



Joint Flight Confirmed

The National Aeronautics and Space Administration has released the text of an April 1972 agreement with the Academy of Sciences of the USSR on the organization, development, scheduling, and conduct of a test docking mission for Apollo and Soyuz spacecraft in 1975.

The agreement will be the basis for implementing those sections of the space accord reached by the President this week in Moscow which relate to the test docking mission.

The April agreement builds on three previous agreements of

October 1970, June 1971, and November—December 1971, on the design and flight testing of compatible rendezvous and docking systems.

The April meeting was requested by NASA to satisfy management and operational considerations attaching to a joint mission prior to possible commitment at a government-to-government level.

Dr. George M. Low, deputy administrator, headed the NASA delegation which included Arnold W. Frutkin, assistant administrator for International Affairs, and Dr. Glynn Lunney, special

assistant to the Apollo Program Manager.

The Soviet delegation was headed by vice president of the Soviet Academy of Sciences, V. A. Kotelnikov, and included Academician B. N. Petrov, Drs. I. P. Rumyantsev, K. D. Bushuyev and others.

Drs. Lunney and Bushuyev have been designated the project managers for the test mission.

During the April meeting, agreement was reached on such matters as regular and direct contact through frequent telephone

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RELIEVED READER—When his eye caught the article (inset) on page one of the last Roundup, Carlos Ramirez, left, of Photographic Technology Division, headed for the Security Office to identify money he was sure he'd never see again. Even after he met Donald Lloyd, one of two Hamilton Standard employees who found the three-figure roll in an MSC parking lot, Ramirez still couldn't believe his good fortune. Lloyd, who actually spotted the money—he thought it was a dollar bill—was the passenger in a car driven by Robert Melanson (he was out of town the day the money was returned to its owner). Lloyd and Melanson were on site to attend a meeting and were pulling into the parking space when Lloyd saw the folded bills.



DOCTORS' DISCUSSION — Russian professor O. G. Gazenko and American Dr. Charles Berry discuss mutual areas of interest at the second meeting of the joint working group on Space Biology and Medicine. Gazenko, standing at left, is director of the Institute of Biomedical Problems in the USSR and led the Soviet group in the absence of N. N. Gurovskiy. Berry is director of Life Sciences for NASA and co-chaired the US group. The meeting, second of its kind to discuss biomedical results of manned space flight, was held last week at MSC.

Moon-Grenade Firing Yields Surprise, Regolith Seems Thicker Than Thought

Tuesday's moon-grenade firing is yielding some surprising results, according to the principal investigator for the active seismic experiment.

Three out of four grenades in the package left behind by the Apollo 16 crew were triggered by radio signals from MSC in Tuesday's early morning hours.

Based on preliminary interpretation of early data, the seismic signals caused by the grenades indicate that the regolith — or upper layer of rock and dirt — is "surprisingly thick, at least 300

meters" at the experiment site, Dr. Robert L. Kovach of Stanford University said.

Dr. Kovach, PI for the seismic experiment, also said a fuller assessment of the results from the experiment can be made in about one week, after investigators have a chance to review tapes of the data recorded at Manned Space Flight Network receiving stations at Goldstone, California and at Honeyuckle Creek, Australia.

The first grenade, containing 272 grams (.6 lb) of explosive

(Continued on Page 4)

Outplacement Center Helping 60 Hit by RIF

An outplacement center operated by the personnel office is gathering momentum in the drive to help find jobs for those 60 MSC employees who got the bad-news notices last week.

That number will be released by June 29 under the latest re-

Center to Close Memorial Day

The Manned Spacecraft Center will be closed to visitors on the Monday Memorial Day national holiday, but it will be open Saturday and Sunday from 9 to 4.

However — all buildings will be without air conditioning over the weekend to allow maintenance on the system.

duction in force, and another 103 will be reassigned or downgraded.

The action will reduce the MSC work force to the authorized ceiling of 3817 civil service personnel.

The number of personnel released was smaller than projected when the RIF first was announced. That, according to Personnel, is because of voluntary resignations and retirements.

The outplacement center is located in Room 217 of Building 45 and is being operated under the supervision of Stanley Goldstein of Employee Development.

He and his staff of five counselors are studying busy searching the job market.

(Continued on Page 2)

Huntoon Transfer Is NASA 'First'

MSC has logged the first NASA assignment under a personnel lend-lease law designed to facilitate the mobility of trained personnel between various national, state and local governmental agencies.

The first man to move from NASA to another organization is Harrison Huntoon, Management Analysis Office. He will serve one to two years as chief of Planning and Evaluation for the Galveston County Health District.

His move is being made under the Intergovernmental Personnel Act of 1970.

President Nixon has directed Federal departments and agencies to make effective use of the personnel mobility provision to improve the performance of services by national, state and local governments.



