NASA
National Aeronautics and Space Administration

GODDARD NEWS

Goddard Space Flight Center, Greenbelt, Md. Vol. 30 No. 2 February 15, 1983

Dr. Atlas receives prestigious awards for Radar Meteorology work

Dr. David Atlas

Dr. David Atlas, chief, Goddard Laboratory for Atmospheric Science (GLAS), received two prestigious awards last month for his dedicated service to the nation in Radar Meteorology.

Dr. Atlas was presented the Presidential Meritorious Senior Executive Award by NASA Administrator James M. Beggs and OPM Director Donald J. Devine at the annual awards ceremony held at the State Department January 19.

A week earlier he received the American Meteorological Society's Cleveland Abbe Award for his outstanding leadership of scientific activities and his contributions to national and international affairs.

Among the contributions for which he was honored, is the development and leadership of GLAS. As chief of GLAS, Dr. Atlas directs the activities of a laboratory he organized just five years ago, which now has acquired a world reputation as a center of excellence in atmospheric and oceanic research.

The laboratory, with a staff of about 100, has major emphasis in the areas of severe storms, numerical global weather forecasting, climate prediction, air/sea interactions, oceans and the cryosphere, and the development of microwave and laser observing systems.

Dr. Atlas' service to the nation and to meteorology spans nearly four decades. After serving as a Radar Weather Officer in World War II, he was appointed Chief, Weather Radar Branch, Air Force Cambridge Research Laboratories (AFCRL) in 1948. In this position, he performed and directed many pioneering studies of the use of radar in meteorology while

Continued to page 8

Dr. Pieper assigned to Code 100

Goddard has announced the assignment of Dr. George F. Pieper to the newly established position of Assistant Director for Policy Planning and Development within the Office of the Director. Dr. Pieper, currently Director of Sciences at Goddard, starts his new assignment February 28. He will serve as the focal point within the Center for development of the Center's goals and objectives and for university relations. Among other assignments, he will be responsible for the overall Center Research and Technology Program and for oversight of the Center's future programs planning activity.

Dr. Franklin D. Martin, currently Director of the Astrophysics Division, Office of Space Science and Applications at NASA Headquarters, will replace Dr. Pieper as Director of Sciences.

Dr. Pieper came to Goddard in 1964 as Deputy Assistant Director for Advanced Research in the former Space Science and Satellite Applications Directorate. In September 1965, he was reassigned as Assistant Director for Space Sciences, with subsequent position title changes resulting from reorganizations as Director

Continued to page 4

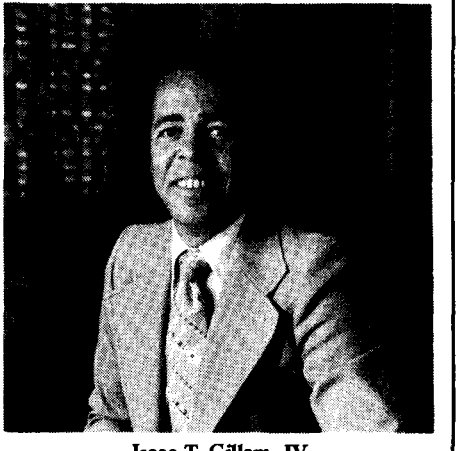
Isaac T. Gillam, IV speaks in observance of Black History Month

Isaac T. Gillam, IV, NASA assistant associate administrator (Policy), Office of Space Flight will address employees and local grade school students at Goddard Feb. 28 in observance of Black History Month. This year's theme for Black History Month is "U.S. Constitution and the Black American." In addition, an evening of food and fun is scheduled for Feb. 25 at the Rec Center.

Prior to his current position, Gillam was the Special Assistant to the Administrator for Space Transportation. In that capacity, he was assigned to the White House Office of Science and Technology Policy to participate in the establishment of the National Space Policy.

Before that, he was Director of Dryden Flight Research Center, NASA's major field Center for flight testing high speed aircraft and experimental vehicles, and landing site for the Space Shuttle.

Gillam has received NASA's highest award, the Distinguished Service Medal, for his work on the Launch Vehicle Program, and two Exceptional Service Medals for his work on the Space Shuttle Program and on National Space Policy.



