

THE EXPERIMENT PACKAGE for a recent NASA/ESRO ATC experiment is carried aloft by a huge meteorological balloon at top. Small balloon was used to suspend the package (bottom) to prevent damage as the big balloon began to rise. It was released during ascent. Other packages on the line are balloon support equipment.

NASA/ESRO ATC Experiment

NASA and the European Space Research Organization (ESRO) have recently completed a successful balloon-aircraft ranging, data and voice experiment to test concepts for an air traffic control system. The experiment was conducted in southwestern France during the month of September.

Experiment goals were to define more clearly the technical parameters of an L-band air traffic control (ATC) system and to evaluate some of the ATC concepts proposed for an advanced Applications Technology Satellite (ATS-F). A balloon platform at an altitude of about 40 km simulated a satellite relay, while the aircraft carried a breadboard model transceiver built for the ATS-F experiment. ESRO provided the aircraft, tracking radar near Bordeaux, and a ground station located at Aires-sur-l'Adour. NASA supplied the equipment for transmitting voice, ranging, data, control and command signals. Data reduction after the tests is being done here at Goddard.

Sheldon Wishna, Balloon-Aircraft Experiment Project Manager, says, "The aircraft equipment performed exceptionally well, and all the major experiment goals were achieved. We had excellent cooperation from our European colleagues, without whose help the successful completion of the experiment could not have been achieved."

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NASA Honor Awards

The NASA Annual Honor Awards Ceremony on October 29, 1971, marked the thirteenth year of the Nation's space program. During the ceremony held in the Department of Health, Education and Welfare Auditorium in Washington, D.C., Dr. James C. Fletcher, NASA Administrator, presented awards for distinguished service, exceptional scientific achievement, exceptional service and group achievement to men and women who have played a major role in space achievements during the past year.

Among the individuals and groups honored were nine employees and three teams from the Goddard Space Flight Center.

Goddard men who received the NASA Exceptional Scientific Achievement Medal were: Dr. Carl E. Fichtel, Head of the Gamma Ray and Nuclear Emulsions Branch; Alton E. Jones, of the Space Applications and Technology Directorate; and Dr. Werner M. Neupert, Head of the Solar Plasmas Branch.

The NASA Exceptional Service Medal went to Paul Butler, Chief of the Explorer Projects Office; Albert G. Ferris, Associate Director for Mission Operations; William A. Mecca, Jr., Chief of the Program Support Division; Richard J. Nafzger, of the Network Engineering Division; John M. Thole, Project Manager of the Orbiting Solar Observatory; and Marjorie R. Townsend, Project Manager of the Small Astronomy Satellite.

Group Achievement Awards included an award presented to the Apollo Recovery Communications ATS Satellite Support Team that was accepted by Eric E. Metzger, and an award for the OSO-7 Recovery Team that was accepted by John M. Thole. An award for the ISIS Project Team was accepted by Dr. John H. Chapman, Assistant Deputy Minister of Research in Canada's Department of Communications, for the Canadian members of the team and by Donald P. Hearsh, Goddard Deputy Director, for the American members of the team.

Of special interest to Goddard was a Distinguished Service Medal that went to Dr. John M. Townsend, former Goddard Deputy Director, who is now of the National Oceanic and Atmospheric Administration.

Goddard Nominees for Special Study Programs

About twenty Goddard men and women have been nominated to take part in five wide ranging study opportunities during the current fiscal year. Coordinated for Goddard by the Employee Development Branch, the programs include graduate level work for young professionals at local universities and overseas research fellowships for top scientists. They are: The Three-Quarter Credit Graduate Study Program, the Research and Study Fellowship Program, the CSC Federal Executive Institute, the NASA Career Development Fellowship Program, and the CSC Executive Seminars.

Perhaps the best known of these career opportunities is the Three-Quarter Credit Program. Initially organized back in 1962, the program allows qualified scientific, engineering and administrative employees to study for a graduate degree on a nearly full-time basis at a local university while still doing their job on Center. Newly enrolled employees are Wrangle Barth, Frederick Berko, Patricia Comelia and Larry Katz, all of the Space and Earth Sciences Directorate; Steven Cohen, of the Mission and Data Operations Directorate; Janet Heuser and William Meyer, of the Systems Reliability Directorate; John Nastopka, of the Networks Directorate; and Martin Stein, of the Administration and Management Directorate. Participating schools are Maryland University, Catholic University and George Washington University.

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ATC Experiment....From Page 1



BALLOON-AIRCRAFT EXPERIMENTERS from Goddard are (from left) Sheldon Wishna, Project Manager; Walter K. Allen, Principal Investigator; and Dr. James C. Morakis, Head of the Navigation and Data Collection Branch.

Satellite ATC System

The September tests were part of a broad program to develop a future air traffic control network that will provide voice and data communications along with a surveillance capability. Past studies have shown that a network employing satellites would provide the best coverage. NASA, ESRO, many other foreign and domestic agencies, and private corporations have conducted a wide range of investigations to determine the best approach to setting up such a system.

These studies have led to a comprehensive air traffic control experiment that will use ATS-F. Called PLACE, for Position Location and Aircraft Communications Equipment, the experiment will begin after the launch of the satellite sometime in 1973.

The results of the balloon-aircraft experiment will permit NASA to evaluate the PLACE ATS-F equipment concepts and performance capabilities.



BALLOON-AIRCRAFT experimenters in France are (from left) Sheldon Wishna, NASA Project Manager; Francis Derksen, ESRO Mathematician; Steve Martin, Bell Aerospace Project Manager; Francis Absolonne, ESRO Operations Manager; Gerard Melchior (top), Head of ESRO Operations; and Dennis Brown (right), ESRO Program Director.

Goddard Mourns ...

