

SPACEPORT

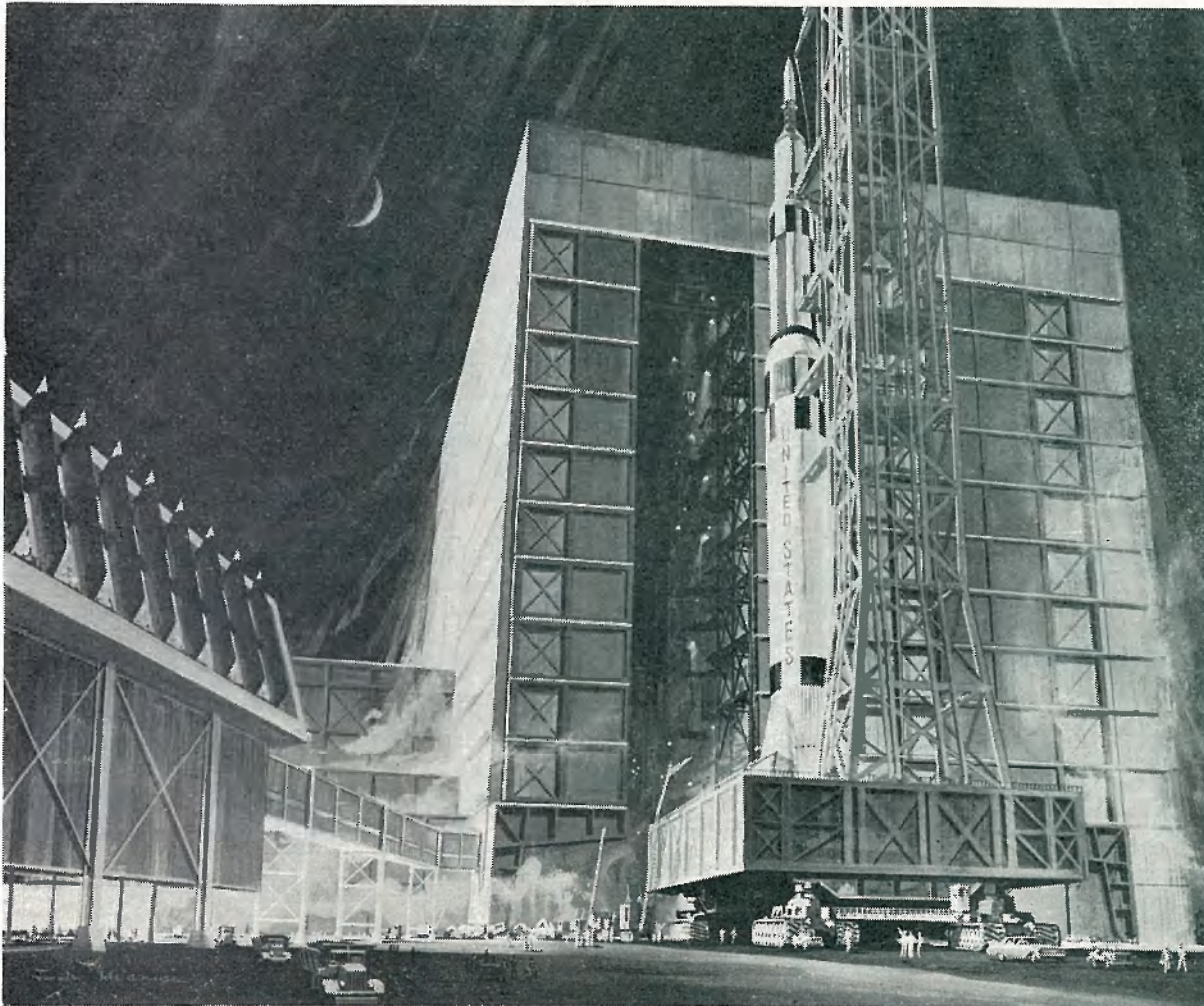


NEWS

Volume 2, Number 2

NASA Launch Operations Center, Cape Canaveral, Florida

January 10, 1963



THE DESIGN contractor for Launch Complex 39's Vertical Assembly Building visualizes the structure in operation this way. This large painting, more than 5 feet by 6 feet, hangs on the wall of the New York office of URSAM (Urbahn-Roberts-Seelye-Moran), the engineering firm preparing the design of the VAB.

Astronauts Cooper, Shepard Begin Tests

Astronaut Gordon Cooper has encountered conditions similar to those over 20 miles up in altitude tests at Manned Space Center facilities here—without ever leaving the ground.

The tests are conducted in a high altitude test chamber which resembles a gigantic pressure cooker. Located in the MSC hangar, the chamber can simulate pressure up to 150,000 feet.

Astronaut Alan Shepard, Jr. serving as back up on the Cooper flight, also participates in the tests.

RELAY, TELSTAR BACK TO LIFE

Like two veteran vaudeville performers whose show was miraculously revived long after hope faded, Telstar and Relay were back at the same old world-wide stand today.

And Relay had waiting in the wings a real show-stopper, the first live television link among three continents.

The first public demonstration of Relay clicked off yesterday morning when the Andover, Me., station beamed a 10-minute news segment of NBC's "Today" show to France. Frenchmen viewed

the unveiling of their Mona Lisa by President Kennedy in Washington's National Gallery of Art.

Plans later in the day called for sending a photo-facsimile from France to the United States via Relay.

Both communications satellites came back to life last week, Telstar after it had been "tricked" into restoring power to itself, Relay after a power-consuming transistor was bypassed.

Telstar has resumed its normal function and engineers (See RELAY, Page 8)

Venus Spins Backwards... Has Long Day

The planet Venus apparently rotates backward and very slowly, perhaps only once every 250 earth days, top U.S. scientists learned recently from reports of NASA's experiment to investigate the distant planet with radar.