Isaac T. Gillam, IV

Employee Development Branch

a brief look at the workers who help the workers

by John Daniels

All government agencies are required to provide skill enhancement training for their employees. At Goddard, this function is managed by the Employee Development Branch (EDB, Code 224), headed by Dillard Menchan. The EDB's philosophy is that human resource development is essential to assuring that employees are equipped to collectively accomplish institutional missions.

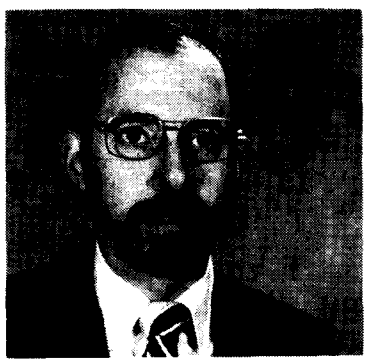
"Ideally, every program or activity sponsored by Code 224 should reflect the integration of management objectives with individual employee aspirations," Menchan said.

Hopefully, the services performed by the EDB not only tend to increase an employee's job performance capabilities, but also help people grow and mature as individuals. The employees of Code 224 provide a useful service, usually working behind the scenes. The following is a list of the Employee Development Specialists and the areas for which they are currently responsible:

Members of the EDB staff are, front row, l-r: Bonnie Kaiser, Martha Harding, Carolyn Casey, Juanita Early, and Dorothy Slade. Back row, l-r: Dillard Menchan, Regina Waters, John Daniels, Kathi Williams, Anne Carter, and Phil Ryan.

- Bonnie Kaiser
  - All Technical Training
  - Apprenticeship Programs
  - Federal Junior Fellowship Program
  - Individual Development Plan
  - Training Data Tracking System
  - Institutional Support
    - Codes 500, 600, 700, 900
- Anne Carter
  - Cooperative Education Program
  - Cooperative Office Experience Program
- Martha Harding
  - Executive Development
  - Supervisory/Management Training
  - EEO Training
  - Institutional Support
    - Codes 100, 150
- Kathi Williams
  - Professional Intern Program
  - Presidential Management Intern Program
  - Academic Programs
  - Communication Skills Training
  - Institutional Support
    - Codes 400, 800
- John Daniels
  - Master's in Engineering Administration
  - Self-Study Activities
  - Property Management Courses
  - Quarterly Calendar
  - Classroom Management
  - Publicity
  - Budget Administration
  - Institutional Support
    - Code 300
- Phil Ryan (Wallops)
  - 3/4 Graduate Study Program
  - Research & Study Fellowship
  - Institutional Support
    - Code 1000
- Carolyn Casey
  - Upward Mobility
  - Clerical Training
  - Special Interest Programs
  - Undergraduate Study Education Program
  - Institutional Support
    - Code 200

Key Appointment



Dr. Paul B. Schneck

Dr. Paul B. Schneck has been appointed Assistant Director for Computer and Information Science in the Applications Directorate. Dr. Schneck is responsible for direction of the CYBER 205 Computer Facility, and for participating in all aspects of information and computer science planning on a directorate basis. Since February 22, 1981, Dr. Schneck held the position of Assistant Director for Computer and Information Science in the Mission and Data Operations Directorate.

Wallops Electra Aircraft used on survey mission to study El Chichon volcanic cloud

From October 18 to November 7, 1982, scientists conducted an extensive survey mission using the Wallops Electra aircraft to study the stratospheric cloud caused by the eruption of the El Chichon Volcano April 14, 1982. The mission was flown over the latitude range 45°N to 46°S and its survey data is helping to assess what impact, if any, El Chichon will have on the climate, the atmosphere, and remote sensors. An in situ sampling mission was also flown in Mexico through the El Chichon plume to establish its gaseous and particulate composition.

The overall survey mission was highly successful. Representative lidar profiles and good daylight dependent remote sensor measurements were obtained over the full latitude range 45°N to 46°S. These data show that the stratospheric cloud produced by El Chichon has spread from pole to pole with its major concentration between 10°S and 35°N.

