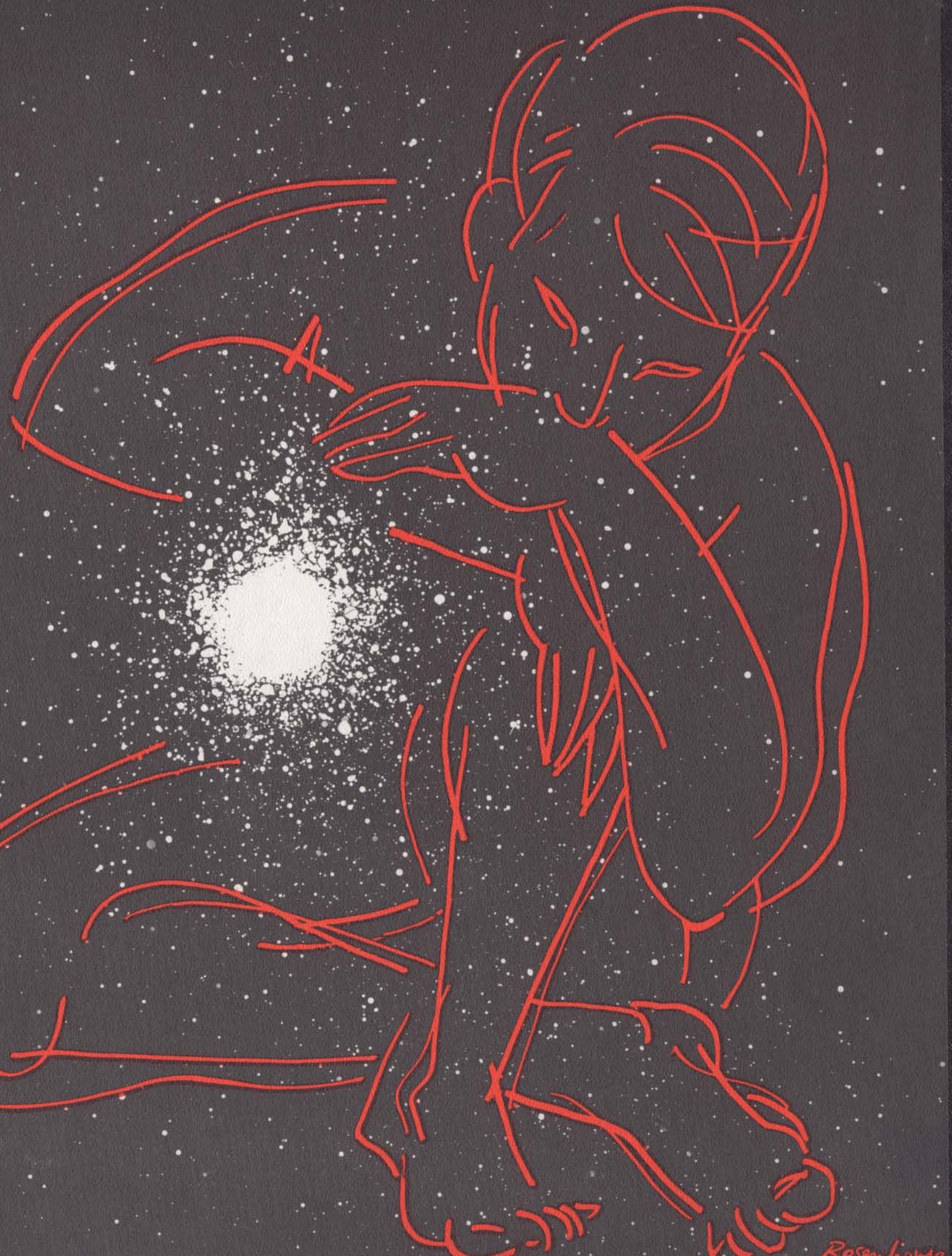
Man in Space

THE STORY OF THE JOURNEY

A Documentary

FOLKWAYS RECORDS FX 6201



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SIDE I

Astronaut to "Mercury Control"
Preparation: Countdown
Launching
Flight; Re-Entry to Earth's Atmosphere
" 'AOK' All the Way"
Jules Verne's Prophecy
Project Mercury
The Rocket—Booster
The Capsule
Inside the Capsule

SIDE II

The Human Element—The Astronaut
Evaluation

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SIDE I

Band 1: Astronaut to "Mercury Control"

"....holding at 5.5...oxygen is good..."

