# SPACEPORT

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NASA Launch Operations Center, Cape Canaveral, Florida

NEWS

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# **DELTA DAY TO HONOR CAPE-GSFC EMPLOYEES**

# NASA Orders 7 More Tiros Satellites

NASA has awarded a contract for \$2 million to RCA's Astro-Electronics Division for additional TIROS weather satellites.

Negotiations are continuing for a total purchase of seven satellites.

The contract covers fabrication and test of three research and development spacecraft and two "operational" spacecraft.

Also included are two backup satellites, one R&D model and one operational version.

Launch of the two types of spacecraft will be interspersed to allow for the continuous utilization of the meteorological satellites by weather data users.

As in the past, the Weather Bureau will be responsible for these operational aspects of the TIROS project.

Operational satellites will carry TV cameras and supporting equipment for daytime picture taking.

### NASA Awards Boeing \$418 Million Contract

NASA has awarded the Boeing Aircraft Company a \$418,820,967 million contract — one of the largest ever granted in the space program — to build 11 first stage boosters for the Saturn V space vehicle.

Production and assembly work will be done at NASA facilities in Michoud, La., Pearl River, Miss., and Huntsville, Ala., as well as at Boeing plants in Seattle and Wichita.



FRAMED by steel patterns high up in Launch Complex 37's service structure, two workmen busily go about their business. For the up-to-date story and photos on construction progress, turn to Page 4. News Photo by Russ Hopkins

# **Debus Leaves Monday For Speaking Tour**

LOC Director Dr. Kurt H. Debus leaves Monday on an extended trip to cover speaking engagements on two continents.

He will open his schedule Tuesday morning with a talk on "Saturn V Facilities," before the American Society of Mechnical Engineers in Los Angeles.

Immediately following this presentation he will jet, via the polar route, to London. He will speak on "Saturn Ground Support Equipment" to British Interplanetary Society members Wednesday and then address the West Berlin Urania the following night, on "Highlights of the U.S. Project to Land Astronauts on the Moon."

Dr. Debus concludes his engagements March 12 in Frankfurt, Germany, where he will speak on "Status of U.S. Manned Flight Programs" at the America House.

# Plaque, Awards To Be Given In Ceremonies

NASA's reliable Delta booster — and the men who made it that way — are scheduled to share the public spotlight at Cape Canaveral tomorrow.

"Delta Day" will call attention to the space vehicle which has scored a launch record of 15 successes in a row.

Key personnel of the Goddard Space Flight Center's Delta Project Group will be honored as will personnel from the Douglas Aircraft Co., the company which makes the booster.

Participating in the ceremony will be Dr. Robert Seamans, NASA Associate Administrator; Dr. Homer Newell, Director, Office of Space Sciences (OSS); Dr. Harry Goett, Director, Goddard Space Flight Center; Dr. Kurt H. Debus, Director, Launch Operations Center. Maj. Gen. Leighton I. Davis, Air Force Missile Test Center Commander; Robert Gray, Chief of Goddard's Field Projects Branch and Charles Able, Vice President of Douglas Missile and Space Systems Division.

Guests will include Dr. Richard Morrison, Director of Light and Medium Launch Vehicles, OSS; T. B. Norris, Delta Program Manager; Vincent Johnson, former Delta Program Manager; members

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### FRIENDS AMONG US

Recent ceremonies at Goddard Space Flight Center, where foreign representatives gathered to commemorate the fifth anniversary of international space tracking, strengthened U.S. relationships with all 16 countries participating.

Attending were ambassadors and representatives from Australia, Argentina, Brazil, Britain, Canada, Chile, India, Iran, Ecuador, Japan, Mexico, the Netherlands, Nigeria, Peru, Spain and South Africa.

The speaker's podium was shared by Secretary of State Dean Rusk, NASA Administrator James E. Webb, Executive Secretary Edward Welsh of the National Aeronautics and Space Council, Goddard Director Dr. Harry Goett and astronaut Wally Schirra.

Dr. Goett thanked the representatives for a job well done. "Without your support," he said, "the success, of which all of us are proud, could not have been achieved.

