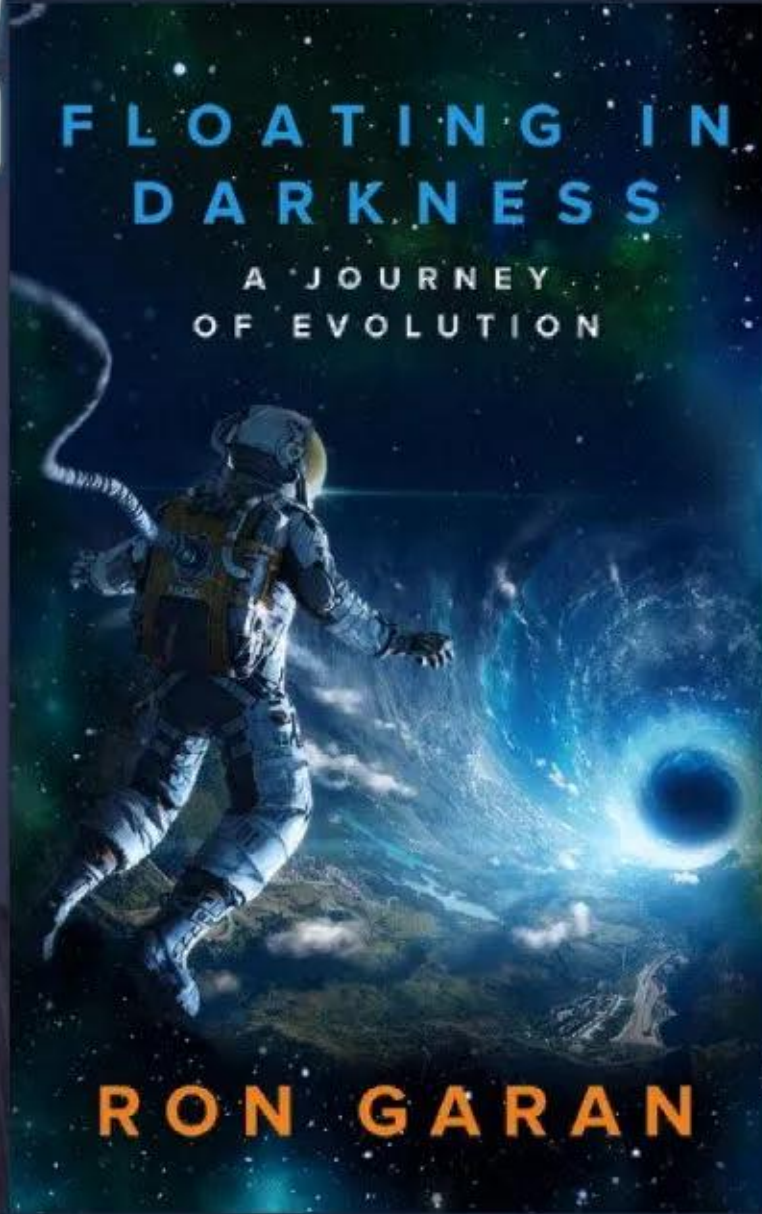


# HIDDEN TRUTH SHOW WITH JIM BRESLO



# RON GARAN



1  
00:00:07,269 --> 00:00:04,789  
okay here is our interview with

2  
00:00:08,870 --> 00:00:07,279  
astronaut ron garan

3  
00:00:11,270 --> 00:00:08,880  
how many times

4  
00:00:13,990 --> 00:00:11,280  
have you been to space

5  
00:00:16,870 --> 00:00:14,000  
i've been to space twice i flew the

6  
00:00:18,630 --> 00:00:16,880  
first time in 2008 aboard space shuttle

7  
00:00:20,710 --> 00:00:18,640  
discovery it was a construction mission

8  
00:00:22,870 --> 00:00:20,720  
we brought up and installed the japanese

9  
00:00:24,790 --> 00:00:22,880  
laboratory to the space station i had

10  
00:00:26,310 --> 00:00:24,800  
the opportunity to do three space walks

11  
00:00:30,390 --> 00:00:26,320  
on that mission and then i flew again in

12  
00:00:32,870 --> 00:00:30,400  
2011 and i flew off on a russian soyuz

13  
00:00:35,270 --> 00:00:32,880

spacecraft uh as a fully integrated

14

00:00:37,110 --> 00:00:35,280

member of a russian spacecraft crew

15

00:00:39,030 --> 00:00:37,120

to the international space station and

16

00:00:41,270 --> 00:00:39,040

end up spending six months uh or almost

17

00:00:43,030 --> 00:00:41,280

six months on that mission wow yeah that

18

00:00:45,190 --> 00:00:43,040

second mission sounds very similar to

19

00:00:48,389 --> 00:00:45,200

anusha's uh one because yeah did a leaf

20

00:00:51,270 --> 00:00:48,399

of kazakhstan that's right yes yeah yeah

21

00:00:52,950 --> 00:00:51,280

um a little bit different than the u.s

22

00:00:53,990 --> 00:00:52,960

space shuttle right how would you

23

00:00:55,990 --> 00:00:54,000

describe

24

00:00:57,590 --> 00:00:56,000

the difference between that russian

25

00:00:59,270 --> 00:00:57,600

rocket which was kind of the old-school

26  
00:01:00,630 --> 00:00:59,280  
way to go to space right compared to the

27  
00:01:03,910 --> 00:01:00,640  
u.s space shuttle

28  
00:01:06,070 --> 00:01:03,920  
i think the big difference was um

29  
00:01:09,750 --> 00:01:06,080  
the the soyuz flight with the russians

30  
00:01:12,070 --> 00:01:09,760  
was was fun as it was happening

31  
00:01:14,230 --> 00:01:12,080  
and and the space shuttle mission when i

32  
00:01:16,390 --> 00:01:14,240  
look back on it it's it's fun but at the

33  
00:01:19,510 --> 00:01:16,400  
time as it was happening i wouldn't

34  
00:01:20,950 --> 00:01:19,520  
classify it as necessarily fun uh and i

35  
00:01:21,910 --> 00:01:20,960  
there's a number of reasons for that one

36  
00:01:23,510 --> 00:01:21,920  
is

37  
00:01:25,270 --> 00:01:23,520  
the space shuttle was my first flight

38  
00:01:27,670 --> 00:01:25,280

you know i didn't know exactly what to

39

00:01:29,270 --> 00:01:27,680

expect i had a lot of responsibilities

40

00:01:30,310 --> 00:01:29,280

you know a lot of things i could

41

00:01:31,990 --> 00:01:30,320

i could do

42

00:01:32,950 --> 00:01:32,000

wrong um

43

00:01:34,789 --> 00:01:32,960

and

44

00:01:35,830 --> 00:01:34,799

on the second flight uh with the

45

00:01:37,670 --> 00:01:35,840

russians

46

00:01:40,230 --> 00:01:37,680

you know i knew i knew what to expect i

47

00:01:43,109 --> 00:01:40,240

had been in space before uh i didn't

48

00:01:44,630 --> 00:01:43,119

have a lot of responsibilities um and

49

00:01:47,190 --> 00:01:44,640

you know really all i had

50

00:01:49,109 --> 00:01:47,200

the big thing i could do on the on the

51  
00:01:51,190 --> 00:01:49,119  
way up that i didn't have the luxury to

52  
00:01:52,950 --> 00:01:51,200  
do on the way up with the shuttle was

53  
00:01:54,310 --> 00:01:52,960  
was look out the window and so that was

54  
00:01:56,149 --> 00:01:54,320  
uh that was a lot of fun the other thing

55  
00:01:58,789 --> 00:01:56,159  
is the shuttle is this big massive

56  
00:02:01,910 --> 00:01:58,799  
powerful vehicle um that you're you know

57  
00:02:04,630 --> 00:02:01,920  
inside with six other people uh the the

58  
00:02:06,149 --> 00:02:04,640  
soyuz is such a small spacecraft uh it's

59  
00:02:07,670 --> 00:02:06,159  
like three guys in the trunk of a car

60  
00:02:10,389 --> 00:02:07,680  
you know our knees are in their chest

61  
00:02:12,150 --> 00:02:10,399  
and uh it almost felt like you're

62  
00:02:13,990 --> 00:02:12,160  
wearing the rocket on your back it's you

63  
00:02:16,150 --> 00:02:14,000

know every pump that turns on every fan

64

00:02:19,030 --> 00:02:16,160

that turns on every explosive bolt that

65

00:02:20,949 --> 00:02:19,040

fires you feel that and uh it was a you

66

00:02:22,150 --> 00:02:20,959

know it was a much more intimate

67

00:02:23,589 --> 00:02:22,160

experience i think from that point of

68

00:02:24,790 --> 00:02:23,599

view because you felt everything that

69

00:02:27,110 --> 00:02:24,800

was happening

70

00:02:28,710 --> 00:02:27,120

yeah the only personal experience i can

71

00:02:32,150 --> 00:02:28,720

relate to that is the first time i i

72

00:02:32,949 --> 00:02:32,160

flew in a helicopter in kauai hawaii and

73

00:02:34,790 --> 00:02:32,959

just

74

00:02:36,070 --> 00:02:34,800

a little nervous and everything's new to

75

00:02:38,309 --> 00:02:36,080

you and then the second time i did it

76

00:02:40,630 --> 00:02:38,319

you can kind of really relax and just

77

00:02:42,630 --> 00:02:40,640

take everything in right

78

00:02:44,070 --> 00:02:42,640

is that how do you pronounce the russian

79

00:02:47,750 --> 00:02:44,080

rockets

80

00:02:51,110 --> 00:02:47,760

soyuz soyuz is are they still going into

81

00:02:53,350 --> 00:02:51,120

space they are yes with that same that's

82

00:02:55,270 --> 00:02:53,360

it it's it's basically the same design

83

00:02:56,630 --> 00:02:55,280

they've been flying for over 50 years

84

00:02:59,670 --> 00:02:56,640

now and

85

00:03:01,430 --> 00:02:59,680

uh they tend to make incremental uh

86

00:03:03,750 --> 00:03:01,440

advent you know modifications

87

00:03:05,750 --> 00:03:03,760

incremental improvements uh they tend

88

00:03:08,070 --> 00:03:05,760

not to if they find something that works

89

00:03:09,750 --> 00:03:08,080

they tend to stay with it and uh just

90

00:03:11,110 --> 00:03:09,760

add on to it as opposed to you know

91

00:03:13,750 --> 00:03:11,120

tearing up the blueprints and starting

92

00:03:15,750 --> 00:03:13,760

over what was the main advantage of the

93

00:03:18,550 --> 00:03:15,760

space shuttle because the us obviously

94

00:03:20,550 --> 00:03:18,560

migrated from our similar type rockets

95

00:03:23,030 --> 00:03:20,560

that originally took us to the moon in

96

00:03:25,350 --> 00:03:23,040

to the space shuttle yeah the space

97

00:03:26,550 --> 00:03:25,360

shuttle was and probably will be for a

98

00:03:27,830 --> 00:03:26,560

long time

99

00:03:30,869 --> 00:03:27,840

one of the most

100

00:03:33,670 --> 00:03:30,879

the most versatile spacecraft ever ever

101  
00:03:35,509 --> 00:03:33,680  
built ever flown you know that it had so

102  
00:03:37,350 --> 00:03:35,519  
many different roles that it could

103  
00:03:39,030 --> 00:03:37,360  
accomplish first of all it had a huge

104  
00:03:40,710 --> 00:03:39,040  
payload bay that could bring up the

105  
00:03:42,869 --> 00:03:40,720  
major you know the big pieces of the

106  
00:03:45,270 --> 00:03:42,879  
space station it could deploy satellites

107  
00:03:47,030 --> 00:03:45,280  
it could retrieve satellites it could uh

108  
00:03:48,550 --> 00:03:47,040  
you know one of the big things it was

109  
00:03:50,630 --> 00:03:48,560  
its down mass you know how much it could

110  
00:03:52,309 --> 00:03:50,640  
bring back to earth uh and land on a

111  
00:03:55,270 --> 00:03:52,319  
runway without smashing it into to the

112  
00:03:57,670 --> 00:03:55,280  
ground or smashing it into the water

113  
00:03:58,630 --> 00:03:57,680

as capsules do and so the ability to

114

00:04:00,390 --> 00:03:58,640

bring

115

00:04:03,589 --> 00:04:00,400

a lot of payload

116

00:04:05,190 --> 00:04:03,599

scientific experiments um uh

117

00:04:06,949 --> 00:04:05,200

parts of the space station that are

118

00:04:08,869 --> 00:04:06,959

inoperative and we want to find out what

119

00:04:09,750 --> 00:04:08,879

why they broke what the failure modes

120

00:04:11,509 --> 00:04:09,760

were

121

00:04:13,990 --> 00:04:11,519

the ability to bring those back and fly

122

00:04:16,710 --> 00:04:14,000

them back onto a runway like like an

123

00:04:18,789 --> 00:04:16,720

airplane uh was a really great

124

00:04:20,949 --> 00:04:18,799

uh versatile uh part of the space

125

00:04:23,350 --> 00:04:20,959

program so they called the international

126

00:04:25,909 --> 00:04:23,360

space station but was it really the u.s

127

00:04:28,070 --> 00:04:25,919

that built it no not at all it was 15

128

00:04:31,110 --> 00:04:28,080

nations that built the space station uh

129

00:04:33,510 --> 00:04:31,120

the us built a big part of it uh but all

130

00:04:35,189 --> 00:04:33,520

of these nations contributed uh and all

131

00:04:37,510 --> 00:04:35,199

of them are complementary the the the

132

00:04:38,790 --> 00:04:37,520

different parts of the space station uh

133

00:04:41,270 --> 00:04:38,800

the different parts of the space station

134

00:04:43,189 --> 00:04:41,280

that were built by the different nations

135

00:04:45,189 --> 00:04:43,199

in some cases had completely different

136

00:04:47,670 --> 00:04:45,199

engineering philosophies

137

00:04:49,990 --> 00:04:47,680

technical capabilities but when you look

138

00:04:52,310 --> 00:04:50,000

at the whole thing as a whole

139

00:04:54,469 --> 00:04:52,320

it really makes it much more resilient

140

00:04:55,830 --> 00:04:54,479

and much more capable because of those

141

00:04:57,189 --> 00:04:55,840

differences that we brought into the

142

00:04:59,110 --> 00:04:57,199

space station

143

00:05:02,070 --> 00:04:59,120

but all the materials that make up the

144

00:05:04,550 --> 00:05:02,080

space station came from u.s space

145

00:05:05,830 --> 00:05:04,560

shuttle flights not at all no no there

146

00:05:08,070 --> 00:05:05,840

were right there were russians flights

147

00:05:10,550 --> 00:05:08,080

there were flights by the the european

148

00:05:13,270 --> 00:05:10,560

space agency the japanese space agency

149

00:05:14,870 --> 00:05:13,280

so it was a it was a a

150

00:05:16,469 --> 00:05:14,880

a collaborative effort from all those

151  
00:05:17,749 --> 00:05:16,479  
different nations i guess i thought that

152  
00:05:19,830 --> 00:05:17,759  
we were the only ones with a space

153  
00:05:21,270 --> 00:05:19,840  
shuttle who else has the only ones with

154  
00:05:23,110 --> 00:05:21,280  
a space shuttle but we're not the only

155  
00:05:24,950 --> 00:05:23,120  
ones that could launch things into space

156  
00:05:26,629 --> 00:05:24,960  
um so the other nations

157  
00:05:29,270 --> 00:05:26,639  
uh there are aryan rockets that the

158  
00:05:30,310 --> 00:05:29,280  
french laws htvs that the japanese

159  
00:05:31,909 --> 00:05:30,320  
launched

160  
00:05:33,990 --> 00:05:31,919  
obviously soyuz that the russians

161  
00:05:35,749 --> 00:05:34,000  
launched so it wasn't just the us gotcha

162  
00:05:37,350 --> 00:05:35,759  
so those rockets were able to bring

163  
00:05:38,790 --> 00:05:37,360

things up that ultimately connected with

164

00:05:41,749 --> 00:05:38,800

the space station

165

00:05:44,230 --> 00:05:41,759

and deliver whatever materials

166

00:05:46,550 --> 00:05:44,240

exactly and what's the current state of

167

00:05:48,710 --> 00:05:46,560

the international space station well

168

00:05:50,629 --> 00:05:48,720

it's fully operational it's been in uh

169

00:05:53,590 --> 00:05:50,639

continuous operation with a continuous

170

00:05:56,150 --> 00:05:53,600

human presence for 21 years now

171

00:05:59,590 --> 00:05:56,160

um it's scheduled to

172

00:06:02,469 --> 00:05:59,600

uh that the contracts uh of those 15

173

00:06:04,790 --> 00:06:02,479

nations i think go out to 2024

174

00:06:06,550 --> 00:06:04,800

if it hasn't been extended

175

00:06:09,270 --> 00:06:06,560

but i think it's a little bit up in the

176

00:06:10,550 --> 00:06:09,280

air what's going to happen after 2024. i

177

00:06:12,469 --> 00:06:10,560

can't imagine

178

00:06:14,629 --> 00:06:12,479

that uh people are just going to give up

179

00:06:16,469 --> 00:06:14,639

on it it's such a capable it's probably

180

00:06:19,029 --> 00:06:16,479

the most complex complicated structure

181

00:06:21,110 --> 00:06:19,039

ever built it was built in space uh it's

182

00:06:22,469 --> 00:06:21,120

providing tremendous benefits to the to

183

00:06:24,550 --> 00:06:22,479

the world through the scientific

184

00:06:27,430 --> 00:06:24,560

research that's being conducted on board

185

00:06:29,590 --> 00:06:27,440

uh what i am what i suspect will happen

186

00:06:33,189 --> 00:06:29,600

is in some cases in some of those

187

00:06:35,029 --> 00:06:33,199

nations uh some of their um

188

00:06:37,350 --> 00:06:35,039

their ability to use the space station

189

00:06:38,550 --> 00:06:37,360

to to operate the space station will be

190

00:06:40,550 --> 00:06:38,560

transferred over to commercial

191

00:06:42,309 --> 00:06:40,560

activities potentially but i don't know

192

00:06:44,469 --> 00:06:42,319

that for a fact

193

00:06:46,629 --> 00:06:44,479

and am i correct that there now exists a

194

00:06:50,309 --> 00:06:46,639

chinese space station

195

00:06:54,629 --> 00:06:50,319

uh

196

00:06:56,550 --> 00:06:54,639

go to the moon and to establish an

197

00:06:58,309 --> 00:06:56,560

outpost on the moon as well

198

00:06:59,749 --> 00:06:58,319

and their space station is fully

199

00:07:01,589 --> 00:06:59,759

operable as far as you know and they're

200

00:07:03,909 --> 00:07:01,599

making visits to it and keeping

201  
00:07:05,589 --> 00:07:03,919  
astronauts up there yeah i i at the at

202  
00:07:07,510 --> 00:07:05,599  
the moment i know i know that that was

203  
00:07:09,909 --> 00:07:07,520  
the case i'm not sure exactly what the

204  
00:07:11,510 --> 00:07:09,919  
status is right now i think that i think

205  
00:07:13,990 --> 00:07:11,520  
that they might be in between uh

206  
00:07:15,510 --> 00:07:14,000  
missions at the moment but i'm not sure

207  
00:07:18,230 --> 00:07:15,520  
and and that's the only other space

208  
00:07:19,749 --> 00:07:18,240  
station that can house humans at the

209  
00:07:21,830 --> 00:07:19,759  
moment there's a lot of commercial

210  
00:07:24,469 --> 00:07:21,840  
activities that are planning to build

211  