THE WINNER!—Pat Nobles was all smiles as he accepted the \$25 winner's prize in the MSC picnic theme contest from Picnic Co-chairman Betty Cornett. His suggestion, which he admits came from his wife, was "Election '72." The theme will be carried out with red, white and blue in the decorations and the publicity. This year's picnic will be at Camp Manison in Friendswood on September 23, just about six weeks before the national "Election '72."

Audrey Lemons, EEO Counselor in E & D

Audrey V. Lemons is secretary to the manager of the Program Planning Office, Future Programs Division, Engineering and Development Directorate.

She also is an MSC Equal Employment Opportunity counselor.

Audrey calls home San Francisco. She attended San Francisco City College and started her government career in 1950 as a clerk-typist interviewer at the U.S. Army Induction Station in San Francisco, where she was later promoted to supervisor.

She still remembers unhappy faces of young men entering the Armed Forces, but she also remembers the many smiles she received when she put them at ease.

(Audrey had the unhappy face when she was the interviewer for her husband, then fiance', to be inducted into the Armed Forces.)

In 1956, she transferred to Sixth Army Procurement Division at the Presidio of San Francisco as a secretary-stenographer.

Audrey joined MSC in November 1962 assigned to the Gemini Procurement Division where she progressed from section secretary to branch secretary.

Her career is marked by many awards for her job performance, and successfully completed training courses.

Audrey believes that a counselor must be a good listener, sincerely interested in helping people, and above all—HONEST.

She does not believe that, as a liaison between complainants and management, a counselor should tell either party what they *want* to hear rather than what is actually learned from interviews.

In counseling, Audrey makes sincere efforts to resolve grievances, and to make meaningful recommendations which are beneficial to both the complainant and management.

She is concerned that women and minority group members are

still not getting their "fair share" of management's concern for delegating responsibilities and initiating promotions. She feels the college degree should be de-emphasized as a factor in promotions.

Audrey is often sought to address youth groups on grooming and office decorum.

Audrey is married to Eddie Lemons, Mission Planning and Analysis Division. They reside at 4322 Busiek Street, Houston. Their son, Mark Steven, 11, is in the 5th grade.

Audrey's hobbies are reading, sports as a spectator, "people" (all are different and all are interesting). Her favorite pastime is sharing dreams and reaching family goals with Eddie.

'Travelers' Pick Officers, Ponder Possible Trips

Trips to Hawaii, Acapulco and the Cape for Apollo 17 are in the talking stage in the newly formed Aerospace Employees Travel Club.

The group, calling itself the "Travelers," put itself in business by adopting by-laws, electing officers, and setting the next meeting for Wednesday the 31st at 5:15 in the Building 30 auditorium.

Officers are Tom Moser president, Bill Wylie vice president, D'Layne Parker secretary, Margaret Rust treasurer, Dorothy Rafuse director of advanced planning, Ron Rafuse director of tours, and Gerry Swanick, director of public relations.

A deadline of June 6 has been put on membership forms and fees for eligibility to join the December Apollo 17 trip. The six-month requirement is a regulation of the Civil Aeronautics Board.

The group intends to request NASA Employees Activities Association sanction.

PAE Presents "... Stanley Pool"

Performing Arts Enterprises, a group that includes MSC and contractor personnel, is presenting "Blood, Sweat and Stanley Pool" at the Holiday Inn Dinner Theatre in Galveston.

Directed by Morgan Redmond, the three-act comedy features Bill Milligan, Gus Babb and Jim Campbell.

The play opened last Friday and will play tonight and tomorrow, June 2 and 3, and—judging from the early response—may be held over June 9 and 10. Reservations: 765-5544.



TALKS TO THE 'TI'—Earl K. Smith of Reliability and Quality Assurance takes a breather at the controls of his amateur radio station through which he conversed with the Apollo 16 recovery carrier USS Ticonderoga during the mission. Smith, a member of the MSC Amateur Radio Club, twice relayed messages from friends and relatives to the 16 crew and other MSC personnel aboard the Ticonderoga.

Moonwalkers Mitchell And Irwin to Retire

Astronauts Edgar D. Mitchell and James B. Irwin have announced plans to retire from their military services and NASA within the next several months.

The plans are subject to the approval of their respective services and effective dates are not yet available. Mitchell, a Navy captain, and Irwin, an Air Force colonel, have not announced their plans after retirement.

As lunar mobile pilot on Apollo 14, January 31 - February 9, 1971, Mitchell was the sixth man to set foot on the moon. Irwin was

the eighth man on the moon as lunar module pilot of Apollo 15, July 26 - August 7, 1971. Both were selected as astronauts in April 1966.

Based on Irwin's plans to retire, a new backup crew for the Apollo 17 mission has been named, effective July 1. Crew members are

John W. Young, commander; Stuart A. Roosa, command module pilot; and Charles M. Duke, Jr., lunar module pilot. Young and Duke were prime crewmen on Apollo 16, and Roosa was the prime CMP on Apollo 14 and backup CMP on Apollo 16.

