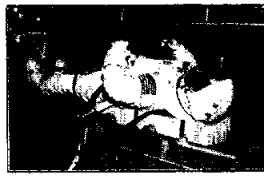




Complete fleet

On-orbit photography shows the STS-28 crew in action aboard *Columbia*, the last of the orbiters to return to flight. Photos on Page 3.



Translation, please

Work on the Crew Equipment Translation Aid is getting hot and heavy as designers prepare for a flight experiment. Photo on Page 4.

Space News Roundup

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September 15, 1989

No. 37

JSC receives visit from 'Head of the Class'

By Kelly Humphries

Sitcom television came to JSC this week as actors and crews from ABC's "Head of the Class" began filming a two-part episode centering on STS-31.

Filming began at the Mission Control Center on Wednesday, continued Thursday with crews roving the campus and shooting footage at Rocket Park and the front gate, and will end today with an all-day, all-night marathon of shooting in the Full Fuselage Trainer (FFT) and Space Station Freedom Mockup in Bldgs. 9A and 9B.

Additional filming will be done at The Burbank Studios in California.

"We're really here to shoot the things you can only get here, such as Mission Control," said Frank Pace, line producer for Eustis-Elias Productions, which produces the show in conjunction with Warner Bros. Television Inc.

The situation comedy is about a class of academic overachievers at Fillmore High in New York City, Pace said, and this episode will revolve around the class' two "science monsters," having their Student Involvement Program experiment fly aboard *Discovery* on the Hubble Space Telescope mission. The mythical experiment is called "Frogs in Space," and is a "clinical evaluation of regulated muscular activity by amphibia and *anura rana catesbeiana* in a weightless environment and its implications for *homo sapiens*."

Science whiz kids Arvid (played by Dan Frischman) and Dennis (played by Dan Schneider) come to JSC with teacher Charlie Moore (played by Howard Hesseman) during the mission, Pace said, which sets up interaction between the students, their

adviser, their teacher and flight controllers.

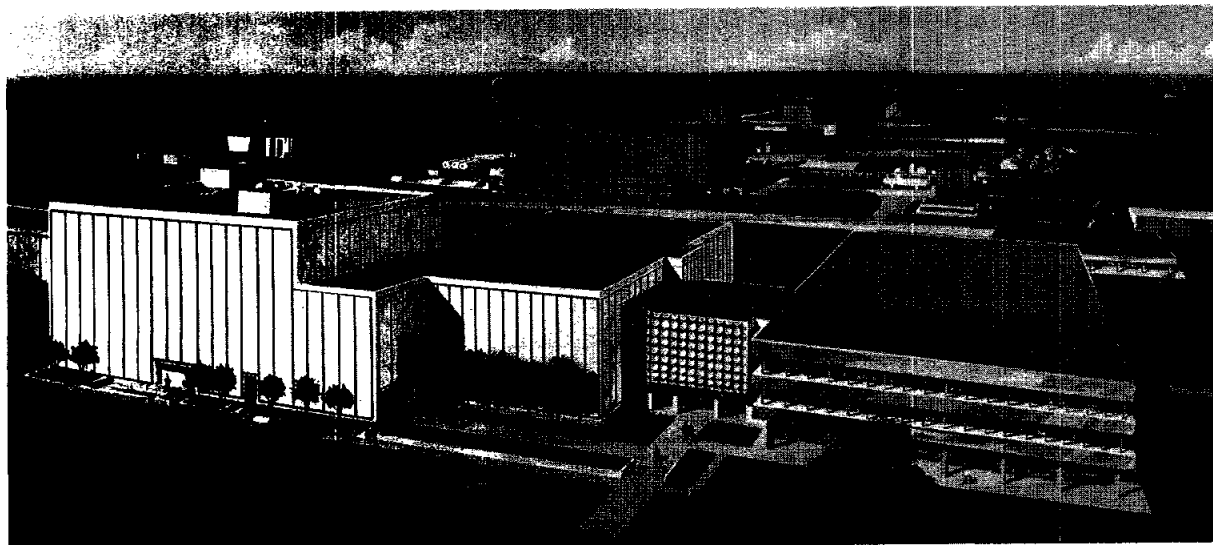
One of the students will try to take more credit than he deserves for the experiment, Pace said, which will provide an opportunity for their teacher to relate the moral of the episode, which is that it takes a lot of people working together to make large projects come together. One of several subplots will have Arvid catching a problem with data given to flight controllers during a simulation at the same time the flight controllers catch it, he added.