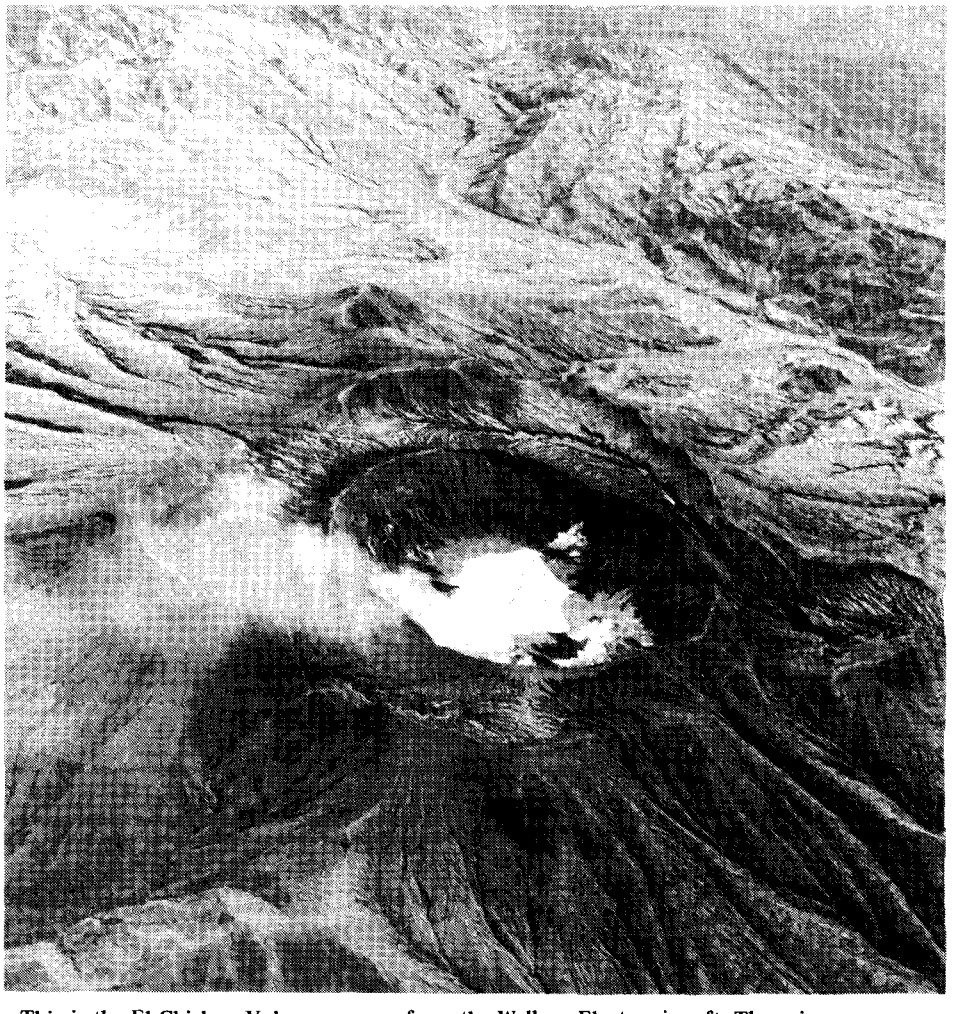
The three hour sampling flight around the volcano resulted in a representative set of gaseous and particulate data to characterize the present plume. The flight further revealed extremely large amounts of Nitric oxide and Hydrogen sulfide in the outgassing plume.

According to Arnold Torres, project scientist from the Applications Directorate, sampling of gases from El Chichon yielded significantly larger nitrogen oxides than from previous volcanoes. These high levels are sure to impact atmospheric chemical modeling efforts involving ozone, hydroxyl radicals, and other important chemical species.

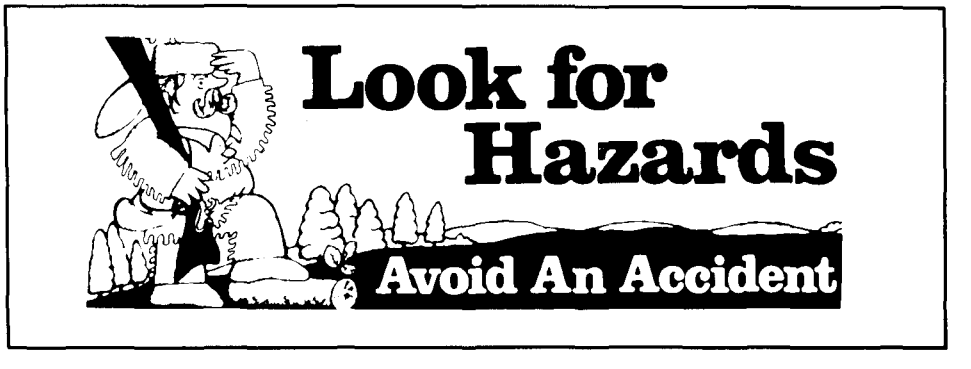
The mission lasted about 66 flight hours and covered some 19,000 miles. Its primary purpose was to determine the optical properties and the vertical, latitudinal, and longitudinal extent of the El Chichon volcanic plume.

