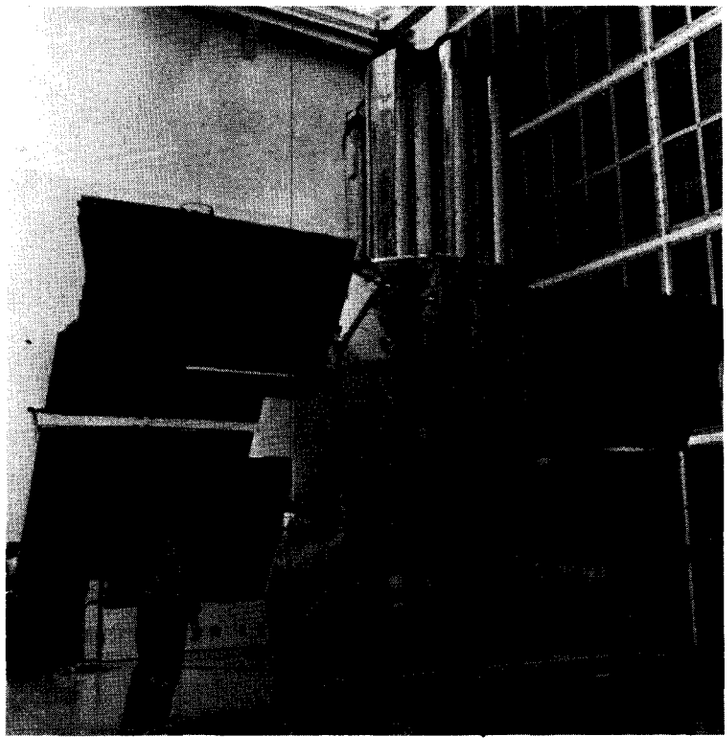
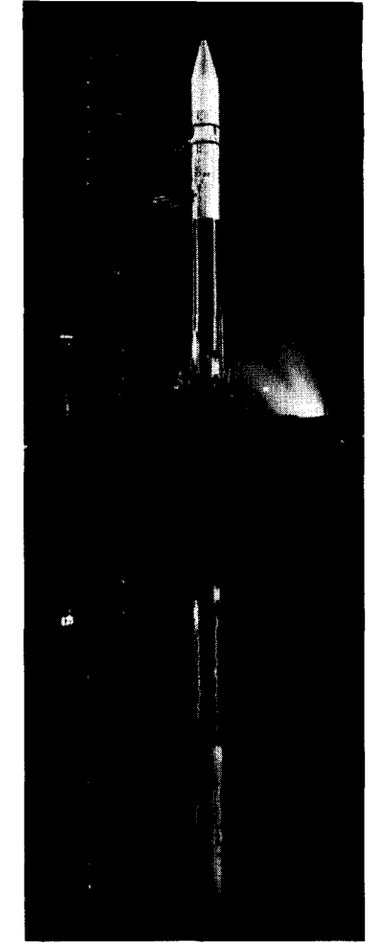
goddard news

September 1972—Vol. 20, No. 6



TECHNICIANS in a Cape Kennedy clean room inspect the 4,900-pound spacecraft before it is sent to launch pad. With solar panels extended OAO Copernicus is 21 feet across.



AT CAPE KENNEDY, the Atlas-Centaur rocket for Copernicus is reflected in pond at Complex 36, during pre-dawn launch preparations, August 21. The 135-foot-long rocket placed the observatory into perfect orbit.

INTASAT
Cooperative Satellite

A Spanish satellite named INTASAT became the newest addition to NASA's Cooperative Satellite Program with the signing of a Memorandum of Understanding in May of 1972. Spain is the seventh individual country to enter into a cooperative agreement with NASA to place a satellite into earth orbit.

The *Comision Nacional de Investigacion del Espacio* (CONIE), the Spanish space agency, has named their first satellite after the *Instituto Nacional de Technica* (INTA), the government laboratory responsible for the satellite development. The INTASAT experiment consists of an ionospheric beacon which will transmit continuous, stable and unmodulated signals at 40.01000 MH_z and 41.01025 MH_z.

The magnetically stabilized satellite will be placed into a circular polar sun-synchronous orbit in mid 1974 by a piggy-back ride on a Delta launch vehicle. Ionospheric scientists around the world are enthusiastic about INTASAT since they will be able to receive the satellite's signals with ground station equipment they now have and have used with NASA satellites like Beacon Explorer A(S-66) and Explorers 20 and 22.

The Spanish space agency has appointed Jose Dorado as Project Manager and Louis Sanchez as Project Scientist. NASA has appointed William R. Witt of Goddard's International Projects Office as Project Manager, and John E. Jackson of Goddard's Laboratory for Planetary Atmospheres as Project Scientist.

The first INTASAT design review was held at Goddard on August 2 and 3, 1972. Herman LaGow, Director of Systems Reliability was chairman of the review team. Other team members were Charles White, Henry Hoffman, Ray Somerlock, Don Shipley, Thomas Ryan, Norm Ackermann, Dr. Dale Harris, John Tomasello, John Jackson, Dominic Femiano and Vuk Peric.

(See Page 2)

OAO Copernicus A-OK

For Goddard's OAO project team, "Happiness is an operating Copernicus observatory."

And well it should be. The huge, 4,900-pound spacecraft began formal astronomical investigations August 29, after a thorough, eight-day checkout program.

At 6:53 AM, that day, Princeton University's 32-inch telescope eye focused perfectly on the 2.6 magnitude young hot star, Zeta Ophiuchi, located in our galaxy about 500 light years from earth.

In doing so, it opened a new dimension for astronomical observations, offering the potential for scientific discoveries many believe comparable to those of its namesake, the Polish Astronomer, Nicolaus Copernicus, founder of modern astronomy.

Guided in orbit by the hundreds of unseen hands of flight controllers, the pioneering flight of Copernicus marks a major milestone in NASA's space science program.

Rarely, if ever, has a spacecraft as complex as OAO Copernicus worked so well. According to Goddard Project Manager, Joseph Purcell, "At this time, performance of Copernicus far exceeds our planned goals." Basic stability, under gyro control, is superior to that of any spacecraft to date. Pointing accuracy – the heart of a successful observing program – is three times better than expected.

Copernicus was launched by an Atlas-Centaur rocket from Cape Kennedy into the muggy, summer Florida sky at dawn, August 21. Orbit achieved was perfect.

Witnessing the launch, along with government and industry officials, was the Ambassador of Poland to the United States, Withold Trampczynski, and a group of 39 Polish-American leaders, including Michigan Congressman Lucien N. Nedzi.

In orbit, the elbatorate, systematic checkout of observatory subsystems and experiments began, directed from the OAO Control Center in Building 14. The around-the-clock effort met with only minor problems. The biggest worry – which ultimately proved to be unfounded – was an apparently anomolous telemetry reading indicating that the secondary mirror of the Princeton telescope had not uncaged properly. To everyone's relief, the telescope worked perfectly.

