NASA
National Aeronautics and Space Administration

GODDARD NEWS

Goddard Space Flight Center Greenbelt, Md. April 28, 1980 Vol. 27 no. 14

Two new buildings begin service at Goddard

The last time you looked, there may have been holes in the ground, brick shells, or (if you went up for a close peek) empty corridors. But look again now and you will see that two complete, new buildings have gone up at Goddard.

They are Buildings 13 and 28, the new Networks Control Center and the Landsat-D Data Processing Facility.

Building 13, the white structure close against the Spacecraft Operations Facility (14), was started in mid-1978 and is scheduled to go operational October first this year. It will be the new Goddard control center for the upcoming Tracking and Data Relay Satellite System (TDRSS) and present and evolving ground network.

The TDRSS, which will use two geostationary satellites to provide almost global coverage for most low-orbiting satellites beginning in 1981, will permit the return of vastly greater quantities of information from space than ever before, and require extensive automation of operations control on the ground to keep pace.

"Back in 1976 we realized that interfacing with TDRSS exceeded the capabilities of the old Network Operations Control Center (NOCC), where we make widespread use of manual intervention to manage incoming and outgoing data," says Carl Roberts, Head of Networks Operations Control Branch. "We are determined to make maximum use of computerized techniques in the new, updated Network Control Center (NCC)."

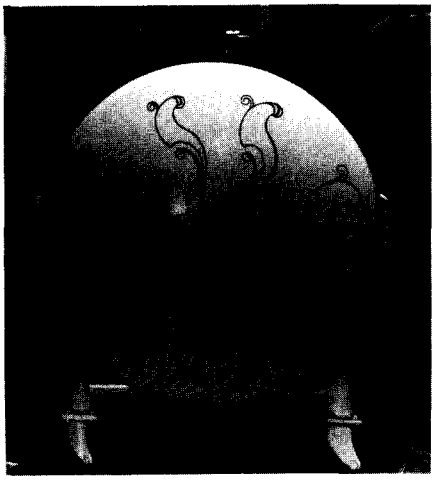
Large-scale Univac 100/20 Central Processing Units (CPUs), augmented by seven micro-computer systems, will interface flight controllers and NASA communications facilities to accomplish such tasks as network testing and simulation, performance monitoring, telemetry quality, spacecraft data acquisition and tracking.

To keep the new NCC near the majority of mission control centers and utility systems, plans called for breaking ground for 13 in close proximity to Building 14, though construction could be complicated by the need to safeguard continuing operations next door.

"Digging a very deep foundation next to 14 meant we had to be very careful of flooding, which could have stopped the motor-generator sets which power network computer operations," says Jim Robinson, Chief of Facilities Engineering Division who was then project manager for the construction. "In January we had nights of round-the-clock watches on the sump pumps in 14, and even so there was one night where the water rose to within 15 cm (6") of the motors' base."

Opened for equipment in mid-1979, the new Network Control Center measures some 1,850 sq. meters (20,000 sq. feet) and cost about $1,400,000. An outstand-

Continued on page two



One end of "Big Willy Ogre"

P. Wasilewski and his metal mashing machine

It is the only thing around that is rearranging the magnetic fields of metals by smashing them with projectiles travelling at speeds of up to two km. per second.

And in spite of its brutal nature it manages to do it all very attractively. A flat faced, fist sized cylinder propelled by a charge of pressurized helium gas blasts down a nine meter (30 foot) tube smack into a target, and knocks the target into a catch tank whose sides sport a Welsh dragon and a Polish falcon and whose round

Continued on page four

Senator Mathias visits

Center Director A. Thomas Young (left) welcomed Sen. Charles Mathias, Jr. (R–Md., right) to Goddard April 7 for an update on Center activities.

Mr. Young presented the Senator with an overview of Goddard programs, following which the Senator visited the Solar Maximum Mission (SMM) Experimenter's Operations Facility and the Domestic Information Display System (DIDS).

Kenneth Frost, Project Scientist for SMM, briefed the Senator on the newly launched satellite, the first designed specifically to study solar flares. John Quann, Chief of Information Extraction Division (930) presented DIDS, a computergraphics system for rapidly illustrating government statistics as geopolitical maps for decisionmaking.

Sen. Mathias was accompanied to Goddard by NASA Deputy Administrator Robert Allnut and NASA Director of Legislative Affairs Terrence Finn.

Two new buildings

Continued from page one

ing design feature, notes Robinson, is its four redundant power sources, as well as battery reserves for 20 minutes of "total emergency." The same sort of redundancy gives the building two sets of all electrical and mechanical utilities, including air conditioning.

