



1
00:00:13,999 --> 00:00:12,770
they planted those simple words the

2
00:00:16,540 --> 00:00:14,009
eagle has landed

3
00:00:20,000 --> 00:00:16,550
marked the culmination of a goal set in

4
00:00:22,580 --> 00:00:20,010
1961 it also signaled the beginning of a

5
00:00:27,019 --> 00:00:22,590
new era when for the first time man

6
00:00:29,330 --> 00:00:27,029
walked on a planet beyond his own 1969

7
00:00:47,570 --> 00:00:29,340
an eventful year in aeronautics and

8
00:00:53,730 --> 00:00:50,310
the moon was not the only planet to

9
00:00:56,460 --> 00:00:53,740
receive an earthly visitor in 1969 two

10
00:01:01,010 --> 00:00:56,470
unmanned spacecraft Mariner six and

11
00:01:03,510 --> 00:01:01,020
seven flew within 2,000 miles of Mars

12
00:01:06,030 --> 00:01:03,520
one was launched so it would fly in a

13
00:01:08,190 --> 00:01:06,040

north-south direction the other east to

14

00:01:10,760 --> 00:01:08,200

west taking pictures and recording

15

00:01:13,710 --> 00:01:10,770

scientific data as they traveled along

16

00:01:16,350 --> 00:01:13,720

here in step printed form is what

17

00:01:19,920 --> 00:01:16,360

Mariner 7 actually saw as it approached

18

00:01:21,840 --> 00:01:19,930

Mars the photographs revealed Mars to be

19

00:01:24,630 --> 00:01:21,850

different from both the earth and the

20

00:01:27,600 --> 00:01:24,640

moon while craters were observed in some

21

00:01:30,480 --> 00:01:27,610

areas one vast stretch of over 1,200

22

00:01:32,999 --> 00:01:30,490

miles appeared to have none temperatures

23

00:01:37,980 --> 00:01:33,009

at the polar cap indicated it is made up

24

00:01:40,440 --> 00:01:37,990

of solid carbon dioxide dry ice the

25

00:01:42,240 --> 00:01:40,450

Mariner scientific sensors provided

26

00:01:44,370 --> 00:01:42,250

detailed information on the Martian

27

00:01:52,560 --> 00:01:44,380

atmosphere and surface temperatures and

28

00:01:54,450 --> 00:01:52,570

paved the way for future flights to

29

00:01:56,660 --> 00:01:54,460

learn more about the mechanics of solar

30

00:01:59,730 --> 00:01:56,670

radiation two orbiting solar

31

00:02:05,679 --> 00:01:59,740

observatories Osos five and six were

32

00:02:10,910 --> 00:02:08,449

with their onboard solar experiments

33

00:02:12,770 --> 00:02:10,920

pointing toward the Sun the Osos are

34

00:02:14,900 --> 00:02:12,780

taking a close-up look at the solar

35

00:02:22,160 --> 00:02:14,910

radiations that directly affect the

36

00:02:24,229 --> 00:02:22,170

Earth's upper atmosphere appearing more

37

00:02:26,809 --> 00:02:24,239

like an insect with its two 30-foot

38

00:02:29,210 --> 00:02:26,819

antennas extended the last in a series

39

00:02:32,420 --> 00:02:29,220

of orbiting geophysical observatories

40

00:02:35,089 --> 00:02:32,430

ago six as twenty-three experiments

41

00:02:37,280 --> 00:02:35,099

operating experiments designed to be

42

00:02:39,890 --> 00:02:37,290

correlated with the solar observatories

43

00:02:48,339 --> 00:02:39,900

giving scientists even more information

44

00:02:52,729 --> 00:02:50,710

adding to and enhancing the overall

45

00:02:54,770 --> 00:02:52,739

scientific knowledge of the environment

46

00:02:58,370 --> 00:02:54,780

surrounding the earth comes from

47

00:03:00,050 --> 00:02:58,380

experiments aboard sounding rockets 350

48

00:03:02,330 --> 00:03:00,060

of these small rockets were launched

49

00:03:04,490 --> 00:03:02,340

from Wallops Island Virginia and probed

50

00:03:09,770 --> 00:03:04,500

into the atmosphere below the region in

51
00:03:12,410 --> 00:03:09,780