Dr. Welsh said, "We set sail on this new sea because there is new knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people. Whether space science will become a force for good or ill depends on men. I strongly believe it will be a sea of peace."

Webb emphasized the rapidly accelerating rate of cooperation in international space activities.

Schirra attributed a large measure of his flight's success to the tracking network.

Secretary Rusk said, "Science has never recognized manmade boundaries. We 17 nations have embarked on a cooperative effort to expand the knowledge of man to an unprecedented extent. We are doing it in the full glare of light, and the whole world will benefit from our discoveries. The United States will continue to be guided by these principles in our relations with the international community."

At the conclusion of the ceremonies, Secretary Rusk presented each of the representatives with scrolls of appreciation for their nation's efforts.

Thus peaceful pursuits of space — through this cooperative tracking network — are solidifying international friendships here on earth.

### A HARD MAN TO FOLLOW

The fadsters off on all the 50 mile walking sprees across the country can be glad President Kennedy made his casual reference about the marines of 1908 rather than about another stalwart American, John Ledyard of Connecticut.

A strapping outdoorsman, Ledyard left his missionary studies at Dartmouth College because of boredom and walked across northern Europe and Asia in 1786 on a journey to study the Siberian and Alaskan fur trade sources. Later, at the request of a president of the U.S., he walked across North America on a survey of water passages.

He was on another exploration to find the source of the Niger river when he became ill in Cairo and died in 1789.







GATHA COTTEE holds his paperweight from "outer space" — a genuine meteorite. He found it several years ago when a bulldozer unearthed it while clearing his homeside in Eau Gallie.

# "Outer Space" Paperweight Launches Conversations

When Gatha Cottee, of LOC's Public Information Office, talks about objects from outer space, he speaks with first-hand authority.

Visitors to his office invariably pick up a soap barsized shiny dark object from his desk, fumble with it awhile, and ask what it is.

When he replies, somewhat nonchalantly, that it's a meteorite, they usually raise a quizzical eyebrow, then deluge him with questions.

The meteoritic paperweight has, in fact, become a con-

## NASA'S HERB ROGHEN GIVEN 'SNAP' JOB

Herbert D. Rochen, of NASA's Office of Advanced Research and Technology, has been appointed NASA Deputy to the Program Manager of the SNAP-50 Program Office.

He will provide liaison for nuclear electric power programs in SNAP-50/SPUR, a projected advanced nuclear electric power plant in the 300 - 1000 kilowatts electric power range, versation piece supreme.

Cottee found the threepound nickel-iron object nine years ago in his yard at Grandview Shores in Eau Gallie. A bulldozer, clearing land on his homesite, churned it up.

it up. "It laid around the house for several years," Cottee said. "The kids cracked walnuts with it and I used it to drive nails. I even tried to cut it on my emory wheel once, and ground the wheel to a nub without so much as nicking it.

"Then one day I saw a TV program on meteorites and realized this might be one. I took it to the office and began using it as a paperweight."

Astronaut G us Grissom came in one day, and like all of Cottee's visitors, asked about it. Grissom took it to Washington where a friend of his in the Smithsonian Institute verified it as the genuine article.

Cottee doesn't know its dollar value, but as a desk ornament it's certainly opened a number of conversations for him.



LAUNCH COMPLEX 39, one pad of which is pictured above by Technical Information artist Loren Fisher, will be featured in the March issue of Astronautics Magazine in a bi-lined article by LOC Director Dr. Kurt H. Debus.

# Launch Complex 39 Story Told In Article

Featured in the March edition of Astronautics Magazine is LOC Director Dr. Kurt H. Debus, with a 10,000 word article on "Launching The Moon Rocket."

Outlining plans for "mo-bile" facilities for the launch of Saturn V, the powerful space vehicle that will boost manned Apollo spacecraft to the moon, Dr. Debus discusses the revolutionary launch concept for the moon rocket.