Salvadore P. "Sam" LaBarbera passed away on October 17th after a lengthy illness. As a logistics specialist on the Division Staff of the Management Services and Supply Division, Mr LaBarbera was instrumental in devising programs for the transportation, storage and retrieval of the Center's magnetic data tapes, involving holdings of over 1/2 million reels. His negotiations with the General Services Administration resulted in the GSFC utilization of a major portion of the Washington National Records Center at Suitland, Maryland.

Mr. LaBarbera came to Goddard in 1966, following a 27-year career in the U.S. Air Force



SALVADORE P. LaBARBERA

from which he retired as a Colonel. His military service embraced command positions in logistics, procurement, supply, and aircraft maintenance, in addition to duty as military attache' to the American Embassy in Rome, Italy.

Surviving are his wife, four daughters and a grandchild.

Study Programs....From Page 1

The Research and Study Fellowship Program allows a limited group of specially selected employees to receive fellowship support for academic studies at the doctorate level or to receive sabbatical support for work at appropriate educational or research facilities. Candidates are chosen for up to one year of research or study in areas in which Goddard has a critical need for skills, knowledge and ability. Taking part in this year's program are Dr. George Pieper, Director of Space and Earth Sciences, now on sabbatical at the Max-Planck Institute in Germany; Dr. Thomas Lynch, of the Communications and Navigation Division; who is doing research at the Technical University at Braunschweig, Germany; and Theodore Stecher, of the Observational Astronomy Branch, now at the Joint Institute for Laboratory Astrophysics at Boulder, Colorado. Dr. Charles Schnetzler, of the Planetology Branch, will soon begin research at Oxford University in England.

Dr. John F. Clark, Goddard Director, tops the list of nominees to the Federal Executive Institute in Charlottesville, Virginia. Directed by the Civil Service Commission, the Institute offers a residential program of advanced study for upper-level career executives from all federal departments and agencies. Dr. Clark left for the Institute's eight-week course on October 25. Other nominees are Dr. Rudolph Stampfl, Assistant Director for Projects (Advanced Projects), who returned in late October; Donald P. Hearth, Goddard Deputy Director; and John T. Mengel, Director of Mission and Data Operations.

Paul Villone, of the Program Support Division, is participating in one of eleven fellowships in the NASA Career Development Fellowship Program. His "Mid-Career Executive Development" fellowship includes 16 weeks of study which started in September at the Maxwell Graduate School of Citizenship and Public Affairs, Syracuse University, New York.

The Executive Seminar Center Program, directed by the Civil Service Commission, is open to selected mid-career executives from all agencies. Taking part this year from Goddard are James N. Dupree, Assistant Head of the Communications Engineering Branch, in a seminar on the "Effects of Technological Development;" George Vogt, of the Facilities Engineering Division, in a seminar on "Management of Organizations;" and Michael Mahoney, Head of the Telemetry Computation Branch, in a seminar on "Environment of Federal Operations."



KEY PARTICIPANTS in the recent Delta Symposium were (from left) William R. Schindler, Delta Project Manager; Dr. John E. Naugle, NASA Associate Administrator for Space Science and Applications; Dr. John F. Clark, Goddard Director; and Congressmen Thomas N. Downing (Dem. Va.) and Charles A. Mosher (Rep. Ohio), both members of the House Committee on Science and Astronautics.

Over 300 Attend Delta Symposium

On October 13, Goddard was host to 327 people representing 51 U.S. industries, institutions, and government agencies and 17 foreign industries and government agencies who were here to attend the Delta Symposium.

The Honorable Thomas N. Downing, U.S. Congressman from Ohio, who recently succeeded the Honorable Joseph E. Karth, U.S. Congressman from Minnesota, as Chairman of the Subcommittee on Space Science and Applications presented the keynote address in which he highlighted NASA's past accomplishments and emphasized the future possibilities for gain from the space program, specifically the economic gains from applications satellite systems.

Dr. John E. Naugle, NASA Associate Administrator for Space Sciences and Applications, summarized the record of the Delta program, highlighting its contribution to the U.S. and international space community. He stated his expectation that the Delta vehicle will continue to be the "workhorse of the NASA vehicles" in this decade.

Delta Project personnel discussed the improved Delta configuration which incorporates the new 8 foot diameter second stage and fairing, new first stage engine and an overall height of 116 feet.

The afternoon was devoted to workshops to afford more detailed discussions of mission analysis, vehicle design and launch environment, secondary payloads, integration philosophy, and field operations.

About 200 people returned for cocktails and dinner at the Rec Center at 7:00 p.m. The M.C. was Mr. Robert H. Hood Jr., NASA Headquarters Legislative Affairs; the after dinner speaker was the Honorable James W. Symington, Congressman for Missouri.

University Without Walls



MORE THAN 20 REPRESENTATIVES from NASA and leading universities across the nation met here on October 21 and 22 to discuss a proposal for applying NASA developed technology to information retrieval and educational communication problems for the recently launched University Without Walls experiment in college level education. University Without Walls abandons the tradition of a sharply circumscribed campus and provides education for students wherever they may be through internships, independent study and field experience at one or more colleges. Here Dr. Michael J. Vaccaro (second from left), Goddard Director of Administration and Management, and Dr. Albert Fleig, of the Space Applications and Technology Directorate, talk with the delegates. At left is Gwendolyn Cooke, and at right is Argentine Craig.

Goddard Hosts Science Education Media Conference

The Goddard Educational Programs Office conducted a three-day media conference for educators from Pennsylvania, New Jersey, Maryland and New York on September 29, 30 and October 1, 1971.

The program was designed to acquaint the educators with the resources and materials available at GSFC through the Center's Education Office, and additionally with services offered to the educational community by other Washington area agencies. The participants are all specialists in the development and distribution of educational media.

