

The End of an Era

When the crew of Skylab 4 splashed down in the South Pacific on February 8, 1974, it signaled the end to the longest manned flight support mission ever undertaken by Goddard's Spaceflight Tracking and Data Network (STDN).

Support of the mission started well before liftoff of Skylab 1 on May 14, 1973, with the Merritt Island Station providing checkout and prelaunch support. Network support continued for 271 days of actual flight, during which time, the Skylab Space Station completed 3898 revolutions of the earth and transmitted over 1.7 trillion bits of data to the network stations. The support provided by the network during the four Skylab flights was massive. The network handled an average of 68 passes each day for the first 190 days of the mission and 71 passes a day for the final 81 days of the flight. Each pass lasted about seven minutes and added up to approximately 1300 hours of tracking time and about 3242 hours of telemetry operations.

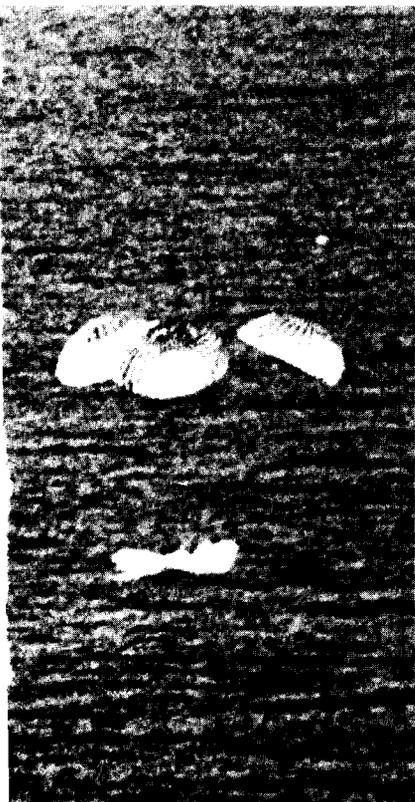
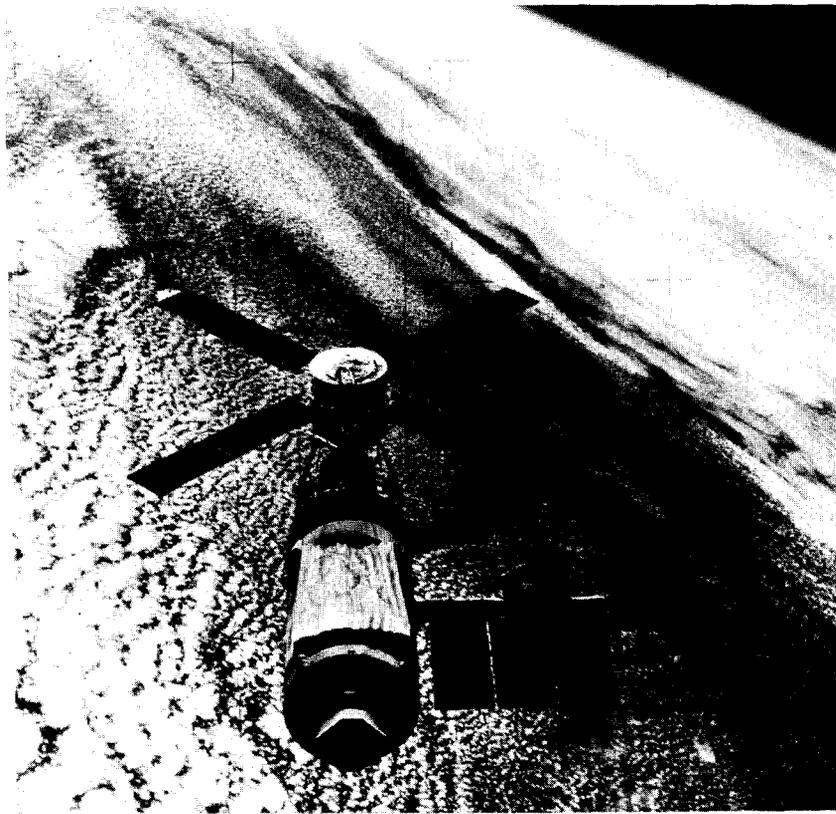
During the individual missions the network was called upon to support several critical phases of the flights. They were: the space walks to extend the jammed solar panel, deploying the sunshades over the space station, extravehicular activities of the crew to retrieve valuable instrumentation and documentary film and the re-entry phases for all flights. In retrospect, the men and women of the network can look back and say there was excitement, sameness at times, but never a dull moment during the support operation just concluded.

All of NASA and especially the crews of Skylab join in saying to the personnel of the Spaceflight Tracking and Data Network: "Thanks for a job WELL DONE."

SAFE ON BOARD the USS New Orleans about an hour after splashdown are (seated, from left) Dr. Edward R. Gibson, science pilot for Skylab 4; William R. Pogue, pilot; and Gerald P. Carr, commander. The record-breaking flight of Skylab 4 lasted 84 days. The three crewmen, who were launched into orbit on November 16, 1973, had never been in space before.