00:07:26,790 --> 00:07:24,479  
their own space stations in orbit um

212  
00:07:29,350 --> 00:07:26,800  
from from a strictly uh commercial point

213  
00:07:31,189 --> 00:07:29,360

of view who's got the lead on that

214

00:07:34,870 --> 00:07:31,199

um well there's there's a number of

215

00:07:36,150 --> 00:07:34,880

companies is uh sierra space uh bigelow

216

00:07:37,510 --> 00:07:36,160

um

217

00:07:41,510 --> 00:07:37,520

you know there's different companies

218

00:07:43,749 --> 00:07:41,520

like that that uh i know spacex has has

219

00:07:44,869 --> 00:07:43,759

their sights set on not just you know

220

00:07:47,270 --> 00:07:44,879

orbiting

221

00:07:49,110 --> 00:07:47,280

capabilities but also lunar and onto

222

00:07:52,710 --> 00:07:49,120

mars and so there's um

223

00:07:55,189 --> 00:07:52,720

you know what used to be the um sole

224

00:07:57,189 --> 00:07:55,199

activity of governmental space agencies

225

00:07:58,869 --> 00:07:57,199

has really blossomed into into an

226

00:08:02,390 --> 00:07:58,879

industry

227

00:08:04,309 --> 00:08:02,400

doing things that were only done by

228

00:08:07,029 --> 00:08:04,319

governments in the past and what would

229

00:08:09,350 --> 00:08:07,039

be the commercial use or uses of a space

230

00:08:12,150 --> 00:08:09,360

station these days well the really

231

00:08:14,070 --> 00:08:12,160

exciting one would be research there's a

232

00:08:15,749 --> 00:08:14,080

lot of research that can be conducted in

233

00:08:17,990 --> 00:08:15,759

orbit around the earth that simply can't

234

00:08:20,150 --> 00:08:18,000

be done anywhere else on earth as the

235

00:08:22,230 --> 00:08:20,160

the results of the experiments that are

236

00:08:23,350 --> 00:08:22,240

conducted are are unique to that

237

00:08:25,510 --> 00:08:23,360

environment

238

00:08:26,950 --> 00:08:25,520

but there's also space tourism there's

239

00:08:28,309 --> 00:08:26,960

also um

240

00:08:29,589 --> 00:08:28,319

one of the things that i think we need

241

00:08:32,149 --> 00:08:29,599

to do and i know we're getting a little

242

00:08:33,509 --> 00:08:32,159

bit ahead of ourselves but um

243

00:08:35,990 --> 00:08:33,519

one of the things i think is really

244

00:08:38,469 --> 00:08:36,000

critical for us uh as as americans as a

245

00:08:41,509 --> 00:08:38,479

nation and as a as a

246

00:08:43,909 --> 00:08:41,519

community of of folks around the world

247

00:08:45,430 --> 00:08:43,919

is to establish a transportation

248

00:08:47,590 --> 00:08:45,440

infrastructure between the earth and our

249

00:08:49,590 --> 00:08:47,600

closest neighbor the moon

250

00:08:51,030 --> 00:08:49,600

and that would enable

251

00:08:52,550 --> 00:08:51,040

routine flights between the earth and

252

00:08:54,470 --> 00:08:52,560

the moon it would enable a permanent

253

00:08:56,470 --> 00:08:54,480

human presence on the moon and i think

254

00:08:58,470 --> 00:08:56,480

there's a lot of commercial aspects of

255

00:08:59,990 --> 00:08:58,480

that as well um you know you could

256

00:09:02,070 --> 00:09:00,000

imagine a jump a commercial jump off

257

00:09:05,030 --> 00:09:02,080

point in low earth orbit that continues

258

00:09:07,190 --> 00:09:05,040

on to the moon or even beyond

259

00:09:09,350 --> 00:09:07,200

sorry so you're saying that a space

260

00:09:11,829 --> 00:09:09,360

station can be essentially kind of a

261

00:09:13,910 --> 00:09:11,839

midway point on a trip to the moon

262

00:09:15,590 --> 00:09:13,920

it could be yes uh either a space

263

00:09:16,870 --> 00:09:15,600

station that's in orbit around the earth

264

00:09:20,829 --> 00:09:16,880

or a space station that's in orbit

265

00:09:24,550 --> 00:09:23,110

um okay so

266

00:09:26,949 --> 00:09:24,560

getting back to your

267

00:09:28,790 --> 00:09:26,959

trips and your experience kind of walk

268

00:09:30,470 --> 00:09:28,800

us through

269

00:09:33,030 --> 00:09:30,480

you know your very first flight into

270

00:09:35,030 --> 00:09:33,040

space and and what you what your

271

00:09:36,790 --> 00:09:35,040

takeaways were from that and then

272

00:09:38,470 --> 00:09:36,800

then from the space station

273

00:09:40,630 --> 00:09:38,480

yeah so that so as i was saying before

274

00:09:43,030 --> 00:09:40,640

the first flight was uh on space shuttle

275

00:09:44,949 --> 00:09:43,040

discovery uh in 2008

276

00:09:47,030 --> 00:09:44,959

and we brought up the largest part of

277

00:09:49,190 --> 00:09:47,040

the space station um it was the japanese

278

00:09:50,790 --> 00:09:49,200

laboratory um and we

279

00:09:51,910 --> 00:09:50,800

we had that in the payload bay of

280

00:09:53,750 --> 00:09:51,920

discovery

281

00:09:55,910 --> 00:09:53,760

and we docked to the space station and

282

00:09:58,150 --> 00:09:55,920

the next day my spacewalk partner mike

283

00:10:00,389 --> 00:09:58,160

fossum and i uh put on our spacesuits

284

00:10:02,790 --> 00:10:00,399

and head out and help install the

285

00:10:04,870 --> 00:10:02,800

laboratory onto the space station um it

286

00:10:06,470 --> 00:10:04,880

required two more spacewalks to complete

287

00:10:07,670 --> 00:10:06,480

the construction to complete that phase

288

00:10:09,590 --> 00:10:07,680

of the construction

289

00:10:11,110 --> 00:10:09,600

um and when we departed the space

290

00:10:13,110 --> 00:10:11,120

station we left

291

00:10:15,350 --> 00:10:13,120

an operational laboratory on board that

292

00:10:17,509 --> 00:10:15,360

wasn't there before that so that was um

293

00:10:19,750 --> 00:10:17,519

really exciting um

294

00:10:21,190 --> 00:10:19,760

not only was it my first flight it was

295

00:10:22,870 --> 00:10:21,200

you know the first time i ever put on a

296

00:10:24,710 --> 00:10:22,880

spacesuit and went out into the vacuum

297

00:10:26,630 --> 00:10:24,720

of space and so that was a that was a

298

00:10:28,870 --> 00:10:26,640

really incredible experience

299

00:10:31,110 --> 00:10:28,880

um so you were just like right out of

300

00:10:33,269 --> 00:10:31,120

the movie gravity you're

301

00:10:36,550 --> 00:10:33,279

out there floating just tethered with a

302

00:10:38,069 --> 00:10:36,560

a line to you to the space shuttle yeah

303

00:10:39,670 --> 00:10:38,079

it's just like gravity except for we

304

00:10:41,990 --> 00:10:39,680

didn't get hit by a bunch of space junk

305

00:10:43,430 --> 00:10:42,000

but um yeah it's like mountain mountain

306

00:10:44,790 --> 00:10:43,440

climbing where the first thing you do

307

00:10:47,110 --> 00:10:44,800

when you come out of the hatch is you

308

00:10:48,630 --> 00:10:47,120

you attach a hook to the space station

309

00:10:50,470 --> 00:10:48,640

there's hand rails all around the space

310

00:10:52,790 --> 00:10:50,480

station so you attach a hook to the

311

00:10:55,350 --> 00:10:52,800

space station and that hook is attached

312

00:10:57,030 --> 00:10:55,360

to a wire that's attached to a reel that

313

00:10:58,870 --> 00:10:57,040

is attached to you to your space suit

314

00:11:01,110 --> 00:10:58,880

and as you translate away from the air

315

00:11:03,430 --> 00:11:01,120

airlock away from the hatch

316

00:11:05,509 --> 00:11:03,440

on these handrails that reel is

317

00:11:07,350 --> 00:11:05,519

unwinding it's about 55 feet long and

318

00:11:09,190 --> 00:11:07,360

when you get to the end of that

319

00:11:11,190 --> 00:11:09,200

you put another hook down and you take

320

00:11:12,389 --> 00:11:11,200

that hook off and you go another 55 feet

321

00:11:13,990 --> 00:11:12,399

and so it's

322

00:11:16,069 --> 00:11:14,000

similar to mountain climbing in that way

323

00:11:18,470 --> 00:11:16,079

so you have this this tether

324

00:11:20,069 --> 00:11:18,480

so that if you were to float off float

325

00:11:22,790 --> 00:11:20,079

away from the space station hopefully

326

00:11:24,790 --> 00:11:22,800

that that tether would pull you back uh

327

00:11:26,150 --> 00:11:24,800

if that doesn't work if that tether

328

00:11:28,470 --> 00:11:26,160

breaks for instance

329

00:11:31,190 --> 00:11:28,480

uh or you didn't hook it on correctly or

330

00:11:33,430 --> 00:11:31,200

whatever uh we do have jet packs uh that

331

00:11:35,750 --> 00:11:33,440

we can fly ourselves uh back to the

332

00:11:38,790 --> 00:11:35,760

space station as long as we didn't push

333

00:11:40,230 --> 00:11:38,800

off uh at too fast of velocity

334

00:11:41,590 --> 00:11:40,240

and and all that time you're traveling

335

00:11:44,230 --> 00:11:41,600

at about what speed

336

00:11:45,030 --> 00:11:44,240

uh you're traveling five miles a second

337

00:11:49,430 --> 00:11:45,040

so

338

00:11:52,069 --> 00:11:49,440

on tv it looks like you know we're just

339

00:11:53,829 --> 00:11:52,079

motionless just floating there but our

340

00:11:56,150 --> 00:11:53,839

bodies the space station everybody in

341

00:11:58,069 --> 00:11:56,160

the space station you know are traveling

342

00:12:00,470 --> 00:11:58,079

around the earth every 90 minutes which

343

00:12:02,389 --> 00:12:00,480

is 17 500 miles an hour right and

344

00:12:04,629 --> 00:12:02,399

obviously zero gravity

345

00:12:06,389 --> 00:12:04,639

zero gravity yeah and what about what is

346

00:12:08,150 --> 00:12:06,399

the temperature there

347

00:12:09,990 --> 00:12:08,160

it depends if you're in the shade or in

348

00:12:12,470 --> 00:12:10,000

the sun in the shade it's about 200

349

00:12:14,629 --> 00:12:12,480

minus 250 degrees and uh in the sun it's

350

00:12:16,629 --> 00:12:14,639

about 200

351

00:12:19,670 --> 00:12:16,639

minus 250 degrees in the shade and

352

00:12:20,870 --> 00:12:19,680

positive 250 degrees in the sunlight wow

353

00:12:22,710 --> 00:12:20,880

so so

354

00:12:24,470 --> 00:12:22,720

what the the umbilical cord essentially

355

00:12:26,870 --> 00:12:24,480

that you're connected to that's

356

00:12:29,269 --> 00:12:26,880

providing heat to insulin

357

00:12:30,870 --> 00:12:29,279

so we don't use an umbilical cord um all

358

00:12:32,389 --> 00:12:30,880

we have what's called a plis which is a

359

00:12:34,710 --> 00:12:32,399

life support pack that we wear on our

360

00:12:37,190 --> 00:12:34,720

back so we're basically a spacesuit is

361

00:12:39,509 --> 00:12:37,200

basically a self-contained spaceship

362

00:12:41,269 --> 00:12:39,519

so everything that we need to keep us at

363

00:12:43,350 --> 00:12:41,279

the right temperature to to get rid of

364

00:12:45,590 --> 00:12:43,360

carbon dioxide to give us the oxygen to

365

00:12:49,030 --> 00:12:45,600

supply pressure uh all of that is

366

00:12:50,790 --> 00:12:49,040

provided uh internally by the suit

367

00:12:54,230 --> 00:12:50,800

have there been any

368

00:12:56,389 --> 00:12:54,240

bad situations on spacewalks in the past

369

00:12:58,550 --> 00:12:56,399

yeah there have been um

370

00:13:00,389 --> 00:12:58,560

you know fortunately no one no one has

371

00:13:02,310 --> 00:13:00,399

been seriously injured or lost their

372

00:13:05,110 --> 00:13:02,320

life through it but you know we've had

373

00:13:07,110 --> 00:13:05,120

water leaks into the helmet where we

374

00:13:08,710 --> 00:13:07,120

were really worried about because it's

375

00:13:10,310 --> 00:13:08,720

not like you could just

376

00:13:13,350 --> 00:13:10,320

move your head it's the water is

377

00:13:15,350 --> 00:13:13,360

floating in in balls and if they get so

378

00:13:16,550 --> 00:13:15,360

on your mouth and your nose you can't

379

00:13:18,629 --> 00:13:16,560

you won't be able you'll drown

380

00:13:20,310 --> 00:13:18,639

effectively and so

381

00:13:21,670 --> 00:13:20,320

there's that that happened we had people

382

00:13:25,430 --> 00:13:21,680

who have um

383

00:13:27,750 --> 00:13:25,440

had uh there's there's uh anti-fog um

384

00:13:29,110 --> 00:13:27,760

uh subs an anti-fogging substance that

385

00:13:31,590 --> 00:13:29,120

we put on the inside of the visor that

386

00:13:33,190 --> 00:13:31,600

got in their eyes and they they were

387

00:13:35,509 --> 00:13:33,200

for the most part blinded but by it

388

00:13:36,949 --> 00:13:35,519

temporarily um but enough that they had

389

00:13:40,150 --> 00:13:36,959

to you know

390

00:13:42,710 --> 00:13:40,160

take take actions to ensure the safety

391

00:13:44,470 --> 00:13:42,720

of the crew um yeah things like that

392

00:13:47,110 --> 00:13:44,480

we're always worried about the potential

393

00:13:48,550 --> 00:13:47,120

of micro media right

394

00:13:50,310 --> 00:13:48,560

impacts you know all over the space

395

00:13:52,629 --> 00:13:50,320

station you see craters

396

00:13:54,150 --> 00:13:52,639

and uh you know that there's um there's

397

00:13:55,590 --> 00:13:54,160

always a chance that you can get hit by

398

00:13:56,389 --> 00:13:55,600

something while you're out there

399

00:14:00,629 --> 00:13:56,399

so

400

00:14:02,870 --> 00:14:00,639

suffered any really significant damage

401  
00:14:04,710 --> 00:14:02,880  
from space junk

402  
00:14:06,389 --> 00:14:04,720  
uh i think that depends on what you mean

403  
00:14:08,470 --> 00:14:06,399  
by significant damage i mean there's

404  
00:14:09,350 --> 00:14:08,480  
pretty significant craters on on there

405  
00:14:11,990 --> 00:14:09,360  
but it

406  
00:14:14,310 --> 00:14:12,000  
hasn't to my knowledge hasn't caused any

407  
00:14:15,750 --> 00:14:14,320  
major systems to go down or or anything

408  
00:14:16,790 --> 00:14:15,760  
like that

409  
00:14:18,550 --> 00:14:16,800  
and all the space junk that you're

410  
00:14:21,189 --> 00:14:18,560  
referring to is all natural we're not

411  
00:14:23,829 --> 00:14:21,199  
talking about remnants of satellites

412  
00:14:25,829 --> 00:14:23,839  
both no both and so it could be just

413  
00:14:28,389 --> 00:14:25,839

like micrometeorites like little pieces

414

00:14:30,310 --> 00:14:28,399

of meteorites that broke off or it could

415

00:14:32,150 --> 00:14:30,320

be satellites or it could be little

416

00:14:34,470 --> 00:14:32,160

pieces of satellites or little pieces of

417

00:14:36,949 --> 00:14:34,480

rockets you know that uh have launched

418

00:14:39,189 --> 00:14:36,959

into space and now you know bolts and

419

00:14:41,350 --> 00:14:39,199

wires and you know all kinds of little

420

00:14:43,110 --> 00:14:41,360

pieces you know break off

421

00:14:44,629 --> 00:14:43,120

and are traveling around

422

00:14:45,910 --> 00:14:44,639

traveling around the world at hypersonic

423

00:14:47,670 --> 00:14:45,920

speed

424

00:14:49,829 --> 00:14:47,680

is is that becoming a significant

