

TO SEE FOR HIMSELF—

LBJ Speaks to Employees, Announces Science Institute

President Lyndon B. Johnson March 1 made a surprise visit to MSC to announce plans for a Lunar Science Institute to be established adjacent to the Center. The President toured the newly-completed Bldg 37 Lunar Receiving Laboratory, the Bldg 29 Flight Acceleration Facility and the Bldg 5 Flight Crew Training Facility before addressing several thousand MSC and contractor employees gathered between Bldgs 13 and 16.

The President was accompanied by NASA Administrator James Webb in the flight from Washington, D.C. to Ellington AFB. Webb introduced the President to the crowd.

"I believe what Jim Webb and Dr. Gilruth tell me," said the President, "but every now and then I like to see for myself. That is one reason why I am here today.

"But I had another reason. And that was to tell you, on behalf of all of your countrymen who cannot be here themselves, how deeply we appreciate the great work you are carrying forward.

"We have invested many billions of dollars during the past ten years in our efforts in space," continued the President. "But the true value to our nation of

this investment and all the work you are doing here is beyond calculation . . .

"We are close to a landing on the moon. Our space programs for the decade of the Sixties are drawing to a close. Yet a mighty intellectual and technological effort, such as you are engaged in here, cannot just be turned on and off. We must stay the course. We must build new strength by using the strength we have. We must continue to cross new frontiers. This will certainly be our course in the next decade.

"As a further step toward joining hands with the world's scientific community," said the President, "I want to announce that we will build facilities here in Houston to help the world's scientists work together more effectively on the problems of space. We are going to have a new Lunar Science Institute alongside this great Center. It will be initially operated by the National Academy of Sciences and Rice University . . .

"This great new Lunar Science Institute will provide new means of communication and research for the world's scientific community. It will help unite the nations for the great challenge of space."

In closing, the President said,

"We work to give all mankind its last great heritage. We are reaching for the stars. You are the pioneers and I want to congratulate you for what you are doing, and are about to do, in this great human adventure."

The Lunar Science Institute announced by President Johnson will be built under a \$580,000 NASA grant to the National Academy of Sciences and will be operated by the Academy and Rice University. The Institute will ultimately become a part of a consortium of universities from all parts of the country.

An old Clear Lake-area landmark, the "Silver-Dollar" Jim West mansion on Rice University property on the east boundary of MSC, will be the first facility of the Institute. Most of the Academy grant will be used to renovate and remodel the 17,000-sq ft building to meet Institute needs. Renovation is expected to be complete within a year.

Since it is near the MSC Lunar Receiving Laboratory, the Institute will initially require little fixed or scientific equipment. The revamped mansion will have a library, offices, and rooms for scientific conferences and symposiums.

The Institute is expected to provide closer cooperation between university, industry and government scientists in the study of materials returned from the moon in manned Apollo lunar landing missions. In addition, it is expected to be useful to scientists all over the country who are interested in scientific experiments to be conducted on manned spaceflights.

Berry Awarded Day Medal In Philadelphia

MSC Director of Medical Research and Operations Dr. Charles A. Berry March 8 was awarded the Richard Hopper Day Memorial Medal in Philadelphia for "his pioneering work in the new vertical frontier of space."

Berry received the award at the annual members dinner meeting of the Academy of Natural Sciences of Philadelphia, which presents the Day Memorial Medal biannually to honor leaders of science for the exploration and discovery in the natural sciences.

The citation, accompanying the award, stated "the exploration of outer space has opened up a vertical frontier without parallel in its difficulties, dangers and challenges." The Academy of Natural Sciences is one nation's oldest research, museum and education centers.



EXAMINES APOLLO SUIT—The President examines the latest in Apollo haberdashery during his tour of the MSC Lunar Receiving Laboratory. In the suit was suit technician John Mays. Behind them are NASA Administrator James Webb and MSC Astronaut Office chief Alan B. Shepard Jr. The President also toured the Flight Acceleration Facility where he watched second manned Apollo crewmen James McDivitt, David Scott and Russell Schweikart undergo a 9-G reentry profile on the centrifuge.



THE CHIEF—President Lyndon B. Johnson speaks to several thousand MSC and contractor employees during his March 1 visit to MSC. With the President are NASA Administrator James Webb, center, and MSC Director Dr. Robert R. Gilruth. Standing behind them are members of MSC management.

Apollo VI Launch Date Moved Up to March 28

Launch date for the Apollo VI mission Monday was slipped three days from March 25 to

March 28 to allow additional time for prelaunch spacecraft testing. Apollo spacecraft 020 command and service modules are stacked atop the second Saturn V launch vehicle at Kennedy Space Center Launch Complex 39A.

The Apollo VI mission plan calls for a repeat of the November 9 first flight of Saturn V, except that the third stage S-IVB will burn into a highly-elliptical orbit with apogee beyond lunar distance. The command and service modules will peak out at an apogee of about 12,000 miles with command module recovery in the Pacific.

Apollo VI flight controllers Wednesday were scheduled to take part in an in-house network simulation (Sim-Net-Sim) in the Mission Control Center. A 10-hour full-network simulation was scheduled for today, with another scheduled for Monday.

The Apollo VI Flight Readiness Review Monday was conducted by the NASA Office of Manned Space Flight at Kennedy Space Center.

At MSC, environmental testing of Apollo spacecraft in various regimes continues in the Space Environment Simulation Laboratory, the Vibration and Acoustic Test Facility and at the full-scale Impact Test Facility.

Apollo command module 105 Monday completed a plumbing/wiring interconnect vibro-acoustic test series in support of the first manned Apollo mission. Two test profiles—15 seconds at 147 decibels, and 12 seconds at 162 decibels—were run.

A simulated off-the-pad abort land impact test was run March 7 with Apollo command module 009. The test conditions were for a 32 fps descent rate and wind velocity of 35 mph.

1st Apollo MQF Arrives at MSC

The first of four Mobile Quarantine Facilities (MQF) for returning Apollo lunar crews and support technicians last week was delivered to MSC. This first MQF is part of the recovery quarantine equipment supplied by Melpar, Inc., Falls Church, Va., subsidiary of Westinghouse Air Brake Company, under a \$227,347 contract.

The MQF arrived March 6 by truck from Airstream, Inc., Jackson Center, Ohio, where the 35-foot long MQF shells are fabricated.

Built of heat-treated aluminum, the MQF has sleeping quarters, work spaces, food preparation and medical areas for flight crews and support technicians. Each MQF will be entirely self-sufficient and will be fitted with bunks, chairs, tables, lavatory, toilet, and kitchen facilities—everything needed for debriefing and preliminary post-flight medical examinations during the brief transfer period from the recovery vessel to the MSC Lunar Receiving Laboratory.

When completed outfitted, each MQF will weigh approximately 10,000 pounds and will be pallet-mounted and fitted with hoisting slings for shipboard and flatbed trailer handling.