The Langley airborne lidar was the key instrument on this mission and was supported by a number of other remote sensors. Some of them were: multi-channel sun photometers, a Brewer spectrometer, and a correlation spectrometer provided by research groups from NOAA, AE Canada, Goddard. University of Arizona, Drexel, University of Maryland, and Michigan Technical Institute. About 30 people were involved in the aircraft flights.

In addition, the flight was coordinated with balloon-borne particle samples from the University of Wyoming, DOE, high altitude flights from ARC and MSFC, and a number of satellite-borne instruments such as SME, AVHRR, GOES, TOMS, SBUV, and CZCS.



This is the El Chichon Volcano as seen from the Wallops Electra aircraft. The primary purpose of this flight was to determine the vertical, latitudinal, and longitudinal extent of the stratospheric cloud produced by El Chichon's eruption. Survey data from this mission are important to assessing what impact, if any, El Chichon will have on climate, the atmosphere, and remote sensors.



Landsat 4 Symposium next week

The Landsat 4 Science Office will hold its Scientific Characterization Early Results Symposium here from February 22-24.

The Symposium is significant in that it represents the first public release of information on Landsat 4 data—both multispectral and thematic mapper—based on investigations being conducted by NASA, other government agencies, private industry and universities.

Sessions will include the presentation of early investigation results in the areas of radiometry, geometry and applications information. Topics include sensor and spacecraft performance, renewable and nonrenewable resources and planning/environmental management.

For further scientific or technical information, contact Dr. John Barker at Goddard on (301) 344-8978. For information regarding the symposium, open to the Landsat community, contact Judi Abraham on (301) 495-6071.

Landsat 4 transfer

Former Goddard Deputy Director Dr. John H. McElroy (l), now Acting Assistant Administrator for Environmental Satellite, Data, and Information Services, NOAA, shakes hands with Center Director Noel W. Hinners in a ceremony at Goddard recently, marking the transfer of the operational control of Landsat 4 to NOAA. Under the terms of a five-year agreement signed by Drs. Hinners and McElroy, NOAA will occupy about 47,500 square feet of building 28 at Goddard. About 10 NOAA Civil Servants and 150 contractor personnel will make up the Landsat contingent.

Goddard wins "Fun Run"

The latest results have been confirmed and Goddard remains number one among NASA's field centers for the fall 1982 two-mile "Fun Run." This is the fourth consecutive time Goddard has claimed the number one spot.

Ames Research Center came in a close second, trailing by less than 35 points (Goddard had 882.16 points; Ames had 848.43). Ames' threat increased this time because of increased participation at the California center. In comparison, Goddard's participation fell below the peak reached for the spring 1982 run.

Women runners helped put Goddard over the top this fall. Eighteen women placed in the top ten of their age group. They were Mary Clare Callan (29 &

Continued to page 8

Dr. Pieper

Continued from page 1

of Space Sciences (1969), Director of Space and Earth Sciences (1970), and Director of Sciences (1974).

Dr. Pieper attended Williams College, where he received his A.B. degree in Physics and Mathematics in 1946. He received his M.S. degree in Engineering in 1949 from Cornell University, and his Ph.D. degree in Physics in 1952 from Yale University. His personal achievements have been recognized by the bestowal of the NASA Exceptional Scientific Achievement Medal in 1969, the NASA Outstanding Leadership Award in 1977, and the Goddard Special Achievement Award in 1979. Dr. Pieper is a Fellow of the American Physical Society and a member of the American Geophysical Union. He is married to the former Barbara Ferguson, and is the father of two children.