425

00:14:52,069 --> 00:14:49,839

problem i mean compared to natural space

426

00:14:53,590 --> 00:14:52,079

junk like how much is the

427

00:14:55,670 --> 00:14:53,600

man-made space junk compared to the

428

00:14:57,189 --> 00:14:55,680

natural space tank any idea

429

00:14:58,389 --> 00:14:57,199

i don't know what the percentage is i

430

00:15:00,150 --> 00:14:58,399

don't think anybody knows because i

431

00:15:01,670 --> 00:15:00,160

don't think we can measure the the

432

00:15:02,550 --> 00:15:01,680

natural stuff but we have a pretty good

433

00:15:04,310 --> 00:15:02,560

idea

434

00:15:07,030 --> 00:15:04,320

on the stuff that we've put there

435

00:15:08,790 --> 00:15:07,040

ourselves and it's it is a big problem

436

00:15:10,629 --> 00:15:08,800

uh and it's a big problem that could

437

00:15:12,629 --> 00:15:10,639

cascade into an enormous problem you

438

00:15:13,990 --> 00:15:12,639

know if one piece of space junk hits

439

00:15:16,550 --> 00:15:14,000

another one they could set off a chain

440

00:15:18,470 --> 00:15:16,560

reaction where now instead of having two

441

00:15:20,870 --> 00:15:18,480

pieces of space junk you have 50 pieces

442

00:15:22,710 --> 00:15:20,880

of space junk and they hit things and it

443

00:15:25,269 --> 00:15:22,720

could take off and cascade to the point

444

00:15:27,829 --> 00:15:25,279

where we could get into a position where

445

00:15:30,389 --> 00:15:27,839

uh space is unusable we can't we can't

446

00:15:31,990 --> 00:15:30,399

it's there's too much up there uh and

447

00:15:34,389 --> 00:15:32,000

that the odds of hitting something

448

00:15:35,829 --> 00:15:34,399

become too great that we can't even fly

449

00:15:37,269 --> 00:15:35,839

so we we really need to get our arms

450

00:15:39,350 --> 00:15:37,279

around that

451

00:15:40,710 --> 00:15:39,360

so put us in that space suit just for a

452

00:15:43,350 --> 00:15:40,720

moment with you if you could for that

453

00:15:44,949 --> 00:15:43,360

space walk i mean you know if you

454

00:15:46,870 --> 00:15:44,959

obviously i'm sure you do probably will

455

00:15:49,670 --> 00:15:46,880

never forget just you know the feelings

456

00:15:51,670 --> 00:15:49,680

that you were having while you were

457

00:15:53,910 --> 00:15:51,680

doing that and you know i don't know if

458

00:15:55,829 --> 00:15:53,920

there was any fear element to it or any

459

00:15:57,030 --> 00:15:55,839

panic element to it but just kind of

460

00:15:58,230 --> 00:15:57,040

walk us through

461

00:15:59,670 --> 00:15:58,240

how it felt

462

00:16:01,430 --> 00:15:59,680

yeah it's a it's an incredible

463

00:16:03,509 --> 00:16:01,440

experience it's almost indescribable

464

00:16:05,189 --> 00:16:03,519

because there's no context with which to

465

00:16:07,590 --> 00:16:05,199

compare it to

466

00:16:09,430 --> 00:16:07,600

so it seems a little unreal at first

467

00:16:10,629 --> 00:16:09,440

because again you don't have anything to

468

00:16:12,550 --> 00:16:10,639

compare it to

469

00:16:14,710 --> 00:16:12,560

i had the opportunity to do in total

470

00:16:15,910 --> 00:16:14,720

four spacewalks three of them were on my

471

00:16:17,910 --> 00:16:15,920

first mission

472

00:16:20,870 --> 00:16:17,920

and i think one of the most memorable

473

00:16:22,870 --> 00:16:20,880

experiences on any spacewalk for me

474

00:16:25,829 --> 00:16:22,880

was on the third spacewalk of the first

475

00:16:27,829 --> 00:16:25,839

mission and and on that um spacewalk my

476  
00:16:30,310 --> 00:16:27,839  
feet were clamped to the end of the

477  
00:16:31,990 --> 00:16:30,320  
space station's robotic arm uh and with

478  
00:16:33,509 --> 00:16:32,000  
me attached to the arm with my feet

479  
00:16:35,350 --> 00:16:33,519  
attached to that arm

480  
00:16:36,790 --> 00:16:35,360  
it was flown through a maneuver that we

481  
00:16:39,269 --> 00:16:36,800  
call the windshield wiper and this took

482  
00:16:40,870 --> 00:16:39,279  
me across a large arc across the top of

483  
00:16:42,550 --> 00:16:40,880  
the space station and back and at the

484  
00:16:44,550 --> 00:16:42,560  
top of this arc i was about 100 feet

485  
00:16:47,110 --> 00:16:44,560  
above the space station

486  
00:16:48,550 --> 00:16:47,120  
looking down at this incredible

487  
00:16:49,829 --> 00:16:48,560  
complex

488  
00:16:52,150 --> 00:16:49,839

against the backdrop of our

489

00:16:53,110 --> 00:16:52,160

indescribably beautiful planet 240 miles

490

00:16:55,910 --> 00:16:53,120

below

491

00:16:57,990 --> 00:16:55,920

and it really took my breath away i mean

492

00:17:01,189 --> 00:16:58,000

that scene was just so

493

00:17:03,430 --> 00:17:01,199

strikingly beautiful uh and

494

00:17:05,029 --> 00:17:03,440

i think one of wha what hit me though i

495

00:17:05,909 --> 00:17:05,039

think even more than the beauty of that

496

00:17:07,590 --> 00:17:05,919

scene

497

00:17:09,350 --> 00:17:07,600

was the incredible

498

00:17:11,510 --> 00:17:09,360

human achievement that the international

499

00:17:13,510 --> 00:17:11,520

space station represents you know

500

00:17:15,429 --> 00:17:13,520

we talked about that 15 nations built

501

00:17:17,909 --> 00:17:15,439

the international space station

502

00:17:19,669 --> 00:17:17,919

as we all know some of these nations

503

00:17:21,189 --> 00:17:19,679

weren't always the best of friends some

504

00:17:23,350 --> 00:17:21,199

were on opposite sides of the cold war

505

00:17:25,829 --> 00:17:23,360

opposite sides of the space race some

506

00:17:27,350 --> 00:17:25,839

fought wars against each other

507

00:17:28,789 --> 00:17:27,360

but somehow they found a way to set

508

00:17:30,710 --> 00:17:28,799

aside their differences and do this

509

00:17:32,230 --> 00:17:30,720

amazing thing in space and

510

00:17:34,390 --> 00:17:32,240

as i hovered there above the space

511

00:17:35,669 --> 00:17:34,400

station i i wondered

512

00:17:37,750 --> 00:17:35,679

what the world would look like you know

513

00:17:39,510 --> 00:17:37,760

how many fewer problems and challenges

514

00:17:41,190 --> 00:17:39,520

would we face if we could figure out how

515

00:17:43,270 --> 00:17:41,200

to have that same level of cooperation

516

00:17:44,870 --> 00:17:43,280

that same level of collaboration and

517

00:17:47,590 --> 00:17:44,880

bring it down to the earth's surface and

518

00:17:49,110 --> 00:17:47,600

i think we face so many critical issues

519

00:17:51,270 --> 00:17:49,120

and challenges on our planet right now

520

00:17:53,110 --> 00:17:51,280

in our country and around the world

521

00:17:55,110 --> 00:17:53,120

because of our inability to work

522

00:17:56,789 --> 00:17:55,120

together our inability to set aside our

523

00:18:00,789 --> 00:17:56,799

differences our inability to work

524

00:18:02,150 --> 00:18:00,799

towards common common good uh and

525

00:18:03,909 --> 00:18:02,160

you know i think we're really hampered

526

00:18:05,669 --> 00:18:03,919

by our increasing divisiveness and

527

00:18:07,350 --> 00:18:05,679

polarization and everything else it's

528

00:18:09,110 --> 00:18:07,360

really um

529

00:18:11,590 --> 00:18:09,120

preventing us from solving these big

530

00:18:13,909 --> 00:18:11,600

challenges that we face

531

00:18:14,710 --> 00:18:13,919

who who does i mean i guess i'm thinking

532

00:18:17,430 --> 00:18:14,720

of

533

00:18:18,470 --> 00:18:17,440

perhaps individuals maybe agencies but

534

00:18:20,310 --> 00:18:18,480

i'd love to hear the names of

535

00:18:22,470 --> 00:18:20,320

individuals as far as

536

00:18:25,350 --> 00:18:22,480

who really deserves credit for putting

537

00:18:26,710 --> 00:18:25,360

together that and i think it's important

538

00:18:29,990 --> 00:18:26,720

to kind of recognize because as you

539

00:18:31,830 --> 00:18:30,000

point out we need more of that so

540

00:18:33,669 --> 00:18:31,840

who were some of the key people or

541

00:18:35,510 --> 00:18:33,679

agencies that managed to put these 15

542

00:18:38,230 --> 00:18:35,520

countries together to even dream this

543

00:18:40,789 --> 00:18:38,240

thing up let alone then put it together

544

00:18:42,470 --> 00:18:40,799

and implement it yeah i mean literally

545

00:18:44,390 --> 00:18:42,480

there were tens and tens of thousands of

546

00:18:45,350 --> 00:18:44,400

people that that worked on the program

547

00:18:46,789 --> 00:18:45,360

but

548

00:18:48,470 --> 00:18:46,799

one of the one of the interesting things

549

00:18:50,230 --> 00:18:48,480

was bringing the russians into the space

550

00:18:52,390 --> 00:18:50,240

station program because back in the

551  
00:18:55,029 --> 00:18:52,400  
early 90s um the russians weren't part

552  
00:18:56,549 --> 00:18:55,039  
of the station and as you remember

553  
00:18:59,110 --> 00:18:56,559  
that's right about the time where the

554  
00:19:02,390 --> 00:18:59,120  
soviet union was was disintegrating and

555  
00:19:05,029 --> 00:19:02,400  
uh it was a really chaotic uh situation

556  
00:19:07,990 --> 00:19:05,039  
and and the russian space agency and

557  
00:19:10,630 --> 00:19:08,000  
nasa negotiated the final entrance

558  
00:19:13,110 --> 00:19:10,640  
to uh into the space station program

559  
00:19:15,510 --> 00:19:13,120  
with tanks fire firing in moscow you

560  
00:19:18,310 --> 00:19:15,520  
know with you know in the midst of all

561  
00:19:20,390 --> 00:19:18,320  
this chaos uh and and in the midst of

562  
00:19:22,630 --> 00:19:20,400  
all that chaos both sides both russia

563  
00:19:25,110 --> 00:19:22,640

and the united states felt it was so

564

00:19:27,430 --> 00:19:25,120

important to do this thing together that

565

00:19:29,110 --> 00:19:27,440

they rest you know life and limb to sign

566

00:19:30,630 --> 00:19:29,120

those agreements and

567

00:19:33,110 --> 00:19:30,640

what was really interesting

568

00:19:34,789 --> 00:19:33,120

is back then in the us and actually in

569

00:19:37,590 --> 00:19:34,799

in other countries around the world

570

00:19:39,430 --> 00:19:37,600

there was a lot of dissenters a lot of

571

00:19:41,110 --> 00:19:39,440

people who objected to bringing the

572

00:19:42,630 --> 00:19:41,120

russians into the space station program

573

00:19:45,590 --> 00:19:42,640

they said the russians are doing x y and

574

00:19:47,029 --> 00:19:45,600

z until they stop doing x y x y and z we

575

00:19:48,710 --> 00:19:47,039

have no business doing anything with

576

00:19:50,150 --> 00:19:48,720

them and to be clear what what time

577

00:19:51,430 --> 00:19:50,160

period are we talking about

578

00:19:54,310 --> 00:19:51,440

early 90s

579

00:19:56,549 --> 00:19:54,320

okay so that's when things the soviet

580

00:19:57,990 --> 00:19:56,559

union was coming apart at that time yeah

581

00:20:00,549 --> 00:19:58,000

exactly yeah at the

582

00:20:02,630 --> 00:20:00,559

at the same exact time i mean to the day

583

00:20:04,870 --> 00:20:02,640

i mean as it was falling apart that nasa

584

00:20:07,270 --> 00:20:04,880

was in so presumably ten years earlier

585

00:20:08,470 --> 00:20:07,280

this would not have happened

586

00:20:10,310 --> 00:20:08,480

it wouldn't have included the soviet

587

00:20:13,430 --> 00:20:10,320

union in other words uh i don't know we

588

00:20:15,510 --> 00:20:13,440

had apollo soyuz back in the 1970s so

589

00:20:18,149 --> 00:20:15,520

i i think what's what's important to

590

00:20:20,870 --> 00:20:18,159

realize um in this in this case and

591

00:20:22,710 --> 00:20:20,880

actually in apollo soyuz too is

592

00:20:24,230 --> 00:20:22,720

that

593

00:20:26,630 --> 00:20:24,240

in the in the case of russia and the

594

00:20:27,590 --> 00:20:26,640

united states and the other partners as

595

00:20:29,909 --> 00:20:27,600

well

596

00:20:31,430 --> 00:20:29,919

there was this willingness to set aside

597

00:20:32,950 --> 00:20:31,440

our differences and do this incredible

598

00:20:34,390 --> 00:20:32,960

thing in space to build the

599

00:20:36,630 --> 00:20:34,400

international space station

600

00:20:38,390 --> 00:20:36,640

because we decided to

601  
00:20:41,029 --> 00:20:38,400  
push aside fear

602  
00:20:42,789 --> 00:20:41,039  
and embrace on wonder we we found

603  
00:20:44,630 --> 00:20:42,799  
something that we wanted to do together

604  
00:20:46,870 --> 00:20:44,640  
the low hanging fruit if you will and we

605  
00:20:49,669 --> 00:20:46,880  
decided to work on that together

606  
00:20:51,430 --> 00:20:49,679  
and what developed from that is a

607  
00:20:53,110 --> 00:20:51,440  
certain level of personal relationships

608  
00:20:54,230 --> 00:20:53,120  
a certain level of trust

609  
00:20:57,029 --> 00:20:54,240  
and

610  
00:20:58,070 --> 00:20:57,039  
now that has become a platform that we

611  
00:20:59,990 --> 00:20:58,080  
can

612  
00:21:01,270 --> 00:21:00,000  
use to jump off and start to address the

613  
00:21:03,750 --> 00:21:01,280

things that we don't agree on but we

614

00:21:05,909 --> 00:21:03,760

tend to do the exact opposite we tend to

615

00:21:07,750 --> 00:21:05,919

take those things that we agree on and

616

00:21:09,270 --> 00:21:07,760

and use them as a stick to force the

617

00:21:11,510 --> 00:21:09,280

things that we don't agree on and i

618

00:21:13,350 --> 00:21:11,520

think that that never works and

619

00:21:15,270 --> 00:21:13,360

i really feel that there's two really

620

00:21:17,270 --> 00:21:15,280

powerful motivators of action there's

621

00:21:19,350 --> 00:21:17,280

fear and there's on wonder and both are

622

00:21:20,630 --> 00:21:19,360

really effective in the short term you

623

00:21:22,310 --> 00:21:20,640

know if a bear is chasing you you're

624

00:21:23,350 --> 00:21:22,320

going to run pretty fast right but i

625

00:21:25,430 --> 00:21:23,360

think only

626  
00:21:26,549 --> 00:21:25,440  
on wonder works in the long term on

627  
00:21:29,029 --> 00:21:26,559  
wonder

628  
00:21:30,390 --> 00:21:29,039  
opens up the mind to rational thought on

629  
00:21:32,789 --> 00:21:30,400  
wonder

630  
00:21:35,909 --> 00:21:32,799  
opens up to new partnerships and new

631  
00:21:38,630 --> 00:21:35,919  
ways of doing things and new innovations

632  
00:21:40,149 --> 00:21:38,640  
where where a fear-based mentality i

633  
00:21:41,990 --> 00:21:40,159  
don't think does that so in the case of

634  
00:21:44,630 --> 00:21:42,000  
the international space station in spite

635  
00:21:46,470 --> 00:21:44,640  
of all the differences we had we decided

636  
00:21:48,710 --> 00:21:46,480  
that we wanted to work on this thing

637  
00:21:51,590 --> 00:21:48,720  