(See Page 4)

Dr. Fletcher Visits Goddard

Dr. James C. Fletcher, NASA Administrator, spent August 29 touring the Center and reviewing Goddard projects and experiments. With him for the day-long visit were Leonard Jaffee, NASA Deputy Associate Administrator for Applications; Dr. John E. Naugle, NASA Associate Administrator for Space Science, and Gerald M. Truszynski, NASA Associate Administrator for Tracking and Data Acquisition.

Dr. Fletcher was greeted at 9:00 a.m. by Dr. John F. Clark, Goddard Director. His day began with an introduction to Goddard and telephone calls to GISS and selected Network stations followed by discussions of the recent OSO flare discoveries and the infrared spectra of Mars as seen by Mariner. Other morning events were a presentation of Fabrication's optical technology, a discussion of the remote sensing of the earth's resources, and a visit to the Network Test and Training Facility during a real time data acquisition pass by the Earth Resources Technology Satellite.

A highlight of the day was lunch with Goddard's management staff followed by a question and answer session on Goddard Projects and other NASA programs.

Afternoon sessions included reviews of SAS experiment development, RAE in-house spacecraft technology, hardware commonality development for SATS, and the ATS Multi-Lingual-Indian Educational TV Demonstration.

DR. GEORGE PIEPER (standing at right), Goddard Director of Space and Earth Sciences, asks a question of Dr. Fletcher (left) during a lunch with Goddard's top management on August 29.

AT THE NTTF, Dr. James C. Fletcher, NASA Administrator, operates the 30-foot USB antenna used for the reception of ERTS data. To Dr. Fletcher's left is Bill Simmons of the NTTF. In back is Donald P. Hearth (with glasses), Goddard Deputy Director; and at right is Gerald M. Truszynski, NASA Associate Administrator for Tracking and Data Acquisition.

A Letter from Dr. Fletcher

On September 1, Dr. Fletcher sent Dr. Clark a letter thanking him and Goddard people for his worthwhile visit to the Center. The text of the letter read:

"I enjoyed my visit to Goddard Space Flight Center very much. You have some extremely important and interesting programs, and I am impressed by the enthusiasm and competence of your people. I especially enjoyed the discussion sessions; these help me to understand your concerns and wishes, and I believe I understand the messages you wanted me to have.

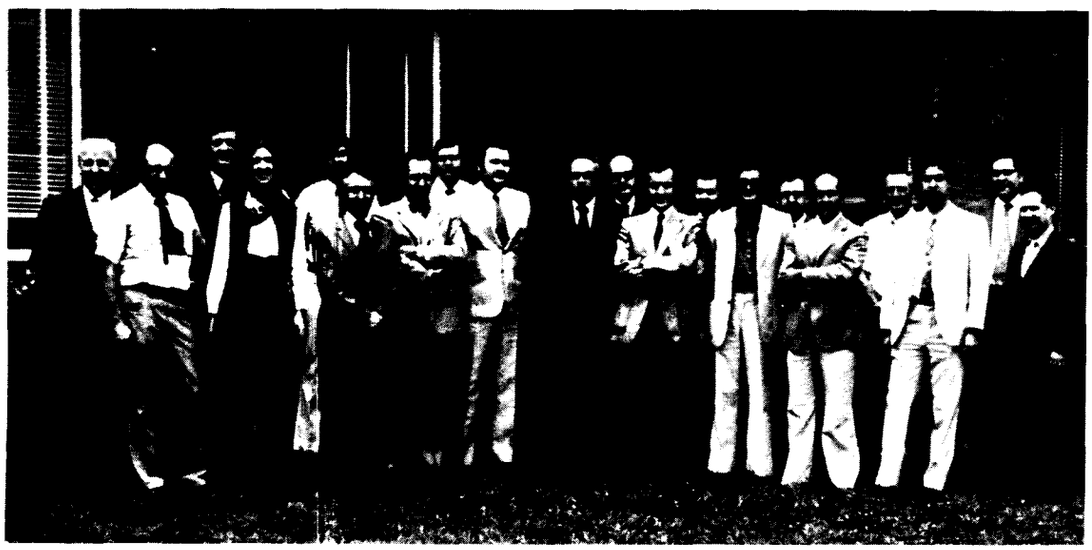
"The montage, showing the activities which I visited, is appreciated. I must admit that I am fascinated by the model of the Goddard rocket; we should not lose sight of how far Dr. Goddard brought us technically, but seeing the rocket, one can imagine how much fun he must have had doing it.

"Again, thanks for a most worthwhile day. Please convey my appreciation to those who planned and participated in the program."

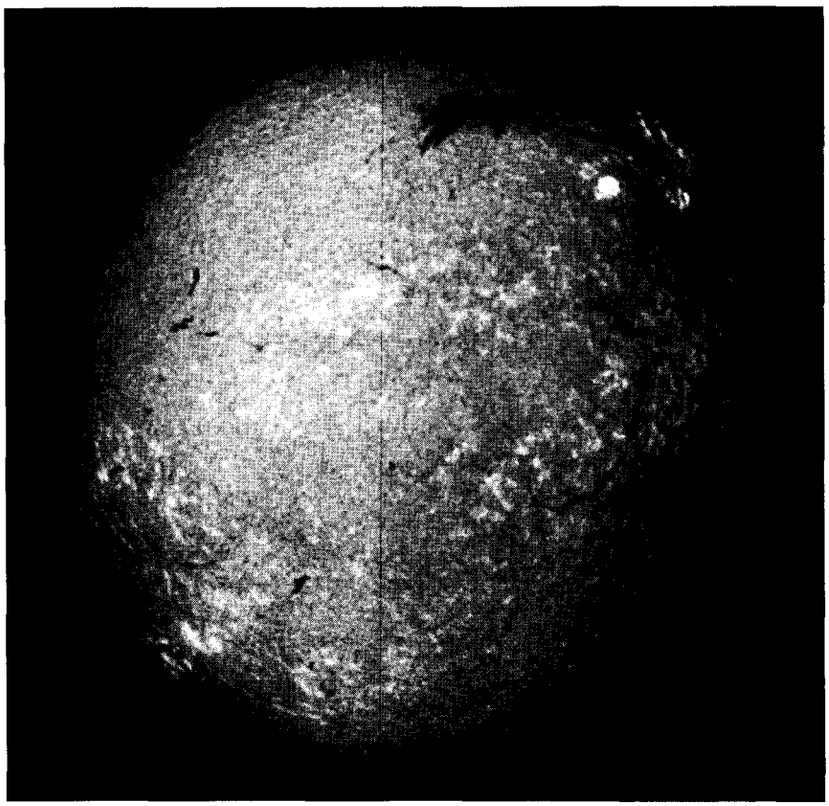
INTASAT .... From Page 1

TWO INTASAT PROJECT MANAGERS inspect a model of the Delta rocket that will give their satellite a piggy-back ride into space sometime in 1974. At left is William R. Witt, Jr. of Goddard's International Projects Office. At right is Jose Dorado of the Spanish space agency's *Instituto Nacional de Technica* (INTA).

