



1
00:00:04,150 --> 00:00:02,470
and it hits me oh my gosh this is that

2
00:00:05,349 --> 00:00:04,160
triangle you know there's explanation

3
00:00:07,349 --> 00:00:05,359
for everything that occurred in the

4
00:00:09,830 --> 00:00:07,359
rendelsham forest incident that doesn't

5
00:00:13,270 --> 00:00:09,840
involve aliens at all it was completely

6
00:00:15,990 --> 00:00:13,280
silent it comes right over our heads he

7
00:00:17,670 --> 00:00:16,000
saw a classic flying saucer really

8
00:00:19,349 --> 00:00:17,680
standing in the clearing he turned over

9
00:00:20,710 --> 00:00:19,359
to my father and held his hand and he

10
00:00:23,269 --> 00:00:20,720
looked in his eyes and he said we're not

11
00:00:28,070 --> 00:00:25,670
welcome to podcast ufo with martin

12
00:00:31,830 --> 00:00:28,080
willis and michael lauc please remember

13
00:00:33,910 --> 00:00:31,840

to visit the website podcastufo.com

14

00:00:35,350 --> 00:00:33,920

check out the latest blogs and forums

15

00:00:37,830 --> 00:00:35,360

and while you're there

16

00:00:40,069 --> 00:00:37,840

don't forget to like our very active

17

00:00:42,229 --> 00:00:40,079

facebook page hello and welcome to the

18

00:00:44,229 --> 00:00:42,239

show i'm martin willis your host michael

19

00:00:47,029 --> 00:00:44,239

luke will be joining us for the news in

20

00:00:50,549 --> 00:00:47,039

a second today's podcast is number 74

21

00:00:53,189 --> 00:00:50,559

with dr don lincoln who is a senior

22

00:00:54,869 --> 00:00:53,199

scientist at the fermi lab his primary

23

00:00:57,830 --> 00:00:54,879

research interests

24

00:00:59,430 --> 00:00:57,840

is search for subatomic particles

25

00:01:01,510 --> 00:00:59,440

smaller than quarks

26

00:01:04,350 --> 00:01:01,520

he has a new book out which we will

27

00:01:07,670 --> 00:01:04,360

discuss and it's titled alien universe

28

00:01:10,149 --> 00:01:07,680

extraterrestrial life in our minds and

29

00:01:13,109 --> 00:01:10,159

in the cosmos he doesn't quite believe

30

00:01:15,990 --> 00:01:13,119

that ufos are extraterrestrial visiting

31

00:01:18,230 --> 00:01:16,000

us he needs this darn stuff they call

32

00:01:21,590 --> 00:01:18,240

physical evidence before he's convinced

33

00:01:22,390 --> 00:01:21,600

before we get into the news i'll be live

34

00:01:25,190 --> 00:01:22,400

on

35

00:01:26,870 --> 00:01:25,200

a call-in radio show this sunday the

36

00:01:30,390 --> 00:01:26,880

17th

37

00:01:32,310 --> 00:01:30,400

7 to 8 p.m eastern standard time if

38

00:01:35,030 --> 00:01:32,320

you're not in boston

39

00:01:38,510 --> 00:01:35,040

pittsburgh detroit or seattle you can

40

00:01:40,870 --> 00:01:38,520

listen through radio.com

41

00:01:42,630 --> 00:01:40,880

womc w-o-m-c-f-m

42

00:01:44,469 --> 00:01:42,640

so that's it for me michael what's going

43

00:01:47,270 --> 00:01:44,479

on with the news

44

00:01:50,149 --> 00:01:47,280

um well first off some science news the

45

00:01:52,469 --> 00:01:50,159

hubble has spotted a six-tailed comet

46

00:01:54,149 --> 00:01:52,479

and or asteroid

47

00:01:56,950 --> 00:01:54,159

an article due to be published in the

48

00:02:01,270 --> 00:01:56,960

astrophysical journal letters highlights

49

00:02:04,630 --> 00:02:01,280

an object spotted by hubble named p2013

50

00:02:06,870 --> 00:02:04,640

p5 with an orbit like an asteroid but

51
00:02:08,550 --> 00:02:06,880
multiple tails like a comet one

52
00:02:11,110 --> 00:02:08,560
explanation for the strange objects

53
00:02:12,949 --> 00:02:11,120
suggested by john hopkins applied

54
00:02:15,910 --> 00:02:12,959
physics laboratory scientist harold

55
00:02:17,670 --> 00:02:15,920
weaver is that it is indeed an asteroid

56
00:02:19,830 --> 00:02:17,680
but the six tails are being created as

57
00:02:21,270 --> 00:02:19,840
it breaks apart this explanation

58
00:02:23,589 --> 00:02:21,280
according to southwest research

59
00:02:27,430 --> 00:02:23,599
institute planetary scientist william

60
00:02:30,070 --> 00:02:27,440
botkey is quote unquote cool but

61
00:02:31,750 --> 00:02:30,080
quote far from proven that's pretty wild

62
00:02:33,910 --> 00:02:31,760
you see i'm going to post the picture in

63
00:02:36,229 --> 00:02:33,920

our show notes

64

00:02:38,229 --> 00:02:36,239

it's a really it looks like someone said

65

00:02:39,110 --> 00:02:38,239

a sprinkler almost

66

00:02:44,470 --> 00:02:39,120

and

67

00:02:46,949 --> 00:02:44,480

all that but the celabinsk near earth

68

00:02:48,710 --> 00:02:46,959

asteroid that actually burst in russia

69

00:02:52,150 --> 00:02:48,720

scientists are discovering that was just

70

00:02:54,949 --> 00:02:52,160

a fragment of what could be a uh about a

71

00:02:56,869 --> 00:02:54,959

two kilometer asteroid there was a

72

00:02:58,869 --> 00:02:56,879

collision some time ago and this is a

73

00:03:01,430 --> 00:02:58,879

fragmented piece we don't really have to

74

00:03:03,830 --> 00:03:01,440

worry about the two kilometer asteroid

75

00:03:06,309 --> 00:03:03,840

but we do have to worry about other

76
00:03:08,070 --> 00:03:06,319
fragments that might have broken off in

77
00:03:11,270 --> 00:03:08,080
that and coming from the direction of

78
00:03:13,110 --> 00:03:11,280
the sun it's impossible to spot them so

79
00:03:15,830 --> 00:03:13,120
that's interesting it's probably about

80
00:03:18,710 --> 00:03:15,840
once every 25 years type of event will

81
00:03:20,550 --> 00:03:18,720
happen oh only once every 25 years

82
00:03:23,030 --> 00:03:20,560
great

83
00:03:24,790 --> 00:03:23,040
i think this all just highlights the

84
00:03:25,910 --> 00:03:24,800
real need for

85
00:03:28,229 --> 00:03:25,920
looking

86
00:03:31,030 --> 00:03:28,239
into new ways to spot

87
00:03:33,110 --> 00:03:31,040
the near-earth objects particularly ones

88
00:03:35,030 --> 00:03:33,120

like you mentioned that are coming

89

00:03:37,430 --> 00:03:35,040

uh the direction of the sun and can't be

90

00:03:39,509 --> 00:03:37,440

seen with telescopes right

91

00:03:41,990 --> 00:03:39,519

lee spiegel claims spike in ufo

92

00:03:43,830 --> 00:03:42,000

sightings linked to drones in a recent

93

00:03:46,550 --> 00:03:43,840

huffington post article lee spiegel

94

00:03:49,110 --> 00:03:46,560

opined that worldwide spike in ufo

95

00:03:51,670 --> 00:03:49,120

sightings may be linked to the rise in

96

00:03:53,270 --> 00:03:51,680

unmanned aerial vehicles or drones he

97

00:03:55,670 --> 00:03:53,280

points specifically to the recent

98

00:03:57,750 --> 00:03:55,680

canadian baseball game hoax and the

99

00:04:00,390 --> 00:03:57,760

russian news agency aerial camera

100

00:04:02,550 --> 00:04:00,400

platform as specific examples

101
00:04:04,710 --> 00:04:02,560
do you remember uh we had that news

102
00:04:06,470 --> 00:04:04,720
first remember that we talked about that

103
00:04:08,949 --> 00:04:06,480
we thought they would spike oh i don't

104
00:04:13,190 --> 00:04:08,959
know maybe three or four months ago

105
00:04:14,710 --> 00:04:13,200
we did talk about it a while ago and um

106
00:04:17,110 --> 00:04:14,720
unlike

107
00:04:19,749 --> 00:04:17,120
his article you know i

108
00:04:22,390 --> 00:04:19,759
i don't think we ever have implied that

109
00:04:23,990 --> 00:04:22,400
drones look like ufos oh he actually

110
00:04:25,590 --> 00:04:24,000
does i know that there are some of them

111
00:04:26,790 --> 00:04:25,600
that actually do

112
00:04:28,710 --> 00:04:26,800
you know some of them that are the

113
00:04:30,710 --> 00:04:28,720

circular ones with multiple fans and

114

00:04:32,469 --> 00:04:30,720

things like that well well that's a prob

115

00:04:33,749 --> 00:04:32,479