together this thing that was um you know

638  
00:21:53,270 --> 00:21:51,600

the joint efforts of exploring space

639

00:21:55,350 --> 00:21:53,280

together and and trying to push those

640

00:21:56,710 --> 00:21:55,360

envelopes and because we did that we

641

00:21:58,549 --> 00:21:56,720

wouldn't have a space station right now

642

00:22:01,669 --> 00:21:58,559

if we didn't do that because after the

643

00:22:03,830 --> 00:22:01,679

columbia disaster the only way for us to

644

00:22:05,190 --> 00:22:03,840

send people to the space station was

645

00:22:07,350 --> 00:22:05,200

with the russians on the soyuz

646

00:22:09,350 --> 00:22:07,360

spacecraft and

647

00:22:10,630 --> 00:22:09,360

there's a lot of redundancy and a lot of

648

00:22:12,070 --> 00:22:10,640

resilience

649

00:22:13,270 --> 00:22:12,080

that has been brought into the space

650

00:22:15,270 --> 00:22:13,280

station program because of that

651  
00:22:17,190 --> 00:22:15,280  
partnership and

652  
00:22:19,270 --> 00:22:17,200  
it's not just a partnership

653  
00:22:20,789 --> 00:22:19,280  
in name it is a there there's not when

654  
00:22:21,990 --> 00:22:20,799  
we're on the space station we're not

655  
00:22:23,510 --> 00:22:22,000  
there's not the russian crew and the

656  
00:22:25,909 --> 00:22:23,520  
american crew and the japanese crew and

657  
00:22:27,430 --> 00:22:25,919  
the whoever it's just the crew we

658  
00:22:30,070 --> 00:22:27,440  
function as one

659  
00:22:31,990 --> 00:22:30,080  
single crew uh one seamless integrated

660  
00:22:34,390 --> 00:22:32,000  
crew and it's not just the crew on orbit

661  
00:22:36,149 --> 00:22:34,400  
it's the crew in uh live in mission

662  
00:22:39,029 --> 00:22:36,159  
control rooms around the country all

663  
00:22:40,470 --> 00:22:39,039

working together seamlessly uh to

664

00:22:41,830 --> 00:22:40,480

achieve the objectives of the mission

665

00:22:43,909 --> 00:22:41,840

the number one objective the mission is

666

00:22:46,950 --> 00:22:43,919

to maintain this the safety and the and

667

00:22:48,630 --> 00:22:46,960

and the lives of the crews on board um

668

00:22:49,990 --> 00:22:48,640

and so you know i think it's a really

669

00:22:51,190 --> 00:22:50,000

good example

670

00:22:55,669 --> 00:22:51,200

for us to

671

00:22:57,510 --> 00:22:55,679

who was on the space station with you

672

00:22:59,190 --> 00:22:57,520

and where were they from and and did

673

00:23:01,669 --> 00:22:59,200

everyone speak english

674

00:23:03,909 --> 00:23:01,679

um yeah yeah for for the most part um so

675

00:23:05,270 --> 00:23:03,919

on my s my first mission

676

00:23:07,430 --> 00:23:05,280

uh

677

00:23:09,190 --> 00:23:07,440

the crew of the of the space shuttle was

678

00:23:10,310 --> 00:23:09,200

six americans and one japanese we had

679

00:23:14,789 --> 00:23:10,320

japanese

680

00:23:17,830 --> 00:23:14,799

came up with us and when we got to the

681

00:23:19,669 --> 00:23:17,840

space station uh there was an american

682

00:23:22,630 --> 00:23:19,679

and two russians that was my first

683

00:23:25,190 --> 00:23:22,640

mission my second mission when i flew up

684

00:23:27,190 --> 00:23:25,200

um i flew up with two russians and when

685

00:23:30,310 --> 00:23:27,200

we got on board there was a russian and

686

00:23:31,750 --> 00:23:30,320

american uh and an italian astronaut and

687

00:23:33,909 --> 00:23:31,760

and we had an overlap with them for

688

00:23:35,750 --> 00:23:33,919

about two months they went home and then

689

00:23:37,669 --> 00:23:35,760

another japanese astronaut another

690

00:23:40,470 --> 00:23:37,679

american astronaut and another russian

691

00:23:42,230 --> 00:23:40,480

astronaut came up but we also had the

692

00:23:43,590 --> 00:23:42,240

opportunity to host the last two space

693

00:23:45,430 --> 00:23:43,600

shuttle missions the

694

00:23:46,950 --> 00:23:45,440

the flight of uh the last flight of

695

00:23:48,470 --> 00:23:46,960

special endeavor and then the last

696

00:23:51,029 --> 00:23:48,480

flight of space shuttle atlantis which

697

00:23:51,990 --> 00:23:51,039

was the last flight in the space station

698

00:23:54,870 --> 00:23:52,000

program

699

00:23:57,510 --> 00:23:54,880

um and we had other nations that that

700

00:23:59,110 --> 00:23:57,520

came up on those shuttles as well

701  
00:24:01,590 --> 00:23:59,120  
and and what was the fee you're up there

702  
00:24:03,510 --> 00:24:01,600  
for about six months right

703  
00:24:05,909 --> 00:24:03,520  
what was the feeling that you had when

704  
00:24:07,669 --> 00:24:05,919  
you returned to earth

705  
00:24:09,510 --> 00:24:07,679  
well it was i had mixed feelings i mean

706  
00:24:11,430 --> 00:24:09,520  
i was obviously

707  
00:24:12,950 --> 00:24:11,440  
really excited to to get back to earth

708  
00:24:14,549 --> 00:24:12,960  
and to see my family and my friends and

709  
00:24:17,430 --> 00:24:14,559  
my loved ones

710  
00:24:19,430 --> 00:24:17,440  
but i also knew that in all likelihood i

711  
00:24:21,909 --> 00:24:19,440  
wouldn't get an opportunity to go back

712  
00:24:24,070 --> 00:24:21,919  
to space so i you know i

713  
00:24:25,510 --> 00:24:24,080

there's a lot of things that define

714

00:24:27,430 --> 00:24:25,520

the beauty of life on earth that i

715

00:24:29,430 --> 00:24:27,440

missed when i was in space um and some

716

00:24:30,870 --> 00:24:29,440

of it i realized before i left that you

717

00:24:32,390 --> 00:24:30,880

know i'm not going to hear the sound of

718

00:24:34,310 --> 00:24:32,400

the birds i'm not going to see the mist

719

00:24:35,830 --> 00:24:34,320

on the lake i'm not i'm not going to see

720

00:24:37,110 --> 00:24:35,840

all these beautiful things and

721

00:24:38,950 --> 00:24:37,120

experience all these beautiful things

722

00:24:40,549 --> 00:24:38,960

for the next six months because i'll be

723

00:24:41,510 --> 00:24:40,559

in the artificial environment of a space

724

00:24:43,350 --> 00:24:41,520

station

725

00:24:45,510 --> 00:24:43,360

but there's also a lot of things that

726

00:24:47,510 --> 00:24:45,520

define the beauty of life in space that

727

00:24:49,750 --> 00:24:47,520

i missed to this day you know the

728

00:24:52,230 --> 00:24:49,760

weightless freedom of being able to

729

00:24:54,070 --> 00:24:52,240

be in a microgravity environment

730

00:24:55,909 --> 00:24:54,080

the incredible unbelievable

731

00:24:57,350 --> 00:24:55,919

indescribable view of our planet that's

732

00:24:59,190 --> 00:24:57,360

constantly changing because we're going

733

00:25:02,549 --> 00:24:59,200

around the earth every 90 minutes

734

00:25:05,110 --> 00:25:02,559

um the being a part of this this big

735

00:25:06,390 --> 00:25:05,120

uh team that's doing great things uh and

736

00:25:08,230 --> 00:25:06,400

being a part of something bigger than

737

00:25:09,430 --> 00:25:08,240

myself um

738

00:25:11,990 --> 00:25:09,440

not that you have to go to space for

739

00:25:15,430 --> 00:25:12,000

that but but that certainly is is uh the

740

00:25:17,590 --> 00:25:15,440

environment of space and space travel

741

00:25:19,510 --> 00:25:17,600

yeah i know anusha said that she wasn't

742

00:25:22,630 --> 00:25:19,520

ready to to return

743

00:25:25,750 --> 00:25:22,640

uh but but but i'm still moved by the

744

00:25:27,750 --> 00:25:25,760

movie gravity and

745

00:25:30,549 --> 00:25:27,760

and was moved by the ending where i

746

00:25:31,430 --> 00:25:30,559

think sandra bullock finally returns to

747

00:25:33,269 --> 00:25:31,440

earth

748

00:25:35,350 --> 00:25:33,279

of course she had a pretty traumatic

749

00:25:36,549 --> 00:25:35,360

experience out there in space but but

750

00:25:38,549 --> 00:25:36,559

you know at the end of the movie it's

751

00:25:39,669 --> 00:25:38,559

almost like she's hugging earth right

752

00:25:41,830 --> 00:25:39,679

right and

753

00:25:43,269 --> 00:25:41,840

it really makes you kind of feel as you

754

00:25:45,350 --> 00:25:43,279

know earth

755

00:25:47,350 --> 00:25:45,360

is our home as opposed to

756

00:25:49,830 --> 00:25:47,360

simply where you live your residence but

757

00:25:51,669 --> 00:25:49,840

actually this feeling of earth itself

758

00:25:53,190 --> 00:25:51,679

exactly being your home and you being of

759

00:25:54,870 --> 00:25:53,200

earth and when i was reading some things

760

00:25:56,470 --> 00:25:54,880

and about your book and prepping your

761

00:25:58,789 --> 00:25:56,480

book i think you make

762

00:26:00,470 --> 00:25:58,799

the the the statement that we are of

763

00:26:02,310 --> 00:26:00,480

earth not from

764

00:26:04,070 --> 00:26:02,320

earth right

765

00:26:04,950 --> 00:26:04,080

tell us what you mean by that well i

766

00:26:06,950 --> 00:26:04,960

mean

767

00:26:09,029 --> 00:26:06,960

there's a lot of layers to that um in

768

00:26:10,950 --> 00:26:09,039

the most simplest terms it's that you

769

00:26:12,310 --> 00:26:10,960

know

770

00:26:14,070 --> 00:26:12,320

when you look down at the planet from

771

00:26:16,230 --> 00:26:14,080

space you get this sense that you're

772

00:26:18,310 --> 00:26:16,240

looking at a living breathing organism

773

00:26:21,029 --> 00:26:18,320

right you you and in a sense you are

774

00:26:22,549 --> 00:26:21,039

because because the ecosystem you know

775

00:26:24,149 --> 00:26:22,559

life doesn't

776

00:26:25,990 --> 00:26:24,159

we're not living on life we didn't come

777

00:26:27,510 --> 00:26:26,000

from somewhere else and get planted onto

778

00:26:30,549 --> 00:26:27,520

earth we were born

779

00:26:33,430 --> 00:26:30,559

on earth from earth and so it's it's all

780

00:26:34,870 --> 00:26:33,440

part of one process um so life sprung up

781

00:26:35,990 --> 00:26:34,880

from earth it continues to spring up

782

00:26:37,350 --> 00:26:36,000

from earth

783

00:26:39,190 --> 00:26:37,360

uh and so

784

00:26:41,669 --> 00:26:39,200

you know if we if we fly a spaceship you

785

00:26:42,470 --> 00:26:41,679

know 2 000 light years away from the

786

00:26:43,269 --> 00:26:42,480

earth

787

00:26:45,350 --> 00:26:43,279

uh

788

00:26:47,430 --> 00:26:45,360

in some sense the radius of the earth

789

00:26:50,470 --> 00:26:47,440

just became 2000 light years because we

790

00:26:52,230 --> 00:26:50,480

are part of earth um you can't separate

791

00:26:53,590 --> 00:26:52,240

uh earth from us and and it's

792

00:26:54,710 --> 00:26:53,600

interesting that you brought up that

793

00:26:57,190 --> 00:26:54,720

word home

794

00:26:58,789 --> 00:26:57,200

uh and how you know talking about sandra

795

00:27:00,789 --> 00:26:58,799

bullock in the movie gravity and i had a

796

00:27:01,990 --> 00:27:00,799

very very similar experience

797

00:27:03,350 --> 00:27:02,000

and

798

00:27:05,669 --> 00:27:03,360

when i returned to earth after the

799

00:27:07,190 --> 00:27:05,679

six-month mission and the soyuz

800

00:27:08,549 --> 00:27:07,200

basically landed on the ground it hit

801  
00:27:10,149 --> 00:27:08,559

pretty hard and

802  
00:27:11,909 --> 00:27:10,159

it hit so hard that it bounced and it

803  
00:27:14,310 --> 00:27:11,919

rolled and it flipped over and now my

804  
00:27:16,549 --> 00:27:14,320

window was pointed down at the ground

805  
00:27:18,389 --> 00:27:16,559

and out of the window i saw a rock

806  
00:27:20,630 --> 00:27:18,399

a flower and a blade of grass and i

807  
00:27:21,909 --> 00:27:20,640

remember thinking to myself i'm home

808  
00:27:23,269 --> 00:27:21,919

and what was really interesting about

809  
00:27:24,230 --> 00:27:23,279

that thought and i realized this right

810  
00:27:27,190 --> 00:27:24,240

away

811  
00:27:29,350 --> 00:27:27,200

was i was home but i was in kazakhstan

812  
00:27:31,350 --> 00:27:29,360

and so to me at that moment my home

813  
00:27:32,870 --> 00:27:31,360

wasn't just houston texas where at the

814

00:27:34,549 --> 00:27:32,880

time my family was waiting for me to

815

00:27:37,430 --> 00:27:34,559

return home was earth

816

00:27:39,269 --> 00:27:37,440

and our definition of that word home has

817

00:27:40,549 --> 00:27:39,279

profound implications for how we problem

818

00:27:43,350 --> 00:27:40,559

solve how we treat each other how we

819

00:27:45,590 --> 00:27:43,360

treat our planet and what i realized um

820

00:27:47,269 --> 00:27:45,600

pretty much right away was it broadening

821

00:27:49,110 --> 00:27:47,279

that definition of the word home to

822

00:27:50,710 --> 00:27:49,120

encompass the entire planet

823

00:27:52,389 --> 00:27:50,720

doesn't come with a requirement to

824

00:27:54,549 --> 00:27:52,399

forget where we came from our national

825

00:27:57,110 --> 00:27:54,559

cultural religious ethnic

826

00:27:59,190 --> 00:27:57,120

identities um and affiliations it simply

827

00:28:00,789 --> 00:27:59,200

means seeing those things in the context

828

00:28:03,110 --> 00:28:00,799

of the bigger picture seeing them as a

829

00:28:05,029 --> 00:28:03,120

part of the overarching whole and i

830

00:28:06,789 --> 00:28:05,039

think that's what's missing in a lot of

831

00:28:08,549 --> 00:28:06,799

our dialogue right now is we don't see

832

00:28:12,789 --> 00:28:08,559

the overarching hole we just see the

833

00:28:14,950 --> 00:28:12,799

fragmented pieces that make up the whole

834

00:28:16,710 --> 00:28:14,960

yeah well it seems like

835

00:28:19,430 --> 00:28:16,720

politicians and a lot of other type of

836

00:28:21,350 --> 00:28:19,440

leaders maybe even religious leaders

837

00:28:24,549 --> 00:28:21,360

cause us to

838

00:28:26,870 --> 00:28:24,559

uh divide us and put us into different

839

00:28:29,830 --> 00:28:26,880

groups as opposed to unite us because it

840

00:28:32,310 --> 00:28:29,840

serves their political purpose or the or

841

00:28:35,350 --> 00:28:32,320

economic purpose or whatever it may be

842

00:28:37,510 --> 00:28:35,360

it makes us easier to control

843

00:28:38,710 --> 00:28:37,520

i mean divide and conquer it

844

00:28:41,029 --> 00:28:38,720

it's been right it's been around for a

845

00:28:43,750 --> 00:28:41,039

long time so there's kind of two issues

846

00:28:46,630 --> 00:28:43,760

one is how do you get people more people

847

00:28:47,909 --> 00:28:46,640

to have that perspective and then

848

00:28:49,510 --> 00:28:47,919

what do you do with that so let's start

849

00:28:51,190 --> 00:28:49,520

with the first and i remember talking to

850

00:28:53,430 --> 00:28:51,200

anusha about this and she had some

851  
00:28:54,630 --> 00:28:53,440  
thoughts about it but

852  