SPANISH AND U.S. OFFICIALS at the first INTASAT design review held at Goddard in August were (from left): V. Peric; J. Tomasello; W. Witt, Goddard INTASAT Project Manager; S. Andrews, NASA International Programs Office; N. Ackerman; R. Miller, NASA INTASAT Program Manager; J. Dorado, Spanish INTASAT Project Manager; R. Somerlock; M. Ortego, INTA; D. Femiano, J. Jackson, Project Scientist; F. Mata; C. White; I. Tato; D. Harris; J. de laPlaza; T. Ryan; J. Hidalgo; D. Shipley; and H. Hoffman. Not shown is Herman LaGow, Chairman of the review team.



Spacecraft Observe Vast Solar Storm



SUN STORM REGION (upper right) covering an area 160,000 kilometers across, passes over the west limb of the sun in a photograph taken August 10 with a solar telescope here at Goddard. The vast storm, most intense in several years, was first observed by sensors on OSO 7 on July 26, two days before it became visible to ground-based observatories. The storm created waves in the earth's magnetic field and caused disruption of communications and power systems around the globe.

Scientists recently had the opportunity to study the most intense solar storm recorded in several years thanks to data gathered by six NASA spacecraft.

The vast storm was first observed by sensors on NASA's Orbiting Solar Observatory 7 on July 26. Its magnitude was recognized and warnings were issued on July 28, two days before it became visible to ground-based observatories.

The storm created waves in the Earth's magnetic field and caused disruption of communications and affected power systems around the globe. With the advanced warning made possible by OSO 7, scientists were able to study the storm as soon as it emerged on the Sun's east limb on July 30.

In addition to ground-based and OSO 7 observations, valuable scientific data of the event were obtained by OSO 5, Explorers 41, 43, and 45, and Pioneers 6 and 10.

Preliminary results from the University of New Hampshire experiment on OSO 7 indicate that the storm region produced the highest energy radiation ever recorded from the Sun. Energy released by the storm in a one hour period on August 7 was equal to the entire U. S. electrical power consumption for 100 million years at the present rate of use.

OSO 7 was able to follow the storm region for several days after it disappeared behind the Sun and provided early warning of possible new eruptions.

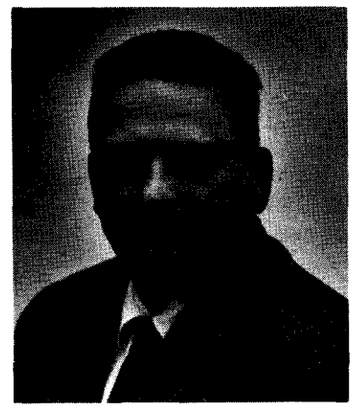
Goddard Mourns. . .

Jay R. Jett died at Georgetown University Hospital on August 3, 1972. Mr. Jett first came to Goddard in August of 1960 as a Plant Maintenance Foreman. In that capacity he was Head of the Maintenance Division. He retired from Goddard on July 25 due to ill health.

George A. Cassels, Head of the Communications Operations Branch, and a twelve year NASA communicator, died at his home in Annapolis on August 26. Death was the result of a massive heart attack suffered by Mr. Cassels a short time ago. He was in a period of recuperation when death occurred.

Mr. Cassels was a retired Senior Chief Petty Officer of the United States Navy and a veteran of over 20 years submarine service. He was the recipient of many citations and campaign awards stemming from pre-WW II service and various actions in the Southwest Pacific.

Mr. Cassels is survived by his wife, two daughters, and a son.



GEORGE A. CASSELS

Contributions can be made to the George A. Cassels Memorial Fund through Goddard extension 4960.

SCIENTIFIC COLLOQUIA

1972 Fall Series

Sept. 15 – Joseph Weber
Department of Physics
University of Maryland
College Park, Maryland
GRAVITATIONAL RADIATION EXPERIMENTS

Sept. 22 – Samuel A. Goudsmit
Editor-in-Chief, American Physical Society
Brookhaven National Laboratory
Upton, Long Island, New York
HOW ELECTRON SPIN WAS DISCOVERED

Sept. 29 – Paul Wild
Division of Radiophysics
Commonwealth Scientific and Industrial Research Organization
Epping, New South Wales, Australia
SOLAR RADIO ASTRONOMY

Oct. 6 – Raymond Davis, Jr.
Department of Chemistry
Brookhaven National Laboratory
Upton, Long Island, New York
SOLAR NEUTRINOS

Oct. 13 – Tetsuya T. Fujita
Department of Geophysical Sciences
University of Chicago
Chicago, Illinois
TORNADOES

Oct. 20 – Robert W. Noyes
Smithsonian Astrophysical Observatory
Cambridge, Massachusetts
ULTRAVIOLET OBSERVATIONS OF THE SUN

OAO COPERNICUS. . .From Page 1

The second experiment on board the spacecraft, the University College, London, X-ray telescope package began its observations of X-ray sources four days after Princeton's initial studies of Zeta Ophiuchi. Data from both experiments is described as excellent by the investigators.

Hopefully, Copernicus will far exceed its planned one year design lifetime. At the current rate of control gas consumption, some project officials estimate a useful lifetime of up to five years.

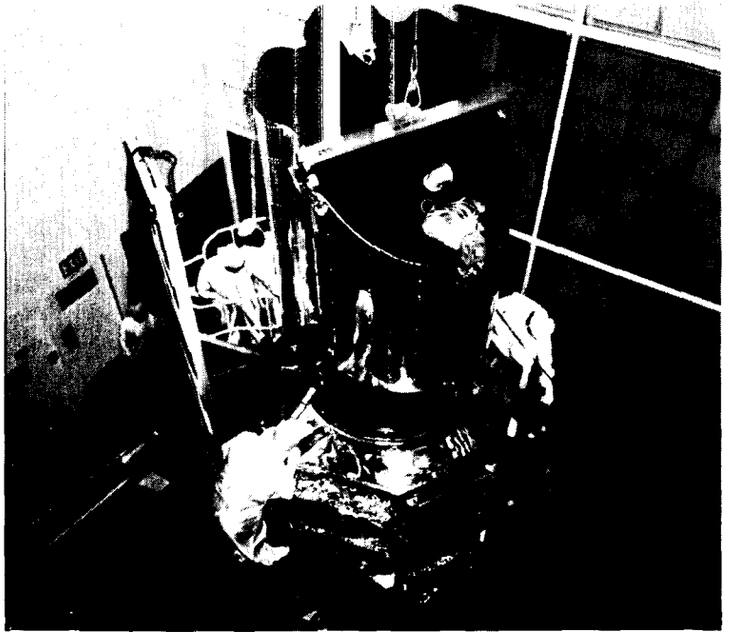
In addition to Mr. Purcell other key members of the OAO Copernicus team include Dr. James E. Kupperian, Jr., Deputy Project Manager and Project Scientist; Jules L. Bigio, OAO Business Representative; S. Richard Costa, Mission Support Manager; Stephen F. O'Dea, Network Support Manager; A. Martin Eiband, University College, London, Experiment Coordinator; Gerald L. Hempfling, Assistant Integration and Test Manager and Louis A. Koschmeder, Mission Operations Manager.