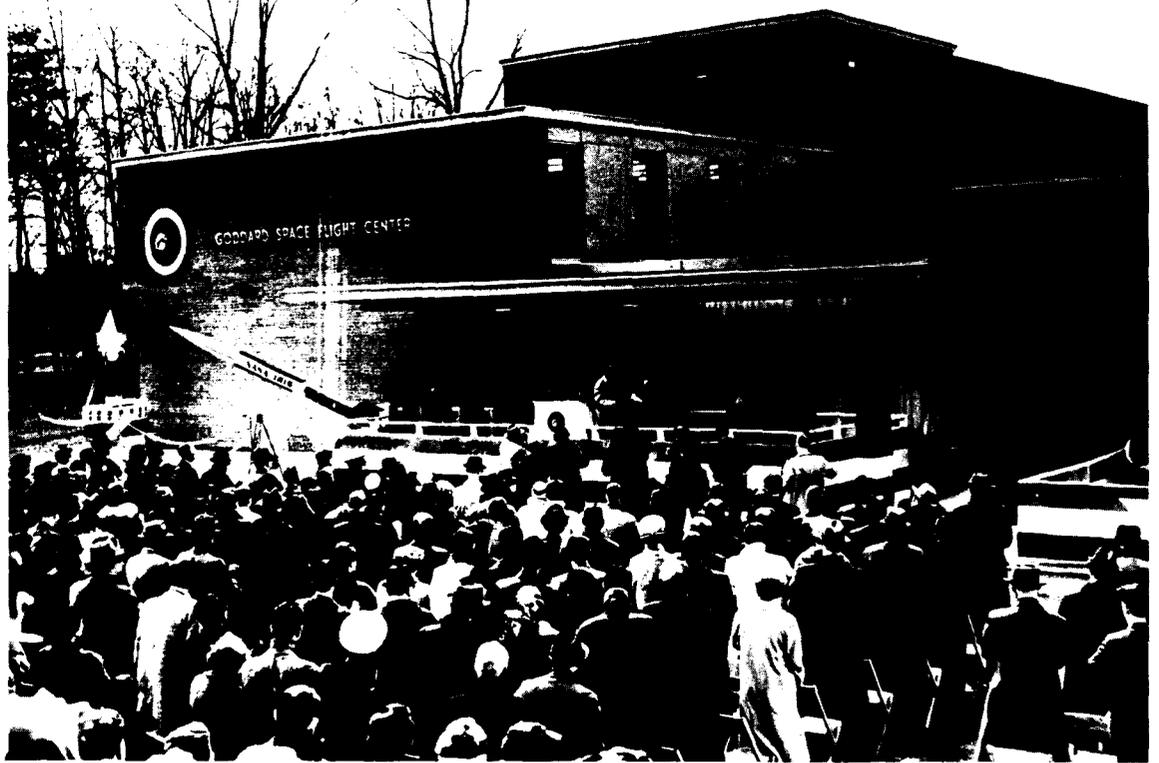
A LAST LOOK AT SKYLAB. This overhead view of the space station cluster was taken during the final "fly-around" of Skylab 4 from the Command and Service Modules as the astronauts returned home. The space station is contrasted against a cloud-covered Earth. Note the solar shield which was deployed by the second crew of Skylab and which shades the Orbital Workshop in the area from which a micrometeoroid shield has been missing since the cluster was launched on May 14, 1973. The OWS solar panel on the left side was also lost on workshop launch day.

THE LAST SPLASHDOWN OF AN ERA. The Command Module containing Skylab 4 astronauts Gerald P. Carr, Dr. Edward G. Gibson and William Pogue splashdown in calm Pacific seas at 11:17 a.m. EDT February 8, 1974, 283 kilometers southwest of San Diego, California.



Goddard Anniversary

IT WAS A COLD DAY IN MARCH thirteen years ago when the Goddard Space Flight Center was officially dedicated on March 16, 1961. The day was the 35th anniversary of the successful launch of Dr. Robert H. Goddard's first liquid-fuel rocket. The Center itself had been in existence for about two years. Already Goddard staff members had had a hand in a number of successful satellite projects including several explorers, Vanguard 3, Pioneer 5, two TIROS, and Echo 1.



NASA Plans Many Launches for 1974

The upcoming months of 1974 will be a busy time for NASA launch vehicles. In the next ten months, the space agency plans to launch over 20 spacecraft, many for foreign nations.

For the first time in the agency's history, more spacecraft will be launched for organizations outside NASA than launches for which the agency is solely or primarily responsible. NASA will be reimbursed for providing launching and tracking services for 14 corporations and governments or government-connected organizations, both domestic and foreign. Nine of the reimbursable launches and four of the NASA launches are scheduled for Goddard's Delta launch vehicle.

Among the NASA launches, the first Synchronous Meteorological Satellite (SMS) is tentatively scheduled for liftoff late this spring using a Delta booster. To be placed in a stationary orbit 22,300 miles above the equator, it is the first of two satellites to be used by the National Oceanic and Atmospheric Administration in the development of an operational geosynchronous weather satellite system. SMS-B will be launched later in the year.

ATS-F, the last and most complex of Goddard's Application Technology Satellite series, is scheduled for launch this spring aboard a Titan IIIC booster from the Eastern Test Range. Hawkeye, to be launched by a Scout booster, will blast off from the Western Test Range.

Helios-A, to be launched by a Titan IIIC, is a NASA-German cooperative satellite designed to study the solar environment. GEOS-C, a Geodetic Explorer, is scheduled for launch from WTR atop a Delta in late summer.

UK-5, a NASA-United Kingdom scientific project, will be the second satellite launched this year from the San Marco launch platform off the coast of East Africa. It follows San Marco 4, a NASA-Italian project, that was successfully launched on February 18.

