



MARSHALL  
REMEMBERS APOLLO

1  
00:00:01,130 --> 00:00:15,910

[Music]

2  
00:00:21,290 --> 00:00:18,439

my first memories of Huntsville are

3  
00:00:23,990 --> 00:00:21,300

living on McClung Street and a lot of

4  
00:00:25,700 --> 00:00:24,000

the colleagues of my father and their

5  
00:00:28,069 --> 00:00:25,710

families live there so we were the

6  
00:00:31,519 --> 00:00:28,079

neighborhood gang around McClung Street

7  
00:00:32,930 --> 00:00:31,529

and it was a very undeveloped part of

8  
00:00:34,759 --> 00:00:32,940

Huntsville there was still a lot of

9  
00:00:36,619 --> 00:00:34,769

cotton fields all around us and it was

10  
00:00:38,840 --> 00:00:36,629

just a big playground so our

11  
00:00:40,310 --> 00:00:38,850

neighborhood between McClung and

12  
00:00:42,049 --> 00:00:40,320

Hermitage a lot of my father's

13  
00:00:44,090 --> 00:00:42,059

colleagues lived there so it was kind of

14

00:00:46,910 --> 00:00:44,100

a little German neighborhood surrounded

15

00:00:49,009 --> 00:00:46,920

by cotton fields and the Heinberg lived

16

00:00:51,590 --> 00:00:49,019

right behind us Ruth Heinberg was one of

17

00:00:53,299 --> 00:00:51,600

my earliest friends from childhood the

18

00:00:55,100 --> 00:00:53,309

growls lived there that Paula Ora's

19

00:00:57,259 --> 00:00:55,110

lived there the Zen blurs there were

20

00:01:00,079 --> 00:00:57,269

just a lot of German families and their

21

00:01:01,579 --> 00:01:00,089

kids so I only knew the the rocket

22

00:01:03,799 --> 00:01:01,589

scientists threw their children we knew

23

00:01:05,600 --> 00:01:03,809

we were among the German groups because

24

00:01:09,130 --> 00:01:05,610

a lot of us grew up speaking German

25

00:01:11,750 --> 00:01:09,140

being bilingual but our parents really

26

00:01:13,609 --> 00:01:11,760

shielded us from a lot of publicity so I

27

00:01:16,760 --> 00:01:13,619

don't feel like we ever grew up any

28

00:01:18,920 --> 00:01:16,770

different didn't feel like that from my

29

00:01:21,880 --> 00:01:18,930

end it felt maybe like that to other

30

00:01:24,110 --> 00:01:21,890

people about us but we always felt

31

00:01:26,210 --> 00:01:24,120

welcome and happy everywhere we were in

32

00:01:27,980 --> 00:01:26,220

Huntsville so it really didn't feel like

33

00:01:32,910 --> 00:01:27,990

any kind of a separation or a different

34

00:01:37,830 --> 00:01:36,060

I think I still think of him as just my

35

00:01:40,860 --> 00:01:37,840

dad I mean I only knew him as my father

36

00:01:43,890 --> 00:01:40,870

so he was only famous to other people

37

00:01:46,800 --> 00:01:43,900

but not so much to us he was just our

38

00:01:48,870 --> 00:01:46,810

father but I think there were a couple

39

00:01:50,610 --> 00:01:48,880

of times when we lived on McClung The

40

00:01:52,170 --> 00:01:50,620

Life Magazine came and did an interview

41

00:01:54,240 --> 00:01:52,180

and I think I was about five years old

42

00:01:55,440 --> 00:01:54,250

so again that didn't really you know

43

00:01:57,510 --> 00:01:55,450

it's just a bunch of people coming into

44

00:01:59,730 --> 00:01:57,520

the house with cameras but I didn't have

45

00:02:02,160 --> 00:01:59,740

a sense of why that was special or

46

00:02:03,660 --> 00:02:02,170

unique except our mother probably said

47

00:02:05,040 --> 00:02:03,670

you know straighten up don't screw up

48

00:02:07,350 --> 00:02:05,050

this afternoon that kind of thing you

49

00:02:08,880 --> 00:02:07,360

would say to a five-year-old but I don't

50

00:02:10,620 --> 00:02:08,890

think I really ever thought of him that

51  
00:02:13,020 --> 00:02:10,630  
way and I probably still don't I still

52  
00:02:13,560 --> 00:02:13,030  
think of him first and foremost as my

53  
00:02:15,570 --> 00:02:13,570  
father

54  
00:02:17,040 --> 00:02:15,580  
so at he'll I I think one of the first

55  
00:02:20,250 --> 00:02:17,050  
things to realize is he was not

56  
00:02:22,229 --> 00:02:20,260  
particularly handy at home you know we

57  
00:02:24,150 --> 00:02:22,239  
make jokes about it wouldn't take a

58  
00:02:27,240 --> 00:02:24,160  
rocket scientist to you know figure out

59  
00:02:29,820 --> 00:02:27,250  
how to run a microwave well he wasn't

60  
00:02:31,229 --> 00:02:29,830  
particularly useful around the house my

61  
00:02:32,910 --> 00:02:31,239  
mother would definitely attest to that

62  
00:02:34,830 --> 00:02:32,920  
she was the person who knew how to fix

63  
00:02:36,630 --> 00:02:34,840

everything I think part of it was he

64

00:02:38,670 --> 00:02:36,640

probably wasn't interested so he was

65

00:02:41,670 --> 00:02:38,680

probably sort of dodging home chores

66

00:02:44,910 --> 00:02:41,680

that way but mostly when he was home he

67

00:02:46,500 --> 00:02:44,920

was with us so he was very much you know

68

00:02:48,180 --> 00:02:46,510

when he came in the door he was our dad

