
DR. JOHN FINDLAY

1
00:00:21,740 --> 00:00:18,500
nasa the national aeronautics and space

2
00:00:33,799 --> 00:00:21,750
administration presents aeronautics and

3
00:00:36,260 --> 00:00:33,809
space report 1968 the year of Apollo a

4
00:00:38,930 --> 00:00:36,270
year in which a decade of research and

5
00:00:41,060 --> 00:00:38,940
development began to be realized the

6
00:00:43,010 --> 00:00:41,070
Apollo three-man spacecraft and moon

7
00:00:51,020 --> 00:00:43,020
rocket were proved ready for trips to

8
00:00:56,819 --> 00:00:54,030
satellites like oh go pioneer and

9
00:00:58,740 --> 00:00:56,829
orbiting astronomical observatory added

10
00:01:04,100 --> 00:00:58,750
a wealth of scientific knowledge about

11
00:01:08,730 --> 00:01:06,359
airplanes that take off and land

12
00:01:11,310 --> 00:01:08,740
vertically were flight tested as well as

13
00:01:15,270 --> 00:01:11,320

planes without wings prototypes of

14
00:01:25,680 --> 00:01:15,280
wingless spacecraft of the future these

15
00:01:28,350 --> 00:01:25,690
are Aeronautics and Space highlights the

16
00:01:30,779 --> 00:01:28,360
moon not nearly as mysterious as it used

17
00:01:36,450 --> 00:01:30,789
to be has been photographed landed on

18
00:01:39,090 --> 00:01:36,460
dug into and chemically sampled surveyor

19
00:01:42,779 --> 00:01:39,100
7 was the last in a series of unmanned

20
00:01:45,059 --> 00:01:42,789
spacecraft to land there reflecting on

21
00:01:47,540 --> 00:01:45,069
surveyors contributions dr. William

22
00:01:50,490 --> 00:01:47,550
Pickering director NASA's Jet Propulsion

23
00:01:52,289 --> 00:01:50,500
Laboratory surveyor accomplished

24
00:01:54,270 --> 00:01:52,299
everything that we had hoped for from

25
00:01:56,100 --> 00:01:54,280
that mission five out of the seven

26
00:01:57,600 --> 00:01:56,110
surveyors which were launched landed

27
00:02:00,480 --> 00:01:57,610
successfully on the surface of the Moon

28
00:02:03,030 --> 00:02:00,490
and operated on the surface would be

29
00:02:06,929 --> 00:02:03,040
severe photographs we were able to show

30
00:02:10,009 --> 00:02:06,939
that landing a manned spacecraft on the

31
00:02:12,720 --> 00:02:10,019
moon is quite a reasonable undertaking

32
00:02:15,000 --> 00:02:12,730
and in fact that the man is will be able

33
00:02:17,520 --> 00:02:15,010
to walk on the stuff to the moon without

34
00:02:20,460 --> 00:02:17,530
danger of falling through or thinking

35
00:02:22,259 --> 00:02:20,470
into the dust at any great depth we were

36
00:02:24,330 --> 00:02:22,269
able to measure the bearing strength of

37
00:02:26,460 --> 00:02:24,340
surface we were able to get the general

38
00:02:29,009 --> 00:02:26,470

appearance of the surface to point out

39
00:02:30,990 --> 00:02:29,019
for seven that in certain areas of the

40
00:02:33,210 --> 00:02:31,000
moon at least there were not very many

41
00:02:36,120 --> 00:02:33,220
large rocks which has to be contended

42
00:02:38,849 --> 00:02:36,130
with but there were of course numerous

43
00:02:41,370 --> 00:02:38,859
smaller and smaller craters we also

44
00:02:43,470 --> 00:02:41,380
found the first chemical analysis of the

45
00:02:45,960 --> 00:02:43,480
first of the moon by Professor perkovic

46
00:02:48,509 --> 00:02:45,970
his experiment and this showed that in

47
00:02:50,940 --> 00:02:48,519
the areas that we landed the rock or the

48
00:02:54,509 --> 00:02:50,950
surface material rather was very similar

49
00:02:56,550 --> 00:02:54,519
to a basalt here on the earth we were

50
00:02:58,120 --> 00:02:56,560
also able to dig in the surface and get

51
00:03:01,000 --> 00:02:58,130
an idea of the

