

SPACEPORT

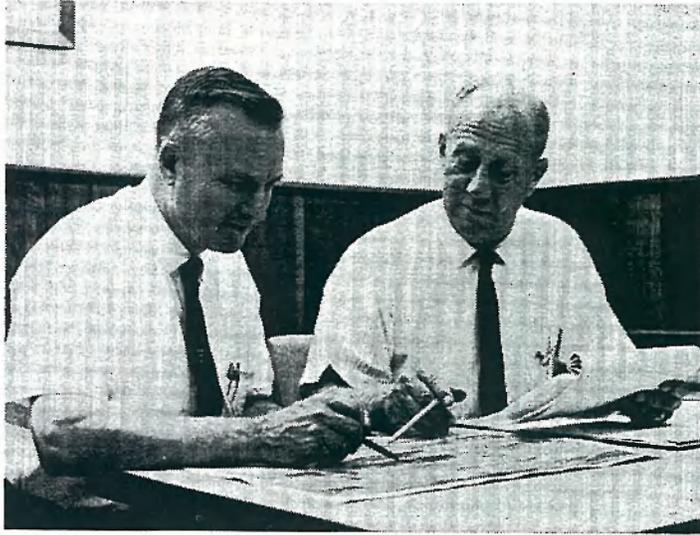


NEWS

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NASA Launch Operations Center, Cape Canaveral, Florida

August 15, 1963



RETIRING Facilities Chief, Col. Clarence Bidgood, right, briefs his successor, Col. Aldo H. Bagnulo, on division operations.



BAGNULO NAMED CHIEF OF FACILITIES DIVISION

Colonel Aldo H. Bagnulo has been appointed Director, Facilities Engineering and Construction Division, effective August 22.

Colonel Bagnulo will assume the position now held by Colonel Clarence Bidgood, who after 28 years of service with the U.S. Army Corps of Engineers, will retire this fall. Colonel Bidgood has been on-loan to NASA from the Corps, since November, 1961.

As Director of the Facilities Division, Colonel Bagnulo will have management responsibility for design and construction of all NASA facilities at the Merritt Island Launch Area and Cape Canaveral. He also will be concerned with land acquisition, development of new construction methods, and planning of future facilities.

Among the projects to be

administered by Bagnulo are about 50 buildings in the NASA Industrial Area on Merritt Island, and numerous facilities at Launch Complex 39.

The biggest task, in terms of sheer massiveness, is the huge Vertical Assembly Building where the Saturn V/Apollo will be prepared for manned flights to the moon.

As District Engineer of the East Ocean District from 1955 to 1958, Colonel Bagnulo was responsible for projects ranging from the Arctic to the Azores.

Notable among these were the design and construction of (See Facilities, Page 5)

THE INSIDE STORY

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TIROS TOPS ENDURANCE RECORDS

TIROS VI has moved into the lead as the most durable weather satellite, exceeding the 320-day record achieved by its predecessor.

TIROS VI was launched September 18, 1962. The quality of pictures collected by the satellite remains excellent and indications are that the spacecraft will continue its record-breaking performance.

The previous record was set by TIROS V which was launched June 19, 1962, and continued operation through May 4, 1963.

Global Coverage

TIROS VI was launched to give global weather coverage. Along with TIROS V it supported the space flight of Astronaut Walter Schirra on October 3, 1962. TIROS VI also detected sand storms in Saudi Arabia, ice conditions in both northern and southern hemispheres and furnished data used as a basis for many storm advisories to foreign countries and the United States.

To date, TIROS VI has recorded more than 60,000 pictures—about 90 percent have been useable.

The satellite also gave early data on Hurricane Arlene, the first of the 1963 season.

TIROS VII, launched June 19, 1963, continues to operate in conjunction with TIROS VI, each gathering information in different parts of the world.

While the TIROS program is still in an experimental stage, the seven satellites have given valuable operational support to the U.S. Weather Bureau.



THE TIROS weather satellite program passed a significant milestone last week when the 250,000th picture from space was sent by TIROS VII. Posing before boxes symbolizing a quarter-million TIROS pictures is Nancy Miller of the TIROS Project, Goddard Space Flight Center.