"All of us have gone through a renewed awareness and appreciation of the work that's being done here," he said. "We have put a lot of time and research into it."

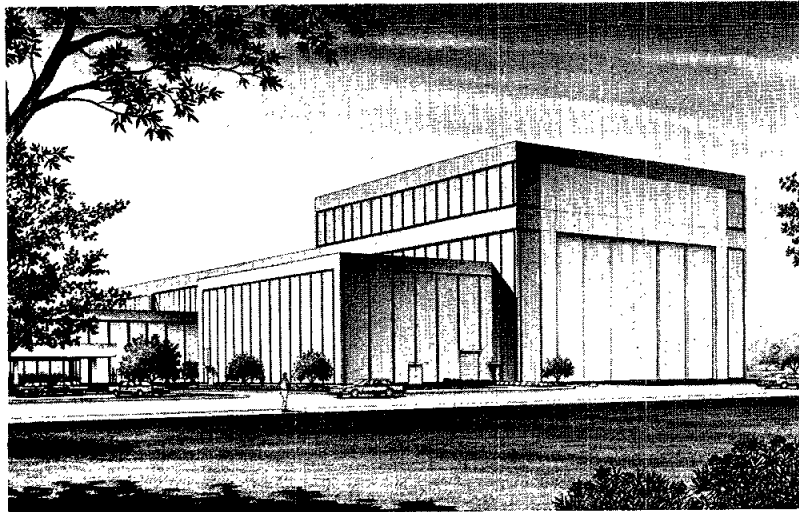
Some locally familiar faces may appear on the show as the extras were selected from the Houston area, he said, and former astronaut Buzz Aldrin will make a guest appearance during studio shooting.

The first part is scheduled to air during ratings sweeps week at 7:30 p.m. JSC time Wednesday, Nov. 1, and

Please see **PRODUCER**, Page 4



The biggest rush of construction since JSC opened is set to begin in fiscal year 1990, pending congressional approval. Additions to Bldgs. 5, 9 and 30 are planned. Above: The \$10.5 million Space Station Control Center construction project would add 106,000 square feet to Bldg. 30. Right: The \$17.8 million addition to Bldg. 9 would provide 21,000 additional square feet of high bay, and 26,000 square feet of laboratory.



JSC planning biggest year of construction

By Inda Copley

Construction projects at JSC planned for fiscal year 1990 will represent, "Without a doubt, the most construction at the center since its opening," according to Bob Kehoe, Facility Development Division.

Most of the construction is designed to usher JSC into the space station era, preparing the center and its people for their roles in training and controlling the assembly and operation of the first permanently manned outpost in space.

Although all the projects currently on the drawing board to begin next year still await Congressional approval, Kehoe said he is looking forward to the new capabilities the completed structures will provide.

"We're expanding in the areas of training and (mission) control, which is great since that's what we're here for," said Kehoe.

The planned construction projects, totaling just under \$40 million, include additions to Bldgs. 5, 9 and 30, as well

as rehabilitation of JSC's Central Heating and Cooling Plant, Bldg. 24, and a modification for expanded solar simulation in Chamber A of Bldg. 32.

As of Wednesday, the U.S. House of Representatives had approved a NASA appropriation that included \$384.3 million for construction of facilities agencywide, and the Senate subcommittee responsible for NASA funding had recommended a construction budget of \$341 million. NASA had requested approximately \$341.8 million. The full Senate was expected to act on the recommendation this week. If necessary, differences in the House and Senate bills would need to be settled in a conference committee before they could be sent to the White House for President Bush's signature.