VANGUARD VANGUARD VANGUARD VANGUARD

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WILL BE HELD ON

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AND

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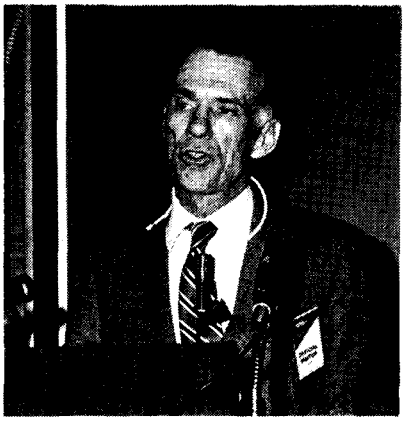
Colloquium Speakers

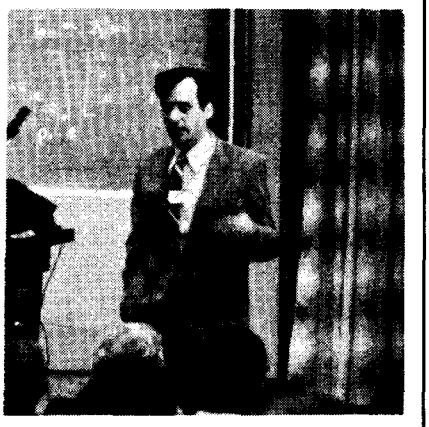


Dr. Robert G. Jahn

Dr. Robert G. Jahn, dean, School of Engineering and Applied Science at Princeton University, was the guest speaker for an Engineering Colloquium at Goddard last month. Dr. Jahn reexamined the role of human consciousness concerning man/machine interfaces in his talk entitled "Man/Machine Anomalies: An Engineering Perspective." Some of the items he discussed were: the possibilities of anomalous information acquisition; energy transfer processes, and data base disturbances.

Dr. Nicholas Short

Goddard's Dr. Nicholas Short, Geophysics Branch, lectured on the Heat Capacity Mapping Mission (HCMM) last month at a Goddard Scientific Colloquium on the temperature of the Earth. Dr. Short described the HCMM and how it determined day and night temperatures of the Earth's solid and liquid surfaces. Dr. Short has authored two textbooks on geology and is the senior author of the Government Printing Office's best-selling atlas of Landsat pictures, "Mission to Earth."



Dr. J. Richard Gott

Before a standing-room-only audience, Dr. J. Richard Gott of Princeton University addressed a topic of universal interest at a Goddard Scientific Colloquium last month. Dr. Gott's talk was entitled "Before the Big Bang–New Theory for the Origin of the Universe." The young cosmologist believes that there was something before the Big Bang. Exactly what was there and what happened next involves de Sitter space, Hawking radiation, quantum gravity, and parallel universes. Dr. Gott discussed these items.

A musical connection with space

by Charles Boyle

Author's view; "Our work has many effects and it was fun to track this one." Editor's view; Occasionally we share with you outside activities of employees. This article is from the recent "Space and the Arts" issue of Space World (Nat'l. Space Institute). Mr. Boyle works in the Management Operations Directorate.

The influence of space on music struck a new chord in 500 B.C. when Pythagoras heaved an understanding sigh and wrote, "There is music in the spacings of the spheres." His sophisticated mathematical insights into space and music broke with the primitive emotional responses of earlier peoples. For aeons, music had been created or performed in awe or celebration of the mysteries of the universe. People made music to or about the sun, moon, stars, comets and planets. There was music for Sun sacrifice and there were songs of joy for the vernal equinox. There were musical themes of wonder, worship and imploration. And why not? The ancient peoples got clear, nightly reminders from the great billboard in the sky that they were lost in the stars. Nowadays we are indoor creatures, with well-lit nightly distractions, and are seldom exposed directly to the emotional wellspring called the cosmos.

SPACE-INSPIRED MUSIC

Yet we are exposed to the universe vicariously. We watch eclipses via television, gape at replays of astronauts on the Moon, make movies of churning Jupiter, and see Russians floating weightless half a year. Our cosmic setting intrudes in thought, talk, news, education and entertainment. Music accompanies the entertainment as our movie heroes and villains invade space. And music is often itself the entertainment, offered by the composers of today and by some from early in this century.

Classical composers were producing space-inspired music before space flight began. A sample from 1906 is Vaughan Williams' "Toward the Unknown Regions." Carl Nielsen's "The Helios Overture" emerged from the 1920's, and Gustav Holst's "The Planets" came from the 1930's. A Norwegian composition, "Constellations" by Norgard, and Gyorgy Ligeti's "Atmospheres" sprang from the early 1960's. During the Apollo 11 flight in 1969, George Crumb began his "Night of the Four Moons."

The *classical* composers expressed the splendor and mystery of space. So do many of today's *popular* composers, but others reject that view. Instead, they appear overly cozy with the cosmos, their lingo-lyrics implying that the realms above are part of our stomping grounds. Distinctions between classical and popular space music seem partly due to new instruments and the contending ideas about which sounds are indeed "spacey."

