

Message from the Director

Congratulations Goddard

Landsat-D had a perfect launch on Friday, the 16th of July. On Monday, the 19th of July, we acquired data from the Multispectral Scanner (MSS). The first picture received was excellent. On Tuesday we acquired data from four of the bands of the Thematic Mapper (TM).

I congratulate all of the Goddard personnel involved with the Landsat-D launch. Mr. David Grimes, Project Manager for Delta, and the entire Delta Project did their usual high-quality job. Congratulations to Frank Cepollina and and the MMS project for their contribution to the successful launch of Landsat-D. The MMS project was responsible for building the spacecraft portion of the Landsat observatory. The MMS portion of Landsat-D consists of an attitude control module, communications and data handling, power subsystem, propulsion subsystem, and the spacecraft structure and electrical system. This was the 152nd successful launch for Goddard's Delta rocket.

The Landsat-D team, headed by Mr. Harry Mannheimer, Headquarters Program Manager, Mr. Jon Busse, the Project Manager, and Dr. Vince Salomonson, the Project Scientist, deserve high praise for the outstanding professional manner in which the project was brought to a successful launch.

Landsat-D, called Landsat-4 now that it is in orbit, is possibly the most important satellite that Goddard has launched in recent years. The NASA/Goddard team has once again demonstrated a most reliable and highly capable performance.

My personal thanks to all Goddard employees and contractors for an excellent job well done. You've provided me with a wonderful welcome to Goddard.

Noel W. Hinners
Noel W. Hinners Director

Landsat-D a success!



Center Director Dr. Noel W. Hinners (l), Congressman Guy V. Molinari, R-N.Y. (c), and former Center Deputy Director John H. McElroy chat before the Landsat-D launch. The congressman witnessed the launch of the latest in earth resources technology from the Network Operations Control Center (NOCC) viewing area. According to Hinners, Landsat-D is possibly the most important satellite that Goddard has launched in recent years.

America celebrated twice on July 4

On July 4 the nation had two reasons for celebration. America celebrated its 206th year of independence and it celebrated the fourth and final test flight of the Space Transportation System. With the fourth test flight successfully completed, the STS is scheduled for its first operational flight in November.

STS-4 astronauts Mattingly and Hartsfield achieved all of the major objectives, including tests of the orbiter's thermal response and exercises with the Canadian-built manipulator arm. All four of the Columbia's orbital flight tests were aimed at verifying, in a building-block scheme, the shuttle system's capability to do the

job for which it was designed—haul heavy payloads into and out of Earth orbit with a reusable vehicle.

After viewing Columbia's landing President Reagan said, "In the future, as in the past, our freedom, independence and national well-being will be tied to new achievements, new discoveries and pushing back frontiers. The fourth landing of the Columbia is the historical equivalent of the driving of the golden spike which completed the first trans-continental railroad. It marks our entrance into a new era. The test flights are over, the groundwork has been laid,

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Landsat-4's first Thematic Mapper image



The first image from Landsat-4's Thematic Mapper was taken on July 20, four days following its successful launch. The resultant (185 km x 185 km) image is a composite of three individual images from detectors in the green, red, and infrared portions of the spectrum. In this quadrant section enlargement of the image, nearly all of Detroit, Michigan, and the northern parts of Toledo, Ohio, are clearly visible in the top and bottom portions of the picture, respectively.

The large body of water in the lower right is Lake Erie and in the upper right is Lake St. Clair. In the lower (southern) outskirts of Detroit, near the center of the picture, the Detroit Metropolitan Wayne County Airport is visible and to its immediate left (west) is the Willow Run Airport.

Landsat-4's Thematic Mapper (TM) was designed to identify areas as small as 30 meters; preliminary examinations point to an image resolution and quality beyond expectations.

Celebration

Continued from page 1

now we will move forward to capitalize on the tremendous potential offered by the ultimate frontier of space."



President and First Lady Nancy Reagan meet with astronauts Ken Mattingly (r) and Henry Hartsfield after the successful landing of the Space Shuttle Columbia July 4 at Edwards AFB, California.

Model Rocket launch



Photo by Debora McCallum

Goddard's Visitors Center hosted a model rocket contest last month commemorating the 13th anniversary of the first lunar landing on July 20, 1969.

Competitive events consisted of spot landings and streamer duration. Each contestant received by mail a certificate of participation and winners of each event received first through third place trophies. Trophies were awarded to two groups, ages 15 and under and 16 and over.

This year over 900 spectators watched some 65 model rocketeers compete. Last year some 60 persons launched rockets and about 600 spectators viewed the activities.

The contest is sponsored by the Goddard Visitors Center through the Public Affairs Office, the National Space Institute, and in cooperation with local sections of the National Association of Rocketry.

Man your stations

Goddard HAMs prepare for emergency

When disaster strikes or when there is an emergency situation, normal channels of communication are sometimes disrupted or unavailable. Makeshift communication operations have to be established to restore order. Members of Goddard's Amateur Radio Club (GARC) recently drilled for such a crisis in the 46th Annual American Radio Relay League Field Day Emergency Preparedness Test.

A group of 17 GARC members manned three operating stations at Goddard's Visitors Center from 4 pm June 26 to 4 pm June 27. Using only emergency power and portable antennas, Goddard HAMs contacted over 1000 different stations throughout the U.S. and Canada.

One contact, sent by Goddard HAMs to a station in Davidsonville, Md., sounded like this: "This message notifies you that the Goddard Amateur Radio Club has 17

members present and participating in 46th Annual Field Day Exercise. Emergency power and antennas used."

Highlighting this year's field day was a 12 watt solar powered radio station. The solar panels used to power the station were surplus International Sun/Earth Explorer (ISEE) panels donated by Harry Burke (code 711) for field day use.

According to Frank Bauer (code 712.3), president of GARC, the solar powered radio station worked quite well despite the dense clouds that persisted over the weekend.

"Although clouds wiped out about one third of the solar station's anticipated output," Bauer said, "our competent radio operators still enabled us to make contacts in Illinois, Oregon, Kansas, Iowa, Canada, Alabama, and Oklahoma all

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Goddard HAMs man their stations at the Visitors Center during the Emergency Prep Test. Top from left: Richard Coan, Hugh O'Donnell, William Mullauer, Frank Turano, and James Gass. Bottom l-r: Richard Coan and Frank Turano. Center: AMSAT employee Andrew Swirko makes contacts using the solar powered station.