The conference was opened by Elva Bailey, Educational Programs Officer, and Gary Neights, Bureau of Instructional Media, Pennsylvania Department of Education. A highlight of the first day was a presentation by Dr. Bevan French, Planetology Branch, on the origin of the moon. In the afternoon sessions, the educators participated in workshop activities conducted by EPO staff members.

The second day's activities began by focusing on several approaches to the use of planetariums. Demonstrations were given by John Callow, Manpower Utilization Division, GSFC, and by William M. Kenney, Hagerstown Maryland Planetarium Director. Dr. William B. Rich, Educational Programs Division, NASA Headquarters, discussed the upcoming Skylab Student Program and the OSCAR amateur radio experiment. Glenn McMurry, Chief, Information Branch, National Audio-Visual Center, acquainted the participants with the resources of his Center by using a unique triple screen projection technique. The day concluded with an evening banquet. Guest speaker was Dr. Enrico Mercanti, OGO Project Manager.

The last day featured visits to the Goddard Library and to the Optics Sections in Fabrication. Gene Hoppe, National Space Science Data Center, discussed that Center's services. This was followed by an overview of the Skylab Program by William D. Green, Jr., Skylab Program, NASA Headquarters. Field trips were also taken to the Government Printing Office and to the University of Maryland's Science Teaching Center. The conference concluded with a one and one-half hour wrap-up session.

Arthur MacDonald, Coordinator, Division of Educational Media, Pennsylvania Department of Education, comments that "we were all impressed with the potential for supporting education seen at Goddard, and with the positive approach taken by all those at Goddard and others who participated in the program."



MEDIA SPECIALISTS from Pennsylvania, New Jersey, New York and Maryland are briefed by William Whitman, Operations Center Branch RCA employee, on OPSCON projection techniques. The educators attended a three-day conference at GSFC.



OSO-7 PROCESSING TEAM. Standing (from left) are Henry Linder, Data Processing Engineer for OSO-7; John Willoughby, Christopher Daly, Richard Gunter, Frank Volpe, OSO Project Engineer; Melvin Banks, Herman Hines, Ronald Durachka and Chuck Saunders. Seated are Bernice Hayden, Terri Stillman, Helen Bonk, and Eileen Steets.

OSO 7 Views the Stars and the Sun

By Henry G. Linder
Information Processing Division

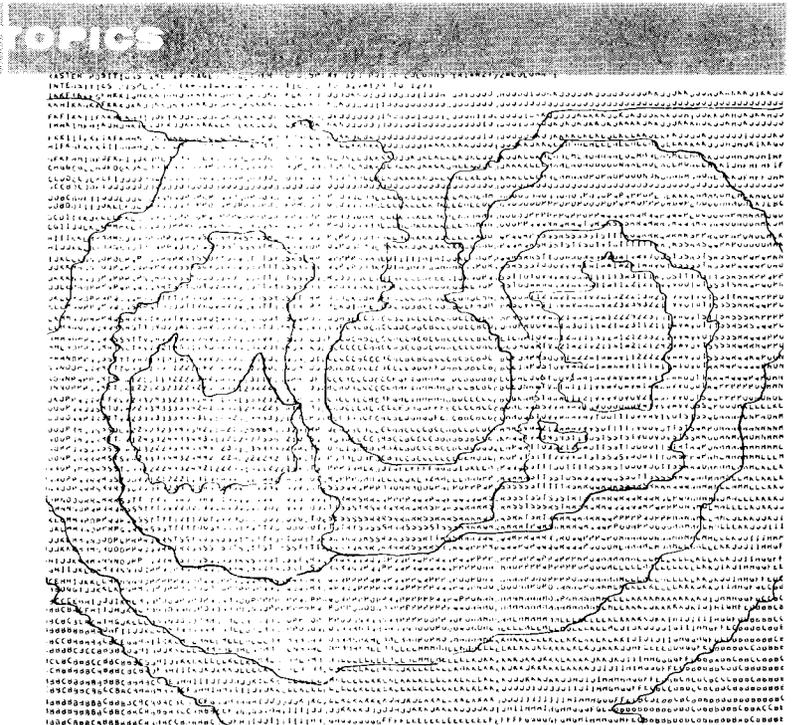
OSO-7 launched on September 29, now views the stars for determining the very precise attitude of the observatory while accomplishing its scientific mission of exploring the sun.

A star sensor, mounted in the rotating wheel of the observatory, obtains star sightings from successive 10 degree wide scans of the sky. The sightings are made by an electro-optical device consisting of a lens, two slits, a photomultiplier tube, and associated electronics. The star sightings are encoded by the electronics and are then telemetered to the ground for further processing through an attitude determination computing system. The system decodes the received telemetered star sensor signals and through various techniques attempts to match the star sightings with stars contained in a general catalog. Matched star sightings are subsequently processed through a complex error reduction program before producing the final attitude data with an error of less than 1 arc-minute.

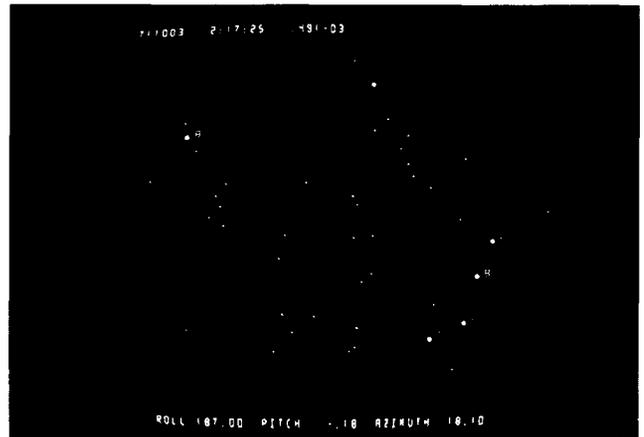
For the first four weeks after the launch of OSO-7, the Information Processing Division (IPD) provided computer launch support for the initial assessment of the attitude determination system. In addition, some of the observatory's experimenters were supported with computer analysis programs.