The \$10.5 million addition to Bldg. 9 will be built on the east end of the Systems Integration and Mockup Laboratory, known as Bldg. 9A. The 21,000 square feet of high-bay area

Please see **CONSTRUCTION**, Page 4

Atlantis' crew participating in countdown test

By Kyle Herring

The terminal countdown demonstration test (TCDDT) involving the crew and flight controllers for the STS-34 mission was scheduled to be completed this morning as the final month of preparations for the launch of *Atlantis* begins.

Crew members for the mission—Commander Don Williams, Pilot Mike McCulley and Mission Specialists Shannon Lucid, Franklin Chang-Diaz and Ellen Baker—traveled to the launch site Tuesday night to practice emergency crew egress procedures

as well as get in some training flights at the Shuttle Landing Facility adjacent to the launch complex.

The next time the crew goes to the Kennedy Space Center will be for the real thing three days before launch.

In other work on *Atlantis* at Pad B, the payload end-to-end test was completed and communications were verified between ground controllers and the Galileo spacecraft and its inertial upper stage (IUS).

Also completed last weekend was the replacement of one of the igniter seals on the left solid rocket booster. The right booster igniter seal was changed last week.

On Sunday, engineers completed a test of the body flap to determine the amount of free play, which was well within specifications.

Technicians received the call-to-stations for loading the orbiter's onboard storage tanks with hypergolic propellants Tuesday

morning. The pad was cleared for the operation which was scheduled to be completed yesterday. During this event, hypergolic propellants will be loaded into *Atlantis*' orbital maneuvering system and reaction control system storage tanks. In addition, hydrazine will be loaded into the orbiter's auxiliary power units and the solid rocket boosters' hydraulic power units.

The Galileo spacecraft onboard science instruments were tested Wednesday and the probe was tested yesterday. Each test lasted 12 hours.



Three-month pilot extended

Mentor program chalks up successes

The Administration Directorate's mentor program, established in May for a three-month pilot period, has proven successful enough to request a six-month extension.

Grace Martinez, mentor program committee head, said the program was designed as a cross-divisional pairing of new employees with designated "mentors"—managers at the GS-14 and -15 level from Administration divisions other than that of the new employees.

"In creating this program the committee realized that mentor relationships between new and more seasoned employees traditionally form naturally over time—that ours is an 'artificial' relationship," said Martinez. "But since about one quarter of our directorate employees have been here less than a year, we needed to find a way to speed up the process, to integrate these people

into the system at a faster rate."

Director William Kelly kicked off the program in May with a memo to all directorate employees. Twelve teams, each made up of a new employee and a manager were selected.

The mentor program committee, which developed the program, its guidelines and responsibilities, includes Martinez, Beth Beck, John Chisler, Alisa Cunningham, Dawn Hoyle, and Debra Johnson. The committee continued to track program progress throughout the summer by meeting with participants regularly and providing clarification when needed. All team members completed evaluations of the program, as well.

Initial evaluations have been favorable. However, team members noted difficulties in not being available to meet

Please see **MENTOR**, Page 4



Members of the Administration Directorate's mentor program committee discuss the program's progress in a brown-bag luncheon meeting.