Also, Norman L. Martin, Project Coordinator; Leonard Rabb, Launch Vehicle Systems Manager; Jack Sargent, Observatory System Manager; Robert L. Schlechter, Integration and Test Manager; Robert W. Stroup, Assistant Project Manager; Robert Weaver, Jr., Integration and Test Systems Engineer; Richard A. White, Princeton Experiment Coordinator; and William A. White, Experiments System Manager.

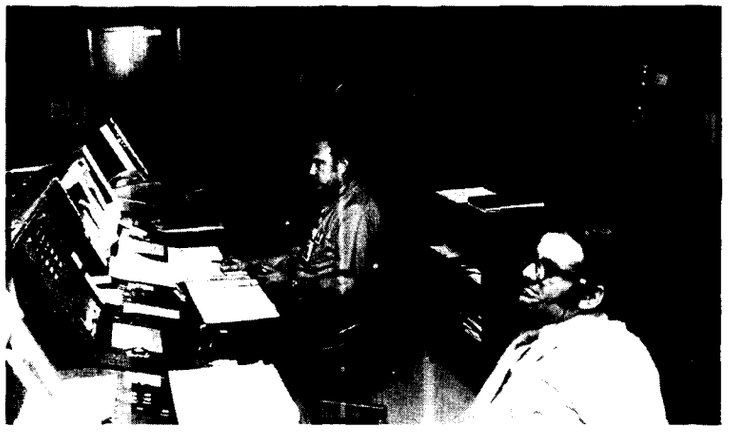
Key industrial firms involved in Copernicus operations include Grumman Aerospace Corporation, prime contractor, IBM, RCA, the Bendix Field Engineering Corp., Computing and Software, Inc., and the ARIES Corp.

VIEWING THE LAUNCH of Copernicus is His Excellency Witold Trampczynski (right), Polish Ambassador to the U.S., with Kennedy Space Center Deputy Director Miles Ross.

PRE-LAUNCH PRESS CONFERENCE. Panelists at Copernicus press conference in Cocoa Beach, Florida, (from left) include C. Dixon Ashworth, OAO Program Manager; Joseph Purcell, Goddard OAO Project Manager; Dr. Nancy G. Roman, Program Scientist; Dr. James E. Kupperian, Jr., Goddard OAO Project Scientist; Professor John E. Rogerson, Jr., Princeton University, and Professor R.L.F. Boyd, University College, London.



TECHNICIANS MOUNT the Copernicus sun baffle on the observatory in a clean room at Cape Kennedy. The huge baffle protects the 32-inch Princeton University telescope from harmful sunlight.



NASA ADMINISTRATOR Dr. James C. Fletcher (dark suit, center) is briefed on Copernicus operations at the Goddard OAO Control Center. At Dr. Fletcher's immediate right is Dr. John E. Naugle, Associate Administrator for Space Science. At his left is Joseph Purcell, OAO Project Manager and Dr. John F. Clark, Goddard Director.

ATLAS-CENTAUR LAUNCH ROCKET for Copernicus is unloaded from huge cargo hatch of the Air Force's C-5A aircraft—world's largest air cargo carrier—at Skid Strip, Cape Kennedy, on August 10. The C-5A was able to carry both the Atlas and the Centaur stages for the first time on the same flight.

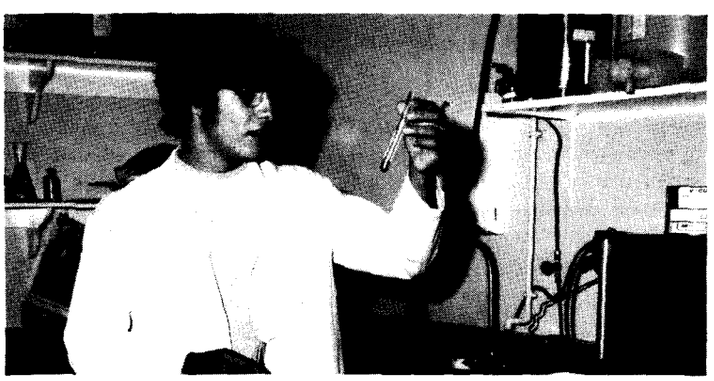
Top High School Students Spend a Summer at Goddard

This summer Goddard again welcomed students involved in the Summer Science Research Participation Program for High School Students. The program, sponsored by the American University and supported by a grant from the National Science Foundation, is in its thirteenth year and has 102 participants, 24 of whom are at Goddard.

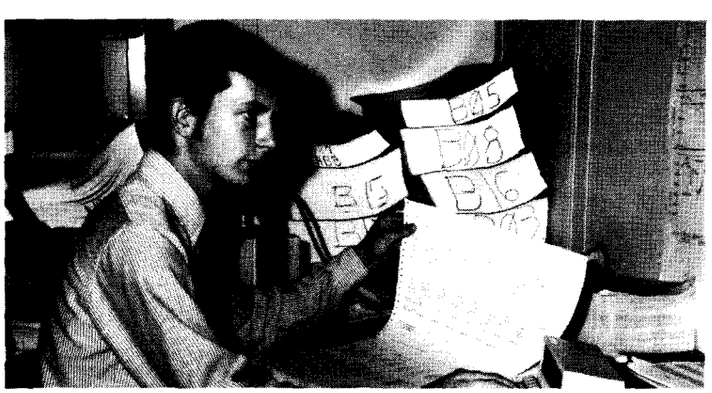
Mrs. Margaret Maury, A.U. Associate Program Director, worked with Mrs. Gladys Chasnoff of the GFSC Employee Development Branch in placing the students interested in space-related topics on Goddard projects. The junior scientists have been assigned to a variety of tasks that include the condensing of data from OGO 4, the construction of display models for all NASA missions between the present and 1990, and the correlation of materials for use in the Planetarium. Other jobs involve the determination of contamination levels on different metal samples, the design of special computer displays for OAO-C, and the use of data from gamma-ray experiments aboard Apollo 15 and 16 to help determine the composition and age of the moon.

Although they receive only a small expense allowance of thirty dollars for the eight-week program, the students are working with enthusiasm and are thoroughly enjoying their assignments. Two students, Louis Mayo and Clinton Winchester, were so pleased with their experiences last year that they returned to Goddard for a second summer of research. Another boy, Gregory Northrop, came from El Paso, Texas in order to participate.