The original Apollo 17 backup crew was made up of David R. Scott, commander; Alfred M. Worden, command module pilot; and Irwin, lunar module pilot.

Scott, Worden and Thomas K. Mattingly, prime command module pilot on Apollo 16, have been assigned to the Space Shuttle Program in the Astronaut Office. Mattingly recently became a father and requested an assignment which would allow him to spend more time with his family during the next six months than would be possible as a backup crewman.

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



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Photographer: A. "Pat" Patnesky

Toastmasters Honor 17 New 'Speechcrafters'

The MSC Toastmasters Club's annual "Ladies Night" awards program has marked completion of the 1972 eight-week speechcraft program.

Area Governor Armand Hollis presented special awards and certificates of completion to 17 new speechcrafters:

E. C. Loving, James A. Roberts, Claude O'Tyson, Jerry Kennedy, Ted O. Burke, Robert B. McMurdo.

James C. Lamoreux, Richard C. Weirick, Don E. Treat, Louis H. Turner III, Patrick O. Wilson, Jackie L. White.

Harmon R. Jones, Ben F. Kerham, Malcolm E. Jones, Hardie Barr and Wallace Grindrod.

Dick Gillen and Hank Williams were co-chairmen and coordinators of the program.

The Toastmasters, who meet each Tuesday at the Singing Wheel Restaurant in Webster, currently are accepting new memberships.

Contacts: Don Graves at 488-0910 ext 275 or Al Barker at 488-1270 ext 532.

Outplacement—

(Continued From Page 1)

They are receiving responses that are "somewhat encouraging" to letters of inquiry to three to four hundred companies.

"There is interest in our employees from private industry," Goldstein says, "and it appears there may be more jobs available now than there were a year ago."

The staff also is negotiating for on-site interviews of RIF-affected personnel by interested companies. That program is planned to begin the week of June 5.

Access to the outplacement center's services is available through the affected employee's outplacement counselor or by telephone: MSC extension 6131.

Among the 60 employees scheduled to leave are 32 engineers and scientists and 18 technicians. Most of them are stationed at the center, although 12 have jobs in field operations of the center at Downey, California; Bethpage, New York; and KSC, Florida.

Administrative professionals in the fields of contract administration, logistics, budget and general administration also are affected.

Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is Thursday of the week preceding Roundup publication date. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 20 words, including name, office code and home telephone number. Send ads, typed or legibly written, to Roundup Editor, AP3)

VEHICLES

63 Valiant, good work car, \$225. 474-3691 after 5.
68 Pontiac LeMans 4-dr htdp, air, pwr, xInt cndn. McGhee 649-7715 after 5 & weekends.
Late 71 Honda CL100 Scrambler \$375. Ashley 332-2080.
65 Triumph TR-4A gd cndn mech & body. 941-0447 or 944-3671 after 5.
67 VW Fastback, one owner, gd cndn, trailer hitch, Sony AM/FM, \$795. Berthiaume 482-3963.
63 Falcon, good tires, needs work, gd work car, best offer. Broussard 643-1611 after 6.
63 Valiant sta wgn, std trans, air, 5 new tires, new battery, \$250. Roberts 483-3018.
65 Honda 300 gd cndn, new battery, runs good, helmet, \$385, consider trade. 733-7657.
Trade my 70 Honda 90cc Scrambler for your Sunfish/Dolphin type sailboat. Munford 483-5814.
60 Mercedes 190SL body & interior gd, mechanically pfct, new tires & brakes, best offer, over \$1800. Kimball 488-3145.
70 Triumph Trophy 250c motorcycle, 5000 mi, beau cndn. 334-2993.
66 Chevrolet Impala 4-dr htdp V8, auto, air, gd work car, \$375. Weber 941-2896.
70 Honda CL70 Scrambler, xInt cndn, \$200. Clowdis 471-2447.
70 Wheel Camper htdp foldout, sleeps 6, lk new, \$1375. Clowdis 471-2447.
60 Dodge Dart 4-dr, auto, V8, runs gd, \$125. Scott 482-3011.
Rebuilt camping trailer 8' x 5 1/2' x 3 1/2' high, \$100 or best offer. Satterfield 488-3575.
69 Plymouth Fury, pwr brakes/steer, xInt cndn, \$1050. Sjoberg 334-3240.
65 T-Bird very clean \$600 or best offer. Slezak 474-3429.
53 Chevrolet Bel Air, cream puff, original throughout, 34,000 actual mi, 334-2043.
68 Plymouth Fury II 4-dr, xtra clean, loaded, must sell, wholesale \$950. 334-2043.
Bicycles, 2 24" girl sting-ray type xInt cndn \$25 ea 649-6795.
66 Chevrolet sta wgn 6-pass, auto, air, radio, xInt cndn. Kosel 534-5818.
72 Mustang, radio, air, heat, auto, \$200 & assume loan. 333-2491.
70 VW, heat-transfer a/c, radio, 15,000 mi, \$1650. White 474-3992.
67 Plymouth Fury sta wgn, pwr steer, air, radio, auto, \$925. Kempf 332-3902.
68 Pontiac Executive 4-dr sed, vinyl roof, air, auto. Welch 641-1427.
66 Chevrolet Impala sta wgn, pwr steer/brakes, fctry air, luggage rack, vry gd cndn. \$600. Hammock 482-7757.
2 bicycles, 20" girl \$7.50, 24" boy Schwinn \$15, both solid. Siler 333-2787.
70 Ford Country Squire, many options, xInt, below Blue Book. Bastian 771-1827.
70 Lincoln Continental 2-dr, leather interior, air, AM/FM, steel belted radial tires, \$3800. Moorehead 331-4389.
70 Forc yellow Country Square 10-pass, AM/FM stereo, air, roof rack, pwr brakes, steer, window, doorlocks, \$2950. Schell 483-2408.