69

00:02:50,729 --> 00:02:48,190

first and foremost and we were the

70

00:02:52,710 --> 00:02:50,739

center of his world he did bring a lot

71

00:02:55,259 --> 00:02:52,720

of work home that was usually after

72

00:02:57,660 --> 00:02:55,269

dinner but between the time he came home

73

00:02:59,699 --> 00:02:57,670

and through dinner you know he was very

74

00:03:02,460 --> 00:02:59,709

much there for us and and we were

75

00:03:03,720 --> 00:03:02,470

primary he probably worked every night

76

00:03:05,820 --> 00:03:03,730

that he came home he never came home

77

00:03:07,680 --> 00:03:05,830

without a briefcase

78

00:03:10,440 --> 00:03:07,690

but the weekends were ours especially

79

00:03:13,320 --> 00:03:10,450

Sundays that was reserved for family day

80

00:03:15,660 --> 00:03:13,330

we usually went to Guntersville he was

81

00:03:16,949 --> 00:03:15,670

he loved water so everything happened to

82

00:03:19,310 --> 00:03:16,959

do with water got her so what was our

83

00:03:22,050 --> 00:03:19,320

closest big water so we water skied and

84

00:03:25,050 --> 00:03:22,060

played and Sundays I don't remember him

85

00:03:29,060 --> 00:03:25,060

ever bringing work on the boat my ninth

86

00:03:32,850 --> 00:03:29,070

birthday would have been May 8 1961 and

87

00:03:34,710 --> 00:03:32,860

that was three days after Alan Shepard

88

00:03:36,630 --> 00:03:34,720

was going up in space and I remember for

89

00:03:38,220 --> 00:03:36,640

my ninth birthday my parents saying they

90

00:03:40,830 --> 00:03:38,230

were gonna celebrate my birthday early

91

00:03:42,660 --> 00:03:40,840

and I didn't really know why but of

92

00:03:45,089 --> 00:03:42,670

course I was happy that meant you got

93

00:03:46,770 --> 00:03:45,099

presents early right and so we had my

94

00:03:48,360 --> 00:03:46,780

birthday party a few days early

95

00:03:49,980 --> 00:03:48,370

and I just remember them sort of saying

96

00:03:52,830 --> 00:03:49,990

you know dad has to be out of town and

97

00:03:55,470 --> 00:03:52,840

then I realized later like that was Alan

98

00:03:58,290 --> 00:03:55,480

Shepards lunch into space but I don't

99

00:04:00,330 --> 00:03:58,300

remember them ever saying that it was

100

00:04:02,040 --> 00:04:00,340

all about my birthday and I think that

101  
00:04:03,930 --> 00:04:02,050  
was that was pretty typical you know

102  
00:04:06,449 --> 00:04:03,940  
he's centered that the home life was

103  
00:04:08,820 --> 00:04:06,459  
really pretty normal and it didn't bring

104  
00:04:13,290 --> 00:04:08,830  
a lot of at home I think all the mercury

105  
00:04:15,510 --> 00:04:13,300  
7 astronauts visited us I particularly

106  
00:04:18,660 --> 00:04:15,520  
remember one trip when I was probably

107  
00:04:22,800 --> 00:04:18,670  
about 11 or 12 so it would have been the

108  
00:04:25,140 --> 00:04:22,810  
early sixties mid sixties we were at the

109  
00:04:27,180 --> 00:04:25,150  
Cape and it was probably for a test of

110  
00:04:28,710 --> 00:04:27,190  
some sort I don't know it wasn't a

111  
00:04:30,750 --> 00:04:28,720  
launch because the first launch I saw

112  
00:04:32,460 --> 00:04:30,760  
was Apollo 11 and I remember Gordon

113  
00:04:35,970 --> 00:04:32,470

Cooper was there and I remember meeting

114

00:04:38,280 --> 00:04:35,980

Gus Grissom at that particular little

115

00:04:39,990 --> 00:04:38,290

Florida hotel with a swimming pool you

116

00:04:41,310 --> 00:04:40,000

know they were real simple in those days

117

00:04:43,470 --> 00:04:41,320

and we were all staying at the same

118

00:04:45,510 --> 00:04:43,480

hotel and we're in the pool together and

119

00:04:46,800 --> 00:04:45,520

that was kind of cool because I was with

120

00:04:54,220 --> 00:04:46,810

one of my girlfriends and we were like

121

00:04:59,750 --> 00:04:56,660

education was absolutely number-one but

122

00:05:03,200 --> 00:04:59,760

I don't remember ever feeling pressured

123

00:05:04,850 --> 00:05:03,210

into a specific direction our dad was

124

00:05:05,720 --> 00:05:04,860

interested in a lot of things besides

125

00:05:07,760 --> 00:05:05,730

space

126

00:05:10,460 --> 00:05:07,770

he was very musical he was very

127

00:05:12,980 --> 00:05:10,470

interested in history he read all the

128

00:05:14,750 --> 00:05:12,990

time and my sister and brother both

129

00:05:17,120 --> 00:05:14,760

majored in history

130

00:05:20,630 --> 00:05:17,130

I majored in engineering but it wasn't

131

00:05:22,850 --> 00:05:20,640

it wasn't by any direction I think he

132

00:05:26,030 --> 00:05:22,860

felt like whatever we wanted to do was

133

00:05:27,560 --> 00:05:26,040

fine as long as we worked well at it you

134

00:05:29,390 --> 00:05:27,570

know worked hard at it and did well in

135

00:05:31,340 --> 00:05:29,400

school that was that wasn't more

136

00:05:33,950 --> 00:05:31,350