Communications Bids To Be Resubmitted

NASA will soon ask for new proposals on the operation of its communications system in the Merritt Island Launch Area in support of the manned space flight program.

Earlier communications proposals were submitted by industrial concerns to cover both conventional business telephone service within MILA and operational circuits concerned with launch and test activities. Firms which submitted proposals were notified June 18 that their proposals were being held unopened pending a decision by NASA to resolve questions concerning the interconnection of the MILA system with the Southern Bell Telephone Co., operating as a common (See Communications, Pg. 7)



ON VALUES

It is a significant and gratifying fact that in today's fast-paced, high-priced space boom, there are still many who value their job more than its pay and their overall goals more than the number of hours spent in achieving them.

A great many of NASA's key people in the Canaveral area have been together for a decade or more — long before the space agency, as such, came into being.

Many of them, with their invaluable knowledge, skill and experience, could undoubtedly command larger salaries out in the competitive space industry today.

The fact that they have remained almost to a man through the series of programs that have succeeded one another — from the V-2 and early Redstones to today's Deltas, Saturns and Centaurs — is ample proof of how seriously they take their job and how much faith they have in their work's future.

It is reasonable to assume, in fact, that were it not for this remarkably low turnover rate, the U.S. might not be as far along on its space programs.

It is to these veterans who survived, learned from, and improved on the hard, early day conditions, that we owe much of our progress.

They have not let monetary or material values outweigh pride, dedication and satisfaction in accomplishment.

And the U.S. space program is the better for it.

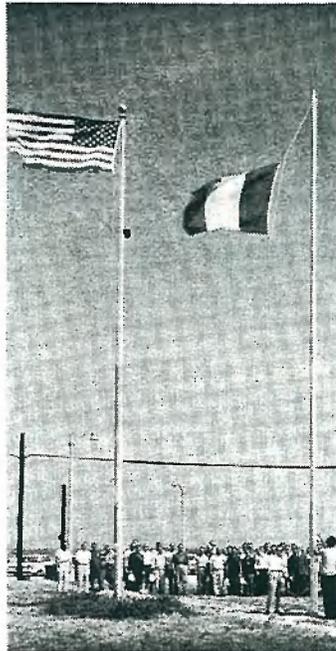
FLAG RAISING

There was a precedent-setting flag raising ceremony, right, at Wallops Island, Virginia, the other day.

U.S. and Italian flags were hoisted atop poles, commemorating the joint efforts of the two countries on the international San Marco project.

San Marco is expected to culminate in an equatorial launching, by the Italians, from a Texas Tower type platform in the Indian Ocean in 1965.

Not only is the fact that such project teamwork is continuing to better international relations important, but it is also significant that the resulting scientific data from the mission will be made available to the world community of scientists.



STEEL LACEWORK of MSC's Operations and Checkout Building at the Merritt Island Launch Area, provides artistic view to ground-level observers. Construction on the \$7.6 million facility is progressing rapidly.

Moser In Connecticut For Space Symposium

Robert E. Moser, Chief of LVO's Technical Planning and Scheduling Office, is in Storrs, Conn., today to give two lectures at the sixth annual Institute of Missile Technology Symposium.

Moser, who also spoke at last year's symposium, speaks today on "Rocket Systems Integration." Tomorrow, his topic will be "Launch Preparation Testing."

The 10-day symposium covers practical and theoretical fundamentals related to missile and space technology.

It is designed for civilian and military project engineers, group leaders, engineering managers or "top level" managers seeking greater technical understanding.

It is presented by the University of Connecticut and the Air Force Systems Command.

SPACE ALMANAC

A CHRONOLOGY OF EVENTS IN SPACE EXPLORATION AND RESEARCH.

5 Years Ago

August 19, 1958 — Dr. T. Keith Glennan was sworn in as Administrator and Dr. Hugh L. Dryden as Deputy Administrator of NASA.

3 Years Ago

August 18, 1960 — A wire-photo of President Eisenhower was transmitted from Cedar Rapids, Iowa, to Dallas, Texas, via ECHO I satellite.

1 Year Ago

August 15, 1962 — NASA announced its Goddard Space Flight Center had awarded study contracts for design of an advanced OSO (orbiting solar observatory) to be launched into a polar orbit in 1965.