The voice of a man 115 miles above earth, the man -37 year old Lt. Com. Alan Bartlett Shepard, Jr., U.S. Navy, made that report you just heard while traveling at a speed of over 5,000 miles an hour, while traveling in space in a special vehicle which had been carried from earth at the top of a powerful rocket. This is the story of that man, his journey, and of the scientists who made possible his mission in outer space.

Band 2: Preparation: Countdown

Our story begins on the morning of Friday, May 5th, 1961 at 34 minutes past the hour of ten, at Cape Canaveral in the state of Florida. A man touches a button, the touch ignites the engines of a powerful rocket standing not too far away, gleaming white in the powerful light of the tropical sun. With a roar and a blast of flame, the rocket starts to lift straight up. For the hundreds of men and women who usually work at Cape Canaveral the launching of a rocket has become almost routine, but not in this case. For at the top of the rocket, inside a strange looking vehicle that looks something like a child's toy top, there was a man.

He is at this moment inside the cone shaped capsule perched atop the missle, awaiting the final seconds of the countdown which is already begun. The rocket itself is in full view. It is a gleaming white Mercury Redstone rocket, towering nearly 83 feet into the sunny sky, and is a modified version of the one that helped push America's first satelite into orbit some five years ago.

Band 3: Launching

"Shepard himself began the day at 2 o'clock this morning. Shortly after having a breakfast of steak and eggs and toast, he went to a hanger designated Hanger S where he was given a medical examination. He then put on his space suit and helmet. After he was dressed, electrical nodes were attached to his body to measure the physical pressures he will undergo in flight. He is now on top of the missle and here is the final countdown."

"T minus 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0. Ignition...Lift-off at 34 minutes after the hour."

Band 4: Flight; Re-Entry to Earth's Atmosphere

This was the beginning of a journey that would last only fifteen minutes, a quarter of an hour which to hundreds at Cape Canaveral and to millions across the United States may have seemed like a quarter of a century. There were probably few in this country who did not hear the voice of Lt. Col. John Powers, public relations officer of this project, as he kept everyone informed of the progress of the flight.

"Freedom Seven in voice communication with the Mercury control center, reports 3.5G, cabin pressure holding five 5.5 pounds per square inch. The flight projectory is still A OK, the pilot is in good voice communication with Mercury control. Freedom Seven with astronaut Shepard reports the fuel system is go, 4G, cabin 5.5 pounds per square inch, oxygen go, all systems go. Pilot reports tower jettisoned, astronaut A OK, periscope coming out, turner unstarted, assuming orbital altitude. He's going to hand-controlled movements now, switching to manual control of the pitch altitude. Trajectory looks A OK. Pitch control A OK. Pitch control A OK. Switching to manual yaw. Medical monitor in Mercury control reports pilot's condition appears to be excellent. Taking over manual control of the roll altitude. Roll is OK, working now. 'What a beautiful view' is a quote. Pilot reports 3 to 4 tenths cloud cover along the eastern coast of the United States, obscuring the eastern coast up through Cape Hattaras. Pilot reports assuming retro-altitude, initiating retro-fire sequence. Pilot reports mission 'very smooth.' Retro-rocket number one has fired; retro number two has fired; retro number three has fired. Trying to jettison the retro-rocket pod. We are still receiving excellent voice communication from the pilot. Medical monitor reports everything A OK in the cockpit. The retro-rocket packet has been jettisoned. Beginning to roll into re-entry altitude. Automatic control system operating properly. The Mercury spacecraft is beginning to re-enter the earth's atmosphere. We have a registration in the control center indicating .05 of a G, indicating the beginning of penetration.

Band 5: "'AOK' All the Way"

We are still in voice communication with the pilot. 9G coming down. His words are, 'OK.' Going through big G now, he is still talking, saying, 'OK.' Our data here at the Mercury control center at this time is excellent. Pilot reports 30,000 feet on the way down. Pilot now talking to us via a radio link at Grand Bahama Island, and we're reading him loud and clear. The drogue parachute has deployed. Pilot reports all systems in the cockpit A OK and operating properly. Medical monitor in the Mercury control center reports the pilot A OK all the way. The main parachute has deployed. The Mercury spacecraft Freedom Seven is now descending on its main parachute."