those aren't actually drones what are

116

00:04:34,870 --> 00:04:33,759

they called

117

00:04:36,870 --> 00:04:34,880

those

118

00:04:38,710 --> 00:04:36,880

when when people talk about drones are

119

00:04:40,950 --> 00:04:38,720

coming to the united states if the faa

120

00:04:42,950 --> 00:04:40,960

is going to approve drones what they're

121

00:04:43,990 --> 00:04:42,960

talking about are unmanned aerial

122

00:04:46,310 --> 00:04:44,000

vehicles

123

00:04:49,030 --> 00:04:46,320

that and by definition

124

00:04:52,390 --> 00:04:49,040

this is something that can be flown

125

00:04:55,510 --> 00:04:52,400

out of the line of sight of the operator

126

00:04:57,909 --> 00:04:55,520

okay so those quadricopter things that

127

00:05:00,950 --> 00:04:57,919

you can run with your iphone or buy or

128

00:05:03,990 --> 00:05:00,960

build and they literally can be a small

129

00:05:06,150 --> 00:05:04,000

i was looking at one the other day

130

00:05:08,150 --> 00:05:06,160

that i believe was two and a half inches

131

00:05:10,790 --> 00:05:08,160

across

132

00:05:12,870 --> 00:05:10,800

um and they start there and they can get

133

00:05:14,629 --> 00:05:12,880

up to be a couple

134

00:05:17,110 --> 00:05:14,639

a couple yards across i've actually seen

135

00:05:20,150 --> 00:05:17,120

people build them um if it's in line of

136

00:05:22,790 --> 00:05:20,160

sight it's not technically a drone it's

137

00:05:25,270 --> 00:05:22,800

not this this new unmanned aerial

138

00:05:26,230 --> 00:05:25,280

vehicle it those things are basically i

139

00:05:27,430 --> 00:05:26,240

mean

140

00:05:29,670 --> 00:05:27,440

they're basically remote control

141

00:05:31,830 --> 00:05:29,680

helicopters they're they're toys you

142

00:05:33,749 --> 00:05:31,840

know the unmanned the drones that

143

00:05:37,270 --> 00:05:33,759

everybody's talking about

144

00:05:39,029 --> 00:05:37,280

which are are not line of sight objects

145

00:05:40,469 --> 00:05:39,039

those you know and i've looked into it

146

00:05:42,629 --> 00:05:40,479

quite a bit because this is a field i've

147

00:05:43,749 --> 00:05:42,639

been kind of thinking about going into

148

00:05:45,909 --> 00:05:43,759

those

149

00:05:46,710 --> 00:05:45,919

really almost always

150

00:05:47,830 --> 00:05:46,720

look

151

00:05:50,150 --> 00:05:47,840

like

152

00:05:54,070 --> 00:05:50,160

some kind of

153

00:05:56,790 --> 00:05:54,080

relatively large in comparison to a

154

00:05:58,950 --> 00:05:56,800

typical model plane plane of some sort

155

00:06:03,029 --> 00:05:58,960

and a lot of them are you know

156

00:06:05,110 --> 00:06:03,039

six eight feet or much larger um even

157

00:06:08,710 --> 00:06:05,120

even uh one of the articles that we're

158

00:06:12,309 --> 00:06:08,720

linked to which mentions the um

159

00:06:14,390 --> 00:06:12,319

x47b which is a a naval drone i believe

160

00:06:16,390 --> 00:06:14,400

it's the navy who runs it i mean that

161

00:06:18,230 --> 00:06:16,400

looks like a small version of the

162

00:06:20,629 --> 00:06:18,240

stealth fighter you know it really

163

00:06:22,550 --> 00:06:20,639

doesn't look like a ufo per se

164

00:06:24,629 --> 00:06:22,560

you know it looks like a known aircraft

165

00:06:27,510 --> 00:06:24,639

here's the thing right now drones are

166

00:06:30,070 --> 00:06:27,520

illegal in the united states you cannot

167

00:06:32,150 --> 00:06:30,080

buy a when the drones that are being

168

00:06:35,270 --> 00:06:32,160

talked about you cannot buy one you

169

00:06:36,550 --> 00:06:35,280

cannot fly one uh the faa is going to

170

00:06:38,790 --> 00:06:36,560

open up

171

00:06:40,629 --> 00:06:38,800

the skyways to them

172

00:06:42,710 --> 00:06:40,639

probably sometime next year they might

173

00:06:44,390 --> 00:06:42,720

push it back to 2015

174

00:06:46,950 --> 00:06:44,400

but but right now you

175

00:06:49,830 --> 00:06:46,960

you can't get one your local police

176
00:06:52,150 --> 00:06:49,840
can't get their hands on them there's a

177
00:06:53,909 --> 00:06:52,160
half a dozen test areas

178
00:06:55,670 --> 00:06:53,919
you know across the country and that's

179
00:06:57,350 --> 00:06:55,680
it so

180
00:06:58,710 --> 00:06:57,360
they're really not at least over the

181
00:07:01,029 --> 00:06:58,720
united states

182
00:07:02,790 --> 00:07:01,039
with any regularity unless you're around

183
00:07:05,830 --> 00:07:02,800
a military test facility and they do

184
00:07:09,350 --> 00:07:05,840
have a uav unmanned aerial vehicle test

185
00:07:11,189 --> 00:07:09,360
facility in nevada i know um that's run

186
00:07:12,710 --> 00:07:11,199
by the air force i think they're there

187
00:07:14,629 --> 00:07:12,720
probably are more

188
00:07:17,749 --> 00:07:14,639

but you know other than that they're not

189

00:07:19,350 --> 00:07:17,759

in the american skies right now so

190

00:07:21,830 --> 00:07:19,360

you know i think a lot of people are are

191

00:07:23,909 --> 00:07:21,840

over hyping this yeah probably well you

192

00:07:27,029 --> 00:07:23,919

heard it first right here from michael

193

00:07:28,830 --> 00:07:27,039

lauc dronologist

194

00:07:31,270 --> 00:07:28,840

is that what you would be a

195

00:07:33,909 --> 00:07:31,280

dronologist um you probably want me to

196

00:07:35,830 --> 00:07:33,919

edit that out but i'm not going to

197

00:07:38,230 --> 00:07:35,840

i don't i don't know i uh i don't know

198

00:07:40,550 --> 00:07:38,240

what they would call me i mean

199

00:07:43,029 --> 00:07:40,560

in a lot of ways glorified

200

00:07:45,990 --> 00:07:43,039

model airplane dude

201

00:07:48,629 --> 00:07:46,000

yeah okay i like that all right eric von

202

00:07:50,390 --> 00:07:48,639

daniken releases new book remnants of

203

00:07:53,189 --> 00:07:50,400

the gods the newest book by eric von

204

00:07:54,469 --> 00:07:53,199

daniken will be released november 25th

205

00:07:57,670 --> 00:07:54,479

in the united states according to

206

00:07:59,430 --> 00:07:57,680

amazon.com although kindle editions are

207

00:08:01,350 --> 00:07:59,440

currently available

208

00:08:03,589 --> 00:08:01,360

in this update to his famous ancient

209

00:08:05,589 --> 00:08:03,599

aliens theory vandonakin moves through

210

00:08:08,469 --> 00:08:05,599

examples he maintains show alien

211

00:08:11,909 --> 00:08:08,479

influence in france turkey italy and of

212

00:08:13,830 --> 00:08:11,919

course egypt well ironically the guest

213

00:08:16,790 --> 00:08:13,840

in this uh podcast

214

00:08:19,270 --> 00:08:16,800

uh talks about him and so you'll have to

215

00:08:20,790 --> 00:08:19,280

listen in for that he points out

216

00:08:22,950 --> 00:08:20,800

some of the mistakes and things that

217

00:08:25,189 --> 00:08:22,960

were pointed out to him and the chariots

218

00:08:26,869 --> 00:08:25,199

of the gods and how he approached it

219

00:08:29,270 --> 00:08:26,879

he's got to be getting on in age do you

220

00:08:31,189 --> 00:08:29,280

know how old he is now

221

00:08:33,670 --> 00:08:31,199

you know i'm not sure but but chariots

222

00:08:35,110 --> 00:08:33,680

of the gods came out

223

00:08:38,230 --> 00:08:35,120

well over

224

00:08:39,430 --> 00:08:38,240

no in the 60s was it really it was

225

00:08:41,670 --> 00:08:39,440

written in the late 60s it might have

226

00:08:44,149 --> 00:08:41,680

come out in america in the 70s but it i

227

00:08:47,030 --> 00:08:44,159

believe it was 69

228

00:08:49,910 --> 00:08:47,040

that it that it came out in europe so

229

00:08:50,870 --> 00:08:49,920

about almost 45 years ago now wow you

230

00:08:52,710 --> 00:08:50,880