Despite the challenges of construction and the complexity of its design, the building was completed on time within a tight schedule. The project engineering team for the building included Albert Latzko, Alfonso Eaton, Arthur Alberg, Edward Fern, and Edward Caligiuri.

The main wing of Building 28, at the north end of Goddard beyond the Medical Unit, is dedicated to the upcoming Landsat-D Mission. Opened for occupancy April 1, the building will house an Operations Control and Simulation Facility, a Data Management Facility, and an Image Generation Facility on 2,750 sq. meters (30,000 sq. feet) of floorspace.

Due for launch in 1982, the Landsat-D satellite will provide the first imagery of the earth's surface that details areas as small as 30 sq. meters (330 sq. ft.) in six bands of light and 120 sq. meters (4,300 sq. feet) in the infrared.

The new facility will permit development of Landsat-D without interruption of ongoing Landsat operations. It will also accommodate increased production of Landsat imagery as digitally processed computer compatible tapes. Traditionally, data sent back by the earth observing satellites has been represented as photographic images of the ground and studied through photointerpretation techniques. Tapes, however, permit computer analysis and enhancement of the data to speed Landsat applications, which already have been demonstrated in fields ranging from monitoring natural resources to oil and mineral exploration.

The Landsat-D Data Processing Facility (Building 28) opened for occupancy April 1.

An annex to Building 28 is continuing under construction and is scheduled to be ready for occupancy in February 1981. The annex, almost as large as Building 28 itself, will house a Landsat-D Assessment System as well as functions for the Applications Directorate.

Ground breaking for Building 28 took place in March of last year under the largest contract ever awarded a minority firm by NASA: $6 million to Fletcher & Sons of Philadelphia.

"The contract presented an extraordinary opportunity for Goddard to help a minority firm acquire a very broad construction experience and, at the same time, participate as a partner in every step of the construction," says Frank O'Grady, Head of the Design and Construction Branch who negotiated the precedent-setting contract. "It worked out well for both of us, we're satisfied we have a high quality building and they now have the experience to enter the construction market very competitively."

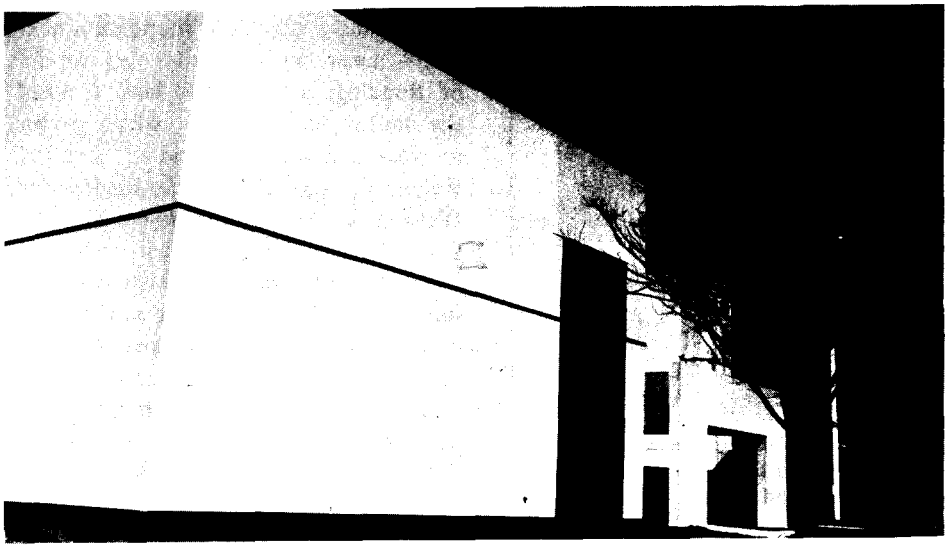
The Goddard contract was awarded to the minority firm through the Small Business Administration's 8A Program, whereby S.B.A. contributed over $100,000 to help the contractor through the initial investment of buying additional construction equipment. As work has progressed on the building, says O'Grady, representatives of several federal agencies interested in the 8A Program have toured the site and been impressed that the building is not only of high quality, but also on schedule and within funds.

Project Engineering Team for Building 28 was led by Jacob Weaver and included Stephen Bice, Kent Potter, Joseph Rusnak, Joseph Russek, Stanley Chan, and Timothy McCain.

The Project Engineering team for the addition to Building 28 was led by Albert Latzko and included Alfonso Eaton, Art Alberg, Ed Fern, Ed Caligiuri and Tony Mileo.

Inspectors for both Buildings 28 and 13 included Clifford Cobb, Inspection Section Head; Carl Lazerow; George Russell, Francis Schultz; Bobby Brogan; Harry Hull, and John Purcell.