Here is one of the greatest presumptions in music history. The universe, a vacuum in which there is no sound, is today depicted in sound. Who was to say

Continued on next page

Space music

Continued from page 5

what such music should be like? What sounds could come from a vacuum so that a composer might create interpretive music?

Pythagoras' view, "the music of the spheres," was ignored for centuries, partly because his spheres, the planets, were believed to be traveling in circles. The melody for a circle, of course, would mean one continuous and monotonous chord, hardly to be considered music. But Johannes Kepler came along in the 1600's and showed that planets travel in elliptical orbits, not in circles. When writing his book, "The Harmony of the World," Kepler actually made music notations to represent the varying speeds and distances of planets. In 1977, humans first heard how such music would sound. Kepler's Laws and his music notations were put into a computer at Yale and a 30-minute tape, representing 100 years of planetary motions, was created. When fed to a music synthesizer called the Groove Hybrid System, it produced a harmony from the heavens which ranged from the low and distant rumbling of giant Jupiter to the shrill piccolo for whizzing Mercury. A hit record? Sorry. Some listeners actually became motion sick.

EARTHY SOUNDS

Many composers of today represent space by sounds that came from the original means for communicating in a vacuum, the radio. The squealing, long moaning, jumbled noises of short-wave tuning have been adapted to the more orderly processes of music. The more recent block-burst chirping of computers was also influential. Electronic musical instruments, including the synthesizer, have added a new dimension. The eerie communication of whales and dolphins has played a part by letting us hear other beings conversing in a manner as mysterious as we might expect of alien creatures from space.

The basis of much recent space-depicting music, therefore, seems to be electronics, both in origin and in variety of sound produced. One "signature" of space music is sound-repetition at speeds which a musician cannot achieve, but which can be produced electronically. Popular musical artist Jimmy Castor believes that another signature is high-pitch. He regards bass sounds as "earthy" or non-space.

Music is so flexible, however, that with visual images some very improbable melodies can be adapted to the space setting. This was dramatically shown in the movie, "2001: a space odyssey." The majesty and elegance of Richard Strauss' music accompanied the stately passage of a starship. The Leningrad Philharmonic blended in Khatchaturian's "Gayne Ballet Suite" after the crew's encounter with HAL, the computer. Excerpts from Ligeti's "Lux Aeterna," and the elder Strauss' "Blue Danube" and "Die Fleidermaus" seemed made for this science fiction film.

More and more of the songs we hear refer to space travel, locations, or events. It would take pages to list only the most popular space-oriented songs, including Fly Me to the Moon, Rocket Man, From the Mars Hotel, Earthbound, Venus and Mars, Black Holes in the Sky, Solar Wind, and Dark Side of the Moon. Former Beatle Paul McCartney sings of "..., waiting for the transport to come, Starship 21ZNA9." Leader/vocalist George Clinton of the Parliament group, in an album called "Mothership Connection," pounds home his space age philosophy of UFO's and the return to Earth of the space people he says were here long ago.

Singer John Denver is so space oriented that he is a governor of the National Space Institute. His song, "Spirit" celebrates the place in the heavens where he thinks he came from ("...near the ring nebula in Lyra..."). If he's wrong it may be in location only, for the carbon, oxygen and heavier elements of his body were, as with most matter, probably manufactured from original cosmic hydrogen deep in the interior of some star.

Space themes permeate today's popular music. Performer Sun Ra refers to himself as a space prophet and prints his view on album covers: "Outer space is big and real and compelling, and the music which represents it must be likewise." He goes on, "the isolated earth age is finished; and all the music which represents only the past is for museums..." Others put their views in the lyrics and titles of their works. Carman Moore, famous Julliard graduate, composed a cantata called "The Great American Nebula," with a closing section: "Outer Space and Inner Grace."

Performers often "package" their acts with space-related props such as clothing, vehicles, starry backgrounds and various science fiction settings. Even the names they use reflect the space influence. For example, the "Jefferson Airplane" group changed their name to "Jefferson Starship." Others use names such as Cosmic Echoes, Space Opera, and UFO. David Bowie, a principal spokesman for space-in-pop-music, furthered his image by playing the lead in a cosmic-visitor film, "The Man Who Fell to Earth." One of Bowie's songs tells of a man who *couldn't* fall to Earth, the orbit-stranded Major Tom. Lyrics include the commerce-targeted satire: "This is Ground Control to Major Tom—you've really made the grade—And the papers want to know whose shirts you wear..."