important than what we did well at I

137

00:05:36,260 --> 00:05:33,960

think he was pretty happy to learn that

138

00:05:38,750 --> 00:05:36,270

I was motivated to the scientist

139

00:05:41,630 --> 00:05:38,760

sciences he was really the first in his

140

00:05:46,550 --> 00:05:41,640

family to be scientific most of them

141

00:05:48,830 --> 00:05:46,560

were lawyers and pastors and had

142

00:05:55,180 --> 00:05:48,840

businesses and stuff but he was sort of

143

00:05:59,740 --> 00:05:57,970

well one of my great memories and this

144

00:06:00,640 --> 00:05:59,750

is actually I think another great lesson

145

00:06:03,700 --> 00:06:00,650

is he

146

00:06:06,190 --> 00:06:03,710

he took trips with us children

147

00:06:07,750 --> 00:06:06,200

individually so it wasn't always the

148

00:06:09,640 --> 00:06:07,760

family trip where the siblings are

149

00:06:11,950 --> 00:06:09,650

usually bickering he would he'd take he

150

00:06:13,930 --> 00:06:11,960

took us on our own trips so one of the

151

00:06:16,600 --> 00:06:13,940

trips I made with him was to Mexico to

152

00:06:17,800 --> 00:06:16,610

go scuba diving and that was just me and

153

00:06:20,170 --> 00:06:17,810

him and so you had him all to yourself

154

00:06:21,460 --> 00:06:20,180

and it was it was treasured and he did

155

00:06:23,470 --> 00:06:21,470

things like that with my sister and

156

00:06:25,900 --> 00:06:23,480

brother as well so those were those were

157

00:06:29,250 --> 00:06:25,910

really you know just treasured treasured

158

00:06:31,570 --> 00:06:29,260

times he did travel all over the world

159

00:06:35,020 --> 00:06:31,580

Lee of course did a lot of trips to

160

00:06:37,510 --> 00:06:35,030

Germany to visit relatives he did go to

161

00:06:39,610 --> 00:06:37,520

Antarctica we didn't go with him but

162

00:06:41,320 --> 00:06:39,620

I've seen the pictures I think that was

163

00:06:42,850 --> 00:06:41,330

you know that was a great adventure he

164

00:06:45,820 --> 00:06:42,860

left to go to places that were sort of

165

00:06:48,840 --> 00:06:45,830

unworldly earth or you know like a

166

00:06:50,950 --> 00:06:48,850

different planet we visited Katmai

167

00:06:53,170 --> 00:06:50,960

volcanic park because that was another

168

00:06:55,510 --> 00:06:53,180

moonscape kind of place it looks like

169

00:06:57,160 --> 00:06:55,520

the lunar surface so he liked visiting

170

00:06:59,800 --> 00:06:57,170

places like that but he loved to travel

171

00:07:06,200 --> 00:06:59,810

he was he he got the travel bug in in

172

00:07:10,610 --> 00:07:08,690

think he and Kennedy were were very

173

00:07:13,100 --> 00:07:10,620

like-minded I think they were both real

174

00:07:16,040 --> 00:07:13,110

visionaries super optimistic people so I

175

00:07:18,200 --> 00:07:16,050

think he liked Kennedy a lot and I think

176

00:07:21,410 --> 00:07:18,210

my parents were were thrilled to know

177

00:07:24,050 --> 00:07:21,420

him and of course his death was a huge

178

00:07:25,850 --> 00:07:24,060

tragedy not not only for the country but

179

00:07:27,830 --> 00:07:25,860

I think it was a very personal tragedy

180

00:07:30,680 --> 00:07:27,840

for him and I do remember the day

181

00:07:34,130 --> 00:07:30,690

Kennedy died was one of the days that

182

00:07:37,040 --> 00:07:34,140

dad came home and it was a very somber

183

00:07:38,600 --> 00:07:37,050

day for the family and and our mother

184

00:07:45,409 --> 00:07:38,610

sort of said you know your dad wants to

185

00:07:49,990 --> 00:07:47,390

well I think he flew every chance he got

186

00:07:52,790 --> 00:07:50,000

so every business trip that he was

187

00:07:55,219 --> 00:07:52,800

allowed to fly the plane he probably did

188

00:07:57,920 --> 00:07:55,229

because that was relaxing to him as a

189

00:08:01,429 --> 00:07:57,930

child a lot of times on the weekends he

190

00:08:02,990 --> 00:08:01,439

would charter a plane I have to say I'm

191

00:08:05,570 --> 00:08:03,000

the only member in my family that did

192

00:08:08,300 --> 00:08:05,580

not learn to fly my sister learned to

193

00:08:11,240 --> 00:08:08,310

soar my brother had a pilot's license my

194

00:08:12,439 --> 00:08:11,250

mother had a pilot's license I was the

195

00:08:14,179 --> 00:08:12,449

kid in the back of the plane usually

196

00:08:17,029 --> 00:08:14,189

throwing up saying when does the plane

197

00:08:20,269 --> 00:08:17,039

land so that's not one of my favorite of

198

00:08:22,219 --> 00:08:20,279

his hobbies but he loved to fly and that

199

00:08:25,309 --> 00:08:22,229

I think I think the two things that were

200

00:08:26,869 --> 00:08:25,319

his real recreational loves number one

201  
00:08:29,209 --> 00:08:26,879  
by far was flying and number two

202  
00:08:32,719 --> 00:08:29,219  
anything to do with water swimming scuba

203  