HOUSEHOLD ARTICLES

19" rectangle screen Sylvania color, bif portable w/UHF, gd cndn, nice picture, \$75. Williams 534-3378.
Youth desk 7-drawer maple, glass top, chair, xInt \$55. Office desk 4-drawer, wood, swivel chair, \$65. Raney 488-0324.
Hotpoint 4-burner 220V stove top, copertone, \$45. Antique oak bedside table, 1 drawer, bookshelf underneath, \$25. Raney 488-0324.
Magnavox stereo & radio in walnut cabinet \$75, walnut 4-drawer chest \$40, gold antiqued 4-drawer small chest \$10, bookcase \$10, shocking pink king-size bedspread \$15. 488-1439.
Comb. waffle iron & sandwich toaster \$10, 4-slice toaster \$10, Osterizer blender \$15, iron \$5. 488-1439.
Early American bookcase bed \$60 and dresser \$50, stereo component set, AM/FM tuner \$100. 333-2491.
Nelco zig-zag sewing machine, \$100 new, sell \$35, xInt cndn. Also dbl size bed frame \$5. McNeely 482-1549.

PETS

Brittany spaniel pups, sports field registered, xInt bird dog, great pet. Lander 333-4522.
AKC standard poodle puppies, champion bloodlines. Wadle 946-2806.
Free puppies. Newman 474-3497.
Female Blue Point Siamese 4 mo old free to good home. Garnuch 483-5309.

MISCELLANEOUS

Cornet King B-flat like new, \$100. Clowdis 471-2447.
Epiphone Ensign guitar amplifier, 2 channels 4 inputs, tremelo, reverb, footswitch, used twice, \$200. Peterson 488-4176.
Harmon Kardon 'Five-Thirty' 70w AM/FM/FM Stereo receiver/amplifier \$150. New 4-channel adaptor thrown in. Peterson 488-4176.
Tape recorder, stereo, Sony TC 530 Quadradial sound system, 3-sp, complete, xInt cndn, \$160. Sowers 334-1080.

4x5 Speed Graphic Anniversary Mod complete w/accessories incl 6" soft focus portrait lens, xInt cndn, \$300. Sowers 334-1080.
Kimball Artist console piano absolutely like new \$675. McMurray 534-3625.
.22 revolver \$12, .38 spl revolver \$35. 12 ga shotgun \$25, all new. Hanby 554-3495.
Luggage carrier for VW \$5. Joslyn 334-1168.
For sale: Singer sewing machine desk model slant needle, xInt cndn. Ballas 330-2335.
Ham gear: Eico keyer w/Brown paddle \$50, SWR bridge w/separate meters \$10, SB-220 linear w/new tubes \$325. Lindsey 488-0517.
Arnold Palmer alum shaft golf set, 2-9 irons, 1-3-4 woods, pw, sw, putter, bag, cart, \$300 value \$175. Gentry 488-0405.
For sale: hardly used 4-pc drum set - bass, tom-tom, snare & cymbal, silver sparkle. Glover 334-2317.
8mm movie camera, variable frame speeds, wide angle & telephoto, old but xInt cndn, \$10. Siler 333-2787.
Power generator Waukesha-Kohler 5kw 120v 60Hz continuous duty, gd cndn, \$350. Burton 471-0778.
VHF-FM transceiver Motorola Dispatcher 6 & 12VDC power supplies, aligned on Houston Amateur Club repeater, \$100. Burton 471-0778.
Two electric bucket seats from 64 T-Bird, gd cndn, \$40. Day 664-9472.
UHF-AM transceiver Hallicrafters SR-42A new cndn \$100, SSB transceiver Hallicrafters SR-150 120 & 12V power supplies, mobil rack & cables xInt cndn \$250. Burton 471-0778.
Rotary lawnmower 20" 3hp B&S engine, runs good, \$10. 388-0157 after 5.
Citizens band radio, Johnson 223 w/Plus 3 transistorizer mike, mint cndn. Lindsey 488-0517.
Tent 8 x 8 w/2 side windows, Montgomery Ward, pfct cndn \$25. 2-burner gas stove, MW, pfct \$8. Vinyl steel-wall pool 12' diam 3' deep \$8. Littlefield 474-2428.
Stereo phone & stereo AM/FM radio in attractive cocktail table, compact, beautiful tone. 488-4043.
Fur coat, sheared raccoon looks like sheared beaver, xInt cndn, pfct for northern college girl, make offer. 438-4043.
Criterion 4 1/2" reflector telescope, f/10 parabolic mirror, equatorial mount, 3 eyepieces. 488-4043.
Tires, 5 new 4.80/5.20 x 12 Mobiliner trailer tires \$14 ea. Hammond spinet organ pfct cndn L-100 series \$950. Schell 483-2408.
1953 Gibson original "Les Paul" solid body guitar (white), cobalt pickup, \$300. Franklin 526-0428.
7'2" Hansen surfboard, Jerry Lopez model, gd cndn, racks included, \$75. Martin 333-3714 after 6.
29-gal aquarium, stand, filters, cover & light, \$65 value for \$25. Moorehead 331-4389.
Womens golf clubs & bag, 2 woods, 4 irons, putter, like new cndn, \$20. McNeely 482-1549.