A few minutes later, the capsule hits the water of the Atlantic Ocean. Commander Shepard was 290 miles from Cape Canaveral. He had reached a height of 115 miles, a speed of 5,1000 miles an hour. Commander Shepard's journey, which had begun only some fifteen minutes before, came to an end quietly, a lot more quietly than it had begun.

Band 6: Jules Verne's Prophecy

Strangely enough, the flight of an American from Florida into outer space and back was

predicted by a French writer who died years before Alan Shepard was born -- Jules Verne. Verne lived from 1828 to 1905, but it has only been in recent years that the world has caught up with his imagination. With an amazingly prophetic pen, Jules Verne wrote of men being fired into space from the peninsula of Florida. Why he chose Florida as the locale of man's first flight to the moon, no one knows; but he packed many exact details in his book From Earth to the Moon. The story says five million people came to the imaginary community of Tampatown in Florida to see the rocket firing. It was a rocket firing not unlike the one we have witnessed at Cape Canaveral in Florida. In Verne's book three men took the imaginary trip to the moon. They enjoyed every moment of it, even the sensation of weightlessness, a phenomenon about which we know very little even today, but which Jules Verne described with phenomenal accuracy. A brush with a meteorite changed the course of Verne's spacecraft, and its course was altered. Instead of landing on the moon it merely circled it. Then by using a centuries old version of what today the scientists call re trorockets, returned to earth. The three space travelers of Jules Verne's imagination landed in the ocean just as, some one hundred years later, the first American space traveler would land.

The ocean that cradled the imaginary space craft of Jules Verne still roars against the beaches of Florida today. But now the ancient sounds are blending almost indiscernibly with new sounds, just as one man's incredible imagination has blended with reality.

Band 7: Project Mercury

The effort which made reality of Jules Verne's imagination could be said to have begun toward the end of the year 1958. That's when the United States announced its intention to start a program aimed at orbital flight. The program was named "Project Mercury."

"The basic purpose and objectives of the project is to safely orbit a man in the lower edges of space around the earth, recover him safely, and while he is in orbit evaluate his capabilities in space to see first what he can do, what problems will be facing us for further, more complete space exploration."

In the fall of 1958 was the preparation A plans the specifications for the capsule.

Band 8: The Rocket—Booster

At the same time, the scientists of the National Aeronotics and Space Administration were engaged in research concerning the booster, the rocket which would take this capsule into outer space. They decided to use two. For the orbital flight they chose the Atlas, America's most powerful rocket. But before such an orbital flight, the astronauts would undertake training flights in a ballistic path, short flights that would follow the trajectory of a rocket or missile, which would take them into outer space for short periods of time. For such flights the scientists at NASA chose the Redstone, a 69 foot liquid fuel ballistic missile, powered by a 75,000 lb. thrust engine.

"The Redstone booster had already achieved a significant record of reliability flight in a launching history which extends over the past seven years. Of over 40 Redstone launches, only 2 boosters had failed. However the Mercury space craft escape system, which has been incorporated into the Mercury design, would have prevented the astronaut from being harmed, in such a malfunction."

But the Redstone was a military rocket, designed for specific purposes which of course did not include transporting the space capsule, or space craft, as Mr. Haberligh referred to it, into outer space. Certain modifications were necessary. Here again is Mr. Haberligh:

"Changes in the system for the Mercury mission include the elongation of the tank section to increase fuel capacity. This is similar to the Jupiter C design of the Redstone booster, which was used to launch the first explorer satellite. Also included in the design change was a new instrument compartment and adapter section to accommodate the Mercury spacecraft. There have been changes in the engine and control system in the interest of simplicity. Also improved reliability and increased performance have been maintained throughout this program. The development of a mission of bourts sensing system to assure safety of the spacecraft and astronaut on later launchings has been included.

"The Mercury Redstone is approximately 83 feet in height, including the spacecraft assembly. This is compared to the standard length of 69 feet on the tactical Redstone. The body of the rocket is approximately 70 inches in diameter. The lift-off weight is 66,000 pounds; this includes the one ton Mercury spacecraft."

But the reliability of the Redstone in the past, even the fact that it had been used to place into orbit America's first earth satellite and several others, was not enough. This time the payload was not to be 160 pounds of instruments, but 160 pounds of human being, the most valuable commodity in this country. The man who would ride at its top one day would have to be sure that it was as safe as the automobile he was driving to and from work. More reliability tests were ordered on the Redstone to ensure that nothing would go wrong when that man would ride atop the rocket.