This report by Dr. Richard M. Goldstein and R. L. Carpenter was one of the highlights of a meeting of the American Geophysical Union at Stanford University where the members also heard evaluation of preliminary results obtained from Mariner II which flew past Venus on December 14.

Space Weather

The scientists learned of new precise measurements of the planet's mass and of the "space weather" Mariner encountered on its journey.

But these reports were not as startling perhaps as Goldstein and Carpenter's evaluation of radar experiments from October 1 to December 17, at Goldstone Tracking Station in the Mojave Desert.

The scientists found it surprising that Venus apparently rotates in a direction opposite to the earth. Most other planets in the solar system rotate in the same direction as our planet.

Two Exceptions

The exceptions are Uranus, which is tipped so that its axis is almost parallel to the plane of its orbit—and Pluto, whose direction of rotation is unknown.

Goldstein said that it is assumed that Venus is not tipped like Uranus, although no one actually knows, since Venus is hidden in clouds. The radar data make the most sense if Venus is not so tipped, he explained.

The radar also showed a large feature on the surface (See BACKWARD, Page 8)



WHAT MAKES LEMMINGS RUN?

One hears interesting lunch time comment on this area's traffic problem. One driver who comes over from Orlando every day had this to say: "I start out early when it's very dark and this time of the year, there's fog almost every morning. Sometimes you can't see over 25 or 30 feet. So I'm driving along there, scared, wondering what I'm going to do if there's anything in the road ahead of me when these cars begin to go by me, fast, and disappear immediately into the fog."

Watching the cars, he was reminded of some newsreel shots he had once seen of the death migration of lemmings, small European rodents noted chiefly for the fact that periodically, great numbers migrate across land into the sea and drown.

"I was just a kid when I saw that newsreel," he recalled, "but I can still remember how those little animals came scurrying by the thousands up to a cliff over the ocean and then blindly, stupidly and without pause, dropped to the rocks or into the water."

This feeling that we are heading down the road to destruction almost as if it were our destiny is shared by many traffic statisticians who often remind us that it is always darkest just before it gets pitch black.

They believe that our lemming-like behavior on the highways assures us of an ever-spiraling accident rate, soaring in direct ratio to the increase in population and automotive horsepower.

The answer, many believe, is in some kind of anti-collision radar or an all-encompassing central control system for traffic.

But our favorite is the far-out theory advanced by an imaginative inventor and manufacturer of electronic equipment named Lear. He predicts that man one day will be transported literally as part of an electronic beam. Man's physical form, Lear believes, will be changed harmlessly so that he can be "transmitted", if you will, electronically to his destination, there to be "reconstituted" to his normal configuration.

But until that happens, or we do find better ways of solving these problems, our paths may not be too different from the lemmings and we'll continue to feel the nip in stories like this one:

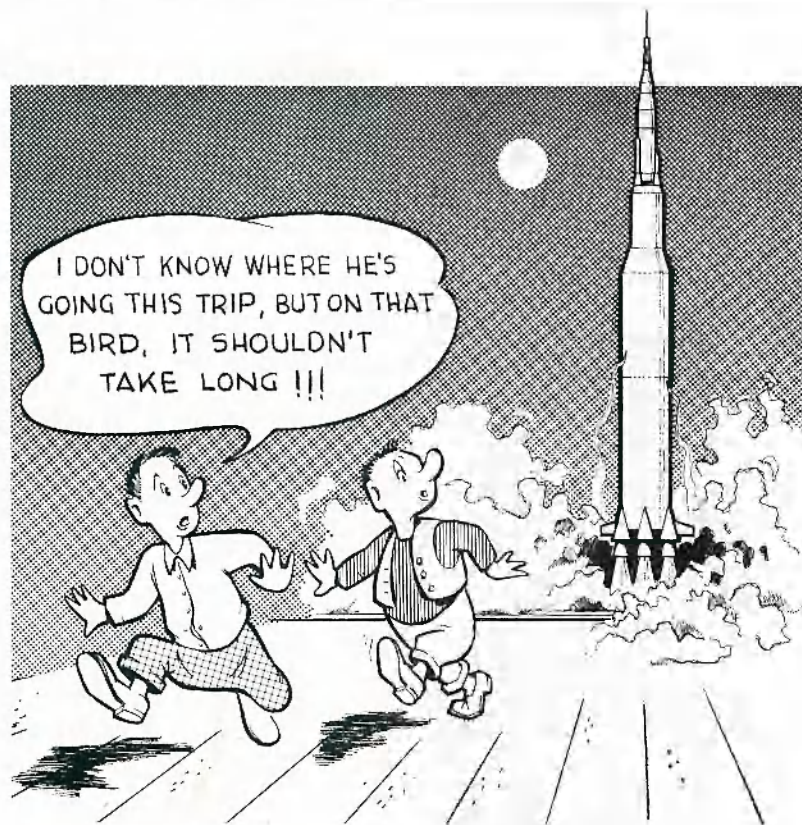
An irate driver bailed out of his wrecked car after a smashup at an intersection. "Say," he screamed, "I had the right-of-way!!"

"Right, Pal," the other driver agreed, "but I had the truck."

"... ON PRETTY REDWING"

Now under consideration by the Federal Aviation Agency is a civilian supersonic aircraft capable of speeds in excess of Mach 3 (2,000 miles per hour or more). At those speeds, the heat of air friction will cause the aircraft's body and wings to take on a cherry red glow.