Also furnished under the Melpar contract will be tunnels through which crewmen will enter and exit the MQF and for dispatching to the Lunar Receiving Laboratory containers for onboard film and tapes, hardware and lunar sample return containers.

MAN ON THE RUN—

ASPO Manager Low Featured In Syndicated Story

(The following profile of Apollo Spacecraft Program Office Manager George M. Low was syndicated by the World Book Science Service and later read into the Congressional Record by Rep. Olin E. Teague of Texas.)

By William Barry Furlong

It was 6:31:03 p.m. at Cape Kennedy when the test turned into disaster.

Seconds later George M. Low got the message by phone: "There's a fire in the spacecraft." Low was working late at his desk in the NASA Manned Spacecraft Center at Houston. He rushed to mission control center and took up the melancholy vigil. The date was Jan. 27, 1967—when the American space program, and the lives of thousands of persons connected with it were transformed.

Three astronauts lost their lives, a decade of steady progress seemed jeopardized, and the three-man Apollo spacecraft on which the nation's lunar exploration depended had flunked a vital test without once leaving Earth. George Low drew the toughest assignment in the space program: Fix the Apollo, and try

to salvage America's commitment for a manned landing on the moon by 1970.

Today he's well on his way. Successful launching of the Saturn 5, the world's largest rocket, put the bounce back into NASA's step. North American, the builder of the Apollo spacecraft, is moving toward delivering the first model for a manned flight in mid-1968. President Kennedy's mandate to land on the moon by 1970 is far from sure of accomplishment, but the job is not impossible.

Low is a veteran of the space program. He was there the day the civilian space agency was created. In the nine years before the spacecraft fire he had been one of the key administrative men in NASA and rose to the job of deputy director of the Manned Spacecraft Center, the Houston complex where the astronauts train and their missions are planned.

In a sense, the Apollo disaster brought him a step down the ladder; Low moved out of the ninth floor executive suite atop

the MSC command building into the suitcase-and-airliner life of a troubleshooter. But few men in America carried the responsibility or wielded the resources of Low in his new job as manager of the Apollo Spacecraft Project.

He had a massive budget—at least \$1 billion the first year. He had a massive work force—400 on his personal staff, 3,500 NASA men and women working on the spacecraft project in Houston, at least 100,000 more persons employed by the contractors building the Apollo spacecraft and its components. Yet the challenge and change was in getting his hands dirty once again as a do-it-yourself engineer.

"I'm a dirty-hands engineer," said Low. He is a low-keyed man who speaks with only the faintest hint of his native Vienna.

Low's task of rebuilding the Apollo has turned out to be as complex as a knitted shoelace, as arcane as space itself. For weeks and months after the fire experts sifted through the charred remains of the spacecraft.

Among their many disturbing discoveries: A head for a ratchet wrench lying next to burnt-out wiring; it might have contributed to a short-circuit. (An Apollo contractor was warned to clean up the sloppy workmanship of its employees.)

They studied the character and quality of the tens of thousands of devices, made of 2500 different materials, in the spacecraft. Each of the materials was tested to see if it was combustible, not only in the normal atmosphere but in the vastly different 100% oxygen atmosphere of the spacecraft-in-operation. Anything flammable in that special atmosphere that might be carried on board by the astronauts — i.e., plastic food containers, spare material for on-board calculations—is now stored in fireproof containers. The aluminum plumbing that carried pure oxygen through the cabin was replaced with stainless steel tubing. Eventually, to test all these changes, as unmanned spacecraft would be deliberately set afire and painstakingly analyzed before the first launching of a manned Apollo-Saturn 5 rocket.

To Low, the significant changes were not simply in the spacecraft, but also in his own career.

"I went from 'general' management to 'project' management, which is the opposite way people usually go," he says. As deputy director of the Manned Spacecraft Center, he was responsible for "looking at a large number of things—the various programs, their budgets and the emphasis those budgets reflected, the manpower, the future, the total resources available for the various projects." But when he became manager of the Apollo Spacecraft Project—as the man specifically delegated to rescue a bad situation—he became responsible "for bringing a single, specific job to com-



KEEPING FIT — ASPO Manager George M. Low keeps trim by running a mile every morning and having a can of diet liquid for lunch. (Photo by Del Borer from World Book Science Service)

pletion." To be sure, the scope of the program demanded a massive administrative talent, but "it had the effect of bringing up more in the way of engineering."

The change had no apparent physical or mental effect on George Low. Now 41, he is still slim and straight. For lunch, he has only Sego at his desk. He matches the basic specifications of a top-line space executive and communicates a feeling of being solid, dependable, not yet eroded by memories of other days. He has an unexcelled theoretical competence in supersonic flight. He has unrivaled experience in the bureaucracy of space.

In the weeks and months after he took over the Apollo spacecraft program, Low devoted 12 to 16 hours a day, six days a week, to his job. "I try to make it a rule not to work on Sundays," he says. "I keep Sunday for going to church and playing with the kids." He has five children, ranging in age from 4 years old to 15 and they adore the elaborate manner he does everything for them on Sunday, from water skiing to serving up pancakes for breakfast. "He makes spectacular pancakes," says his wife, Mary-R. (a long-standing contraction for Mary-Ruth).

On weekdays, Low rises very early and cooks his own breakfast. "He's ready to go at 5 or 5:30 in the morning," says Mary-R., with awe if not admiration, "while I need two cups of coffee just to get going."

"I think that's when he decided he could do as well making his own breakfast in the morning," says Mary-R.

Before George goes to the office he runs at least a mile every morning.

His involvement with the Apollo spacecraft and its details is only one more step in a lifetime that has been played out in the long shadow of history. George Low was not quite in his teens when Adolf Hitler and the Nazis took over his homeland, Austria. Shortly thereafter, he and his family came to the United States. They settled in upper New York State; his mother still has a farm there. But he knew his hope and his destiny was not on the farm. "It never occurred to me that I wanted to be anything but an engineer," he says.

He went to Rensselaer Polytechnic Institute in Troy, N.Y.—though his schooling was interrupted by a hitch in the Army—and ultimately got his master's degree in aeronautical engineering there. He went to work for NACA—the precursor of NASA—in Cleveland. The research projects he embarked on there ultimately were to carry him to the top levels of manned space flight.

He can remember the night the Russians had launched their first Sputnik on Oct. 4, 1957: he was on his way to the family's summer cottage at Attwood Lake, O., and was passing through a small town when he heard the news on the radio. "It seemed obvious to me that we were beginning a new era," he says. Within weeks, he was asked to go to Washington—temporarily—to help set up the first manned spaceflight program, Project Mercury. He never returned to Cleveland.

Somewhere in the pursuit of knowledge, Low thinks and hopes the young men of the future will remember to supplement their theoretical knowledge with a practical do-it-yourself dirty-hands involvement with details. For George Low stands witness to the fact: A man can rise as high in the U.S. space program as his mind—and his hands—can lift him.

Goddard Essay Contest Deadline November 1

The National Space Club has announced the opening of the Robert H. Goddard Historical Essay Award Competition for 1968. Offering a \$500 prize, the annual nationwide competition is open to any US citizen.