00:28:57,029 --> 00:28:54,640  
how do you get more people to have the

853  
00:28:59,269 --> 00:28:57,039  
quote-unquote astronauts perspective

854  
00:29:01,029 --> 00:28:59,279  
yeah so my first book is called the

855  
00:29:02,549 --> 00:29:01,039  
orbital perspective and the major tenet

856  
00:29:03,909 --> 00:29:02,559  
of the orbital perspective is that you

857  
00:29:06,230 --> 00:29:03,919  
don't have to be in orbit to have the

858  
00:29:07,830 --> 00:29:06,240  
orbital perspective it it helps

859  
00:29:10,710 --> 00:29:07,840  
it helps to be able to see the planet

860  
00:29:11,830 --> 00:29:10,720  
that from that undeniable vantage point

861  
00:29:13,510 --> 00:29:11,840  
and to see

862  
00:29:15,110 --> 00:29:13,520  
the thinness of the atmosphere where

863  
00:29:16,470 --> 00:29:15,120

there's no doubt in your mind that we

864

00:29:19,110 --> 00:29:16,480

can put enough crap up into the

865

00:29:20,950 --> 00:29:19,120

atmosphere to to change things to change

866

00:29:22,789 --> 00:29:20,960

to change the planet it becomes really

867

00:29:23,830 --> 00:29:22,799

really obvious when you see that from

868

00:29:25,430 --> 00:29:23,840

space

869

00:29:26,870 --> 00:29:25,440

but stay on that for a second i'm just

870

00:29:28,230 --> 00:29:26,880

curious about that because obviously

871

00:29:30,149 --> 00:29:28,240

climate change global warming is very

872

00:29:31,510 --> 00:29:30,159

controversial so you just found on that

873

00:29:33,269 --> 00:29:31,520

a little bit what do you mean by what

874

00:29:35,190 --> 00:29:33,279

you observe and so

875

00:29:37,350 --> 00:29:35,200

so i i was selected as an astronaut in

876

00:29:39,590 --> 00:29:37,360

the year 2000. i didn't fly to the year

877

00:29:41,350 --> 00:29:39,600

2008 and you know we had columbia in

878

00:29:43,909 --> 00:29:41,360

there and we shut down for a number of

879

00:29:46,470 --> 00:29:43,919

years and but in any case i listened to

880

00:29:48,070 --> 00:29:46,480

the equivalent of eight years of crews

881

00:29:49,430 --> 00:29:48,080

coming back from their missions saying

882

00:29:51,669 --> 00:29:49,440

you're not going to believe how thin the

883

00:29:53,909 --> 00:29:51,679

atmosphere is it's just

884

00:29:56,870 --> 00:29:53,919

it's it's indescribably thin and so i

885

00:29:58,950 --> 00:29:56,880

had a pretty big expectation

886

00:30:01,269 --> 00:29:58,960

for the thinness of the atmosphere and

887

00:30:03,430 --> 00:30:01,279

it blew me away i couldn't believe it so

888

00:30:05,909 --> 00:30:03,440

you see the planet and then you see this

889

00:30:07,750 --> 00:30:05,919

teeny tiny almost barely perceptible

890

00:30:09,750 --> 00:30:07,760

little teeny blue line

891

00:30:11,830 --> 00:30:09,760

hugging the earth like the width of a

892

00:30:13,669 --> 00:30:11,840

paper that's the entire atmosphere and

893

00:30:15,510 --> 00:30:13,679

sorry that's what you see once you've

894

00:30:18,470 --> 00:30:15,520

left the atmosphere you're looking back

895

00:30:21,110 --> 00:30:18,480

now yes so you're seeing the earth and

896

00:30:22,789 --> 00:30:21,120

then you're seeing this cover of the

897

00:30:24,470 --> 00:30:22,799

atmosphere around around like the skin

898

00:30:26,789 --> 00:30:24,480

like the skin of an apple i mean that's

899

00:30:28,149 --> 00:30:26,799

the that's about it and in space it

900

00:30:29,990 --> 00:30:28,159

looks incredibly thin is what you're

901  
00:30:31,430 --> 00:30:30,000  
saying right like a little

902  
00:30:34,149 --> 00:30:31,440  
you know gust of wind can blow the

903  
00:30:35,909 --> 00:30:34,159  
entire atmosphere away um

904  
00:30:37,510 --> 00:30:35,919  
and that's really sobering it's it's

905  
00:30:39,350 --> 00:30:37,520  
it's and it's kind of scary to think

906  
00:30:41,190 --> 00:30:39,360  
that that paper-thin layer is keeping

907  
00:30:43,750 --> 00:30:41,200  
every living thing on the planet alive

908  
00:30:45,669 --> 00:30:43,760  
and i've seen i've witnessed uh

909  
00:30:47,990 --> 00:30:45,679  
pollution going up to the limits of the

910  
00:30:49,909 --> 00:30:48,000  
atmosphere i've seen fires whether

911  
00:30:51,830 --> 00:30:49,919  
they're crop burnings or forest fires

912  
00:30:53,990 --> 00:30:51,840  
going to the limits of the atmosphere

913  
00:30:56,549 --> 00:30:54,000

spreading out over whole continents

914

00:30:57,909 --> 00:30:56,559

um and so it's it's very very obvious

915

00:30:59,990 --> 00:30:57,919

from the vantage point of space that we

916

00:31:01,990 --> 00:31:00,000

have the capability to dump enough stuff

917

00:31:03,750 --> 00:31:02,000

in the atmosphere to change and and not

918

00:31:06,070 --> 00:31:03,760

to get too off subject but but you talk

919

00:31:07,669 --> 00:31:06,080

about the ozone and ozone layer is that

920

00:31:09,350 --> 00:31:07,679

the same thing as the atmosphere or

921

00:31:10,789 --> 00:31:09,360

that's different if you know that it's a

922

00:31:12,710 --> 00:31:10,799

part of the atmosphere the ozone layer

923

00:31:15,830 --> 00:31:12,720

is a part of the atmosphere um that

924

00:31:17,430 --> 00:31:15,840

protects us from from radiation okay so

925

00:31:19,590 --> 00:31:17,440

i know there's a hole in the ozone in

926

00:31:21,750 --> 00:31:19,600

australia around australia i'm not sure

927

00:31:23,509 --> 00:31:21,760

if you know much about that but

928

00:31:25,590 --> 00:31:23,519

i i don't know what's created it or why

929

00:31:27,430 --> 00:31:25,600

it's there but uh i just know having

930

00:31:29,350 --> 00:31:27,440

visited australia that the sun feels a

931

00:31:31,990 --> 00:31:29,360

lot different there it is really strong

932

00:31:34,149 --> 00:31:32,000

there but i mean back in the i think it

933

00:31:35,909 --> 00:31:34,159

was the 70s you know we had a major

934

00:31:38,549 --> 00:31:35,919

crisis a major environmental crisis

935

00:31:41,430 --> 00:31:38,559

where scientists determined that because

936

00:31:43,590 --> 00:31:41,440

of of human activity that we we had put

937

00:31:45,509 --> 00:31:43,600

a hole in the ozone layer and we changed

938

00:31:47,990 --> 00:31:45,519

our we changed our behaviors and we were

939

00:31:50,310 --> 00:31:48,000

able that's a really big success story

940

00:31:53,430 --> 00:31:50,320

uh because um we'd be living in a

941

00:31:57,750 --> 00:31:55,909

not that we're out of the woods but uh

942

00:31:59,269 --> 00:31:57,760

things would be much more dangerous uh

943

00:32:01,750 --> 00:31:59,279

than they are they are right now had we

944

00:32:03,750 --> 00:32:01,760

not uh mitigated that that problem okay

945

00:32:05,909 --> 00:32:03,760

so back to how

946

00:32:08,870 --> 00:32:05,919

more people can can get the orbital

947

00:32:11,029 --> 00:32:08,880

perspective yeah i think i i think you

948

00:32:13,430 --> 00:32:11,039

can do it on a moment-to-moment day day

949

00:32:14,789 --> 00:32:13,440

by day basis by simply reason realizing

950

00:32:16,789 --> 00:32:14,799

that you're part of something bigger you

951  
00:32:18,710 --> 00:32:16,799  
know every morning i wake up in my bed

952  
00:32:20,789 --> 00:32:18,720  
but i also wake up on a planet

953  
00:32:23,350 --> 00:32:20,799  
uh and you know growing up in new york

954  
00:32:25,830 --> 00:32:23,360  
my universe uh when i was a kid you know

955  
00:32:29,029 --> 00:32:25,840  
didn't extend past the hudson river i

956  
00:32:29,830 --> 00:32:29,039  
mean that's that's as far as my you know

957  
00:32:32,389 --> 00:32:29,840  
my

958  
00:32:34,230 --> 00:32:32,399  
thinking took me um but having the

959  
00:32:35,669 --> 00:32:34,240  
opportunity to you know not just travel

960  
00:32:36,950 --> 00:32:35,679  
in space but travel around the world and

961  
00:32:37,990 --> 00:32:36,960  
meet people meet people of different

962  
00:32:40,310 --> 00:32:38,000  
cultures

963  
00:32:43,830 --> 00:32:40,320

uh and to see those stereotypes break

964

00:32:46,549 --> 00:32:43,840

down just to see um

965

00:32:47,830 --> 00:32:46,559

empathy develop i i think is is a good

966

00:32:50,549 --> 00:32:47,840

way to do that one of the ways we do

967

00:32:55,590 --> 00:32:52,630

by listening right by being able to

968

00:32:57,750 --> 00:32:55,600

listen to folks and so if somebody has

969

00:32:59,029 --> 00:32:57,760

an opinion that is completely 180 out

970

00:33:00,389 --> 00:32:59,039

from your opinion completely different

971

00:33:02,789 --> 00:33:00,399

than your opinion

972

00:33:04,389 --> 00:33:02,799

we should before we dismiss it outright

973

00:33:05,830 --> 00:33:04,399

we should listen we should we should be

974

00:33:07,350 --> 00:33:05,840

able to have a rational conversation

975

00:33:09,269 --> 00:33:07,360

with folks

976  
00:33:10,870 --> 00:33:09,279  
and i think one of the ways we were able

977  
00:33:12,950 --> 00:33:10,880  
to do that is by

978  
00:33:14,070 --> 00:33:12,960  
not identifying with our own positions

979  
00:33:15,990 --> 00:33:14,080  
as us

980  
00:33:17,029 --> 00:33:16,000  
right because if you attack my my

981  
00:33:19,350 --> 00:33:17,039  
opinion

982  
00:33:21,750 --> 00:33:19,360  
um we take that generally to mean you're

983  
00:33:24,389 --> 00:33:21,760  
attacking me personally uh and that that

984  
00:33:26,710 --> 00:33:24,399  
leads to a different conversation and so

985  
00:33:28,789 --> 00:33:26,720  
i think that all of us need to be a

986  
00:33:29,669 --> 00:33:28,799  
little bit more open to hearing

987  
00:33:31,590 --> 00:33:29,679  
um

988  
00:33:34,630 --> 00:33:31,600

differing opinions and one of the things

989

00:33:37,110 --> 00:33:34,640

that's really important about this is

990

00:33:38,549 --> 00:33:37,120

the very diversity of our perspectives

991

00:33:40,470 --> 00:33:38,559

because different opinions are probably

992

00:33:43,669 --> 00:33:40,480

coming from different perspectives right

993

00:33:46,149 --> 00:33:43,679

um and so that diversity of perspective

994

00:33:48,230 --> 00:33:46,159

is a source of great strength if we

995

00:33:49,590 --> 00:33:48,240

allow it to because when we see things

996

00:33:51,669 --> 00:33:49,600

from two different perspectives we're

997

00:33:53,509 --> 00:33:51,679

seeing it in stereoscopic vision right

998

00:33:55,269 --> 00:33:53,519

we're starting to see it in 3d we're

999

00:33:56,230 --> 00:33:55,279

starting to see the depth of things so

1000

00:33:58,389 --> 00:33:56,240

the more

1001  
00:34:00,710 --> 00:33:58,399  
perspectives that we apply to a to a

1002  
00:34:02,230 --> 00:34:00,720  
situation to a problem to a challenge

1003  
00:34:04,149 --> 00:34:02,240  
the deeper is going to be our

1004  
00:34:06,389 --> 00:34:04,159  
understanding of that problem

1005  
00:34:07,590 --> 00:34:06,399  
and the richer and more effective are

1006  
00:34:09,750 --> 00:34:07,600  
going to be the solutions that are

1007  
00:34:11,270 --> 00:34:09,760  
derived from that and so what we tend to

1008  
00:34:13,829 --> 00:34:11,280  
do is see these differences of

1009  
00:34:15,510 --> 00:34:13,839  
perspective as you know things that i

1010  
00:34:17,990 --> 00:34:15,520  
need to put a wall between i need to

1011  
00:34:20,149 --> 00:34:18,000  
separate myself i need to attack

1012  
00:34:22,069 --> 00:34:20,159  
i can't recognize any merit whatsoever

1013  
00:34:23,510 --> 00:34:22,079

in this other perspective because if i

1014

00:34:25,030 --> 00:34:23,520

recognize merit then they're going to

1015

00:34:27,109 --> 00:34:25,040

increase and i'm going to decrease it's

1016

00:34:28,869 --> 00:34:27,119

this you know zero-sum game thing

1017

00:34:30,950 --> 00:34:28,879

playing out and that's not the reality

1018

00:34:34,069 --> 00:34:30,960

of the world is that the very difference

1019

00:34:36,069 --> 00:34:34,079

of opinions is what can lead to a real

1020

00:34:37,669 --> 00:34:36,079

uh strength of solutions

1021

00:34:39,589 --> 00:34:37,679

and if everyone came from the same

1022

00:34:41,190 --> 00:34:39,599

orbital perspective at least as a

1023

00:34:43,430 --> 00:34:41,200

foundation

1024

00:34:45,909 --> 00:34:43,440

then it perhaps opens that up

1025

00:34:47,510 --> 00:34:45,919

more yeah if by if by that you mean a

1026

00:34:49,829 --> 00:34:47,520

willingness to take in the big picture

1027

00:34:51,190 --> 00:34:49,839

yes right right but what in my in my new

1028

00:34:53,190 --> 00:34:51,200

book that just came out a couple weeks

1029

00:34:54,950 --> 00:34:53,200

ago floating in darkness i i borrowed a

1030

00:34:56,149 --> 00:34:54,960

term from cinematography called the

1031

00:34:57,589 --> 00:34:56,159

dolly zoom

1032

00:34:59,670 --> 00:34:57,599

and what adele you know you've seen it

1033

00:35:01,910 --> 00:34:59,680

in jaws and vertigo and a bunch of

1034

00:35:03,910 --> 00:35:01,920

different movies and in cinematography

1035

00:35:05,270 --> 00:35:03,920

what it is is the camera is dollied back

1036

00:35:06,950 --> 00:35:05,280

or rolled back

1037

00:35:08,390 --> 00:35:06,960

at the same time in the same rate that

1038

00:35:11,670 --> 00:35:08,400

it's zoomed in

1039

00:35:13,589 --> 00:35:11,680

right and so it it it serves to kind of

1040

00:35:15,670 --> 00:35:13,599

challenge the viewer's perception of

1041

00:35:16,950 --> 00:35:15,680

reality it gives depth and height to a

1042

00:35:18,950 --> 00:35:16,960

scene

1043

00:35:20,950 --> 00:35:18,960

but if you dolly zoom a situation or a

1044

00:35:23,349 --> 00:35:20,960

challenge or a problem what it means is

1045

00:35:26,069 --> 00:35:23,359

you zoom out to the widest geographical

1046

00:35:28,470 --> 00:35:26,079

area possible but as you zoom out you

1047

00:35:30,310 --> 00:35:28,480

keep in focus the worm's eye details on

1048

00:35:31,910 --> 00:35:30,320

the ground you don't zoom out to the

1049

00:35:34,150 --> 00:35:31,920

point where people become numbers on a

1050

00:35:36,550 --> 00:35:34,160

spreadsheet or just a workforce or a

1051  
00:35:38,630 --> 00:35:36,560  
voting block or whatever they maintain

1052  
00:35:40,870 --> 00:35:38,640  
you know they maintain their identity as

1053  
00:35:43,430 --> 00:35:40,880  
valued members of our human family it

1054  
00:35:44,630 --> 00:35:43,440  
also has a temporal aspect to it and

1055  
00:35:47,670 --> 00:35:44,640  
that means that we're going to zoom out

1056  
00:35:49,589 --> 00:35:47,680  
to the widest time frame possible so if

1057  
00:35:52,390 --> 00:35:49,599  
we have a you know some type of piece of

1058  
00:35:53,670 --> 00:35:52,400  