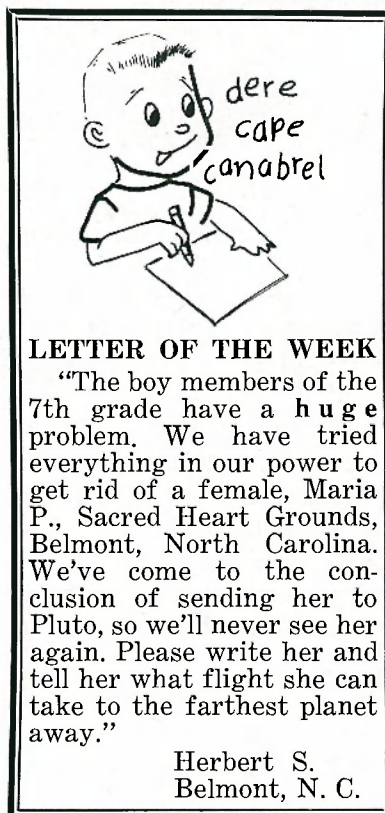
Any traveler who has watched a solicitous stewardess reassure cautious passengers on "ancient" airplanes about normal exhaust flashes may well ponder the reactions of passengers who look out and see a glowing wing!



SATURN-MERCURY ATLAS PLANNED

This headline, seemingly written to confound the most avid space enthusiast, appeared last week in a New Orleans newspaper. It wasn't, however, an announcement of a monstrous hybrid of three famous Cape projects but a story stating that the Lowell Observatory at Flagstaff, Arizona and the National Geographic Society have teamed to produce an atlas of the nearby bright planets from Mercury to Saturn.

And it served as an idea for artists in the graphics department who produced the cartoon.



LETTER OF THE WEEK

"The boy members of the 7th grade have a huge problem. We have tried everything in our power to get rid of a female, Maria P., Sacred Heart Grounds, Belmont, North Carolina. We've come to the conclusion of sending her to Pluto, so we'll never see her again. Please write her and tell her what flight she can take to the farthest planet away."

Herbert S.
Belmont, N. C.

Reliability Chief Attends Conference

LOC Reliability Chief Bob Body was in Washington Tuesday for the Office of Manned Space Flight's first Reliability Assessment Review Board Meeting.

Body met with representatives from Manned Spacecraft Center, Marshall Space Flight Center and the host OMSF for the one-day conference.

On the agenda was an OMSF reliability plan for the Management Council and Review, and a look at guidelines governing the board's operation.

The review board was organized to attain maximum overall coordination between different assessment efforts of the centers related to the Apollo project.

Reliability is the probability that a system will perform satisfactorily for at least a given period of time when used under stated conditions.

SPACEPORT

NEWS

Cape First Landing Site For Spanish?

Cape Canaveral, site of the first U. S. launch of a satellite into orbit around the earth, may have been the first continental landfall by Europeans in the western hemisphere.

Spanish explorer Juan Ponce de Leon first sighted what is now Florida on April 2, 1513.

Just where he sighted the peninsula is probably a mystery that will never be solved, for Ponce's records were very sketchy.

Ponce had been governor of Puerto Rico, then was removed from the position. Later he was granted a patent of discovery by the Spanish Government, providing that "a fleet will be organized at the expense of Juan Ponce de Leon and any claims must be colonized within three years."

Three Vessels

With a fleet of three vessels he set sail from Puerto Rico on March 3, 1513, passing San Salvador on March 14, and sighting the east coast of the North American mainland on April 2.

Ponce first went ashore somewhere between Fernandina and Miami, most likely between the mouth of the St. Johns River and St. Augustine.

Since he sailed his fleet north - northwestward after the first landfall, and since the Cape juts far out into the Atlantic Ocean, many historians believe the Cape was sighted first by the Spanish explorer.

"Because it offered a view of many and cool woodlands, and because they had discovered it during the Feast of Flowers, Ponce de Leon named the area La Florida," writes an early historian. He believed La Florida to be an island.

The historian wrote that Ponce sailed south-southeastward to make a second landing at or to the south of Cape Canaveral.

There is no notation as to why the point of land was named Cape Canaveral or that Ponce de Leon named it, but the word, Canaveral, in Spanish means "field of high reeds (or cane)" and since he is al-



DR. HOMER E. NEWELL, Director of NASA's Office and Space Sciences, heads table in meeting of Senior Council members hosted by Dr. Kurt H. Debus, Director of Launch Operations Center. Planning sessions included conferences on lunar and planetary goals, bio-sciences and the future roles of Explorer spacecraft and Orbiting Solar Observatories.

Federals On The Move

ANOTHER REBEL TOWN SUGGUMBS

Another rebel town is falling to the "Federals."

Just as Shiloh on the Brevard-Volusia County line is being absorbed by NASA-AMR's land acquisition, so is a community of 100 persons in the land acquisition for the Mississippi Test Facility.

The town, which officially died today, is Gainesville, on the banks of the Pearl River.

Named for a doctor to whom the Spanish gave a land grant before 1800, Gainesville at one time was touted as the most important town in all of Southern Mississippi. For 100 years, the town was the "only point of contact with the outside world" for an entire region.

During this period, it was a brawling rivertown and sawmill center. In its early days, Gainesville was headquarters for pirates and freeholders. Then, Mississippi joined the Union in 1817, and law and order moved in and the pirates were driven out.

The town reached its peak and went on the wane in 1838 when the railroad came through the state but by-passed Gainesville.

In 1962, there were 35 families in Gainesville. Now, they will be gone in the acquisition of 141,000 acres on which Saturn boosters will be test fired.

One news report said Gainesville's executioner was the Space Age.

leged to have been the first Spaniard to sight it, there is a good possibility that he did give Cape Canaveral its name. Certainly the Cape area was inhabited by Indians who grew sugar cane.

There is speculation that Cape Canaveral may have

been sighted by English explorers even before the visit of Ponce de Leon, though records of such a sighting do not exist.

British Explorer John Cabot may have sighted it before 1500. On one of his expeditions to the New World he

sighted land in the Middle Atlantic area, then sailed northward in an attempt to find a northeast passage to the East.

As he sailed northward his crew mutined and forced him to turn to the south. It is recorded that Cabot sailed as far south as 36 degrees before returning to England.