flower, xInt cndn, \$99. Musgrove 488-3966.
16' Chrysler fiberglass, 110hp Volvo i/o, galv trailer, \$1800. Ritchey 334-2303 after 5.
7 1/2hp ob w/spare parts, complete elec and mech overhaul, \$60. Hydrick 481-2591.
68 Sterncraft 22' i/o 225hp, 71 tandem wheel trailer w/brakes, xInt cndn, \$3900. Smith 453-6301 exa 248 or 479-3848 after 5 & weekends.
5hp Eska ob w/3 1/2 gal tank, xInt cndn, \$70. Lapko 946-4311.
21' sailboat & trailer, popular type in Holland, large sail inventory, very seaworthy, xInt cndn, Real bargain \$1800. Irwin 333-3097.
Luxurious 16' speedboat, 120hp ob, trailer & equip incl professional ski-tow bar, 71 model in mint cndn, reduced to \$2995. Bland 333-4580.
21' Southcoast sailboat w/working sails and 5hp obm, \$1800. Hill 332-3838.
Lone Star 16' (Chrysler) sailboat, galv trailer, many extras, gd cndn, reasonable. 488-4043.
For sale: 23' Lone Star fiberglass 1 w/ 155hp i/o, \$2000. Williams 333-4345.

WANTED

69 or 70 MGB conv in gd cndn, will pay Blue Book price. Broussard 643-1611 after 6.
Small (approx 12") bicycle. Broussard 643-1611 after 6.
Attendees for MSC Picnic at Camp Manison on Sept. 23. No experience necessary. Luggage cover to fit 40" x 40" sta wgn luggage rack. Hirschke 481-3048.
Used radio gear, prefer non-proportional 4-channel rig. Nichols 643-4126.
Riders to share xpenses to Colo Springs, Colo May 27-30 via twin-engine pvt aircraft. Hanisch 554-6484.
Drake R4B, T4X and PS or Collins 75S1, 32S1 and PS. Smith 334-3396.
90 to 125cc trailbike Anderson 485-3025. Hobie Cat 14 sailboat. Alford 333-2844.
Dining room suite of table, chairs & china cabinet. Smith 334-3396.

PROPERTY & RENTALS

For rent: Jamaica Beach on canal, 2 bdrm sleep 6, nicely furn, central air, now taking reservations. Maddox 481-1443.
Seabrook Miramar, must sell nice 4-2-2 brick, large den, several 20-25 foot trees xInt location. Newman 474-3497.
Beach house on Boliver, block from Gulf-side beach, rent \$50 weekend (Fri 1 pm-Sun 4 pm) \$100 week (Sun 6 pm-Fri noon). Leger 482-3978.
For rent Friendswood 3-2-1 house, air cond, cent heat, built-in oven & surface unit, fireplace, carpet, \$185. Nelson 482-1817.
For rent two new townhouses CLC all elec, two bedrooms two baths. Miller 488-0621 after 4.
4 cemetery lots, Grandview Memorial Park, Garden of Devotion, Deer Park, \$1000. 488-1439.
San Leon 2 bdrm 1 bath w/detache garage, \$2500 equity, pick up low payments: Nelms 559-1323 after 5.
3-2-2 1 1/2-story League City, large pecan trees, fireplace, carpeting, built-in kitchen, owner transferred. Sletto 554-5057.
Friendswood 3-2-2 corner lot, privacy fence near elementary school, \$5500 equity, assume 6 1/2 loan, 307 Christina Lane. McNeel 482-1549.
Lake Travis lot at Lago Vista, beautiful view of lake, hills & golf course, \$1000 below appraised value. Schell 483-2408.