know

231

00:08:54,310 --> 00:08:52,720

if you really think about this whole

232

00:08:56,870 --> 00:08:54,320

thing about ancient aliens i don't think

233

00:08:58,310 --> 00:08:56,880

you and i have ever talked about that

234

00:09:00,710 --> 00:08:58,320

in the past but

235

00:09:02,710 --> 00:09:00,720

if you really think about it you know

236

00:09:05,350 --> 00:09:02,720

ten thousand years ago whatever is such

237

00:09:07,590 --> 00:09:05,360

a small sliver of time uh it wouldn't

238

00:09:09,990 --> 00:09:07,600

make any difference whether we were

239

00:09:10,790 --> 00:09:10,000

being visited then in my opinion what do

240

00:09:13,910 --> 00:09:10,800

you think

241

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

i agree i mean a a visit from

242

00:09:17,509 --> 00:09:15,600

extraterrestrials is a visit from

243

00:09:20,550 --> 00:09:17,519

extraterrestrials

244

00:09:22,949 --> 00:09:20,560

um i i have to admit i don't understand

245

00:09:25,509 --> 00:09:22,959

the fascination with fond donakin i know

246

00:09:29,030 --> 00:09:25,519

he kind of popularized this theory but

247

00:09:32,550 --> 00:09:29,040

you know honestly it was in star trek

248

00:09:34,829 --> 00:09:32,560

you know yeah it it's not his original

249

00:09:38,550 --> 00:09:34,839

theory and he is not

250

00:09:40,710 --> 00:09:38,560

perhaps the greatest spokesperson for it

251
00:09:42,630 --> 00:09:40,720
in many ways he

252
00:09:46,230 --> 00:09:42,640
has a rather checkered past and he is

253
00:09:48,550 --> 00:09:46,240
not an academic in any way and i think

254
00:09:50,630 --> 00:09:48,560
he is an easy target for people who do

255
00:09:52,790 --> 00:09:50,640
want to kind of dismantle

256
00:09:55,269 --> 00:09:52,800
the whole overall theory

257
00:09:57,110 --> 00:09:55,279
when you say a checkered past

258
00:09:57,990 --> 00:09:57,120
i didn't realize there was a checkered

259
00:09:59,990 --> 00:09:58,000
past

260
00:10:02,550 --> 00:10:00,000
is this another conspiracy

261
00:10:04,710 --> 00:10:02,560
it's not a conspiracy here

262
00:10:06,230 --> 00:10:04,720
he actually embezzled money from a hotel

263
00:10:09,829 --> 00:10:06,240

i mean he was convicted of this in

264

00:10:11,670 --> 00:10:09,839

switzerland um i believe he was involved

265

00:10:13,590 --> 00:10:11,680

with some kind of criminal charges in

266

00:10:16,550 --> 00:10:13,600

egypt before that as well

267

00:10:18,710 --> 00:10:16,560

and that's how he funded the travels for

268

00:10:19,829 --> 00:10:18,720

chariots of the gods well someone had to

269

00:10:21,430 --> 00:10:19,839

pay for it

270

00:10:23,670 --> 00:10:21,440

yeah well yes

271

00:10:26,310 --> 00:10:23,680

but i mean that's not that's that

272

00:10:29,110 --> 00:10:26,320

doesn't put one on on the most solid and

273

00:10:31,110 --> 00:10:29,120

reputable ground to begin with

274

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

and then like i said i mean he's not

275

00:10:35,829 --> 00:10:33,279

he's not an academic in any way shape or

276

00:10:37,750 --> 00:10:35,839

form although he he popularized the

277

00:10:40,230 --> 00:10:37,760

theory and kind of brought it into the

278

00:10:41,750 --> 00:10:40,240

mainstream perhaps um

279

00:10:44,710 --> 00:10:41,760

like like i said

280

00:10:46,470 --> 00:10:44,720

40 years later i don't know that he

281

00:10:47,269 --> 00:10:46,480

quite deserves

282

00:10:49,030 --> 00:10:47,279

the

283

00:10:49,990 --> 00:10:49,040

air of respect

284

00:10:51,750 --> 00:10:50,000

that

285

00:10:54,310 --> 00:10:51,760

he is granted

286

00:10:57,269 --> 00:10:54,320

in the ufo community and i think he

287

00:10:59,110 --> 00:10:57,279

really might be more of a detriment in a

288

00:11:01,750 --> 00:10:59,120

lot of ways than a help

289

00:11:03,509 --> 00:11:01,760

yeah yeah i can see that hey you know

290

00:11:05,670 --> 00:11:03,519

last week we talked a little bit about

291

00:11:08,310 --> 00:11:05,680

art bell and we got we got quite a bit

292

00:11:10,470 --> 00:11:08,320

of email about that uh

293

00:11:11,829 --> 00:11:10,480

of varying opinions and

294

00:11:14,550 --> 00:11:11,839

a lot of people didn't like all the

295

00:11:17,269 --> 00:11:14,560

things we said but you know i i've been

296

00:11:17,990 --> 00:11:17,279

uh i'm friends with art on facebook as

297

00:11:21,350 --> 00:11:18,000

in

298

00:11:22,710 --> 00:11:21,360

is it five thousand is the limit or

299

00:11:24,870 --> 00:11:22,720

something like that but

300

00:11:26,630 --> 00:11:24,880

i i'm seeing the struggles he is going

301
00:11:28,870 --> 00:11:26,640
through right now and he really can't do

302
00:11:31,030 --> 00:11:28,880
anything with this non-compete clause

303
00:11:33,430 --> 00:11:31,040
that he has in his contract with uh

304
00:11:35,509 --> 00:11:33,440
siriusxm so who knows he's going to do

305
00:11:39,190 --> 00:11:35,519
is because he's going to lay low but uh

306
00:11:40,630 --> 00:11:39,200
he he well siriusxm has since um gone

307
00:11:42,949 --> 00:11:40,640
back and

308
00:11:45,750 --> 00:11:42,959
renewed their contract with coast to

309
00:11:47,509 --> 00:11:45,760
coast which had lapsed uh several months

310
00:11:49,990 --> 00:11:47,519
ago and i believe

311
00:11:51,750 --> 00:11:50,000
they were only on exit plans before and

312
00:11:53,990 --> 00:11:51,760
now they are on both

313
00:11:57,509 --> 00:11:54,000

sirius and xm plans

314

00:12:00,069 --> 00:11:57,519

so i think they have uh decided to

315

00:12:02,389 --> 00:12:00,079

let mr bell's ship sail

316

00:12:04,550 --> 00:12:02,399

wow how about that i didn't hear any of

317

00:12:07,190 --> 00:12:04,560

this part when did that come out

318

00:12:09,829 --> 00:12:07,200

um it was just announced this week

319

00:12:11,670 --> 00:12:09,839

so uh actually you know as far as when

320

00:12:12,949 --> 00:12:11,680

we're recording it was just announced by

321

00:12:14,870 --> 00:12:12,959

the time people are listening to this

322

00:12:17,829 --> 00:12:14,880

it'll it'll be a couple days

323

00:12:19,990 --> 00:12:17,839

yeah hey is that it for the news today

324

00:12:22,389 --> 00:12:20,000

uh that is it for the news today well

325

00:12:24,310 --> 00:12:22,399

great well thanks michael and we do have

326

00:12:25,509 --> 00:12:24,320

a little bit of a sound issue here you

327

00:12:27,030 --> 00:12:25,519

can hear it we're trying to figure out

328

00:12:29,190 --> 00:12:27,040

what's going on and hopefully we'll get

329

00:12:30,949 --> 00:12:29,200

that uh get that fixed by next week well

330

00:12:31,829 --> 00:12:30,959

thanks michael and i'll talk to you next

331

00:12:37,269 --> 00:12:31,839

week

332

00:13:12,069 --> 00:12:37,279

for this interview with don lincoln

333

00:13:12,079 --> 00:13:59,670

so

334

00:14:02,870 --> 00:14:01,910

okay i'm with dawn lincoln how are you

335

00:14:05,590 --> 00:14:02,880

don

336

00:14:08,550 --> 00:14:05,600

fine and yourself great um you are a

337

00:14:10,790 --> 00:14:08,560

physicist at the fermi lab and we were

338

00:14:13,110 --> 00:14:10,800

talking about your book that came out

339

00:14:15,110 --> 00:14:13,120

and can you say the title of that

340

00:14:17,750 --> 00:14:15,120

yes the title of the book is alien

341

00:14:19,829 --> 00:14:17,760

universe extraterrestrial life in our

342

00:14:21,350 --> 00:14:19,839

minds and in the cosmos

343

00:14:22,949 --> 00:14:21,360

well that pretty much says it all right

344

00:14:25,350 --> 00:14:22,959

there doesn't it

345

00:14:27,350 --> 00:14:25,360

yeah that i i like the title i mean it

346