Dale Call retires after 32 years

Former Network Director honored with Silver Snoopy Award at special presentation

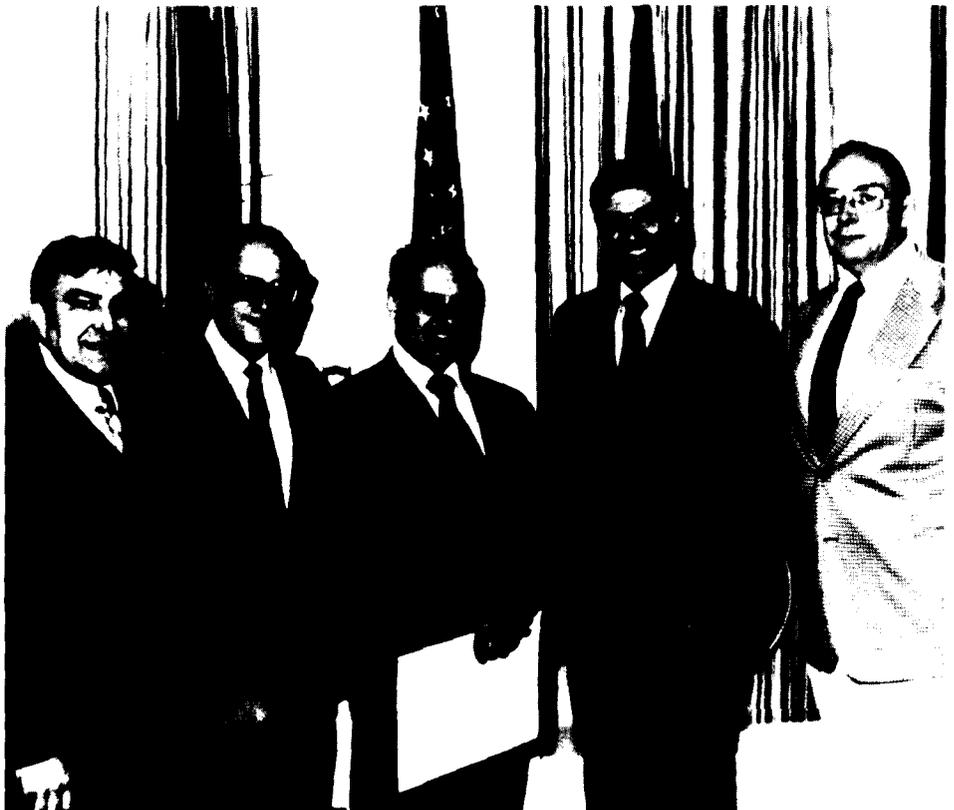
Astronauts have very busy schedules, whether working in space or on earth. But only astronauts can present the coveted Silver Snoopy Award to distinguished individuals or groups. STS-2 Commander Joe Engle recently adjusted his busy schedule to make a special presentation of the Silver Snoopy Award to Goddard's Dale Call, Network Director (ND), who retired this year after 32 years of government service. Call received the award specifically for his outstanding contributions as ND in support of the Shuttle Program.

"Mr. Call's significant contributions towards making STS successful follow a long string of accomplishments," said Daniel Spintman, Network Operations Division Chief. "During his career, his support of manned flight has spanned from the early days at White Sands, through the pioneering missions of Mercury, Gemini, Apollo, Skylab, ASTP, and now STS."

Presentation of the Silver Snoopy Award started during the Apollo program and was designed and initiated by the astronauts, who wanted to express their appreciation to the support personnel of manned flight missions. Call was presented the award at a special ceremony at NASA Headquarters June 18. He retired from Goddard June 26. The award includes a letter of appreciation from astronaut Joe Engle, a certificate, and his Silver Snoopy.



Above: Retiree Dale Call (1) receives Snoopy Award from astronaut Joe Engle during ceremony at NASA HQ. Below: Others present at the ceremony were, from left: A.T. Dannels, chairman, Manned Flight Awareness Council; Dan Spintman, division chief, code 850; retiree Dale Call; astronaut Joe Engle; and William Bastedo, HQ manager STDN Program, code TN.



The spotlight will shine on Goddard's manned flight support personnel this fall when the Silver Snoopy Award Program returns. "Snoopy" will fly again when awards will be presented to groups and individuals instrumental in making the Space Shuttle's Orbital Flight Tests (OFT) a success. The last Snoopy Award Ceremony held at Goddard was in 1974 at the end of the Apollo/Soyuz Test Program (ASTP).

Less than two percent of the total support population receive this coveted award, first presented during the Apollo Program by astronauts wanting to express their appreciation to manned flight sup-

ported the Shuttle's engine valves, an employee who developed a new safety procedure, and a logistics clerk who developed a safer way to package and transport delicate Shuttle parts. At Goddard, awardees might include control center personnel; documentation personnel; station technicians; software programmers; engineers, etc. Anyone can receive the award if they meet the criteria established, according to A. T. Danna, chairman of Goddard's Manned Flight Awareness (MFA) Council.

"The performance must be oriented to

the recipients. Members of the council are: Sandy Morey, Roberta Valonis, Seaton Norman, Henry Iuliano, Ray Mazur, and A. T. Danna, all of Goddard; Larry Hare/BFEC and Robert Yost/CSC. Morey will coordinate this year's Silver Snoopy activities.

Once reinstated, the Silver Snoopy Awards will be held annually in support of the many Shuttle flights scheduled for the future. Along with NASA's Launch Honoree Program, Snoopy Awards will continue to instill in all personnel an awareness of their personal responsibility to the success of manned flight.

Wallops launch:

Nike Orion rocket checks earth's upper atmosphere

Goddard launched a two-stage Nike Orion sounding rocket last month from its Wallops Island facility, Wallops Island, Va., to investigate ionization sources in the earth's upper atmosphere during geomagnetic activity.

The rocketborne experiment, second in a series of two, had been postponed daily since June 1, awaiting an intense magnetic storm which usually follows a solar flare. The absence of solar activity precluded one of two scheduled launches last year; however, experimenters were pleased to obtain data during a major magnetic storm from this latest launch. The first experiment was launched on October 14, 1981.

The 110 pound payload reached a peak altitude of 132 statute miles. Preliminary results indicated that all instrumentation performed satisfactorily and good data were obtained. The Nike Orion is a two-stage, solid-propellant, unguided sounding rocket about 30 feet long.

The launching was conducted for the University of Illinois as part of its continuing investigation of energetic particles trapped in the Van Allen radiation belt by the earth's magnetic field, and have gradually flowed into the ionosphere, according to Dr. L. G. Smith, University of Illinois project scientist. "We are not only studying the loss of these particles from the Van Allen belt but also their

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port personnel. The Silver Snoopy Award is presented to any employee recognized for his or her outstanding contributions to the Manned Flight Program. Its recipients are further honored by having the award presented by astronauts.

For example, Snoopys have been presented to a production line worker who

or pertain directly to flight crew safety or mission success," Danna said. "It must be an outstanding performance, and the contribution must be described specifically and not generally."

The Silver Snoopy Awards are part of NASA's Manned Flight Awareness Program and Goddard's MFA Council selects

PEOPLE



Fifteen secretaries and the Payroll Office received awards at the seventh annual Secretaries/Clericals Awards Luncheon held recently. The Payroll Office, selected from among four nominated groups, is the first recipient of a group award in the annual luncheon. The secretarial awardees were selected from 58 nominees of the approximately 470 clericals at Goddard. The secretarial awards consisted of a plaque and a \$250.00 check and the Payroll Office received a group certificate and individual checks of \$100.00. The awards were presented by Acting Center Director Leslie H. Meredith. Guest speaker for the event was Ann P. Bradley, deputy associate administrator for the Office of Management at NASA HQ, who talked about the vital role of the secretary. Incoming Center Director Dr. Noel W. Hinners was also a guest and he too gave remarks about the important role that clericals play. Left: Secretarial awardees with Acting Center Director Leslie H. Meredith. Right: Payroll Office clerical group awardees.



Twenty Science Fair winners from regional and state Science Fairs were honored by Goddard last month for their space related projects. The winners hailed from Science Fairs held in New York, Maryland, and Pennsylvania. While on center, the honorees heard lectures on the R and D missions of Goddard, on the STS, on Voyager spacecraft's trips to Jupiter and Saturn; and, they toured the center.

Astronauts lend support during STS-4



Two astronauts were at Goddard during STS-4. Above: WJLA reporter Carlos Ramirez (r) interviews astronaut John Fabian, mission specialist for future shuttle flights; Below: Ramirez talks to STS-2 astronaut Dick Truly.