To the Spoilers Belongs the Victory In Bowling League's Photo Finish

The Jimmy Warren Memorial Bowling League wound up its 1971-72 season in a flash of light and a cloud of dust.

When everything cleared, the Spoilers had spoiled things for the Ball Busters and Hertz, two teams

Breece Named

'Set-Aside Buyer'

Walter Breece of Institutional Procurement is the "Small Business Individual Set-Aside Buyer for FY 72."

That was made official during 'Small Business Week' when Procurement Officer James Neal and Small Business Specialist Chris Christman presented the annual award to Breece.

Set-aside actions are applied in several areas, one of which is the assuring that a fair proportion government procurement is placed with small business concerns.

Included in the ceremony honoring Breece were Institutional Procurement Division Chief Parker Carroll and Breece's section chief, William Cooke.

that had battled for the lead through the last several months.

The Spoilers, in fact, were in ninth place on the 1st of March and seemed hardly in contention with the two leaders.

But when it was all over, the first three spots in the 14-team league read like this:

Spoilers	81	55
Ball Busters	80 1/2	55 1/2
Hertz	80	56

In a distant fourth place were the Fabricators with a 73 1/2 and 62 1/2 record, with the rest of the teams ranging down to the Leftovers at 40-96.

Individual performers for the season were:

First round high set: Clarence Council of the Achievers 720, Dex Haven of the Chokers 703, Charlie Skillman of the Bit Pickers 695.

First round high game: Dick Burghduff of Hertz 288, Council 285, Jerry McKain of the Chokers 276, Vito Pagano of the Ball Busters 276.

Second round set: Rod Loe of the Spoilers 754, Ray Wilson of Hertz 741, Mickey Gierspeck of the Fabricators 715.

And second round high game: Pat Olfers of Bit Pickers 296, Council 277, Jim Grogan of Bit Pickers and Loe and Wilson each 272.

systems; early participation in the joint preparations by flight operations specialists.

The development of crew training and orientation plans; and the training in each country of the other country's flight crew and operations personnel.

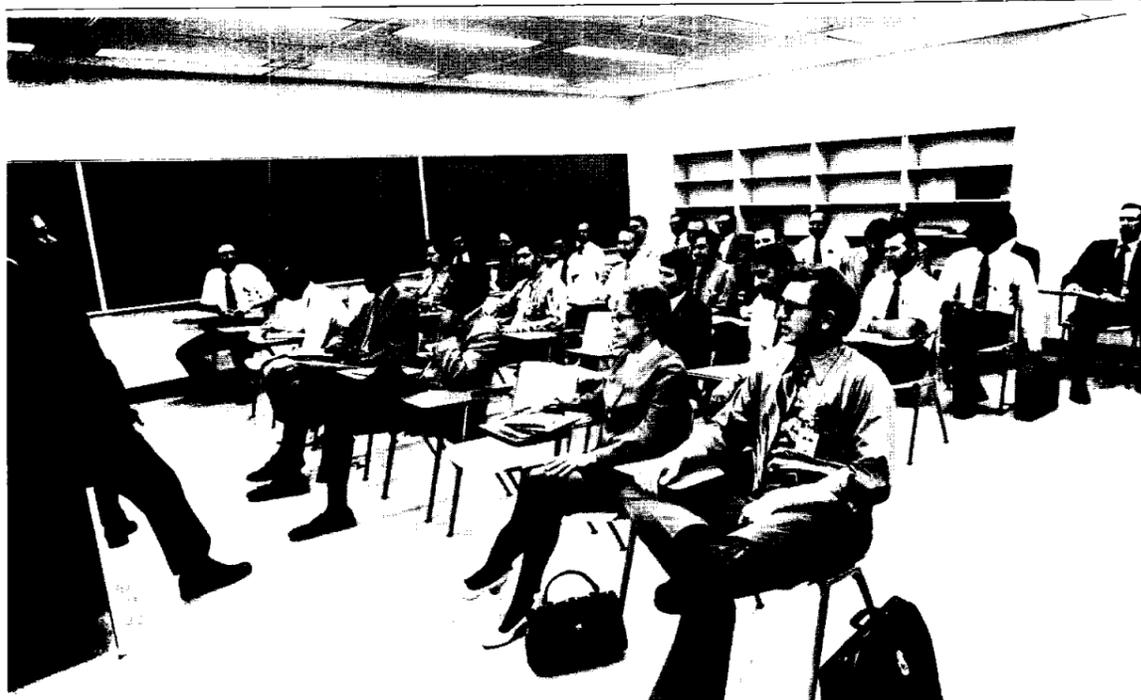
Agreement was reached also on the requirement for and level of detail of project schedules, including early specifications of development milestones and countdown and launch dates.

