spend her spare time fishing, playing tennis, skiing, riding horses and running (she was on the track team at the Academy).

Born and raised in Phoenix, Arizona, Langmade is the daughter of Mr. and Mrs. Robert H. Langmade. She says, "my parents and brothers Dale and Dan (twin brothers) are very proud of my accomplishments and want to know all about what I'm doing."

Langmade will be stationed at JSC for the next three to five years and "so far" plans to make the Air Force her career.