00:14:29,269 --> 00:14:27,360

does it there was of course you know

347

00:14:31,590 --> 00:14:29,279

some discussion with the

348

00:14:32,790 --> 00:14:31,600

publisher as to what the proper one was

349

00:14:35,430 --> 00:14:32,800

when we settled on this i was quite

350

00:14:37,189 --> 00:14:35,440

happy with it yeah that's great now

351

00:14:39,189 --> 00:14:37,199

before we get into

352

00:14:41,030 --> 00:14:39,199

your book in general there's some

353

00:14:43,509 --> 00:14:41,040

questions i thought it would be great to

354

00:14:45,829 --> 00:14:43,519

ask you that i've thought of and i

355

00:14:47,829 --> 00:14:45,839

recently had an astronomer on i forgot

356

00:14:50,069 --> 00:14:47,839

to ask him this question so this has to

357

00:14:52,310 --> 00:14:50,079

do with the big bang basically the way

358

00:14:54,629 --> 00:14:52,320

we calculate the big bang is by going

359

00:14:55,750 --> 00:14:54,639

backwards from our expanding universe

360

00:14:57,509 --> 00:14:55,760

more or less

361

00:15:00,150 --> 00:14:57,519

but with the discovery that the universe

362

00:15:02,470 --> 00:15:00,160

is actually expanding faster and faster

363

00:15:04,629 --> 00:15:02,480

a thought came to mind uh could you

364

00:15:06,790 --> 00:15:04,639

assume that if it's going faster and

365

00:15:09,590 --> 00:15:06,800

faster then maybe it used to expand

366

00:15:11,509 --> 00:15:09,600

slower and slower and if so that would

367

00:15:13,990 --> 00:15:11,519

seem like it would make our estimate of

368

00:15:16,790 --> 00:15:14,000

age of our universe very difficult to

369

00:15:18,389 --> 00:15:16,800

judge what are your thoughts about that

370

00:15:19,590 --> 00:15:18,399

well see here's the really nice thing

371

00:15:22,949 --> 00:15:19,600

about that

372

00:15:25,030 --> 00:15:22,959

we are able to look out into deep space

373

00:15:26,470 --> 00:15:25,040

and in doing so

374

00:15:29,670 --> 00:15:26,480

we see things that are of course very

375

00:15:32,069 --> 00:15:29,680

far away and a long time ago so it's not

376

00:15:33,750 --> 00:15:32,079

that we are guessing how the universe

377

00:15:35,509 --> 00:15:33,760

was expanding in the past we actually

378

00:15:37,430 --> 00:15:35,519

measure it

379

00:15:39,509 --> 00:15:37,440

you look how far away they are you look

380

00:15:41,670 --> 00:15:39,519

at the velocity that they're expanding

381

00:15:43,509 --> 00:15:41,680

at and so the

382

00:15:45,189 --> 00:15:43,519

age of the universe is actually pretty

383

00:15:47,750 --> 00:15:45,199

accurately known

384

00:15:49,910 --> 00:15:47,760

um it's uh

385

00:15:52,389 --> 00:15:49,920

um known to like a part in a thousand or

386

00:15:54,150 --> 00:15:52,399

so it's uh it's quite impressive

387

00:15:56,150 --> 00:15:54,160

huh and i i understand that it's

388

00:15:58,269 --> 00:15:56,160

recently increased a little bit

389

00:16:01,030 --> 00:15:58,279

uh yes our age calculation

390

00:16:03,910 --> 00:16:01,040

13.8 billion or something like that

391

00:16:06,790 --> 00:16:03,920

right it was uh something in the order

392

00:16:08,790 --> 00:16:06,800

of 13.7 and now it's 13.8 so it's like

393

00:16:11,269 --> 00:16:08,800

parts per thousand is where the changes

394

00:16:12,790 --> 00:16:11,279

are occurring now would you ever

395

00:16:15,749 --> 00:16:12,800

consider the fact that it's a

396

00:16:17,590 --> 00:16:15,759

possibility that the big bang theory

397

00:16:19,990 --> 00:16:17,600

might be all wrong

398

00:16:21,509 --> 00:16:20,000

this is one of the questions that one

399

00:16:23,590 --> 00:16:21,519

gets often

400

00:16:25,829 --> 00:16:23,600

people somehow think of science in the

401
00:16:27,910 --> 00:16:25,839
same way as people think of you know

402
00:16:30,870 --> 00:16:27,920
political philosophy or religion or

403
00:16:32,949 --> 00:16:30,880
something in science everything is open

404
00:16:35,430 --> 00:16:32,959
to question always

405
00:16:37,590 --> 00:16:35,440
it just happens that the data is

406
00:16:39,269 --> 00:16:37,600
strongly supportive of the big bang

407
00:16:40,949 --> 00:16:39,279
however if we find

408
00:16:43,189 --> 00:16:40,959
some data that

409
00:16:44,870 --> 00:16:43,199
uh is contrary to what the big bang

410
00:16:46,389 --> 00:16:44,880
theory predicts then that big bang

411
00:16:48,230 --> 00:16:46,399
theory is dead

412
00:16:49,990 --> 00:16:48,240
scientists don't hang on to these

413
00:16:52,389 --> 00:16:50,000

theories you know in sort of an

414

00:16:53,189 --> 00:16:52,399

emotional way i mean we like them they

415

00:16:56,790 --> 00:16:53,199

work

416

00:16:58,550 --> 00:16:56,800

but uh but sure i would easily uh drop

417

00:17:00,949 --> 00:16:58,560

it if if the data point in that

418

00:17:03,590 --> 00:17:00,959

direction yeah sometimes i wonder if we

419

00:17:06,150 --> 00:17:03,600

know just a little tiny fragment of what

420

00:17:08,470 --> 00:17:06,160

is really the truth in the universe

421

00:17:10,789 --> 00:17:08,480

it's uh it's just so mysterious really

422

00:17:14,230 --> 00:17:10,799

that's my own opinion of course with the

423

00:17:16,230 --> 00:17:14,240

discovery of the higgs boson recently

424

00:17:19,350 --> 00:17:16,240

there's more or less solidifying of the

425

00:17:20,710 --> 00:17:19,360

big bang theory can you explain how that

426
00:17:23,350 --> 00:17:20,720
fits in

427
00:17:25,750 --> 00:17:23,360
actually the higgs boson and the big

428
00:17:27,270 --> 00:17:25,760
bang theory are really unrelated

429
00:17:29,669 --> 00:17:27,280
um

430
00:17:31,510 --> 00:17:29,679
they have some small connections uh the

431
00:17:33,510 --> 00:17:31,520
big bang is simply the theory that the

432
00:17:35,510 --> 00:17:33,520
universe was once much smaller and

433
00:17:37,590 --> 00:17:35,520
hotter and is now expanding from that

434
00:17:40,070 --> 00:17:37,600
that primordial state

435
00:17:43,350 --> 00:17:40,080
the higgs theory tries to explain the

436
00:17:44,789 --> 00:17:43,360
behavior of matter at a stage in the

437
00:17:46,710 --> 00:17:44,799
universe

438
00:17:48,710 --> 00:17:46,720

and the large hadron collider where i do

439

00:17:50,150 --> 00:17:48,720

my research we can recreate the

440

00:17:51,830 --> 00:17:50,160

conditions of the universe about a

441

00:17:53,110 --> 00:17:51,840

trillionth of a second after the big

442

00:17:55,590 --> 00:17:53,120

bang

443

00:17:57,510 --> 00:17:55,600

and that allows us to understand sort of

444

00:18:00,070 --> 00:17:57,520

in detail the the very

445

00:18:02,710 --> 00:18:00,080

not the exact instant of the creation of

446

00:18:03,669 --> 00:18:02,720

the universe but shortly thereafter and

447

00:18:07,750 --> 00:18:03,679

so

448

00:18:10,789 --> 00:18:07,760

idea is totally wrong and we have to get

449

00:18:12,950 --> 00:18:10,799

rid of it it doesn't negate anything the

450

00:18:14,710 --> 00:18:12,960

sort of fundamental premise of the big

451
00:18:17,510 --> 00:18:14,720
bang which was the universe was hotter

452
00:18:18,549 --> 00:18:17,520
and smaller and is expanding so

453
00:18:20,390 --> 00:18:18,559
you know

454
00:18:21,270 --> 00:18:20,400
the higgs just tells us

455
00:18:36,390 --> 00:18:21,280
a

456
00:18:39,510 --> 00:18:36,400
higgs boson is

457
00:18:41,510 --> 00:18:39,520
yes there are a lot of them and uh

458
00:18:44,549 --> 00:18:41,520
if you uh

459
00:18:47,750 --> 00:18:44,559
would like i can send you a lovely url i

460
00:18:50,710 --> 00:18:47,760
made a video with the ted ed people that

461
00:18:53,430 --> 00:18:50,720
is the best explanation in my opinion so

462