52
00:03:04,030 --> 00:03:01,010
of the feel of the surface as we went

53
00:03:07,960 --> 00:03:04,040
down a little bit below the surface for

54
00:03:15,940 --> 00:03:07,970
a matter of a few inches the material is

55
00:03:18,160 --> 00:03:15,950
very much like a soft fan to begin JPL

56
00:03:22,000 --> 00:03:18,170
is also applying its scientific know-how

57
00:03:24,790 --> 00:03:22,010
to Mars flying by initially landing and

58
00:03:26,980 --> 00:03:24,800
testing in the future the experimental

59
00:03:29,290 --> 00:03:26,990
model of a wheel shaped planetary

60
00:03:35,190 --> 00:03:29,300
landing craft is one of several Landers

61
00:03:40,209 --> 00:03:37,660
in an effort to learn more about the

62
00:03:42,280 --> 00:03:40,219
possibility of life on Mars the lab

63
00:03:44,679 --> 00:03:42,290

again sent a scientific team to the

64
00:03:47,080 --> 00:03:44,689
Antarctic carefully collected soil

65
00:03:49,300 --> 00:03:47,090
samples in this and other desert areas

66
00:03:55,660 --> 00:03:49,310
were returned and subjected to rigorous

67
00:03:58,270 --> 00:03:55,670
analysis the Sun seething and turbulent

68
00:04:00,339 --> 00:03:58,280
affecting every living thing on earth by

69
00:04:03,280 --> 00:04:00,349
studying it we can learn more about our

70
00:04:06,039 --> 00:04:03,290
own environment interplanetary Pioneer

71
00:04:09,670 --> 00:04:06,049
spacecraft are doing just that 2 were

72
00:04:12,399 --> 00:04:09,680
launched in 1968 at one point in their

73
00:04:15,460 --> 00:04:12,409
voyage millions of miles into space they

74
00:04:17,259 --> 00:04:15,470
passed directly behind the Sun the data

75
00:04:19,689 --> 00:04:17,269
being returned is helping improve

76
00:04:22,270 --> 00:04:19,699
weather forecasting and adding a measure

77
00:04:29,920 --> 00:04:22,280
of protection to Mumbai last Ranaut's by

78
00:04:35,180 --> 00:04:32,540
also helping us learn more about the

79
00:04:38,689 --> 00:04:35,190
earth's environment orbiting geophysical

80
00:04:40,640 --> 00:04:38,699
Observatory oh go 5 by studying such

81
00:04:43,430 --> 00:04:40,650
things as our magnetic field and

82
00:04:46,279 --> 00:04:43,440
radiation belt solar flares and solar

83
00:04:52,360 --> 00:04:46,289
wind we gain new insight into the

84
00:04:58,340 --> 00:04:56,450
some 454 relatively small sounding

85
00:05:00,770 --> 00:04:58,350
rockets probed into the region below

86
00:05:02,719 --> 00:05:00,780
where satellites operate giving a

87
00:05:10,790 --> 00:05:02,729
detailed scientific picture of the

88
00:05:13,939 --> 00:05:10,800

Earth's lower and upper atmosphere Radio

89
00:05:18,650 --> 00:05:13,949
Astronomy Explorer one of five Explorer

90
00:05:20,900 --> 00:05:18,660
type spacecraft launched here dr. John

91
00:05:24,650 --> 00:05:20,910
Findlay chairman us lunar and planetary

92
00:05:26,390 --> 00:05:24,660
missions board explains its job an

93
00:05:28,490 --> 00:05:26,400
important project of the offices of

94
00:05:30,740 --> 00:05:28,500
space science and applications this year

95
00:05:33,529 --> 00:05:30,750
is the radio astronomy Explorer

96
00:05:35,840 --> 00:05:33,539
satellite while gran based radio

97
00:05:38,300 --> 00:05:35,850
telescopes such as this hundred and

98
00:05:40,760 --> 00:05:38,310
forty foot instrument can observe at the

99
00:05:43,339 --> 00:05:40,770
short radio wavelengths the radio

100
00:05:45,650 --> 00:05:43,349
astronomy Explorer will make its

101
00:05:48,439 --> 00:05:45,660
measurements at wavelengths of several

102
00:05:52,430 --> 00:05:48,449
hundred meters in fact beyond the edge

103
00:05:55,159 --> 00:05:52,440
