Review of space life documentary tape for MAE 146.
by Nasser Abbasi, MAE 146. May 8,2003.

Tape is titled *space life*, episode 1. The tape subject is on space exploration progress and the events that occurred during the race to explore space starting after world war I. Number of interviews with space and rocket related experts where shown.

Documentary started by asking the following two main questions, which the rest of the tape tried to answer and to comment on:

1. Why where the Russians the first to go into space? (in Oct. 1957, the Soviet Union successfully launched Sputnik I. The world's first artificial satellite).
2. Why did the US go to the moon?

The following are the points I gathered during the review of the tape, in the order they appeared:

1. In 1882, the Russian Tsiolkovsky was the first to claim that space travel is possible.
2. The American Goddard claimed that a rocket can be send to the moon.
3. In Germany, post world war I, rocket experimentation became popular. However, this was a popularity by individual rockets enthusiasts and small groups and clubs, and was not part of some organized government nor military efforts.
4. In the German army, Walton Dunberger was the first to find military uses for rockets. By the end of 1930's, rocket related activities were increasing in the German army. During the build-up of the army in the 1930's, most of the engineers who used to work on rockets as part of their own private groups or own club activities choose to join the army in order to be able to continue this type of work.
5. Documentary mentioned that all technical issues relating to rocket launch (engine design, propellant, structural design, etc...) where known to the engineers, however, the main new technical issue the early rocket engineers faced was the control and guidance of the rocket. This was a new area to learn.
6. In the German army, after 2 failed attempts, a third attempt to launch a military rocket was successful. Even though the flight time was short, the rocket did not fail, and the claim was made immediately afterward that this event was the start of space age travel.
7. In 1944, German rocket V2 travelled at speed of 3500 M.P.H., and had 200 miles range.

8. First V2 launch was in fall of 1944. A V2 rocket was fired against Britain near the end of world war II. It was mentioned that it was hard to hear the rocket arriving before it hit the target, this was different from earlier types of bombs fired which had a loud sound that could be heard for some time before they landed.

9. After world war II, The German army officer Dunberger was tried for war crimes, but was released shortly afterwards (after 2 months?) to come to the US to help in rocket research.

10. After world war II, most of the German rocket engineers have moved to New Mexico to work on rocket research for the US government. Sixty V2 rockets were launched in New Mexico during this period of work. It was mentioned that one accident almost caused a V2 rocket to hit a town in New Mexico during one test. The rocket hit the ground but no one was hurt.

11. The documentary now started talking about a major US flight research lab in the US during the period after world war II, which is *Edward flight center*, located north of Los Angeles. Tape showed part of an interview with Tom Wolf, an author of a book on Edwards flight center.

12. In Edwards flight center, America's first Jet aircraft was tested. Race was on to make a plane that can fly faster than the speed of sound (Mach 1). Normal airplanes would fail as speed approach Mach 1 due to control and structural problems at this speed. X1 was designed to break Mach 1 speed, and to be able to handle the vibrations generated as it broke the sound barrier. Chuck Yeager was the pilot to first fly the X1 jet and to go over Mach 1 speed.

13. X1 was followed by more models to break higher speeds. Scott Crossfield was the pilot to try to break Mach 2.

14. Model XIA went to Mach 3 (?).

15. In 1956, model X2, in an attempt to reach Mach 3 was damaged and broke down. Tape showed images of the last moments of the flight as the pilot attempted to control the plane before control was lost.

16. 2 months after the Russians launched sputnik, project Vanguard in the US was launched, but this project failed. The claim was that the US was 2 years behind the Russians in space exploration at that time.

17. The documentary asked how did the Russian achieve this success? During an interview, it was mentioned that it was hard to reconstruct the history of space research inside Russia during those years with enough details.

18. US president Eisenhower at the time of the sputnik launch, was now under increasing political pressure to respond to the Russian success. Sputnik

can be seen with the naked eye flying over the US, and some claimed that Russia can now use this technology for military purposes to control space and to threaten the US. The president needed to launch the US into space quickly. This resulted in an act to create the NASA agency in 1958. NASA first major mission was to launch man into space. Project Mercury was started by NASA.

19. Selection went to find the first team of astronomers to make up the Mercury project. This gained a lot of public popularity and attention. In April 9, 1959, 7 men where selected to be the first US astronomers. Due to the popularity of the Mercury project, one of Edwards flight center test pilots complained that the Mercury astronauts where getting a lot of public attention, while important and similar work is being done at Edwards flight center every day with little or no public interest being given to that compared to the Mercury project.

20. Meanwhile, X15 jet test planes are now able to reach Mach 6 speed, and the plane was taking the test pilots to the edge of space. During these flights, control of the plane was completely in the hands of the pilot. However, a major difference with rocket flights, is that in a rocket, the control and guidance is not in the control of the astronomer, but is performed by ground control together with the software programmed in the rocket instrumentation.

21. Edward's X15 was the most successful research jet airplane, with over 10 years of flight research. Neil Armstrong, the first man to land on the moon, was one of its test pilots.