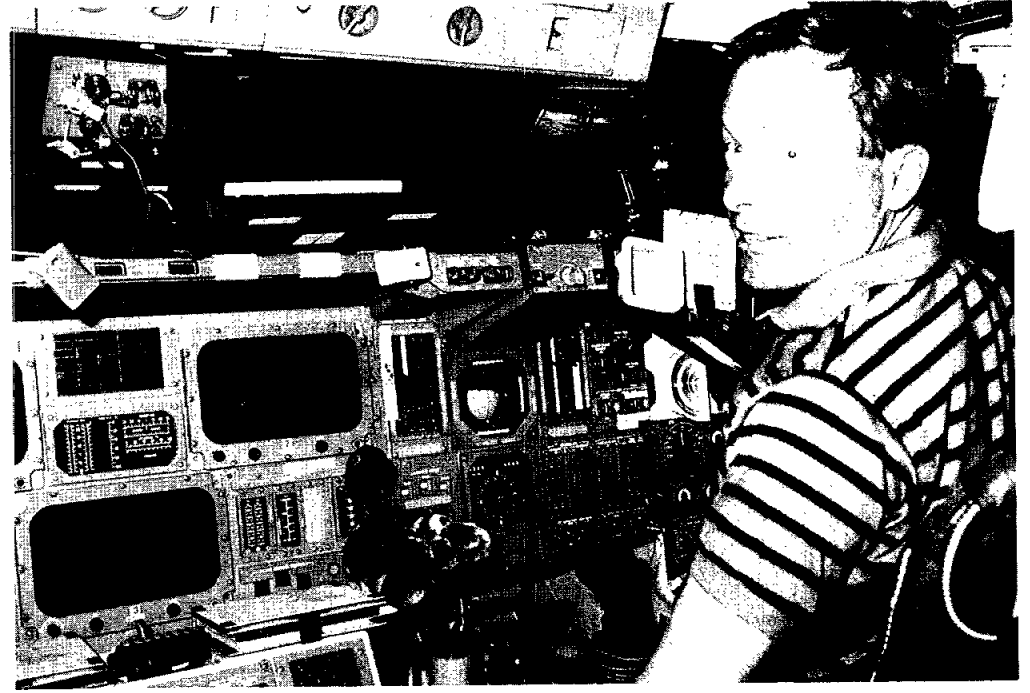
COMPLETE FLEET

Crew returns *Columbia* to active flight status

On-orbit photography from the classified STS-28 mission was released last week. Clockwise from right: 1) A head-over-heels crew portrait shows the heads of Commander Brewster Shaw, Pilot Dick Richards and Mission Specialists Mark Brown, Dave Leestma and Jim Adamson and the heels of a stuffed tiger; 2) Adamson flips a shrimp while preparing to enjoy the rare opportunity to eat while weightless; 3) Richards gets to work in the pilot's seat as the tiger, the mascot of his alma mater the University of Missouri, checks his progress; 4) Brown assembles the various components of a meal on *Columbia's* middeck as Adamson looks on; 5) Richards, not one to belabor a point, sports a Mizzou T-shirt; 6) Leestma poses with a Navy pennant; and 7) Shaw shares the middeck with some beverage containers and a packet of wheat crackers.



STS-28



Focus groups look at culture survey issues

By Linda Copley

JSC employees selected at random by the Human Resources Office will participate during the next two weeks in focus group sessions that address issues raised in last spring's JSC Culture Survey.

"The results of the 154 questions of the survey for the center as a whole have been presented to senior staff, and reports have also been given to the individual directorates," said Chris Parker an organization development specialist for Human Resources.

"Now we are holding these focus

groups to ask a sampling of employees to help us understand better the most pressing questions highlighted by the survey, and to see what kind of recommendations they come up with."

According to Parker, the groups of 10-12 employees from a directorate will meet with a technical line manager from a different directorate who will serve as the moderator of the group, and a Human Resources representative who will serve as the recorder. Each session will take from 60-90 minutes.

The groups will focus on four issues

designated as particularly relevant to JSC according to culture survey results, as well as some directorate-specific concerns. The issues of interest centerwide include:

- Cooperation and teamwork: participants will be asked for examples of the lack of these qualities both on site and between JSC and other centers.

- Career development: employees will be asked to explain what that means to them, to indicate ways the current process could be improved, and to give their views on the positive

or negative factors associated with temporary assignments.