ANS-A, a jointly operated NASA-Netherlands astronomical satellite, is scheduled for a summer launch aboard a Scout from WTR.

Five of the reimbursable launches will be for the Comsat Corporation and two for the United Kingdom. NASA will begin a series of domestic communications satellite launches for Western Union for the first time this summer, with a total of three scheduled in 1974.

Two launches will be reimbursed by the National Oceanic and Atmospheric Administration (NOAA). One spacecraft will be launched for West Germany and one for a two-nation consortium, West Germany and France.

All 1974 launches will be unmanned spacecraft with the next manned effort, ASTP, a joint United States-Soviet mission, scheduled for mid-1975.

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Top Level NASA Reorganization Announced

On March 5, 1974, Dr. James C. Fletcher, NASA Administrator, and Dr. George M. Low, Deputy Administrator, announced a reorganization of NASA Headquarters and named several senior officials to fill key positions in the new organization. The changes and appointments became effective March 15.

Dr. Rocco Petrone has been named Associate Administrator, replacing Dr. Homar E. Newell, who has retired. As Associate Administrator, Dr. Petrone will be responsible for the overall management of the Agency's research and development programs. He will direct the activities of the Headquarters program offices, including Manned Space Flight, Space Science, Applications, Aeronautics and Space Technology, and Tracking and Data Acquisition. These offices previously reported to the Administrator.

Dr. Petrone is currently Director of the Marshall Space Flight Center in Huntsville, Alabama. Prior to this, he was Apollo Program Director at NASA Headquarters. In addition to his duties as Associate Administrator, he will continue to serve as Director of the Marshall Center until early summer to oversee organization and personnel changes now under way at that installation.

Dr. John Naugle has been named Deputy Associate Administrator. Dr. Naugle is presently the Associate Administrator for Space Science, and will also continue acting in that role until a successor is named.

NASA also announced the creation of a new post: the Associate Administrator for Center Operations, who will be responsible for Agency-wide planning and direction of resources and activities at the NASA field installations. The directors of the ten major NASA field installations will report to the Associate Administrator for Center Operations. These installations are the Ames Research Center, Moffett Field, Calif.; Flight Research Center, Edwards, Calif.; Goddard Space Flight Center, Greenbelt, Md.; Jet Propulsion Laboratory, contractor-operated facility in Pasadena, Calif.; Johnson Space Center Houston, Tex.; Kennedy Space Center, Fla.; Langley Research Center, Hampton, Va.; Lewis Research Center, Cleveland, Ohio; Marshall Space Flight Center, Huntsville, Ala.; and Wallops Station, Va.; Prior to the change, these installations reported to designated Headquarters institutional directors.

Dr. George M. Low, NASA Deputy Administrator, will serve as Acting Associate Administrator for Center Operations until a permanent appointment has been made. Mr. Edwin C. Kilgore, Deputy Associate Administrator for Aeronautics and Space Technology (Management), will assist Dr. Low in the new office on a full-time basis during the interim period.

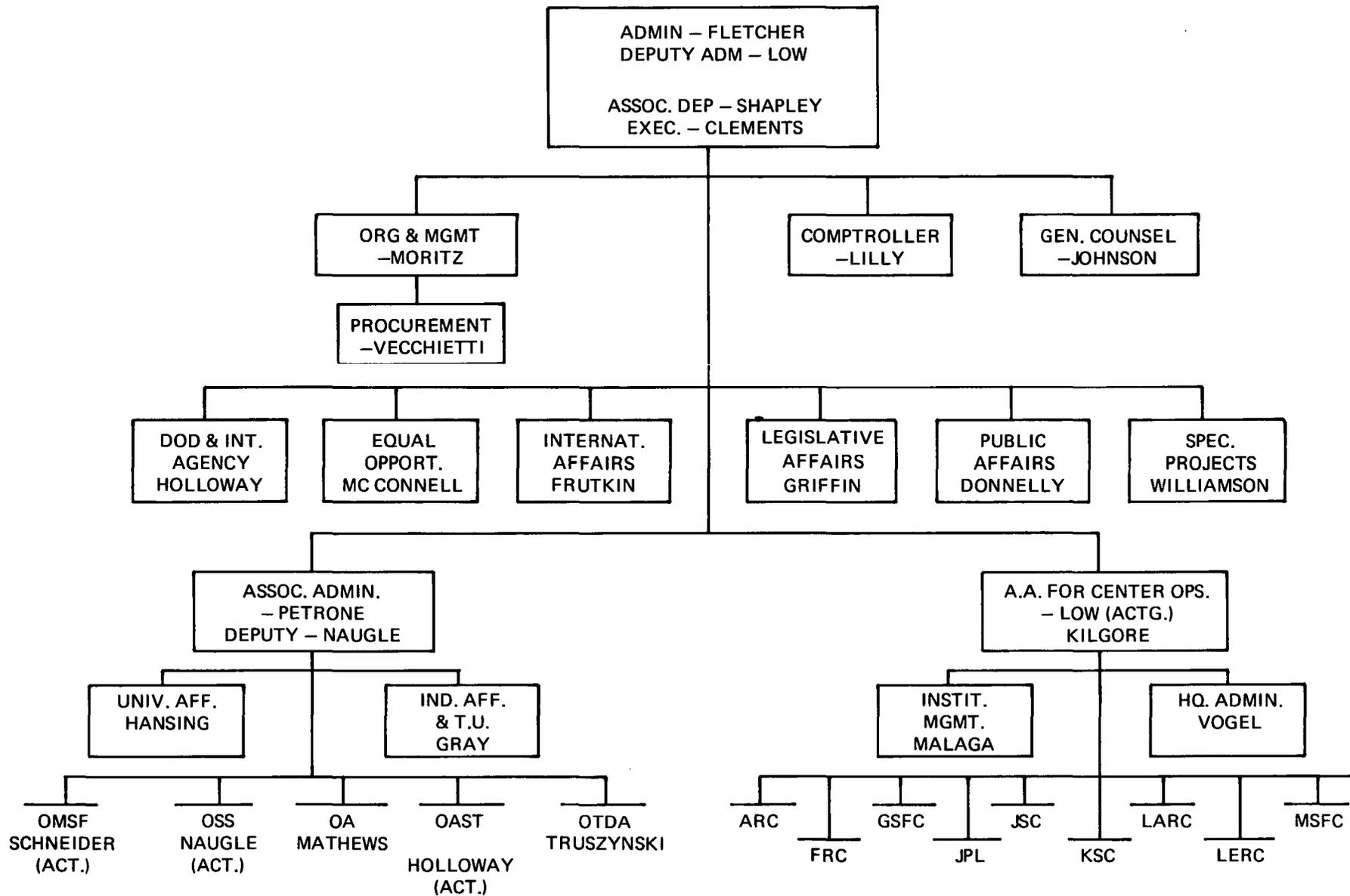
Dr. Fletcher said the changes were made as a result of the completion of Apollo and Skylab, and the transition to the space programs for the remainder of the 1970's and into the 1980's. The new organization will provide the needed mechanisms for the phoneover from conventional launch vehicles to the Space Shuttle, and to the payloads which will make use of the Shuttle. At the same time, the new organization will provide for a more dynamic interaction with NASA's field center, and thereby with NASA's people – the engineers, scientists and managers who are the key to NASA's success.