Gerald Michaud

MICHAUD DISCUSSES MANAGEMENT IN TALK TO PAN AM BOSSES

Gerald A. Michaud, Chief of LOC's Procurement and Contracts Office, spoke Monday night to members of the Pan American Management Club at the Cape Colony Inn.

His talk, "Management and the Managed Man," stressed the need for selectivity in hiring practices.

Michaud told how baseball manager Casey Stengel's success depended on the players he was managing and suggested the same rule applies to business.

Admitting that it is expensive to interview large numbers of applicants, check their background and references, he showed how this pays off in the long run.

By getting the right man for the job the first time, Michaud said, you cut the expense of your long-range recruiting programs and you have someone who can become immediately productive rather than someone requiring an extended learning period.

"The manager's next responsibility is to give the man the required tools to do his job," he told the club members. "Without commensurate authority, responsibility is only a burden, often leading to one frustration after another."

SYNCOM SATELLITE MAY LAST TWO YEARS IF ALL GOES WELL

NASA's Syncom II satellite, now drifting westward over the Atlantic Ocean at an altitude of about 22,800 miles, will be "stopped" when it reaches its desired position at 55 degrees west longitude.

At this location the satellite will be lowered into a precise synchronous orbit so that it will appear to trace an elongated figure 8 pattern north and south of the equator.

Its velocity through space will be synchronized with the rate of the earth's rotation.

Once on station, however, adjustments will have to be made to keep Syncom II on station. This will be accomplished through use of the satellite's nitrogen or hydrogen peroxide gas jet system.

The reason these adjustments will have to be made is that the earth is not perfectly spherical. In fact, data collected through observation of artificial satellites indicate that the earth has three axes.

NASA scientists point out that the propulsion necessary for Syncom II to remain on station is "very small." The satellite contains enough propellant, if all goes as well as expected, to last more than two years.

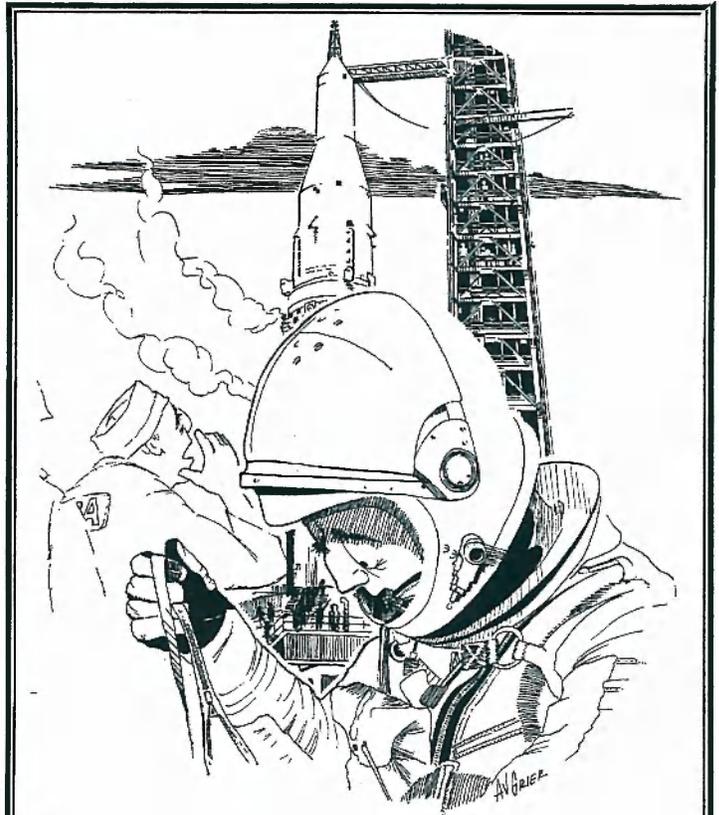
Bridge Every Week

Due to the success of the first two bridge parties sponsored by the Mercury and Boeing bridge clubs, the Mercury Club will hold a duplicate bridge party every Monday night at 7:15 p.m. in the PAFB Officers Club. Admission is 50 cents, and coffee will be served. Gentlemen will please wear coats and ties.

Players will compete for master points and cash prizes. For further information, call Henri Kent, UL 3-4538.