The precise attitude of the observatory was computed from star sightings after the initial one minute turn-on of the star sensor. The computed results were immediately shown by a computer display designed for the evaluation of the system. The very first results indicated that the entire star sensor attitude determination system was functioning and that it was possible to obtain the desired precise attitude information necessary for the observatory's objectives.

The scientific experimenters affiliated with the Massachusetts Institute of Technology (MIT), the Goddard Space Flight Center (GSFC), and the Naval Research Laboratory (NRL) were supported with computer programs that provided computer listings for the preliminary analysis of the scientific data from each experiment. The MIT program produced X-ray energy plots that pinpointed X-ray radiation sources in the sky. The program for the GSFC spectroheliograph experiment produced plots for the large and small raster mode as the experiment scanned the sun. The NRL analysis programs generated printouts from the sun's white light experiment as well as from the sun's extra-high ultraviolet (XUV) experiment. Plots were made of the white light uniformity, the XUV gray scale tracking as well as raster plots from the white light and XUV detectors. Much of the data produced by these experiments can not be evaluated until attitude data is available. For the first time with OSO-7 highly precision attitude data was available in near real time allowing meaningful real time analysis of their data. This was made possible only because of the outstanding dedication and long hours of effort from the OSO-7 processing team.



RASTER PLOT from NRL Sun's White Light Experiment. This plot shows the intensity levels of the outer corona around the Sun. The Sun is artificially eclipsed by an occulting disk outlined in the center of the picture. The intensity levels of the corona are displayed by contours around the center of the picture. The computer plot utilizing different characters for intensities was made for one complete OSO-7 day.



COMPUTER DISPLAY shows the first OSO-7 precision attitude solution. The computer displayed the OSO-7 star sightings, annotated A through F, along with the candidate stars from the general star catalog. The ten degree wide OSO scan was expanded by the computer to include stars in the center of the picture. The added stars readily show the pointing direction of OSO by identifying constellations in the sky, and aid in the use of a star map or globe. The date, time, and error estimate are shown at the top and the attitude solution is shown at the bottom of the picture. Pictures can be manipulated by means of a specialized key board.

R.A.	08.0747		
DECLIN	-73.4600		
PHI	186.9977	A	6 44
ETA	-1.1756	B	5 55
BETAS	18.1035	C	4 175
PERIOD	2.2182	D	1 0
ELVO	2.3169	E	1 174
GAMMA	.0297	F	1 118
SLIT	.4440		

DISPLAY OF ATTITUDE SOLUTION AND PARAMETERS. The complete OSO-7 attitude solution is displayed by the first nine numbers on the left side of the picture, followed by critical program parameters (some are now shown). Star sightings matched with catalog stars are shown on the right. All numerical fields can be entered and changed by the use of a light pen and a key board. The computations can then be repeated with the new entries and provide a complete interactive computer analysis of the OSO-7 attitude.



PORTRAIT OF A PERSEID. Alfred K. Stober of the Observational Astronomy Branch took this picture of a meteor on August 12, 1971, during an observation session at the Goddard Optical Research Facility. One of the Perseids, a meteor shower seen annually in August, the "shooting star" was moving in a southwesterly direction above Alcor and Mizar, the double star in the handle of the Big Dipper. The bright area at the end of the trail shows where the fireball burned out in the atmosphere. To get the picture, Mr. Stober used Plus-X film in a Nikon camera with a 50 mm: F 1.4 lens and a guided mount. His lens setting was F 2.8. Exposure time was two minutes.

Remote Site Data Analysis

By Cyrus J. Creveling
Information Processing Division

Dr. Jacob I. Trombka of the Theoretical Studies Branch recently demonstrated some unique capabilities in remote site computer analysis during the Fourth U.N. Conference on the Peaceful Uses of Atomic Energy in September. Using a portable computer terminal which accompanied him to the conference at Geneva, Switzerland, Dr. Trombka was connected via SCAMA lines to the IBM 360/95 computer located here at Goddard. Employing data from his Neutron Gamma Ray experiments and computer programs resident in the Goddard machine, Dr. Trombka was able to demonstrate real-time analysis and display of his experimental results, to a variety of foreign visitors to the AEC exhibits.

Dr. Trombka explains that the portable terminal allows the scientist to perform his computer analysis at virtually any remote site, while remaining in command of the extensive computational facilities, programs, and data bases prepared beforehand at Goddard. Also he demonstrated the usefulness of changing his programs from the terminal as his requirements change. He attributes the ability to do this, at such short notice, to the fact that the programs were developed, written and executed in APL, (A Programming Language), an interactive language the development of which Goddard has participated in since 1966. Although APL is used by many of Goddard's scientists, and was used remotely from Houston during the Apollo 15 launch, the demonstrations in Geneva are believed to be the first to use these facilities on an intercontinental scale.

Several of Dr. Trombka's programs were written by his colleagues, who included his own daughter, then a high school student. Their interest in APL was kindled by a lecture given by Chris Daly and Cyrus Creveling, of the Information Processing Division, to the Theoretical Division in 1970. The communications lines to the 360/95 were arranged by Bill Dickinson of the NASCOM Division, and the facilities of the 360/95 itself were coordinated by Mae Wilson and Jack Balakirsky of the Computations Division.

JOHN M. THOLE, OSO Project Manager, indicates to Addison D. Cole, President of the Adcole Corporation, the location of the sun sensor on OSO-7 which was launched September 29. Data from this sensor permitted ground personnel to determine the spacecraft pitch angle so that appropriate jets could be fired to correct the spacecraft attitude.