The contest is named in honor of rocket pioneer Dr. Robert H. Goddard, whose scientific and technological contributions helped open the door to space, although recognition of his work was late in coming in the US.

Essays may treat with any significant aspects of the historical development of rocketry and astronautics and will be judged on their originality and scholarship. The essays may bring new information to light or may cast a new and different upon events or individuals influencing rocketry and astronautics in the United States.

Entries should be submitted by November 1, 1968 to the Goddard Historical Essay Con-

test, c/o National Space Club, 1140 Connecticut Avenue NW, Washington D.C. 20036.

The winner, who will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1969, will receive the Goddard Historical Essay Trophy, certificate and \$500 prize.

The National Space Club Committee for the History of Rocketry and Astronautics, whose members serve as judges for the contest, are: NASA Historian Dr. Eugene M. Emme, chairman; Frederick C. Durant III, assistant director of the Smithsonian Institution National Air and Space Museum; Dr. John Patton, NASA Headquarters; Prof. Melvin Kranzberg of Case-Western Reserve; Marvin W. McFarland, chief of the Library of Congress Science and Technology Division, and Dr. Charles S. Sheldon II of the Library of Congress Legislative Reference section.

RULES OF THE CONTEST

- Essays should not exceed 5,000 words and should be fully documented.
- Essays will be judged on originality and scholarship by the Committee for the History of Rocketry and Astronautics of the National Space Club, and their decision will be final.
- Essays should be received by the Chairman, Committee for the History of Rocketry and Astronautics, by November 1, 1968; the winner, if one is selected, will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1969.
- Entries may be submitted by any US citizen, and evidence of citizenship should be included with essays submitted.
- The name of the competitor shall not appear on the essay, and each essay must have a motto selected by the author in addition to the title. This motto shall appear in three places: a) on the title page of the essay, b) on the outside of a sealed envelope containing identification of the author, and c) above the name and address of the competitor inside the envelope containing this identification. The envelope identifying author will not be opened until the Committee has made the winning selection.
- Essays and identifying envelopes must be postmarked before November 1, 1968, and mailed in a large sealed envelope marked "Goddard Historical Essay Contest".
- Essays must be typewritten, legible, double-spaced, on paper approximately 8½ by 11, and must be submitted in duplicate, each copy complete in itself.
- Essays remain the property of the authors, although the National Space Club retains the right to publish and distribute winning essays.

Prize: Trophy of the Dr. Robert H. Goddard Historical Essay Award, a \$500 Honorarium, and National Space Club Certificate.

Lederer Speaks At AIAA Meet

NASA Manned Space Flight Safety Director Jerome Lederer March 11 spoke on "Changing Concepts of Aerospace Safety" before the Houston Section of the American Institute of Aeronautics and Astronautics.

Though Lederer is responsible for OMSF safety activities, his talk covered plane crash survival, pilot error, risk control and system safety engineering.

HE'S A LUTHIER—

Space-Gear Designer Johnson Builds Guitars in Spare Time



LUTHIER'S FIRST EFFORT—Harold Johnson of FCSD is a guitar builder, or luthier, in his spare time. Here he strums on his first product—a mahogany flamenco guitar which he estimates took some 60 to 100 hours to build. He has a second guitar about half finished.

At work, Harold Johnson of Flight Crew Support Division spends his time dreaming up way-out contraptions for crew training and for extravehicular space propulsion—he invented and patented the Hand-Held Maneuvering Unit used by Edward H. White II during Gemini IV.

At home, Johnson wears a different hat—that of a luthier. A luthier is one who builds stringed musical instruments such as violins, mandolins and guitars. Johnson builds the latter. With one flamenco-type guitar complete, he has a second guitar half finished. He estimates that it took him some 60 to 100 hours of spare time over a period of four months to build his first guitar.

Johnson modestly admits playing the guitar "a little bit" and names as his idols the Spanish Gypsy flamenco guitarists Serrano and Sabicas. He also admires the playing of classical guitarist Andres Segovia.

His first effort as a luthier is constructed mainly of mahogany with a white-pine face. The mahogany for the sides and back was planed down to a thickness of one-sixteenth inch. The sides had to be soaked and then heated to allow them to follow the hourglass contour of the guitar mold.

"Once I got the hang of it," said Johnson. "I had the side panels formed and in the mold to dry in about 15 minutes."

He uses several types of glue which were not available in times past when luthiers such as Stradivari and Guarneri were building their now-priceless violins. Epoxy is used in some locations for bonding structural guitar parts together, while ordinary Elmer's white glue is used in other spots. The back is attached with traditional animal-hide glue.

"I want to be able to take the back loose in case I need to do any repairs inside the guitar's body," Johnson explained.

"That's why I've used animal-hide glue for the back."

He attributes the quality of the sound produced by a guitar to the arrangement of stringers or fan bracing on the inside of the face panel. "This fan bracing and proper edge tapering of the face allows the entire face panel to act as a single diaphragm to produce the sound I like," said Johnson.

"A lot depends on wood selection, too," he continued. "You could work forever on a piece of wood that didn't have a good natural tone and never get a good sound out of it. The old-timers like Stradivari seemed to have a natural ability to pick a piece of wood by thumping on it to determine its natural tone."

He introduced what he believes is an original innovation in the structure of his first guitar. Where most guitars have a steel rod through the neck, Johnson milled out a cove in the neck under the fretboard into which he epoxy-bonded an aluminum channel about one inch wide. The channel runs full length of the neck from the foot to the head where the tuning machine is installed.

High-grade marine spar varnish was used in the finish of his first guitar. He estimates that he spent about \$20 for such items as the fretboard, bridge and the tuning machines.

Johnson's second guitar building will be made of korina—a Philippine wood with a grain and character comparable to Spanish cypress. He says that rosewood is the optimum material for building the classical-type guitar, while Spanish cypress is probably the best for the flamenco guitar. The ideal wood for the face is a species of spruce that grows in the mountains of Central Europe. The spruce's slow growth causes a tight uniform grain structure. Rosewood, Spanish cypress and European spruce are difficult to obtain and have to be imported.

"Materials used and workmanship mean everything in getting the kind of sound you want from a guitar," said Johnson. "You can't cut corners and skimp on materials if you want a top-quality instrument."

Johnson says that he'll probably concentrate on building flamenco-type guitars, and he hopes to begin selling them after he develops more skill. He got his instruction on guitar building from books bought from musical instrument specialty house in New York.

He has played the guitar since he was ten, and has had some formal training on the instrument. "One problem a guitar player has is keeping his fingernails long enough to pick the strings. I suspect that all this sandpapering while building these guitars has kept mine ground down too far," he said.

When not at work at his luthier's bench, Johnson likes to hunt, fish or chase a golfball around 18 holes.