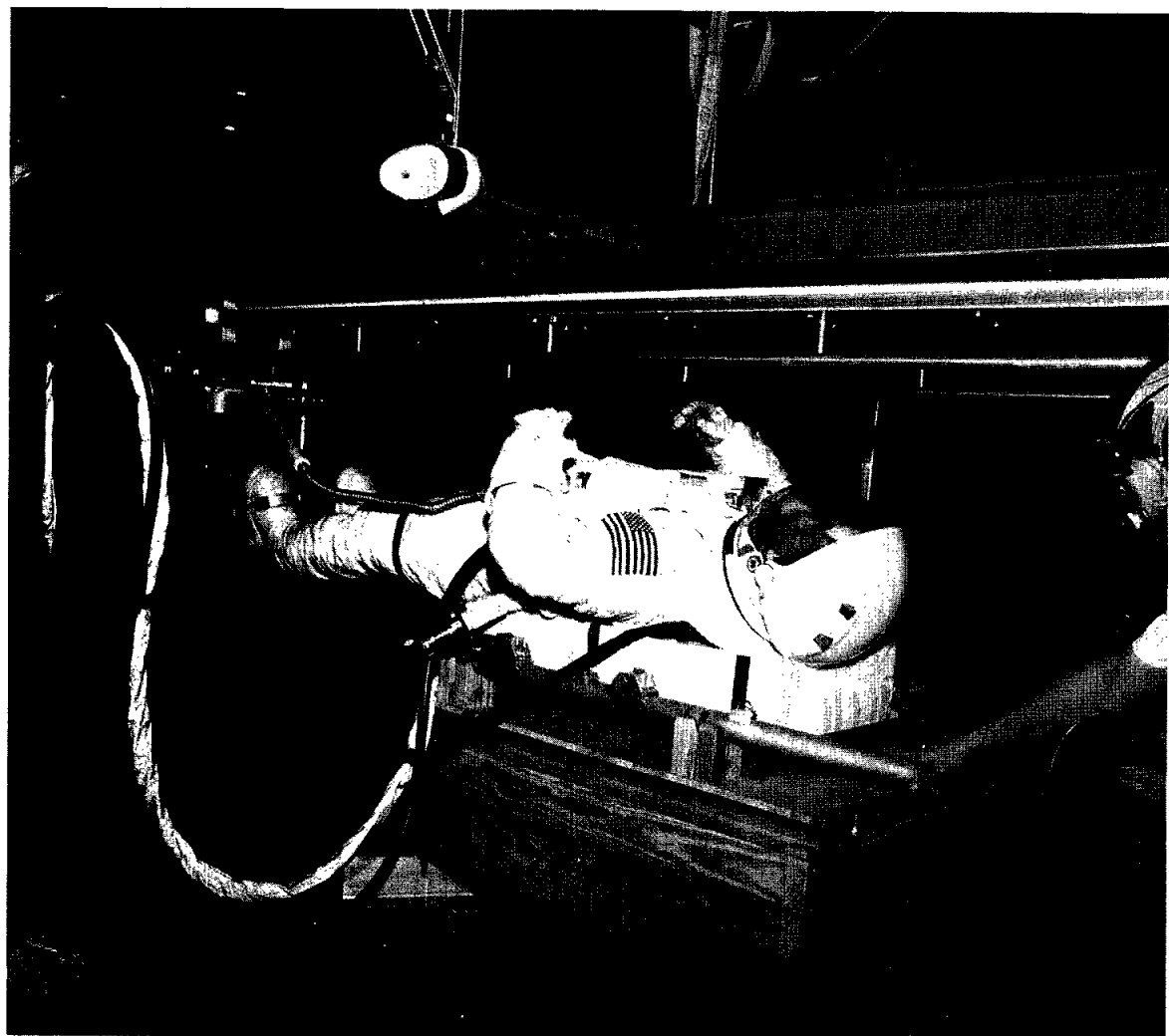
- Level of decision-making: employees will be asked what their concerns are regarding this issue, which received less favorable responses this year than from JSC's first culture survey taken in 1987. Participants also will be asked to make suggestions as to how decisions can be made on lower levels within their organization.

