

## **Biography: Albert H. Crews**

By Kenneth R. Crippen



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**NOTE: The author would like to thank Albert Crews for participating in this project.**

## Early Life and Career

Albert Hanlin Crews, Jr. was born in El Dorado, Arkansas on March 23, 1929. From an early age, Crews knew that he wanted to be a pilot. “I had lived close to an Air Force base during World War II, and so I had always wanted to go and learn to fly, but I never had,” recalled Crews. When the Army drafted him in 1950, he decided to join the Air Force. According to Crews, “I joined the Air Force so the Army wouldn’t get me, and went to aviation cadet training, and then got wings and commissioned.”<sup>1</sup> He soon joined a fighter squadron and was deployed to Libya for two-and-a-half years. He returned to the United States and was stationed at Travis Air Force base in California.

Crews then joined the Air Force Institute of Technology at Wright-Patterson Air Force Base in Ohio, where he earned his Master’s in Aeronautical Engineering. According to Crews, “So while I was studying for that, they had made the selection for Mercury astronauts. That turned me on pretty big, and I applied for the Test Pilot School and got accepted, and then went to Edwards [Air Force Base, California] when I graduated.”<sup>2</sup>

## Johnsville Centrifuge

While at the Test Pilot School, Crews was sent to the Naval Air Development Center (Johnsville, PA) in the early part of 1961 with James McDivitt and a few test pilots from the Ames Research Center. According to Crews,

“What they did was invite a few test pilots to come up and ride the centrifuge for their study. Alan Bean went up there and I think that Lovell went up. That was before they were selected. I don’t remember off the top of my head who else was there...We ran what they call Eyeballs In, Eyeballs Out, and Eyeballs Down.<sup>3</sup> And so, most people are used to eyeballs down in an airplane as it is halfway between down and back. Eyeballs Out, you stay conscious longer, but then you couldn’t see. Your eyes turned red. A really bad bloodshot. I think that we got up to eight Gs with Eyeballs Out, 12 Gs with Eyeballs Back, and Eyeballs Down was about six. Then you would pass out. During Eyeballs In, your chest just decreases in volume and you run out of air. But, with it down, you would go to sleep.”<sup>4</sup>

In a personal interview with the author, Crews mentioned that he estimates that he rode the centrifuge three times in each direction. “It made me a little smarter to G forces and thinking about it a little bit.”



## X-20 Dyna-Soar

After about two years at Edwards, Crews was selected for the X-20 program. With the X-15 program already underway, the Air Force saw a need to expand their capabilities to hypersonic speeds (greater than Mach 5), as well as have a vehicle capable of reentry from orbit to a horizontal landing. After evaluation of boost-glide vehicle designs from various contractors, the Air Force made a determination. On October 10, 1957, the Dyna-Soar (dynamic soarer) concept was born.<sup>5</sup> According to author Stephanie M. Smith,<sup>6</sup>

“Program planners described the X-20A as a hybrid between a missile and an aircraft. Boosters would lift the Dyna-Soar to orbital speed. Following booster separation, the X-20A would navigate and maneuver like an aircraft. The Air Force intended its X20A Dyna-Soar flight test program to demonstrate the feasibility of a manned boost-glide weapons systems operating in hypersonic flight regime at orbital speeds and global ranges.”<sup>7</sup>

The program started with three NASA pilots (Neil Armstrong, Bill Dana and Milt Thompson) and four Air Force pilots (Henry Gordon, Pete Knight, Russell Rogers, and James Wood). As the space program started to gain more traction, Armstrong left the X-20 program to be involved with the Gemini program. Dana also left X-20 to work on the X-15 program. The timeframe was in the middle of 1962. This left an opening for a sixth pilot and Crews was selected, with the announcement coming on September 19, 1962. According to Crews,