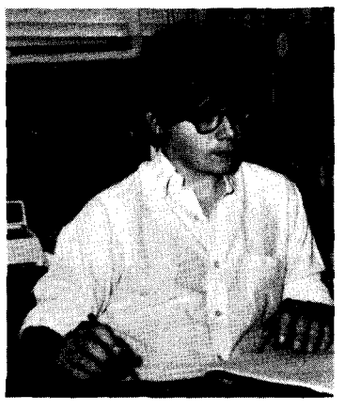
The National Space Club is giving special scholarships to the returning students, while other program contributions come from the U.S. Department of Agriculture, the Washington Academy of Sciences, the Washington Junior Academy of Sciences, and the Goddard Space Flight Center.



THOMAS NORTHROP measures the volume of red blood cells as part of his duties in the Health Unit. His other routine assignments range from urinalysis, to white blood cell counts, to helping out with the X-raying of patients.



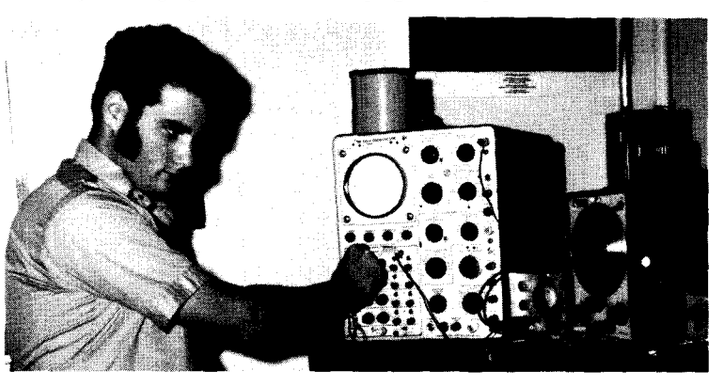
ROBERT SCARLETT uses data from the Small Scientific Satellite to study the movement, energy level, and energy density of space particles, especially those found in the magnetosphere.



DAVID WALL helps out with the analysis of computer data from experiments involving chemical vibrational levels. If the most recent experiment conducted by his supervisor, Dr. Michael J. Mumma, turns out as expected, David hopes to be able to do some lab work before the end of the summer.

FRANK VAROSI says that he's mostly interested in pure mathematics, but his job in the Extra-Terrestrial Physics Division has shown him that "applied math is OK, too." This summer, he is working with linear and non-linear systems of equations as he attempts to analyze magnetic field data gathered by NASA satellites.

DEBBIE STEWART works with lasers to find the spatial frequencies of geometric images. Already she has mastered the APL and FORTRAN computer languages so that she can program computers with her data.

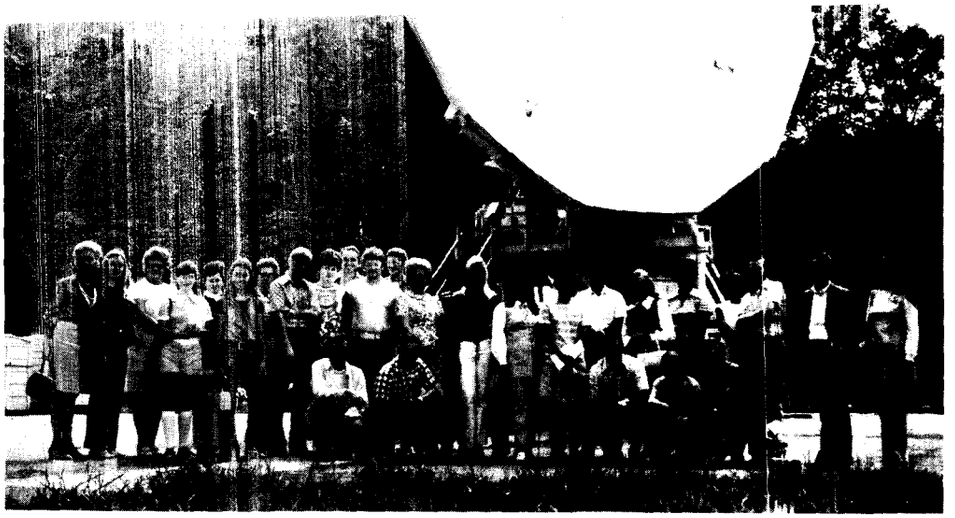


STUART MOFFETT tests a DC brushless motor for tape recording units as part of his job at Goddard. He has already built a small memory circuit for a computer and is in the process of testing a pre-amp for a tape head.

High School Students

John Alford	Louis Mayo III	Debra Stewart
Gregory Baker	Christopher Mays	Eric Thing
Karen Celentano	Stuart Moffett	Craig Tovey
David Cornelius	Gregory Northrop	Frank Varosi
Elisa Diller	Thomas Northrop	David Wall
Charles Gill	Jack Nuckols	Debra Wall
John Hayes	Robert Scarlett	Clinton Winchester
Donald Jefferson	Randy Schwartz	Murray Wolinsky

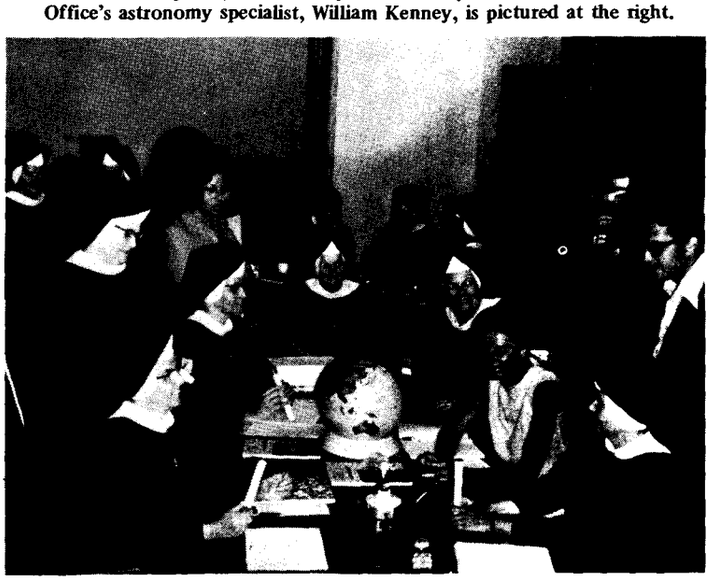
Teachers and Stu
Space Science an



GARRETT COUNTY, Maryland, teachers participated in a Space Sciences Seminar at Goddard on August 3 and 4. Here the group is shown at the Network Test and Training Facility site. Albert Ringer, Assistant Superintendent, and Paul Frank, Director of the Program are shown kneeling in the left foreground. Other seminars conducted for teachers at Goddard this summer included: Eastchester, New York Schools Seminar – June 26-30; Montgomery County Teachers – July 26-August 4; History and Government Teachers Participating in the D.C. based Presidential Classroom Program – July 13 and August 10. Fourteen Montgomery County Industrial Arts teachers worked in various areas of the Experimental Fabrication and Engineering Division each afternoon from July 17-August 4. Through the cooperation and support of Division Chief Maurice Levinsohn, over fifty industrial arts teachers in Montgomery County have taken summer training programs in the division shops over the past three summers.