- Workload: employees will be asked to what extent they are spending their time on worthwhile things; if they

feel they could accept more work; and where, if ever, they have experienced duplication of effort.

Parker said that once the directorate heads receive reports on the responses of the focus groups, a complete report of all the findings will be given to senior staff.

"We believe the results of the focus groups will help us come up with a concrete action plan to address each of these issues," Parker said. For more information on JSC's second culture survey, JSC federal employees may contact Chris Parker, at x35266.



JSC Photo by Jack Jacob

TRANSLATION, PLEASE—Test subject Charlie Armstrong puts a manually operated space station Crew and Equipment Translation Aid (CETA) through its paces on the air-bearing floor in Bldg. 9B. Assisting him is suit support technician Jack Coverdale, left. CETA is slated as a flight experiment on STS-37 in June 1990, and will test three possible methods of moving astronauts and their tools from one end of the space station to the other. Armstrong, who is also helping develop procedures for the flight experiment, is testing a "cart" that would require astronauts to propel themselves hand over hand. Another version would require the astronaut to work a mechanical lever. A third would call for the astronaut to rotate hand peddles, which would generate electricity and power an electric motor that would move the cart.

Producer hopes to boost space program

(Continued from Page 1)

the second part will air at the same time Nov. 8.

Pace said he expects the show's viewership, strong in the 14-45 age

bracket, to jump from 30 million to 60 million because of sweeps week.

"We hope we can stimulate more interest among high school kids in the space program," Pace said. "We

hope that what we do when we're here will create new enthusiasm amongst high school students and the regular public for the space program."

Construction plans extensive

Space Station Control Center among three biggest projects

(Continued from Page 1)

and 26,000 square feet of laboratory area will be used to support development, testing and flight qualification of space station assembly techniques and hardware. The added space will accommodate simulators and associated support equipment, and provide space for personnel in automated systems development. The project is expected to be completed in April 1991.

The high-bay addition will house several six-degree-of-freedom simulators, a 40-foot by 40-foot air-bearing floor, and static test areas for space station structures, components and test fixtures. Enlargement of the existing air-bearing floor is needed to accommodate the full-scale dynamics testing of the shuttle and Space Station *Freedom* remote manipulator system already planned for this location.

The three-story laboratory support area is required for technician work and staging, test and applications computing support, techniques development laboratories, transient

engineering support space and mechanical equipment.

The addition to Bldg. 30 will house the Space Station Control Center (SSCC) a five-story structure with a second-floor mezzanine to accommodate ground-based automatic data processing equipment and associated systems to support space station operations.

The \$17.8 million project, scheduled for completion in July 1991, is needed to provide the initial and continuing basic ground support of the space station orbital assembly. The facility must be fully operational before the first space station element is launched, with sufficient time provided for systems installation, activation, testing and verification of procedures.

Proximity to the existing Mission Control Center (MCC) is needed so that common skills, personnel, equipment, communications and data may be shared. Engineering and maintenance tasks will be shared with the Space Transportation Systems (STS) programs. The

MCC will remain configured for and dedicated to STS operations through the 1990s.

Like the MCC, the SSCC will be open 24 hours a day, and is expected to require 55 civil service and 190 contractor workers on the prime shift during regular space station operations. About two and a half times that number will be required for support during contingency operations.

The three-story \$3.8 million addition to the Bldg. 5 Simulator/Training Facility will contain 23,200 square feet of new floor space to accommodate space station crew trainers, ancillary support equipment and personnel. The addition will be on the south side of the existing south wing high bay. A secure wall with a security entrance will be provided between the existing high bay and the existing secure area of Bldg. 5.

The extra facility space will house the trainers needed for space station-unique systems, operations, and crew stations. Completion of the addition is currently scheduled for December 1990.

Human factors research will be symposium topic

Continuing research into the relationship between humans and machines in long-term space exploration will be the focus of next week's gathering at JSC called "The Manned System—A Human Factors Symposium and Workshop."