00:08:38,219 --> 00:08:32,729  
diving sailing sailing isn't that

204  
00:08:42,659 --> 00:08:40,740  
well I think I think he and Disney were

205  
00:08:45,180 --> 00:08:42,669  
also very like-minded you know

206  
00:08:47,759 --> 00:08:45,190  
incredibly creative I think he needed

207  
00:08:49,500 --> 00:08:47,769  
Disney to explain things because after

208  
00:08:51,090 --> 00:08:49,510  
all he was you know even though he had

209  
00:08:52,710 --> 00:08:51,100  
great charisma and great personality was

210  
00:08:56,610 --> 00:08:52,720  
a great speaker and could convince

211  
00:08:58,019 --> 00:08:56,620  
people Congress to do things you know he

212  
00:09:00,600 --> 00:08:58,029  
was still a scientist and he needed

213  
00:09:02,490 --> 00:09:00,610

somebody like Disney's creativity and

214

00:09:05,579 --> 00:09:02,500

visuals to help explain things to people

215

00:09:07,829 --> 00:09:05,589

and and Disney was also you know had an

216

00:09:14,270 --> 00:09:07,839

incredible visionary imagination so I

217

00:09:18,440 --> 00:09:16,340

I think he thought about about

218

00:09:19,940 --> 00:09:18,450

spirituality and faith a lot perhaps

219

00:09:22,190 --> 00:09:19,950

more than he did about organized

220

00:09:23,750 --> 00:09:22,200

religions I'm trying to remember Frank

221

00:09:26,600 --> 00:09:23,760

borman's code I think he said I didn't

222

00:09:28,340 --> 00:09:26,610

see God but I saw his evidence I think

223

00:09:30,230 --> 00:09:28,350

it would be more along those lines of

224

00:09:33,440 --> 00:09:30,240

you know you can't look into space

225

00:09:37,970 --> 00:09:33,450

without thinking big thoughts about

226

00:09:41,330 --> 00:09:37,980

creation he wasn't a regular churchgoer

227

00:09:45,260 --> 00:09:41,340

because we usually went waterskiing on

228

00:09:47,450 --> 00:09:45,270

Sundays but I think he was definitely a

229

00:09:53,550 --> 00:09:47,460

person who thought very profoundly about

230

00:10:00,720 --> 00:09:57,660

I think I realized now how much he must

231

00:10:03,480 --> 00:10:00,730

have foreseen not only in terms of you

232

00:10:05,070 --> 00:10:03,490

know our vulnerable planet and how we

233

00:10:07,530 --> 00:10:05,080

better learn a lot more about it to be

234

00:10:09,480 --> 00:10:07,540

able to protect it I mean if you look at

235

00:10:11,250 --> 00:10:09,490

climate change all of the data all of

236

00:10:14,250 --> 00:10:11,260

the information that we're learning is

237

00:10:17,280 --> 00:10:14,260

from space and we better find the

238

00:10:19,980 --> 00:10:17,290

solutions here on earth but I think he

239

00:10:22,050 --> 00:10:19,990

just saw that this vulnerable planet was

240

00:10:25,800 --> 00:10:22,060

going to need a lot more understanding

241

00:10:27,330 --> 00:10:25,810

than we had and that's why later in his

242

00:10:28,470 --> 00:10:27,340

career you know he was very excited

243

00:10:32,070 --> 00:10:28,480

about everything we could learn from

244

00:10:33,930 --> 00:10:32,080

satellites and I think the same is true

245

00:10:35,700 --> 00:10:33,940

in communication the same is true in

246

00:10:38,970 --> 00:10:35,710

medicine I mean if you think of all the

247

00:10:40,350 --> 00:10:38,980

space benefits that we've had I think he

248

00:10:44,130 --> 00:10:40,360

and his team were the kind of people

249

00:10:47,190 --> 00:10:44,140

that just saw the opportunities not

250

00:10:48,420 --> 00:10:47,200

specifically they just knew if we do

251  
00:10:49,770 --> 00:10:48,430  
this to go to the moon we're gonna learn

252  
00:10:51,780 --> 00:10:49,780  
all kinds of stuff that we haven't

253  
00:10:53,430 --> 00:10:51,790  
thought of because we haven't needed to

254  
00:10:58,900 --> 00:10:53,440  
think of them and they are going to be

255  
00:11:05,230 --> 00:11:01,150  
he was very committed to equal

256  
00:11:08,050 --> 00:11:05,240  
employment opportunities for people of

257  
00:11:10,509 --> 00:11:08,060  
all backgrounds and both genders so I

258  
00:11:12,249 --> 00:11:10,519  
think you know growing up with he had

259  
00:11:15,100 --> 00:11:12,259  
two daughters and a son I think he also

260  
00:11:16,780 --> 00:11:15,110  
saw that that the independence of women

261  
00:11:18,550 --> 00:11:16,790  
was going to become very important in

262  
00:11:21,430 --> 00:11:18,560  
our ability to have independent

263  
00:11:23,259 --> 00:11:21,440

employment was certainly important

264

00:11:25,389 --> 00:11:23,269

I got quite involved in the civil rights

265

00:11:27,189 --> 00:11:25,399

movement when I was in high school and I

266

00:11:29,769 --> 00:11:27,199

think part of that was more of an

267

00:11:31,569 --> 00:11:29,779

organic that was the way I right was

268

00:11:33,850 --> 00:11:31,579

raised without really realizing it

269

00:11:35,259 --> 00:11:33,860