Scientific Colloquia Schedule

- November 12 — **Dr. Henry H. Plotkin**
Head, Optical Systems Branch
Goddard Space Flight Center
LASERS FOR TRACKING AND COMMUNICATIONS IN SPACE
- November 19 — **Dr. Thomas Simkin**
Smithsonian Oceanographic Sorting Center
Smithsonian Institution
Washington, D.C.
MODERN STUDIES OF ACTIVE VOLCANOES
- December 3 — **Professor Peter Sturrock**
Institute for Plasma Research
Stanford University
Stanford, California
A MODEL OF PULSARS
- December 10 — **Professor Bernd T. Matthias**
Institute for Pure and Applied Physical Sciences
University of California, San Diego
La Jolla, California
SUPERCONDUCTIVITY



FOOD FOR THOUGHT. Dr. Louis S. B. Leakey, Director of the Centre for Prehistory and Palaeontology at Nairobi, Kenya, spoke on "Man's Evolution in Africa" during a special Scientific Colloquium here on October 5, 1971. Speaking before one of the largest Colloquium crowds yet this year, Dr. Leakey described his excavations at Olduvai gorge in Kenya where he and his wife discovered important links in man's past. He demonstrated with slides how paleontologists determine the various stages in man's physical development, his methods of gathering food, the tools he used, and his early attempts at using and making fire. Man, Dr. Leakey said in conclusion, took some four million years to reach his present stage of development but may be in danger of extinction through over-specialization of the very faculties that helped him survive—his exceptional brain and precision grip. Our ability to think and manipulate things has allowed us to increase to the point of over-population and has created increasing problems of environmental pollution and violence within society. If we don't learn from the past and work to correct present trends, we may be extinct within a hundred years.

New Course in Astronomy for

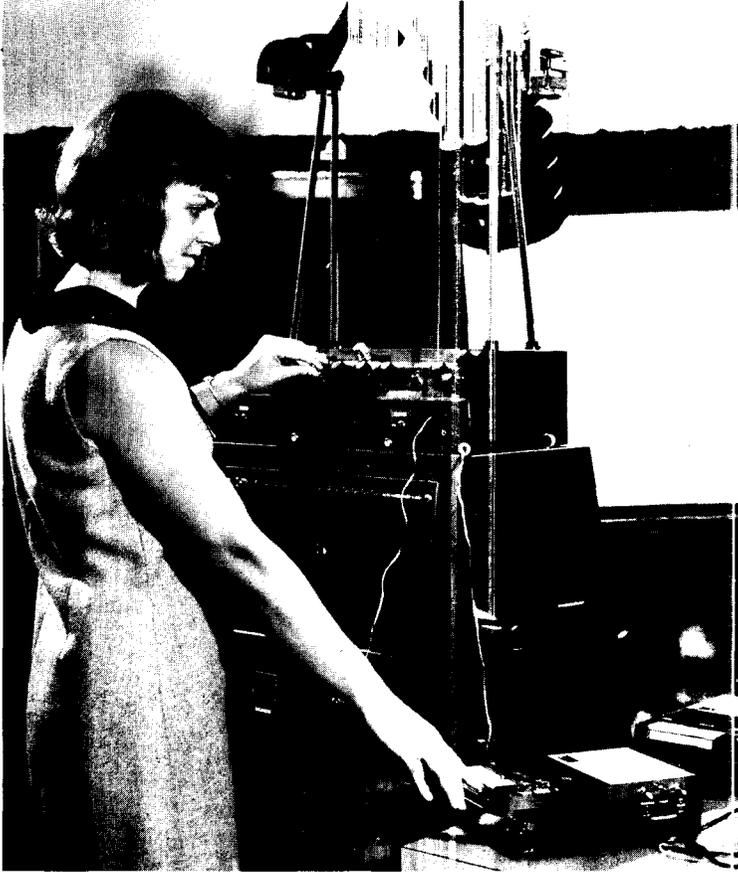
The major goal of a new Goddard course in astronomy is to provide students with many hours of pleasure while viewing the night sky. Designed for non-technical personnel, the course will be offered in the planetarium-classroom facility in Building 16A, beginning in January.

The self-instructional course, using slides, audio tapes, films and a variety of equipment including the Goddard planetarium, has been developed by Jack Callow and Sheila Duck of the Manpower Utilization Division. Pilot testing and course modification has been conducted in the Astronomy Learning Center in Building 16A.