200 Space Women

There are over 200 women scientists and engineers on the staff of the National Aeronautics and Space Administration.



"I SAID... HIS ZIPPER IS BROKE!"

Average Zipper's Lifetime? Gemini Tests To Find Out

What's the average zipper's lifetime?

Employees of the B. F. Goodrich Company, under a contract to NASA's Manned Spacecraft Center, are conducting tests to find out.

The tests are to give astronauts maximum confidence in their space suits as they whirl around the earth for as long as 14 days.

The program is designed to achieve 99.9 per cent reliability in Gemini space suits and a high level of confidence on the part of the wearers.

Four of the suits will undergo tests on the "life expectancy" of their moving parts, projected over a "lifetime" of 10 missions of 14 days each.

Reliability of working parts of the suit will include opening and closing the pressure sealing zippers, required during rest periods and for comfort; opening and closing the visor on the headpiece; removing and replacing gloves and headpiece, required during rest periods; connecting and disconnecting inlet and outlet fittings on the Environmental Control System (ECS), required during systems checks on the pad; and running the suits through leakage tests at maximum safety pressures.

In establishing proposed mission schedules for the suits, the Crew Systems Division estimated that the pressure zipper, for example, would be actuated 710 times (71 times during 14 days x 10 missions).

To provide for repairs in-between missions, extra pressure sealing zippers will be tested. Four pressure sealing zippers will be actuated to failure to determine a zipper "life" criterion.

The Gemini space suit reliability program will be monitored by MSC's Crew Systems Division. Cost of the program is \$34,355.

1ST CAPE REDSTONE LAUNCH RECALLED

EDITOR'S NOTE: Next Tuesday will mark the 10th anniversary of the first Redstone launch at Cape Canaveral.

Many members of that original firing team are still together today at LOC.

Three of them, Grady Williams, Chief of LVO's Electrical Engineering and Instrumentation Systems; Ike Rigell, Chief of LVO's Electrical Engineering Guidance and Control Systems; and Bob Gorman, Chief of the Launch Support Operations Division; met last week to recall that milestone of missilery. Here are their candid comments:

Gorman: "I can remember we had to ship a lot of our equipment — eight flat cars of it — down from Huntsville by rail. It was sent to Melbourne and then transported across the Melbourne causeway because Cocoa and Eau Gallie had wooden bridges and couldn't support heavy loads. We had quite a caravan."

Williams: "We had to share pad facilities with Boeing out on the east tip of the Cape just north of the lighthouse. They were launching the Bomarc. I can remember everyone saying the Redstone would never get off the ground. It was huge compared to the Cape's earlier birds, the Snark, Matador and Bomarc."

Rigell: "And do you remember how loud the Snark was when they static tested it? You couldn't hear anything."

Gorman: "There wasn't much on the Cape then in the way of facilities. All our instrumentation was housed in trailers. Our motor pool consisted of an ambulance, a jeep, a two and a half ton truck and a five ton tractor."

Williams: "There were only four pads and two blockhouses on the Cape. And we had a portable outhouse off in the palmetto scrub."

Rigell: "Remember how hot it was at the Cape?"

Williams: "There wasn't any air conditioning at all, and even if there had been, the filters would probably have gotten clogged with mosquitoes. People would almost fight you for some repellent."

Gorman: "You couldn't wear a white shirt. The mosquitoes would be so thick

they'd turn it black."

Williams: "Remember that fellow who sat on the chair with the perforated seat? Mosquitoes nearly ate him raw. Animals and snakes were much more plentiful then, too. And it was a fisherman's paradise. You could fish off the Cape then."

Rigell: "I'll never forget that old blockhouse we worked in. It was so small it could probably fit into the dome section of the Saturn V."

Gorman: "The service tower, now on Complex 56, was shipped in and completely assembled on the pad in two weeks."

Rigell: "The countdown actually went along pretty smoothly. We had a 7 a.m. firing time, but there were a couple of holds for equipment on the range."

Gorman: "I remember we worked through the night on it."

Williams: "I'll never forget that liftoff either! We had cables running in a tunnel from the pad to the blockhouse. There was a little hole where they entered the blockhouse and we had stuffed it with cotton and wadded-up paper. When the Redstone lifted, a concussion wave rolled down that tunnel and blew the stuffing all over the place. It hit me right in the face, and all I could see was dust, dirt and cotton."