because of course in in Alabama in those

270

00:11:38,680 --> 00:11:35,269

days there was a lot of political

271

00:11:40,689 --> 00:11:38,690

navigating to do which he had to do but

272

00:11:48,730 --> 00:11:40,699

he but I don't remember him explicitly

273

00:11:53,290 --> 00:11:51,190

our mother is very private she did have

274

00:11:55,660 --> 00:11:53,300

to live a public life a lot which she

275

00:11:57,370 --> 00:11:55,670

protected us from fiercely which I'm

276

00:12:00,730 --> 00:11:57,380

very grateful for really I think it was

277

00:12:03,010 --> 00:12:00,740

hard harder to do that I realize she's

278

00:12:06,220 --> 00:12:03,020

very strong very independent she just

279

00:12:08,769 --> 00:12:06,230

turned 90 and I think because our father

280

00:12:12,160 --> 00:12:08,779

traveled so much she was probably gone

281

00:12:14,320 --> 00:12:12,170

almost every weekday during some portion

282

00:12:16,120 --> 00:12:14,330

of the work week but he tried to be home

283

00:12:18,040 --> 00:12:16,130

on weekends so she had to do all the

284

00:12:19,660 --> 00:12:18,050

heavy lifting I mean she really had to

285

00:12:21,940 --> 00:12:19,670

run the household he wasn't interested

286

00:12:24,070 --> 00:12:21,950

in it he didn't really have time for it

287

00:12:27,070 --> 00:12:24,080

and she just picked up all the slack so

288

00:12:28,389 --> 00:12:27,080

I think that this is really an amazing

289

00:12:30,010 --> 00:12:28,399

testimony I think there were a lot of

290

00:12:33,880 --> 00:12:30,020

women or four generation who did that

291

00:12:35,170 --> 00:12:33,890

with without whom the guys that were on

292

00:12:38,980 --> 00:12:35,180

the rocket team would have never made it

293

00:12:40,990 --> 00:12:38,990

I think she just she just was was always

294

00:12:43,420 --> 00:12:41,000

the glue so when he you know when he

295

00:12:45,190 --> 00:12:43,430

came home he he didn't she didn't dump

296

00:12:47,290 --> 00:12:45,200

problems on him she knew that was not

297

00:12:48,820 --> 00:12:47,300

gonna be part of their marriage and so

298

00:12:54,660 --> 00:12:48,830

she had to handle a lot of things by

299

00:13:00,060 --> 00:12:57,900

yeah my father's parents lived with him

300

00:13:01,860 --> 00:13:00,070

in Texas when my parents were newly

301  
00:13:04,230 --> 00:13:01,870  
married they came over here with with

302  
00:13:06,150 --> 00:13:04,240  
his parents and they also lived with him

303  
00:13:09,260 --> 00:13:06,160  
in Huntsville for a number of years so

304  
00:13:11,880 --> 00:13:09,270  
after the after the war a lot of the

305  
00:13:13,740 --> 00:13:11,890  
scientists here in Huntsville were

306  
00:13:15,690 --> 00:13:13,750  
sending care packages back to Germany

307  
00:13:18,030 --> 00:13:15,700  
weekly saving their money sending things

308  
00:13:19,920 --> 00:13:18,040  
back but he actually was able to bring

309  
00:13:23,010 --> 00:13:19,930  
his parents over here for a while so we

310  
00:13:26,280 --> 00:13:23,020  
were close to them as young kids and my

311  
00:13:35,070 --> 00:13:26,290  
mother's parents also visited quite a

312  
00:13:39,120 --> 00:13:36,630  
I think a lot of that post-war

313  
00:13:42,320 --> 00:13:39,130

generation really didn't didn't talk

314

00:13:44,970 --> 00:13:42,330

about the war much fact my my husband's

315

00:13:46,920 --> 00:13:44,980

father was an American soldier and he

316

00:13:48,540 --> 00:13:46,930

said his father and their friends never

317

00:13:50,670 --> 00:13:48,550

talked about the war either so I think I

318

00:13:52,800 --> 00:13:50,680

think there was a period of time there

319

00:13:54,210 --> 00:13:52,810

when especially for the German

320

00:13:55,950 --> 00:13:54,220

scientists when they came to America it

321

00:13:58,020 --> 00:13:55,960

was such a dream come true to come here

322

00:13:59,280 --> 00:13:58,030

to surrender to the Americans to get to

323

00:14:02,010 --> 00:13:59,290

live here then to become American

324

00:14:04,590 --> 00:14:02,020

citizens that was like the whole new

325

00:14:06,180 --> 00:14:04,600

life and they they really didn't want to

326  
00:14:09,200 --> 00:14:06,190  
look back much they were forward-looking

327  
00:14:12,120 --> 00:14:09,210  
people anyway being space

328  
00:14:13,830 --> 00:14:12,130  
revolutionaries but he didn't really

329  
00:14:16,530 --> 00:14:13,840  
talk about it much I and I think that's

330  
00:14:18,330 --> 00:14:16,540  
true of a lot of the you know my peer

331  
00:14:20,070 --> 00:14:18,340  
group of children of the other

332  
00:14:25,509 --> 00:14:20,080  
scientists I think that was that was

333  
00:14:30,639 --> 00:14:28,210  
I think his management skill no not only

334  
00:14:32,259 --> 00:14:30,649  
in selecting the right people keeping

335  
00:14:34,960 --> 00:14:32,269  
the right people keeping them motivated