However, in 1502 a Lisbon cartographer drew a map that showed land extending to the south of the Middle Atlantic area and the chart showed a protuberance that might well have been the Cape. There is no record as to whether the Portuguese map maker may have gotten his information from a member of the Cabot expedition.

Cape Canaveral is also the site of the first recorded shipwreck along the coast of the North American continent.

The fleet of Frenchman Jacques Ribault had run into foul weather and one of his ships had been wrecked off Canaveral.

Thus, it may be forever unconfirmed that Cape Canaveral, site of the United States' first satellite launch, had two other firsts in New World History — the site of the first landfall by a European explorer and the site of the first shipwreck off the American continent.

Satellites To Study Earth

Two satellites, Eccentric Orbiting Geophysical Observatory (EGO) and Polar Orbiting Geophysical Observatory (POGO), which will study the earth—rather than the space around it—have been announced by Goddard Space Flight Center.

Ego will be launched from the Cape in 1963 and Pogo will be launched from Pt. Arguello, California, next year.

The orbiting satellites will have their observing sides turned constantly toward earth rather than toward any other celestial body.

Brevard Junior College Set For Registration

Registration for the spring semester of Brevard Junior College's Evening Division in Cocoa will be held from January 15-17.

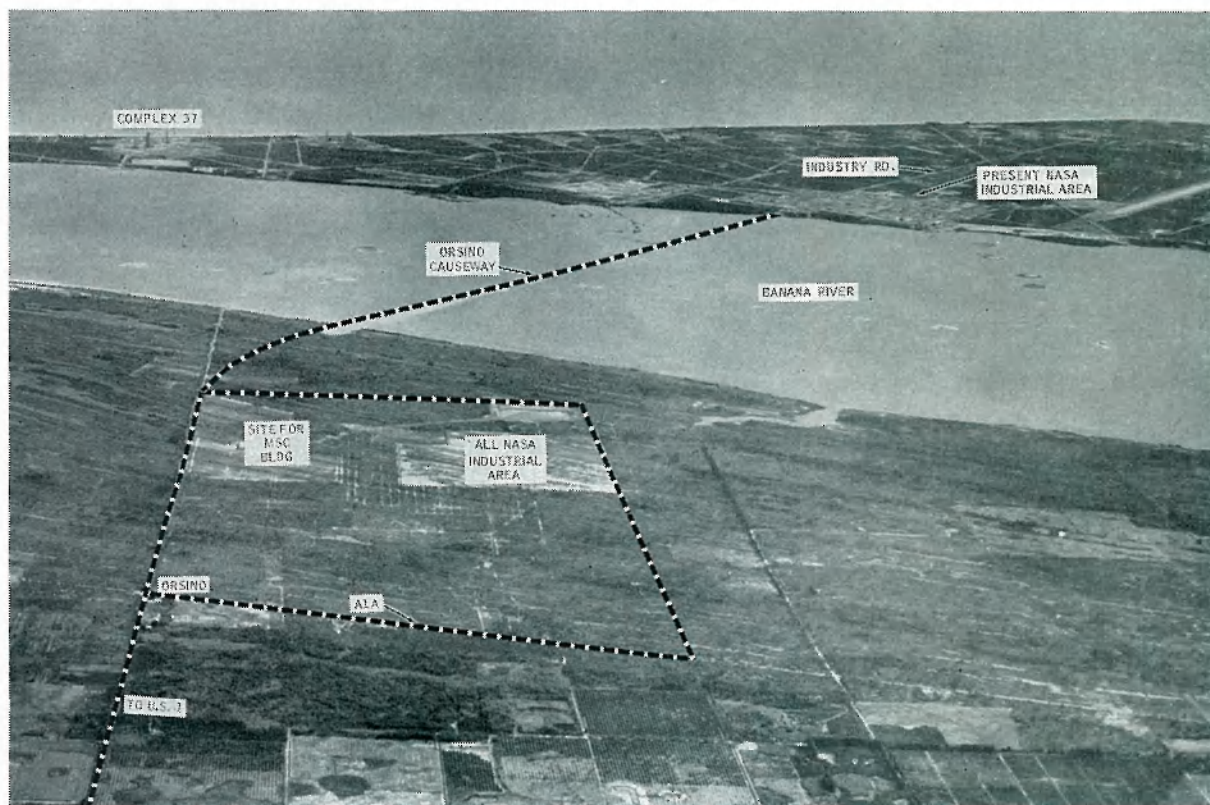
Tuition costs may be sponsored by NASA where specific courses are needed by employees in connection with job requirements and responsibilities. Supervisors should send LOC Form 13B-1, in triplicate to Personnel Training no later than January 14 for their employees who have need for these courses.

Registration will be held from 7 to 9 p.m. — at Titusville High School on Jan. 15; at Melbourne High School Jan. 16; and at the campus in Cocoa on Jan. 17.

A registration appointment must be made in order to register. Prospective students may call the registrar at Brevard Junior College or see the evening division coordinators at the college or at Melbourne or Titusville High School. No registration will be accepted except on the dates specified.

Registration fees are \$6 per semester hour for Brevard County students and \$7.50 per hour for other Florida students. The fee for non-Florida students is \$11 per hour.

Brevard Junior College is accredited by the state of Florida and awards degrees of Associate of Arts and Associate of Science.



AERIAL VIEW of Merritt Island and south end of Cape, background, shows new NASA area, and Orsino causeway and road locations. Construction of Manned Spacecraft Center's 8-story operation and checkout building is expected to start in one month.

ROBOT SCOUT OF MARS SAID THREE YEARS OFF

An advance team of robots will be landed on Mars in 1966 by the United States to search its surface for forms of life.

Describing the ingenious devices being developed to carry out this startling assignment, Freeman H. Quimby of NASA, said it is a beginning to determining how common life is in the universe.

The first detectors will be

NASA Researchers To Present Papers

Scientists from NASA's Langley Research Center will report on the results of the agency's aeronautical and space research at the 31st meeting of the Institute of the Aerospace Sciences in New York January 21 through January 23.