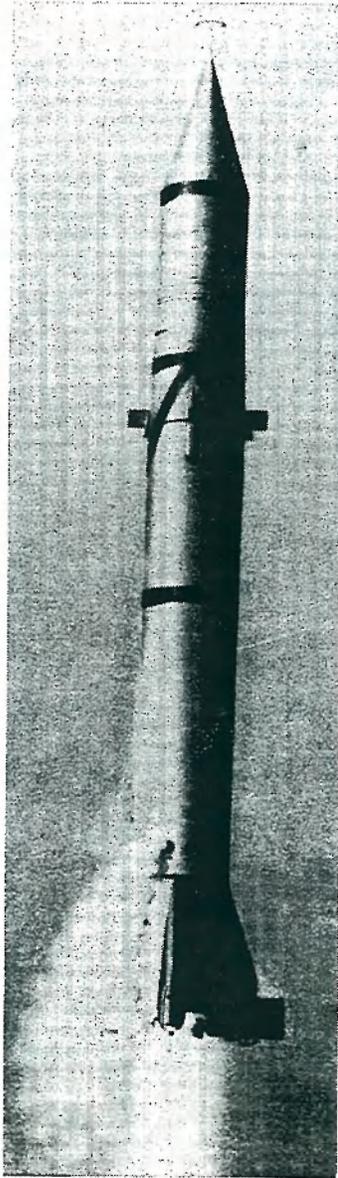
Gorman: "We were all inside the blockhouse and couldn't see the actual flight, but observers said it looked real good."

Rigell: "I think it flew in powered flight for something like 76 seconds."

Williams: "It was programmed to go about 160 miles, and although it fell far short, most of its test objectives were met. It proved the missile's structure was sound, that the propulsion system worked, and many other things."

More important, Williams, Gorman and Rigell agreed, the first Redstone paved the way for the advanced military and space exploration programs of today.

The Redstone later became the first rocket to fly a nuclear warhead, and also, through subsequent re-entry payload investigations, led to the first successful American satellite launching on January 31, 1958.



Redstone I



Ike Rigell

"The blockhouse was small."



Grady Williams

"The Cape used to be a fisherman's paradise."



Bob Gorman

"We worked through the night."

MSC's Frank Crichton Speaks At Seminar

NASA's Frank M. Crichton spoke at a seminar for Government Inspection Agency Personnel, last week and said failure to seek out and eliminate discrepant components at the supplying source before they became a part of a Mercury flight system, generated many delays in the Mercury launch schedules.

Crichton, Chief of MSC-AMR Inspection and Quality Control, made the remarks on quality control experience of the Mercury program at a NASA sponsored seminar at North American Aviation in Downey, Calif.

"Since every malfunction or discrepant component uncovered during preflight checkout at Cape Canaveral was regarded as a source of potential disaster," he said, "each defective component had to be removed from the spacecraft and thoroughly investigated, analyzed, and corrected.

Feed Back

"This created a requirement for an extensive feed back of material reviews, unsatisfactory reports, and failure analysis to obtain meaningful corrective action to eliminate these components from subsequent spacecraft systems."

Crichton displayed photographic evidence of unsatisfactory spacecraft components and parts uncovered during the exhaustive preflight tests and checkout operations at Cape Canaveral.

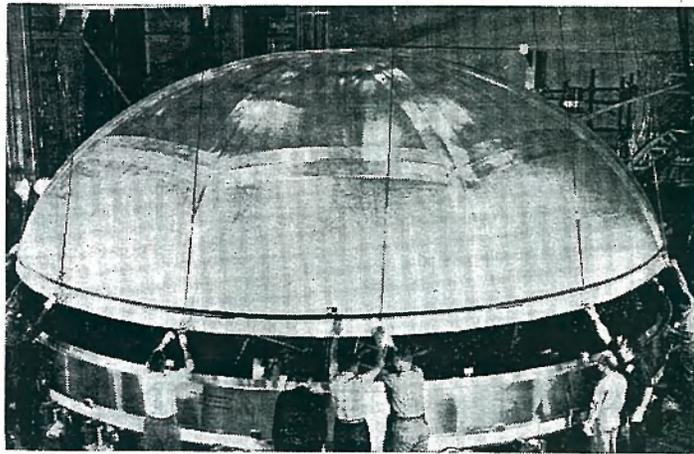
The purpose of the seminar was to pass on to Apollo program inspectors the quality assurance experience and techniques developed during Project Mercury.