"Major factors dictating the need for a new approach (to launch)," he writes, "included the greatly increased size and complexity of the Saturn V vehicle, a need for unprecedented reliability and the flexibility of handling varying launch rates and having a fast re-cycle time"

Selection of the "mobile" concept, he points out, were based upon consideration of savings in real estate and manpower, and on the utility and flexibility inherent in the 'mobile" approach.

"The 'mobile' concept of launch operations employs four basic features:

"1. Vertical assembly of the space vehicle on its launcher in an industrial-type environment."

"2. Transfer of the assembled and checked-out space vehicle on its launcher to the pad."

"3. Automatic checkout."

"4. Remote control of ac-

tual launch operations from a distant launch control cen-ter."

At the conclusion of his article, Dr. Debus, glancing briefly into the future, sees

## TRAFFIC OFFICIALS **URGE STEADY FLOW**

For once authorities are asking motorists to follow each other closely — within two car lengths.

Such action, they say, will help the flow of Cape traffic througe the Cocoa Beach causeway intersection.

Newly-installed electronically-guided treadles control light switchings at the intersection according to the traffic flow.

There is a maximum-minimum flow during each change of the lights. If cars continuously pass over the treadles, it signals the automatic controller that traffic is heavy, and an extra amount of 'green-light" time is added.

But, authorities warn, if drivers should lag more than two car lengths, a void is created in the electronic control's brain and the light will switch.

The brain is geared to heavy flows north in the morning and south in the evening. Traffic experts will be regulating the brain for several more days, before giving it final settings.

continuation of the "mobile" concept because of its efficiency and utility, and the application of successes in lunar exploration to other space programs.

"It is well to remember," he concludes, "that the manned lunar program while a very ambitious and difficult project, is not an end all by itself, but a 'hand rail' pro-ject that will guide us with each significant step, further into space know-how. And as we go, techniques will be mas-tered that become the base foundations for parallel and advanced projects.'



"Why don't you try fabricating a nose section from electrum (gold and silver alloy)? Don't fear about the cost of these metals or the abundance of them. Ft. Knox is loaded and the land is ready to give up its hoard when these metals are needed.

#### Thomas H.

Anchorage, Alaska

# **Explorer XVI** Punctured **By Dust Bits**

Explorer XVI, NASA's or-biting "target" for micrometeoroids, has done its job, and in the process been riddled by flying bits of cosmic debris

Launched last December to study the hazard to astronauts posed by micrometeroids, the 22-pound spacecraft was punctured 11 times during the first month of flight.

Charles D'Aiutolo, NASA's manager of meteoroid research programs, said this establishes conclusively that there are micrometeoroids in space which can penetrate thin surfaces.

This cosmic debris is believed to be the dust of disintegrated comets or remnants of smashed asteroids.

Limited Data D'Aiutolo said information from Exploror's first month of investigation is too limited to provide any clear idea about the number, size and speed of cosmic projectiles in solar space.

It is hoped, he said, the craft will continue reporting its punctures for a year or more.

Explorer XVI exposes only 25 square feet of surface to catch micrometeoroid impacts.

NASA plans to launch two gigantic meteoroid satellites -with an exposure surface of 2,000 square feet each within a couple of years.

#### Latest Mariner Report

#### **Unveils Facts On Venus**

Despite surface temperatures of 800 degrees Fahrenheit. NASA scientists haven't ruled out the possibility a low form of life in the clouds surrounding Venus.

In a formal report detailing information picked up by Mariner II during its Venus flyby last December, officials said the planet is "a glowing hot earth covered my thin, dark and cool clouds."

Mariner also reported that the planet's light and dark sides are the same temperature — a fact suggesting high atmospheric pressures.

# IT TAKES MANY SKILLFUL HANDS ...



POND REFLECTION and lone palm tree add beauty to this view of Launch Complex 37's giant service structure.

News Photos by Russ Hopkins



SURVEYOR "calls out" to his partner with sign language.

BALANCING on high wire, a painter coats 37's deck.

# Giant Service Structure Set For April Tests; Saturn To Be Launched From Pad B This Fall

There are 512 steps to the top of the new Saturn service structure on Launch Complex 37, and activity hums every foot of the way.