Reliability tests were conducted on individual components, subsystems and systems. Test conditions included excessive vibrations and extreme temperatures. Engineers designed and operated a special "rock and roll" test device which subjected the entire instrument compartment of the Mercury Redstone Rocket to the environmental stress. This later phase was devoted primarily to checking out the ABourt system to assure that it would operate properly on demand and could not be activated accidentally. At the Marshall Space Light Center personnel ran structural tests on the new Redstone Mercury configuration which assured the structural integrity of the vehicle. Units of the rocket were submitted to considerable higher stresses and strains than would normally be encountered in flight."

The result -- a rocket safe enough to take man into outer space.

Band 9: The Capsule

If Project Mercury had the booster, one of the most important elements in this first journey into space by an American, it did not have the spacecraft itself. Designers were working almost around the clock to present to Project Mercury a vehicle built according to specifications, a vehicle that could withstand the strain of space travel, and meanwhile protect the man inside from some of those strains. At the same time a vehicle that must contain all the instruments necessary to make such travel valuable, while being light

enough to be thrust into space on top of the Redstone rocket.

"Actually it's kind of difficult to describe. I think one of the easiest ways is to talk about a child's top. Normally the top spins on its point; in the case of the Mercury capsule, you invert the top so that the blunt face is down. The point is modified so that it has a rather enlarged neck, rather than a point on the end. Or it might be described something like the shape of the television tube in the television set. It measures about 6.5 feet across the base, or about 2 meters. It's about 10 feet tall or about 3 meters from its curved face up to its narrow neck."

Band 10 Inside the Capsule

Inside this highly unusual vehicle, seven miles or a little over 11 kilometers of wiring, and more than 10,000 components. The man who would ride this spacecraft would have about the same amount of room as a pilot in a jet plane cockpit.

"The cabin is so constructed that on each side are equipment bays. The main and reserve parachutes are stored in a cylinder in front of him. Two infra-red horizon scanner units are located in a narrow section at the end of the spacecraft. To provide a suitable atmosphere and to cool the equipment, the vehicle's environmental control system has two circuits. One controls temperatures in the cabin generally; the other is attached to the astronaut's pressure suit to provide cool, purified oxygen. The instrument panel in front of the astronaut is grouped as to function. The group on the left side is concerned with the position, control, retro-rockets, decompression and repressurization. Decompression could be used to extinguish a fire. Next to these is a sequence display, a series of lights indicating whether various functions occured at the proper time. A green light means proper functioning; a red light improper. Shown next are the dials for flight instruments, for acceleration, rate of descent, altitude and control of fuel supply. The top center panel shows position with respect to the earth in terms of pitch, roll and yaw. In event of automatic control failure, the astronaut can again control his own altitude, aided by a periscope below the panel and by a window above. From the window he can see the horizon in back of the capsule, and through the periscope he has a view of the earth. At the upper right of the panel is environmental control system: cabin pressure, suit pressure and temperature."

Suppose the instruments which controlled the temperature and the pressure inside the cabin failed. What then? What would happen to the man inside? He would simply explode, one scientist bluntly told us. The man would have to be provided, therefore, with another shield, with something that would protect him if those instruments did not function properly or failed altogether. He was provided with a suit, a pressure suit. Dr. William Augerson is one of the scientists who helped develop it.

"The pressure suit consists of a hard white helmet with a visor, a transparent one rather reminiscent of a medieval knight in some ways, and a rubber suit which doesn't look at all rubbery. It's quite light and flexible and has a silvery outer coating, and this is to help keep the man cool during re-entry. Heating inside as well will circulate air through it to keep him cool not only during re-entry but to keep him comfortable. There are various straps on it to tie him down securely to the capsule when he's getting launched and during re-entry so that he doesn't knock around any when he finally lands. There are going to be on it some fittings so that he can have a flashlight and a note pad on his knee and some other tools that he might need during the flight. Presumably he'd have a place to keep a pencil or some such thing on it. There will be some hoses that go to and from the suit to take air to and from it. In addition, in the event that the cabin looses its pressure there are some lines carrying air or oxygen to the suit which blow it up; in other words, the face plate is closed and there is no way for air to get out of the suit. This increases the pressure within the suit by inflating a second little garment, so that the man feels a normal pressure around him, same as he would here on earth. This keeps him from boiling or exploding as he might if exposed with no clothes on at all to the complete vacuum of space."