The new Networks Control Center (Building 13) is scheduled to go operational October first.



People

Key personnel appt's

Sciences Directorate

Effective March 23, 1980, Dr. John J. Hillman is appointed Head, Molecular Astrophysics Section, Infrared & Radio Astronomy Branch, Laboratory for Extraterrestrial Physics (Code 693.1, 344-8431).

Engineering Directorate

Effective March 23, 1980, Mr. John L. Wolfgang is appointed Head, Computer Applications Section, Instrument Systems Analysis Branch, Instrument Division (Code 725.2, 344-8449).

Effective March 9, 1980, Mr. Stuart E. Tull is appointed Head, Plating & Plastics Section, Fabrication Engineering Branch (Code 752.2, 344-8508).

Effective April 6, 1980, Mr. Ronnie L. Kinsley is appointed Head, Structural Dynamics & Electromagnetic Test Section (Code 754.1, 344-6480), and Mr. Kenneth L. Rosette is appointed Head, Simulation Test Section, Environmental Test & Integration Branch (Code 754.4, 344-6058).

Coming & Going

New Employees

Trageser, William C., Accountant (Code 288), 3-23-80.
Vermillion, Sheila D., Clerk-Typist (Code 220), 3-23-80.
Corso, Juanita, Clerk-Typist (Code 225), 3-23-80
Davis, Sandra, Clerk-Typist (Code 230), 3-23-80.
Frazier, Elizabeth, Voucher Examiner (Code 212), 3-23-80.
Rychlik, Janice, Accountant (Code 288), 3-23-80.
Cullinan, Bernard J., Contract Specialist (Code 268), 3-30-80.
Pettus, Betty A., Clerk-Typist (Code 235.1), 3-30-80.
Comeyne, Gustave J. Jr., Electronics Engineer (Code 726), 4-06-80.
Kinsley, Ronnie L., Supv. Aerospace Engineer (Code 754.1), 4-06-80.
Harris, Gary A., Engineering Aid (Code 751.1), 4-06-80.
Daughton, Joseph T., Engineering Aid (Code 751.1), 4-06-80.
Witt, Maureen A., Secretary (Code 700), 4-06-80.
Schneider, Richard H., Electronics Engineer (Code 511.1), 4-06-80.
Elliott, James C., Public Information Officer (Code 202), 4-06-80.
Bolden, Sandra M., Clerk-Typist (Code 212), 4-06-80.
Smith, Leslie D., Clerk-Typist (Code 210), 4-06-80.
Downs, Darlene E., Clerk-Typist (Code 212), 4-06-80.
Ollendorf, Ellen, Contract Specialist (Code 268), 4-06-80.
Shavatt, Karen A., Clerk-Typist (Code 863.1), 4-06-80.
Yau, Elise M., Contract Specialist (Code 260), 4-06-80.
Gross, Sheila A., Contract Specialist (Code 265), 4-06-80.
Lane, Mei H., Accountant (Code 287), 4-06-80.
Manfra, Gregory R., Cost Accountant (Code 280), 4-06-80.
Weatherly, Mitchell G., Student Trnee. (Code 226/511.1), 4-06-80.
Trageser, William C., Accountant (Code 288), 3-23-80.

"Footsteps of Doves:" Husband and wife (George Fleming and Karen Burger) talk beds with store clerk (Barry Kirkham).

MAD to represent D.C. in theatre contest

By Brenda Savage

Some of you may be surprised to learn that Goddard is becoming renowned for live theatre. MAD won second place in the D.C. Department of Recreation's One-Act Play Tournament in January and will be representing the metropolitan area in Valhalla, New York on April 26.

MAD competed against approximately ten adult amateur theatre groups to take second place with "Footsteps of Doves," which was presented at the MAD Spring Show last year. MAD was selected to go to New York when the group winning first place was unable to travel.

The regional contest is being hosted in Valhalla by the Eastern States' Theatre Association. This four day theatre festival will include amateur theatre troupes, universities, and exhibitions by international professional troupes.

MAD will again present the second act (Footsteps of Doves) from Richard Anderson's "You Know I Can't Hear You When the Water Is Running." In this act the audience finds the husband (George Fleming, Goddard) being forced into a furniture store by his wife (Karen Berger, MAD Associate) who wants to purchase a set of twin beds for them. Barry Kirkham (O.A.O. Corporation) portrays the salesclerk and Dawn Alderman (Goddard) is a mysterious beautiful girl who unexpectedly tries to seduce the husband. Both Fleming and Kirkham has been nominated for Best Acting Awards.