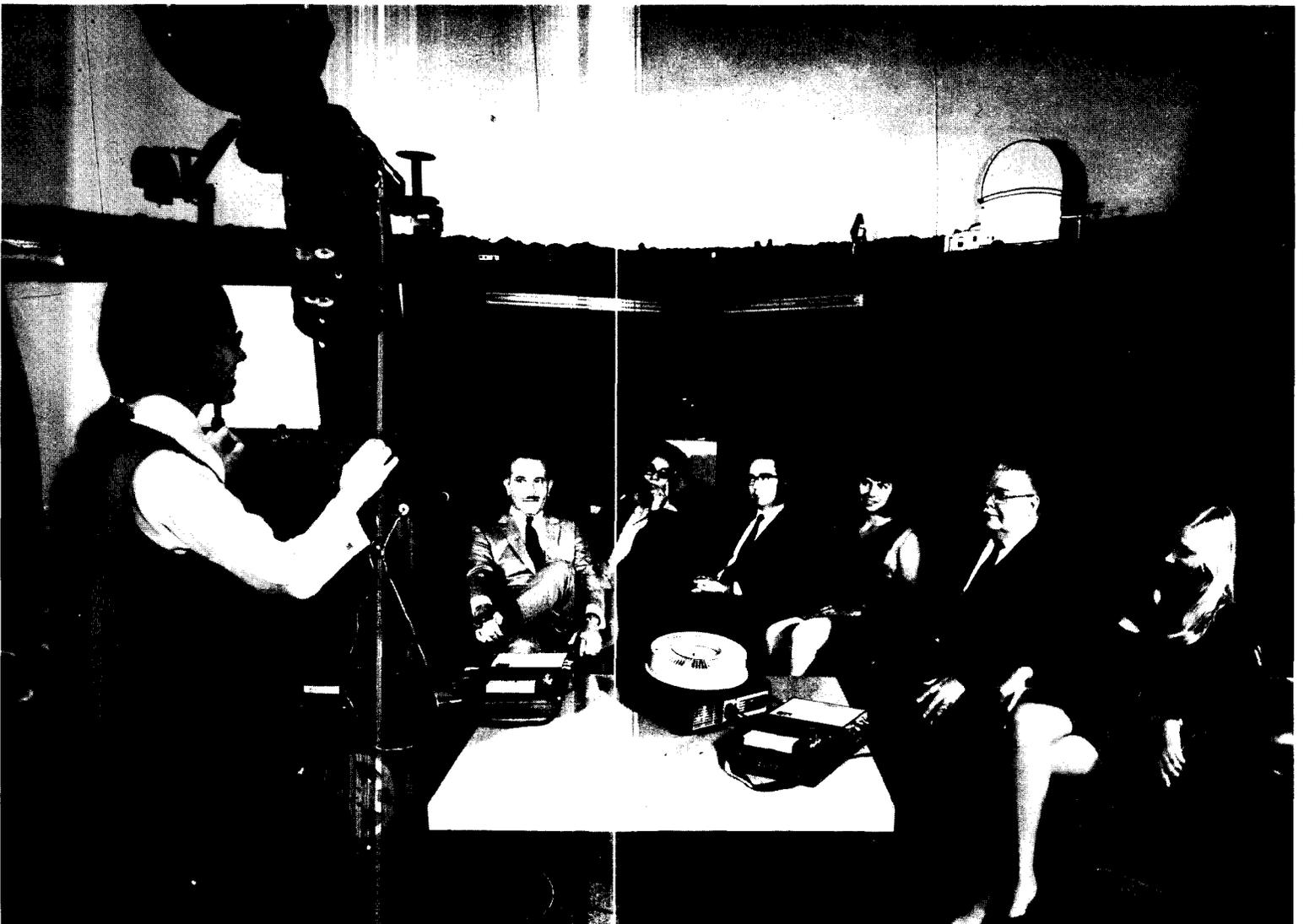
Highlights of class activities will include student operation of the planetarium, instruction in the procedure for setting up telescopes and learning how to read and use star charts.

The course will be open to any non-technical employee on the Center, with supervisory approval. Classes will begin Monday, January 31. The initial session will be limited to twenty participants selected by the Employee Development Branch. Five groups of four students will work together at their own pace. The average length of the course is twenty instructional hours.

If you are interested in registering for this course, check with your supervisor and complete the application below and send it to: the Employee Development Branch, Code 223.

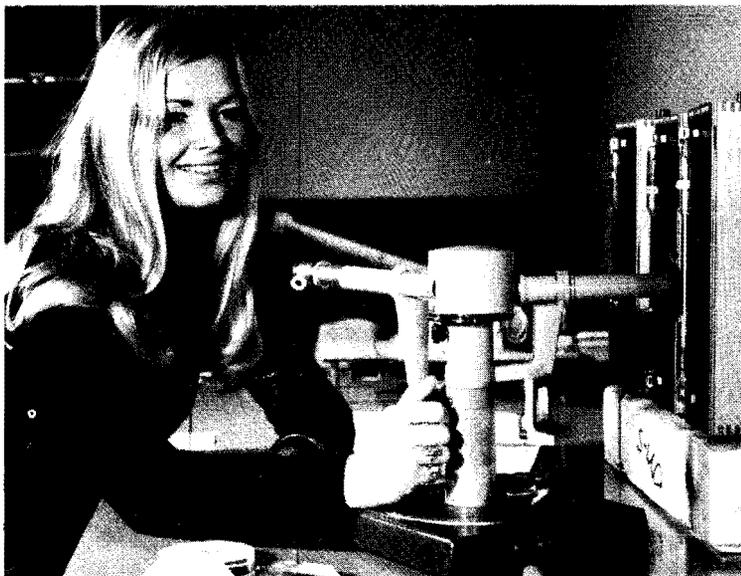


TAPED DIRECTIONS for learning to operate the planetarium are used by Mary Jo Riley.



COURSE PARTICIPANTS take part in a planetarium presentation in preparation for a night sky viewing session.

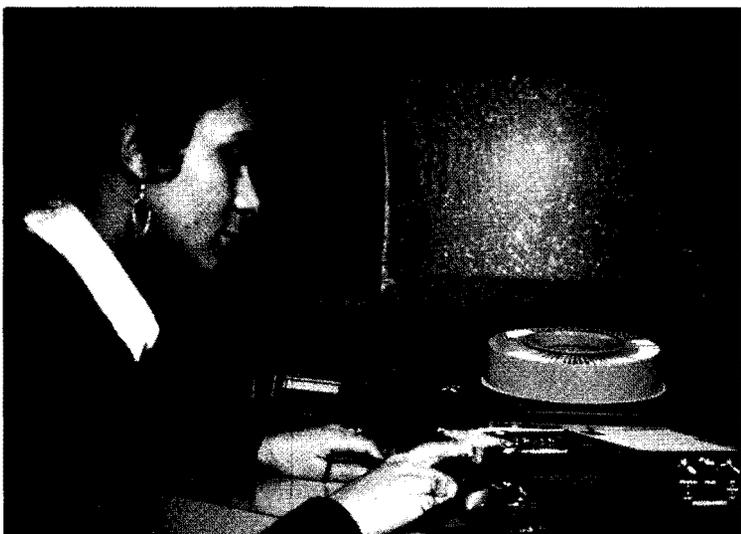
or Non-Technical Employees



THE BRIGHT LINE SPECTRUM of Krypton is studied by Pyda Mann as she uses the programmed sequence on light.