Photo by Pete Baltzell

TAP Graduates

Seven of the 12 graduates from Goddard's Technician Apprenticeship Program (TAP) are shown here. The 12 students graduated from Montgomery Community College June 26, completing the academic phase of their training at Goddard. Sitting (l-r): Sterling Edwards, code 717.2; Jim Phillips, 291; Donna Bailey, 717.2; Steve Lineweaver, 291.3. Standing (l-r): Matt Conway, 291; John Parker, 291.4; and Troy Joyner, 291.3. Not pictured are: Everett King, 291; Kenneth Williams, 291; Richard Fedorchak, 751; Dwayne McCall, 751; and Walter Goodale, 751.

High Speed Photometer arrives

First of five scientific instruments delivered to Goddard

The first of five scientific instruments to be flown on the Space Telescope (ST) arrived at Goddard last month to undergo acceptance testing. The 600-pound High Speed Photometer (HSP), about the size of a phone booth, was delivered to building 7 and placed in the 'clean room'. It will undergo testing for the rest of 1982.

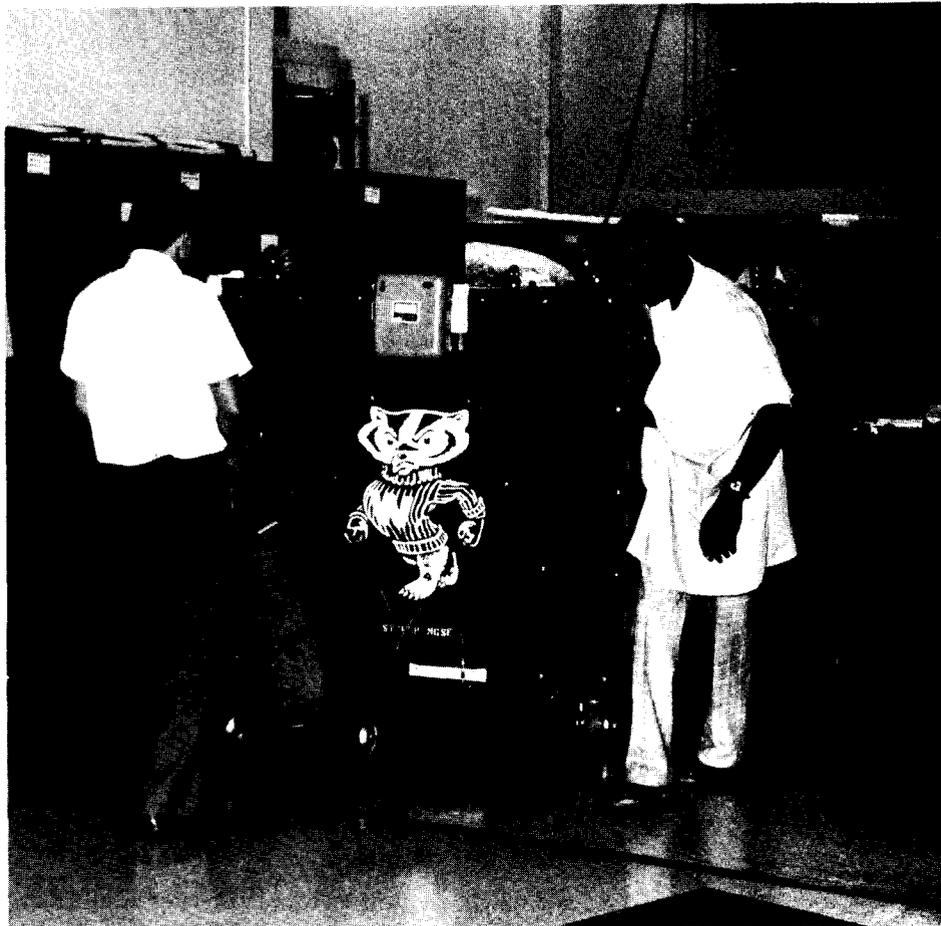
In 1983, the HSP will be joined by the High Resolution Spectrograph, the Faint Object Spectrograph, the Wide Field and Planetary Camera, and the Faint Object Camera for the Verification and Acceptance Program, managed by Goddard's ST Science and Operations Project Office.

The HSP is designed to make photometric measurements at rates as fast as 100,000 times per second in spectral bandpasses from the far-ultraviolet to the red. Such measurements are impossible with ground based telescopes because of the earth's atmosphere. The earth's atmosphere filters out all of the ultraviolet radiation and introduces "noise," or twinkling, which complicates the search for variability on time scales shorter than about one second.

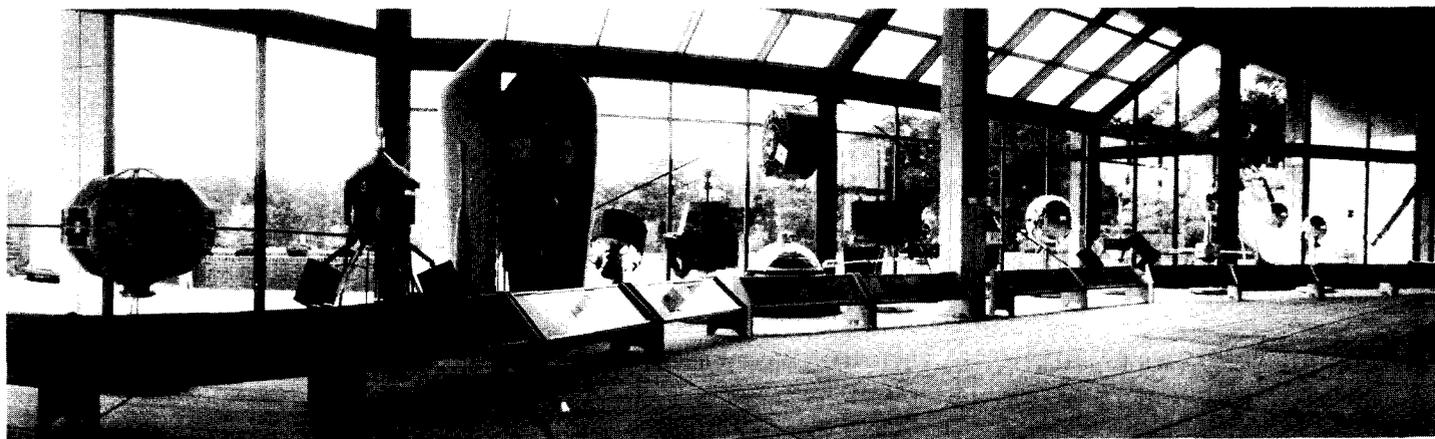
The ST, with its superb optics and stable pointing system, will enable observations to be made of objects like white dwarfs, neutron stars (pulsars), and x-ray binaries, which are among the most intriguing stars in the sky. These measurements should give important clues as to the nature of those objects.

The HSP was designed and built by the University of Wisconsin, Madison, Wisconsin.

Photo by Joe Walters



Code 754 technicians take the Instrument Package (IP) containing the HSP to the clean room. The 600-pound HSP is designed to make photometric measurements at rates as fast as 100,000 times per second in spectral bandpasses from the far-ultraviolet to the red.



Hall of Satellites exhibit 1958-1978

Photo by Randy Frisch

A new exhibit spanning 20 years of satellite technology is on display at Goddard's Visitors Center. The Hall of Satellites exhibit traces the development of satellites from America's first launch, the Explorer I in 1958, to the launch of the International Ultraviolet Explorer (IUE) in 1978. The exhibit is comprised of 19 first and second generation satellites used for meteorological, communications, and scientific research.