Win Cash for Suggestions



Jean R. Stone
\$480—procedure for buying photo-mailers

Bailey R. Chaney
\$25—white gloves for traffic guards

Thomas F. Krenek
\$25—reduce labor document needs



Joel W. Moor
\$25—modify stops on double doors

Ann L. Hardeman
\$25—expedite emergency employee calls

James C. Clarke
\$25—spray etcher safety device



Curtis C. Collins
\$20—improve overtime record keeping

Jack D. Stanley
\$20—notification of performance ratings

John B. Williamson
\$15—centralize MPAD microfilm reader



Doris S. Kreske, John E. Jones Jr.
Split \$50 for revising contract checklist form

Raymond A. Donatto, E. L. Shropshire
Split \$25 for tubing sleeve on 4-inch power roller



Joseph P. Siegfried

Orrin A. Wobig

Inocencio M. Cortez Jr.

\$25 each for publication of NASA Tech Brief on reinforced pipe joints

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Goliad was a battlefield in the struggle for Texas long before time ran out on Fannin and his martyred men



ON THE San Antonio River, less than 50 miles above Copano Bay on the Texas coast, lies historic Goliad.

Just between the town and the river glows the restored magnificence of an old Spanish mission, Nuestra Senora del Espiritu Santo de Zuniga. And Presidio La Bahia, a fort built two centuries ago, frowns down from its rocky height across the river.

These three — Goliad, the mission, and the fort—from a trinity famous in Texas history.

Spain in Texas

Long before Goliad was to make its mark in the struggle for Texas freedom, the mission and the fort figured strongly in Spain's effort to colonize the American Southwest. While the friars of Espiritu Santo went about their work of converting and civilizing the Indians, La Bahia's function was to prevent Indian uprisings and protect the region from possible encroachment by the French and English.

Though Goliad was not founded by Mexican decree until 1829, events that led to that founding began back in 1749. In that year, Captain Orobio y Bastera, of the Army of New

Spain, searched with a small body of troops for a better place to locate Presidio La Bahia. The fort and its attendant mission then lay at Mission Valley, near modern Victoria.

Both the presidio and the mission had first been established in 1722 on the site of La Salle's Fort St. Louis (possibly on Garcitas Creek) on the Texas coast. Incessant trouble with Indians, however, made it advisable to move farther inland in 1726 to a location on the Guadalupe River, known as Mission Valley. After 23 years at Mission Valley, Governor Jose de Escandon had ordered a better location to give greater protection of Spanish interests in Texas.

Obedient to Escandon's orders, Bastera and his troops set out from Mission Valley in 1749, moving cautiously across the wild plain, ever alert for marauding Indians. Coming at last to the San Antonio River, the little party crossed in canoes and clambered atop a rugged hill on the opposite bank. Bastera, perched on the rock-ribbed summit, appraised the location with military eye. Here was what he sought: tactical advantage against assault combined with a nearby supply of water. He lost no time surveying the place and staking out a huge quadrangle.

La Bahia had a new home.

Gibraltar of the Southwest

What Gibraltar is to the Mediterranean, La Bahia was to Spanish rule in Southwest Texas. From its founding, the fort was a rock around which ebbed and flowed the fierce tides of war. It seemed destined to become a place of violence, a magnet to attract political plots and counterplots. Long before it played its part in the Texas Revolution, La Bahia was a veteran of assaults and skirmishes, its walls breached and scarred by scores of battles that had swirled around them. And always, La Bahia survived.

Most of the early fort's leaders had dispositions to match the ruggedness of the rock they commanded. There was the slave-driving martinet, Francisco Tovar, who insulted and abused even the priests at nearby Mission Espiritu Santo. There was the crafty Carzola, who lured into the walls and killed an Indian chief. The chief, named El Mocho (The Maimed) for an ear lost in battle, had been stirring up rebellion among his people. Only one commander, Capt. Manuel Ramirez de la Pizina, who had succeeded Bastera, was remembered with real affection among his people.

Under such leadership, discipline sagged and morale suffered. Captain Juan Cortes reported in 1795 that he had eight cannon,

but not a soldier in the garrison knew how to fire them. When, under his successor, soldiers tore down a portion of the wall, men found guilty of gambling were ordered to work out their fines by rebuilding the wall. It was not until the end of the 18th century that La Bahia reached full strength behind strong fortifications.

Gutierrez and Magee

Those walls were soon to be tested by their first full onslaught. Revolt against Spain had been brewing for some time, and in 1812 an expedition of some 300 adventurers under Gutierrez and Magee was formed to overthrow Spain and make Texas a free nation. Marching to La Bahia, the expedition took over the fort and prepared to defend it against certain reprisal from Spanish forces at Bexar.

Attack was not long in coming. Salcedo and Herrera,* with some 2,000 Spanish troops, marched from Bexar and placed La Bahia under siege. Without water, and dispirited by the death of Magee three months after the siege began, the filibuster army asked to talk terms.

A parley was arranged between Gutierrez and the Spanish commanders. Terms of surrender proved unsuitable to the besieged leader. He rejoined his men inside the fort, took the offensive, and routed the King's troops. In the pursuit that followed, Gutierrez captured the Spaniards and had one of his subordinate officers murder them soon after. This act caused many Americans to desert the expedition. Gutierrez himself was court-martialed and relieved of command.

Later, a revengeful force under Arredondo caught up with and wiped out the remaining insurgents. Remnants of the defeated army escaped and made their way back to La Bahia, only to be shot there by former comrades-in-arms who had remained behind and had, with change of heart, declared themselves for Spain.

* Manuel Maria de Salcedo, Governor of Texas, and Simon de Herrera, Governor of Nuevo Leon.

Perry and Long

One soldier who escaped the battles of the ill-fated Gutierrez-Magee Expedition returned another day to fight at La Bahia at the head of his own troops. In 1817, Henry Perry had joined forces with Aury and Mina to fight in Mexico against Spain. Perry organized a body of soldiers, withdrew from action in Mexico, and marched to La Bahia. His assault against the fort was about to succeed when Spanish reinforcements arrived. Finding himself surrounded and his case hopeless, Perry shot himself with his own weapon rather than be taken prisoner.

Another soldier of fortune—James Long—had visions of taking La Bahia by storm. In the fall of 1821, he and his troops numbering some 50 to 60 men set sail from Galveston and landed at the mouth of the Guadalupe River. They marched to La Bahia, surprised the small garrison, and took possession of the fort.

Long's stay was short. Spanish troops were dispatched immediately from Bexar, and Long met them under a flag of truce midway between the mission and the fort.

Truce talks came to naught, and Long returned to La Bahia to prepare for a siege. It was a short one. Within 24 hours, Long had surrendered with all his men. He was taken to Laredo and thence to Mexico City, where he was released—only to be "accidentally" killed by a sentry.

Origin of Goliad

In 1821, Mexico won its independence from Spain. For a time, garrisoned by soldiers of the new Mexican Republic, La Bahia was to know a kind of peace that had been denied it for many years.