MRS. ROBERT H. GODDARD (fourth from right) conducted a tour of the "Aunt Effie" Ward farm site near Auburn, Massachusetts, for participants in the Fitchburg Aerospace Science Institute. It was at this location, now a golf course, where Dr. Robert Goddard launched the world's first liquid fuel rocket on March 16, 1926. This three-week institute was sponsored by Fitchburg State College, Fitchburg Public Schools and the Alice G. Wallace Planetarium. Goddard's Educational Programs Office provided instructors in the areas of Astronomy, Aeronautics, Space Biology and Rocketry.

SISTERS AND LAY TEACHERS at Chestnut Hill College learned how to plot a satellite orbit during one of eleven workshops conducted for teachers this past summer in Goddard's 12-state northeastern region. The college located in Philadelphia has sponsored an aerospace workshop for the past three summers. The participants came from the states of Maryland, New Jersey and Pennsylvania. The Education Office's astronomy specialist, William Kenney, is pictured at the right.



Aerospace Science Education

Teachers from Goddard's 12-state northeastern region learned about aerospace science this past summer in programs conducted at colleges and universities, in school districts and here at GSFC. During the eleven off-site workshops, the teachers concentrated their attention on the areas of aeronautics, astronomy, space biology and rocketry.

The summer's first workshop was conducted for sixty teachers from the Lancaster, Pennsylvania, area in cooperation with Millersville State College. The program at Seton Hall University was highlighted by field trips to aviation and aerospace industries in the Newark-New York City area.

A special three-day program was planned at Plattsburgh State University, Plattsburgh, New York. The Goddard EPO representative conducted workshop sessions for elementary education teachers enrolled in summer courses, was interviewed on local radio, spoke to a service club luncheon group and discussed NASA's educational services at a media exhibition for several hundred visiting area teachers. Similar workshop sessions in education classes were conducted at Rhode Island College, Providence, Rhode Island.

Off-site workshops, in addition to those pictured or already mentioned, were also held at Allegany County, Maryland; Woodbridge, New Jersey; Lehman College, New York; Towson State College, Maryland; and C.W. Post Center, New York.

Educators from Eastchester, New York, spent one week in the Washington area participating in a program at Goddard and NASA Headquarters. During two days at Headquarters, the teachers were briefed on NASA's future programs, applications programs and aeronautics. Special visits were arranged to the Smithsonian Air and Space Museum and to COMSAT. While at Goddard they heard presentations by Charles Boyle on "The Effects of Space Research on Society"; Howard Galloway on the ATS program; Dr. Nicholas Short on ERTS; and Dr. Jaylee Mead on the Solar System. In addition, they visited the Planetology Branch for a program designed by Dr. Louis Walter and the satellite museum for presentations on the APT system conducted by Locke Stuart.

Teachers from Montgomery County attended workshop sessions in space biology and aeronautics at a local school and also spent six half days in the GSFC planetarium facility with Sheila Duck studying the self-teaching astronomy modules. They will be using these modules in planning astronomy additions to their present science curriculum.

The off-site programs were conducted by educators assigned to Goddard through a Headquarters contract with Oklahoma State University. They are Lloyd Aronson, John Bannister, Larry Costanzo, William Kenney and Minot Parker.

lents Learn About
l Related Careers

VISUALLY HANDICAPPED STUDENTS participating in a summer program directed by Sidney Poretz of the Montgomery County Schools visited Goddard for special programs on July 7 and 17. Randy Barth of the Space and Earth Science Computer Center is shown here in one of the small group briefing sessions at the Computing Center in Building 1. The second visit was to the Goddard Library where Adelaide Del Frate designed a special learning experience and discussed vocational opportunities in library technology for the handicapped.

Career Education:
An Alternative to Traditional Education

Goddard's Educational Programs Office and many people in several divisions throughout the Center were involved directly this summer in response to a new career education initiative which is being pushed hard by the U.S. Office of Education through financial grants and by the dynamic leadership of Commissioner Sidney P. Marland, Jr.

Dr. Marland spoke on the topic of "Career Education" at the 1971 convention of the National Association of Secondary School Principals. In this major policy address he defined the problems of American education and recommended avenues for change. The following is Dr. Marland's summation of the problem:

> "Of those students currently in high school, only 3 out of 10 will go on to academic college-level work, and one-third of those will drop out before getting a baccalaureate degree. That means that 8 out of 10 present high school students should be getting occupational training of some sort, but only about 2 of those 8 students are, in fact, getting such training. Consequently, half our high school students – a total of approximately a million and a half a year – are being offered what amounts to irrelevant, general education pap.
>
> "Small wonder so many drop out, not because they have failed, but because we have failed them. Who would not at the earliest convenient and legal moment leave an environment that is neither satisfying, entertaining, nor productive?"

Dr. Marland defined the topic and set the goal for the nation's assembled secondary school principals as follows:

> "All education is career education – or should be. I propose that a universal goal of American education, starting now, be this – that every young person completing his school program at grade 12 be ready to enter either higher education or useful and rewarding employment."

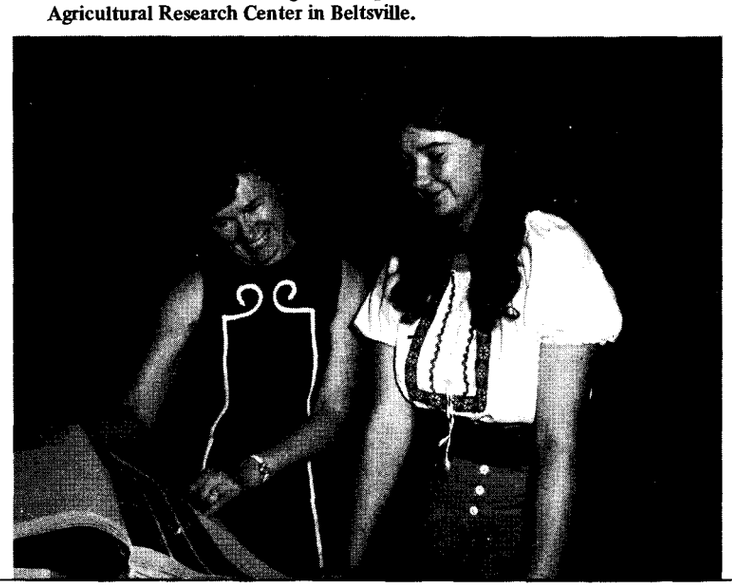
Pictured on these pages are students and teachers seeking to enlarge their experience and knowledge of the "world of work." One of these programs, for D.C. counselors, was funded directly by the U.S. Office of Education through the Vocational Education Act of 1968 and the D.C. Board of Education. Eleven vocational counselors, one from each of eleven high schools in the District of Columbia, were selected by Susie B. Morgan, Supervisor of Career Counseling and Placement Services for participation in the six-week program at Goddard. The purpose of the program was to provide "in-depth – hands-on" experiences for each counselor in a number of job clusters available to students with 12 to 14 years of education and training.