In memory



Andy Chi
9-12-20 to 6-19-82

Think about it ...

There are obviously two educations. One should teach us how to make a living and the other how to live. — James Truslow Adams.

HAMs

Continued from page 3

within a 17 minute time span." Bauer added that in times of an actual emergency, it is of utmost importance to keep messages as short and precise as possible.

Thus, the field day test is designed to help HAMs refine operating skills that are vitally needed to efficiently handle messages during an emergency when normal means of communication are unavailable.

The GARC is sponsored by Goddard's Employee Welfare Association (GEWA) and holds meetings on the third Wednesday of each month. All Goddard employees, contractors, and their immediate families are invited to join. For more information, call Bauer on 344-9047.



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Wallops launch

Continued from page 5

effects on the ionosphere," Smith said.

The rocketborne experiment was conducted during nighttime conditions because the sun's radiation during daylight would mask the energetic particle precipitation in the E-region.

Personnel for the project included: Dempsey B. Bruton, project engineer; Carl W. Ballance, payload manager; and William L. Lord, test director.

Safekeeping:

Breeding ground for safety un-cooperation

It starts with a plant manager whose sole contribution to safety is a gesture of once-a-year attendance at a safety meeting. The occasion may be the presentation of an award or the induction of a new safety committee. His remarks usually stress how important safety is to the company and to himself personally. He may even continue with a recollection of his own harrowing experience in having to inform an employee's wife that her husband was seriously maimed or dead. If the meeting is for the presentation of a safety plaque, the manager usually concludes his remarks by giving full credit for success in safety to the plant committee, the safety director (who usually finds the manager inaccessible), the company physician and hospital staff.

With these various gracious gestures he bows out until next year at the same time. He can now go back to the real business of running his plant: production, quality, costs, scrap control, and other important business. Behind him he has left the safety committeemen cynical and irritated... because their suggestions and recommendations on urgent service orders have been ignored by the manager's staff. He leaves a thwarted safety director, who is fully aware of the true situation, and a generally bored group of disinterested onlookers, who have heard the same speech every year. In short, this manager is not sold on the need for an intelligent, dynamic safety program and his attitude is reflected throughout his plant. It results, at all levels, in a complete lack of understanding of safety objectives. This is the breeding ground for lack of cooperation.

Safekeeping is a new column starting with this issue. If you have any articles, suggestions, or tid-bits of information concerning safety, please submit them to the editor of the Goddard News. Increase the Center's safety consciousness and send in your contributions to help Goddard become a safer place to work. This article was submitted by Sharon Garrison, code 200 safety committee member.

NASA GODDARD NEWS

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Message from the Director

Affirmative Action



NASA's policy on equal employment opportunity is to maintain a strong affirmative action program, to accomplish our technical mission

with a fully integrated work force, to prohibit discrimination and to insure full participation of minorities, women and handicapped persons in all Center programs. I am committed to continuing this policy and to ensuring Goddard's full compliance with both the letter and spirit of legal requirements.

I am encouraged by the progress the Center has made in increasing the representation of minorities, women and handicapped individuals in the work force; however, there is still much to be done and much that can be done despite budget restrictions and a reduced personnel ceiling. Particular attention needs to be paid to the placement of minorities, women and handicapped individuals in supervisory and managerial positions and to the achievement of NASA's prescribed hiring goals. I have a personal as well as an official interest in promoting the Center's equal employment opportunity program and urge your commitment and support.

Noel W. Hinners

Noel W. Hinners
Director

Quann named Deputy Director of Goddard

John Quann, former Director of Mission and Data Operations (M&DOD), has been named Deputy Director of Goddard. The appointment was effective September 8.

Quann has served the Center as Director of M&DOD since October 1980. He has a long Goddard history of successive, increasingly responsible positions since 1963.

He was the Data Processing Engineer on the Orbiting Geophysical Observatory Project (OGO) from 1963 to 1967. Then, he was promoted to Head of the Experiment Computation Section where he developed the Data Reduction Laboratory, a facility which enabled the rapid postlaunch analysis of data from scientific experiments.

In 1970, Quann became Head, Data Analysis Branch of the Sciences' Laboratory for Planetary Atmospheres.

COBE approved for development funding

The Cosmic Background Explorer satellite (COBE) was approved for development funding by the NASA Administrator, James Beggs, on July 19. The COBE, now planned for launch by the STS in January 1989, will observe the diffuse infrared and microwave background radiation from the primeval explosion that started the expansion of the universe 15 billion years ago. It will cover the wavelength range from 1 micron to 13 mm with three instruments, a Differential Microwave Radiometer (DMR), a Far Infrared Absolute Spectrophotometer (FIRAS), and a Diffuse Infrared Background Experiment (DIRBE). These instruments will also measure radiation from the earliest galaxies, sources in our own Galaxy such as stars, interstellar dust, and electrons, as well as interplanetary dust.

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John J. Quann

When the Applications Directorate was newly formed in 1974, he was chosen to build and head the Information Extraction Division to develop the computational and analytical expertise required by remote sensing.

In 1978, upon direct request from the Executive Office of the President, the Information Extraction Division under Quann's management, developed the Domestic/Decision Information Display System (DIDS) which produced full color demographic maps of statistical information instantaneously for analysis by the legislative and executive branches of the government. In 1979, Quann received the NASA Medal for Outstanding Leadership for his management and technical direction of the Information Extraction Division.

Peter A. Bracken, Deputy Director of M&DOD, will be acting director of M&DOD.

Inside

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Reaching into the past

Jim Barrowman: twenty years ago, a Goddard Co-op student, now, manager of the GAS program



JAMES BARROWMAN (1) was a co-op student from the University of Cincinnati in 1962. Here he works out a problem with Oliver Clark, physicist, in the instrumentation branch. At the right Supervisor Arthur White Jr., mechanical engineer, observes. Barrowman was studying aeronautical engineering.



James Barrowman today is Goddard's GAS (GetAway Special) program manager.

COBE

Goddard's link with America's colleges dates back 20 years to when the space age opened up a new frontier in the cooperative work-study program between colleges and industry.

In 1962, 23 students from 5 colleges underwent training here in what was then one of newest fields of the work-study program, aero-space technology. They developed as the technology itself developed. They witnessed history being made, and they help make it.

James Barrowman, manager of Goddard's Getaway Special Program, is a prime example of the success of Goddard's cooperative work-study program. In 1962, Barrowman, then a student at the University of Cincinnati, had a co-op at Goddard in the instrumentation branch.

Since that time, Barrowman has become manager of GAS, one of the most unique group of experiments flown on the most advanced space transportation system in the world.

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The result of the mission will be a set of sky maps, equivalent to a multicolor photograph of the early universe.

The COBE will be developed in house at Goddard. Roger Mattson (401) is Project Manager. The Science Working Group, appointed in 1976, is composed of R. Weiss (Chairman, MIT), D. Wilkinson (Princeton), G. Smoot (DMR PI, UC Berkeley), S. Gulkis (JPL), and Code 600 - J. Mather (Project Scientist and FIRAS PI, GSFC) and M. Hauser (DIRBE PI, GSFC). Code 700 is building all three instruments, as contractor to the three Principal Investigators, as well as building the spacecraft. The program is a significant challenge and opportunity for Goddard, since the COBE instruments require special infrared, cryogenic, and microwave technology, the spacecraft is 3-axis controlled to spin at 1 RPM rate, and the STS launch system is new.