NASA NEWCOMERS

Ten New Employees have joined NASA during the last week.

LOC: Rebecca L. Purvis, Jack Weinroth, Helen M. Kuter, Steward L. Carse, Thelma B. Bomhower, Margaret S. Price, Lawrence J. Junker, Richard H. Harris, Camille L. Nulta.

Goddard: Joseph E. Parker.



THE UPPER DOME of a fuel tank for the Saturn V moon rocket is lowered into place on a "Y-ring" to which it will be welded at NASA's Marshall Space Flight Center. The Y-ring will then be welded to a cylindrical skin segment to form half a tank. The two halves will be joined after anti-slosh baffles have been installed. Two tanks, with connecting skin segments, will form the main fuselage of the S-IC stage. Five F-1 engines, developing 7.5 million pounds thrust, will then be installed to the thrust structure.



SATURN V FUEL TANK READIED AT MARSHALL

With Saturn I booster fabrication work nearing an end at the NASA-Marshall Space Flight Center, the MSFC Manufacturing Engineering Division is well on the way to rolling out the first Saturn V booster test "hardware."

Workmen at the manufacturing laboratory are now assembling the SA-9 booster, the last flight model of a Saturn I booster to be built at Marshall.

Boosters for SA-8, SA-10 and other Saturn I and IB flight vehicles will be produced by Chrysler Corp. at NASA's Michoud Operations at New Orleans.

Saturn V vehicle assembly is a different picture — it is just beginning.

The Saturn V booster, 33 feet in diameter and 138 feet long, will be the world's largest known rocket, developing a thrust of 7.5 million pounds.

Several phases of the work are going forward simultaneously. The first major item being developed is a test fuel tank which will be used for structural testing.

While this test unit is being assembled, early work will be under way on the vehicle which will be ready for static firing in the fall of 1964.

The upper dome of the first test fuel tank is complete. The tooling program for Saturn V structural assembly is in the final installation phase. The cylindrical skin (33 ft. diameter) is complete and is in the process of

being joined to the lower dome. Then this unit will be moved to an adjoining building for installation of anti-slosh baffles.



TOM DAVIS, Procurement and Contracts Industry Advisor, speaks tonight to 50 leading businessmen at an industrial indoctrination in Plant City. Sponsored by the Tampa Electric Company, the indoctrination's purpose is to acquaint people in the Tampa Bay area with NASA's Cape and MILA programs.

FACILITIES

(Continued from Page 1)

the structural portion of the Ballistics Missile Early Warning Station at Thule, Greenland, and the United States scientific rocket launching site at Fort Churchill, Canada.

After first conducting feasibility studies, Colonel Bagnulo directed the design and building of structures on the Greenland ice cap to house radar stations — the only known permanent construction accomplished on any ice cap.

After receiving an engineering degree from the Massachusetts Institute of Technology — he worked his way through as a barber, and later gained a Master's Degree from M.I.T.—Bagnulo was awarded a commission in the Corps of Engineers, Regular Army, as a result of competitive professional examinations.

In 1939, he was transferred to the Caribbean and placed in charge of several successful major projects.

As area engineer at Antigua in 1940, because little fresh water was available, he used salt water in building concrete runways. This was probably the first extensive use of this technique.

During and after World War II, Colonel (at age 30) Bagnulo commanded an engineering regiment which saw combat and accomplished a wide variety of military construction tasks with the Army in Europe. After transfer to the Pacific his regiment continued construction duties on Okinawa and in Korea.

Colonel Bagnulo is married to the former Helen Montenosinos, the daughter of a retired Army Colonel.

They live in Satellite Beach and have four sons, Michael, Robert, John, and Joseph. Michael, 18, will enter V.M.I. in September.

Long Journey

Although the sun is traveling at a speed of almost 600,000 mph, it still takes more than 200 million years for it to make one complete circuit of its galaxy — the Milky Way.