00:18:55,990 --> 00:18:53,440
let me kind of sketch that out right now

463
00:18:58,630 --> 00:18:56,000

about 20 years ago the british science

464

00:19:01,190 --> 00:18:58,640

minister had a contest and asked

465

00:19:02,950 --> 00:19:01,200

scientists to write down what was the

466

00:19:05,110 --> 00:19:02,960

nature of the higgs boson

467

00:19:06,789 --> 00:19:05,120

on one page of paper and so the winner

468

00:19:07,750 --> 00:19:06,799

was a physicist by the name of david

469

00:19:08,830 --> 00:19:07,760

millar

470

00:19:12,070 --> 00:19:08,840

and

471

00:19:14,230 --> 00:19:12,080

um what he described the

472

00:19:15,270 --> 00:19:14,240

higgs both field and boson is the

473

00:19:17,909 --> 00:19:15,280

following

474

00:19:20,390 --> 00:19:17,919

because the higgs field is the thing

475

00:19:22,150 --> 00:19:20,400

that gives particles matter and an

476
00:19:23,909 --> 00:19:22,160
analogy for that is suppose you have a

477
00:19:27,029 --> 00:19:23,919
large cocktail party

478
00:19:29,990 --> 00:19:27,039
and two people enter the room one is a

479
00:19:31,990 --> 00:19:30,000
famous scientist say peter higgs and one

480
00:19:33,669 --> 00:19:32,000
is a less famous scientist the less

481
00:19:35,190 --> 00:19:33,679
famous scientist can walk across the

482
00:19:37,430 --> 00:19:35,200
room and get to the bar without any

483
00:19:38,789 --> 00:19:37,440
difficulty because he does not interact

484
00:19:41,029 --> 00:19:38,799
much with the field

485
00:19:42,549 --> 00:19:41,039
in contrast the peter higgs when he

486
00:19:44,549 --> 00:19:42,559
walks across the

487
00:19:45,669 --> 00:19:44,559
room people are wanting to talk to him

488
00:19:47,590 --> 00:19:45,679

tell him about

489

00:19:49,750 --> 00:19:47,600

ask him about his theory and so forth

490

00:19:51,669 --> 00:19:49,760

and so he has a much more difficult time

491

00:19:53,510 --> 00:19:51,679

crossing the room because he interacts

492

00:19:56,070 --> 00:19:53,520

far more with the crowd

493

00:19:57,669 --> 00:19:56,080

in the same way particles interact more

494

00:20:00,150 --> 00:19:57,679

or less with a higgs field gaining more

495

00:20:02,549 --> 00:20:00,160

or less mass so that's how particles are

496

00:20:05,430 --> 00:20:02,559

given mass by the higgs field the higgs

497

00:20:06,789 --> 00:20:05,440

boson is a clump in the field it's like

498

00:20:09,750 --> 00:20:06,799

a vibration

499

00:20:13,190 --> 00:20:09,760

so um the analogy there

500

00:20:15,110 --> 00:20:13,200

is suppose someone at the door

501
00:20:17,029 --> 00:20:15,120
announced a little rumor

502
00:20:18,870 --> 00:20:17,039
well the people near the door would

503
00:20:20,230 --> 00:20:18,880
crowd around to find out what the rumor

504
00:20:21,909 --> 00:20:20,240
is whereas people far away wouldn't even

505
00:20:24,230 --> 00:20:21,919
know anything is going on

506
00:20:26,150 --> 00:20:24,240
however people near the clump talking

507
00:20:28,310 --> 00:20:26,160
about the rumor would then drift over to

508
00:20:29,510 --> 00:20:28,320
find out what's going on whereas once

509
00:20:30,549 --> 00:20:29,520
people figured out what was going on

510
00:20:32,470 --> 00:20:30,559
they'd go back to where they were

511
00:20:35,029 --> 00:20:32,480
talking to their friends and in this way

512
00:20:36,950 --> 00:20:35,039
this clump of the rumor would wander

513
00:20:39,110 --> 00:20:36,960

across the room and that clump is

514

00:20:40,630 --> 00:20:39,120

analogous to the higgs boson

515

00:20:42,149 --> 00:20:40,640

so the higgs field is the more

516

00:20:44,950 --> 00:20:42,159

fundamental thing it's the thing that

517

00:20:47,430 --> 00:20:44,960

gives mass to particles but the boson

518

00:20:51,110 --> 00:20:47,440

the clump in the field is the way that

519

00:20:53,350 --> 00:20:51,120

we are able to see the field and show

520

00:20:56,230 --> 00:20:53,360

that this idea seems to be true

521

00:20:59,190 --> 00:20:56,240

wow wow all right well getting back to

522

00:21:01,350 --> 00:20:59,200

your book can you give our listeners an

523

00:21:04,070 --> 00:21:01,360

overall synopsis of it

524

00:21:06,149 --> 00:21:04,080

well the book has two parts to it um i

525

00:21:08,549 --> 00:21:06,159

was sort of fascinated by the question

526

00:21:10,149 --> 00:21:08,559

of why when you walk down a

527

00:21:11,990 --> 00:21:10,159

in a mall or something and you just

528

00:21:13,990 --> 00:21:12,000

pigeonhole a random person say what does

529

00:21:15,750 --> 00:21:14,000

an alien look like

530

00:21:18,470 --> 00:21:15,760

the common answer you will get is a

531

00:21:21,029 --> 00:21:18,480

little four foot tall humanoid creature

532

00:21:21,909 --> 00:21:21,039

gray egg shaped head big almond shaped

533

00:21:23,029 --> 00:21:21,919

eyes

534

00:21:24,789 --> 00:21:23,039

and so

535

00:21:26,470 --> 00:21:24,799

i was actually interested in how that

536

00:21:29,190 --> 00:21:26,480

came to be i mean obviously we see it in

537

00:21:31,830 --> 00:21:29,200

the media but i was trying to trace back

538

00:21:35,190 --> 00:21:31,840

the development of that that

539

00:21:36,870 --> 00:21:35,200

archetypical alien and then as i did

540

00:21:38,710 --> 00:21:36,880

that you know i started remembering

541

00:21:40,549 --> 00:21:38,720

cartoons when i was a kid when aliens

542

00:21:43,029 --> 00:21:40,559

were little green men and when that

543

00:21:45,909 --> 00:21:43,039

transition occurred and and so forth so

544

00:21:48,870 --> 00:21:45,919

i ended up digging into the history of

545

00:21:52,230 --> 00:21:48,880

not necessarily um

546

00:21:54,310 --> 00:21:52,240

all alien reports because that's a great

547

00:21:56,830 --> 00:21:54,320

broad uh

548

00:22:00,070 --> 00:21:56,840

body of knowledge but

549

00:22:01,190 --> 00:22:00,080

the ones that made a big impact on our

550

00:22:03,990 --> 00:22:01,200

culture

551
00:22:06,310 --> 00:22:04,000
and so for that um you hit the high or

552
00:22:09,110 --> 00:22:06,320
you hit the biggies um

553
00:22:13,190 --> 00:22:09,120
starting with the initial ufo reports in

554
00:22:14,310 --> 00:22:13,200
1947 through roswell um and then some of

555
00:22:16,070 --> 00:22:14,320
the other

556
00:22:17,190 --> 00:22:16,080
big people george adamski betty and

557
00:22:19,909 --> 00:22:17,200
barney hill

558
00:22:20,710 --> 00:22:19,919
um bondanigan and so forth and these

559
00:22:22,390 --> 00:22:20,720
were

560
00:22:23,909 --> 00:22:22,400
um

561
00:22:25,190 --> 00:22:23,919
you know i just wanted to look into that

562
00:22:26,549 --> 00:22:25,200
and see how

563
00:22:29,190 --> 00:22:26,559

these reports

564

00:22:30,950 --> 00:22:29,200

fed the media because

565

00:22:32,470 --> 00:22:30,960

most people don't get their uh

566

00:22:33,430 --> 00:22:32,480

information from

567

00:22:35,430 --> 00:22:33,440

um

568

00:22:37,350 --> 00:22:35,440

reports about ufos or extraterrestrials

569

00:22:39,110 --> 00:22:37,360

they basically see things

570

00:22:40,870 --> 00:22:39,120

on tv in the movies and so i was

571

00:22:43,270 --> 00:22:40,880

interested in the interplay between the

572

00:22:44,710 --> 00:22:43,280

reports in the movies and how the movies

573

00:22:46,950 --> 00:22:44,720

told people

574

00:22:48,870 --> 00:22:46,960

what um

575

00:22:51,909 --> 00:22:48,880

what they should be looking for

576

00:22:54,630 --> 00:22:51,919

and a classic case of that this is the

577

00:22:55,990 --> 00:22:54,640

first report of ufos

578

00:23:01,669 --> 00:22:56,000

in

579

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

were reported as

580