SIDE II

Band 1: The Human Element—The Astronaut

Then came what may be regarded as perhaps the biggest obstacle to be surmounted yet: the human element. Who would fly the spacecraft? The team of scientists established a criteria for the future space man. He would have to be under forty years of age, height not over 5'11". He must have a college degree in engineering or physical sciences. He must be a graduate of a test pilot school and have logged at least 1500 flight hours. Out of the thousands of military aviators in the United States, electronic computors, by scanning the service records of all of them, picked 110 pilots who met the initial criteria. Dr. Robert Voas, who took part in the selection and later became director of training of the astronauts, tells the story.

"This work was done of course completely unknown to the individuals involved, so one of the first things we had to do next was determine whether they were indeed interested in partaking in our program. So this group of 110 individuals was divided essentially into thirds, and each week we invited one third of the men to come to Washington. They were not told why. When they came to Washington we first gave them a briefing, a description of Project Mercury. Following this briefing on Project Mercury, they were asked to come in individually for interviews and expressed an interest in Project Mercury. They then went on to some interviews designed to look into their special qualifications for Project Mercury in terms of their abilities, their experience, and their general interest. This was a critical point in the program because we didn't really know how many volunteers we could expect. There were many reasons why a man would not want to volunteer for this program. 80% or more of those who received our briefing did express an interest in continuing in the program and in being an astronaut.

"From the second interviews a decision was made as to whether these looked like good candidates for our program. If so, they were sent on to further screening.

"Phase Two of the program was a very thorough physical examination conducted at one of our medical clinics. This very thorough physical attempted to determine whether there were any physical disabilities in these individuals which would disqualify them for the Mercury operation. Amazingly, there were practically no such disqualifications. I say amazing because these individuals were all in their thirties, some of them between 35 and 39. Following this second phase of the program, the men continued on to the third phase at the Wright Air Development Center. This phase involved exposure to the accelleration, lowered pressure, noise and other stresses effected in space flight. All of them were studied for their ability to perform effectively under these physical stresses. The data then of Phase two and Phase three was

sent here to Langley, and myself together with the rest of the medical group took this data and came up with a list of individuals who were most highly qualified on the basis of their background, interest, specialties and abilities."

A list of individuals "most highly qualified." Dr. Voas and other scientists had found seven men who fitted the needs of Project Mercury in every detail. Days later their names were made public, and at a news conference held here in Washington, they introduced themselves to the press, the American people, and the rest of the world.

"This is Donald K. Slayton." "Alan B. Shepard." "Walter M. Schirra." "Virgil I. Grissom." "John H. Glenn." "Leroy Gordon Cooper." "Malcolm Scott Carpenter."

The selection of the astronauts was indeed an important step. But these seven men had to be trained, prepared thoroughly for their mission in space. The National Aeronautics and Space Administration (NASA) chose Langley Field, an Air Force base located in the southern part of the state of Virginia, as the main locale for their training. A few months ago, when we visited Langley to see how their training progressed, Lt. Col. John Powers explained to us what took place there.

"Here at Langley the day is divided right down the middle at about lunch time. The morning period involves a high level or advanced level in basic astronautics. This includes the basis physical laws of space flight, propulsion systems, electronic systems, guidance systems, launch and operational procedures, and this sort of thing. In addition they're getting a very concentrated course on the physiology of flight -- atmospheric flight and space flight. After lunch the men scatter in several directions. The men are continuing their aviation training. The purpose for the aviation training is to keep their skill high in the area of perceiving instrument and flight conditions, understanding those conditions, and translating what they see into psycho-motor or muscular actions, so that they react to these conditions and react quickly, which they will have to do in the orbital flights. We also have two trainers here at Langley, two simulators, on which the astronauts are learning their space flight mission. These simulators have actual Mercury instrument panels on them. The instruments are driven by an analogue computor so that the pilot sees a presentation just like he will see in his capsule during space flight. In addition in the afternoon periods the astronauts are given time to do their own self-study programs. Each of the Astronauts has been assigned to a specialized area of activity in Project Mercury, and the afternoons are spent collecting all the available information which is available on this particular subject, assembling it into note and outline and briefing forms so they can the next day or the day after present this subject material to the other six astronauts. They also take their physical training in the afternoon periods, sporting activities which involve vigorous physical activity on an individual basis. They do a great deal of skin diving. This does two things. One, it gives them familiarization with breathing discipline, that is breathing under very controlled conditions, and in addition it is a very vigorous sport, so it keeps them in good physical condition. They play handball, they run, they play tennis -- primarily non-contact type sports. That about eats up one full day here at Langley."