Juanita Thomas



Wayne Mills



Estelle Coleman



J. O. Smith

Capeside Inquirer

WERE YOU NERVOUS ON YOUR WEDDING DAY?

There is a standing joke among comedians that goes, "I've been happily married for three years, and three out of five isn't a bad average."

Regardless of how long people have been married, hardly anyone can forget the big day that it happened. The Capeside Inquirer found this true when candid, honest and humorous answers were received from people who were asked, "Were you nervous on your wedding day?"

Juanita Thomas, MSC: "Yes. The minister was late. While dressing, he discovered his tux was too large and his suspenders were misplaced. He performed our wedding

holding his pants up with his elbow."

Wayne Mills, Materials Support Branch: "When we got to the altar, I couldn't remember whether or not I had given the rings to the best man. I didn't have them. As it turned out I had left them in the car and we had to hold up the wedding until someone got them."

Estelle Coleman, Base Operations: "I was very nervous. I think at this time most girls realize the fact that they are about to enter the adult world, and this is entirely a different way of life."

J. O. Smith, Transportation: "I was more excited

than nervous. During the reception, we had steak dinners, but I commented: "these pork chops sure taste good."

Christine Blish, North American Aviation: "Yes. I remember I couldn't stop giggling on the way to the church, and my father completely forgot to give me away at the altar."

John Henderson, Pan Am Security Police: "No, but I really started to get nervous after we had seven children."

Sharon Jump, Mail Management: "I certainly was. Although we have been married just four months, I can hardly remember the ceremony. It seems to have happened years ago."



Christine Blish

CANDY BAR DIET

Astronauts of the future may need only a single candy bar to sustain them for long periods of space flight, according to a University of Illinois physiologist.

Professor Robert E. Johnson explained recently that as a spaceman's speed reaches a sizable fraction of the speed of light, his metabolism will slow down in accordance with Einstein's Theory of Relativity.

Thus only a small amount of food — even a candy bar — may be sufficient for a trip taking many years by earth time.



John Henderson



Sharon Jump

Astronauts To Jump Into Gulf of Mexico

NASA's 16 astronauts will begin practice parachute jumps as part of their emergency water survival training for Gemini this fall at Pensacola Naval Air Station.

They will wear 20-pound Gemini pressure suits and survival gear, and jump from helicopters with an unfolded parachute trailing.

The Gemini spacecraft's escape system involves ejection seats similar to those used on supersonic jet aircraft. It is to be used only as an emergency measure, since the astronauts would normally land in the spacecraft.



SOME 67 of the world's best physics and engineering students toured NASA-Canaveral facilities last week. The tour climaxed Columbia University's summer Institute in Space Physics. Above, NASA's Doud Brandt briefs students inside the Launch Complex 36 blockhouse.

NASA VIPS AT VPI FOR SPACE CONFAB

Thirteen key NASA scientists and engineers are discussing the results of five years of research with artificial space satellites, future research plans, and the implications to man's life in the years ahead, today at a conference at Virginia Polytechnic Institute, Blacksburg, Virginia.

The conference is sponsored by VPI in cooperation with the National Science Foundation and NASA's Langley Research Center.

The conference has a two-fold purpose: to assist in the interchange of information among scientists and engineers actively working in space research, and to bring information to stimulate scientists and engineers — particularly in educational institutions — who are not now engaged in space research.

82 Percent Success

In 1962, 82 per cent of all major NASA launchings were successful.



PEEKING INTO a TV camera at Launch Complex 36, are Jo Ann Sonderquist, left, and Pat Purdy, two distaff members of the space physics students' group that toured Canaveral last week.

COMMUNICATIONS

(Continued from Page 1)

carrier under established tariffs.

The proposals received will be returned and a revised statement of work requirements will be issued in the near future. New submissions from interested companies will be required within 21 calendar days.

This agreement is in line with the services the telephone company normally provides all civilian agencies of the Federal government.

The new statement of work is based on a decision to have the conventional, business type telephone service and the dial telephone switching exchange within MILA installed, operated and maintained by the Southern Bell Telephone Co.

NASA will retain control of the technical operational circuits, including the Department of Defense's total communication requirements to connect range instrumentation sites within MILA with the Air Force Missile Test Center. Operation and maintenance of these circuits will be performed by the successful bidder.