00:23:04,950 --> 00:23:03,919

being like the tale of a kite

581

00:23:08,070 --> 00:23:04,960

and

582

00:23:11,270 --> 00:23:08,080

other descriptions like fish flipping in

583

00:23:13,909 --> 00:23:11,280

in the sky and so forth

584

00:23:16,310 --> 00:23:13,919

and finally the person doing the report

585

00:23:18,630 --> 00:23:16,320

talked to a reporter and said

586

00:23:20,070 --> 00:23:18,640

the things moved like a saucer skipping

587

00:23:21,350 --> 00:23:20,080

across the water

588

00:23:23,830 --> 00:23:21,360

and so if you actually read that

589

00:23:25,510 --> 00:23:23,840

original report but the reporter

590

00:23:27,190 --> 00:23:25,520

said what what

591

00:23:29,830 --> 00:23:27,200

the observer saw

592

00:23:32,390 --> 00:23:29,840

but um the headline writers said um guys

593

00:23:33,750 --> 00:23:32,400

he's fl uh flying saucer and so

594

00:23:35,190 --> 00:23:33,760

immediately after that people started

595

00:23:36,870 --> 00:23:35,200

seeing flying saucers even though that

596

00:23:38,950 --> 00:23:36,880

really wasn't what the original report

597

00:23:40,310 --> 00:23:38,960

was and so this kind of

598

00:23:42,230 --> 00:23:40,320

feedback

599

00:23:43,750 --> 00:23:42,240

was very interesting to me so that's the

600

00:23:46,789 --> 00:23:43,760

first half of the book

601
00:23:48,950 --> 00:23:46,799
the second half of the book um i felt

602
00:23:52,230 --> 00:23:48,960
that it would be interesting to say or

603
00:23:53,029 --> 00:23:52,240
to explore what modern science teaches

604
00:23:57,750 --> 00:23:53,039
us

605
00:23:59,270 --> 00:23:57,760
to read science fiction as a kid i read

606
00:24:01,590 --> 00:23:59,280
thousands of science fiction books and i

607
00:24:04,310 --> 00:24:01,600
loved them but i mean there are things

608
00:24:06,710 --> 00:24:04,320
that are just simply impossible and by

609
00:24:09,190 --> 00:24:06,720
understanding things like

610
00:24:12,470 --> 00:24:09,200
how chemistry what limits chemistry

611
00:24:14,950 --> 00:24:12,480
places on the possible for instance it's

612
00:24:16,230 --> 00:24:14,960
essentially impossible to have a helium

613
00:24:19,510 --> 00:24:16,240

um

614

00:24:22,710 --> 00:24:19,520

is not something that interacts

615

00:24:24,710 --> 00:24:22,720

chemically it just it doesn't work

616

00:24:27,590 --> 00:24:24,720

so you can't have a body made of helium

617

00:24:29,590 --> 00:24:27,600

for instance and uh

618

00:24:33,029 --> 00:24:29,600

as you explore that you find out why

619

00:24:36,070 --> 00:24:34,310

atom

620

00:24:37,830 --> 00:24:36,080

but also silicon which has similar

621

00:24:41,029 --> 00:24:37,840

chemical properties

622

00:24:43,750 --> 00:24:41,039

is not as good a

623

00:24:45,110 --> 00:24:43,760

building block of life as

624

00:24:46,950 --> 00:24:45,120

carbon is because it doesn't have

625

00:24:48,630 --> 00:24:46,960

exactly the same properties so anyways

626
00:24:51,750 --> 00:24:48,640
the second half of the book describes a

627
00:24:53,990 --> 00:24:51,760
lot about what science tells us about

628
00:24:56,789 --> 00:24:54,000
the possible i mean i don't know and a

629
00:24:57,990 --> 00:24:56,799
reader who reads my book won't come out

630
00:25:00,310 --> 00:24:58,000
being told this is what an

631
00:25:01,909 --> 00:25:00,320
extraterrestrial might look like because

632
00:25:04,149 --> 00:25:01,919
nobody knows but we know a lot about

633
00:25:06,549 --> 00:25:04,159
what it won't be and so that's what the

634
00:25:09,029 --> 00:25:06,559
second half of the book is about

635
00:25:12,950 --> 00:25:09,039
well i'm kind of interested to hear what

636
00:25:15,909 --> 00:25:12,960
it won't be that's kind of interesting

637
00:25:18,789 --> 00:25:15,919
well it comes down to

638
00:25:21,269 --> 00:25:18,799

really chemistry and atomic physics

639

00:25:22,710 --> 00:25:21,279

um if you look at a periodic table uh

640

00:25:24,789 --> 00:25:22,720

there are various columns the right hand

641

00:25:26,950 --> 00:25:24,799

column has helium neon argon and so

642

00:25:28,789 --> 00:25:26,960

forth those are noble gases those don't

643

00:25:31,190 --> 00:25:28,799

interact very much and so they don't

644

00:25:32,789 --> 00:25:31,200

play any significant role in chemistry

645

00:25:34,310 --> 00:25:32,799

because these atoms just sit there and

646

00:25:35,669 --> 00:25:34,320

mind their own business

647

00:25:38,070 --> 00:25:35,679

on the left hand side you have things

648

00:25:39,029 --> 00:25:38,080

like hydrogen lithium and so forth and

649

00:25:42,710 --> 00:25:39,039

these

650

00:25:44,710 --> 00:25:42,720

elements only can have one bond

651
00:25:47,190 --> 00:25:44,720
and because they have one bond they can

652
00:25:48,470 --> 00:25:47,200
only make very simple molecules

653
00:25:50,870 --> 00:25:48,480
so to have

654
00:25:52,950 --> 00:25:50,880
something as complex as life any kind of

655
00:25:53,909 --> 00:25:52,960
life you will need

656
00:26:01,350 --> 00:25:53,919
a

657
00:26:03,909 --> 00:26:01,360
um

658
00:26:06,710 --> 00:26:03,919
extraterrestrial life in general this is

659
00:26:09,669 --> 00:26:06,720
not about you know slime molds around

660
00:26:11,669 --> 00:26:09,679
deneb iv or

661
00:26:14,310 --> 00:26:11,679
algae around some

662
00:26:16,789 --> 00:26:14,320
planet near beetlejuice this is about

663
00:26:20,149 --> 00:26:16,799

intelligent extraterrestrial life and so

664

00:26:22,549 --> 00:26:20,159

that puts a significant

665

00:26:25,510 --> 00:26:22,559

restriction on the kinds of life we can

666

00:26:27,430 --> 00:26:25,520

think about because anything that is

667

00:26:28,310 --> 00:26:27,440

comparable to us not

668

00:26:30,870 --> 00:26:28,320

like

669

00:26:32,789 --> 00:26:30,880

humans by any means but comparable to in

670

00:26:35,830 --> 00:26:32,799

the sense that it's intelligent tool

671

00:26:38,390 --> 00:26:35,840

using and could conceivably one day vi

672

00:26:42,070 --> 00:26:38,400

with humanity for galactic domination

673

00:26:44,630 --> 00:26:42,080

has to be made of complex chemicals

674

00:26:47,350 --> 00:26:44,640

and so once you start exploring that you

675

00:26:49,590 --> 00:26:47,360

find that

676
00:26:52,149 --> 00:26:49,600
there are only some

677
00:26:55,190 --> 00:26:52,159
elements that can can have many bonds

678
00:26:57,669 --> 00:26:55,200
carbon being the best silicon is often

679
00:26:59,029 --> 00:26:57,679
used as an example

680
00:27:01,110 --> 00:26:59,039
as another

681
00:27:03,750 --> 00:27:01,120
element that can have four bonds

682
00:27:05,909 --> 00:27:03,760
but if you explore it in more detail you

683
00:27:07,750 --> 00:27:05,919
find that even though carbon can have

684
00:27:09,669 --> 00:27:07,760
four bonds or

685
00:27:11,990 --> 00:27:09,679
let me rephrase that carbon can have

686
00:27:13,830 --> 00:27:12,000
four bonds and all four bonds have sort

687
00:27:15,830 --> 00:27:13,840
of equal strength

688
00:27:17,750 --> 00:27:15,840

silicon on the other hand can have four

689

00:27:19,190 --> 00:27:17,760

bonds but not all the bonds are equal

690

00:27:21,510 --> 00:27:19,200

strength so it makes it difficult to

691

00:27:23,750 --> 00:27:21,520

move atoms around easily

692

00:27:25,029 --> 00:27:23,760

whereas in carbon

693

00:27:28,230 --> 00:27:25,039

you can move atoms around and that

694

00:27:29,190 --> 00:27:28,240

allows for complex chemistry in addition

695

00:27:31,669 --> 00:27:29,200

the

696

00:27:33,750 --> 00:27:31,679

bond between carbon and hydrogen carbon

697

00:27:35,750 --> 00:27:33,760

and oxygen carbon and nitrogen are all

698