of the radio window from the results of

104
00:05:58,129 --> 00:05:55,169
this satellite we shall make maps of the

105
00:06:01,570 --> 00:05:58,139
brightness of the radio sky and these

106
00:06:06,950 --> 00:06:01,580
will help us find out how our own galaxy

107
00:06:08,240 --> 00:06:06,960
generates and radiates radio waves the

108
00:06:11,659 --> 00:06:08,250
heaviest and most sophisticated

109
00:06:14,210 --> 00:06:11,669
satellite to be launched in 1968 was the

110
00:06:18,680 --> 00:06:14,220
orbiting astronomical observatory oh eh

111
00:06:21,170 --> 00:06:18,690
oh the Earth's atmosphere limits and

112
00:06:24,830 --> 00:06:21,180
distorts the Stars viewed by astronomers

113
00:06:28,010 --> 00:06:24,840

from the ground but oao rises above all

114
00:06:30,110 --> 00:06:28,020
this it's eleven telescopes are viewing

115
00:06:32,990 --> 00:06:30,120
the stars with a clarity never before

116
00:06:35,089 --> 00:06:33,000
possible mapping the skies and providing

117
00:06:40,140 --> 00:06:35,099
a better understanding of the origin of

118
00:06:45,670 --> 00:06:43,180
shortly after launch nimbus be an

119
00:06:47,710 --> 00:06:45,680
experimental weather satellite plunged

120
00:06:49,600 --> 00:06:47,720
into the Pacific just off the coast of

121
00:06:52,899 --> 00:06:49,610
California when a gyroscope

122
00:06:55,059 --> 00:06:52,909
malfunctioned divers recovered two

123
00:07:00,189 --> 00:06:55,069
valuable nuclear powered generators

124
00:07:02,529 --> 00:07:00,199
about 300 feet down advanced research

125
00:07:06,339 --> 00:07:02,539
and technology moved ahead on many

126
00:07:08,950 --> 00:07:06,349
fronts in 1968 the wingless HL 10

127
00:07:12,580 --> 00:07:08,960
lifting body made 13 flights including

128
00:07:14,740 --> 00:07:12,590
two with sustained rocket propulsion the

129
00:07:17,020 --> 00:07:14,750
flatiron shaped craft gets its

130
00:07:20,290 --> 00:07:17,030
aerodynamic lift from the wingless body

131
00:07:22,360 --> 00:07:20,300
shape lifting bodies show promise as

132
00:07:24,490 --> 00:07:22,370
reusable spacecraft of the future

133
00:07:30,670 --> 00:07:24,500
spacecraft that can land like

134
00:07:33,430 --> 00:07:30,680
conventional airplanes after nine years

135
00:07:36,279 --> 00:07:33,440
and nearly 200 flights to the edge of

136
00:07:38,830 --> 00:07:36,289
space the rocket-powered x-15 program

137
00:07:42,459 --> 00:07:38,840
was brought to a close with eight final

138
00:07:45,519 --> 00:07:42,469

flights in 1968 the half claimed half

139
00:07:48,129 --> 00:07:45,529
rocket x-15 has been a unique flying

140
00:07:58,880 --> 00:07:48,139
testbed for researching aeronautics and

141
00:08:05,430 --> 00:08:02,670
the giant xb-70 flying at three times

142
00:08:07,770 --> 00:08:05,440
the speed of sound made 13 research

143
00:08:14,270 --> 00:08:07,780
flights gathering data for use in the

144
00:08:19,560 --> 00:08:17,400
NASA also conducted extensive flight

145
00:08:22,380 --> 00:08:19,570
studies on several types of vertical

146
00:08:24,510 --> 00:08:22,390
takeoff and landing planes feet tall as

147
00:08:26,700 --> 00:08:24,520
they are called our craft that can rise

148
00:08:30,300 --> 00:08:26,710
vertically then fly forward like any

149
00:08:33,000 --> 00:08:30,310
other airplane V tall's may one day be

150
00:08:40,440 --> 00:08:33,010
used as intercity transports improving

151
00:08:42,390 --> 00:08:40,450
short haul air transportation much

152
00:08:45,360 --> 00:08:42,400
aeronautical research is done with

153
00:08:47,100 --> 00:08:45,370
models in this particular test a highly

154