AL SHEHAB constructs the celestial coordinate system on a clear plastic globe. Sheila Duck assists Al in completing the grid system.



A SLIDE-TAPE PROGRAM on the stellar universe is studied by Pat Waddy.



SHEILA DUCK assists Dick Baker and Joe Fitzpatrick as they learn how to set-up the telescope for night viewing.

GODDARD SPACE FLIGHT CENTER SELF-INSTRUCTIONAL COURSE IN ASTRONOMY FOR NON-TECHNICAL PERSONNEL

APPLICATION FORM
please print

NAME:

TITLE:

ORGANIZATION:

EXTENSION:

SUPERVISORS SIGNATURE:

PLEASE RETURN TO EMPLOYEE DEVELOPMENT BRANCH,
CODE 223, BY DECEMBER 17, 1971.

DuVal Vocational Education Program Initiated at Goddard

Sociability is a prime factor in achieving and maintaining employment.

Many students in our schools today need a program centered around these factors—sociability and employability. In response to this need, the Vocational Education Development Program of the Prince George's County School System was established. It is designed to provide participating students with information and experience leading to the development of transferable work skills, personal habits, and attitudes necessary for obtaining and holding a job.

During the junior year, students participating in this program explore three work areas in depth. This is accomplished by placing students in business-industry vocations for approximately one-half of each school day.

When the students become seniors they work in their prime interest area on an almost full-time basis, with their school experience carefully coordinated with the work they are doing.

Goddard is providing work experience now for six DuVal juniors. The students are making valuable contributions in the six areas where they have been assigned at no cost to Goddard. The students receive compensation for the work experience through the Prince George's County Board of Education.

DuVal's Director of this program, William Eddy, had this statement to make about the program:

"The students and I would like to express our appreciation to Goddard Space Flight Center, and especially to the immediate supervisors of these students. Through their help and concern, the students' self-image have improved tremendously. They feel like useful human beings who will take with them the saleable skills that Goddard instructors are helping them develop. Goddard is therefore enabling them to become self-sufficient members of our society."

Elva Bailey and Richard Crone in Goddard's Educational Programs Office coordinate this program.



RUTH CRAWFORD'S three-month work experience at Goddard is in the clerical-secretarial field. Nina Chaney has developed a carefully thought-out program to occupy each of Ruth's daily two-hour work sessions. Here Mrs. Chaney is checking a long list of property inventory numbers Ruth has typed for an official report.



JOHN KAMOWSKI, in the Earth Sensors Branch of the Space Applications and Technology Directorate, is teaching Larry Vanderander the basics of electronics. Electronics is one of Larry's long standing interest areas. During the past few weeks he has been putting together breadboard circuits and practicing good soldering techniques.



PAT PARLETT is having his first experience in the mechanics trade, a field that he now plans to pursue as a career. During the past few weeks he has worked on brake shoe replacement and ignition systems. Here he is beginning the first lesson in engine tune-up under the direction of George Woods.



NORMAN LINDEMAYER is having a wide variety of interesting experiences in the Goddard Library under the careful supervision of Aaron Dan. He is shown here during his daily typing practice session. He has made his first microfilm and recovered data using the RECON system.

THOMAS UTTERBACK has considerable work experience in the plumbing field. At Goddard he wanted to learn about the refrigeration trade. Under the supervision of Robert Stewart he is learning the principles of refrigeration from the ground up. He has already completely assembled a working refrigeration unit from components, and helped in trouble-shooting malfunctioning systems.



JEFF CUMBERLAND works in the stockroom under the direction of Sam Preece, with day-to-day guidance provided by George Hunter. Jeff is working in all phases of stockroom operation from restocking shelves to filling orders from request forms.

Goddard Now Has Ski Club

On October 20, one hundred twenty ski enthusiasts working at Goddard gathered in building 7 for an hour of ski-related activities.

Highlight of the program were ski movies which really whet the appetites of the "think-snow" group. One film explored skiing in France, as Warren Miller, world-renowned ski photographer, described the ski and apres-ski activities available in the French Alps. A second movie was filmed at a meeting of the North American Ski Instructors Congress in Denver, and showed some spectacular ski footage being performed to a really exciting musical beat. The film described several different ski techniques, including the relatively-new "graduated-length method" of ski instruction.

The club also discussed plans for its first ski trip of the season: a three-day (Friday-Saturday-Sunday) trip to Killington, in Vermont, on January 20-23. The group will travel by bus from Goddard, leaving Thursday after work, and staying for 3 full days of skiing and 2 nights of partying.

Future club activities will include more movies, more trips, ski demonstrations, fashion and equipment displays, and anything else the membership would like to see.

For information on the Killington trip, or future trips or activities, call Jay Oberfield on extension 4323. And attend the next meeting on November 24 at 11:30 AM in building 7, room 230.

Goddard Soccer League

GEWA welcomed a new organization this fall as the Goddard Soccer League was formed and began intramural play. Games are played Thursdays and Saturdays, either at Goddard Junior High School or at the new field behind the Building 11 parking lot. The sixty-odd members are organized into four teams, with each team playing every other team twice during this first part of the season. Games are played under NCAA rules with four 15 minute quarters, and a provision that all team members present for a game must play.

Dues are \$5 per year. Goddard employees, contractors, and members of their families who are interested in playing the remainder of the fall portion or in the spring portion of the season should contact one of the following league officers:

- President Nelson McAvoy, Code 524, X-4942
- Secretary Mike Balderston, Code 713, X-5191
- Treasurer Jim Underwood, Code 682, X-4009



GODDARD SOCCER LEAGUE members at play. From left are Al Sievold, Art Serlemitsos, Ray Bayer, Mike Calabrese, and Evan Gull.