COSMIC CHANTEYS

The spread and impact of spacey music so far is probably a mere hint of what lies ahead. The growing need for background and mood music in space-themed movies or TV programs has already unleashed a flood of composition. Repetition will entrench space music as firmly as the movies entrenched the music which signals that the westering wagon train has encountered Indians. For space settings, such coded uses of music might become even more specialized. Composers may be called upon for scores connoting specific stellar events (e.g., a nova) or for passages depicting objects, such as pulsars or other coruscators.

And what of the far future? Some of its music should spring from the ventures, jobs and hazards that will come with our use of space. Could any feudal lord have predicted the lifestyles of mariners, cowboys, coal miners, railroaders and aviators? Their experiences generated music and songs new to Earth. Something similar is prefigured in a Robert Heinlein story about Rhysling, the Blind Singer of the Spaceways. This nuclear furnaceman accepted radiation blindness as he defueled a runaway engine threatening to explode his starship. Afterward, he survived by singing his way across the Galaxy. In the mining camps, or in the great cities, his audiences most often called for this verse:

"I pray for one last landing
on the globe that gave me birth;
Let me rest my eyes on the
fleecy skies
and the cool, green hills
of Earth."

It's a safe bet that the off-Earth music of the 2000's will include the songs, legends, chanteys and ballads of the space explorers and settlers being born among us today.

Leave it to beaver to give a dam

Foster (l) and Neaves (r) stand in the 4-foot pond resulting from a dam created by Goddard's 58-pound he-beaver. The beaver founded his humble place of abode beneath the B-W Parkway near the entrance ramp from Washington, D.C. Foster and Neaves watch the water pour over the dam after partially removing it.

by Jack Paul (code 290.1)

When one thinks of a beaver one usually envisages snow-capped mountains, verdant, aromatic meadows, clear streams and pristine, forested surroundings. One does not associate Castor Canadensis with heavily travelled highways, muddy waters, and large office structures and laboratories. However, Goddard was recently the home of a 58 pound male beaver. He resided underneath the Baltimore-Washington Parkway near the entrance ramp leading to the Center from Washington, D.C.

In November, employees of the Plant Operations and Maintenance Division (POMD) noticed the water level mysteriously rising in the stream coming from the Center and going under the Baltimore-Washington Parkway. Further investigations revealed felled trees and a dam built across the entrance to the culverts below the Parkway. Water flowing off the Center was impounded and created a pond approximately 4 feet deep.

To alleviate the potential hazards posed by trees falling across roadways or water rising to such levels as to cover the roads, POMD employees were given the task of removing the dam. The decision to remove the dam was easier than the implementation. The dam was well constructed and water pressure on the front of the structure made pulling the dam apart by hand next to impossible. Nevertheless, Bobby Foster and Tommy Neaves of POMD painstakingly took the structure apart piece by piece using a 1 inch pry bar. Foster said that the dam was so compact and tight that the pry bar actually was bent during the process!

Once the dam was taken down it was hoped that the beaver would move to more appropriate surroundings. This hope was soon dashed. Giving credence to the phrase "busy as a beaver" the inhabitant repaired the dam within 3 days. When this occurred, POMD personnel realized that attempts to solve the problem were futile as long as the beaver was present. The solution to the problem was by now obvious, the beaver had to be removed. Not wishing to harm him, the State Wildlife Service was called in by Chuck Dupree, Center Grounds Manager. Traps were set which would enable the service to harmlessly snare the animal. On Thursday, December 9, 1982, the beaver was caught. He was taken to the National Colonial Farm located off of the Potomac River and released in an area that has a few resident females. It is hoped that he will become amourously inclined and settle in the area. This section of the Potomac is a prime habitat for this species due to the many small tributaries leading to the river.

Apparently, Prince George's County which is sometimes called a "bedroom community of Washington" is becoming the same for beavers. Two other beavers were sited in the area of the dam and the wildlife people have stated that there were quite a few spread throughout the county. In fact, there are a number of beavers on the Agricultural Research Service farms adjacent to the Center. The state personnel are doing the same thing there that they did at the Center. After the beaver was captured, the wildlife officer said that he wouldn't be surprised if another one came along and built a dam and lodge in the same vicinity. If the water level is seen to rise once again we will know that Goddard has another unusual guest.