legislat legislation or some decision or

1059  
00:35:54,950 --> 00:35:53,680  
or you know something that we're going

1060  
00:35:56,630 --> 00:35:54,960  
to enact

1061  
00:35:58,950 --> 00:35:56,640  
we need to look at what the long-term

1062  
00:36:00,870 --> 00:35:58,960  
effects of that are going to be

1063  
00:36:01,829 --> 00:36:00,880

ideally a multi-generational effect how

1064

00:36:04,069 --> 00:36:01,839

is this going to affect our great

1065

00:36:05,829 --> 00:36:04,079

grandchildren because right now what we

1066

00:36:07,349 --> 00:36:05,839

tend to be solely focused on is the next

1067

00:36:08,710 --> 00:36:07,359

shareholder report the next election

1068

00:36:10,550 --> 00:36:08,720

cycle

1069

00:36:13,109 --> 00:36:10,560

these things are important so as we zoom

1070

00:36:14,710 --> 00:36:13,119

out to the long term we can't lose

1071

00:36:16,790 --> 00:36:14,720

sight of that short term

1072

00:36:18,790 --> 00:36:16,800

either and then the last part of the

1073

00:36:20,230 --> 00:36:18,800

orbital perspective over the the dolly

1074

00:36:22,150 --> 00:36:20,240

zoom effect how it applies to the

1075

00:36:23,349 --> 00:36:22,160

orbital perspective

1076

00:36:25,030 --> 00:36:23,359

is to look at things at different

1077

00:36:26,790 --> 00:36:25,040

perspectives and that's that thought

1078

00:36:28,710 --> 00:36:26,800

came to me on a spacewalk as i was

1079

00:36:30,550 --> 00:36:28,720

looking down uh at the earth and

1080

00:36:32,150 --> 00:36:30,560

realizing that my perspective was

1081

00:36:34,150 --> 00:36:32,160

changing by five miles a second and

1082

00:36:35,109 --> 00:36:34,160

again all that all that we talked about

1083

00:36:36,870 --> 00:36:35,119

how those

1084

00:36:39,030 --> 00:36:36,880

uh varying perspectives gives us

1085

00:36:41,030 --> 00:36:39,040

strength uh to our problem-solving

1086

00:36:43,030 --> 00:36:41,040

process all need to be put into place

1087

00:36:45,349 --> 00:36:43,040

and so uh you don't have to go to space

1088

00:36:46,870 --> 00:36:45,359

to realize any of that and and by by

1089

00:36:49,109 --> 00:36:46,880

looking at the long term and the short

1090

00:36:51,589 --> 00:36:49,119

term looking at how things affect the

1091

00:36:53,910 --> 00:36:51,599

local area in addition to the general

1092

00:36:55,510 --> 00:36:53,920

area does does it does it help over here

1093

00:36:56,790 --> 00:36:55,520

but heard over here you know all of

1094

00:36:59,510 --> 00:36:56,800

these things have to be taken into

1095

00:37:00,870 --> 00:36:59,520

account in the big picture

1096

00:37:03,109 --> 00:37:00,880

when you communicate with other

1097

00:37:05,349 --> 00:37:03,119

astronauts um and talk about things like

1098

00:37:07,190 --> 00:37:05,359

this i mean do you find that they kind

1099

00:37:09,349 --> 00:37:07,200

of share the same

1100

00:37:11,109 --> 00:37:09,359

orbital perspective as you do and you

1101

00:37:12,950 --> 00:37:11,119

find that your conversations with them

1102

00:37:14,790 --> 00:37:12,960

are qualitatively different than they

1103

00:37:17,190 --> 00:37:14,800

are with people who have not

1104

00:37:18,950 --> 00:37:17,200

experienced it

1105

00:37:21,030 --> 00:37:18,960

i'm going to hesitate to answer that in

1106

00:37:22,870 --> 00:37:21,040

a way because chris

1107

00:37:24,230 --> 00:37:22,880

again with the tenant that you don't

1108

00:37:27,109 --> 00:37:24,240

have to go to orbit to have the orbital

1109

00:37:29,589 --> 00:37:27,119

perspective right yeah the answer is yes

1110

00:37:31,510 --> 00:37:29,599

my conversations uh with people who have

1111

00:37:32,390 --> 00:37:31,520

experienced the planet from space

1112

00:37:33,990 --> 00:37:32,400

uh

1113

00:37:35,510 --> 00:37:34,000

where a couple of

1114

00:37:36,630 --> 00:37:35,520

were a couple of steps advanced in the

1115

00:37:38,790 --> 00:37:36,640

conversation

1116

00:37:40,950 --> 00:37:38,800

because we we already have a similar

1117

00:37:43,190 --> 00:37:40,960

experience to compare it to and almost

1118

00:37:45,589 --> 00:37:43,200

sorry to interrupt but almost uniformly

1119

00:37:47,510 --> 00:37:45,599

people who have been to space they do

1120

00:37:50,150 --> 00:37:47,520

share this they they they're affected in

1121

00:37:52,390 --> 00:37:50,160

the same way i i think they are to

1122

00:37:54,710 --> 00:37:52,400

varying degrees and to varying

1123

00:37:57,190 --> 00:37:54,720

realizations and with uh at times

1124

00:38:00,470 --> 00:37:57,200

differing lexicon to describe the

1125

00:38:01,910 --> 00:38:00,480

situation but but you know i've i i i'm

1126

00:38:05,030 --> 00:38:01,920

a filmmaker too and i've i've

1127

00:38:06,710 --> 00:38:05,040

interviewed uh astronauts uh and we've

1128

00:38:08,150 --> 00:38:06,720

asked them you know have did you

1129

00:38:09,910 --> 00:38:08,160

experience um

1130

00:38:11,589 --> 00:38:09,920

you know did you going to space change

1131

00:38:12,790 --> 00:38:11,599

you and they would say oh no it hasn't

1132

00:38:14,870 --> 00:38:12,800

changed me at all and then they'd spend

1133

00:38:16,630 --> 00:38:14,880

the next 15 minutes talking about all

1134

00:38:19,510 --> 00:38:16,640

the things that have changed

1135

00:38:21,829 --> 00:38:19,520

in them since since going to space so so

1136

00:38:23,670 --> 00:38:21,839

i think that's the case but

1137

00:38:25,829 --> 00:38:23,680

again you don't have to go to space to

1138

00:38:27,270 --> 00:38:25,839

realize any of this and that you don't

1139

00:38:29,190 --> 00:38:27,280

there are conversations you could have

1140

00:38:30,710 --> 00:38:29,200

with folks where um

1141

00:38:32,470 --> 00:38:30,720

with where they are on the same sheet of

1142

00:38:34,950 --> 00:38:32,480

music that they do understand

1143

00:38:36,150 --> 00:38:34,960

that there's a there's a a local picture

1144

00:38:37,430 --> 00:38:36,160

and a big picture that have to be

1145

00:38:39,430 --> 00:38:37,440

integrated there's a long term and a

1146

00:38:41,750 --> 00:38:39,440

short term that have to be integrated uh

1147

00:38:43,109 --> 00:38:41,760

and and all those other things and that

1148

00:38:45,349 --> 00:38:43,119

go ahead i'm sorry

1149

00:38:46,790 --> 00:38:45,359

well sorry yes i was just thinking so

1150

00:38:48,870 --> 00:38:46,800

kind of back to the idea okay how do we

1151

00:38:50,630 --> 00:38:48,880

give more people this perspective some

1152

00:38:52,950 --> 00:38:50,640

people might intuitively have it or some

1153

00:38:55,190 --> 00:38:52,960

people might have watched gravity which

1154

00:38:56,550 --> 00:38:55,200

was kind of the case for me and and

1155

00:38:59,190 --> 00:38:56,560

thought i picked up a little bit of it

1156

00:39:00,950 --> 00:38:59,200

right um but how do we give give it to

1157

00:39:02,950 --> 00:39:00,960

more people and the thing that kind of

1158

00:39:04,630 --> 00:39:02,960

strikes me is school

1159

00:39:06,870 --> 00:39:04,640

that that if you could give it to to

1160

00:39:09,109 --> 00:39:06,880

children uh i don't know what age would

1161

00:39:11,510 --> 00:39:09,119

be appropriate but um

1162

00:39:13,510 --> 00:39:11,520

is is there much of an effort there

1163

00:39:15,670 --> 00:39:13,520

i i think

1164

00:39:17,270 --> 00:39:15,680

i think there is but i think

1165

00:39:19,510 --> 00:39:17,280

um i think there's lots of things that

1166

00:39:21,349 --> 00:39:19,520

we could do to help uh give people that

1167

00:39:23,030 --> 00:39:21,359

perspective but i think the biggest

1168

00:39:24,310 --> 00:39:23,040

thing we could do is stop preventing

1169

00:39:25,270 --> 00:39:24,320

them from getting that perspective

1170

00:39:27,270 --> 00:39:25,280

because

1171

00:39:29,349 --> 00:39:27,280

really if we just move i think it's the

1172

00:39:31,109 --> 00:39:29,359

natural state i think the natural state

1173

00:39:34,230 --> 00:39:31,119

of humans is to have this big picture

1174

00:39:36,230 --> 00:39:34,240

perspective i think that we artificially

1175

00:39:39,670 --> 00:39:36,240

um

1176

00:39:40,950 --> 00:39:39,680

that development we artificially

1177

00:39:43,270 --> 00:39:40,960

prevent that

1178

00:39:45,670 --> 00:39:43,280

that growth from happening and and we do

1179

00:39:47,270 --> 00:39:45,680

that in our you know hyper-polarized

1180

00:39:49,270 --> 00:39:47,280

divisive world that we live in where

1181

00:39:52,470 --> 00:39:49,280

we're all placed in our own echo chamber

1182

00:39:53,990 --> 00:39:52,480

walled boxes um by the algorithms that

1183

00:39:55,270 --> 00:39:54,000

determine you know

1184

00:39:56,870 --> 00:39:55,280

what what things we're going to see on

1185

00:39:59,349 --> 00:39:56,880

social media for instance although we've

1186

00:40:00,870 --> 00:39:59,359

needed great scientific uh advances

1187

00:40:03,829 --> 00:40:00,880

because we used to think the world was

1188

00:40:05,990 --> 00:40:03,839

flat and right so

1189

00:40:07,829 --> 00:40:06,000

thanks to scientific expansion and being

1190

00:40:09,990 --> 00:40:07,839

able to do what you did etc we're now

1191

00:40:11,430 --> 00:40:10,000

kind of we are opened up to this so

1192

00:40:14,230 --> 00:40:11,440

while at the same time we've been opened

1193

00:40:16,470 --> 00:40:14,240

up to this to your point

1194

00:40:18,950 --> 00:40:16,480

we're we're not embracing it because

1195

00:40:21,190 --> 00:40:18,960

we're being taught to

1196

00:40:23,430 --> 00:40:21,200

focus on our little

1197

00:40:25,270 --> 00:40:23,440

world our individual world the

1198

00:40:26,150 --> 00:40:25,280

perspective of the oral perspective or

1199

00:40:27,910 --> 00:40:26,160

whatever you want to call it the

1200

00:40:29,030 --> 00:40:27,920

perspective is not the end point the the

1201  
00:40:31,829 --> 00:40:29,040  
endpoint

1202  
00:40:33,750 --> 00:40:31,839  
is to be a fully functioning society to

1203  
00:40:36,950 --> 00:40:33,760  
be a fully functioning species that's

1204  
00:40:40,470 --> 00:40:36,960  
embedded into the biosphere called earth

1205  
00:40:42,230 --> 00:40:40,480  
and you know part of that is developing

1206  
00:40:43,910 --> 00:40:42,240  
empathy and compassion uh and

1207  
00:40:45,109 --> 00:40:43,920  
understanding of other people's

1208  
00:40:46,150 --> 00:40:45,119  
perspectives

1209  
00:40:48,069 --> 00:40:46,160  
and

1210  
00:40:50,309 --> 00:40:48,079  
you know that that that's the end point

1211  
00:40:52,150 --> 00:40:50,319  
and science you know that's

1212  
00:40:54,710 --> 00:40:52,160  
that's kind of separated from scientific

1213  
00:40:56,150 --> 00:40:54,720

advancement i mean um that you don't

1214

00:40:58,870 --> 00:40:56,160

need scientific you don't need any more

1215

00:41:00,870 --> 00:40:58,880

technological advancement to be able to

1216

00:41:02,950 --> 00:41:00,880

to incorporate empathy and compassion

1217

00:41:05,990 --> 00:41:02,960

and understanding uh and rational

1218

00:41:07,829 --> 00:41:06,000

thought into into conversations

1219

00:41:10,230 --> 00:41:07,839

i think unless i'm just inventing this

1220

00:41:12,710 --> 00:41:10,240

in my head but i i thought i heard about

1221

00:41:15,829 --> 00:41:12,720

an effort to use a

1222

00:41:17,750 --> 00:41:15,839

3d and maybe these 3d goggles

1223

00:41:19,510 --> 00:41:17,760

that would give the

1224

00:41:21,270 --> 00:41:19,520

ability of somebody to kind of really

1225

00:41:22,790 --> 00:41:21,280

feel like they've experienced going into

1226  
00:41:24,790 --> 00:41:22,800  
space have you heard about something

1227  
00:41:26,470 --> 00:41:24,800  
like that i mean it would be great if if

1228  
00:41:29,349 --> 00:41:26,480  
it could be done yeah there's all kinds

1229  
00:41:30,710 --> 00:41:29,359  
of efforts to use technology like 3d um

1230  
00:41:32,710 --> 00:41:30,720  
to do that but you know one of the

1231  
00:41:34,950 --> 00:41:32,720  
missing pieces of that is the weightless

1232  
00:41:36,390 --> 00:41:34,960  
part of it um because that's it's not

1233  
00:41:37,670 --> 00:41:36,400  
only the view that you see out the

1234  
00:41:39,589 --> 00:41:37,680  
window it's the fact that you're

1235  
00:41:40,710 --> 00:41:39,599  
detached from your view right so imagine

1236  
00:41:42,150 --> 00:41:40,720  
that you're on the rim of the grand

1237  
00:41:43,750 --> 00:41:42,160  
canyon or sitting on a beautiful beach

1238  
00:41:45,589 --> 00:41:43,760

looking at the sunset

1239

00:41:47,829 --> 00:41:45,599

uh no matter how sublime the beauty of

1240

00:41:49,349 --> 00:41:47,839

that scene is gravity is pushing you

1241

00:41:51,349 --> 00:41:49,359

down into the scene you're with you're

1242

00:41:53,349 --> 00:41:51,359

within the frame of the masterpiece

1243

00:41:54,950 --> 00:41:53,359

right but when you're in space you're

1244

00:41:56,630 --> 00:41:54,960

outside of the frame you're out you're

1245

00:41:58,150 --> 00:41:56,640

outside of of

1246

00:42:00,390 --> 00:41:58,160

you know you talk about you can't you

1247

00:42:02,309 --> 00:42:00,400

can't solve a problem while you're still

1248

00:42:03,750 --> 00:42:02,319

inside the problem right so you're

1249

00:42:04,950 --> 00:42:03,760

outside of the challenges you're outside

1250

00:42:07,030 --> 00:42:04,960

of the problems you're outside of the

1251  
00:42:08,710 --> 00:42:07,040  
masterpiece of beauty that you're seeing

1252  
00:42:10,950 --> 00:42:08,720  
and i think uh

1253  
00:42:12,309 --> 00:42:10,960  
being weightlessly weightless uh you

1254  
00:42:13,990 --> 00:42:12,319  
know floating their weightless and

1255  
00:42:15,670 --> 00:42:14,000  
seeing that site is is part of the

1256  
00:42:17,750 --> 00:42:15,680  
experience

1257  
00:42:19,510 --> 00:42:17,760  
and and that's the ability to be

1258  
00:42:21,190 --> 00:42:19,520  
physically detached

1259  
00:42:22,950 --> 00:42:21,200  
from the earth um

1260  
00:42:24,950 --> 00:42:22,960  
but having said all that you know i

1261  
00:42:26,710 --> 00:42:24,960  
think all of these efforts whether it's

1262  
00:42:30,309 --> 00:42:26,720  
three you know vr

1263  
00:42:31,910 --> 00:42:30,319

uh ar uh you know uh there is zero g

1264

00:42:33,430 --> 00:42:31,920

aircraft that can be incorporated into

1265

00:42:35,430 --> 00:42:33,440

it there's all kinds of simulators that

1266

00:42:38,030 --> 00:42:35,440

are being developed uh all of those

1267

00:42:39,190 --> 00:42:38,040

things can help uh with that

1268

00:42:41,190 --> 00:42:39,200

[Music]