After a few years, those living in the *pueblo* (town) around La Bahia thought it well to change the name of their place. The local *ayuntamiento* (governing body) met and, through Rafael Monchola, petitioned the State of Coahuila and Texas as follows:



Mission Espiritu Santo de Zuniga, Goliad

"In view of the great confusion and the misunderstandings that have arisen . . . because of the meaningless name of the Presidio of La Bahia del Espiritu Santo which is not at all appropriate, I beg that this august Congress declare the place a Town with the name Goliad, which is an anagram made from the surname (Hidalgo) of the heroic giant of our revolution . . ."

In reply, the Congress of Coahuila and Texas on February 4, 1829, decreed that "The fortress of La Bahia . . . may be called the town of Goliad . . ."

Work of the Mission

While the blood of soldiers and adventurers reddened the rocks of La Bahia, just across the river, at the mission, Franciscan friars worked ploddingly in the ways of peace.

When Mission Espiritu Santo was moved with Presidio La Bahia from Mission Valley to the San Antonio River, two of the more docile Indian tribes moved with it. Members of the Jaranames and Tamiques had been rather easy to civilize, taking their religious instruction and agricultural duties more or less seriously. But they came to the Goliad area with some fear and misgiving, for the move put them closer to their dreaded enemies, the fierce and warlike Karankawas.

Mission Espiritu Santo prospered, and became in time the owner of the largest cattle ranch in Spanish Texas, with its herds numbering high in the thousands. The main trouble was persuading even the peaceful Indians to remain at the mission when there was work to be done. During "working" seasons, when the prickly pear and pecans ripened, the Jaranames and Tamiques had a habit of fading into the brush. Discipline and religious instruction they accepted without a murmur, but work was a different matter.

Success and prosperity at Espiritu Santo led to a decision to establish another mission, Nuestra Senora del Rosario, nearby. The plan was to use this mission to convert and civilize the Karankawas, an ambitious and courageous undertaking.

Surprisingly enough, Rosario Mission prospered for a time, building up its own herds to some 30,000 cattle. But the Karankawa spirit was not easily adapted to peace. Such learning as the friars were able to impart to a few Indian leaders only backfired, as the Karankawas turned new-found knowledge to their own uses in the ways of war and treachery.

Troubles with Renegades

There was, for example, the infamous Jose Maria. He learned quickly, acquired a fluent command of Spanish, and became the pride of the mission fathers. Appointed an overseer, he commanded great respect among his people. But Maria found it hard to forget the bloody ways of his fathers.

One day in 1778, Louis Landrin arrived by schooner from Louisiana to explore the Texas coast. Boarding the schooner with a band of Indians under the

guise of friendship, Jose Maria was hospitably received with food and drink. Suddenly, at a signal, the Indians whipped out weapons and murdered Landrin with his entire crew. Later, when Spanish soldiers put Maria to death, his execution touched off a series of crime waves among the Indians, and wholesale desertions of the Spanish missions on the San Antonio.

After Maria's trouble-making came uprisings incited by Manuel Alegre, another Indian of Rosario Mission. Soldiers from La Bahia had to be called in to quell the Alegre troubles. A Karankawa chief, Frezada Pinta (Painted Blanket), always influenced his people to oppose the Spanish, but was subtler than his fellow renegades. He always managed to bring about a peaceful air among his people on those occasions when gifts were distributed at the mission.

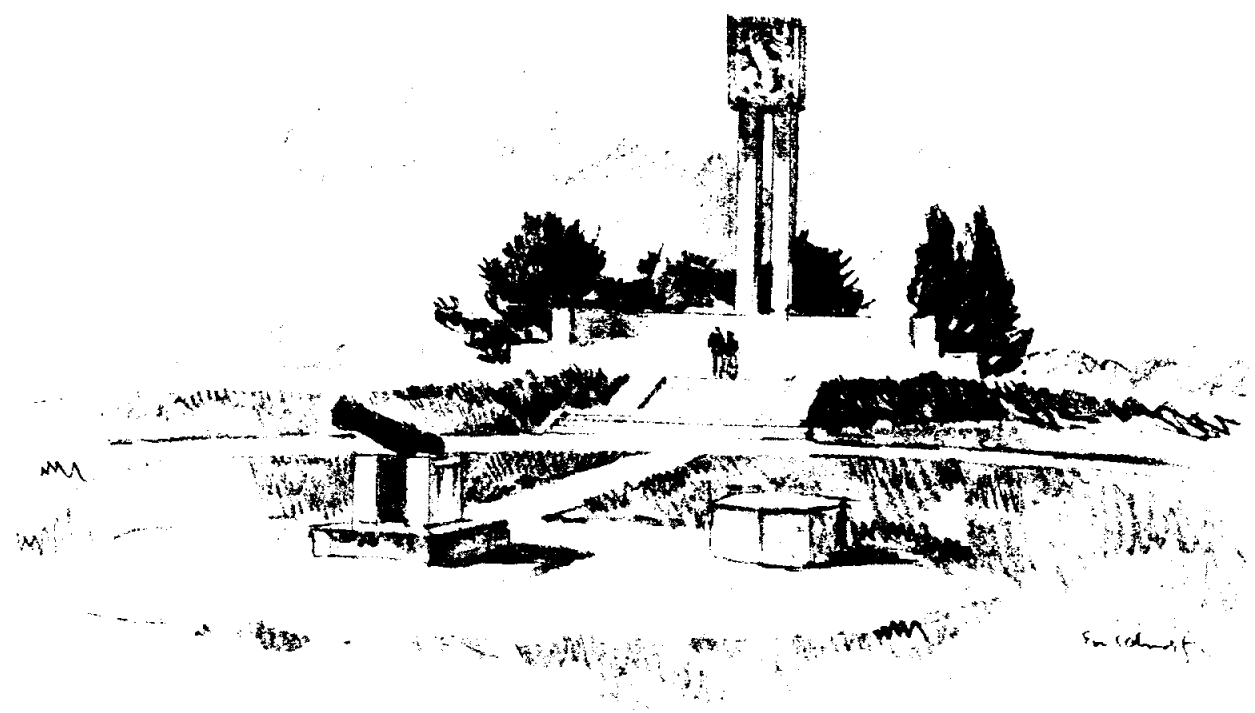
When the Karankawas were not busy doing mischief at Rosario and Espiritu Santo Missions, they were fighting among themselves or locked in battle with their avowed enemies, the Comanches, Apaches, and Lipans. Guns were not hard to come by, with French and English traders eagerly supplying the demand for both sides, and the La Bahia garrison was often powerless to deal with the inter-tribal warfare.

Decline of the Missions

Eternal fighting and bickering worked against the missions. Many converts deserted to join their savage brothers, despairing of a philosophy that taught peace instead of war. Thousands of head of livestock were stolen, butchered, or driven off by the Indians. To make matters worse, the Spanish Crown now stood against the missions. Declaring them unnecessary, the Crown issued an edict that all unbranded cattle of the missions forthwith became the property of the King. As for financial help from Spain, not even the padre's annual pittance was paid. Texas missions were about to fall on evil days.