Agreement was reached as well on the principles of communications, command and control of the flight; the requirements for flight plans and mission rules for normal and contingency situations; the immediate transmission of flight television received in one country to the other's control center.

The level of reciprocal language familiarity; and the need to develop public information plans taking into account the obligations and practices of both sides.

Beyond the test mission which is planned for 1975, the accord announced in Moscow provides that future generations of manned spacecraft of both the United States and the Soviet Union will be capable of docking with each other.

That capability will facilitate emergency assistance to astronauts in difficulty and will make possible the conduct of cooperative projects, with attendant economies.



PHASE ONE ENDED — The MSC seminar in General Management Topics has just concluded the first phase of its program, which began March 6 and met each Monday morning at the Clear Lake Graduate Center. During the summer, each participant will work on a special project that will result in a paper on a subject related to management. The seminar will resume its regular meetings in September, will conclude in October.

NASA Facts: Mission Control Center

Mission Control - The Voice Heard 'Round the World

This is another of the "NASA Facts" pamphlets designed to tell the public about MSC and the space program. It contains information of interest to center personnel who may not be as familiar as they'd like to be with activities other than their own daily jobs. Titled "Mission Control Center," the pamphlet will appear in the Roundup in three parts.

* * *

"Old Orion is finally here, Houston!"

Those words, of course, came from the Apollo 16 lunar module. The comment was relayed to the entire world, but the call sign "Houston" to which the message was addressed designates the control center for United States manned flight.

In case anyone doesn't know, "Houston" is the three-story Building 30 right here at MSC.

In it is some of the most sophisticated communication, computer, data reduction, and data display equipment available.

Operating it—24 hours a day during manned space flights—are hundreds of engineers and technicians with a wide scope of specialized skills.

And from it come the decisions that can mean mission success or failure.

Focal point of the Mission Control Center is the Mission Operations Control Room (MOCR) where flight controllers get information from television-like screens on the consoles where they work, or from projected displays that fill the wall at the front of the room.

The MOCR (pronounced as though it were a word spelled "moker") provides working space for three basic operating groups of flight controllers: mission command and control, systems operations, and flight dynamics.

Mission command and control positions are: the mission director, who is responsible for overall mission conduct; flight operations director, representing Manned Spacecraft Center management; flight director, who is responsible for operational decisions and actions in the MOCR; and the assistant flight director.

Others in the command and control group are: the flight ac-

tivities officer, who develops and coordinates the flight plan; the Department of Defense (DOD) representative coordinates and directs DOD mission support.

The network controller is re-

sponsible to the flight director for Mission Control Center and for operations relating to the Manned Space Flight Network: the surgeon communicator, referred to as "Capcom" (from early manned

flight, when Mercury was called a capsule rather than a spacecraft), is the voice contact with the crew.

The experiments officer coordinates mission experiments activ-

ity; and the public affairs officer reports mission events to the public.

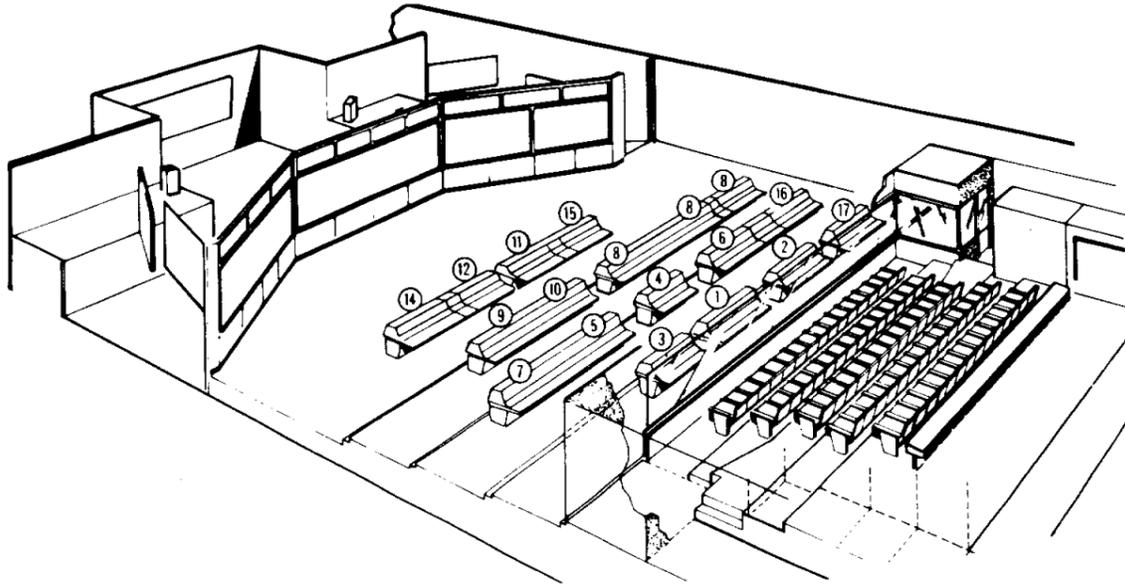
The systems operations group monitors data on the spacecraft and the launch vehicle and, when necessary, suggest ways to repair or circumvent malfunctioning equipment.