which satellites operate the sounding

52
00:03:14,360 --> 00:03:12,420
rocket station at Wallops also serves as

53
00:03:16,340 --> 00:03:14,370
a training ground for technicians from

54
00:03:25,430 --> 00:03:16,350
foreign countries interested in space

55
00:03:27,500 --> 00:03:25,440
exploration in meteorology another Tyros

56
00:03:29,360 --> 00:03:27,510
operational satellite was placed into

57
00:03:32,960 --> 00:03:29,370
orbit for the environmental science

58
00:03:34,849 --> 00:03:32,970
service agency the new Tyros which sends

59
00:03:37,520 --> 00:03:34,859
back pictures of the Earth's cloud cover

60
00:03:43,740 --> 00:03:37,530
makes early storm warnings and everyday

61
00:03:50,650 --> 00:03:48,160
Nimbus 3a 1360 pound experimental

62
00:03:53,410 --> 00:03:50,660
weather satellite is being utilized as a

63
00:03:55,809 --> 00:03:53,420

testbed to prove out new meteorological

64

00:03:57,850 --> 00:03:55,819

instruments temperature measurements

65

00:03:59,710 --> 00:03:57,860

made by the big weather satellite are

66

00:04:05,580 --> 00:03:59,720

helping map the weather of the Northern

67

00:04:11,710 --> 00:04:08,320

another experimental satellite launched

68

00:04:14,290 --> 00:04:11,720

was ATS five applications technology

69

00:04:16,210 --> 00:04:14,300

satellite as a result of an agreement

70

00:04:19,270 --> 00:04:16,220

signed this year between the United

71

00:04:22,020 --> 00:04:19,280

States and India NASA will launch an ATS

72

00:04:24,700 --> 00:04:22,030

in 1972 which were broadcast

73

00:04:27,100 --> 00:04:24,710

instructional television directly into

74

00:04:29,920 --> 00:04:27,110

thousands of Indian villages providing

75

00:04:37,200 --> 00:04:29,930

among other things programs on modern

76

00:04:40,980 --> 00:04:39,270

looking to the day when this country

77

00:04:43,650 --> 00:04:40,990

will want to embark on deep-space

78

00:04:45,749 --> 00:04:43,660

missions NASA has been developing a

79

00:04:50,159 --> 00:04:45,759

nuclear rocket engine for spaceflight

80

00:04:52,110 --> 00:04:50,169

applications last summer a landmark test

81

00:04:54,300 --> 00:04:52,120

was conducted at the nuclear rocket

82

00:04:56,249 --> 00:04:54,310

development station in Nevada when a

83

00:04:59,189 --> 00:04:56,259

nuclear engine was brought to full power

84

00:05:01,590 --> 00:04:59,199

for the first time this special railway

85

00:05:04,980 --> 00:05:01,600

car transports the engine to and from

86

00:05:07,590 --> 00:05:04,990

the test stand the control room is

87

00:05:11,730 --> 00:05:07,600

located underground a thousand feet from

88

00:05:14,249 --> 00:05:11,740

the stand here a nuclear reactor no

89

00:05:22,800 --> 00:05:14,259

larger than an office desk produces as

90

00:05:26,879 --> 00:05:22,810

much power as over dam this is an artist

91

00:05:28,920 --> 00:05:26,889

concept of a lifting body at nasa's

92

00:05:31,740 --> 00:05:28,930

flight research center in california

93

00:05:34,379 --> 00:05:31,750

test pilots have made more than 150

94

00:05:36,180 --> 00:05:34,389

lifting body flights the wingless craft

95

00:05:38,249 --> 00:05:36,190

are considered to be forerunners of

96

00:05:40,640 --> 00:05:38,259

ships that can fly a space mission and

97

00:05:44,219 --> 00:05:40,650

then return to earth like an airplane

98

00:05:46,560 --> 00:05:44,229

the rocket-powered HL 10 has already

99

00:05:49,920 --> 00:05:46,570

flown 1 and 1/2 times the speed of sound

100

00:05:52,140 --> 00:05:49,930

after being dropped in midair because a

101