Great thanks and appreciation are

due to the GSFC staff for their continuing support over the past six years of studies. Congratulations!

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The bucks start piling up, the interest grows, and you realize you've found one surefire way to save.

Spotlight

meet Darlene Brummell, code 271.4 recent grad is architect in FED

Only two weeks are needed to become a certified bartender. But much more time is needed to become qualified to work on Goddard's architectural team, and 25 year old Darlene Brummell, code 271.4, knows the difference indeed.

Not only can Brummell draft plans for a prospective building, but she can mix your favorite drink. You name it, she can make it.

As one of the most recent additions to the Facilities Engineering Division (FED), Brummell also mixes her talents at the drafting table, where she combines her ideas into a comprehensive architectural plan, eventually to be used as a guide for erecting a building, or for a renovation project.

Brummell, a 1982 spring graduate of Howard University, acquired bartending skills to help defray college expenses. At the same time she acquired a degree in architecture, and prepared for her current job as an architect.

She began preparing with her first co-op at Wallops as an electrical engineer in telecommunications. That co-op did not "hit the spot," according to Brummell, but it did have its benefits.

"One of the major advantages of the co-op experience is that it gives you a chance to float around," she said. "It enables you to experience a particular area of interest without really making a long term commitment."

It was the second co-op at Wallops that formally introduced Brummell to drafting. As a student trainee in architecture in the FED, she learned and developed basic drafting techniques. At the time, she was enrolled at Maryland Eastern Shore College and had not made definite commitments to a particular curriculum.

After transferring from Maryland Eastern Shore and joining Howard's architectural program, Brummell had her first co-op at Goddard in the FED where she continued her work in drafting and also worked on minor renova-

tions. She completed three co-ops at Goddard before graduating.

Each co-op was a progressive step for Brummell, gaining more responsibilities and learning more about her prospective career with each assignment.

"When I first started, I was usually assisting someone else with their project. But with each additional co-op, I had more responsibility. I started with learning basic drafting skills and progressed to field investigations and troubleshooting within the work request system, and was eventually assigned as project engineer," Brummell said.

As a co-op, Brummell assisted in drafting plans for the Salt Dome near the Mobile Shelter and the Landsat-D building, both on Center. Other assignments have been the renovation of the snack bar in building 14 and solving a drainage problem in the inflatable structure (the bubble) near building 20.

In the future, Brummell anticipates heading a design team for a proposed Goddard Employee Welfare Association (GEWA) gymnasium. She said that she looks forward to this because if approved it could be a major accomplishment for her.

Brummell said that she really enjoys her work because of her genuine interest in architecture. According to her, the most challenging task is learning the procedural system.

"Once you learn the work request system, it's not too difficult," she said, "and you have to be able to interface with the users, the contractors, and the supervisors."

According to Brummell's supervisor, Will Bullock, she is learning the system very well because "she does very good work. . ."

Brummell's work reflects a fine blend of talent. From the concept to the planning and design, on to the eventual construction or renovation of a building, Brummell combines many skills to complete a project. Presently, she hopes to develop proficient managerial skills so that one day she can mix other people's talents as well.

Darlene Brummell recent addition to FED

Photo by Joe Walters

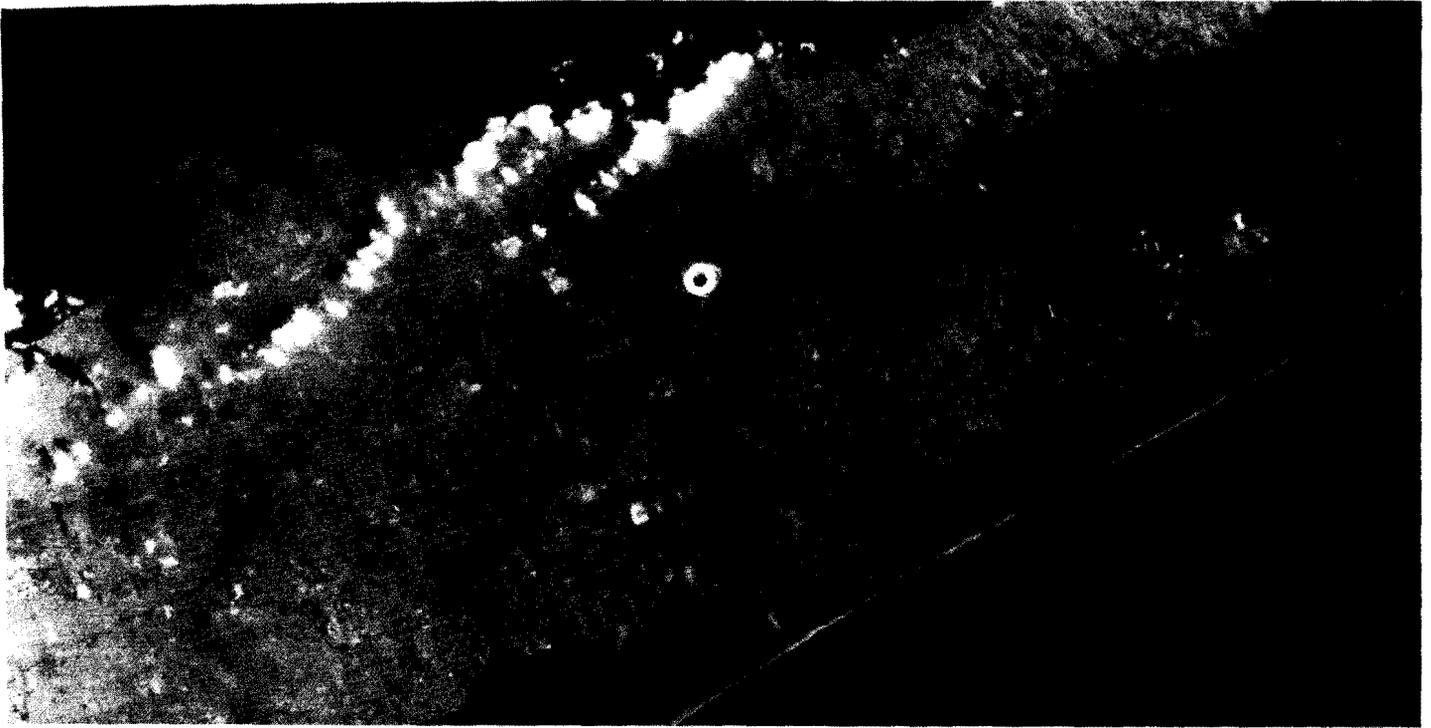




This is the first multispectral scanner image from the Landsat-4 spacecraft. The Landsat-4 multispectral scanner was successfully activated on July 19 during a pass over New York City. The resultant 185 kilometer by 185 km (115 by 115 mile) image is a false color composite of three individual images from detectors in the green, red and infrared portions of the spectrum.

The Landsat-4 multispectral scanner, like its predecessors on Landsat 1, 2 and 3, has an approximately one acre (80 by 80 meters) resolution. The Verazano Narrows Bridge which has even smaller dimensions is clearly visible across the New York Bay because of its high contrast with the water. Also visible, toward the eastern end of Long Island, is a 5,000 foot diameter construction site for a new high energy physics research facility at the Department of Energy's Brookhaven National Laboratory. The Laboratory, located in Upton, New York, will use the site for the new ISABELLE particle accelerator, to be completed in 1988.