Subjects in the papers to be presented range from helicopters to lunar missions. Attending the meeting will be several hundred scientists and engineers representing Government, industry and educational institutions.

designed to hunt for bacteria, the most common form of life on earth. Part of the device is a "sticky string" which will pick up samples of soil.

Researchers working under a NASA grant, are working on:

* An instrument to detect DNA, the genetic material of life on earth, in any Martian micro-organisms.

* A device carrying dyes which change in color when they contact proteins, the stuff of earthly life.

* A mass spectrometer to detect ions or charged particles from amino acids, peptides or carbohydrates in living things.

Finding life of this kind on Mars would be astounding because it would mean that life had started up independently on at least two of the planets in this solar system.

Scientists have estimated that there are 100 billion billion stars in the universe, and 5 percent might have planets comparable to those in our solar system. That would, say theorists, mean one billion billion such stars with planets possibly capable of supporting life.



SIDES OF 35-foot mound are smoothed from the top by dragline and bucket. Dirt was carried from borrow pit up incline to the top of the mound by huge but fast rolling earth-moving equipment.

Employee Addresses To Go On W-2 Forms

G. A. Sewell in the payroll section of Financial Management has announced that the machine run of the W-2 forms, which will be issued shortly, does not include employee's address. All addresses should be printed or typed in the form before it is attached to Federal Income Tax returns, he reminded.

PLANNING IS KEY TO BIG JOBS HERE

The occasional cynic who labels most government spending as wasteful would probably have a field day if he knew that a huge mound of dirt carefully piled on the site of the Manned Space Center's New Operation and Check Out Building on Merritt Island will soon be moved and piled somewhere else.

But there's nothing that smacks of "made work" in this project. Engineers in the Facilities Office here, who appear as dollarwise as a thrifty housewife, would quickly answer that the huge pyramid of dirt is the least expensive yet most effective solution available to a knotty problem they faced.

One of their jobs was the planning of the foundations for the massive building to go up on the site.

The problem: Down to 42 feet below the surface, the soil is shale and fine sand. From 42 feet to a depth of 55 feet, it is non-stable, compressible clay-silt. The first solid base is the Ocala caprock and it is at the great depth of 189 feet.

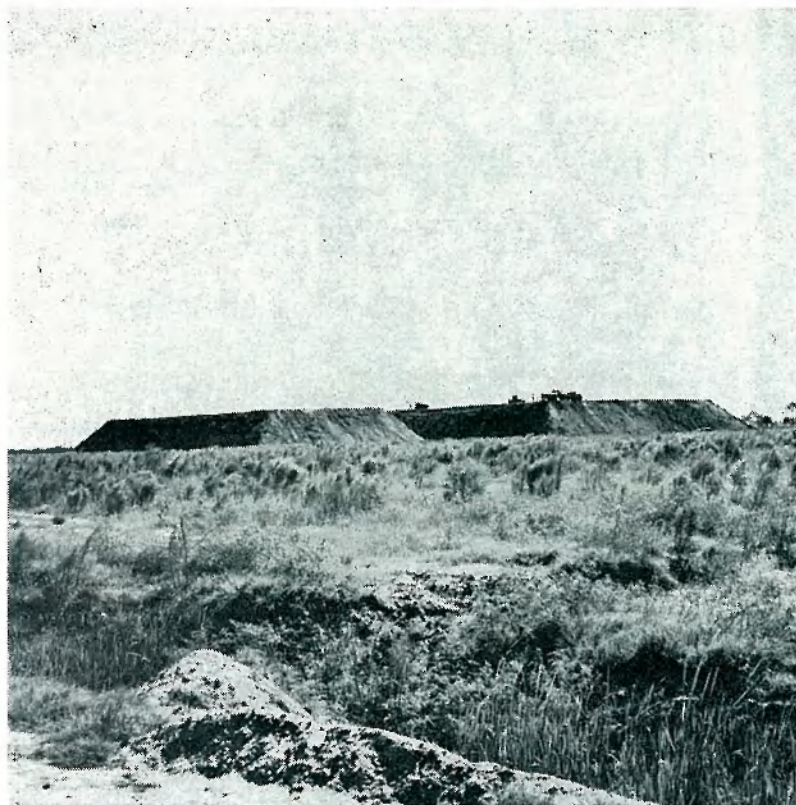
Fast Settling

Tests indicated that buildings like those planned for the site could be expected to settle at a ruinous rate within three to five years—scarcely the solid base needed for delicate instrumentation of spacecraft activities.

Pre-settling of the foundation material was the answer. So 200,000 cubic yards of soil was taken from a borrow pit nearby and piled into a great mound at the site and compacted with heavy equipment.

Present precise measurements indicate that its weight will compact the soil under it by February and that the site will be ready for construction to begin. Plans call for placing the dirt then on other sites for required fill.

"I don't think people have any idea how economy is stressed in these projects," Colonel Bidgood of the Facilities Office said. "For example," he went on, "We have just learned that bids for this building have been announced in Jacksonville — and that the lowest bid was well under the government's estimate."



MASSIVE mound of dirt looming over site of Manned Space Center's Operations and Checkout building is used to pre-settle or compact sub-surface soil before construction begins.

Genuine Behemoth

LOC's Vertical Assembly Building is to be a genuine behemoth.

It will have one and a half times the volume of the Pentagon, the world's largest office building.

The 524 by 674 by 513-foot building also will enclose more space than the Great Pyramid of Egypt, one of the Seven Wonders of the World.

Some 45,000 tons of steel will go into the VAB. A single train hauling this quantity of material would be more than 10 miles long.

NASA Women's Club To Hold Dinner Meeting

NASA Women's Social Club will have a dinner meeting at Schraft's Carriage House in Cocoa Beach Tuesday, January 15 at 7 p.m.