A SPACEPORT NEWS writer-photographer team donned hardhats and toured the 120-acre site recently to record construction progress.

The service structure and one pad area will be completed sometime this April, for Saturn launches beginning later in the year.

At the tower's base, a worker looped a line from a crane around a long steel beam, fastened it and waved to the crane operator.

He stepped back as the beam began its slow journey halfway up the 375-foot-high structure, and said, "I've worked a lot of jobs, but this has got to be the biggest."

The beam reached its destination and a crew unbuckled the cable and sent it back for another load.

Busy workers surrounded the 120-foot square base.

A quarter of the way up, sparks flew from a welder's torch as it fused steel.

A little further, engineers were poring over complicated blueprints and electricians were "skinning" circuit wires

Despite the height, the seven-million-pound tower seemed as firm as earth.

Near the top the hissing of spray guns applying paint to steel saturated the air. Skilled craftsmen with eerie, red masks were coating the top deck.

Off to a side one painter balanced precariously on a steel wire — like a circus aerialist — and sprayed nearly inaccessable places.

From the top — the most commanding view in Florida — people below appeared as ants; vehicles as toys.

On the other side of the 90-foot derrick boom a worker walked to the edge, tipped back his hardhat, lit a cigarette, and enjoyed the scenery.

The walk down was much faster and on the ground again, the service structure's truly immense size seemed even more dominant.

It reaches for the sky like a space age Eiffel Tower.

It is mounted on railroad wheels, and is probably the largest movable structure in the world. Its mobility will be tested sometime next month.



AN ENGINEER checks blueprints for communications setup.

HIGH in the tower an electrician "skins" wiring.

# ... TO MOUD A MODERN COMPLEX



AERIAL VIEW of overall complex shows service structure flanked by umbilical towers. Blockhouse is in foreground at right. Site is just north of Launch Complex 34.



WORM'S EYE view shows Pad B's umbilical tower.



MASKED PAINTER examines work on 37's steel surface.





ON TOP of 37's tower a worker files steel eyelet.



INSIDE the silo gates that adjoin 37's service structure, two electricians check out newly-installed wiring.

A LONE shoveler digs path where rails will be laid.

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"In those early days . . .

#### Profile: Bob Gorman



. . . mosquitoes were so bad

. . . we wore long sleeve shirts

# Veteran of 100+ Launches Recalls Early Cape Days

The desk of LVOD's Deputy Chief of the Mechanical Structural and Propulsion Office is blanketed with paperwork.

The man behind the desk is an 18-year Civil Service veteran who has participated in well over 100 rocket launches — Bob Gorman.

He explained the stacks of paper as results of his planning studies for support of Launch Complex 39.

Gorman was one of the Army Firing Lab's original crew members. He first came to Canaveral in 1953 to help launch the initial Redstone vehicle.

#### Tent City

"Everything we had was portable in those days," he said. "When we came down from Huntsville, we'd set up a tent city. They used to call us the circus troupe. Then after the launch, we'd pack up everything and move out."

"The only buildings on the Cape then," he recalls, "were Central Control and a cafeteria. We shared an old sheet m e t a l structure with the Snark people, and when they ran static tests, we had to use earmuffs.

"The mosquitoes were so bad in those days everyone wore long sleeve shirts and gloves — even in the summer. We usually launched around seven or eight o'clock in the morning, and that meant working through the night when they were thickest. "In fact, one fellow with sensitive skin really got chewed up. He stayed in Huntsville after that."

Gorman vividly remembers the first Redstone flight in August, 1953.

"I can still see that one," he says. "There was a small opening in the blockhouse where electrical wiring came through from the pad. We plugged it up, but the blast exhaust triggered a pressure wave that blew all the stuffing out."

A native of Burlington, Kansas, Gorman has a mechanical engineering degree from Kansas State.

He was with NACA at Langley Field, Virginia, in 1951, when he got a call from Dr. Debus at Huntsville, who was then setting up his firing team. Gorman joined it in January, 1952.

He moved to Eau Gallie three years later and admits he sees little of his wife Shirley and their four children except on weekends.