Goddard

Toastmasters Club Formed

As a consequence of the second demonstration meeting on October 20, the GSFC Toastmasters Club acquired twelve members. This is a good start toward the twenty members required to obtain a charter from Toastmasters International. Applying for membership were: Jose Alonso, Harold Begley, Dean Bonnell, Gilbert Bullock, John Hayes, Wallace Haynes, Charles Kilgore, David Lewoc, George Lilley, Bernard Peavey, Alan Ritter, and Ewald Schmidt.

The Toastmasters Club offers men who join the opportunity for personal growth in communication skills, both in speaking and listening. These opportunities were demonstrated by members of the Agricultural Research Center (ARC) Club of Beltsville on Oct. 6 and 20th. These meetings featured Guest speaker Lucuis E. Young, Lt. Gov. Toastmasters International (Eastern Division), the extemporaneous practice called "Table Topics", several prepared speeches (both serious and humorous) as well as examples of the evaluation of prepared speeches and grammatical criticism. Even before the initial shock of the "ice breaker" speech, members begin to enjoy new acquaintances, timely information from the wide range of interest that members bring to the club, and the experience of helping others as well as themselves to improve.

Forthcoming meetings will be partly devoted to the business of election of officers and adoption of club constitution and by-laws.

The impetus for formation of a GSFC club has been provided by Ewald Schmidt President of the ARC Toastmasters. GSFC members of the ARC Club are William Cruickshank, H. P. Lee, Randolph Linderholm, Charles Rice, Jr., and Richard Tagler. Special credit is due Charles Rice, since his past experience in club formation has greatly benefited the new GSFC club. Inquiries may be directed to GSFC Club Acting Chairman R. Linderholm, extension 2662.

Birds' Loss Mourned



THE DEATH OF A PENNANT. Minister John Jones (left), of Goddard's Print Shop, reads the last rites at the hanging of last year's championship pennant of the Baltimore Orioles following the Pittsburgh Pirates' victory over the Birds on October 17 by a score of 2 to 1 in the seventh game of the 1971 World Series. Mourners are Al Moore (center) and Don Ellis. Moore and Ellis both hail from Baltimore and were the only ones in the Print Shop sorry to see the Pirates win the Series. They were cheered slightly by the fact that the Birds are still the top team in their league, and there's always next year.

NASA Club Plans European Trip

The NASA Employees Club at Headquarters is planning a trip to Europe in 1972. Open to all NASA employees and affiliates, the trip will include a round-trip flight plus one or two optional tours. Travelers will leave Washington from Dulles Airport for London on May 28, and return from Paris on June 18.

The great success of last year's trip, and continued interest in this type of activity, has encouraged the NASA Employees Club to sponsor a new trip for 1972.

For information or to express your interest, write to B. Maggin, NASA Headquarters, Code RG.



THE USNS VANGUARD, the Navy ship that houses a NASA/Goddard Apollo tracking station, has been named a winner of the Military Sealift Command's (MSC) annual Smart Ship Award. In addition, 54 of the MSC's civilian crew members were cited for their outstanding participation in various programs. The Vanguard will now fly the MSC "E" pennant while docked at Port Canaveral, Florida, and display a painted white "E" on port and starboard bridge wings. Captain Lawrence H. Baker, Jr. (center), Commander of the MSC Office in Port Canaveral, presented, on behalf of Vice Admiral Arthur R. Oralla, MSC Commander, the Smart Ship Award to MSC Captain Duncan S. Baker (on left with award), Master of the 595-foot-long Vanguard. Representing NASA at the ceremony was Otto W. Theile, Goddard's Vanguard Station Director.

BLOODMOBILE NEWS

Year's Last Bloodmobile Here November 17

If enough people turn out for the Bloodmobile visit later this month, we should easily meet Goddard's blood quota for 1971. The Red Cross staff will be here for the last time this year on November 17 in the Building 8 Auditorium from 9:00 a.m. to 2:45 p.m.

Everyone who can is urged to give. Potential donors include all healthy government and contract employees between the ages of 18 and 66. You can give blood once every eight weeks with a maximum of five pints a year. If you should miss the November 17 Bloodmobile, you can still give at any hospital chapter of the American Red Cross. Just ask that your donation be credited to Goddard's quota when you give.

So far this year, Goddard people have given 738 pints, leaving 162 pints to go. If we meet our quota of 900 pints, the Red Cross has arranged to have blood replaced free of charge for all Goddard Civil Service and contract employees and their immediate families.

Volunteer Blood Best

Did you know that hospitals must rely on "commercial blood" in times of emergency when volunteer supplies run out? This blood, taken from donors who are paid to give, is ten times more likely to cause hepatitis than blood from volunteers. This is just one more reason to give and protect yourselves, your families and others.

For further information on the Red Cross program and to sign up for the Bloodmobile, call Gertrude Law on ext. 4757.



GRADUATION DAY at Ascension Island marked the completion of the first formal school conducted at the station by NTTF (Network Test and Training Facility) personnel. Made possible by the recent consolidation of the STADAN and MSFN programs, the two weeks course, conducted by Mr. Paul Mikkleson of NT&TF, qualified five Station personnel in the Operation and Maintenance of the GD/E Telemetry Receiver and Electrac 215 Demodulator System. Certificates of completion were presented to John Hines, George Garcia, Ronald Malin, Jim Gaunt and Fred Rock by Mr. G. B. Gallup, Bendix Manager of Overseas Operations for STADAN, who was visiting the Station at the time. Shown are (from left, front row) John Hines, Sheila Phelan, Ronnie Palmer, Vera Keohane, and G. B. Gallup. In the second row are Bill Harrison, Station M&O; George Garcia, Ron Malin and Jim Gaunt. In back are Fred Rock, Paul Mikkleson, NT&TF Instructor; and Jeff Speck, NASA Station Director.

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