Both the Associate Administrator and the Associate Administrator for Center Operations will report to the Administrator.

Also announced effective March 15 were the appointments of Mr. Bernard Moritz as Associate Administrator for Organization and Management and Gen. Bruce Holloway as Acting Associate Administrator for Aeronautics and Space Technology. (Gen. Holloway will also continue to serve in his present position of Assistant Administrator for DOD and Interagency Affairs.)

Dr. William R. Lucas, Deputy Director of the Marshall Center, will become Center Director in early summer when Dr. Petrone expects to move to Washington on a full-time basis.

NASA's New Organization Effective March 15, 1974



15 MARCH

San Marco 4 in Orbit

The fourth spacecraft in a joint Italian-United States cooperative program to investigate the upper atmosphere in the equatorial region was launched aboard a Scout rocket from an Indian Ocean platform three miles off the coast of Kenya, Africa, on Monday, February 18.

The Italian-built spacecraft, San Marco 4, carries an Italian accelerometer to measure atmospheric drag, and two U.S. mass spectrometers (Goddard experiments) to study composition and temperatures from 228 km (137 miles) above the Equator (perigee), to 850 km (510 miles) above the Equator (apogee). It circles Earth every 95 minutes at an inclination of 2.9 degrees to the Equator.

Previous San Marco satellites have returned important information on this region, but further information is necessary for a better understanding of the variations in low altitude density, composition and temperatures resulting from solar and geomagnetic activities noted by earlier spacecraft.

Information obtained by San Marco 4 will also be correlated with data from NASA's recently launched Atmosphere Explorer-C satellite, named Explorer 51. Initially placed in an orbit of 4304 by 157 km (2668 by 97 miles), Explorer 51's perigee is slowly being lowered to investigate atmospheric properties down to about 120 kilometers (74 miles) above the Earth.

With San Marco 4 sampling the atmosphere at the Equator and Explorer 51 examining it at higher latitudes, an especially good picture is expected to emerge on the effects of magnetic storms on the thermosphere — the area from about 120 km to 600 km (74 to 373 miles).

Goddard Project Manager for San Marco is Anthony Caporale, with George Newton as Project Scientist. David Grimes is Goddard Project Manager of the Atmosphere Explorer, and Nelson Spencer is Project Scientist.

Co-op Student Works on MIMS



CO-OP STUDENT. Louis S. Collins a senior computer science management major at Federal City College, is a Co-op Student assigned to Goddard's Technology Utilization Office. He is currently employed in extending the applications of the Medical Information Management System (MIMS) computer program. This program was initiated to monitor the medical records of the astronauts. However, it was not fully completed at Houston. The program subsequently was made operational under a NASA grant funded by the NASA Developing Institutions Program to Federal City College. Mr. Collins worked with Sidney Alterescu of the Technology Utilization Office and Professor Ronald Schwarz of the FCC Mathematics Department on this project. A native of Detroit, Michigan, Mr. Collins is a Marine Corps veteran of Vietnam where he achieved the rank of Corporal and was awarded the Purple Heart. He has served two terms as president of the Federal City Cooperative Education Student Association. He is co-author with Dr. Schwarz and Mr. Alterescu of X-Document 207-72-374 "Medical Information Management System (MIMS) a Generalized Interactive Information System," and a Tech Brief of the same title.