The beginning of the end came in 1794 when Spain decreed the secularization of all the Texas missions. This meant that the mission lands reverted to the government, and the missionaries were discharged. Rosario was abandoned in 1807, with its lands being distributed among Spanish settlers.

Mission Espiritu Santo continued to be used under the Mexican Republic after 1821,



Fannin's Grave, Goliad

by E. M. Schiwetz

but fell into decay and finally was abandoned by the Indians. It was officially closed in 1830, when an inventory was made and the mission placed under the care of Geronimo Huizar, an official of La Bahia.

Remember Goliad

In the minds of most Texans, Goliad and La Bahia are best remembered for the part they played in the revolution against Mexico.

Late in 1835, Presidio La Bahia had fallen to the forces of Collingsworth and Ben Milam, the latter soon to be killed in his attack against San Antonio. After the fort was taken, it was placed in command of Philip Dimmit, whose company was composed largely of Irish fighters from Refugio and San Patricio.

Dimmit and his men, eager for Texas Independence, decided to make their own declaration—with or without authority. Marching to the parade grounds within La Bahia's famous quadrangle on December 20, they raised a flag of independence—a banner bearing a red and bloody arm brandishing a sword.

This hasty and unauthorized action caused displeasure among the Texas General Consultation, which had met at San Felipe, and served blunt notice to Mexico that Texans were getting ready to make their bid for freedom. It was not until several months later, on March 2, 1836, at Washington-on-the-Brazos, that the official Declaration of Independence was drawn up and signed by the Texas Constitutional Convention.

Events moved swiftly in Texas after the Declaration was signed. Just four days later, on March 6, the Alamo fell. Col. James W. Fannin and his troops at La Bahia (which Fannin called "Fort Defiance") were the only Texans left behind stone walls.

Hearing that settlers near Refugio were on the line of march of an attacking army, Fannin sent Captain Amon B. King with 28 men to bring them in. When King was placed under attack, Fannin sent Colonel William V. Ward and 120 men to rescue King. Neither rescue party survived.

Meanwhile, Sam Houston had ordered Fannin to blow up La Bahia and retreat to Victoria. Fannin demurred. When he did retreat, it was too late. He was caught with his force of about 350 men on an open plain near Coletto Creek, between Goliad and Victoria. Outnumbered and his case hopeless, Fannin surrendered, after a bitter battle, on March 20, 1836.

Exactly one week later, on Palm Sunday, Fannin's men were marched out a short distance from La Bahia's walls and shot. Their leader was accorded the honor of dying alone before a firing squad.

It was the last time blood would be drawn at La Bahia. With the death of Fannin and his men, the fort's long history of violence was ended. Less than a month afterward, Santa Anna was defeated at San Jacinto and Texas was free.

Goliad Today

The productive peace that surrounds Goliad today belies the violence that engulfed the area in earlier days. It seems difficult to believe that the place could have resounded for so many years to the cannon's roar and the battle's shout.

Mission Espiritu Santo, which fell into decay during the 19th Century, has been restored to full grace and beauty. And across the river, the remains of La Bahia rise in majesty and power atop their rockbound crag—peaceful now but still proud of the glory of command.

As a king of poetic justice, the only part of La Bahia in use today is the chapel, dedicated two centuries ago to Nuestra Senora de Loreto. Kept up through the years, the chapel now serves the surrounding community as a church.

Near the scattered ruins of the quadrangle walls, a stately monument marks the spot where Fannin sleeps with his martyred men.

The history of Texas from its earliest exploration through its colonization and growth into a republic, and finally as a state of the Union, is an extremely interesting history. Through the courtesy of Humble Oil and Refining Company, articles from Humble's *Texas Sketchbook* will appear in the *Roundup* during the next several months. The articles were written by F. T. Fields. Pencil sketches and watercolors accompanying the articles are by the noted Texas artist E. M. "Buck" Schiwetz. Many of the places described in the series are within weekend driving distance of MSC.



Goliad Today

by E. M. Schiwetz

Contributes to NHA-ISA Fund



CAMPAIGN SUPPORTER—MSC Pilot Alfred Worden gives his National Health Agencies and International Service Agencies campaign contribution to Astronaut Office campaign chairman Joy Morris. At left is MSC NHA-ISA Project Officer Silvie Gaventa. Although the campaign closes today, contributions will not be turned away. At the end of the drive's first week the following MSC organizations had reached 100 percent participation: Program Control and Contracts Directorate, Legal Office, Flight Safety Office, Information Systems Division, Management Services Division, Personnel Division, LM Project Engineering Division-ASPO, Advanced Systems Office, Reliability and Quality Assurance Office, Policy and Standard Office, and Fabrication and Shipping and Receiving Branch.

Auto Club Issues Tips For Women Drivers

The American Automobile Association has issued some helpful hints for women drivers who must drive alone. The AAA advisory said that "attacks on women drivers are crimes of chance and can be prevented. Criminals take advantage of time, place and opportunity to attack women motorists."

The following measures are recommended by the AAA as the best means to avoid creating circumstances for such attacks:

- Keep the tank full, the car in tip-top shape, stay on well-lighted roads, avoid bad neighborhoods, even if it means going out of the way.
- Lock all doors and keep the windows closed at all times. Keep your purse, jewelry and packages out of sight. The flash of a diamond could be the trigger to trouble.
- Keep your car in gear at intersections. If anyone tries to open the door, police say to 'take off' even if it means disregarding a traffic signal.
- You're most vulnerable when locking and unlocking the car, so park in attended commercial lots or well-lighted streets. If someone is loitering about, walk past

your car till you can get trusted help. Look in the car before opening it.

- Tell someone your route, destination and time of arrival. If you have a flat, you can drive slowly on the tire for 15 miles. If you break down, sit still. You are safest in a locked, closed-up car. Eventually, someone will come for you.
- Wait for police and don't hesitate to wave strangers by. Tell them, through the closed window, that your husband's gone for help or police are on the way.
- Should a car block your path, blare your horn repeatedly for help, but stay in the locked car. If you are followed, drive to the nearest police or fire station, or well-staffed gas station. Don't go home, even if it's close by.
- Consider taking a dog along, preferably one trained to protect you. Take a cab.
- Forget about being kind to others, about being late to the party, or being overcautious. Think of yourself first and apologize later.
- If all else fails, don't panic. Scream your head off!

Superior Performers



Gerald E. Anderson Pamela M. Andreasen
Receive Sustained Superior Performance Awards at RASPO-Downey

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The Roundup is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

- Director Dr. Robert R. Gilruth
- Public Affairs Officer Paul Haney
- Editor Terry White
- Staff Photographer A. "Pat" Patnesky

Langley Chief Named New Webb Assistant

Dr. Floyd L. Thompson, Director of Langley Research Center, Hampton, Va., for eight years, has been given new duties as Special Assistant to NASA Administrator James E. Webb.

Thompson will bring his long service and experience in science and technology to bear on the NASA program and management matters.