00:05:54,659 --> 00:05:52,150
lifting body can make ground landings

102
00:06:03,830 --> 00:05:54,669
they become very attractive as low-cost

103
00:06:10,409 --> 00:06:07,439
they're called vsto vertical or steep

104
00:06:12,629 --> 00:06:10,419
takeoff and landing planes aircraft that

105
00:06:16,409 --> 00:06:12,639
may one day make short-haul intercity

106
00:06:18,120 --> 00:06:16,419
transports a reality NASA's Langley and

107
00:06:20,010 --> 00:06:18,130
Ames Research Center's have been

108
00:06:21,749 --> 00:06:20,020
studying the problems that vertical

109
00:06:23,939 --> 00:06:21,759
landing planes might encounter at

110
00:06:26,670 --> 00:06:23,949
terminals where big jets are taking off

111
00:06:28,920 --> 00:06:26,680
and landing what's the best way to bring

112
00:06:31,200 --> 00:06:28,930
vertically landing planes into a

113
00:06:33,350 --> 00:06:31,210

congested Airport without interfering

114

00:06:36,360 --> 00:06:33,360

with an already busy traffic pattern

115

00:06:38,310 --> 00:06:36,370

should there be separate runways or can

116

00:06:40,920 --> 00:06:38,320

they land as the bigger Jets make their

117

00:06:42,689 --> 00:06:40,930

final approaches what type of poor

118

00:06:45,029 --> 00:06:42,699

weather instrumentation will they need

119

00:06:52,159 --> 00:06:45,039

these are some of the questions the

120

00:06:57,480 --> 00:06:55,260

problem how to make present jet engines

121

00:07:00,000 --> 00:06:57,490

quieter without compromising safety

122

00:07:02,850 --> 00:07:00,010

lowering performance or substantially

123

00:07:06,360 --> 00:07:02,860

increasing costs NASA is continuing to

124

00:07:08,400 --> 00:07:06,370

study this question one of the

125

00:07:14,950 --> 00:07:08,410

approaches was to install acoustically

126

00:07:19,689 --> 00:07:17,230

to date the results have been very

127

00:07:21,309 --> 00:07:19,699

promising engines acoustically treated

128

00:07:24,129 --> 00:07:21,319

for NASA by the McDonnell Douglas

129

00:07:27,820 --> 00:07:24,139

company have reduced noise levels during

130

00:07:29,920 --> 00:07:27,830

approach flyovers by 15 decibels this is

131

00:07:32,140 --> 00:07:29,930

about the same as removing the airplane

132

00:07:34,689 --> 00:07:32,150

three or four times farther away from

133

00:07:36,339 --> 00:07:34,699

you these studies will go on in an

134

00:07:44,469 --> 00:07:36,349

effort to make further noise reduction

135

00:07:47,710 --> 00:07:44,479

improvements there were four manned

136

00:07:49,749 --> 00:07:47,720

Apollo flights in 1969 the first of

137

00:07:51,879 --> 00:07:49,759

these was Apollo nine with astronauts

138

00:07:55,089 --> 00:07:51,889

McDivitt Scott and Schweikert

139

00:07:57,129 --> 00:07:55,099

piloting theirs was an earth orbital

140

00:07:59,350 --> 00:07:57,139

mission a mission to check out for the

141

00:08:01,960 --> 00:07:59,360

first time all the various spacecraft

142

00:08:05,200 --> 00:08:01,970

systems needed to fly round-trip to the

143

00:08:07,450 --> 00:08:05,210

moon through a series of intricate

144

00:08:10,930 --> 00:08:07,460

maneuvers they dressed rehearsed for the

145

00:08:13,839 --> 00:08:10,940

lunar flights to follow during ten days

146

00:08:15,730 --> 00:08:13,849

and 152 orbits of the earth they

147

00:08:17,950 --> 00:08:15,740

rendezvous and docked with the lunar

148

00:08:20,230 --> 00:08:17,960

landing craft checked out manual

149

00:08:22,659 --> 00:08:20,240

guidance systems fired the Landers

150

00:08:24,700 --> 00:08:22,669

rocket engines and practiced a space