Successful Landsat-4 multispectral scanner operations will provide data continuity for a worldwide body of civil remote sensing data users beyond the aging multispectral scanner instrument on Landsat-3. Landsat-4 was launched July 16, from Vandenberg Air Force Base, California.



Above: An enlarged photo of the Long Island strip enables a better look at the MSS image of the 5,000 diameter construction site. Below is an aerial view of the construction site for ISABELLE, a particle accelerator to be completed in 1988.



Hispanic Heritage Week

September 13-19

Director's comment

National Hispanic Heritage Week was observed this year by the Federal government from September 13 through September 19. This annual observance is the result of a joint resolution passed by the Congress which authorized and requested the President to proclaim the week which includes September 15 and 16 as National Hispanic Heritage Week.

Hispanic men and women have made historic and continuing contributions to the social, economic and cultural growth of our Nation. Their accomplishments in science, technology and the arts have greatly enhanced the American way of life. As in earlier decades, the 1980s present Hispanic Americans new opportunities to pursue their goals and continue to advance our society. Goddard observed National Hispanic Heritage Week with the following activities:

Monday, September 13 — Film — Our Hispanic Heritage was shown on TV monitors in cafeterias 1 & 21 and Building 8.

Tuesday, September 14 — Visit of Dr. Juan A. Bonnet, Jr., Director, Center for Energy and Environmental Research, 2-4:30 pm.

Tuesday & Wednesday, September 14 & 15 — Cultural Exhibit, Lobby, Building 1

Thursday, September 16 — Hispanic Menu, cafeteria 21

Noel W. Hinners

Noel W. Hinners
Director

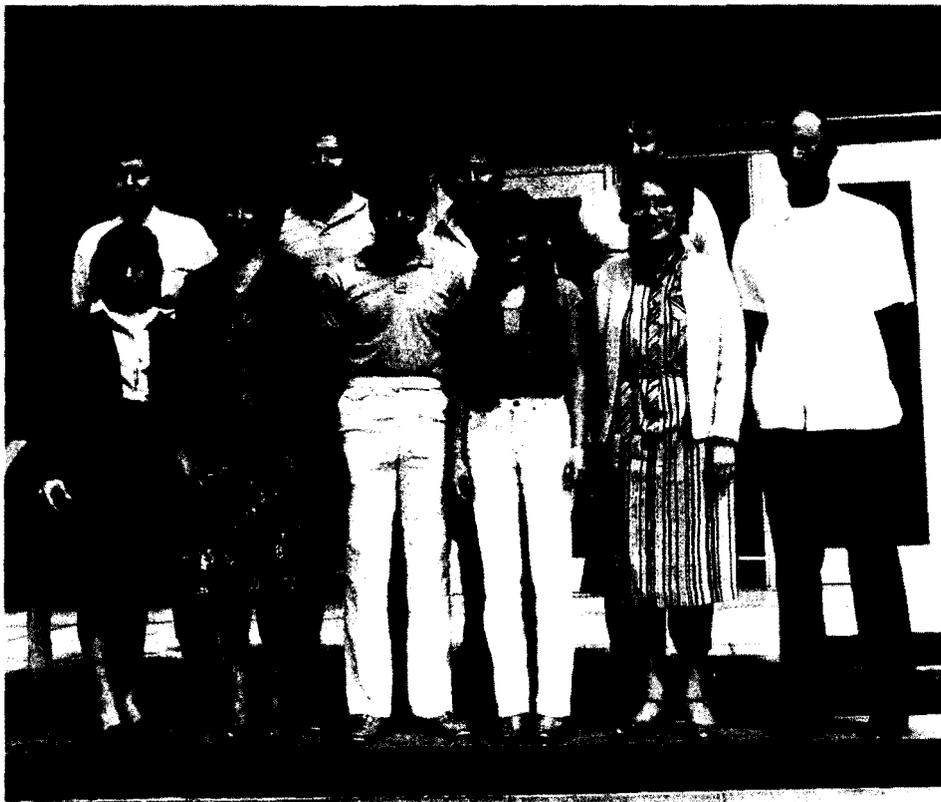


Photo by Debora McCallum

From left to right: Front row: Madeline J. Butler, Hispanic Employment Program Manager (Code 854.4), Marita Llaverias (Code 221), Orlando Figueroa (Code 713.1), Patrice Sine (Code 913), Regina Sylto (Code 931.2), Jorge Balma (Code 292.1); Second row: Pedro Alea (Code 754.1), Gilberto Colon (Code 713.3), Marcos Toral (Code 727.1) and Jose Lugo (Code 841.2).

Hispanic is defined as "Pertaining to Spain and its language, people and culture; having cultured origin in Iberia."

There are 19 countries in which Spanish is the main language. These countries were discovered and colonized by Spain during the 15th and 16th centuries and have since then obtained their independence, all except Puerto Rico, which maintains a commonwealth relationship with the United States of America.

The Spanish language is spoken by more than 200 million persons around the world, mostly in Spain and Latin America. In the United States, there is a good representation of Hispanics. They are mostly located in California, New Mexico, Texas, Florida and New York.

Join us.  **+** **Together, we can change things.**

PEOPLE



Photo by Joe Walters

Center Director Noel W. Hinnners accepts a plaque on behalf of the Goddard Running Club from Jim Hirshman, President-Elect of the American Heart Association of Southern Maryland. Goddard's team collected \$1,524 in pledges in the 1982 Blake Heart Run for Life, a 10 kilometer race to benefit the American Heart Association. From left: Emil Kirwan, Gincy Stezar, Jim Hirshman, Dr. Hinnners, and Jane Jellison.

Dukes receives 50 year service award

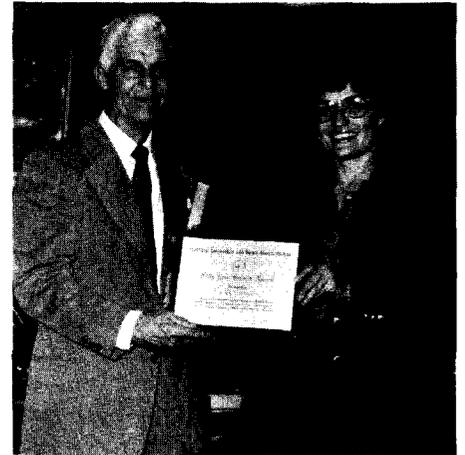


Photo by Margie Small

Wallops Flight Facility employee John P. Dukes Jr. receives a 50 year service award from Management Operations Director Benita A. Sidwell. Dukes is a Communications Specialist in the Mechanical/Electrical Services Section, Plant and Operations Maintenance Branch.

Summer at Goddard means OJT for students



At left from top: 1982 Summer High School Apprenticeship Research Program (SHARP) students with coordinator Ann Pratt. Middle: Summer Institute in Computer Applications (SICA) students from Bowie State College along with Dr. Carl Kirksey of Bowie and Jim Chapman, Goddard's Equal Opportunity Specialist. Bottom: Recruitment into Engineering of High Ability Minority and Female Students (REHAMFS) along with Equal Opportunity Specialist Jim Chapman.



These programs offer on-the-job training for students in the areas of computer applications, engineering, science, and many other complex technical/professional occupations.

The photo at the bottom shows a former SHARP student bidding farewell to Goddard's SHARP coordinator. Michelle Barrett (r) is now a student at Virginia Polytechnic Institute and Ann Pratt, SHARP coordinator, has taken a teaching job in North Carolina.