A few days ago we asked Col. Powers whether this statement is still valid, whether the training schedule has changed or will be affected by the flight of the first astronaut into space. "Not one iota," he answered. "All of them will eventually fly into outer space," he added, "and, for such a flight one has to be in top physical condition." The astronauts are no different, let's say, than a professional athlete or a musician. They exercise to keep their performance at a high level. So do the astronauts. The astronauts do not train at Langley exclusively. They visited the Cape Canaveral launching site, tracking stations in the Atlantic Ocean area, plants involved in the manufacture and testing of the rocket and the space craft, and the test area of the X-15, an experimental rocket powered aircraft which will soon attempt its manned flight into space. They witnessed spacecraft recovery operations aboard ships. They practised eating and drinking in a weightless state, and they experienced the brutal power of acceleration.

When we visited Langley Field a few months ago, astronaut Virgil I. Grissom gave us some additional details.

"We have our centrifuge training at Johnsville. A centrifuge is a merry-go-round with one seat on a long arm that swings you around and around faster and faster until you get the G level that they want. We've gone as high as 18 G's, which means 18 times the pull of gravity. We have weightless flying and probably the biggest training flight riding the rimstone in a ballistic path."

That was astronaut Virgil I. Grissom describing his training a few months ago.

Meanwhile, the biggest training flight is already history. Of the seven men, the honor fell to Lt. Com. Alan B. Shepard.

Alan Bartlett Shepard, Jr. was born in November 18 1923, in East Derry, a little community in the northeastern state of New Hampshire. His parents, Col. and Mrs. Alan B. Shepard, still live in East Derry. Col. Shepard, a retired U.S. Army officer, is now in the insurance business, but Alan has not lived there for many years, not since his graduation from high school in 1940. For his first love was flying and he made it a career. As he told us,

"It was at high school age that I first evidenced an interest in aviation. At this age in the early teens I used to ride a bicycle to the local airport, which was about ten miles away from home at that time, and do odd jobs about the airport -- cleaning up the hanger, carrying out the trash, and this sort of thing -- just to be close to airplanes, and eventually I would get a ride or two from some of the kindly aviators of the day."

But for reasons which he can hardly explain himself, Alan Shepard joined the Navy when he finished high school. For one year he studied at Admiral Farragut Academy in Tom's River, New Jersey, and then went on to study at the U.S. Naval Academy in Anapolis. He was graduated as an ensign in 1944. World War II was still raging in the Pacific, and he was assigned to the destroyer Kosgrove. But with the war over his love for aviation came back. He requested and obtained permission to go to flight school. In March, 1947, he received his wings and went on to test pilots' school. After graduation he took part in high altitude tests to obtain data on light at different altitudes and in a variety of air masses over the North American continent. He went back to school in 1957 to the Naval War College, was graduated one year later, and then joined the staff of the Commander-in-chief of the Atlantic fleet.

Then he heard about a new project, a project designed to send a man into outer space. Lt. Alan B. Shepard, now married and a father of two daughters, decided to volunteer for this project. Why?

"I volunteered because I am delighted at the opportunity to be able to participate in this effort of the United States to put a man in space. To me it represents several things. First of all it represents the opportunity to find out more about what exists in space. Second it presents the opportunity to find what a man can do in space, that is, the first real step of putting a man out beyond the influences of the earth on to future space travel in deep space. Third it presents a tremendous challenge, I think, a challenge that has not been presented to man in this particular unique fashion before. I am convinced that this is possible, and I am just very much pleased that I am going to be allowed to at least compete for the privilege of so doing."

Alan Shepard was among the first seven men to be selected. He reported to Langley Field for training and was assigned the job of studying the recovery aspects of the capsule.

"By this I mean starting with the period when the capsule has re-entered the earth's atmosphere, with the opening of the parachutes, with the deployment of the recovery systems, with the positioning of the ships. Because I am in the Navy I have had experience along these lines, and so the recovery aspects have been my primary consideration. The way we've worked this in the past, is that each of us has been responsible for the other six for his particular specialty area. So that in this way over the past two years we have been able to cover a multitude of details as individuals and sift out the important things from the unimportant things and brief the rest of the group this way."