LOC will also retain installation and operational control of Southern Bell-owned telephone equipment in hazardous or inaccessible areas determined to be "operationally critical." In addition to the installation and maintenance of this equipment, the successful bidder will also be required to operate and maintain the complete cable distribution system and all other communications equipment.

In some respects, the scope of work will be broader than in the original request for proposals. For instance, communications companies now are being asked to submit proposals to include support for master planning for future expansion of the MILA communications system.

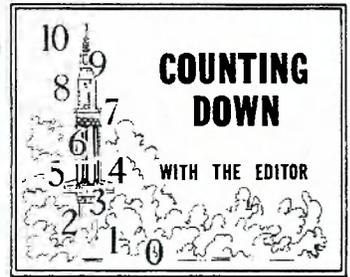
Who Said That?

"Whether space will become a force for good or ill depends on men. I strongly believe it will be a sea of peace."

Edward C. Welsh
Executive Secretary
President's Space Council



AT A CASUAL glance, the above might seem to be a new bridge somewhere on the Merritt Island Launch Area, but it isn't. Actually, it's the new ramp to Pad B at Launch Complex 36.



The space age, with all its encompassing glamour and influence, says a young Philadelphian, is creating problems in the world of serious music.

Anchel Brusilow, concertmaster of the Philadelphia Orchestra, believes the moon dreams of aspiring astronauts have supplanted juvenile interest in piano, violin and horn lessons.

"In other times," he said, "most kids learned to play some musical instrument, maybe not too well, but at least with feeling. Not so today.

"That this is no small cause for concern is illustrated by the fact that in a few years there will be a lack of players, especially of string players, in most of our major orchestras.

"The big reason for this teaching lag," he continued, "is that youngsters are all wrapped up in our scientific age, bemused with the appeals of outer space adventure."

Perhaps the solution to such a problem would be to train astronauts with musical inclinations. Such a step would surely lead to the first lunar concert.

* * *

On the local scene, the First National Bank of Merritt Island is seeking space-minded artists.

If you dabble in oils, water colors, tempera or anything else, the bank would like to show off some of your work at an exhibition soon to be opened on their main floor.

If you are interested, call LOC's Public Information Office at SU-3-7781 and list your name. The bank will then get in touch with you to arrange the details.

* * *

If you're signed up for the Labor Day Nassau cruise, Ralph Harkness of the NASA Exchange asks that you please settle up with him soon, so he can clear his books. He's in trailer 869.

'MOCK UP' REACTOR BEGINS LEWIS TESTS

A license for operation of a nuclear reactor at NASA's Plum Brook Station in Sandusky, Ohio, has been granted by the Atomic Energy Commission.

The newly-licensed reactor is a low-power, low pressure one to assist design of experiments for the main 60,000 kilowatt reactor. The new reactor is permitted to operate to a maximum power of 100 thermal kilowatts.

Called a mock up reactor, it is similar in all design aspects to Plum Brook's main reactor.

The mock up reactor will be used to determine the effects of experiments on the radiation flux in the core of its high-powered twin. Other tasks for the mock up device include aiding on the design of experiments for the main reactor and providing radiation effects data in tests not requiring such high fluxes.

The 60,000 kilowatt reactor, licensed for full power by the AEC last January, has recently begun its first experimental cycle.



Dear Sir:

"I wondered why a missile could not be fired from a tube like a bullet in a rifle barrel. If a long sealed tube was driven into the ground and a missile fired from the bottom of it, the combustion would build up pressure and the rocket would leave the tube at a tremendous speed."

Norman F. Whitman, Mass.

Maximum Protection

Credit unions must provide maximum protection for their members' shares, including adequate surety bond coverage and systematic supervision by the auditing committee of their own members. They should have adequate annual examinations as required by law.



PHOTOGENIC Millie Guice, the astronauts' secretary at the Cape, has moved to Houston. Astronaut quarters in Hangar S have been closed down along with Project Mercury, and Millie will resume her duties for the spacemen at MSC headquarters. Cape friends gave her a farewell party before she departed.

Alouette

Alouette, the joint U.S.-Canadian satellite launched September 28, 1962, was named after a Canadian songbird.