“I was the last guy picked to be on it. They had six people picked in about 1959. Four Air Force and two NASA. NASA started getting all of the publicity about anything going on at the time. The X-15 was starting at the time or getting ready to start. The Air Force was paying for everything and NASA was getting all of the publicity, and that kind of made some of the generals unhappy.”<sup>8</sup>

However, the Dyna-Soar program suffered from the beginning as there were competing goals for the project. Publically, the Department of Defense claimed there was no specific military purpose for the program. It was strictly a research and development tool. However, declassified documents show that the Air Force wanted to use it as a long-range bomber and reconnaissance aircraft. Crews recalled, “I guess the main thing that kept the Air Force from being bigger was that General Eisenhower was convinced that our space program should not have a military flavor at all.”<sup>9</sup> Eisenhower had stated at the time, “We want to make the space age an age of peace. We have no desire to convert outer space into a battleground of the Cold War.”<sup>10</sup> Publically, the Air Force minimized the military objectives and this lack of a clear goal doomed the project.

On December 10, 1963, the program was cancelled and Congress reallocated the X-20 funding to the new Manned Orbiting Laboratory (MOL) program. At the time of its cancellation, the program had cost \$410 million. Since it did not have a specific military application not already covered by existing technology, and it was too expensive for a research and development tool, it did not warrant continued funding and



development. Combine that with the emergence of new space programs from NASA and there was not enough money to go around. They were able to take the Dyna-Soar program to mockup stage and a prototype was partially complete. However, both were scrapped as well as the tooling for production of the final design.<sup>11</sup> The AFTC's Test Force Office for the X-20 program closed January of 1964.<sup>12</sup>

Crews recalled,

“We had been on the program for about a year and a half. We had some people who really didn't know about airplanes. One of them was the vice president [Lyndon B. Johnson] and the other was [Secretary of Defense Robert] McNamara. They tried talking Kennedy into cancelling the Dyna-Soar and he kept telling them ‘No, we needed to keep it.’ And then, when Kennedy got assassinated, the program went on for two weeks and the smart guys cancelled the Dyna-Soar and volunteered that they were going to give the Air Force a big experiment program.”<sup>13</sup>

Crews had a final statement to make on the Dyna-Soar cancellation,

“[Robert] McNamara and [Lyndon B.] Johnson in their wisdom cancelled the Dyna-Soar because they already knew what they needed to know about aerodynamics of space vehicles, according to McNamara. I guess nobody ever told him they were planning on the [Space] Shuttle. Anything they could have learned on the Dyna-Soar they could have applied to the Shuttle.”<sup>14</sup>

After the X-20 was cancelled, Crews went back to being a fighter pilot flying the F-5. But, the Air Force did not want to get out of the space program. That is when the Manned Orbiting Laboratory (MOL) was born. It would allow the Air Force to continue with their space program.

## Manned Orbiting Laboratory (MOL)

At the same time that the X-20 was being cancelled, the Manned Orbiting Laboratory (MOL) program was being announced (albeit without the true purpose being discussed). The MOL was announced as a cheaper alternative to the X-20 and would also allow more experiments to be done by the crew. President Lyndon B. Johnson stated, “I am today instructing the Department of Defense to immediately proceed with the development of a Manned Orbiting Laboratory. This program will bring us new knowledge about what man is able to do in space.”<sup>15</sup> A December 1963 press release stated the following,

“The MOL program, which will consist of an orbiting pressurized cylinder approximately the size of a small house trailer, will increase the Defense Department effort to determine military usefulness of man in space...MOL will be designed so that astronauts can move about freely in it without a space suit and conduct observations and experiments in the laboratory over a period of up to one month.”<sup>16</sup>