Kerwin Speaks Here



SCIENTIFIC COLLOQUIUM. Scientist-Astronaut Joseph P. Kerwin, M.D. (left), shown here with Goddard Director Dr. John F. Clark, was the speaker for the February 15 Scientific Colloquium in the building 3 Auditorium. Dr. Kerwin spoke on "Results from the First Skylab Mission." Dr. Kerwin, along with Charles Conrad, Jr. and Paul J. Weitz, was a member of the first crew aboard the Skylab Space Station.

Save Energy

Join a Car Pool

Many Goddard employees are forming car pools to beat the gasoline shortage and have found them a convenient and economical way of getting to work. A gate count of cars coming to Goddard on January 18 indicated that about 30% of Goddard employees ride in car pools. This percentage had increased to 34% by February 22. However, over 3000 employees rode to work alone on this date.

To help increase the number of Goddard car pools, the Management Services and Supply Division has conducted a survey aimed at identifying employees who wish to car pool and helping them find others in their areas who drive their way. A questionnaire was sent to both Civil Service and contract employees late in December, and to date about 830 of the 2200 people who responded have indicated that they wish to join a car pool. These names have been listed by Zip Code and area, and interested employees can view the list in the basement of the Security Building.

Some results of the survey by areas are that of 170 people from Bowie who returned the questionnaire, 54 want to carpool. From Greenbelt, 100 people returned the form, and 24 want to carpool. Fifty-three out of 133 people in Laurel want to carpool; 36 out of 85 from Silver Spring want to; and so do 33 people out of 77 from Columbia. Incidentally, about one-fourth of the entire Goddard workforce lives within five miles of the Center, but Goddard has some

(See Page 4)

CONSERVATION NOTES

The following articles by David G. Lewoc, Assistant Chief of the Plant Operations and Maintenance Division, are part of a continuing series intended to keep Goddard employees up-to-date on what the Center is doing to conserve energy and natural resources, and cut the cost of Goddard utilities.

Utilities Conservation

Goddard's utility conservation program has shown some very definite results. Comparing the first seven months of FY 74 to FY 73, we have achieved the following reductions:

Oil	.63 Million Gallons	67 Percent
Natural Gas	12.3 Million Cubic Feet	6 Percent
Electricity	7.54 Million Kilowatt-Hours	11 Percent

This compares favorably with the NASA-wide reductions for the first two quarters of FY 74. The total NASA reductions are:

Oil	5.14 Million Gallons	47 Percent
Natural Gas	1.27 Billion Cubic Feet	41 Percent
Electricity	106.97 Million Kilowatt-Hours	10 Percent

For your information, in relation to other Federal agencies, NASA ranks high in all reduction categories. While that's good news, there's also some bad news; namely, despite the reduction in energy usage, the cost to GSFC was \$38,000 more. By far the biggest culprit is the electric bill. We paid \$71,000 more for 7.5 million less kilowatt-hours. The electric bill is rising at an unprecedented rate for two reasons: fuel costs and demand charges. The fuel cost is a small extra charge per kilowatt-hour imposed to cover the cost of fuel increases, and the demand charge is for the highest (peak) amount of kilowatts used during the summer months and is reflected in higher bills throughout the year.

The Plant Operations and Maintenance Division will attack both of these costs in separate ways: the fuel cost by lowering the total usage; the demand charge by selectively securing the ventilating systems for short periods in non-critical areas during extremely hot weather. The total usage will be lowered by (1) keeping non-critical areas at 78°F. in cooling months and (2) attempting to get GSFC personnel to secure equipment when not in use.

At this time, a little discussion on the power company's fuel cost might be helpful since this cost will also be reflected in your home bill. The power companies do not have to absorb the rising costs of fuel and may pass it on to their customers. For instance, PEPCO now pays around \$26 per ton of coal whereas the cost was \$9 per ton last year. To give you an idea, January's fuel cost was \$.0033 per kilowatt-hour, which doesn't look bad at first glance, but December's was \$.0019 per kilowatt-hour and November's was \$.0015 per kilowatt-hour. The average is expected to be \$.007 per kilowatt-hour for the year. One might say, "Well, what the heck! \$.007 per kilowatt-hour isn't much!" but let's have a look at the average home's electrical usage with a central air conditioning unit. For June, July, August, and September, 2,500 kilowatt-hours per month wouldn't be unreasonable to assume. At \$.007 per kilowatt-hour, that's \$17.50 per month, *additional* charge. You all know what your electric bill was during the summer last year . . . well, just tack another \$17.50 onto that.

But there is also some good news connected with the electrical problem. There *will be* enough power this summer because PEPCO generates 75 percent of its power from coal, which the U. S. has in good supply.

Understanding BTU's

The amount of energy used at GSFC is expressed in British thermal units (BTU's). A BTU is the amount of heat required to raise one pound of water one degree Fahrenheit. This unit is handy because oil, gas, and electricity can all be expressed in BTU's. The conversion is as follows:

Fuel Oil #6	—	149,700 BTU's per Gallon
Fuel Oil #2	—	138,700 BTU's per Gallon
Natural Gas	—	1,031 BTU's per Cubic Foot
Electricity	—	11,600 BTU's per Kilowatt-Hour

These conversion criteria are used in computing the GSFC energy usage, which, incidentally, will be displayed on billboards posted at the Main Gate.