00:08:49,920 --> 00:08:47,110
instrumented model is dropped from a

155
00:08:52,740 --> 00:08:49,930
helicopter then flown by radio control

156
00:08:54,810 --> 00:08:52,750
from the ground this type of study makes

157
00:09:02,189 --> 00:08:54,820
the most rigorous tests possible without

158
00:09:07,660 --> 00:09:05,139
jet aircraft noise is a continuing

159
00:09:10,179 --> 00:09:07,670
national problem nASA has been attacking

160
00:09:12,429 --> 00:09:10,189
the problem in two ways first by

161
00:09:14,979 --> 00:09:12,439
attempting to design a new quieter

162
00:09:20,829 --> 00:09:14,989
engine and second by modifying existing

163
00:09:22,929 --> 00:09:20,839

engine so they make less noise on this

164
00:09:25,239 --> 00:09:22,939
plane engineers at the Lewis Research

165
00:09:27,429 --> 00:09:25,249
Center in Cleveland are trying out

166
00:09:29,049 --> 00:09:27,439
various engine modifications to

167
00:09:35,949 --> 00:09:29,059
determine the effect on the planes

168
00:09:38,199 --> 00:09:35,959
performance it has been found that by

169
00:09:40,989 --> 00:09:38,209
cutting grooves in airport runways

170
00:09:43,179 --> 00:09:40,999
planes landing on rain-soaked surfaces

171
00:09:46,809 --> 00:09:43,189
can land with less chance of skidding

172
00:09:50,289 --> 00:09:46,819
and stop easier these studies were

173
00:09:51,819 --> 00:09:50,299
continued in 1968 some of the braking

174
00:09:54,009 --> 00:09:51,829
tests were made with specially

175
00:09:56,619 --> 00:09:54,019
instrumented cars on the groove runways

176
00:09:58,989 --> 00:09:56,629
the results now appear to have

177
00:10:03,960 --> 00:09:58,999
application to highways as well as

178
00:10:09,519 --> 00:10:06,220
at the nuclear rocket development

179
00:10:10,920 --> 00:10:09,529
station in Nevada NASA in cooperation

180
00:10:13,780 --> 00:10:10,930
with the Atomic Energy Commission

181
00:10:16,180 --> 00:10:13,790
test-fired a powerful nuclear rocket

182
00:10:18,490 --> 00:10:16,190
reactor the tests are part of an effort

183
00:10:25,750 --> 00:10:18,500
to develop nuclear powered rockets for

184
00:10:28,600 --> 00:10:25,760
future deep space exploration Apollo can

185
00:10:30,850 --> 00:10:28,610
be likened to a finely tuned watch men

186
00:10:33,280 --> 00:10:30,860
and space machines are perfected to the

187
00:10:36,069 --> 00:10:33,290
highest degree possible in most cases

188
00:10:38,439 --> 00:10:36,079

the astronauts who fly the spacecraft

189
00:10:40,210 --> 00:10:38,449
trained separately but concurrent with

190
00:10:42,879 --> 00:10:40,220
the build-up and development of the

191
00:10:45,430 --> 00:10:42,889
space machines themselves when brought

192
00:10:48,579 --> 00:10:45,440
together they must mesh smoothly there

193
00:10:51,189 --> 00:10:48,589
is little room for error Apollo is like

194
00:10:55,480 --> 00:10:51,199
this and the men who fly and the men who

195
00:10:59,860 --> 00:10:55,490
build know it there were four Apollo

196
00:11:01,810 --> 00:10:59,870
flights in 1968 two unmanned two men all

197
00:11:07,750 --> 00:11:01,820
part of the preparation for moon

198
00:11:10,300 --> 00:11:07,760
landings Apollo 5 sent aloft to check

199
00:11:12,730 --> 00:11:10,310
out the lunar module it is in a lunar

200
00:11:15,550 --> 00:11:12,740
module that two astronauts will land and

201
00:11:17,829 --> 00:11:15,560
take off from the moon both the descent

202
00:11:20,170 --> 00:11:17,839
engine used to slow the spacecraft for

203
00:11:22,389 --> 00:11:20,180
the landing and the ascent engine which

204
00:11:28,960 --> 00:11:22,399
will boost the pair off the moon were