336  
00:14:37,720 --> 00:14:34,970  
and and really listening to people you

337  
00:14:39,160 --> 00:14:37,730  
know a lot of times managers talk and

338  
00:14:40,960 --> 00:14:39,170

they're not really listening and it's

339

00:14:43,090 --> 00:14:40,970

usually the people that are that are

340

00:14:44,679 --> 00:14:43,100

doing the actual work that have a lot to

341

00:14:46,119 --> 00:14:44,689

tell you about what's working and what

342

00:14:49,299 --> 00:14:46,129

doesn't work and I think he very much

343

00:14:51,429 --> 00:14:49,309

created an atmosphere in his management

344

00:14:52,869 --> 00:14:51,439

team of you know if their problems we

345

00:14:54,400 --> 00:14:52,879

need to hear him he didn't surround

346

00:14:56,739 --> 00:14:54,410

himself with people who told him what he

347

00:14:58,540 --> 00:14:56,749

wanted to hear he would have been

348

00:15:00,189 --> 00:14:58,550

disdainful of that because he needed

349

00:15:01,749 --> 00:15:00,199

they needed to know if there were

350

00:15:03,790 --> 00:15:01,759

problems so that they could solve them

351

00:15:07,299 --> 00:15:03,800

but you got to create an atmosphere for

352

00:15:08,829 --> 00:15:07,309

people to come forward with issues so

353

00:15:10,090 --> 00:15:08,839

that they feel like their jobs aren't

354

00:15:12,100 --> 00:15:10,100

gonna be threatened if they tell you

355

00:15:13,960 --> 00:15:12,110

about some problem and it was completely

356

00:15:16,419 --> 00:15:13,970

the opposite like he would he would

357

00:15:18,129 --> 00:15:16,429

welcome and value it if if something

358

00:15:20,710 --> 00:15:18,139

came up that they needed to know that

359

00:15:22,210 --> 00:15:20,720

was a problem no matter how small and I

360

00:15:24,519 --> 00:15:22,220

think that's you know that's a huge

361

00:15:27,009 --> 00:15:24,529

important lesson in management and and

362

00:15:28,329 --> 00:15:27,019

the people that I've met Chris maybe

363

00:15:30,160 --> 00:15:28,339

this is only what they're gonna say to

364

00:15:32,470 --> 00:15:30,170

me but they they all seem to very

365

00:15:39,180 --> 00:15:32,480

sincerely Express how how much they

366

00:15:43,530 --> 00:15:41,040

well I think he was the kind of person

367

00:15:45,840 --> 00:15:43,540

that when he was talking to you you were

368

00:15:47,670 --> 00:15:45,850

the focus and that that makes people

369

00:15:49,230 --> 00:15:47,680

remember where they were when they met

370

00:15:50,790 --> 00:15:49,240

him and things like that but he just had

371

00:15:53,100 --> 00:15:50,800

that ability you were just the only

372

00:15:55,559 --> 00:15:53,110

person in the room and and some people

373

00:15:57,509 --> 00:15:55,569

just have that that magic he was also

374

00:16:00,269 --> 00:15:57,519

very absent-minded I think my mother

375

00:16:02,249 --> 00:16:00,279

tells the story they went to the White

376

00:16:05,100 --> 00:16:02,259

House one time when the Eisenhower when

377

00:16:07,259 --> 00:16:05,110

Eisenhower was president and my father

378

00:16:08,400 --> 00:16:07,269

left his tie in the hotel room I mean

379

00:16:10,920 --> 00:16:08,410

literally just showing up at the White

380

00:16:12,300 --> 00:16:10,930

House without a tie and of course they

381

00:16:14,850 --> 00:16:12,310

were running late so they couldn't go

382

00:16:16,499 --> 00:16:14,860

back so they asked you know I think they

383

00:16:19,170 --> 00:16:16,509

got into the garage or something and

384

00:16:22,650 --> 00:16:19,180

they asked one of Eisenhower's many

385

00:16:24,360 --> 00:16:22,660

aides if they could borrow a tie and he

386

00:16:28,470 --> 00:16:24,370

ended up wearing one of Eisenhower's

387

00:16:30,210 --> 00:16:28,480

ties and and my mother said you know she

388

00:16:32,100 --> 00:16:30,220

felt like all through dinner Eisenhower

389

00:16:32,870 --> 00:16:32,110

was kind of looking at him like dude I

390

00:16:39,120 --> 00:16:32,880

just like that

391

00:16:43,860 --> 00:16:41,400

I went to the Apollo 11 launch it was

392

00:16:45,660 --> 00:16:43,870

the first launch I went to which

393

00:16:47,310 --> 00:16:45,670

gosh-darn why didn't we get to go to any

394

00:16:48,240 --> 00:16:47,320

other earlier ones because we were in

395

00:16:50,730 --> 00:16:48,250

school right

396

00:16:53,490 --> 00:16:50,740

but God we all we all went to the Apollo

397

00:16:55,440 --> 00:16:53,500

11 launch and in those days you could

398

00:16:57,450 --> 00:16:55,450

sit a lot closer to the launch path and

399

00:17:00,570 --> 00:16:57,460

in subsequent years so it was of course

400

00:17:03,360 --> 00:17:00,580

completely overwhelming breathtaking it

401  
00:17:05,760 --> 00:17:03,370  
was a gorgeous day in Florida and then

402  
00:17:08,040 --> 00:17:05,770  
we flew home and watched the landing on