"Even though they've become accustomed to the odd hours," he says, "I still get ribbed about it now and then."

While Gorman is somewhat tied to his desk these days, planning for the giant projects of tomorrow and how to solve the giant problems they will create, his crews are diligently preparing SA-4 for flight.



. . . even in the summer."

Despite the many long hours he has put in on a great number of successful programs, he is quick to disclaim credit.

"You can't say any one person has done anything outstanding," he says, "it takes a lot of people to do the job.

"But I will say this much, I couldn't have been happier in any other job."

### Thai Ambassador Tours NASA-Cape Facilities

The Thailand Ambassador to the United Nations, Somchai Amunan-Rajadhon, visited the Launch Operations Center this week.

The Ambassador was accompanied by his wife, brother, sister and cousin on the one-day visit Tuesday.

He also was accompanied by a television-radio team from the United States Information Agency and the Voice of America. The visit to the Cape area was covered for radio-TV shows to be distributed in Thailand.

# BLACKOUT PROBLEM Solved by Spray?

Albert Kelley, NASA's Director of Electronics and Control at the Langley Research Center, says the communications blackout that stills the voice of astronauts during their reentry from orbit may soon become a thing of the past.

The blackout problem may be solved, he said at an industry program plans conference, simply by spraying water from the spacecraft as it reenters the earth's atmosphere.

Such a technique could also be applied to lunar or planetary landings.

In the past, radio communication with each Project Mercury orbital flight was lost for about four and a half minutes during reentry.

The blackout caused most concern during the return of Astronaut Scott Carpenter when he overshot his landing point.

Kelley said a body entering the atmosphere at a high velocity creates an ionized plasma, or an electricallycharged gas, that acts as a shield to black out radio communications.

Adding water, he said, suppresses the plasma, and radio signals from the spacecraft are not blacked out.

## LASERS MAY BE USED TO TRACK SATELLITE

NASA is considering the use of lasers to track the S-66 polar ionosphere beacon satellite this spring.

The 114-pound satellite which is to study ionosphere behavior and electron content — is to be placed into a near polar orbit where it will pass over land during most of its flight.

If used by the international tracking system, it will be the first attempt to follow a satellite with lasers.

Experts believe laser tracking will be faster and more precise than other methods, and if used on the S-66, it should enable scientists to determine the ionosphere's profile.

Laser apparatus emits a highly energized, narrow beam of light which can travel great distances without spreading out the way ordinary light sources do.



"THESE TOUCH AND GO LANDINGS GOTTA STOP .... "

### SCIENTISTS UNSURE OF MOON'S SURFACE

When America's astronauts first land on the moon, they may not know what they're stepping into — or onto.

One of the biggest disagreements now going among scientists concerns just what the lunar surface is made of.

In fact, about the only thing agreed upon is that the moon isn't made of green cheese.

Dr. Donald E. Gault, of NASA's Ames Research Center in California, says the surface consists of dust.

Konrad Buettner of the University of Washington claims it is highly porous and cemented together.

A surface of volcanic origin is the belief of Downey geologist Jack Green. He said that impact from meteors and other outside objects undoubtedly created some of the features observed on the moon, but most of the surface was created by volcanic action.

Dr. Gault's theory states that most of the surface consists of rocks ejected by impact. As a result of millions of impacts through the millions of years, he said, the moon's surface must have a layer of dust on it.

Buettner said the moon's crust is made up of highly porous fragments that are cemented together and might break when a space traveler steps on them.

Still another scientist, Robert Jastrow of NASA, believes the lunar landscape is a series of plains dotted with gently rolling hills.

And, finally, Dr. Leonard Roberts, of NASA's Langley Research Center, in concurring with Dr. Gault's dust theory, cites a possible problem for the Apollonauts.

He fears the rocket engines of their descending spacecraft may cause erosion and raise a giant dust storm.

# 'Goddard Day' Bill Proposed By Saltonstall

Senator Leverett Saltonstall of Massachusetts has introduced a bill in Congress "to promote public knowledge of progress and achievement in astronautics and related sciences through the designation of a special day — March 16 — in honor of Dr. Robert Hutchings Goddard, the father of modern rockets, missiles and astronautics.