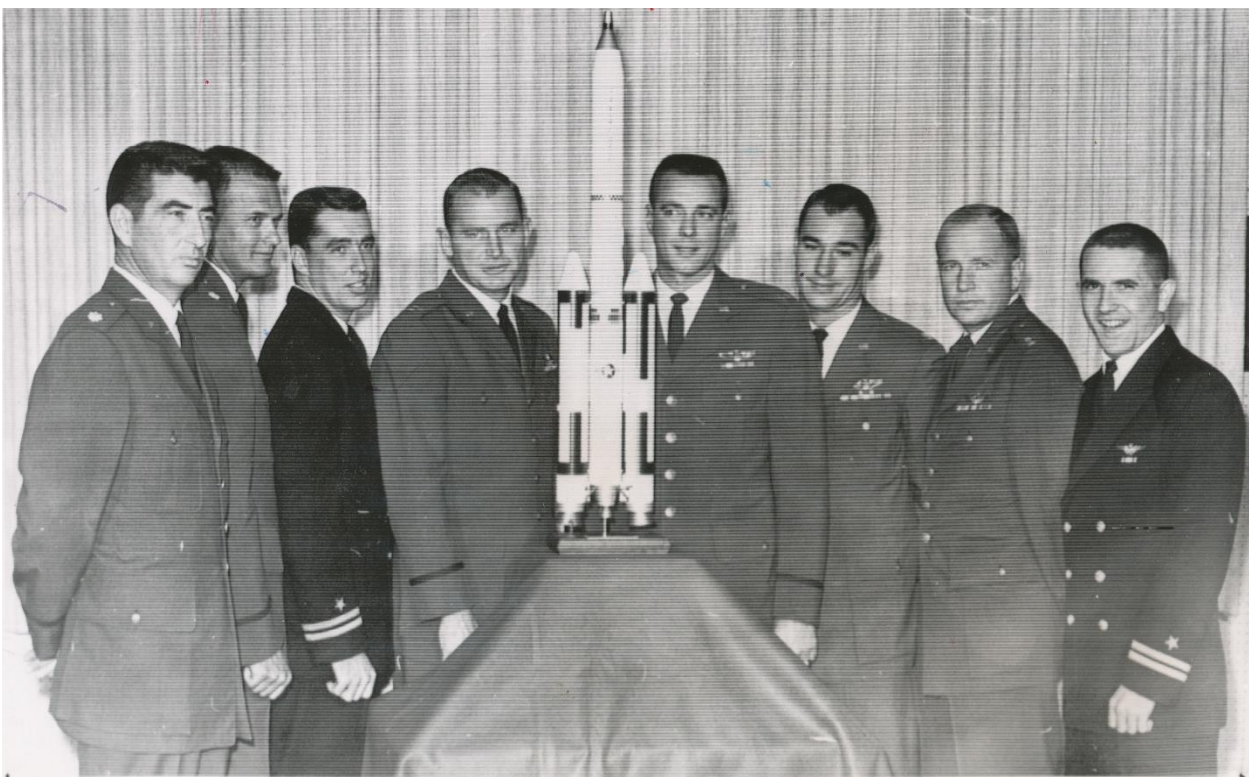




But, according to the documentary 'Astrospies,' the story given to the public was vastly different from its true mission. "The cover story was that the Manned Orbiting Laboratory, or MOL, would be a space station, crewed with two military astronauts for 30-day missions. During that time, they'd perform routine experiments on themselves and test their ability to do military tasks in space. There was no mention of an operational mission, nor any hint of espionage."<sup>17</sup>

It was to be an orbiting spy craft with a large camera to be used to spy on Russia and China. A two-man Gemini capsule would be mounted on a 56-foot laboratory module. Once in orbit, the astronauts would crawl from the Gemini module to the laboratory module to photograph areas of interest in Russia and China. Once the mission was complete (usually 30 days in length), the astronauts would crawl back into the Gemini capsule, drop out of orbit, and parachute to Earth. The laboratory module would fall out of orbit and disintegrate in the Earth's atmosphere.