The days went by fast, and then came the day when the NASA announced that the first space mission would take place within weeks. It was also announced at that time that only three of the initial seven had been selected as prospects for this first flight. Among them, Lt. Com. Shepard. A few days before the flight Voice of America science editor Joseph Lubin, interviewed Shepard.

"If you are selected and become the first U.S. astronaut in space, what are your next plans?"

"Well, quite frankly, I have made no specific plans beyond Project Mercury. My entire attention has been devoted to the immediate problems at hand. I think I would say here that I intend to be closely aligned to man in space and to research along these lines."

"Now this is a rather blunt question. Are you a hero, a superman?"

"Quite frankly, I don't consider myself a hero at all. I didn't volunteer for this program to be a hero. I volunteered because I felt I had something to offer to the program in the way of engineering research and flight test background. In so far as being a superman is concerned, I think all of us over the past years, even before the Project Mercury, have kept ourselves in pretty good shape, physical shape I mean. We are all active in sports because we enjoy it, not because we want to provide any kind of a superman atmosphere. We have continued to provide ourselves an active way of life. So I think physically speaking we're all in good shape because we want to be, not because of any superman aspects about it."

"What do you feel that you have contributed on your part to the Mercury program?"

"Well, I feel that I have brought, along with my other six colleagues, a wealth of experience in flight tests and flight research work which is directly applicable to areas in space flight. We were used to flying airplanes which were maybe a little unique and unusual, and we consider space flight an extention of what we've been doing in the past."

Alan B. Shepard does not consider himself either a hero or a superman, nor do any of the other people, including the other six astronauts, who have worked with him for the past two years. If anything, they consider him the humorist of the group, ready with a quip regardless of the problem facing him.

"He may play games on other astronauts, he may walk into the room and grab ahold of the simulator and twirl it around when they don't know he's there, and things of this nature."

That was one of the technicians who worked with Shepard since the beginning of Project Mercury. Dr. Robert Voas, one of the men who was on the team that selected Shepard to become an astronaut, also points this out, as well as some of his other traits.

"I think Shepard impresses me as a very competent individual. He is fairly outgoing and when you see him in a crowd or you're working with him, you think you see here's a very outgoing person, somebody who's making statements very much to the point. He can also be very humorous. At a party he's very much at home, he dances very well, for example, and he handles himself very well in a group, and has a lot of good knowledge."

But beneath this easy-going air there's a decidedly serious person whose mind is very much on the job he is expected to do. Dr. Stanley White, one of the scientists closely connected with Project Mercury and with Com. Shepard, says,

"He has a very intelligent, very sharp inquiring mind. He has the characteristic again of grappling with problems in a very methodical way. He pursues them with vigor and doggedness that would, I think, put most of us to shame. He too is a very active person in this community and is very socially responsible in keeping in mind his obligation the astronaut has to youth and his responsibility in this area."

This, then, is the man who climbed inside the spacecraft perched high atop the Mercury Redstone rocket at 10:34 in the morning on Friday to accomplish the first mission in outer space by an American astronaut.

Com. Alan Shepard's journey lasted but fifteen minutes from the moment when the rocket started to lift off and until the spacecraft landed in the water of the Atlantic Ocean. Every moment of this journey was monitored, every one of his actions carefully scrutinized by the hundreds of scientists who made this journey possible. For the record, he had traveled during those fifteen minutes 290 miles, reached a height of 115 miles, a speed of 5,100 miles per hour, and landed on the ocean at exactly 10:49 in the morning.

"However, prior to that time, as a result of the eye-sighting, helicopters had proceeded towards the area which was very close to Lake Champlain, and were actually following it down, so they were immediately over the top of the capsule when it hit the water."

Admiral F.V.H. Hillas, commander of the Mercury recovery forces:

"The communications were splendid with Alan Shepard and he immediately said he would like to get out of the capsule, which he did, and within five minutes we had him out and on board the helio. Then we of course immediately thereafter picked up the

capsule one minute later and proceeded back to Lake Champlain, where he landed on board and walked off up the deck apparently in fine spirits; this was eleven minutes after the impact. The landing area actually was about 297 statute miles downrange and it was ENE (East North East) of Grand Bahama Island about 155 statute miles."