1269

00:42:43,589 --> 00:42:41,200

so um

1270

00:42:45,750 --> 00:42:43,599

what do you kind of see is your mission

1271

00:42:47,190 --> 00:42:45,760

at this point uh you know as far as you

1272

00:42:49,109 --> 00:42:47,200

know i know you wrote these two very

1273

00:42:50,390 --> 00:42:49,119

impressive books and you know what are

1274

00:42:52,790 --> 00:42:50,400

you really

1275

00:42:54,630 --> 00:42:52,800

trying to achieve and what's

1276  
00:42:56,950 --> 00:42:54,640  
maybe more importantly what is the end

1277  
00:42:59,829 --> 00:42:56,960  
game because to be honest it all sounds

1278  
00:43:01,030 --> 00:42:59,839  
great in theory right but in practice it

1279  
00:43:03,109 --> 00:43:01,040  
sounds like

1280  
00:43:04,870 --> 00:43:03,119  
unlikely so

1281  
00:43:06,470 --> 00:43:04,880  
i guess a what do you think you're

1282  
00:43:08,390 --> 00:43:06,480  
trying to accomplish and be

1283  
00:43:12,550 --> 00:43:08,400  
what are we trying to get to

1284  
00:43:14,069 --> 00:43:12,560  
sure so i i left nasa in 2013

1285  
00:43:16,309 --> 00:43:14,079  
and i left

1286  
00:43:18,470 --> 00:43:16,319  
for the singular reason to be able to

1287  
00:43:20,150 --> 00:43:18,480  
share a full-time unencumbered

1288  
00:43:22,710 --> 00:43:20,160

this view of our planet

1289

00:43:24,390 --> 00:43:22,720

view of our world view of our society

1290

00:43:26,390 --> 00:43:24,400

that was given to me when i went to

1291

00:43:29,670 --> 00:43:26,400

space and so everything i've done since

1292

00:43:31,109 --> 00:43:29,680

leaving nasa was done with the objective

1293

00:43:32,950 --> 00:43:31,119

the motivation to

1294

00:43:34,710 --> 00:43:32,960

figure figuratively or literally

1295

00:43:36,390 --> 00:43:34,720

transport people to this higher vantage

1296

00:43:37,990 --> 00:43:36,400

point you know this vantage point where

1297

00:43:39,589 --> 00:43:38,000

all the pieces of the puzzle come

1298

00:43:41,030 --> 00:43:39,599

together so i've i've written three

1299

00:43:42,230 --> 00:43:41,040

books now the orbital perspective

1300

00:43:44,390 --> 00:43:42,240

floating in darkness and i have a

1301

00:43:47,589 --> 00:43:44,400

children's book called railroad to the

1302

00:43:49,910 --> 00:43:47,599

moon coming out i started painting i

1303

00:43:51,430 --> 00:43:49,920

started making films i do public

1304

00:43:52,470 --> 00:43:51,440

speaking and consulting all around the

1305

00:43:54,790 --> 00:43:52,480

world

1306

00:43:57,829 --> 00:43:54,800

because i really do believe that this

1307

00:43:59,270 --> 00:43:57,839

vantage point this perspective uh has uh

1308

00:44:01,589 --> 00:43:59,280

incredible

1309

00:44:03,670 --> 00:44:01,599

uh implications for our the problem

1310

00:44:05,910 --> 00:44:03,680

solving process or how we solve our

1311

00:44:09,109 --> 00:44:05,920

biggest most seemingly intractable

1312

00:44:10,870 --> 00:44:09,119

problems and i think um

1313

00:44:12,150 --> 00:44:10,880

the reason why we still face so many

1314

00:44:14,150 --> 00:44:12,160

critical issues and problems on our

1315

00:44:15,430 --> 00:44:14,160

planet despite the fact that i you know

1316

00:44:17,589 --> 00:44:15,440

i think we have

1317

00:44:19,910 --> 00:44:17,599

ample technology and resources to solve

1318

00:44:22,630 --> 00:44:19,920

those those problems is because of our

1319

00:44:25,190 --> 00:44:22,640

inability to work together and so

1320

00:44:26,390 --> 00:44:25,200

my end goal is try is trying to nudge

1321

00:44:28,790 --> 00:44:26,400

society

1322

00:44:30,230 --> 00:44:28,800

through every way possible to start

1323

00:44:32,550 --> 00:44:30,240

setting aside our differences and work

1324

00:44:33,349 --> 00:44:32,560

together towards the common good

1325

00:44:35,589 --> 00:44:33,359

and

1326

00:44:37,190 --> 00:44:35,599

you know

1327

00:44:38,950 --> 00:44:37,200

maybe to address uh

1328

00:44:39,990 --> 00:44:38,960

one of your points is you know you don't

1329

00:44:41,430 --> 00:44:40,000

you don't think this is going to be

1330

00:44:43,670 --> 00:44:41,440

successful it depends on what your

1331

00:44:44,630 --> 00:44:43,680

definition of success is because

1332

00:44:47,990 --> 00:44:44,640

you know

1333

00:44:50,309 --> 00:44:48,000

if if my endpoint goal is to make every

1334

00:44:52,470 --> 00:44:50,319

you know all nations all organizations

1335

00:44:55,510 --> 00:44:52,480

uh get together have republicans and

1336

00:44:57,510 --> 00:44:55,520

democrats get together and uh kumbaya

1337

00:45:00,550 --> 00:44:57,520

and get together then obviously that's

1338

00:45:01,670 --> 00:45:00,560

you know that's kind of unrealistic

1339

00:45:04,069 --> 00:45:01,680

but

1340

00:45:06,150 --> 00:45:04,079

if i if i could share a story real quick

1341

00:45:08,150 --> 00:45:06,160

um because i think

1342

00:45:09,589 --> 00:45:08,160

i think that most if not all the people

1343

00:45:11,270 --> 00:45:09,599

in the world

1344

00:45:12,790 --> 00:45:11,280

uh want to leave this place a little bit

1345

00:45:14,630 --> 00:45:12,800

better than they found it they they want

1346

00:45:17,030 --> 00:45:14,640

to make things better um

1347

00:45:18,710 --> 00:45:17,040

and i think a lot of times people

1348

00:45:20,630 --> 00:45:18,720

don't

1349

00:45:22,069 --> 00:45:20,640

set out to make that difference is

1350

00:45:23,670 --> 00:45:22,079

because they don't think that they

1351

00:45:25,910 --> 00:45:23,680

possibly can they say what can i

1352

00:45:27,990 --> 00:45:25,920

possibly do on one person the the

1353

00:45:29,030 --> 00:45:28,000

challenges and the problems are are so

1354

00:45:31,430 --> 00:45:29,040

big

1355

00:45:36,710 --> 00:45:34,790

what i what i've come to realize is that

1356

00:45:38,069 --> 00:45:36,720

you know leaving a legacy you know we're

1357

00:45:39,990 --> 00:45:38,079

all taught to leave a legacy you know

1358

00:45:42,390 --> 00:45:40,000

let everybody know that you're here

1359

00:45:45,349 --> 00:45:42,400

uh but leaving a legacy as the world

1360

00:45:47,349 --> 00:45:45,359

teaches us a legacy what a legacy is i

1361

00:45:49,750 --> 00:45:47,359

think is in the end meaningless you know

1362

00:45:51,589 --> 00:45:49,760

every great statesman every great movie

1363

00:45:53,430 --> 00:45:51,599

star you know every great scientist

1364

00:45:54,870 --> 00:45:53,440

eventually is is going to be forgotten

1365

00:45:56,950 --> 00:45:54,880

every great accompli you know physical

1366

00:45:58,630 --> 00:45:56,960

accomplishment every great cathedral the

1367

00:46:00,710 --> 00:45:58,640

great pyramids eventually are going to

1368

00:46:03,349 --> 00:46:00,720

be reduced to dust

1369

00:46:05,190 --> 00:46:03,359

but where our world will be a hundred

1370

00:46:07,430 --> 00:46:05,200

thousand years from now and where it

1371

00:46:09,589 --> 00:46:07,440

would have been had you not lived are

1372

00:46:12,069 --> 00:46:09,599

going to be vastly different different

1373

00:46:14,150 --> 00:46:12,079

and i think that we are more powerful

1374

00:46:15,910 --> 00:46:14,160

than we could ever imagine and one of

1375

00:46:18,309 --> 00:46:15,920

the ways to think about this is imagine

1376

00:46:20,309 --> 00:46:18,319

that a giant asteroid is coming towards

1377

00:46:22,069 --> 00:46:20,319

the earth and it's it's so big that if

1378

00:46:23,510 --> 00:46:22,079

it hits the earth it'll destroy

1379

00:46:25,750 --> 00:46:23,520

all life on earth

1380

00:46:27,430 --> 00:46:25,760

if we knew about that soon enough we

1381

00:46:29,030 --> 00:46:27,440

wouldn't have to send bruce willis and a

1382

00:46:31,030 --> 00:46:29,040

you know a team of astronauts to go blow

1383

00:46:34,069 --> 00:46:31,040

it to smithereens we could send a small

1384

00:46:35,270 --> 00:46:34,079

spacecraft and with the nudge equivalent

1385

00:46:36,950 --> 00:46:35,280

to the weight of a feather give that

1386

00:46:39,430 --> 00:46:36,960

asteroid just a little nudge and over

1387

00:46:41,510 --> 00:46:39,440

the course of its travel to the earth

1388

00:46:43,109 --> 00:46:41,520

that could result in thousands of miles

1389

00:46:44,550 --> 00:46:43,119

of mysticism saving every living thing

1390

00:46:47,030 --> 00:46:44,560

on the planet and so

1391

00:46:48,550 --> 00:46:47,040

every day uh every moment every action

1392

00:46:51,349 --> 00:46:48,560

every thought every word every deed that

1393

00:46:53,030 --> 00:46:51,359

we do ripples out in all directions uh

1394

00:46:54,950 --> 00:46:53,040

and affects not only the trajectory of

1395

00:46:56,630 --> 00:46:54,960

our own life but the trajectory of our

1396

00:46:58,550 --> 00:46:56,640

entire world um

1397

00:47:00,309 --> 00:46:58,560

and you know hundred thousand years from

1398

00:47:02,550 --> 00:47:00,319

now that that's going to make a big

1399

00:47:04,470 --> 00:47:02,560

difference and so all i'm trying to do

1400

00:47:07,190 --> 00:47:04,480

and i judge my success at the end of

1401

00:47:09,109 --> 00:47:07,200

each day when i set my head on my pillow

1402

00:47:10,950 --> 00:47:09,119

did i make more positive nudges today

1403

00:47:12,550 --> 00:47:10,960

than negative nudges and

1404

00:47:14,790 --> 00:47:12,560

i think all we could ask from folks is

1405

00:47:17,430 --> 00:47:14,800

to to make more positive nudges

1406

00:47:20,630 --> 00:47:17,440

so is part of it advocating for more

1407

00:47:22,870 --> 00:47:20,640

space exploration because um you know it

1408

00:47:25,589 --> 00:47:22,880

it does sort of serve

1409

00:47:27,990 --> 00:47:25,599

the ends that you are seeking in

1410

00:47:30,150 --> 00:47:28,000

theoretically bringing us together yeah

1411

00:47:32,230 --> 00:47:30,160

that's certainly part of it um i think

1412

00:47:34,870 --> 00:47:32,240

one of the best and

1413

00:47:36,470 --> 00:47:34,880

and most effective investments we can

1414

00:47:37,750 --> 00:47:36,480

make in our future is through space

1415

00:47:39,910 --> 00:47:37,760

exploration

1416

00:47:41,670 --> 00:47:39,920

i think that has the biggest payback to

1417

00:47:44,549 --> 00:47:41,680

life on earth and so

1418

00:47:46,470 --> 00:47:44,559

uh and it has sorry the the dual benefit

1419

00:47:48,150 --> 00:47:46,480

i think you would argue right that just

1420

00:47:49,510 --> 00:47:48,160

as the space station brought these 15

1421

00:47:52,069 --> 00:47:49,520

countries together

1422

00:47:55,270 --> 00:47:52,079

as long as we're not constantly battling

1423

00:47:57,670 --> 00:47:55,280

in spade it's not star wars out there

1424

00:47:59,670 --> 00:47:57,680

if it's done in a unified way it has the

1425

00:48:01,430 --> 00:47:59,680

the dual benefit of

1426

00:48:02,309 --> 00:48:01,440

all the knowledge while bringing us

1427

00:48:04,230 --> 00:48:02,319

together

1428

00:48:06,309 --> 00:48:04,240

yeah there's the there's the unifying

1429

00:48:08,069 --> 00:48:06,319

effect of space exploration because it's

1430

00:48:09,829 --> 00:48:08,079

built on the foundation of on wonder

1431

00:48:11,349 --> 00:48:09,839

there's all the scientific and

1432

00:48:12,309 --> 00:48:11,359

technological advancements that come

1433

00:48:14,710 --> 00:48:12,319

from

1434

00:48:17,270 --> 00:48:14,720

the space program there's also the fact

1435

00:48:19,190 --> 00:48:17,280

or not the fact my opinion

1436

00:48:20,549 --> 00:48:19,200

that the more people that have the

1437

00:48:21,829 --> 00:48:20,559

opportunity to see the planet from that

1438

00:48:23,030 --> 00:48:21,839

vantage point though the better off

1439

00:48:24,470 --> 00:48:23,040

we're all going to be here on on the

1440

00:48:27,270 --> 00:48:24,480

earth right so you're a big fan of the

1441

00:48:29,750 --> 00:48:27,280

space travel going on the space tourism

1442

00:48:31,430 --> 00:48:29,760

i should say that that's going on i i am

1443

00:48:33,589 --> 00:48:31,440

a fan of it and i think that it's it's

1444

00:48:36,710 --> 00:48:33,599

the baby steps uh the first steps if you

1445

00:48:37,510 --> 00:48:36,720

will of a blossoming um

1446

00:48:39,589 --> 00:48:37,520

uh

1447

00:48:41,349 --> 00:48:39,599

space travel industry where space travel

1448

00:48:42,470 --> 00:48:41,359

will hopefully become as commonplace as

1449

00:48:43,910 --> 00:48:42,480

air travel

1450

00:48:46,309 --> 00:48:43,920

and i think you know if you look back in

1451

00:48:47,829 --> 00:48:46,319

the early days of aviation it was it was

1452

00:48:49,510 --> 00:48:47,839

not a common thing that people flew on

1453

00:48:52,470 --> 00:48:49,520

an airplane it was a very special event

1454

00:48:53,990 --> 00:48:52,480

by you know really select people uh now

1455

00:48:55,109 --> 00:48:54,000

we don't think twice about hopping on an

1456

00:48:57,750 --> 00:48:55,119

airplane and flying anywhere in the

1457

00:48:59,670 --> 00:48:57,760

world i think we're uh potentially on

1458

00:49:01,190 --> 00:48:59,680

the verge of that uh happening in space

1459

00:49:03,750 --> 00:49:01,200

space travel

1460

00:49:05,430 --> 00:49:03,760

and by the way not to nitpick but i'm

1461

00:49:07,510 --> 00:49:05,440

i'm just curious like these virgin

1462

00:49:09,910 --> 00:49:07,520

galactic flight that they had and then

1463

00:49:12,230 --> 00:49:09,920

what was the what's the bezos company

1464

00:49:14,870 --> 00:49:12,240

blue origin blue origin

1465

00:49:17,430 --> 00:49:14,880

are they truly going far enough up in

1466

00:49:19,510 --> 00:49:17,440

space to in your view truly get the

1467

00:49:21,430 --> 00:49:19,520

perspective because it seems like yeah

1468

00:49:23,190 --> 00:49:21,440

they see the curvature of the earth but

1469

00:49:25,270 --> 00:49:23,200

i'm not sure they're really

1470

00:49:26,710 --> 00:49:25,280

seeing just earth

1471

00:49:28,230 --> 00:49:26,720

yeah they're certain they're certainly

1472

00:49:29,670 --> 00:49:28,240

not seeing the whole planet hanging the

1473

00:49:31,670 --> 00:49:29,680

