

INST 154
Apollo at 50
Discussion Questions
Session 11: Astronauts

1. One early NASA proposal from would have set the following requirements for astronaut selection:
 - a. Male
 - b. Age between 25 and 40
 - c. Height less than 5'11"
 - d. Bachelor's degree
 - e. One of the following
 - i. 3 years of work experience in science or in engineering research
 - ii. 3 years of operations of an aircraft, balloon or submarine (including as navigator)
 - iii. Ph.D. in science or engineering plus six months of professional work
 - iv. M.D. plus six months beyond internship or residency
 - f. Demonstrated willingness to accept hazards, tolerate severe environments and react to emergencies, each of which is demonstrated by in some way, such as:
 - i. Occupation: Test pilot, Antarctic explorer, Experimental submarine crew, ...
 - ii. Wartime combat or military training
 - iii. Depending on severity and frequency: Parachute jumping, Mountain climbing, Deep sea diving, ...
 - iv. Service as an experimental test subject for acceleration, pressure, breathing gasses, temperature, ...
 - g. Nomination by some reputable organization

How would the Apollo crews have been different if the second and subsequent astronaut selections had been performed using those criteria? What advantages would there have been to those differences? What disadvantages would there have been from those differences.
2. To a first approximation, NASA's Astronaut Office was a mix of two cultures, a test pilot culture and a "scientist" culture (which included not just the scientist-astronauts, but also many of the pilot-astronauts who has scientific or [non-aerospace] engineering backgrounds). Both shared a common background in engineering. In the Soviet space program, cosmonauts were selected either from pilots (generally with no engineering background) or from the engineers who had actually designed the spacecraft. Why did these programs choose different approaches? What were the advantages of each approach?
3. The scientist-astronauts had a much higher dropout rate than pilot astronauts during the Apollo program, but that was not true during the Shuttle program. What could have been done during the Apollo era to prevent limit this churn? Would any of the policies you can suggest change what happened during the Apollo missions?