Com. Shepard's well-being was the first concern of the scientists but not the only one, for he had undertaken this journey for the purpose of serving science, and not as a stunt. The equipment which he had used had also been carefully scrutinized by the scientists, and as Com. Shepard was being examined by the physicians, every aspect of his journey was also being examined by other scientists. For each aspect of the trip there was a scientific evaluation. From Dr. Stanley White, flight surgeon, came the first medical report, physical and psychological. What the doctors were concerned with, among other things, was the G loads, the tremendous pull of gravity on the astronaut when he took off and when he re-entered the earth's gravitational field to land.

"As far as the surgeon's report, the astronaut on the whole went through the whole very calmly and was probably the most unperturbed one of the entire crew. The flight program was excellent and seemed to follow a normal program. As far as the Astronaut's voice, it was loud and clear. He followed the script on the operation, he was calling out his reports loud and clear. We had never any worry in this area. The only time he showed any strain during the whole voyage was during the re-entry G, and this was apparently comparable to that which we heard on the centrifuge program with similar G loads. Heart rate, tracing were all normal, and he followed the normal predicted rises during the launch and during re-entry and during the periods when the G was most high on him. As far as the respiration, respiration was normal throughout the flight. He did again give the nominal report of respiration during the G periods. Accelerations followed the normal program of launch and re-entry. Body temperature even though we had some rise in the suit, the temperature did not raise as far as the astronaut was concerned. So we had a good flight, from the astronaut's point of view.

Band 2 Evaluation

From Mort Slur, who was in charge of the environmental control system, came a report on conditions inside the cabin.

"The cabin pressure and suit pressure from lift-off through the entire phase of the flight decayed very normally, and so did the static pressure very closely. It came down to 5.5 PSI and stayed at that point and held exactly at 5.5 until the signal at the end of the flight. His seat temperature was approximately 75 degrees at lift-off, and during re-entry just had a very slight pulse up to about 78 degrees, which was as expected, and the corresponding cabin air temperature had a slight pulse of about 3 degrees during re-entry up to 102 degrees maximum. His oxygen quantity due to the shortness of the flight remained absolutely at 100% quantity, and the inverters that were a little concerned during the minus count got up to approximately 190 degrees at lift-off, and remained exactly at 190 degrees right through on the signal. All other functions operated perfectly."

Then from Donald K. Slayton, one of the other six astronauts who throughout the flight was in continuous voice communication with Com. Shepard, came a report on that aspect:

"He had a normal flight in all respects. Our communications were better after lift-off than they were before. We had good UHF communication throughout the flight until main chute opening. We switched over to HF at one time during the flight and had no reception at all; this was rather poor. Pilot reported a smooth ride after one plus fifteen (?) minutes; after this point it was pretty rough. He performed all manuvers strictly by the book. He couldn't have had a better flight in this respect. The only discrepancy was a lack of retrojetison indication on board. We had a DM confirmation of this and he saw the stops go so he over-rode in any case. At maxel (?) duty he reported a very beautiful view and 3 to 4 tenths cloud cover; apparently he could see quite a bit from there."

Many years ago, one of the greatest philosophers that ever lived, Albert Einstein, said, "The fairest thing we humans can experience is the mysterious. It is the fundamental emotion which stands at the cradle of true science. He who knows it and can no longer wonder, who can no longer feel amazement, is as good as dead." Commander Alan Bartlett Shepard gave true science another chance to wonder, to feel amazement. For the second time in history man passed that mysterious line at 100 miles. He invaded a truly inhospitable, eerie environment where death may have been his co-pilot. But he came back alive, ready to return. For return he must, he must return to explore some more, even though today it seems that there is not much in his exploration of space from the point of view of practical application. But as a distinguished scientist, Dr. Harrison Brown, of the Jet Propulsion Laboratory at California Institute of Technology once put it,

"There was no practical application in much of the exploration of America when it was first started. The lure of gold never really worked out, the golden cities of the Aztecs never worked. Ponce de Leon's fountain of youth didn't show up. Men will go into space because they need to and wish to."

At Cape Canaveral it is quiet today. Com. Alan Shepard is in the Bahamas, the other astronauts on their way back to work. For their work is by far not over. There will be an orbital flight probably within a few months, and as the former head of NASA, Dr. T. Keith Glennin put it when Mercury began,

"We have only just begun Project Mercury. The months ahead will see many more tests, many more flights, many more recoveries. Only when we have complete assurance that the risks to our astronauts are no greater than those than to the pilot of a high performance air craft, only then will we launch the first orbital flight."

Dr. Glennin made that statement a few years ago. From all indications it is still valid today. For the exploration of space by Americans has only begun.

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