The electrical conversion of 11,600 BTU per kilowatt-hour may be unfamiliar to many people, particularly electrical engineers who are accustomed to using 3,413 BTU's per kilowatt-hour. By way of explanation, the 3,413 BTU's per kilowatt-hour figure represents the energy *received* as a result of *utilizing* a kilowatt-hour, and the 11,600 BTU's per kilowatt-hour figure, on the other hand, represents the energy (fuel) *required* to generate one kilowatt-hour at the generating station.

NASA uses the 11,600 BTU's per kilowatt-hour conversion factor in reporting to the Federal Energy Office (FEO) because the FEO is more concerned with the amount of fuel required to generate a kilowatt-hour than the amount of energy received when utilizing a kilowatt-hour.

David G. Lewoc
Assistant Chief
Plant Operations and
Maintenance Division

CAR POOLS . . . From Page 3

employees coming from as far away as north of Baltimore, Virginia and the Eastern Shore.

For the purpose of the survey, two people to a car make a car pool, but pools of three, four, or even six people are encouraged. The more riders, the more gas is saved. Also, the farther you have to drive, the more you save by carpooling.

Other plans to help Goddard employees kick the driver-only habit, include possible charter bus service to some outlying areas. Although Goddard cannot charter buses for employees, employee groups can. Employees in Laurel and Columbia are presently being polled to see who is interested in such a plan.

For additional information on possible charter bus service, call William Cooper or Louise Blamberg on extension 5733.

If you live along the Metro routes to Goddard, you might want to ride a public bus to work. There are a few routes that pass Goddard, and the Security Office has a new directory of route maps showing where the buses go.

For more information, drop into the Security Office in the basement of Building 99, parking lot entrance. They have the updated list of employees seeking car pools and the Metrobus route maps. They also have the original car pool questionnaires for people who have not filled them out. If you originally said "no" to carpooling, but have changed your mind, they will be happy to hear from you.

New Systems Streamline Library Operations

This past year marked the beginning of a new generation for the Goddard Library, reports Goddard Librarian Adelaide A. Del Frate. A total book collection inventory was made and, at the same time, a machine readable data base was created for the books. As a parallel development, a new circulation system was designed by the Business Data Branch to operate on the inventory base using machine readable charge plate type identification cards for all library users and IBM punched cards for each book.

Results of these innovations include faster library services, a future reserve system, and positive identification of borrowers who chronically refuse to return overdue books.

When Goddard's research library was first established during the early years of the Center, the collection was small and there were few users. Circulation records were maintained by hand. By 1964, the collection was increased from 5,000 to 25,000 books and a semiautomatic circulation system was established. Today, the collection contains 45,000 items.

The new system greatly simplifies the maintenance of this huge collection by eliminating most of the keypunching operations associated with the semiautomatic system, and gives the library valuable statistics on all books in the collection, not just those out on loan.

In operation, a Mohawk input station in the library reads the permanent punched book circulation card for a book to be loaned plus the borrower's charge plate information. It then transmits these data along with preselected transaction codes to the Management Systems Office where the information is recorded on magnetic tape for daily batch processing. The new system records the circulation data against the total collection data base. The system also provides weekly printouts of books on loan by code, user, call number, author, title and book accession number. In addition, it sends weekly notices to users who have books which are overdue—reminding them to return the books. The system provides for loan parameters as follows: 28 days for most material, 14 days for newest items.

The recent Center-wide library survey pointed out user dissatisfaction with trying to get hold of books which were never returned. The new system not only sends out weekly overdue notices, but compiles lists of users who have disregarded three overdue notices. These violation lists are sent to the user's division chief. Borrowers who fail to return the books after this reminder to supervisory levels may risk losing their borrowing privileges.

Renewals Possible

Library users who need to keep books beyond the first loan period may renew "new" books once for 14 days and older books twice for 28 days. To renew a book, borrower must bring it to the library; it will be renewed while he waits.

Occasionally a recall notice will be issued on a book out on loan that is urgently needed by another user. Books on which there is a recall notice cannot be renewed.

The Business Data Branch is now working on a reserve system which will give users the opportunity of obtaining books on a first come basis in a regular reserve system method. Miss Del Frate hopes the system will be ready for use by this summer.

The system will be expanded in 1975 to include data collection on journal use. These data plus the management information derived from the present book statistics will help the library decide what new material is needed.

The library's progress in both the new inventory and circulation systems was made possible by the contributions of Elmer Padgett, a Systems Analyst in the Management Systems Office (formerly the Business Data Branch); the library contractor Information, Inc.; and the library's circulation desk librarian John Wiggins.



JOHN WIGGINS (left), Goddard's circulation librarian, demonstrates the new book circulation system to visitors from the CIA. The terminal at right is part of a comprehensive automatic system that has greatly improved library services.

Library users are reminded that books cannot be borrowed without a charge card. To date, some 864 cards have been issued since the new system went into effect in August.

Library charge plates can be obtained by Civil Service personnel from the library loan desk after their locator form with their Social Security number is processed and appears on the locator. On-site contractors can obtain charge plates by filing locator forms (including their Social Security numbers) with their division locator monitors and applying to the library for Form 25-25 and directions. Both forms must be completely processed before a card can be issued.