403  
00:17:10,380 --> 00:17:08,050  
TV like everybody else in the basement

404  
00:17:12,270 --> 00:17:10,390  
on black-and-white television and I

405  
00:17:14,520 --> 00:17:12,280  
think I think our father went from the

406  
00:17:17,490 --> 00:17:14,530  
Cape to Houston to watch the landing so

407  
00:17:19,500 --> 00:17:17,500  
he wasn't with us at that point but yeah

408  
00:17:24,420 --> 00:17:19,510  
that was a pretty exciting day but you

409  
00:17:26,430 --> 00:17:24,430  
know I realized that at least as as kids

410  
00:17:28,470 --> 00:17:26,440  
as young people in those days we never

411  
00:17:30,930 --> 00:17:28,480  
expected that it wouldn't happen I don't

412  
00:17:32,580 --> 00:17:30,940  
really remember thinking you know what

413  
00:17:33,930 --> 00:17:32,590

if something goes wrong or we got off

414

00:17:35,670 --> 00:17:33,940

they don't make it to the moon I just

415

00:17:37,380 --> 00:17:35,680

remember thinking oh they're going to

416

00:17:39,720 --> 00:17:37,390

the moon now and oh now they've landed

417

00:17:42,660 --> 00:17:39,730

on the mountain it was it was just

418

00:17:45,870 --> 00:17:42,670

inevitable and I think that was a lot of

419

00:17:47,310 --> 00:17:45,880

the way that the the rocket team and it

420

00:17:50,130 --> 00:17:47,320

was definitely a team you know it wasn't

421

00:17:51,990 --> 00:17:50,140

just him by any means that was just the

422

00:17:53,550 --> 00:17:52,000

way they thought of course they were

423

00:17:55,380 --> 00:17:53,560

extremely careful and they had

424

00:17:57,660 --> 00:17:55,390

redundancy and they had quality control

425

00:18:00,350 --> 00:17:57,670

and they had you know what if scenarios

426

00:18:04,100 --> 00:18:00,360

and all of that but I think they just

427

00:18:06,750 --> 00:18:04,110

they just were extremely optimistic and

428

00:18:08,250 --> 00:18:06,760

just knew it was gonna happen and they

429

00:18:11,460 --> 00:18:08,260

just programmed everything to be

430

00:18:13,290 --> 00:18:11,470

successful and I think that's a that's a

431

00:18:15,480 --> 00:18:13,300

management tool we often overlook we get

432

00:18:17,160 --> 00:18:15,490

hung up and well we better not try that

433

00:18:18,780 --> 00:18:17,170

because it might not work instead of

434

00:18:25,490 --> 00:18:18,790

saying let's figure out how to make it

435

00:18:30,320 --> 00:18:27,620

one of his one of his quotes which I

436

00:18:32,540 --> 00:18:30,330

love is research is what I'm doing when

437

00:18:34,460 --> 00:18:32,550

I don't know what I'm doing and since I

438

00:18:36,950 --> 00:18:34,470

spent a lot of my career in academia I

439

00:18:38,540 --> 00:18:36,960

used to love that quote because research

440

00:18:40,820 --> 00:18:38,550

has all kinds of accommodations in

441

00:18:43,250 --> 00:18:40,830

academia but I think I think getting to

442

00:18:44,990 --> 00:18:43,260

the moon and the space benefits of

443

00:18:47,300 --> 00:18:45,000

getting to the moon they were unknowns

444

00:18:48,560 --> 00:18:47,310

we didn't they didn't know what it was

445

00:18:50,570 --> 00:18:48,570

going to take to get there until they

446

00:18:52,550 --> 00:18:50,580

started working on it and so we didn't

447

00:18:54,950 --> 00:18:52,560

really understand all the benefits that

448

00:18:57,500 --> 00:18:54,960

we would get from going to the moon

449

00:19:00,200 --> 00:18:57,510

until that had happened and they're

450

00:19:02,740 --> 00:19:00,210

probably still understated and probably

451  
00:19:05,390 --> 00:19:02,750  
everything around us has some piece of

452  
00:19:07,370 --> 00:19:05,400  
technology that was uncovered in

453  
00:19:10,460 --> 00:19:07,380  
material science or in medicine or in

454  
00:19:12,590 --> 00:19:10,470  
communications you know you name it I

455  
00:19:15,710 --> 00:19:12,600  
think later in his life you know he was

456  
00:19:17,480 --> 00:19:15,720  
still only because he died seven years

457  
00:19:19,850 --> 00:19:17,490  
after the moon landing eight years after

458  
00:19:21,980 --> 00:19:19,860  
the moon landing we only were still only

459  
00:19:24,320 --> 00:19:21,990  
beginning to understand all the benefits

460  
00:19:25,580 --> 00:19:24,330  
of that technology and we're still we're

461  
00:19:27,470 --> 00:19:25,590  
still getting them and that and that's

462  
00:19:29,930 --> 00:19:27,480  
another reason to always keep exploring

463  
00:19:31,820 --> 00:19:29,940

and and keep learning not only about

464

00:19:33,710 --> 00:19:31,830

this planet but about other planets and

465

00:19:35,290 --> 00:19:33,720

other things in the universe because

466

00:19:38,690 --> 00:19:35,300

we're always going to learn more about

467

00:19:43,700 --> 00:19:38,700

ourselves and our our own world from

468

00:19:48,470 --> 00:19:46,880

I think my parents you know they love