The bill has been referred

to the Committee on the Judiciary.

This marks the third attempt in as many years to solicit the approval of the legislative body for a national tribute to America's space pioneer.

In 1961, the National Rocket Club proposed to the House Space Committee the submission of such a bill, which was never acted upon.

# Super Synchrocyclotron Set For New Langley Laboratory

A synchrocyclotron capable of accelerating protons to energies up to 600 million electron volts will be built by the Catalytic Construction Company, of Philadelphia, for NASA's new Space Radiation Effects Laboratory in Virginia.

It is to be used for advanced Radiation Studies in support of space missions.

Water, Water Everywhere But In Space

The age-old phrase, "Water, water everywhere and not a drop to drink," will become outmoded in space.

Provision of sufficient water for extended trips to the outer realms of the solar system is, in fact, of major concern to scientists.

NASA's Langley Research Center has contracted the Electric Boat Division of General Dynamics to study the problem.

They are developing systems to permit re-use of wash water or water from human waste for bathing, and to r e n d e r potable condensate from respiration and perspiration.

Two methods are under study: distillation and treatment with chemicals such as activated carbon and ion exchange resin.

On Project A pollo — a planned 14 day trip — astronauts will take along water and won't require additional means of supply.

When they start seeking knowledge of other worlds beyond the moon, a system of providing adequate water will be of prime importance.

#### Weightless Whiskers

Astronauts of the future will have a choice of either storing their shorn whiskers in a bag, or organizing the first House of David team in outer space.

Otherwise, according to NASA's Dr. Stanley White of the Manned Spacecraft Center, whiskers would float around the cabin in the weightlessness of space and create a fuzzy haze, or possibly gum up electronic gear. The Catalytic Company will build, install and test the huge machine which will be a part of the new laboratory to be built on Government land at Oyster Point, in Newport News, about 10 miles west of NASA's Langley Research Center.

#### Simulating Radiation

NASA scientists will use the laboratory facility for simulating the high energy corpuscular radiation, encountered in trajectories or orbits of proposed NASA space flights.

Lab studies will include effects of radiation on spacecraft materials, and components, as well as studies of shielding against radiation.

The laboratory and cyclotron are expected to cost about \$12 million and are scheduled for completion in mid-1965.

# MSFC Contracts Let; Total \$112 Million

Contracts totaling approximately \$112 million were awarded last month by the Marshall Space Flight Center in support of its space vehicle development programs.

More than \$18 million were spent in Florida.

The United Aircraft Corp. in West Palm Beach received \$11,200,000 for a liquid hydrogen engine program.

LOC was allotted \$5,404,000 for Saturn I and Saturn V development programs and engineering support for a Saturn I/Agena D study program.

The Air Force Missile Test Center at Patrick AFB was awarded \$1,395,699 for propellants for the Saturn program, transponders and test sets.

The University of Florida received \$49,845 for research on cylindrical junctions exposed to combined load, cryogenic temperatures and pressure.

# HONORARY AWARDS PRESENTED TO 26 LOC EMPLOYEES

Twenty-six LOC employees recently were presented with NASA Honorary Service Awards. Presentations were made to the following eligibles: 20-year emblems—Walter E. Andruss, Program Coordination and Management; Prosper A. Fagnant, Office of the Director; LaRue D. Hilmer, Lewis E. Melton and Raymond A. Woodbury, Financial Management; Robert M. Johnson, Protocol; Joseph R. Labutka and Ogden J. Martyn, Facilities;

15-year emblems — John P. Claybourne, Heavy Space; Ronald L. Crain and James Russo, Technical Information; Richard H. Harper, Facilities; James C. Hoskins, Jr., Launch Support Equipment; Gerard A. Michaud, P & C; Steiner L. Rowell and Elmo R. Whisenant, Support Services; Mark E. Smith, Personnel Office;

10-year emblems — Heyward D. Brewster, Launch Support Equipment; Thomas D. Coaker and Marlene M. Davis, Personnel Office; Gatha F. Cottee, PIO; Charles W. Garner, Support Services; Christopher W. Gonos, Facilities;

One-year emblems — Margie S. Clark, Personnel Office; Michael E. Haworth, Jr., P & C; Lois B. Stroud, Financial Management.