151
00:08:28,659 --> 00:08:24,710
rescue between the lunar module and

152
00:08:31,089 --> 00:08:28,669
command ship Russell Schweickart spent

153
00:08:34,690 --> 00:08:31,099
about 45 minutes outside in a spacesuit

154
00:08:38,230 --> 00:08:34,700
during this exercise for the men of

155
00:08:40,300 --> 00:08:38,240
Apollo 9 a job well done the big pieces

156
00:08:43,000 --> 00:08:40,310
of lunar space gear had worked and

157
00:08:48,710 --> 00:08:43,010
worked well all was in readiness for the

158
00:08:55,530 --> 00:08:52,530
Apollo 10 its mission fly to the moon

159
00:09:00,060 --> 00:08:55,540
and simulate a lunar landing and so they

160
00:09:02,100 --> 00:09:00,070
did while astronaut John Young orbited

161
00:09:03,120 --> 00:09:02,110
alone in the command module code name

162
00:09:05,700 --> 00:09:03,130
Charlie Brown

163
00:09:08,190 --> 00:09:05,710

astronauts Stafford and Cernan flying in

164

00:09:11,220 --> 00:09:08,200

Snoopy the lunar module began making

165

00:09:15,030 --> 00:09:11,230

close passes at the moon the two space

166

00:09:17,250 --> 00:09:15,040

pilots did everything but land they

167

00:09:19,410 --> 00:09:17,260

fired the descent engines lowering them

168

00:09:22,200 --> 00:09:19,420

to fifty thousand feet above the surface

169

00:09:24,420 --> 00:09:22,210

and similarly tested out the ascent

170

00:09:27,420 --> 00:09:24,430

rocket which would send the moon landing

171

00:09:32,280 --> 00:09:27,430

Apollo 11 crew back into lunar orbit for

172

00:09:34,590 --> 00:09:32,290

the return home as they passed over the

173

00:09:36,630 --> 00:09:34,600

Sea of Tranquility at an altitude of 10

174

00:09:39,090 --> 00:09:36,640

miles closer than any human had ever

175

00:09:41,130 --> 00:09:39,100

traveled they reported back to Mission

176

00:09:44,880 --> 00:09:41,140

Control Houston that the landing site

177

00:10:03,020 --> 00:09:44,890

was smooth the stage was now set for the

178

00:10:08,450 --> 00:10:06,590

Columbia and Eagle were on their way at

179

00:10:12,710 --> 00:10:08,460

stake nearly 10 years of research

180

00:10:14,320 --> 00:10:12,720

development and fabrication some 20,000

181

00:10:16,340 --> 00:10:14,330

companies throughout the United States

182

00:10:18,710 --> 00:10:16,350

participated in the building of the

183

00:10:21,230 --> 00:10:18,720

Saturn 5 rocket and Apollo spacecraft

184

00:10:23,930 --> 00:10:21,240

which carried astronauts Armstrong

185

00:10:32,420 --> 00:10:23,940

Aldrin and Collins on their historic

186

00:10:37,190 --> 00:10:35,270

there's was a journey like no other for

187

00:10:40,120 --> 00:10:37,200

they were the first to set foot on the

188

00:10:45,950 --> 00:10:43,790

this was the site viewed by over 300

189

00:10:48,680 --> 00:10:45,960

million people around the world as the

190

00:10:51,820 --> 00:10:48,690

two men tested their moon legs and began

191

00:10:54,650 --> 00:10:51,830

setting their scientific experiments

192

00:10:56,720 --> 00:10:54,660

after 22 hours they headed for a

193

00:10:59,960 --> 00:10:56,730

rendezvous with Mike Collins and the

194

00:11:01,910 --> 00:10:59,970

trip home to earth because of the

195

00:11:03,800 --> 00:11:01,920

possibility of contamination from the

196

00:11:07,190 --> 00:11:03,810

moon the three astronauts were

197

00:11:09,500 --> 00:11:07,200

quarantined for nearly three weeks at

198

00:11:11,780 --> 00:11:09,510

the same time scientists began looking

199

00:11:14,780 --> 00:11:11,790

at their newly acquired lunar samples

200

00:11:16,430 --> 00:11:14,790