Mrs. Bert Williams, President, said members should call her at SU 3-8343 or UL 3-6563 before Friday, January 11, for reservations.

The sun's surface is 12,000 times that of the earth.

One light year is equal in distance to 5,880,000,000,000 miles.

Drivers Show More Strain Than Spacemen

A device developed by aeromedical scientists to record a spaceman's heartbeat shows that people driving to work along crowded roads may undergo more nervous strain than an astronaut in orbit.

The small electronics packet worn by astronauts to monitor physical and emotional conditions in flight was used in recent tests on men and women exposed to upsetting experiences of varying kinds.

One driver in the test showed an average 71 pulse beats per minute on his way to work. But when he entered the Los Angeles Freeway, however, his pulse shot up to 111.

Astronauts Glenn and Carpenter by contrast recorded heartbeats of 80 to 90 and 60 to 94, respectively, while in orbit.

Indoctrination Friday

Security indoctrination for new employees will be held tomorrow morning at 10 in the conference room on the E & L building's second floor.

Administrative personnel should schedule employee attendance by calling 783-4713 3283.

1986 Called Best Bet For Mars Jaunt

If you're planning a vacation trip to Mars anytime soon, skip the years 1975 through 1984.

Your best bet would be 1986-88, according to Dr. Harold Hornby, senior scientist at NASA's Ames Research Center, Moffet Field, California.

Speaking before a meeting of electrical engineers, Dr. Hornby said such trips are usually possible every two years, when Mars gets closest to earth, but 1975-84 will be the poorest period.

The best time for manned flights to Mars would be 1986-88, the scientist said, when the planet will move within 36 million miles of earth. Mars is now 70 million miles away.

Dr. Hornby is one of a team of scientists at Ames who have been studying problems of space rendezvous, mission research and analysis studies related to solar probes, and manned lunar and manned planetary missions.

He said use of atmospheric entry heat shield methods can eliminate use of expensive rocket thrust for slowdown and landing on Mars and for re-entry back to earth.

Even though heat shield methods will eliminate the need for rockets for landing on Mars and getting back to earth, Dr. Hornby said, rockets will be needed for the initial launch and to get off Mars.

On second thought, perhaps you'd better wait even a little longer than 1988 to take the trek, unless you buy a one-way ticket. The round trip will take about one year.

Saturn Facts

The Saturn service structure on pad 34 is said to be the largest wheeled structure in the world.

The Saturn service structure on pad 34 is built to withstand winds up to 125 mph.

The Saturn service structure on pad 34 weighs 2,800 tons, or 5,600,000 pounds.

The reinforced concrete launch pad at complex 34 is eight inches thick.



"I'LL HAVE TO TAKE IT BACK TO THE SHOP!"

Firms Announced For NASA Construction

Two California firms are apparent low bidders in a joint venture for construction of the Manned Spacecraft Checkout and Operations Building, the first facility to be erected in NASA's Merritt Island Launch-Industrial area.

The Army Corps of Engineers announced bid openings Tuesday. Paul Hardeman, Inc., Stanton, Calif., and Morrison-Knudsen Co., Inc., Southgate, Calif., were the lowest of 11 bidders with a \$7,691,624 proposal.

The 300-square-foot concrete structure will be completed by February, 1964.

The Manned Spacecraft Building, one of the largest to be erected in the Cape area, will be composed of three separate facilities under one roof—a two-story administrative facility, a laboratory control section and a six-story-plus checkout and assembly area for the Apollo Spacecraft. Astronaut quarters, including final training facilities, will be located on the upper floors.

Fashionable Footwear

At a recent exhibit in Eau Gallie of NASA's Mercury model spacecraft, with a dummy astronaut inside, the following, exclaimed by a bug-eyed three-year-old, was overheard: "Gee, Mommy, what big shoes he has."

PURELY PERSONAL

Mary Fagan, Facilities Office, reports that Herman Baum and his wife celebrated their 35th wedding anniversary on December 27. He is assigned to the electrical engineering section of Facilities.

David Tharp, a co-op student attending Georgia Tech, has returned to Facilities where he will join the Engineering Design section. Co-op students attend college one semester and work for one of the cooperating agencies like LOC for the next semester.

Facilities' Eleanor Ensrö flew to Baltimore to spend the holidays with her family.

A-Powered Craft Seen As Future Space "Work Horse"

There's a big future in space flight for atomic powered rockets, according to the chief of the nuclear vehicle project office at NASA's Marshall Space Flight Center, Huntsville, Alabama.

"I think that nuclear propulsion will turn out to be one of the real work horses in space," said W. Scott Fellows,

an Air Force colonel assigned to NASA. Fellows and his 20-man staff are working on the RIFT (Reactor In Flight Test) rocket vehicle development program. First flight test for the rocket is scheduled in 1967-68.

He explained that while atomic rockets will never be suitable as launch vehicles from earth, they will be particularly adaptable for use in outer space because of economy of operation and greater payload-carrying capability. A nuclear spaceship's fuel supply will consist of a small amount of uranium or other radioactive material instead of heavy chemical propellant.

With rockets having a long life reactor that could be turned off and later re-started, the rocket would be particularly adaptable to space shuttle missions such as a moon ferry, Fellows points out. He said there was tremendous interest in the project in the technical world."

Space Packet Seeks Unseen Traffic Hazard

NASA has asked for proposals from industry for the design and construction of a satellite with a large surface area to study further the hazards to space flight posed by meteoroids and micrometeoroids (tiny particles of matter flying through space at high speed).

The satellite will be "erected" in orbit; that is, once in orbit, it will be expanded or unfolded so that it will have a large sensing surface area of about 2,000 square feet. It will weigh more than two tons and its useable lifetime will be more than one year.

NASA's Office of Advanced Research and Technology plans to conduct the experiment as a secondary mission of the Saturn launch vehicle. The primary purpose of the first ten Saturn flights is to test the vehicle itself.