Goddard runners speed to victory

Goddard runners won trophies for speed and fundraising at the 1982 "Blake Heart Run for Life"—a 10-kilometer race to benefit the American Heart Association. Twenty-five entrants from Goddard's Running and Orienteering Club (GROC) collected \$1,524 in pledges from their fellow workers to make Goddard's team one of only three corporate teams in the Washington Metropolitan Area to earn a First Division Award—the highest fundraising honor offered by the American Heart Association in this event. In addition, Goddard's women's team sped to victory in the women's team competition. Goddard's two men's teams finished second and sixth out of 42 teams in the open category (men only or men and women team members).

Nelda Casper (formerly with Code 310), the ninth woman to finish the race, led Goddard's championship women's team with a time of 42.3 minutes. Dorothea Nase (Code 964),

running in her first 10-kilometer race, finished tenth. Other members of the winning team were Claire Parkinson (912), Gincy Stezar (205), Bev Hartline (924), and Dawn Elliott (140).

Ned Poffenberger (Bendix) placed second in the overall competition with a time of 31.8 minutes. Goddard runners and joggers may remember Ned. He habitually sets the pace for the NASA 2-mile Fun Run, held at Goddard every spring and fall. Ed Boggess (581.2) placed eleventh. Other members of Goddard's second-place men's team were Tom Nolan (872), Chuck Naegeli (732), Ken Brown (972), Ray Hartenstein (730), Bob Phillips (284.3), Richie Weiss (405), and Dan Mandl (511). The sixth place team consisted of Larry Tabachnick (200.5), John Parker (291.4), Dick Backe (310.1), Ed Fung (734), Emil Kirwan (823), Mike Markus (914), Brian Schmidt (914), Mark Stauffer (923), Mike McGlynn (former contractor), and Bob Rosenberg (911)



Safekeeping

Machines save muscle power--but people provide the "brain-power."

IT'S UP TO YOU TO MAKE A MACHINE A SAFE CO-WORKER

Sooo--



1 KNOW-HOW



Read instructions or listen to them carefully. Never use machines you don't know how to operate.

2 BE SURE MECHANICAL GUARDS ARE IN PLACE



everytime you use a machine. If you remove a guard temporarily be sure to replace it before you turn on the switch.

3 TURN MACHINES OFF



while adjusting them, before applying flammable solutions (if you must use them), and whenever you leave a machine even for a minute.

4 BE ALERT FOR ELECTRICAL HAZARDS



Current can kill. If a machine overheats, smokes or sparks, or you feel even a slight shock, unplug it and call a serviceman.

5 WATCH YOUR CLOTHES



Loose sleeves, scarves, hair, belts, dangling jewelry, ties and key chains, are dangerous around machines with moving parts.

6 CHECK MACHINE POSITION BEFORE USE--



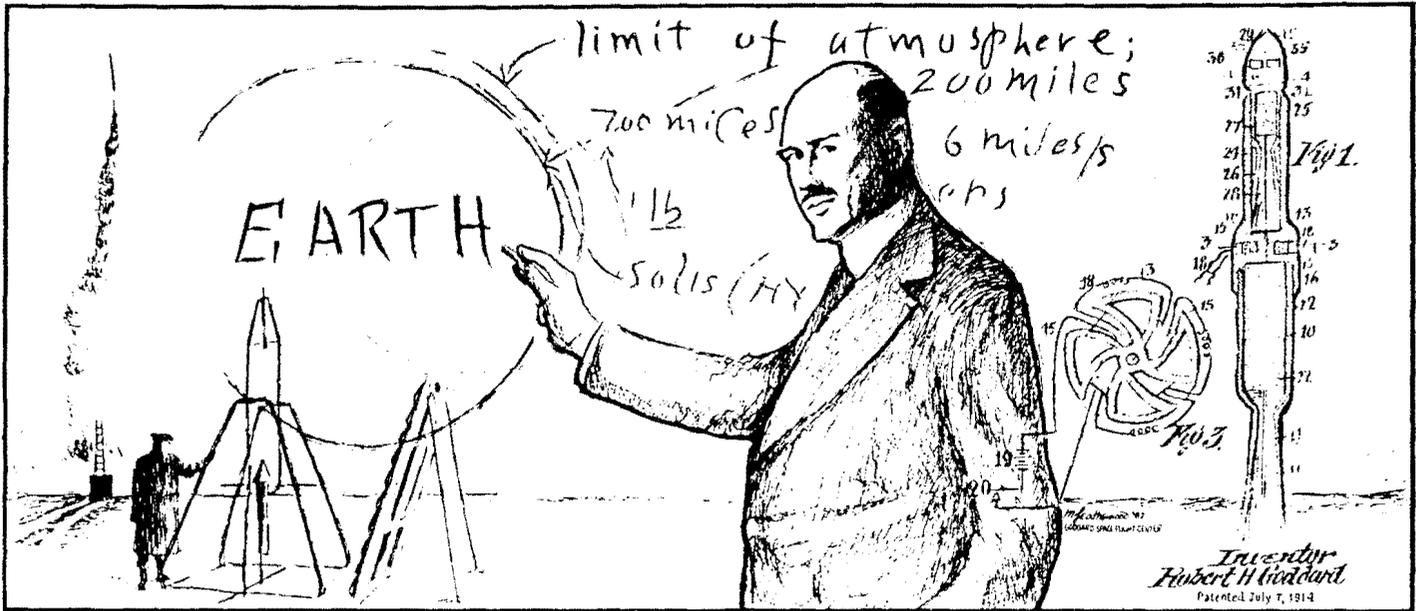
see that typewriters, duplicators and adding machines are firmly on the working surface.

NASA GODDARD NEWS

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Special Edition: A Tribute To Dr. Goddard's 100th Birthday Anniversary



A Dream becomes Reality



It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow.—

Dr. Robert H. Goddard 1882 - 1945

The historical traditions of the Goddard Space Flight Center have antecedents in a period long before America's awakening to the Space Age. Named in honor of Dr. Robert H. Goddard, the Center continues in the scientific tradition of this New England scientist, who has been recognized not only as the "Father of American Rocketry" but also as one of the pioneers in the theory of space exploration.

Dr. Goddard was one of those rare combinations occasionally appearing in the history of science and technology: he was a theoretical scientist and a practical and exacting engineer, but he was also a dreamer who was considerably ahead of his time. His particular dream was the scientific conquest of the upper atmosphere and ultimately of the void of space through the use of rocket propulsion. To the fulfillment of this dream Dr. Goddard devoted his talents, his energies, and his life. He had the drive and single-mindedness found among those who today are probing the innermost secrets of the space environment.

The Life of Dr. Goddard

Robert Hutchings Goddard was born in Worcester, Massachusetts, on October 5, 1882. Childhood illness prevented the young boy from expressing his energy in the usual boyish activities. As a consequence, he developed his imagination and his mind. He was greatly influenced by H. G. Wells' *War of the Worlds*. Jules Verne also stimulated his imagination. He is known to have read *The Steamship*, *Birth of the Moon*, and *The Rocket* to have rewritten the latter. He was much interested in the many ways in which the rocket could be used. He was particularly interested in the use of the rocket in space exploration.

the marvels of electricity. This was the situation when, on the afternoon of October 19, 1899, he found himself high in a cherry tree, assigned the duty of clipping its dead limbs. It was, he said, "one of those quiet, colorful afternoons of sheer beauty which we have in October in New England. . . as I looked toward the fields to the east, I imagined how wonderful it would be to make some device which had even the possibility of ascending to Mars, and how it would look on a small scale if sent up from the meadow at my feet. . . I was a different boy when I descended the ladder. Life now had a purpose for me."