blackness of space neither are we on the

1474

00:49:33,670 --> 00:49:31,680

space station uh you've got to get a lot

1475

00:49:35,190 --> 00:49:33,680

farther away from the space station but

1476

00:49:37,030 --> 00:49:35,200

the the biggest difference is not

1477

00:49:38,950 --> 00:49:37,040

necessarily how far away from the earth

1478

00:49:41,510 --> 00:49:38,960

you are it's how fast you're going and

1479

00:49:43,510 --> 00:49:41,520

so with with jeff bezos and richard

1480

00:49:46,549 --> 00:49:43,520

branson on their respective flights they

1481

00:49:49,589 --> 00:49:46,559

went to about 3 500 miles an hour uh

1482

00:49:51,190 --> 00:49:49,599

that's pretty fast uh but to but to stay

1483

00:49:53,510 --> 00:49:51,200

in orbit to be in orbit you have to go

1484

00:49:55,990 --> 00:49:53,520

to 17 500 miles an hour

1485

00:49:58,630 --> 00:49:56,000

so i think they flew high enough to get

1486

00:50:00,390 --> 00:49:58,640

a brief glimpse at what it looks what

1487

00:50:02,150 --> 00:50:00,400

the planet looks like from space you

1488

00:50:04,710 --> 00:50:02,160

know on their launches they watched the

1489

00:50:06,150 --> 00:50:04,720

sky turn from blue to black uh they saw

1490

00:50:08,309 --> 00:50:06,160

the curvature of the earth they saw the

1491

00:50:10,470 --> 00:50:08,319

thinness of the atmosphere they saw our

1492

00:50:12,870 --> 00:50:10,480

sun in a black sky not a blue sky and

1493

00:50:14,870 --> 00:50:12,880

that you know they saw our son as a star

1494

00:50:16,950 --> 00:50:14,880

um and so that

1495

00:50:19,349 --> 00:50:16,960

i think that's enough to give you this

1496

00:50:20,950 --> 00:50:19,359

sense uh that i'm looking at a planet

1497

00:50:22,950 --> 00:50:20,960

i'm not just looking down from an out

1498

00:50:24,549 --> 00:50:22,960

you know from a high altitude airplane i

1499

00:50:27,270 --> 00:50:24,559

see that that there's a planet there's a

1500

00:50:29,750 --> 00:50:27,280

planet in space the planet is against

1501

00:50:31,910 --> 00:50:29,760

the bla the backdrop of of black the

1502

00:50:33,589 --> 00:50:31,920

blackness of space that could be a very

1503

00:50:35,109 --> 00:50:33,599

very profound experience it's an

1504

00:50:37,270 --> 00:50:35,119

experience in those cases that doesn't

1505

00:50:40,470 --> 00:50:37,280

last very long it's just a few minutes

1506

00:50:43,109 --> 00:50:40,480

um but where again these are baby steps

1507

00:50:46,390 --> 00:50:43,119

um and you know efforts like spacex and

1508

00:50:48,950 --> 00:50:46,400

other other orbital companies uh are are

1509

00:50:50,309 --> 00:50:48,960

taking people to orbit um and so um

1510

00:50:51,750 --> 00:50:50,319

that's where you go to space and you can

1511

00:50:54,470 --> 00:50:51,760

stay in space

1512

00:50:56,230 --> 00:50:54,480

so it kind of raises an inch in question

1513

00:50:57,990 --> 00:50:56,240

we work together 15 countries on the

1514

00:51:00,950 --> 00:50:58,000

space station but

1515

00:51:03,589 --> 00:51:00,960

is that really the best model

1516

00:51:04,870 --> 00:51:03,599

for advancements in space travel because

1517

00:51:07,270 --> 00:51:04,880

we all know about free market

1518

00:51:09,990 --> 00:51:07,280

competition and how good that can be at

1519

00:51:11,829 --> 00:51:10,000

finding advances and that's sort of the

1520

00:51:13,349 --> 00:51:11,839

model we've got going right now there's

1521

00:51:16,470 --> 00:51:13,359

this element of kind of

1522

00:51:18,630 --> 00:51:16,480

market competition in going to space

1523

00:51:21,829 --> 00:51:18,640

and not so much the

1524

00:51:23,430 --> 00:51:21,839

country's cooperating thing okay so i i

1525

00:51:24,309 --> 00:51:23,440

don't think they're mutually exclusive

1526  
00:51:25,349 --> 00:51:24,319  
um

1527  
00:51:26,549 --> 00:51:25,359  
and

1528  
00:51:28,390 --> 00:51:26,559  
uh you know

1529  
00:51:31,030 --> 00:51:28,400  
i think what what government space

1530  
00:51:32,150 --> 00:51:31,040  
agencies are uniquely um

1531  
00:51:34,390 --> 00:51:32,160  
able to do

1532  
00:51:36,549 --> 00:51:34,400  
is to do things with a very very long

1533  
00:51:38,309 --> 00:51:36,559  
return on investment you know 20 30 year

1534  
00:51:40,630 --> 00:51:38,319  
return on investment there's not a lot

1535  
00:51:43,030 --> 00:51:40,640  
of commercial activities that

1536  
00:51:45,670 --> 00:51:43,040  
will make significant expenditures with

1537  
00:51:49,030 --> 00:51:45,680  
with that long of a return on investment

1538  
00:51:51,109 --> 00:51:49,040

and so what i see not only is

1539

00:51:53,190 --> 00:51:51,119

well what i hope for is not only

1540

00:51:55,030 --> 00:51:53,200

increased international cooperation

1541

00:51:59,510 --> 00:51:55,040

amongst the various governmental space

1542

00:52:01,750 --> 00:51:59,520

agencies but i also hope to see uh more

1543

00:52:03,190 --> 00:52:01,760

public-private partnerships so that you

1544

00:52:05,109 --> 00:52:03,200

have the best of all worlds you have the

1545

00:52:06,870 --> 00:52:05,119

best of the of the free market

1546

00:52:08,790 --> 00:52:06,880

marketplace you have the best of the

1547

00:52:10,790 --> 00:52:08,800

long-term vision of the of the

1548

00:52:12,470 --> 00:52:10,800

of the big and the and the financial

1549

00:52:14,630 --> 00:52:12,480

backing of the big government space

1550

00:52:17,750 --> 00:52:14,640

agencies and the and the history and the

1551  
00:52:19,349 --> 00:52:17,760  
expertise of those agencies as well

1552  
00:52:21,430 --> 00:52:19,359  
you know even you know if you look at

1553  
00:52:22,309 --> 00:52:21,440  
spacex for instance spacex has has

1554  
00:52:24,549 --> 00:52:22,319  
gotten

1555  
00:52:26,630 --> 00:52:24,559  
uh hundreds of millions if not billions

1556  
00:52:30,309 --> 00:52:26,640  
of dollars from the us government um to

1557  
00:52:32,069 --> 00:52:30,319  
spur that commercial market um so uh

1558  
00:52:33,510 --> 00:52:32,079  
it's going to be a it's going to be a

1559  
00:52:35,750 --> 00:52:33,520  
public-private partnership for at least

1560  
00:52:37,910 --> 00:52:35,760  
for a while

1561  
00:52:39,270 --> 00:52:37,920  
and right now you've got unfortunately

1562  
00:52:40,630 --> 00:52:39,280  
some developments going in the wrong

1563  
00:52:42,710 --> 00:52:40,640

direction as far as the countries

1564

00:52:44,790 --> 00:52:42,720

working together isn't there recent news

1565

00:52:46,309 --> 00:52:44,800

that russia and china are planning

1566

00:52:47,589 --> 00:52:46,319

something together that doesn't include

1567

00:52:49,430 --> 00:52:47,599

the us

1568

00:52:50,630 --> 00:52:49,440

yeah and i know and

1569

00:52:53,349 --> 00:52:50,640

i don't know if it doesn't include the

1570

00:52:55,990 --> 00:52:53,359

us because uh the us the us has

1571

00:52:56,950 --> 00:52:56,000

prohibited any cooperation in space with

1572

00:53:00,630 --> 00:52:56,960

china

1573

00:53:02,630 --> 00:53:00,640

so um i i think that's kind of on us so

1574

00:53:03,910 --> 00:53:02,640

i'm of the impression that we need to be

1575

00:53:05,829 --> 00:53:03,920

cooperating

1576

00:53:07,750 --> 00:53:05,839

uh you know not just with russia but

1577

00:53:09,829 --> 00:53:07,760

with everybody uh in in this in the

1578

00:53:11,670 --> 00:53:09,839

space so you would put aside your view

1579

00:53:14,549 --> 00:53:11,680

is put aside all differences whether

1580

00:53:16,630 --> 00:53:14,559

it's trade whether it's human rights

1581

00:53:18,309 --> 00:53:16,640

you know they've got concentration camps

1582

00:53:19,670 --> 00:53:18,319

or whatever's going on

1583

00:53:20,950 --> 00:53:19,680

because there's lots to complain about

1584

00:53:23,030 --> 00:53:20,960

but you know

1585

00:53:25,109 --> 00:53:23,040

among countries but you would say hey

1586

00:53:26,950 --> 00:53:25,119

guys when it comes to space

1587

00:53:28,870 --> 00:53:26,960

we put all that aside

1588

00:53:31,270 --> 00:53:28,880

yeah no i mean there's lines i'm not

1589

00:53:33,030 --> 00:53:31,280

saying that there's not lines that that

1590

00:53:34,950 --> 00:53:33,040

uh countries would cross that would

1591

00:53:36,790 --> 00:53:34,960

prevent us from doing business with them

1592

00:53:38,230 --> 00:53:36,800

but the chinese are going to do amazing

1593

00:53:41,190 --> 00:53:38,240

things in space they're going to do them

1594

00:53:42,630 --> 00:53:41,200

with or without us if we if if they do

1595

00:53:44,150 --> 00:53:42,640

them without us we'll be able to see

1596

00:53:45,349 --> 00:53:44,160

what they're doing but we won't know why

1597

00:53:48,069 --> 00:53:45,359

they're doing it and we won't have

1598

00:53:50,630 --> 00:53:48,079

insight into their programs and so

1599

00:53:53,750 --> 00:53:50,640

you know i think it's too it's in our

1600

00:53:55,990 --> 00:53:53,760

national interest to be cooperating uh

1601  
00:53:57,829 --> 00:53:56,000  
with the chinese in the space program

1602  
00:53:59,750 --> 00:53:57,839  
and i think uh

1603  
00:54:01,109 --> 00:53:59,760  
you know there's there's

1604  
00:54:03,109 --> 00:54:01,119  
it's not not like we're going to be

1605  
00:54:03,910 --> 00:54:03,119  
giving a lot away either i mean it's

1606  
00:54:06,470 --> 00:54:03,920  
it's

1607  
00:54:09,349 --> 00:54:06,480  
most of this stuff is you know is is

1608  
00:54:10,870 --> 00:54:09,359  
known as out in the public domain is is

1609  
00:54:12,870 --> 00:54:10,880  
um

1610  
00:54:15,430 --> 00:54:12,880  
i i think there's a lot to gain and

1611  
00:54:17,030 --> 00:54:15,440  
there's not very much to lose uh in that

1612  
00:54:19,109 --> 00:54:17,040  
sort of thing and i think

1613  
00:54:20,870 --> 00:54:19,119

uh i think the way to go is together i

1614

00:54:21,910 --> 00:54:20,880

really do i think i think we've proven

1615

00:54:24,549 --> 00:54:21,920

that with the international space

1616

00:54:27,510 --> 00:54:24,559

station program uh and it leads to a

1617

00:54:29,829 --> 00:54:27,520

safer world it leads to a it leads to

1618

00:54:31,349 --> 00:54:29,839

more capabilities in our space program

1619

00:54:34,870 --> 00:54:31,359

it leads to more redundancy more

1620

00:54:37,109 --> 00:54:34,880

resiliency um and you know i think we i

1621

00:54:38,630 --> 00:54:37,119

think we should be doing this together

1622

00:54:39,750 --> 00:54:38,640

well we're up against your hard stop

1623

00:54:41,990 --> 00:54:39,760

i'll just kind of

1624

00:54:43,430 --> 00:54:42,000

get your final thoughts on this kind of

1625

00:54:44,789 --> 00:54:43,440

something funny that occurred to me that

1626  
00:54:46,549 --> 00:54:44,799  
you know whenever we think about have we

1627  
00:54:48,309 --> 00:54:46,559  
been visited by aliens or from another

1628  
00:54:49,829 --> 00:54:48,319  
planet we always think of them as a

1629  
00:54:52,470 --> 00:54:49,839  
monolith that it's basically the

1630  
00:54:53,750 --> 00:54:52,480  
representative the martians have come we

1631  
00:54:55,670 --> 00:54:53,760  
don't know what would have happened on

1632  
00:54:57,829 --> 00:54:55,680  
that planet you know how did they get

1633  
00:54:59,670 --> 00:54:57,839  
here was there a bunch of fights over

1634  
00:55:03,270 --> 00:54:59,680  
who was going to get here first in free

1635  
00:55:04,950 --> 00:55:03,280  
market competition or or what so

1636  
00:55:06,870 --> 00:55:04,960  
working together is probably the best

1637  
00:55:09,270 --> 00:55:06,880  
way to travel far right

1638  
00:55:10,549 --> 00:55:09,280

exactly actually and i mean i think we

1639

00:55:12,789 --> 00:55:10,559

would we would come together pretty

1640

00:55:15,190 --> 00:55:12,799

quick if we had some um obvious

1641

00:55:17,990 --> 00:55:15,200

undeniable existential threat

1642

00:55:20,069 --> 00:55:18,000

yeah that was coming at us yeah and do

1643

00:55:21,670 --> 00:55:20,079

we have that yet we don't well i would i

1644

00:55:23,910 --> 00:55:21,680

would argue that i would argue that we

1645

00:55:25,349 --> 00:55:23,920

do uh what but that's why i said

1646

00:55:27,270 --> 00:55:25,359

undeniable

1647

00:55:28,710 --> 00:55:27,280

yeah yeah yeah well yeah you'll have to

1648

00:55:31,589 --> 00:55:28,720

listen to some of our tic tac ufo

1649

00:55:33,030 --> 00:55:31,599

episodes uh on that but that's

1650

00:55:34,950 --> 00:55:33,040

well what i was saying i was saying we

1651  
00:55:35,829 --> 00:55:34,960  
have our own we have our own existential

1652  
00:55:37,589 --> 00:55:35,839  
oh yes

1653  
00:55:40,710 --> 00:55:37,599  
that uh we don't need aliens to to

1654  
00:55:43,270 --> 00:55:40,720  
create we we've created them ourselves

1655  
00:55:45,190 --> 00:55:43,280  
thank you again so much to ron garan you

1656  
00:55:47,670 --> 00:55:45,200  
can check out his book floating in

1657  
00:55:49,510 --> 00:55:47,680  
darkness a journey of evolution

1658  
00:55:52,309 --> 00:55:49,520  
anywhere you buy books

1659  
00:55:54,390 --> 00:55:52,319  
other than amazon

1660  
00:55:56,630 --> 00:55:54,400  
it's on amazon but again we don't

1661  
00:55:59,510 --> 00:55:56,640  
recommend you buy from amazon

1662  
00:56:02,630 --> 00:55:59,520  
they've banned too many books that uh

1663  
00:56:04,549 --> 00:56:02,640

are important books for people to access

1664

00:56:06,230 --> 00:56:04,559

thank you to our producer michael parker

1665

00:56:07,990 --> 00:56:06,240

thank you all for listening

1666

00:56:13,430 --> 00:56:08,000

we'll be back soon with another episode

1667

00:56:16,630 --> 00:56:14,870

thank you for listening to the truth

1668

00:56:20,230 --> 00:56:16,640

show with jim breslow

1669

00:56:22,390 --> 00:56:20,240

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1670

00:56:25,190 --> 00:56:22,400

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1671

00:56:26,950 --> 00:56:25,200

instagram that hit the truth show

1672

00:56:29,589 --> 00:56:26,960

join us again next week for another