205
00:11:30,519 --> 00:11:28,970
successfully tested to further ready the

206
00:11:33,280 --> 00:11:30,529
Saturn five rocket and its many

207
00:11:36,939 --> 00:11:33,290
components the unmanned apollo 6 was

208
00:11:39,220 --> 00:11:36,949
launched into Earth orbit engineering

209
00:11:42,280 --> 00:11:39,230
cameras onboard recorded the first stage

210
00:11:45,040 --> 00:11:42,290
& interstate separations after 10 hours

211
00:11:46,590 --> 00:11:45,050
in space the command module was rammed

212
00:11:49,449 --> 00:11:46,600
back into the Earth's atmosphere

213
00:11:55,070 --> 00:11:49,459

simulating a lunar return another

214
00:12:01,200 --> 00:11:58,230
the next step check out the spacecraft

215
00:12:03,270 --> 00:12:01,210
with men aboard here astronaut Shara

216
00:12:05,190 --> 00:12:03,280
cunningham and isley move about

217
00:12:10,100 --> 00:12:05,200
weightlessly in their Apollo 7

218
00:12:14,819 --> 00:12:12,840
this was also the first full dress

219
00:12:17,879 --> 00:12:14,829
rehearsal for the manned space flight

220
00:12:20,150 --> 00:12:17,889
tracking network 14 ground stations

221
00:12:23,519 --> 00:12:20,160
located in such places as Bermuda

222
00:12:25,740 --> 00:12:23,529
Australia Spain and Hawaii together with

223
00:12:28,170 --> 00:12:25,750
planes and tracking ships kept a

224
00:12:32,639 --> 00:12:28,180
constant electronic ear tuned to the

225
00:12:35,819 --> 00:12:32,649
Apollo spacecraft after ten days and 163

226
00:12:38,370 --> 00:12:35,829
revolutions Apollo 7 splashed down in

227
00:12:40,350 --> 00:12:38,380
the Pacific paving the way for the first

228
00:12:49,259 --> 00:12:40,360
half million mile journey to the moon

229
00:12:51,360 --> 00:12:49,269
and back from launch complex 39a at

230
00:12:53,850 --> 00:12:51,370
Kennedy Space Center the Saturn five

231
00:12:56,250 --> 00:12:53,860
rocket boosted Apollo 8 astronauts

232
00:12:58,800 --> 00:12:56,260
Borman Lovell and Anders toward their

233
00:13:01,050 --> 00:12:58,810
rendezvous with the moon the first time

234
00:13:04,860 --> 00:13:01,060
the big rocket was flown with men as

235
00:13:06,900 --> 00:13:04,870
passengers while enroute the crew kept

236
00:13:08,970 --> 00:13:06,910
busy checking and double-checking all

237
00:13:11,460 --> 00:13:08,980
systems as they sped toward the moon

238
00:13:13,939 --> 00:13:11,470

many of the things they did will have a

239
00:13:17,579 --> 00:13:13,949
direct bearing on future lunar missions

240
00:13:20,220 --> 00:13:17,589
nearly three days and 230,000 miles

241
00:13:22,439 --> 00:13:20,230
later the crew of Apollo 8 fired their

242
00:13:26,380 --> 00:13:22,449
rocket engine placing them in lunar

243
00:13:31,450 --> 00:13:29,020
here are some of the views recorded by

244
00:13:34,660 --> 00:13:31,460
the crew as they orbited the moon 10 *

245
00:13:37,420 --> 00:13:34,670
views from afar and close up showing

246
00:13:44,770 --> 00:13:37,430
remarkable detail the kind of detail

247
00:13:54,560 --> 00:13:47,480
then the cameras and spacecraft were

248
00:13:57,170 --> 00:13:54,570
turned toward earth and after three days

249
00:13:59,510 --> 00:13:57,180
in the fiery re-entry landed in the

250
00:14:06,940 --> 00:13:59,520
Pacific within sight of the recovery

251
00:14:12,680 --> 00:14:09,890
Apollo 8 final flight of the Year

252
00:14:15,380 --> 00:14:12,690
historic prelude to lunar landings and

253
00:14:25,940 --> 00:14:15,390
to the peaceful exploration of space in

254
00:14:28,610 --> 00:14:25,950
the future this has been an aeronautics

255
00:14:30,260 --> 00:14:28,620
and space report presented by nasa the