Pilot selection came from the Aerospace Research Pilot School at Edwards Air Force Base. According to author James Bamford, "Without them knowing it, they were actually competing with each other for this program. They were being watched and being evaluated by these people to see who would make the best astronauts. The program was so secret, it was even kept from the potential astronauts themselves."<sup>18</sup>



First MOL Crew. From Left to Right: Michael Adams, Albert Crews, John Finley, Richard Lawyer, Lachlan Macleay, Francis Neubeck, James Taylor, Richard Truly.

*Press Photo From the Author's Personal Collection*



On November 12, 1965, the first eight pilots were assigned to the program, with Crews being one of the pilots assigned.<sup>19</sup> According to Crews, “So I had been almost the youngest guy on the Dyna-Soar Program, so when we went on MOL, I was the oldest guy. So I was sort of the leader for a few years.” Fellow crewmember Colonel Lachlan Macleay reiterated Crews, “We didn’t really have a pecking order, but Al was our senior guy. He was our leader and the one we all looked up to.”<sup>20</sup>

The pilots were not immediately told of their mission. According to author James Bamford, “And they finally did tell the people that they selected, but they only told them a cover story. They didn’t tell them the real story about what they were being selected for. What they told them was that they were just going to go up to space and do experiments.” Crews’ attitude changed once he heard the true mission. Crews recalled, “Before, I was going to go play with something. I wasn’t really impressed by that. But now, we were going to take pictures.”<sup>21</sup> Crews also stated,

“They told us that we were going to be flying a smaller vehicle and wouldn’t be doing anything but flying radar, looking at the ground and taking pictures. They told us it would be a smaller lab to begin with, then indicated that it was highly classified and if anybody changed their mind, they could opt out and it wouldn’t be held against them.”<sup>22</sup>

A total of three crews were selected for the program. Development progressed, and there was an unmanned test launch on November 3, 1966. This consisted of a Titan IIIC booster, with a MOL mockup and a refurbished Gemini capsule. The Gemini capsule separated and returned to Earth after just over 30 minutes. The MOL capsule stayed in orbit and launched three satellites. This would be the only test flight of the MOL. Costs continued to rise and justification for the program waned in the light of the NASA space program. On June 10, 1969, the MOL program was cancelled. Crews stated,

“They selected us before they told us it was a reconnaissance mission. Then they gave us all the briefings, which were quite a few. So then, we were highly sensitized to the classified nature of the program. You know, when you know more about secret programs than you should. That was the way we lived for the next four years, until they cancelled it. Somewhere along the line, around 1967, they would take the young men. Systems were being done up at Sunnydale and they would bring the film down to Los Angeles and they would let some of us watch. That was about 1967. The camera came across Los Angeles and took a picture of a parking lot. You could read the license plates. At the time we were selected, the best they were able to do with unmanned systems was five or six feet [of resolution]. They wanted six inches of resolution. It must have been somewhere in the neighborhood of six inches to be able to read a license plate. So, I figured our time was up.”<sup>23</sup>

Crews recalled,



“They offered anyone that was there that was less than 35 [years old] an astronaut position. Anyone else who wanted to work for NASA could come down there. Seven guys who were less than 35 went and they all got to fly on the Shuttle. The other MOL guys: [Richard] Lawyer, [Lachlan] Macleay, Dick Truly, Jim Taylor, were all in the first group. Truly was the only one young enough to go to NASA. The second group: [Robert] Crippen, [Karol] Bobko, [Gordon] Fullerton and [Robert] Overmyer. They all got to fly as commanders. [Donald] Peterson was the only guy in the third group to get selected.”<sup>24</sup>

## Career at NASA

Since Crews was over 35 years old at the time, he could not take on an astronaut role. Crews went to Houston and worked in the Flight Support Crew under Deke Slayton. He started working on Skylab, then moved to the Shuttle Program office. Crews recalled,