In addition, Webb said Thompson will head a NASA Headquarters Interim Working Group to evaluate future manned flight projects.

Since the new duties will take Thompson away from Langley for prolonged periods, Charles J. Donlan, Langley Deputy Director, will serve as Acting Director.

In 1926 Thompson joined the National Advisory Committee

for Aeronautics (NASA predecessor) at the Langley Center. He won successive promotions, becoming Director in 1960.

Thompson previously served as Chairman of the NASA Policy Planning Board, and chairman of the Apollo 204 Review Board appointed to investigate the fatal accident at Cape Kennedy January 27, 1967.

Donlan has served at Langley since 1938, becoming Deputy Director last year.

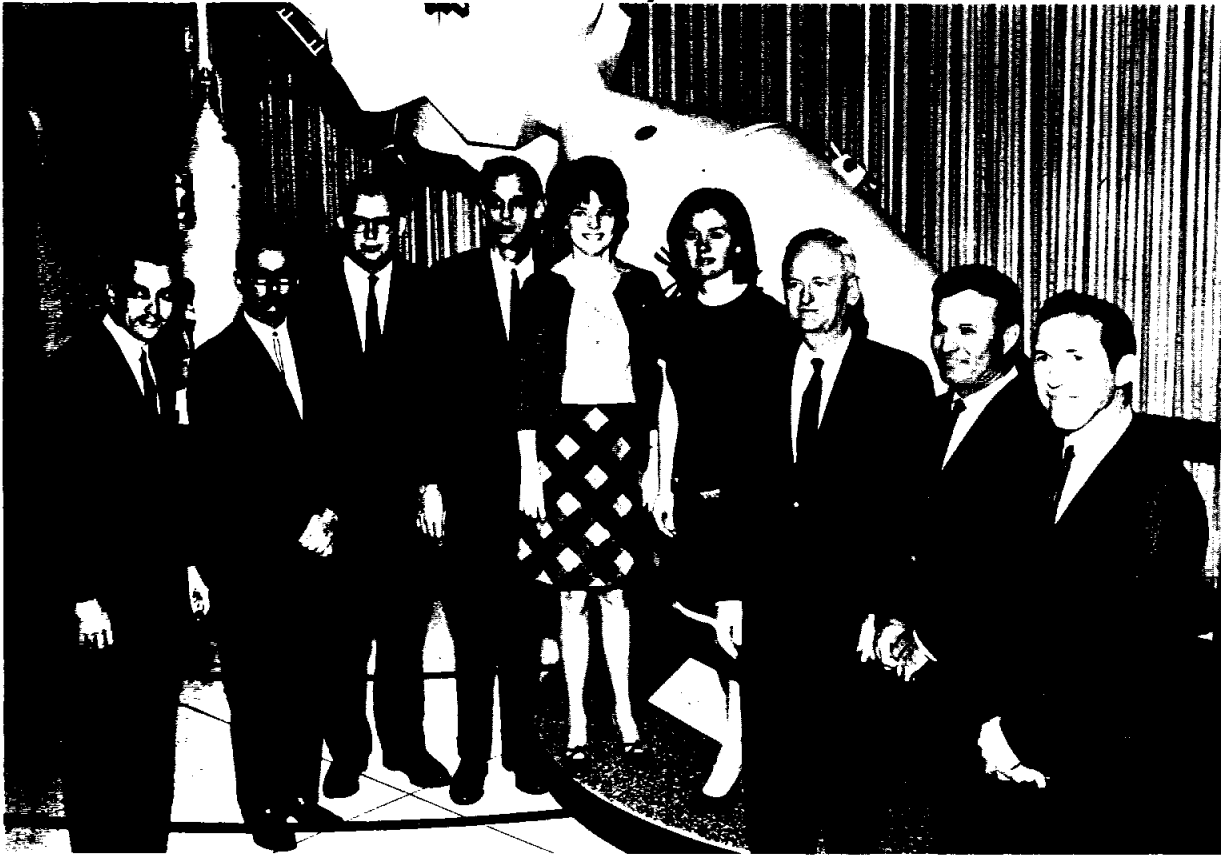
In 1958 Donlan became a pioneer member of the NASA Space Task Group established at Langley that year to conduct Project Mercury. He served as Associate Director of Project Mercury until 1961 when he returned to the staff of the Langley Research Center as Associate Director.

A Brother Moose Remembered



GRISSOM PLAQUE—The Virginia Moose Association presents to MSC and to the Virgil I. Grissom Library in Newport News, Va. plaques in memory of Grissom, a member of the Warwick Virginia Moose Lodge. Left to right are Charles Brice, Moose state director, Mrs. Charles Shreves, librarian of the Grissom Library, Charles Donlan, NASA Langley Research Center acting director, who accepted the plaque on behalf of MSC, and Congressman Thomas N. Downing of Newport News. Donlan until 1961 was associate director of Project Mercury in MSC's predecessor at Langley, the Space Task Group, where he was involved in selection of the original seven Mercury pilots, including Grissom. Donlan is acting Langley Center director in the absence of Dr. Floyd L. Thompson, on assignment as special assistant to NASA Administrator James E. Webb. (See story at left.)

MSC Voices in Bay Area Chorus



TUNE CARRIERS—Singing in the March 31 Bay Area Chorus Astronaut Memorial Concert performance of the Mozart *Requiem* will be the above MSC employees. Left to right are Gerry de Vezin, tenor; Clarke Hackler, tenor; Jim Bone, tenor; Herbert Tiedemann, bass; Vicki Jones, alto; Beverly Duncan, soprano; Warren Gillespie, tenor; Eddie Bernard, bass, and Earl Gilbert, bass. Not in photo: John D. Orr. The concert, with members of the Houston Symphony accompanying the Chorus, will be at 8 pm in the MSC Auditorium. Mozart had partially completed the *Requiem Mass in D Minor* on a commission from a patron when he died in 1791 at the age of 36. One of his pupils completed the work for its first performance in Vienna.

Echo I Calls it Quits After 7 Years in Orbit

Echo is coming home.

The world's first passive reflector communications satellite, Echo I, is coming down from its nearly circular orbit 800 miles above the Earth. It will reach the ground soon, possibly before summer.

The 100-foot globe of aluminum-coated mylar plastic, more than seven and one-half years old, has been battered by space dust and meteoroids so that its skin is wrinkled like a prune. It has lost much of the benzoic acid and anthraquinone inflating gas that held it firm and round.

For the past year Echo has been descending from the position where it was probably seen by more people than any other man-made object in space.

Calio Addresses AAS Chapter March 26 Meet

The Houston Chapter of the American Astronautical Society March 26 will present a talk by MSC Deputy Science and Applications Director Anthony J. Calio. His topic will be "Science and Applications at MSC."

The meeting will be at the Nassau Bay Motor Hotel and will begin with a hosted cocktail hour at 6 pm, buffet dinner (\$3.50/person) at 7, and the program at 8.

Non-members, MSC and contractor employees are invited. For reservations, call Teresa Sullivan at Ext 5131.