00:27:37,990 --> 00:27:35,760

similar in strength and so it makes it

699

00:27:40,789 --> 00:27:38,000

fairly easy to

700

00:27:43,510 --> 00:27:40,799

swap in various elements whereas in

701

00:27:45,510 --> 00:27:43,520

silicon a silicon oxygen bond is very

702

00:27:48,390 --> 00:27:45,520

strong so once the silicon

703

00:27:50,390 --> 00:27:48,400

is bound with oxygen that's basically

704

00:27:52,310 --> 00:27:50,400

sand silicon dioxide

705

00:27:55,029 --> 00:27:52,320

it is very difficult to break it apart

706

00:27:55,990 --> 00:27:55,039

and bond silicon with carbon or silicon

707

00:27:59,029 --> 00:27:56,000

with

708

00:28:00,389 --> 00:27:59,039

elements

709

00:28:03,590 --> 00:28:00,399

and so

710

00:28:05,510 --> 00:28:03,600

you know silicon is just not an optimum

711

00:28:07,190 --> 00:28:05,520

uh element even though there's plenty of

712

00:28:08,310 --> 00:28:07,200

examples in science fiction of silicon

713

00:28:09,190 --> 00:28:08,320

based life

714

00:28:13,190 --> 00:28:09,200

um

715

00:28:13,990 --> 00:28:13,200

it's hard to imagine that that silicon

716

00:28:15,750 --> 00:28:14,000

is

717

00:28:18,149 --> 00:28:15,760

you know a good

718

00:28:20,950 --> 00:28:18,159

candidate for life and let me give you

719

00:28:23,669 --> 00:28:20,960

one sort of compelling thought

720

00:28:25,350 --> 00:28:23,679

um if you look at earth

721

00:28:27,190 --> 00:28:25,360

there's far more silicon on the surface

722

00:28:29,590 --> 00:28:27,200

of the earth and carb than carbon so

723

00:28:33,029 --> 00:28:29,600

there's a huge reservoir of silicon and

724

00:28:35,190 --> 00:28:33,039

yet life on earth uses carbon i mean it

725

00:28:36,070 --> 00:28:35,200

says something about the uh

726

00:28:41,830 --> 00:28:36,080

um

727

00:28:44,789 --> 00:28:41,840

two elements wow i never never heard

728

00:28:47,750 --> 00:28:44,799

that part of it would you could consider

729

00:28:52,549 --> 00:28:47,760

that the most likely type of being would

730

00:28:53,990 --> 00:28:52,559

be uh binocular vision and biped

731

00:28:55,909 --> 00:28:54,000

oh i doubt it

732

00:29:00,389 --> 00:28:55,919

i doubt it okay

733

00:29:03,350 --> 00:29:00,399

um i i you know i i am

734

00:29:04,870 --> 00:29:03,360

as yet unconvinced as to the existence

735

00:29:06,549 --> 00:29:04,880

of um

736

00:29:08,630 --> 00:29:06,559

intelligent extraterrestrial life i

737

00:29:09,830 --> 00:29:08,640

think the data on that is not

738

00:29:13,110 --> 00:29:09,840

incredibly

739

00:29:15,590 --> 00:29:13,120

compelling but um when you just think of

740

00:29:17,669 --> 00:29:15,600

the variety of life that there is here

741

00:29:18,789 --> 00:29:17,679

on earth i mean spiders

742

00:29:21,830 --> 00:29:18,799

uh with

743

00:29:23,750 --> 00:29:21,840

multiple eyes and and so forth and how

744

00:29:24,830 --> 00:29:23,760

many times uh

745

00:29:26,630 --> 00:29:24,840

vision

746

00:29:27,750 --> 00:29:26,640

has

747

00:29:30,549 --> 00:29:27,760

evolved

748

00:29:32,549 --> 00:29:30,559

independently in different life forms if

749

00:29:34,470 --> 00:29:32,559

you just look at the vast variety of

750

00:29:38,950 --> 00:29:34,480

life here on earth

751

00:29:40,870 --> 00:29:38,960

i think the the bipedal or nature is

752

00:29:43,350 --> 00:29:40,880

basically an accident an evolutionary

753

00:29:46,310 --> 00:29:43,360

accident that works but i don't think

754

00:29:48,470 --> 00:29:46,320

it's unique are your opinions on

755

00:29:50,789 --> 00:29:48,480

extraterrestrial life that you believe

756

00:29:53,510 --> 00:29:50,799

you don't believe that it's actually out

757

00:29:55,190 --> 00:29:53,520

there or did i just take that wrong

758

00:29:57,590 --> 00:29:55,200

no what i think i would be willing to

759

00:29:59,590 --> 00:29:57,600

say about extraterrestrial life is i

760

00:30:02,070 --> 00:29:59,600

think life is probably fairly common in

761

00:30:03,750 --> 00:30:02,080

the universe where life

762

00:30:06,310 --> 00:30:03,760

by by life i mean

763

00:30:08,470 --> 00:30:06,320

a very low threshold of life i think

764

00:30:09,750 --> 00:30:08,480

intelligent life is probably far more

765

00:30:11,350 --> 00:30:09,760

difficult

766

00:30:13,830 --> 00:30:11,360

and quite rare

767

00:30:15,350 --> 00:30:13,840

um i am quite open to the possibility i

768

00:30:17,029 --> 00:30:15,360

think it's probable that there is

769

00:30:19,029 --> 00:30:17,039

intelligent life in the universe

770

00:30:20,630 --> 00:30:19,039

somewhere the universe is big

771

00:30:23,269 --> 00:30:20,640

but

772

00:30:24,389 --> 00:30:23,279

whether it's near us or some not i i

773

00:30:26,149 --> 00:30:24,399

think is

774

00:30:29,269 --> 00:30:26,159

you know it's less probable because well

775

00:30:30,149 --> 00:30:29,279

the spot near us is small and space is

776

00:30:31,909 --> 00:30:30,159

big

777

00:30:33,430 --> 00:30:31,919

um and then there's the question of

778

00:30:35,190 --> 00:30:33,440

whether we are being visited or

779

00:30:36,950 --> 00:30:35,200

something and i think that's quite quite

780

00:30:39,510 --> 00:30:36,960

unlikely

781

00:30:41,590 --> 00:30:39,520

i don't you know as a scientist i remain

782

00:30:45,510 --> 00:30:41,600

open to new evidence

783

00:30:47,830 --> 00:30:45,520

but i would characterize myself as a

784

00:30:50,549 --> 00:30:47,840

fairly strong believer in life

785

00:30:52,549 --> 00:30:50,559

a believer in intelligent life but think

786

00:30:54,789 --> 00:30:52,559

it's rare and

787

00:30:56,389 --> 00:30:54,799

probably not nearby

788

00:30:58,630 --> 00:30:56,399

well i promise you i wouldn't debate you

789

00:31:00,070 --> 00:30:58,640

about ufos so

790

00:31:03,029 --> 00:31:00,080

so i won't but

791

00:31:05,029 --> 00:31:03,039

you said that it's very unlikely but you

792

00:31:06,710 --> 00:31:05,039

think that it is possible i mean you

793

00:31:08,630 --> 00:31:06,720

look at what we are doing we're

794

00:31:10,310 --> 00:31:08,640

exploring space as much as we have the

795

00:31:12,710 --> 00:31:10,320

know how to do

796

00:31:14,389 --> 00:31:12,720

if there's an advanced technology that

797

00:31:15,669 --> 00:31:14,399

figures out how to do interstellar

798

00:31:18,230 --> 00:31:15,679

travel

799

00:31:20,389 --> 00:31:18,240

through physics way beyond us do you

800

00:31:22,549 --> 00:31:20,399

think it is possible that we have been

801
00:31:25,510 --> 00:31:22,559
visited

802
00:31:28,149 --> 00:31:25,520
possible a possible a

803
00:31:30,389 --> 00:31:28,159
soft word but yes anything's possible

804
00:31:33,190 --> 00:31:30,399
um yes it's possible

805
00:31:34,310 --> 00:31:33,200
but possible and likely are different

806
00:31:36,630 --> 00:31:34,320
um

807
00:31:38,310 --> 00:31:36,640
i certainly uh

808
00:31:40,789 --> 00:31:38,320
i mean i'm quite cognizant of the

809
00:31:42,549 --> 00:31:40,799
difficulties of interstellar travel and

810
00:31:43,669 --> 00:31:42,559
yes it is possible that something that

811
00:31:45,990 --> 00:31:43,679
we see

812
00:31:47,990 --> 00:31:46,000
in science fiction like warp drive or

813
00:31:49,830 --> 00:31:48,000

something like that might be invented

814

00:31:51,509 --> 00:31:49,840

and i you know i actually really

815

00:31:54,789 --> 00:31:51,519

seriously hope it is

816

00:31:56,789 --> 00:31:54,799

but i don't really understand how

817

00:31:58,230 --> 00:31:56,799

things like generation ships and things

818

00:32:01,190 --> 00:31:58,240

like that are of course possible i

819

00:32:03,190 --> 00:32:01,200

suspect that someday um