“I went to NASA. I was told that I would go down there to work for Deke Slayton. They didn’t tell me what I would do. I got under him and saw things the astronauts did. When I got there, they wanted me to wait to get involved. Then they gave the job to Gordo Cooper because they wouldn’t let him fly anymore. I worked in support of Skylab until it flew. Then I got selected to work in the Shuttle Program Office of a shuttle contractor [Grumman]. I kind of got mad at my superiors like I did at the Air Force. They would spend a lot of money competing contractors against one another and the contractor they picked wouldn’t have even built a mockup. But I guess there was a lot I didn’t know. What they ended up doing was have Rockwell build the Grumman design. I worked on the Grumman design. I did think it was pretty good. All in all, I think things worked out pretty well.”<sup>25</sup>

Crews was discouraged and decided that he wanted a change and moved to Aircraft Operations. He left the Air Force in 1973 and moved to NASA. While with NASA, he flew the T-38, Gulfstream Transport, B-57, and the zero-G KC-135. He also would fly the Shuttle simulator. Also, while with NASA, he was part of the Earth Resource Program, helping to study thunderstorm development while flying the B-57. According to Crews,

“So they would guess where thunderstorms were going to spring up, and usually around Colorado and New Mexico, between Denver [Colorado] and Albuquerque [New Mexico], that big area. So they’d send us out to places close to it, and then when it looked like it was fixing to build, they tried to have a helicopter flying underneath or down low, and then I think it was a T-39...flying at the middle altitudes, and they had the C-130 flying at the middle altitudes, and then the [T-]39 up around 35,000. Then we had the B-57 up around 60,000. You tried to have all those flying at the same place at the same time, and they would do that with the thunderstorm development.”<sup>26</sup>





Crews retired from NASA in 2000. According to Crews,

“Several people I had noticed when they got old, they sort of didn’t fit with other people anymore, and then that appeared to me that I had gotten to be one of those. It was kind of hard for me to push myself to be one of the group or whatever. Anyway, I came to the conclusion that I should be leaving. I don’t think [wife] Jeanne wanted me to retire at the time I did, but I think I was passing seventy, and I knew that I should.”<sup>27</sup>

## Later Career and Retirement

After retiring from NASA, Crews was involved with flying for Angel Flight, an organization that provides free air transportation to those in need of medical care. According to Crews,

“So what they would do is they operated with all the hospitals around the country, and turns out there are a lot of people that come to a doctor’s attention, and they need specific medical care that may be on the other side of the country, but they can’t afford to go. So they set up these Angel Flight areas. Anyway, there’s one in Florida in Leesburg, and they had one in Houston, and there’s some out on the West Coast. So as they got them to going and developing, then they’re all tied together and communicate with each other... They send out e-mails to everybody with the schedule, and then pilots look at them, and if something fits with one they can do, they call up and volunteer for it...Somewhere in the neighborhood of between here and Miami, and I’d take that person to Tallahassee [Florida] or to Panama City, and then another airplane would come from— oh, Louisiana is typical, and they’d pick the person up and take them off to Houston. Usually it would take three flights, but they could get where they were going.”<sup>28</sup>

At the time of the writing of this article, Crews lived in Florida with his wife Jeanne.



## End Notes

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<sup>1</sup> Wright, Rebecca. "NASA Johnson Space Center Oral History Project – Albert H. Crews." Interview Conducted 6-AUG-2007. URL:

[https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral\\_histories/CrewsAH/CrewsAH\\_8-6-07.htm](https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral_histories/CrewsAH/CrewsAH_8-6-07.htm). Accessed 23-NOV-2019.

<sup>2</sup> *Ibid.*

<sup>3</sup> Eyeballs In refers to the body being pushed forwards, similar to an accelerating automobile. Eyeballs Out refers to the body being pushed backwards, similar to an automobile in reverse. Eyeballs Down refers to the body being pushed up, as if you were taking off in an airplane. Eyeballs Up refers to the body being pushed downwards, as if landing in an airplane.

<sup>4</sup> Crews, Albert H. Exclusive Interview with Kenneth R. Crippen. 23-DEC-2019.