Fun Run

Continued from page 4

under, #2); Jean C. Folse (29 & under, #9); Dawn M. Elliott (29 & under, #10); Claire Parkinson (30-34, #1); Hilary Cane (30-34, #2); Bev Hartline (30-34, #5); Janice M. Bellucci (30-34, #7); Rose Reynolds (30-34, #8); Paulette Ziobran (30-34, #10); B. J. King (35-39, #3); Denise Frey (35-39, #9); Dorothy Appleman (45-49, #8); Jane Jellison (50-54, #2); Thelma Mielnik (50-54, #7); Shirley Gildersleeve (50-54, #8); Catherine Lacey (55-59, #1); Kitty Ackerman (55-59, #2); and Anne B. Underhill (60 & over, #1).

Sixteen men also placed in the top ten of their age groups. They were Tim Minor (29 and under, #2); Eg Boggess (29 and under, #4); Daniel Mandl (29 and under, #10); Tor Lokrheim (30-34, #2); Mark Stauffer (30-34, tied for #9); Kenneth G. Walton (30-34, tied for #9); Richard Strafella (40-44, #1); Richard Weiss (40-44, #4); John Sissala (40-44, #9); Ray Hartensen (45-49, #6); Bob Phillips (45-49, #7); Lo I. Yin (50-54, #2); Emil Kirwan (50-54, #7); David Orbock (50-54, #8); H. Ronald Surgen (60 and over, #4); and Paul Nakada (60 and over, #8).

Goddard was awarded ten points for each first place, nine points for each second place, etc. for the first ten finishers in each age group. Overall, Goddard racked up 199 place points. That compared to 170 claimed by Lewis Research Center and 149.50 by Ames.

The Goddard Running and Orienteering Club, which sponsored the "Fun Run," thanks all who helped—by running or otherwise—for their participation. The next "Fun Run" is scheduled for April.

Dr. Atlas

Continued from page 1

simultaneously earning a D. Sc. Degree in Meteorology at MIT (1955).

Under his leadership, at the AFCRL and in subsequent positions, he and his staff have provided the impetus for the rapid advancement of Radar Meteorology throughout the world. This work also made possible major advances in precipitation physics, severe storms, weather modification, clear air turbulence, and the effects of weather on microwave communications.

From 1966 to 1972, Dr. Atlas held appointments as Professor of Meteorology at the University of Chicago and as Director, Laboratory for Atmospheric Probing (Joint Laboratory of the University of Chicago and Illinois Institute of Technology).

In 1972, he became Director of the Atmospheric Technology Division, National Center for Atmospheric Research (NCAR), Boulder, Colorado, followed by his appointment as Director of the National Hail Research Experiment at NCAR from 1974 to 1976.

Since coming to Goddard in 1977, Dr. Atlas has directed GLAS in carrying out research over a full range of atmospheric and oceanic activities. Currently, he is active in one of his personal research activities, aimed at the development of a space based radar for the measurement of rainfall.

Dr. Atlas quickly acknowledges that his accomplishments are due to a team effort. He is particularly appreciative to the late William Nordberg, the first Applications Director; to Robert Cooper, former Goddard Director; and to Applications Director Leslie H. Meredith and the members of GLAS.

Safekeeping

Drunk Driver Easy To Spot

It's midnight, and Officer James has just pulled over his third suspected DWI for the night. The driver will later fail a breathalyzer test.

How did James know?

James is an experienced police officer, and he's learned that the odds are good that a driver doing one or more of the following has had too many.

- Turning with a wide radius
- Straddling the center or lane marker
- Almost hitting vehicle or object
- Weaving in a zigzag pattern
- Driving on the edge of the road, at the shoulder or through a turn-only lane
- Swerving or making abrupt turns
- Driving too slow (10 mph below the speed limit)
- Stopping in the lane without cause
- Following too close
- Drifting
- Night driving without lights

The next time you drive home after a few snorts, look for these signs in your own driving. Forget about your attitude—you may feel just fine. but it's how you drive that counts.

NASA
GODDARD NEWS

The GODDARD NEWS is published monthly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, Md. 20771. Deadline for submitted material is two weeks from the date of publication. For additional information on articles contained herein, contact the editor on (301) 344-8102.

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