Paul Lowman leads "orbital field trip"

Dr. Paul Lowman guided members of the Washington Academy of Sciences on an "orbital field trip" at Goddard April 17 to look at global tectonic activity through color photographs from the manned space flight and Landsat programs.

Dr. Lowman, a geophysicst in Earth Applications Survey Division, discussed the use of space photos, which offer an unparalleled view of geological features such as faults and volcanic fields, for studying tectonic activity on the ground, (including earthquakes).

The "Geology from Space" presentation was co-sponsored by the Washington Academy of Sciences and the National Capital Section of the American Institute of Aeronautics and Astronautics (AIAA).

Metal mashing for magnetism

Continued from page one

nose is painted like a Zen torpedo.

This is Dr. Peter Wasilewski's 'gun,' Big Willy Ogre (as christened by sons Dimitri and Nicolas) and it is helping him research changes in the magnetic properties of iron-nickel alloys following violent collisions with solid bodies.

Alteration of magnetic properties due to shock is a phenomenon as pervasive in the solar system as the craters on the surface of solid planets or the pock-marks on lunar samples, but to date little is known about the process other than its occurrence.

"With repeated shots of Big Willy, we can acquire a basic understanding of how metals change with shock and develop new magnetic signatures," says Wasilewski (Laboratory for Extraterrestrial Physics) as he releases helium at bottle pressure of 909 kg. (2,000 pounds) into the breech of the gun. "And by examining the impacted targets with a microscope we can learn what micro-physical deformations of the material are responsible for specific magnetic effects."

Dr. Peter Wasilewski poses with his "metal smashing gun." Breech is in foreground, catch tank at rear.

The push of a trigger button, and the projectile rushes down the evacuated tube. Wasilewski opens the catch tank and looks for the target among the rags stuffed into a three meter (ten-foot) long steel basket that serves as the trap. When he finds it, he will map its new magnetic signature with a magnetometer and compare the results with the original values.

"What we learn this way will undoubtedly help us understand lunar surface magnetization and help to unravel the pre-impact magnetic history of meteorites. It should also provide a format for understanding the detailed record of surface magnetism for solid planets, moons and asteroids when we get there," says Wasilewski. "The ultimate goal, of course, is to understand the magnetic history of the solar system from the remanent magnetism."

Closer to home, says Wasilewski, the research should provide a basis for quality control via magnetic inspection for products formed by industrial shock techniques. Controlled shock from explosions can be used, for example, for molding, welding or hardening metals.

Wasilewski began construction of the gun about two years ago as an "essentially singlehanded labor of love" following basic designs which were pioneered during post atomic bomb testing of the early 1950's.

However, there is an essential difference between Big Willy Ogre and its first ancestors, he has assured his neighbors. He has taken pains to ensure the genteel performance of his gun and declares it "almost safe enough to sit on when you fire it."

Australians view DIDS

His Excellency Sir Nicholas Parkinson, the Australian Ambassador to the U.S., visited Goddard April 2 to view the Domestic Information Display System (DIDS). The system, developed at Goddard in support of a multi-agency project to apply computergraphics to simplifying representation and analysis of federal statistics, promises a new means for speeding information exchange within government.

John Dalton, Head of Interactive Systems Development Branch (930), demonstrated DIDS to the Ambassador using Australian census data supplied by the Australian Embassy and placed on the system by Mel Banks of DIDS' system design and software development team The Ambassador is considering DIDS for possible technology transfer to Australia.

Shuttle engine runs at 109% rated power

The Space Shuttle main engine reached a significant milestone in the development certification process in a static firing test this week at NASA's National Space Technology Laboratories, Bay St. Louis, Miss.

The engine was operated at 109 percent of its rated power for six minutes in the first sustained operation of the engine at full power.

The engine operated for a total of 10 minutes, 10 seconds and met all test objectives. Engineers reported the test data looked good.

The engine used in the test already had accumulated a total of more than 10,000 seconds (167 minutes) of firing time, equalling the firing time required for 19 flights of the Shuttle. The engine had undergone two series of preliminary flight certification tests, each of which included at least 13 static firings.

The single engine testing is conducted by Rockwell International's Rocketdyne Division of Canoga Park, Calif., for the Marshall Space Flight Center, Huntsville, Ala., which is responsible for developing and testing the Space Shuttle's main engines.

NASA National Aeronautics and Space Administration

GODDARD NEWS

The GODDARD NEWS is published every two weeks 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 major articles contained herein, contact the editor on (301) 344-5566

Editor: Charles Recknagel

Editorial Assistant: Pat Ratkewicz
Pictures: Photographic Section