Goddard was chosen because of the favorable results achieved by a pilot program for counselors at the Jet Propulsion Laboratory last year and because Goddard could offer a cooperative environment for

(See Page 8)

A COMPUTER CONTROLLED MECHANICAL ARM designed for research in pattern recognition and artificial intelligence is explained by John Chandler, Electronics Division. The two teachers pictured, Troy Hailey and Helen Collins, were participants in the six-week career orientation program conducted for eleven counselors from the District of Columbia.

TEENAGE OPPORTUNITY PROGRAM. Betsy Butler, a junior at Springbrook High School in Montgomery County, learned about a career in astronomy from Dr. Jaylee Mead of the Observational Astronomy Branch during her two-week experience as a participant in Goddard's Teenage Opportunity Program. In this program students have first-hand work experiences without pay in their tentative career choice areas under the careful supervision of Goddard volunteers. Ten students participated in the program this summer for periods ranging from two to ten weeks. Eight were placed at Goddard and two at the Agricultural Research Center in Beltsville.



CAREER EDUCATION . . . From Page 7

the counselors to obtain broad cross-section occupational experiences in modern technology. The school system, the counselors and their supervisors realized that employment opportunities for their students at Goddard were minimal. The counselors didn't come here for six weeks to find jobs for their students. They spent six weeks learning job categories and skills required in areas such as computer technology, electronics, printing, the trades, clerical or accounting.

The following divisions, branches or sections were involved in providing work sessions of several days for each counselor: Space and Earth Sciences Computing Center; Printing and Duplication Section; Electronics Division; Plant Operations and Maintenance Division; Procurement Division; Management Services and Supply Division; Financial Management Division; Facilities Engineering Division; Network Test and Training Facility; Library Branch; and Manpower Utilization Division which provided a unique simulation for each counselor that involved the employee application, entrance examination for federal employment and the interview.

The D.C. counselors whose training had been primarily academic will be returning to school this fall with experiences that will enable them to tell their students what it is really like to operate a key punch machine or an offset press, take a written test for clerk-typist, build an electronic circuit, work as a building inspector, be good enough at soldering to meet NASA specifications, work in shipping or receiving and a host of other occupations.

TONI TACCONNELLI was one of sixteen participants this summer in the Prince George's County Vocational Development Program sponsored by the P.G. County Board of Education and the Neighborhood Youth Corps. Here she is learning about blood pressure measurement. The patient is William Eddy who was the P.G. County Board of Education Coordinator for the program which began on June 26 and ended on August 18. Head Nurse, Marilyn Fowler, and Dr. Carlos Villafana observe Toni's progress. Each student was specially placed in a chosen work area with volunteer Goddard supervisors in the following offices or branches: Special Programs Office, Accounting Branch, ATS F&G Project Office, Szabo Food Service, Transportation Branch, Library Branch, Maintenance Branch, Sounding Rocket Division, Property and Supply Branch, Graphic Arts Branch and the Health Unit.

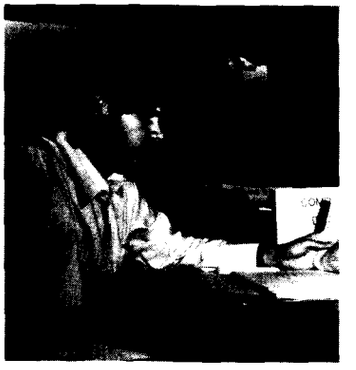
TWO PARTICIPANTS in the Fellowship Program were Denise Macklin and Deborah Tyner. They were both assigned to the Publications Branch as student trainee illustrators. As part of their job, they worked on "layouts, graphs, and many other exciting things." Denise will be attending the University of Maryland as a major in the Fine Arts, while Deborah will major in Commercial Art at Trinity College.

Federal Junior Fellowship

The Federal Junior Fellowship Program, conducted in the Washington area on a pilot basis last year, returned to Goddard this summer with eight participants. The program is designed to provide high school seniors with continuing summer and vacation employment until they graduate from college, and, at the same time, help them to gain first-hand knowledge of the Federal government as an employer. In return, participating Federal agencies can evaluate a student's academic and work performance over a four-year period and thus, can locate potential sources of future employees.

Wherever possible, efforts are made to assign students to positions according to their intended major and career interests. Students entering the program are all in the upper 10 percent of their graduating class, have been accepted to college or are planning to attend college after graduation, have expressed an interest in Federal careers, and have need of the earnings from employment in order to continue their education.

This year's participants at Goddard were: Joseph Burno, Howard Finkelstein, Kathleen Gallogly, Warren Gladden, Timothy Hagen, Denise Macklin, A. Wayne Strichland, and Deborah Tyner.



HOWARD FINKELSTEIN, a Biological Sciences major at MIT, worked in the Data Analysis Office this summer. There he wrote and modified computer programs to be used in the analysis of aircraft and satellite experimentation.

JOSEPH BURNO worked in the Cybernetics and Subsystems Section this summer writing computer programs that will "teach" a computer-guided robot arm to perform simple tasks. Before starting the job, he had to learn basic electrical building and repair techniques and master FORTRAN computer programming. Joe, who has already worked at Goddard as a participant in last year's Summer Science Research Program for Outstanding High School Students, will enter Brown University in the fall as a major in engineering.

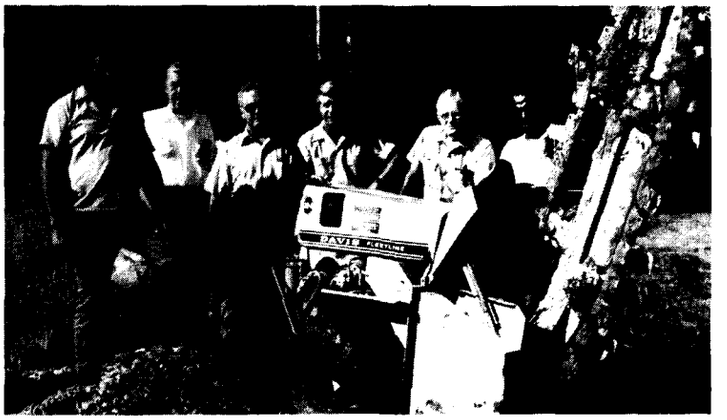
Some Goddard Air Safety Procedures

HELICOPTER FLIGHTS TO GODDARD. About ten helicopters carrying VIP visitors to Goddard land on the mall in front of Building 8 each year. Safety procedures for such flights are the joint responsibility of the Goddard Health and Safety Engineering Office and the Aircraft Operations Section of the Network Procedures and Evaluation Division. Routine procedures include a man on the ground to guide the craft and "smoke bombs" to indicate wind direction and turbulence. Above, retired Naval aviator Richard La Croix of the Aircraft Operations Section guides a helicopter during take-off. Below, members of the Prince George's Fire Department in Glenn Dale receive a briefing on helicopter emergency entry points by Captain Morrissey of the U.S. Air Force while George Morgan and Leven Gray of the Health and Safety Engineering Office look on.