STR AWARDS. Dr. George F. Pieper (right), Director of Sciences, recently gave cash awards to three people for their outstanding presentations at the annual GSFC Science and Technology Review last December. The speakers and the titles of their presentations are (from left): Carl Reber, Laboratory for Planetary Atmospheres, "Seasonal Variations of Upper Atmosphere Composition"; David Thompson, Laboratory for High Energy Astrophysics, "High Energy Diffuse Gamma Rays, Experimental Results and Theoretical Interpretation"; and Jane Schubert, formerly of the Laboratory for Meteorology and Earth Sciences, now of the Applications Directorate, "Detection of Water Pollution by Remote Sensing."

Prince George's County Vocational Development Program at Goddard



HARRY DAKIS, a junior at Du Val High School, relaxes on a bicycle rack he recently completed in the welding shop of the Mechanical Maintenance Branch.

When school began this September, Harry had never struck an arch on an electrical welder or lighted an acetylene torch. As a participant in the Prince George's County Vocational Development Program, he was placed with William Bailey in the welding shop by Goddard's Educational Programs Office for a three-hour session each school day to explore the welding trade. This project is "proof-positive" of his talents and William Bailey's instructional ability. It was the culmination of his instruction in welding ferric materials. He has now graduated to welding aluminum which he is mastering with equal proficiency.

Allen Harris, Head of the Mechanical Maintenance Branch, points out that the bicycle-rack project was completely Harry's work. He designed the rack on paper; selected the materials from waste pipe; cut the pipe to proper length and performed over 60 welds during construction; and completed the project with the application of a weather resistant paint job.

This rack, with an attached metal plaque stamped "Built by Harry Dakis-1973", is now secured in concrete on the campus of Du Val High School to provide greater convenience for bike riders and years of evidence to the effectiveness of the Prince George's County Vocational Development Programs cooperative effort with the Goddard Space Flight Center.

The achievement demonstrated by Harry Dakis in learning the welding trade has become the general expectation rather than the exception for all students in this program, which is in the fourth year of operation at Goddard.

At the present time, 14 students from Bowie Senior High, Du Val Senior High, and Parkdale Senior High are working in the areas of welding, painting, plumbing, clerical, refrigeration, electronics, printing technology, food service, auto mechanics, safety technology and carpentry.

Student participants in the Vocational Development Program at Goddard are all juniors in high school. They receive monetary compensation from the Board of Education for approximately 15 hours per week. This is termed learning money. At Goddard the junior year students explore various interest areas and hopefully gain enough skill in their primary interest area to be employable in commercial establishments during their senior year when they have more time on the job. The students understand that the experience at Goddard is to achieve greater employment opportunities outside the Center during their senior year and after. Occasionally, however, employment opportunities do develop at Goddard. This is evidenced by the fact that James Stillwell, after spending two years here learning the plumbing trade with Tony DiBartolo while a student at Largo Senior High School, is now a Goddard employee working as a plumber's helper.



ALLEN N. HARRIS, (left) Head of the Mechanical Maintenance Branch, Plant Operations and Maintenance Division; is shown with Harry Dakis, Du Val High School student; and William A. Bailey, Jr., welder in the Mechanical Maintenance Branch and Harry's welding instructor.

Mr. Harris evaluated Harry's progress in learning the art of welding as follows: "By the end of this school year Harry will be fully capable of going on a commercial job as a producing helper in the welding trade. Additionally, he will already have made the decision that this is the way he wants to make his living. He will be a better employee because he will have already learned what the employer expects from the employee."

Mr. Harris further stated that Goddard's role in identifying and training these young people demonstrates a valid approach to use in solving the almost critical national problem of a shortage of skilled craftsmen.

This does not include two other student programs coordinated by the Educational Programs Office — Neighborhood Youth Corps II with seven students working in computer technology and audio-visual technology; and the Pre-Professional Career Exploration Program (high school juniors and seniors who spend a few hours per week for five or six weeks working with an engineer, scientist or mathematician). The numbers of students in this program fluctuate, two are on site at present.



TRAP SHOOTERS. The Lost Birds, a team from Goddard Trap and Skeet Club, won the 1973 Fall Trap League held from October 10 to December 12 at the joint Goddard/Fort Meade trap and skeet range. Members of the winning team are (from left) Lee Stonebreaker, team captain, Barbra Farwell, George Wyatt, John Popp, C. L. Maschauer, and Carol Maschauer. They won over other teams from Goddard, Fort Meade, and the Agricultural Research Center.



NEW BOARD FOR GEWA. Members of the new Executive Board of the Goddard Employees Welfare Association are (from left) Paul Rall, Facilities Co-chairman; John Tomasello, Secretary and Clubs Co-chairman; Alberta Moran, Second Vice President and Store Chairman; Jack Libby, President and Clubs Chairman; Beverly Dinn, Treasurer and Store Co-chairman; George Abid, Food Services Co-chairman; Ed Fitch, First Vice President and Facilities Chairman; and Marc Selig, Food Services Chairman.

Photo Club Contests Now Open

Four separate photo contests are being held by the Goddard Photo Club to provide photographs for next year's NASA Washington Credit Union seasonal calendar. All material submitted for the contests must depict scenery, industry, sports or daily activities of the Maryland, Washington, D.C., Virginia and Chesapeake Bay area.

The contests are open to all Goddard and NASA Headquarters Civil Service and contract personnel and their immediate families. Two contests for black and white prints are being held, the first began on February 1 and ends April 15, and the second begins April 15 and ends June 30. Two color contests, one for prints and one for slides, began on February 1, and end on June 20. Prizes for all contests are: \$20 for best of show, \$15 for second place, and \$10 for third place. In addition, 12 honorable mention awards of \$5.00 each will be given for the black and white contests.