The purpose of the satellite is to collect information needed in the design of large operational systems both manned and unmanned, for operation within a few hundred miles of Earth. Its large size will permit study of skin thickness greater than that normally used in small spacecraft.

NASA NEWCOMERS

NASA - AMR added seven new employees during the past two weeks:

Instrumentation Planning: Joe Smith.

Support Services: Mary B. Bray and Leece Keeton.

Financial Management: Helen Landon.

Program Coordination and Management: Helen Roberts.

Technical Information: William Willmot.

Personnel: Genevieve Link.

Koppenhaver To Speak On Quality Control

James T. Koppenhaver, Director of NASA's Office of Reliability and Quality Assurance, will be guest speaker next Wednesday night at the dinner business meeting of the American Society for Quality Control.

His topic will be NASA Quality Assurance and Reliability Programs and Policies.

The meeting, to be held at the Patrick AFB Officers Club, is open to the public.

Tickets may be obtained by calling PA-3-9311 in Melbourne.

Space Scoreboard

The scoreboard of space ventures shows the United States well ahead of the Soviet Union.

As of Jan. 2, this country had racked up 92 successes throughout the spectrum of space efforts and the Russians had 28 successes.

Good Fuel Supply

The sun's fuel supply (hydrogen) is estimated to last for another seven billion years.

MARINER MEASURES SUN'S "SOLAR WIND"

The Sun is continuously "blowing its top" according to Mariner II. Streams of very hot ionized gas are being projected outward from the inner corona of the Sun and this gas appears to be the dominant feature of interplanetary space in our region of the solar system.

Some details of this new concept of presumably empty space were described as the American Geophysical Union's recent meeting at Stanford University.

Dr. Conway W. Snyder, of NASA's Jet Propulsion Laboratory reported on the preliminary results of an experiment conducted by him and his colleague, Mrs. Marcia Neugebauer. The experiment measures the velocity, density, and temperature of the gas.

This interplanetary gas is properly called a "plasma," Snyder explained, because it is completely ionized, and consists of an electrically neutral mixture of electrons, hydrogen nuclei, helium nuclei, and heavier atomic nuclei, listed in the order of decreasing abundance.

Because of its high velocity, the solar plasma is sometimes called the "solar wind," and it has previously been suspected as the cause of geomagnetic storms, radio blackouts and perhaps auroral displays on earth.

It has also been observed previously for brief periods near the earth by the Explorer X satellite and by some of the Russian cosmic probes. Only Mariner II, however, has observed it for long periods of time, at points in space far from any planet, and in sufficient detail to begin to reveal its structure.

Number of Federal Jobs To Increase Next Year

The number of Federal jobs will continue to grow. The President's 1964 budget is expected to earmark funds for a minimum of 25,000 new jobs.

In proportion to population, Federal employment has decreased significantly from 17 Federal employees for every 1,000 persons a few years ago to only 13 today.

If employment had increased in the same proportion as the population, the number of Government employees today would be 3 million.

Civil Service Act Signed 80 Years Ago

To mark the 80th anniversary Wednesday of the signing by President Chester A. Arthur of the Civil Service Act of 1883, President Kennedy has called on the people of the U. S. to participate in the observance of the anniversary during the month of January.

The act has stood for 80 years as the foundation of the merit system of employment in the Federal Service. It set up the framework for today's personnel system under which two million Federal employees serve the American people.

In our nation's infancy, appointments to public office generally were made on a basis of fitness for the jobs. But for approximately 50 years prior to 1883, the slogan "To the victor belongs the spoils" was the accepted principle in filling Government



jobs. That system had reached such proportions that in 1841, when President Harrison took office, thirty to forty thousand office seekers swarmed into Washington to claim the 23,000 jobs that made up the federal executive service of that day.

Public indignation against abuses resulted in the passage of the law which has remained basically unchanged for 80 years.

The act laid down certain principles and aims for the civil service and left to the president the responsibility



R. H. GRAY, right, Chief of Field Projects Branch for Goddard Space Flight Center, accepts award for "Sustained Superior Performance" from Dr. Harry J. Goett, GSFC Director, in recent presentation ceremonies in Washington.

Cape Wind Study Seen As Aid In Future Designing

NASA has taken a second "look" at the winds over Cape Canaveral and the results may aid in designing future space vehicles.

Angelo Taiaini, special projects officer from the LOC Test Support Office, said

for providing the rules and regulations for accomplishing the purposes of the act.

Competitive examinations, open to all qualified citizens and practical in character are a basic requirement. The act reaffirmed veteran preference provisions already on statute books and gave employees protection against political removals and demotions.

International crises, a growing population, the increasing complexity of our society and public demand for services have made the federal Government the largest employer in the world.

To the citizen who is not a Federal employee, and who does not seek such employment, the merit system guarantees selection of the best qualified people available for the public service.

the data obtained in the last of a two-phase study is probably "valid." This data, along with data recorded on December 27, has been sent to the Marshall Space Flight Center's Aeroballistic Division where it will be evaluated.

A total of 36 radar reflective balloons and two Nike smoke rockets were used in the study. Eighteen balloons and the two smoke rockets were released last Thursday and a like number on December 27.

The balloons were released every 45 minutes beginning at 6 a.m. throughout the day. Radar charted the variations in the balloons' ascent 10 times each second until they reached a height of 46,000 feet.

In this manner, Taiaini explained, an electronic "picture" of the ebb and flow of winds in the Cape area has been obtained.

"We are very pleased with the second phase," Taiaini said. "We didn't expect to get all the balloons released and tracked but everything worked out nicely. We think the data we got will be valid."

Train Scientists For Space, Says Space Sciences Chief

Dr. Homer E. Newell, head of Space Sciences for NASA, has urged the government to select scientists — in addition to pilots — for astronaut training.

This should be done the next time astronauts are chosen, he believes, because scientists are desperately needed in space.