The symposium, sponsored by the NASA Offices of Space Sciences and Applications and of Aeronautics and Space Technology and the Southwest Section of the American Astronautical Society (AAS), will be held from 1-4 p.m. Monday at the Gilruth Recreation Center.

Monday's symposium activities will set the stage for the three-day human factors workshop to follow. Dr. Alphonse Chapanis, president of Human Factors Consulting Co.; Lt. Col. Ted Wierzbanski, director of planning for the National Aerospace Plane Program; and former astronaut and U.S. Senator Harrison Schmitt will speak at the symposium, and a panel discussion will follow.

Ben Rich, general manager of Lockheed's "Skunkworks," will be the speaker at a dinner beginning at 6 p.m. Monday at the Gilruth. Reservations for the dinner, which costs \$8.65, can be made by calling Bill Armstrong at 488-9005.

Human factors workshops will be held Sept. 19-21 at the Nassau Bay Hilton and will present issues involved

in long-term space habitation and exploration, with the goal of establishing a research plan for space human factors for 1991 through 1995. The research plan developed will be submitted to the sponsoring NASA offices to assist in planning future human research programs.

A session will be devoted to each of 10 topics, ranging from "Space Station Mock-up" to "Man-Systems Telerobotics Lab" to a "Computer Man-Modeling Facility." Speakers from NASA, industry, and academia will provide presentations on state-of-the-art and required future research directions. Audience participation is encouraged.

Following the formal sessions, small discussion groups will break away to further cover each topic area. The conclusions of the discussion groups will be presented at a final session the last day of the workshop, and a research plan will be outlined.

A detailed plan, to be presented to the NASA Headquarters personnel sponsoring the workshop this winter, will be prepared. Participants will also each receive a copy.

AAS members are invited to join all other interested JSC employees in participating. Copies of the workshop agenda and additional information are available by calling Dr. Howard Schneider, x32380.

Meeting to kick off recycling effort

JSC will kick off its recycling pilot program with a Monday meeting to discuss how employees in the affected buildings can contribute toward conservation and environmental protection.

The meeting, scheduled from 1 p.m. in Bldg. 45, will be open to all Bldg. 45 and 227 division chiefs and a guest of their choice.

Astronaut John Young, special assistant to JSC Director Aaron Cohen for engineering, operations and safety, will discuss the general

need for recycling and provide information on the subject. Young's concern about the environment was the catalyst that inspired the reevaluation of paper recycling at JSC.

The first containers for recyclable paper will be distributed to offices in Bldgs. 45 and 227 on Oct. 2. By then, special hardware needed for the pilot project—such as water-tight dumpsters to hold the paper—will be in place, said Mike Scott, head of JSC's Special Purpose Maintenance and Services Office.

Clinic explains reason for backlog

The JSC Clinic is experiencing a backlog in scheduling annual physical examinations for civil service employees, but promises to get to everyone even though it may not be during their birth month.

The backlog was caused by the clinic's need to complete about 300 job-related physical examinations for an on-site contractor within a given time frame, according to Clinic Administrator Dolores Belfiore.

The clinic also has been notified of

the tentative dates for the 1989 astronaut candidate selection physicals that will extend over five weeks this fall. These added examinations will cause a small increase in the backlog.

All civil service employees will be receiving a scheduled date for their physical examinations, but possibly not in their birth month.

Belfiore and the clinic staff expressed thanks to all employees for their cooperation and understanding.

Mentor pilot extended

(Continued from Page 1)

throughout the summer months because of leave schedules, and in finding enough time to pursue the program. This prompted the committee to ask for a six-month extension.

"The committee is also looking at changing a few things, like perhaps teaming the new employees with managers within their own divisions to ease the integration process even further," said Martinez.

"With BA Deputy Director Wayne Young, our management adviser's approval, we'll have another six months to work the bugs out of what looks to be a valuable program within BA."

Space News Roundup

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