<sup>5</sup> Smith, Stephanie M. "History of U.S. Air Force Developmental Test in Space." Air Force Test Center, Edwards Air Force Base, California. March 29, 2019.

<sup>6</sup> Keep in mind that the X-20 designation was not adopted until June 19, 1962. From: "X-20 Dyna-Soar Space Vehicle: Historical Snapshot." The Boeing Company. URL: [www.boeing.com/history/products/x-20-dyna-soar.page](http://www.boeing.com/history/products/x-20-dyna-soar.page). Accessed 17-NOV-2019.

<sup>7</sup> Smith, Stephanie M. "History of U.S. Air Force Developmental Test in Space." Air Force Test Center, Edwards Air Force Base, California. March 29, 2019.

<sup>8</sup> Crews, Albert H. Exclusive Interview with Kenneth R. Crippen. 23-DEC-2019.

<sup>9</sup> *Ibid.*

<sup>10</sup> Smith, Stephanie M. "History of U.S. Air Force Developmental Test in Space." Air Force Test Center, Edwards Air Force Base, California. March 29, 2019.

<sup>11</sup> "X-20 Dyna-Soar Space Vehicle: Historical Snapshot." The Boeing Company. URL: [www.boeing.com/history/products/x-20-dyna-soar.page](http://www.boeing.com/history/products/x-20-dyna-soar.page). Accessed 17-NOV-2019.

<sup>12</sup> Smith, Stephanie M. "History of U.S. Air Force Developmental Test in Space." Air Force Test Center, Edwards Air Force Base, California. March 29, 2019.

<sup>13</sup> Crews, Albert H. Exclusive Interview with Kenneth R. Crippen. 23-DEC-2019.

<sup>14</sup> *Ibid.*

<sup>15</sup> "Astrospies" Public Broadcasting Service (PBS) – NOVA Astrospies. URL: <https://www.pbs.org/wgbh/nova/video/astrospies>. Accessed 23-DEC-2019.

<sup>16</sup> Outzen, James D Editor. "The DORIAN Files Revealed: A Compendium of the NRO's Manned Orbiting Laboratory Documents." Center for the Study of National Reconnaissance. August 2015.

<sup>17</sup> "Astrospies" Public Broadcasting Service (PBS) – NOVA Astrospies. URL: <https://www.pbs.org/wgbh/nova/video/astrospies>. Accessed 23-DEC-2019.

<sup>18</sup> *Ibid.*

<sup>19</sup> "Fact Sheet: Manned Orbiting Laboratory (MOL) Program. National Reconnaissance Office (NRO) Release on 01-JULY-2015. Original document date: NOV-1965.

<sup>20</sup> "Secret Astronauts – Col. Albert H. Crews Jr." Public Broadcasting Service (PBS) – NOVA Astrospies. URL: <https://www.pbs.org/wgbh/nova/video/astrospies/prof-01.html>. Accessed 20-DEC-2019.

<sup>21</sup> "Astrospies" Public Broadcasting Service (PBS) – NOVA Astrospies. URL: <https://www.pbs.org/wgbh/nova/video/astrospies>. Accessed 23-DEC-2019.

<sup>22</sup> Crews, Albert H. Exclusive Interview with Kenneth R. Crippen. 23-DEC-2019.



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<sup>23</sup> *Ibid.*

<sup>24</sup> *Ibid.*

<sup>25</sup> *Ibid.*

<sup>26</sup> Wright, Rebecca. "NASA Johnson Space Center Oral History Project – Albert H. Crews." Interview Conducted 6-AUG-2007. URL:

[https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral\\_histories/CrewsAH/CrewsAH\\_8-6-07.htm](https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral_histories/CrewsAH/CrewsAH_8-6-07.htm).

Accessed 23-NOV-2019.

<sup>27</sup> *Ibid.*

<sup>28</sup> *Ibid.*