Photographs will be judged on appropriateness to a general photo calendar, print quality, originality, composition and esthetic appeal. The Credit Union will make the final selection of all calendar pictures.

General Contest Rules

1. Photographs must represent the local Maryland, Washington, D.C., Virginia or Chesapeake Bay area. There is no time limit as to when the photo was taken.
2. Entries are limited to six per contest, and previous contest winning photos are not eligible.
3. Black and white prints must be 8 x 10 unmounted, glossy or semi-matte finish, and original negatives must be available on request.
4. Color prints may be 5 x 7 or larger, and original negatives must be available on request.
5. Color slides may be 35 mm or 2 1/4 inches.
6. Entries must be submitted or mailed to the Credit Union Office, and must be accompanied by the entrant's name, home address, GSFC mail code, and office phone number. Caption material must include: where the photo was taken, suggested title, any additional information of interest, and model release where required.

Additional information may be obtained by calling Richard Buehler on extension 6343 or 2486, Dan Wittgardner on extension 4650, or Fred Berko on extension 2730.

Pat Naughton:

New Rec Center

Manager



Patrick J. Naughton has been selected by your GEWA Board to manage the Goddard Recreation Center starting the first of February, 1974. Pat is GEWA's first full time Recreation Center Manager and is at the center from 11:30 AM - 4:30 PM, Monday through Friday where he can be reached on extension 4440.

Your new Recreation Center Manager is available to assist you in planning your functions and will order your party needs for you when requested. Pat also offers catering at a reasonable price.

Mr. Naughton is a congenial person with a pleasant personality and has excellent managerial qualifications. He is married, has a daughter and son and resides in Riverdale Heights, Md.

Ed Fitch, GEWA Facilities Chairman and Paul Rall, GEWA Facilities Co-Chairman, look forward to working with your new manager to make your Recreation Center a place of enjoyment for you and your guests.

GODDARD AROUND THE WORLD



USNS VANGUARD. Congressman Joseph McDade, Republican from Pennsylvania and a member of the House Appropriations Committee, paid a visit to the tracking ship on January 16. The Congressman was on a trip to a few South American countries and, while in Buenos Aires, Argentina, the U.S. Embassy offered him a visit to Mar del Plata and the Vanguard which was at sea nearby. Here he is shown (right) with Station Director Otto W. Thiele during a briefing in the tracking station's SATCOM area. His visit included supper on board the ship and the chance to listen to JSC-astronaut discussions through the station during an actual Skylab pass.



MAD cast of "South Pacific"

Exuberance and Talent Key to MAD Success

Exuberance and real talent were the key notes of MAD Productions' fall performance of "South Pacific." In fact, such a good time was had by both the cast and audience that the musical was repeated by "popular demand" in January.

Nearly 3000 Goddard employees and their guests viewed the show in its dinner-theater set-up at the Goddard Recreation Center. The performers included 80 government and contract employees and some family members divided into two casts to give the stars a breather between performances.

Goddard's MAD Productions (the MAD stands for Music and Drama) was first organized early in 1970 and the first show was presented in November of that year. As the organization grew, new elements were added. The MAD Combo, first organized to provide music for MAD plays, sometimes performs for Goddard award ceremonies and other functions. The Men's Chorus, originally formed as a separate Goddard club, is now a part of MAD and performs both on Center and at community hospitals and old folks homes.

All MAD activities are conducted on a strictly volunteer basis. The nominal fee charged for shows is used to cover expenses such as royalties, costumes, lighting, set construction, etc., and the dinner. Profits are plowed back into the organization to finance spring music festivals and to help in the production of the next fall show. Profits also make possible free shows for hospital groups and civic organizations. For example, free performances of "South Pacific" were given here at Goddard for patients from the Bethesda Naval Hospital, Walter Reed, and the Veteran's Administration Hospital; residents of the Old Soldiers Home, Girl Scouts, students from the Laurel center, and the Sisters of Charity.

An additional use of MAD funds might be financial help to the GWA Council for modifications to the Recreation Center that are under consideration at present. This contribution would be used for enclosing the pavillion so that this area can function as a room for small parties for Goddard employees, and also for a dressing room when MAD is presenting its shows.

Present plans at MAD include selection of a musical show for next fall, and three workshops and a possible music festival for this spring. Rehearsals for the fall show will begin in the summer.

Pianist Needed

To help make these plans a success, MAD is badly in need of people who can play piano for rehearsals, both for the spring workshops and later shows. Since more than one group usually rehearses at one time, several pianists are needed.

The three workshops, which may be in progress when you read this, are in the dramatic arts, musical arts, and theater technical arts. Each workshop will emphasize training people for future productions.

Who can join MAD? All Goddard government and contract employees and their families can join. MAD charges no dues.

For information on the spring workshops, contact MAD President Bill Cruickshank (Code 753.1) on extension 2855 or Drama Coordinator Gene Smith (565) on extension 6408. If you can play piano, or know someone who can and is willing to play at rehearsals, call Music Coordinator Jerry Hodge (692) on extension 6988. Other MAD officers are: Vice President Jack Libby (714), Treasurer Peggy Becker (251), Communications Coordinator Joe Bredekamp (602), Facilities and Management Coordinator Silvia Green (272), Historian Joe O'Connor (753), and President Ex-Officio Gil Mead (641).

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