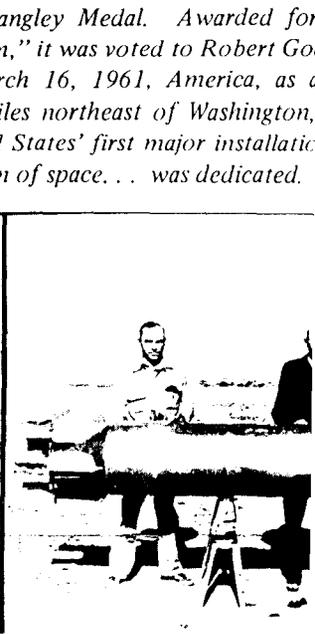
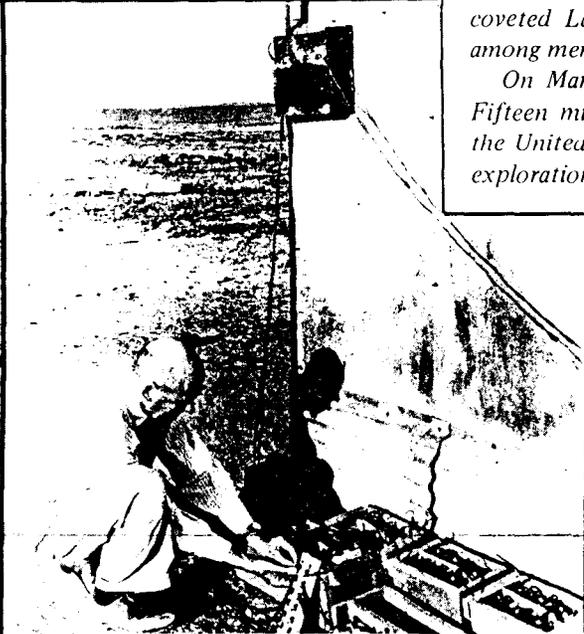
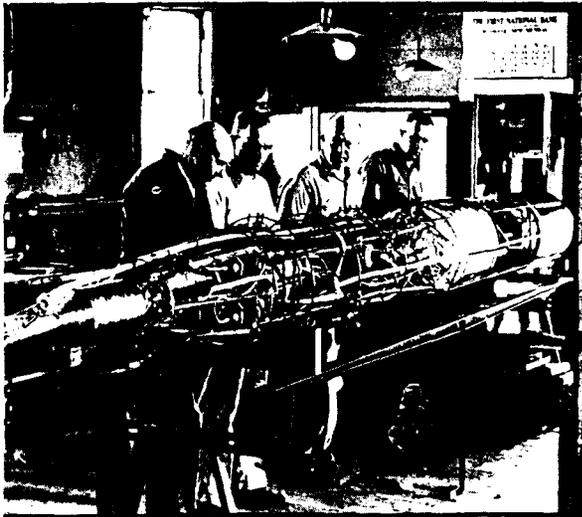
The young Robert Goddard began to construct models of his own design and devoted himself, in high school, to the study of physics and mathematics. By the time he graduated, he had, he said, "a set of models which would not work and a number of suggestions which, from the physics I had learned, I knew were erroneous." He gathered up all his models and his carefully cataloged notes and buried them.

"But the dream would not go down," wrote Dr. Goddard. "I went on and inside of two months I had begun myself making notes on these questions, for even if I had not worked with myself that the dream was still there; was something inside me which simply would not go down. As early as 1909 Goddard conceived the multiple-stage rocket, the use of a mixture of hydrogen and oxygen for propulsion, and the use of a gyroscopic structure for rocket guidance.

By this time Goddard had graduated from Worcester Polytechnic Institute with a B.S. holding first honors in physics and mathematics. All through college the young scientist had been absorbed in his obsession with propulsion. He had written his senior thesis on the subject, and he had written a paper on the subject for the Worcester Polytechnic Institute. He had also written a paper on the subject for the Worcester Polytechnic Institute.

The years between graduation from Worcester Polytechnic Institute and 1919 were full and arduous ones for Goddard. He stayed on at Worcester as an instructor in physics while doing graduate work at Clark University, where he received his A.M. in 1910 and his Ph.D. in physics in 1911. He spent a year at Clark as a non-resident fellow in physics where he worked on various rocket methods and in 1912 he went to Princeton as a research fellow and worked on electrical theory. The subject of his Ph.D. dissertation, during the day and on rocket propulsion theory during the evenings. Although in 1913 illness prevented him from continuing, it did not hinder his speculations and activity. In fact, during his stay at Princeton, Dr. Goddard had already begun to develop his ideas on multiple-stage rockets and liquid propulsion.

In the autumn of 1913 Goddard returned to Clark University as an instructor and began his research on rockets which led to the publication of his Smithsonian publication *Experiments in Rocketry*. This period that he spent at Clark was a time of intense activity. He was performing his experiments and was capable of making the most accurate measurements of the time. In the middle of 1914 he was in the middle of what he could do in his own mind. He wrote a number of papers and filed the manuscript of *Experiments in Rocketry*. He was also interested in the many ways in which the rocket could be used. He was particularly interested in the use of the rocket in space exploration. He was also interested in the many ways in which the rocket could be used. He was particularly interested in the use of the rocket in space exploration.



The God

FOCUS

Dr. Goddard was the commanding general of the launching operations down to the last detail at the center that was history's first blockhouse, as those who would follow in their footsteps would know the meaning of a countdown . . . three . . . two . . .

In 1930, an eleven-foot-long rocket reached a top speed of 500 miles an hour, signalled by the first of many mushroom clouds.

An average of a rocket a month . . . an assembly line at the Goddard workshop. "There was never so much invention with

Parachute recoveries of rockets . . . refined. At the same time, missiles grew out of hundreds of parts, including many of the

The many similarities in the Goddard captured German scientist questioned, "Why do you ask me these questions?" rocket pioneer, Dr. Goddard? We learned

It was a final irony for a man labeled a leader. But Robert Hutchings Goddard conscientious and devoted scientist . . . a thing in the world . . . seeing his burning and closer to reality until his death in 1920

In the years since then, the public has and he has been honored in many places. coveted Langley Medal. Awarded for among men," it was voted to Robert Goddard

On March 16, 1961, America, as a Fifteen miles northeast of Washington, the United States' first major installatic exploration of space . . . was dedicated.

Goddard Years

STORY

neral of his missile range. . . supervising the tail. . . and then racing by car to the control e. Dr. Goddard and his associates knew. . . steps would know. . . the mounting excitement. . . one. . . FIRE!

climbed to a height of 2,000 feet. . . and our! It was an astonishing achievement. . . clouds to rise over the New Mexico desert.

in all shapes and sizes. . . rolled off the p. One of his assistants was to say later: "so little manpower."

mother Goddard first. . . were tested and few larger and more complex with literally he devices later found in the German V-2s. d and German rockets recall the story of a after World War II, about the V-2 bombs. "he said. "Why don't you ask your own l these things by studying him."

d "impractical" by America's own military d was not an embittered man. . . he was a loing what he wanted to do more than any- dream, through his rockets, coming closer 45.

s caught up with Dr. Goddard's great vision es and in many ways. One honor was the the "increase and diffusion of knowledge 'dard in 1960.

nation, paid its homage to Dr. Goddard. D.C., the Goddard Space Flight Center. . . devoted entirely to the peaceful study and