The group includes an environmental, electrical, and communications engineer for each spacecraft and a guidance, navigation, and control engineer for each.

Other positions are booster systems engineers, communications engineer, and operations procedures officer.

In the flight dynamics grouping are the flight dynamics officer (FIDO), who monitors and plans spacecraft maneuvers, the guidance officer (GUIDO), who keeps spacecraft guidance systems updated with current flight information, and the retrofire office, who plans deorbit maneuvers for earth orbital flights, or calculates reentry trajectories for return from deep space.

Next issue: The Supporting Cast.



This layout of a Mission Operations Control Room shows the visual display wall, the flight control consoles, and the viewing area for official observers. Console assignments vary, but a mission such as Apollo 16 would have: (1) the Flight Operations Director (2) Mission Director (3) Public Affairs Officer (4) and (5) Flight Director and Assistant FD (6) Flight Activities Officer (7) Communication Systems Engineer and Operations Procedures Officer (8) Vehicle Systems Engineer (two for the command module and two for the lunar module) (9) Flight Surgeon (10) Spacecraft Communicator (11) Flight Dynamics Officer (12) Retrofire Officer (14) Booster Systems Engineer (15) Guidance Officer (16) Network Controller and (17) DOD Representative..

Everett and Conway Cop Low Honors In MSC Golf Association Tourney

Dick Everett and Tom Conway each posted three over par 75 to take individual low honors in the May 13 MSC Golf Association tournament held at the Sharpstown Country Club.

Lions Seek Names Of Crippled Kids

MSC personnel who know a handicapped youngster who would like to attend summer camp should contact Wayne Gotsch, extension 3831, or any other local Lions Club member.

The Texas Lions are taking applications for their summer camp at Kerrville, where they sponsor three two-week free-of-charge sessions for blind, deaf, mute or crippled children from 7 through 16 years.

More than 80 MSC golfers tramped the soggy fairways and the final 'flight' winners were:

CHAMPIONSHIP: First, Everett (75) 66; Second, Bob Reaves (81) 70 and Conway (75) 70 and third P. Smetek (84) 71 and Jay Harnage (82) 71.

FIRST: First-Chuck Levy (88) 69, Second-Ed Cawley (88) 70, and Chuck Laird (87) 70, and Third-Bob Gordon (90) 72.

SECOND: First-Jim Sanders (86) 67, Second-Bill Ramey (94) 70, Third-Bob McGregor (102) 71, and Fourth-Frank Breshears (103) 72 and Dave Harris (95) 72.

NEW FLIGHT: First-Harold Whittington (96) 68, Second-Don Blevins (99) 70 and Jim Wiltz (99) 70, and Third-Jim Cioni (99) 71.

The next tournament is scheduled for June 3 at Sun Meadow Country Club, Friendswood.

Moon-Grenade—

(Continued From Page 1)

and with a predicted range of 915 meters (3,000 feet), was fired at 12:48 a.m. CDT.

A second grenade with an explosive charge of 45 grams (.1 lb) and a predicted range of 153 meters (500 feet) was fired 44 minutes later at 1:32 a.m.; and a third grenade with a charge of 136 grams (.3 lb) and a predicted range of 305 meters (1,000 feet) was fired at 1:40 a.m.

Following the launching of the third grenade, the mortar package pitch sensor shifted to off scale high, indicating either that the sensor had failed or that one or more of the four stakes which anchor the mortar sub-pallet to the lunar surface had pulled out of the ground, allowing the package to pitch up and back.

Scientists and NASA officials elected not to fire the fourth grenade, which contains a 454 gram (1 pound) charge and has a predicted range of 1,500 meters (5,000 feet), to avoid any possible damage to the rest of the science package experiments.

An analysis of data on the pitch sensor is underway in an effort to determine, if possible, if the sensor has failed or if the mortar package has shifted its position.

If it can be determined that the sensor failed and that the mortar package is still properly oriented, it may still be possible to fire the fourth grenade.

Cost Reduction Corner

Having sent one representative to a training course in radiographic inspection—80 hours of training resulting in certification for X-ray film interpretation—at a cost of \$560, then finding need for additional certified personnel, Quality Engineering Branch took action.

Kenneth N. Warren reports: development of an X-ray inspection training course, scheduling and presentation of the course on-site and in addition to regular duties, and certification of 18 NASA and 6 contractor personnel.

Cost involved was \$150 for training manuals, which will be reused in subsequent training, then sent to the tech library as reference material.

Saving to John Q. Taxpayer: \$13,290.