Speaking before the American Association for the Advancement of Science in Philadelphia, Dr. Newell said, "I have a complete and utter conviction that we should take a scientist and make a flyer out of him rather than the other way around."

LC 37 Contract Goes To Louisiana Campony

A Louisiana company has been given the job of installing and checking out an environmental controls system on NASA's Launch Complex 37.

Systems Engineering Corp. of New Orleans will perform the work at Pad B of the complex from which the Saturn rocket will be fired.

A contract for \$67,332 was awarded by the Launch Operations Center's Procurement and Contracts Office for the work under a small business "set-aside."

Twenty-one small business firms were invited to bid on the work.

SPACE ALMANAC

A CHRONOLOGY OF
EVENTS IN SPACE
EXPLORATION AND
RESEARCH.

Five Years Ago

Jan. 11, 1958—In a letter to Soviet Premier Bulganin, Pres. Eisenhower proposed that the Soviet Union and the U.S. "agree that outer space be used only for peaceful purposes."

Jan. 16, 1958—Final preparations were underway for the launch of Explorer 1.

Three Years Ago

Jan. 14, 1960—The President directed NASA to examine the need for additional funds for high-thrust launching vehicles.

Jan. 16, 1960—A Sergeant-Delta launched a 100-foot diameter inflatable sphere to an altitude of 250 miles from Wallops Island. It was a development flight for Project Echo.

And in Houston, Richard Day, Assistant Chief of Flight Crew Operations in Astronaut Training, said that in a few years, the experimental test pilot "may become obsolete and the space agencies will have to find a new source of astronauts. His suggestions:

- * Offer college scholarships to high school graduates who are interested and qualified.

- * Allow possible future astronauts to work with the Manned Spacecraft Center during the summer and between semesters at college.

- * Start a space academy to train space men.

RADS TO GROUND ALL ASTRONAUTS

NASA space doctors, weighing the risks, stresses and safety factors for the Apollo moon flights, believe there will be an arbitrary retirement age for astronauts flying to the moon — not in terms of years but in exposure to penetrating radiation in space.

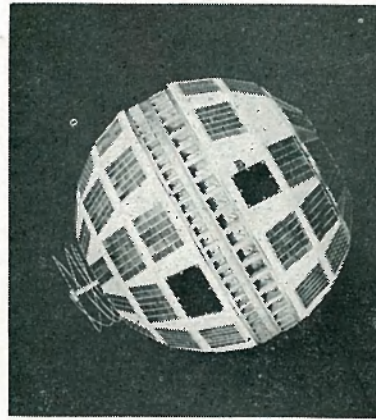
Once an astronaut builds up a total of 250 rads of exposure to radiation in space, he'll have to quit flying. That could come 5 to 10 years after he starts. So said NASA's Dr. Joseph A. Connor, Jr., in a speech to the American Association for the Advancement of Science in Philadelphia.

A rad is a unit of radiation absorption.

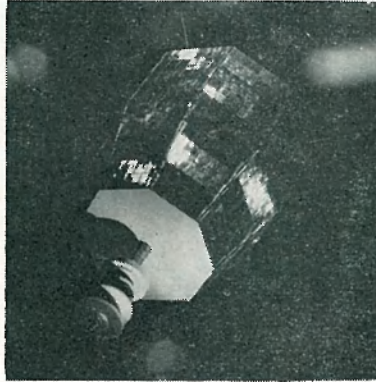
Bids To Be Opened On Telephone Building

Bids will be opened Feb. 5 on a one-story concrete block central telephone office for the NASA Merritt Island Launch Area.

The 15,134-square-foot structure, expected to cost about \$500,000, is to be completed by Sept. 15.



TELSTAR



RELAY

Relay

(Continued from Page 1)

are hoping for a long life for the pioneering communication satellites.

Relay, meanwhile, has undergone extensive tests and appears to be performing nominally.

Goddard Space Flight Center personnel say Relay suffered a power loss in one of its two wide band systems when a transistor "leaked" and jammed a switch halfway between on and off. In this position, power was consumed. Finally, the switch was turned to the off position, the power drain was halted and the satellite began transmitting from its second wide band section.

Relay has successfully carried on voice transmissions between the United States and both France and Italy. It also has carried out television test transmissions between this country and England and Italy.

Since November 23, Telstar had refused to accept command signals to run on power to relay radio, television and other transmissions. Bell scientists explained that the satellite had run into radiation in the Van Allen belt that was 100 times more intense than expected.

BACKWARD

(Continued from Page 1)

of Venus, previously undetected, that reflects radar better than its surroundings, he said. It might be an ocean or a mountain range, he suggested, but there is no way to be sure yet. Data from Mariner II, still being interpreted, may indicate the direction of the planet's axis, some observers believe.

An important result of the Mariner II flight, reported by John D. Anderson, is a more accurate determination of the planet's mass. His preliminary figure, sent to and returned from Mariner, is that Venus has 0.81485 times the mass of the earth.

Important Result

Scientists calculate a planet's mass by the amount of gravitational pull it exerts on other objects near it. Until Mariner II passed within 21,000 miles, the calculations could only be made with great difficulty from Venus' effects on other planets.

Goldstein, Carpenter and Anderson are on the staff of Cal-Tech's Jet Propulsion Laboratory which is working on NASA lunar and planetary programs.

The most important result of Mariner II flights may be new knowledge gained of "space weather", especially of the gases that stream from the sun and cosmic rays, other scientists said. One outstanding result, one reported, was the spaceship's recording that the gas stream from the sun is continuous, although it varies in energy amount.

Wives Call For Papers

Spaceport News, four issues old today, has received a nice, though indirect, compliment from the NASA Wives Club.

Club members have called twice and asked the News to publish a request to their husbands to bring the paper home each Thursday evening.

So, husbands — take Spaceport News home with you — today.

Stars are gigantic balls of super-heated gas, kept hot by atomic reactions in their centers.