Echo I has been superseded by a passive reflector satellite 35 feet larger in diameter, considerably firmer and more gleaming.

NASA launched Echo II January 25, 1964, and carried further experiments in long distance reflection of telephone conversation, photographs and music which Echo I proved possible. And a series of active communications satellites with electronic receivers and transmitters on board — AT&T's Telstar, NASA's Relay, Syncom and Applications Technology Satellites (ATS), and COMSAT's Intelsats — have improved on Echo's simple signal bounce experiments to produce reliable telephone, teletype and television service around the world.

Echo I captured the world's imagination. Launched August 12, 1960, Echo I was the debutante of the year—bigger, brighter and more brilliant than almost any star in the firmament.

Echo I was easily visible to the unaided eye over most of the Earth. Echo fan clubs sprang up in schools. Newspapers and radio stations reported daily predictions where it would pass, and when. Boy and Girl Scout troops waited for her . . . as did many thousands of others in big and little communities.

In slightly more than seven and a half years since launch, Echo I has flown around the Earth more than 35,600 times, in excess of one billion miles.

Scientist-Pilots End Academics, Start Jet School

Ten scientist-pilots completed the first phase of their training February 29 and prepared to enter a year-long course to earn jet pilot wings.

The ten, selected last August, have completed the academic portion of the general training program. It consisted of courses in science and technology, and familiarization with spacecraft and spaceflight operations.

Two scientist-pilots have been assigned to each of five Air Force bases where they will receive 53 weeks of flight training as members of regular student pilot classes.

Reporting March 21 are: Brian T. O'Leary, 28, and Robert A. R. Parker, 31, Williams AFB, Chandler, Arizona; and Joseph P. Allen, 30, and Karl G. Henize, 41, Vance AFB, Enid, Oklahoma.

Reporting April 4 are: Philip K. Chapman, 32, and William E. Thornton, 38, Randolph AFB, San Antonio, Texas; John A. Llewellyn, 34, and F. Story Musgrave, 32, Reese AFB, Lubbock, Texas; and Anthony W. England, 25, and William B. Lenoir, 28, Laughlin AFB, Del Rio, Texas.

An eleventh scientist-pilot selected last August, Donald L. Holmquest, 28, is completing an internship at Methodist Hospital, Houston.

Each of the ten will log 240 hours of flying during the course. The first 30 hours will be in the T-41A, a propeller-driven light plane. The next 90 hours will be flown in the T-37 jet trainer, and the last 120 hours will be in the supersonic T-38 jet trainer, the same aircraft they will fly after returning to MSC.

Arctic Aurora Scanned By Ames Center's Jet

A big "eye" mounted atop the cabin of a NASA jet airplane is being maneuvered nightly to sweep the sky for pictures of Arctic Aurora.

Held in its carefully stabilized gyro-controlled mounting, the precision camera takes in virtually the entire Arctic night sky at a glance. Its field of view extends almost from horizon to horizon, through a 160-degree arc.

The NASA Ames Research Center's 990 Convair jet transport has been adding to the collection of aurora photographs at the rate of more than 1,500 during each night flight. By using precision cameras and other instruments at 30,000 feet, above most of the Earth's atmosphere, and higher, the aircraft and her scientist crew are adding to the files of auroral data at an unprecedented rate.

Pictures snapped automatically by the Fairchild Automax 35-mm cameras are normally given 4-second exposures at a stop opening of f/1.5, using ultra-fast film. These full-sky photographs will form the basis for an extensive study of the various forms assumed by aurora displays.

Much of the 1968 NASA Auroral Expedition's camera work is being directed by Dr. Syun-ichi Akasofu and his research team from the Geophysical Institute of the University of Alaska. The group normally based at College, Alaska, near Fairbanks, is among the world's leading authorities on auroral phenomena.

In addition to the airborne photographic studies, the expedition, based at Churchill Research Range, in Manitoba, Canada, is coordinating its observations with those taken by NASA's OGO-IV, Orbiting Geophysical Observatory satellite, whose sensors view the Earth from altitudes above 250 miles.

Equipment aboard OGO-IV includes three experiments of special interest to aurora scientists.

Dr. R. A. Hoffman of NASA's Goddard Space Flight Center, Greenbelt, Md. is studying low energy auroral particles. Professor J. Blamont of the University of Paris and Dr. Edith I. Reed of Goddard are making photometric observations of various auroral emissions. Dr. Charles A. Barth of the University of Colorado at Boulder is examining the ultra-violet spectra of the Earth's upper atmosphere. Dr. Barth also has one of the experiments in the NASA plane.

Expedition equipment aboard the jet includes riometers, photometers, spectro-photometers, interferometers and time-lapse cameras.

For the first time, auroral scientists have been able to correlate their airborne observations with a space satellite and with data being taken at ground stations in "real time." Scientists use these simultaneous observations to record elusive aurora

displays from widely separated vantage points in an effort to understand them more completely.

Auroras form and break up unpredictably, so experimenters snatch every opportunity to record even small bits of data. The 1968 Aurora Expedition is expected to unravel further the mysteries of the Northern Lights and to increase understanding of Earth-Sun relationships which have a profound effect on man and his Earth environment.

The first 13 flights of the expedition occurred between January 18 and February 8. The second session began February 20 and was expected to end March 11. Several flights over the polar cap and latitude surveys of the Earth's airglow have been made in addition to the aurora observations.

The expedition is managed and directed by Louis C. Haughney of the Ames Center. Ames is conducting the project with the cooperation of the National Research Council of Canada which provided the Churchill Range on Hudson Bay as the operating base.

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Bridge Club Starts 2nd Beginner Class

The MSC Duplicate Bridge Club is offering a second beginner bridge class starting April 1 at 7:30 pm. The class is aimed toward anyone not familiar with the modern point count system of contract bridge and will cover all the main points of basic rubber bridge—definitions, scoring, hand evaluation, bidding, and some bridge hand strategy.

A \$10 class registration fee is payable in advance and enrollment will be limited. For information call Jim Raney at Ext 4015 or at 488-0324.

Bridge Club standings in recent competition are as follows: February 13 master point 8½ table Mitchell movement — North-South: B. Durbin and B. DeGeorge, 1st; J. Raney and R. Morris, 2nd. East-West: Don and Alice Larson, 1st, and W. Lokken and M. Lee, 2nd.

February 20 fractional 8-table Mitchell movement — North-South: B. Leighton and D. Young, 1st; Son and Alice Larson, 2nd. East-West: J. Lee and W. Bryan, 1st; J. Oldfield and A. Bragg, 2nd.

February 27 master point game—North-South: Don and B. Leighton, 2nd. East-West: J. Herrmann and R. Clemence, 1st; B. Parshall and C. Brown, 2nd.

March 5 fractional game, 5½-table Howell movement—J. Snyder and M. Powell, 1st; B. Boone and J. Greene, B. Bryan and J. Shortt, and D. Boydston and P. King, tied for 2nd.