### Scientist Doubts Mars

#### **Trip Before Century End**

The United States will probably land men on Mars before the end of this century.

This was the opinion expressed by Dr. Jerome B. Wiesner, Scientific Advisor to President Kennedy in a Voice of America interview program called "Press Conference U.S.A.

Wiesner said the mission to Mars would possibly cost about \$100 billion.

#### Wives Club To Meet

The regular meeting of the NASA Wives Club will be Wednesday, March 6, at the Patrick AFB Officers Club at 9:30 a.m. Bridge and Canasta will be played before the luncheon at noon.

CONGRATULATIONS were in order from LOC Director Dr. Kurt H. Debus to these three LOC employees, who received awards for 55 combined years of government service. Left to right are Prosper Fagnant, of Dr. Debus' staff, 20 years; Gerald Michaud, Chief Procurement and Contracts Office, 15 years; Dr. Debus, and Lewis Melton, Chief of the Financial Management Office, 20 years.

### DELTA DAY

(Continued from Page 1) of the Goddard Field Projects Branch at the Cape; representatives of Douglas and associate contractors, and local civic leaders.

The ceremonies will be held at Pad 17, where the Delta is launched from the Cape. They are scheduled to begin at 2 p.m.

Accomplishments of Delta will be noted by Dr. Newell and a group achievement award will be presented to the Delta project group by Dr. Seamans. Dr. Goett will present a plaque to Douglas and other contractors for their work on Delta.

After the ceremonies, a tour will be conducted of Pad 17. On display will be several full scale models of Delta-launched spacecraft.

Delta's record of successful launches began Aug. 12, 1960, when it boosted the Echo I passive communications satellite into orbit.

Delta was last fired at the Cape Feb. 14, when it boosted the Syncom Communications Satellite from Pad 17.

Future Delta assignments include a second Relay, other SYNCOMS, TIROS, Orbiting Solar Observatory, Atmospheric Structure Satellite, and the Inter-planetary Monitoring Probe.

### "Jet Tummy?"

English stewardesses on high altitude trans-Atlantic flights are plagued by what they call "jet tummy," that swells them up like balloons, a London source reports. It's painful, the girls say, and sometimes it's 24 hours before their waistlines get back to normal.

# Bid Opening Slated On NASA Causeway

Bids will be opened next month on dredging fill for NASA's causeway across the Indian River.

The four-lane causeway will be about  $7\frac{1}{2}$  miles long and will connect U. S. Highway 1 on the mainland with the Merritt Island Launch Area near Orsino. Work is already well underway on the two-lane  $3\frac{1}{2}$ mile-long causeway between MILA and the present Cape.

Bids on the fill work will be opened March 26 under an invitation issued by the Corps of Engineers. Fill for the causeway is expected to cost about \$2.5 million.

The causeway will join the mainland about two miles south of Indian River City.

# Navy Captain Tapped As Launch Vehicles Director In OMSF

Capt. Robert F. Freitag (USN), 43, will join NASA about April 1 as Director of Launch Vehicles in the Office of Manned Space Flight.

Freitag is moving into a post vacated by Milton Rosen who is joining the staff of Admiral W. F. Boone, NASA Deputy Associate Administrator for Defense Affairs, as a senior scientist.

In announcing the appointmnet, Manned Space Flight Director D. Brainerd Holmes said, "We are very pleased that the Navy is making Bob Freitag available for this important job in the Office of Manned Space Flight. Working primarily with the Marshall Space Flight Center, Freitag will direct a group here responsible for all aspects of the development, production and scheduling of the Saturn family of launch vehicles so vital to the Manned Lunar Launching Program."

Freitag, who headed a Navy unit which in 1954 planned and established the Polaris program, has worked in the missile and space field during most of his 22-year Navy career.