469

00:19:49,970 --> 00:19:48,480

tons full Huntsville was always good to

470

00:19:52,010 --> 00:19:49,980

them Huntsville was where they raise

471

00:19:53,360 --> 00:19:52,020

their kids most mostly I mean my brother

472

00:19:57,020 --> 00:19:53,370

was still pretty young when they moved

473

00:19:58,970 --> 00:19:57,030

to Washington but I think they had a you

474

00:20:01,480 --> 00:19:58,980

know they were leaving behind a really

475

00:20:04,970 --> 00:20:01,490

good time at a good place in their life

476  
00:20:08,840 --> 00:20:04,980  
but they had also they always identified

477  
00:20:11,600 --> 00:20:08,850  
themselves as as big city people growing

478  
00:20:14,270 --> 00:20:11,610  
up so I think Washington was more like

479  
00:20:16,220 --> 00:20:14,280  
living in Berlin had been and and being

480  
00:20:22,680 --> 00:20:16,230  
a capital city so I think they also

481  
00:20:28,600 --> 00:20:24,759  
well I think right after the moon

482  
00:20:30,310 --> 00:20:28,610  
landing you know all intentions were to

483  
00:20:32,499 --> 00:20:30,320  
now work on the Mars project getting to

484  
00:20:35,169 --> 00:20:32,509  
Mars and so I think the team was very

485  
00:20:37,060 --> 00:20:35,179  
much I think even in his notes and in

486  
00:20:38,139 --> 00:20:37,070  
his calendars and in his speeches right

487  
00:20:39,850 --> 00:20:38,149  
after the moon landing they were already

488  
00:20:42,039 --> 00:20:39,860

talking about okay now we've done that

489

00:20:43,200 --> 00:20:42,049

now we're going to Mars so when the

490

00:20:45,820 --> 00:20:43,210

bottom fell out from under that

491

00:20:47,740 --> 00:20:45,830

politically and economically in the

492

00:20:50,379 --> 00:20:47,750

country I think that was a that was a

493

00:20:51,460 --> 00:20:50,389

point of a pretty big disappointment he

494

00:20:54,100 --> 00:20:51,470

went from Huntsville to NASA

495

00:20:55,720 --> 00:20:54,110

headquarters and wanted to work on Mars

496

00:20:57,789 --> 00:20:55,730

and that just wasn't happening

497

00:20:59,619 --> 00:20:57,799

so then he left NASA and went to work

498

00:21:01,509 --> 00:20:59,629

for Fairchild industries and started

499

00:21:04,180 --> 00:21:01,519

really looking more at Earth observation

500

00:21:07,029 --> 00:21:04,190

satellites and satellite telemetry and

501  
00:21:08,440 --> 00:21:07,039  
satellite communications and that was

502  
00:21:10,840 --> 00:21:08,450  
what he was doing at the end of his life

503  
00:21:13,180 --> 00:21:10,850  
and I think you know one of his early

504  
00:21:15,940 --> 00:21:13,190  
books that's dedicated to my sister and

505  
00:21:17,740 --> 00:21:15,950  
myself said in your lifetime spaceflight

506  
00:21:19,509 --> 00:21:17,750  
will be commonplace I mean that's what

507  
00:21:21,580 --> 00:21:19,519  
we just assumed it would be commonplace

508  
00:21:24,639 --> 00:21:21,590  
so it's kind of surprising that it isn't

509  
00:21:26,740 --> 00:21:24,649  
but I think it was more the the mission

510  
00:21:33,080 --> 00:21:26,750  
that changed you know in his work that

511  
00:21:38,600 --> 00:21:35,299  
I like to think of one of his legacies

512  
00:21:40,789 --> 00:21:38,610  
'as is you know to pursue impossible

513  
00:21:43,190 --> 00:21:40,799

dreams I can't imagine how many people

514

00:21:44,509 --> 00:21:43,200

told him in his life that what he was

515

00:21:47,090 --> 00:21:44,519

trying to do was ridiculous and

516

00:21:48,440 --> 00:21:47,100

impossible and and why bother kind of

517

00:21:50,539 --> 00:21:48,450

things that he had to answer those

518

00:21:52,399 --> 00:21:50,549

questions all the time and I think there

519

00:21:54,470 --> 00:21:52,409

are a lot of times that we just don't

520

00:21:57,590 --> 00:21:54,480

take enough you know we think of

521

00:21:59,509 --> 00:21:57,600

risk-taking as a bad thing you take

522

00:22:00,649 --> 00:21:59,519

risks because it's an adventure and

523

00:22:04,279 --> 00:22:00,659

because our things we need to learn

524

00:22:06,289 --> 00:22:04,289

things we need to explore but but not

525

00:22:08,210 --> 00:22:06,299

focusing on inherent dangers all the

526

00:22:11,509 --> 00:22:08,220

times I think he was just an incredible

527

00:22:13,850 --> 00:22:11,519

optimist and a visionary and and just

528

00:22:19,359 --> 00:22:13,860

programmed things to be successful I

529

00:22:21,649 --> 00:22:19,369

think he he surrounded himself with an

530

00:22:23,659 --> 00:22:21,659

incredible team of people they worked

531

00:22:26,720 --> 00:22:23,669

very closely together they all believed

532

00:22:29,029 --> 00:22:26,730

in a shared vision and I think that's

533

00:22:30,859 --> 00:22:29,039

that was just part of who he was it's

534

00:22:34,639 --> 00:22:30,869

it's kind of how he worked with people