AIRCRAFT CREW SAFETY. Goddard and Bendix flight crews participate in the annual wet aircraft ditching training held in the Middle River at the Martin Airport in Maryland, site of the GSFC Flight Facility. This training is essential to the safety of passengers and crew in case an aircraft is forced to land at sea. The NP&ED Aircraft Operations Section, with Francis I. P. Glynn as Head, is responsible for the operation and maintenance of the flight facility and Goddard aircraft, which include the instrumented planes used in fly-over tests of Goddard's tracking stations.

POMD's Drainage and Erosion Prevention Program

By David G. Lewoc



HARD AT WORK AFTER AGNES were members of POMD's Drainage and Erosion Prevention Crew, supported by Pride Economic Enterprises, Inc. From left are James Hayes of Pride, Chuck Little, Bill Green, George Russell, and Pappy Trent, all of POMD, and Peyton Gaines of Pride.

Hurricane Agnes has made us *really* aware of how essential a good drainage and erosion prevention program is at Goddard. This storm dropped so much water and raised the (already high) water table to such a point that Buildings 1 and 2 almost floated away.

The drainage and erosion prevention program is headed by Bill Green of the Plant Operations and Maintenance Division. Bill is assisted by Chuck Little of the Electrical Section, with support from Wilmore N. Bradley of Pride Economic Enterprises, Inc.

Buildings 1 and 2 required crash programs in order to drain the water out from underneath them. This entailed trenching from the area of the water to the storm sewer and installing agricultural drain tile. In addition, some grading was needed to prevent water from lying next to the foundation. The remaining drainage and erosion problems are proceeding at a more leisurely pace.

Matthes Receives OSO Award

CHET MATTHES (third from left), former Station Director at Ft. Myers, Florida, receives congratulations and pictures of the seven Orbiting Solar Observatory Spacecraft his station supported from 1961 to 1971. The Ft. Myers station, now closed, acquired data from OSO spacecraft shortly after their launch from Cape Kennedy, often providing first indication of launch performance. Shown with Mr. Matthes are (from left) William Worrall OSO Project Operations Director; Robert Zeimer, Deputy Director for Projects; and Robert Davis, Assistant OSO Project Manager. Dale Scott, OSO Project Manager, in whose office the presentation was made, was absent when the photograph was taken. Mr. Matthes' next assignment will be as Director of the NASA tracking station on Guam.

MAD Plans 'Guys and Dolls'

THE BOARD OF DIRECTORS of Goddard's drama society, MAD Productions, plans the music for their up-coming play "Guys and Dolls." From left are Tom Cherrix, Orchestra Director; Gil Mead, Music Director; Sylvia Green, Producer; and Ginny Zanner, Director. Not shown is Lou Walter, Production Chairman.

Rehearsals started September 5 for the Music and Drama (MAD) Productions presentation of "Guys and Dolls," a musical fable of Broadway based on a story and characters by Damon Runyon. The play is scheduled for four evenings at the Goddard Recreation Center on November 3, 4, 10, and 11.

This will be the first dinner theater for MAD, and plans are underway for some memorable evenings which will include a buffet dinner, refreshments and the show. Participants in all phases of the production from ticket sales to acting come from most Goddard directorates and some off-center areas.

Members of the newly elected MAD Board of Directors are Producer Silvia Green of Code 270, Director Ginny Zanner of Code 626, Musical Director Gil Mead of Code 641, Orchestra Director Tom Cherrix of Code 650, and Production Chairman Lou Walter of Code 644.

Tickets for the four performances will go on sale during the first week in October. Prices will probably be about $6 for individuals or $5 for each person in groups of ten or more attending on the same evening.

So plan your November parties around "Guys and Dolls" and come to the show.

Ski Club Active All Year

The Ski Club was organized and chartered by GEWA in November of 1971, and has been one of our most active social groups ever since. Last winter, members managed three ski trips to Killington in Vermont, Sutton in Quebec, Canada, and Blue Knob Pennsylvania.

Not a bit dismayed by the lack of snow in spring and summe they filled their time in the warm months with a bike hike, mountain hike, a picnic, an Ocean City beach week, two pool parti and an exciting raft trip down the rapids of the Youghiogheny Riv in Pennsylvania.

This fall they plan another bike hike and a Halloween party. Winter will see many ski trips including News Years at Killington and a week-long trip to Canada.

The club's president reports that plans should be firmed up and a trip schedule available by late October. Club meetings will be held throughout the winter when ski movies will be shown and interested persons can sign up for the trips.

Membership dues are $3.00 for a single person and $5.00 for families. To join, call Jim Christo, ext. 6998.

Goddard's Auto Club

CINDY PETERS draws winning numbers for the Auto Club raffle while Club President James Shaughnessy prepares to read them at the club meeting on August 8.

The Goddard Auto Club is a fledgling organization recently sponsored by GEWA for people interested in do-it-yourself auto maintenance and repair and for those interested in learning about cars.

A major club effort at this time is to build a three-stall garage here at Goddard where members may bring their cars and do their own oil changes, tune-ups and repairs. This facility will be built in three phases as funds permit. Phase one is a three-stall concrete pad with grease pit and space for a utility room; phase two will cover walls, roof, and windows; and phase three will provide lights, power, heat and garage doors. Much of the construction work will be done by members.

Towards this end, the club recently sponsored a very successful raffle to make money for the initial phase of construction. Winners were Virgil F. Gardner, Assistant Head of NC&AD Installation and Integration Branch and Gregory Baker, a Summer Aid. Both winners received auto tool kits worth $60 each.

A basic auto maintenance course is planned to begin September 13 and run for 12 weeks. The course will be given at the Motor Pool and cover such topics as tune-ups, lubrications, front-end alignment, tires, brakes, auto electrical and pollution devices. Doc Devaul and Tom Atkins will be the instructors. Both men are top mechanics with years of experience.

AUTO CLUB RAFFLE WINNERS Gregory Baker (second from left) and Virgil Gardner display the prize tool set. With them are Club President James Shaughnessy (left) and Pat Pierce.

NASA HISTORICAL DIVISION
MAIL CODE AAH
NASA HEADQUARTERS
1 COPY

GODDARD NEWS is published monthly by the Public Affairs Office of the Goddard Space Flight Center, National Aeronautics and Space Administration, Greenbelt, Md. 20771. Deadline for contributions is the last Thursday in the month.

Editorial Staff

Nancy Mengel Jim Kukowski

Mrs. Patricia Ratkewicz, Ext. 4141

Harriet Rosenthal, Special Assistant

NASA—GSFC COML., Arlington, Va.