the first opportunity anyone had had to

201
00:11:20,870 --> 00:11:16,440
look at something from a different body

202
00:11:23,780 --> 00:11:20,880
in the solar system samples were given

203
00:11:26,600 --> 00:11:23,790
to 142 scientists both here and abroad

204
00:11:28,370 --> 00:11:26,610
for intensive study results will be

205
00:11:30,170 --> 00:11:28,380
released in January when the group

206
00:11:35,390 --> 00:11:30,180
gathers in Houston to go over their

207
00:11:37,910 --> 00:11:35,400
findings shortly after returning from

208
00:11:40,880 --> 00:11:37,920
the moon the crew of Apollo 11 began

209
00:11:42,680 --> 00:11:40,890
another journey that lasted 40 days at

210
00:11:44,780 --> 00:11:42,690
the request of the president they

211
00:11:48,080 --> 00:11:44,790
embarked on a goodwill mission covering

212
00:11:50,980 --> 00:11:48,090
some 46,000 miles with visits to 22

213
00:11:56,630 --> 00:11:50,990

countries from Mexico City to Brussels

214

00:11:58,280 --> 00:11:56,640

Belgard to Kinshasa Bombay to Tokyo the

215

00:12:00,740 --> 00:11:58,290

lunar trio was warmly and

216

00:12:03,230 --> 00:12:00,750

enthusiastically received by millions of

217

00:12:11,840 --> 00:12:03,240

people giving them a chance to share

218

00:12:14,060 --> 00:12:11,850

their experiences firsthand for the

219

00:12:16,850 --> 00:12:14,070

second time in one year American

220

00:12:19,070 --> 00:12:16,860

astronauts headed for the moon while

221

00:12:21,350 --> 00:12:19,080

astronaut dick Gordon orbited in the

222

00:12:23,990 --> 00:12:21,360

command module Yankee Clipper awaiting

223

00:12:26,360 --> 00:12:24,000

their return Pete Conrad and Alan bean

224

00:12:28,930 --> 00:12:26,370

flew the lunar module intrepid toward a

225

00:12:31,370 --> 00:12:28,940

touchdown in the ocean of storms a

226

00:12:34,460 --> 00:12:31,380

pinpoint landing was critical to this

227

00:12:36,860 --> 00:12:34,470

mission and all future flights with this

228

00:12:39,200 --> 00:12:36,870

in mind the two space pilots set the

229

00:12:42,080 --> 00:12:39,210

landing craft down within 600 feet of

230

00:12:44,600 --> 00:12:42,090

the unmanned surveyor 3 which had landed

231

00:12:47,520 --> 00:12:44,610

there three years before

232

00:12:49,620 --> 00:12:47,530

in addition to inspecting and removing

233

00:12:52,110 --> 00:12:49,630

pieces of the surveyor for return to

234

00:12:57,090 --> 00:12:52,120

work the pair collected about 90 pounds

235

00:12:59,580 --> 00:12:57,100

of lunar samples they also set up six

236

00:13:02,220 --> 00:12:59,590

scientific experiments which among other

237

00:13:04,980 --> 00:13:02,230

things will record moon quakes measure

238

00:13:08,460 --> 00:13:04,990

the lunar atmosphere and analyze the

239

00:13:10,530 --> 00:13:08,470

solar wind on route back from the moon

240

00:13:12,390 --> 00:13:10,540

the three astronauts witnessed and

241

00:13:17,070 --> 00:13:12,400

photographed for the first time an

242

00:13:19,650 --> 00:13:17,080

eclipse of the Sun by the earth the

243

00:13:22,290 --> 00:13:19,660

splashdown of Apollo 12 was almost as

244

00:13:24,630 --> 00:13:22,300

precise as their moon landing the Yankee

245

00:13:29,300 --> 00:13:24,640

Clipper landed three and 1/2 miles from

246

00:13:34,830 --> 00:13:29,310

the carrier Hornet Space Science

247

00:13:37,380 --> 00:13:34,840

Advanced Research Aeronautics and the

248

00:13:54,550 --> 00:13:37,390

first manned landings and exploration of

249

00:13:59,720 --> 00:13:56,870

this has been an Aeronautics and Space