820

00:32:05,830 --> 00:32:03,200

it may be that mankind takes upon itself

821

00:32:06,630 --> 00:32:05,840

to explore the galaxy but it'll probably

822

00:32:08,870 --> 00:32:06,640

be

823

00:32:10,070 --> 00:32:08,880

in sort of a tedious way of traveling

824

00:32:12,870 --> 00:32:10,080

like that either

825

00:32:14,870 --> 00:32:12,880

using um using relativity to make the

826
00:32:16,149 --> 00:32:14,880
trip seem shorter

827
00:32:17,750 --> 00:32:16,159
or

828
00:32:19,509 --> 00:32:17,760
through some kind of

829
00:32:20,950 --> 00:32:19,519
sleep technology or generational ships

830
00:32:22,789 --> 00:32:20,960
or whatever

831
00:32:24,870 --> 00:32:22,799
and i hope i'm wrong i really do hope

832
00:32:27,269 --> 00:32:24,880
that the you know starship enterprise

833
00:32:28,950 --> 00:32:27,279
starts zipping around the universe but i

834
00:32:29,830 --> 00:32:28,960
remain skeptical

835
00:32:32,230 --> 00:32:29,840
yeah

836
00:32:33,110 --> 00:32:32,240
now how have your colleagues viewed your

837
00:32:36,070 --> 00:32:33,120
book

838
00:32:39,110 --> 00:32:36,080

um i think my colleagues

839

00:32:40,830 --> 00:32:39,120

have been supportive of it since it is

840

00:32:43,350 --> 00:32:40,840

not inside their

841

00:32:45,269 --> 00:32:43,360

particular um

842

00:32:46,710 --> 00:32:45,279

topic of interest

843

00:32:48,630 --> 00:32:46,720

i have not had a whole lot of

844

00:32:50,789 --> 00:32:48,640

discussions i got far more

845

00:32:52,470 --> 00:32:50,799

discussion from the other books i wrote

846

00:32:54,389 --> 00:32:52,480

which were more on particle physics and

847

00:32:56,870 --> 00:32:54,399

cosmology and things like that

848

00:32:57,590 --> 00:32:56,880

the alien book the my colleagues you

849

00:32:59,269 --> 00:32:57,600

know

850

00:33:02,070 --> 00:32:59,279

patted me on the back for doing it but

851
00:33:03,269 --> 00:33:02,080
uh that's sort of the extent of their

852
00:33:05,110 --> 00:33:03,279
interest

853
00:33:07,029 --> 00:33:05,120
so what was the initiator of you

854
00:33:09,190 --> 00:33:07,039
starting the book

855
00:33:11,750 --> 00:33:09,200
well the initiator of the book

856
00:33:13,430 --> 00:33:11,760
was basically

857
00:33:15,350 --> 00:33:13,440
um

858
00:33:18,310 --> 00:33:15,360
i was curious about aliens when i was a

859
00:33:20,789 --> 00:33:18,320
kid i was curious about

860
00:33:22,389 --> 00:33:20,799
science fiction as a kid and as i grew

861
00:33:23,110 --> 00:33:22,399
older

862
00:33:26,149 --> 00:33:23,120
and

863
00:33:28,310 --> 00:33:26,159

understood science better i realized the

864

00:33:29,430 --> 00:33:28,320

um that a lot of science fiction is not

865

00:33:31,029 --> 00:33:29,440

accurate

866

00:33:32,710 --> 00:33:31,039

and so i thought it would be kind of

867

00:33:33,669 --> 00:33:32,720

neat to write a book

868

00:33:35,509 --> 00:33:33,679

that

869

00:33:37,430 --> 00:33:35,519

sort of blended the two had some science

870

00:33:41,350 --> 00:33:37,440

fiction and had some science

871

00:33:42,710 --> 00:33:41,360

and the stories that i have about uh

872

00:33:47,990 --> 00:33:42,720

sightings of

873

00:33:49,909 --> 00:33:48,000

the last 50 plus years

874

00:33:53,029 --> 00:33:49,919

draw people in and then they can

875

00:33:54,230 --> 00:33:53,039

actually read about what the

876

00:33:56,549 --> 00:33:54,240

science of

877

00:33:58,230 --> 00:33:56,559

astrobiology is likely to be

878

00:34:00,389 --> 00:33:58,240

and so i thought it was kind of a neat

879

00:34:03,110 --> 00:34:00,399

way of merging these two

880

00:34:05,190 --> 00:34:03,120

two interests the science fiction buff

881

00:34:08,069 --> 00:34:05,200

and the science buff so it's kind of why

882

00:34:10,310 --> 00:34:08,079

it was designed that way um and we will

883

00:34:12,550 --> 00:34:10,320

see if this was successful

884

00:34:14,869 --> 00:34:12,560

right right well you know getting back

885

00:34:16,629 --> 00:34:14,879

to ufos i told you i would just touch on

886

00:34:17,589 --> 00:34:16,639

it lightly

887

00:34:19,589 --> 00:34:17,599

one of the

888

00:34:21,829 --> 00:34:19,599

things that comes to mind is you know

889

00:34:23,589 --> 00:34:21,839

there are astronauts that have claimed

890

00:34:24,629 --> 00:34:23,599

i've seen something there was

891

00:34:26,550 --> 00:34:24,639

you know the

892

00:34:28,550 --> 00:34:26,560

governor of arizona

893

00:34:30,550 --> 00:34:28,560

uh along with about ten thousand

894

00:34:32,230 --> 00:34:30,560

witnesses the phoenix lights and i don't

895

00:34:34,149 --> 00:34:32,240

know if you've ever heard of that but

896

00:34:36,790 --> 00:34:34,159

there's there was mass many mass

897

00:34:39,669 --> 00:34:36,800

sightings and many credible witnesses

898

00:34:42,069 --> 00:34:39,679

as far as police officers and military

899

00:34:44,310 --> 00:34:42,079

that have come forth and could not

900

00:34:45,589 --> 00:34:44,320

really be explained as to what they were

901
00:34:47,589 --> 00:34:45,599
have you ever

902
00:34:50,310 --> 00:34:47,599
looked into any of that

903
00:34:52,790 --> 00:34:50,320
i cannot say that i am a scholar of what

904
00:34:53,829 --> 00:34:52,800
one might call as ufology

905
00:34:56,950 --> 00:34:53,839
um

906
00:34:59,349 --> 00:34:56,960
and i don't hold uh up uh police

907
00:35:00,630 --> 00:34:59,359
officers or

908
00:35:06,310 --> 00:35:00,640
um

909
00:35:07,109 --> 00:35:06,320
reporters than any other person there

910
00:35:08,150 --> 00:35:07,119
are

911
00:35:09,910 --> 00:35:08,160
there's a tremendous amount of

912
00:35:11,510 --> 00:35:09,920
psychology out there

913
00:35:15,270 --> 00:35:11,520

that um

914

00:35:18,069 --> 00:35:15,280

describes and explores how people

915

00:35:19,750 --> 00:35:18,079

uh can be mistaken in their observations

916

00:35:21,190 --> 00:35:19,760

i mean i'm a scientist and i have more

917

00:35:23,190 --> 00:35:21,200

than once

918

00:35:24,150 --> 00:35:23,200

thought i knew something been absolutely

919

00:35:25,829 --> 00:35:24,160

sure

920

00:35:26,630 --> 00:35:25,839

i was right only to find out i was later

921

00:35:30,950 --> 00:35:26,640

wrong

922

00:35:32,310 --> 00:35:30,960

now i don't discount these reports

923

00:35:34,550 --> 00:35:32,320

but

924

00:35:37,510 --> 00:35:34,560

the the anecdotal reports

925

00:35:39,829 --> 00:35:37,520

that one gets do not persuade me that

926
00:35:41,190 --> 00:35:39,839
does not mean that i think these people

927
00:35:44,230 --> 00:35:41,200
are lying

928
00:35:45,829 --> 00:35:44,240
they might actually be seeing exactly

929
00:35:48,069 --> 00:35:45,839
what they think they're seeing in which

930
00:35:49,589 --> 00:35:48,079
case nobody would be more pleased than i

931
00:35:51,030 --> 00:35:49,599
i mean i really wouldn't be at all

932
00:35:52,710 --> 00:35:51,040
displeased to see

933
00:35:54,470 --> 00:35:52,720
you know flying saucer descend on

934
00:35:55,990 --> 00:35:54,480
washington and have a little guy come

935
00:35:59,829 --> 00:35:56,000
out and say take you take us to your

936
00:36:00,630 --> 00:35:59,839
leader that would be fantastic um but

937
00:36:02,950 --> 00:36:00,640
but

938
00:36:03,990 --> 00:36:02,960

um in order to persuade me i would like

939

00:36:06,150 --> 00:36:04,000

to see

940

00:36:08,550 --> 00:36:06,160

better evidence i mean you know there's

941

00:36:10,710 --> 00:36:08,560

in the problem is with so much of this

942

00:36:13,190 --> 00:36:10,720

ufology is that there is a tremendous

943

00:36:16,150 --> 00:36:13,200

amount of hoaxes and charlatans and so

944

00:36:18,470 --> 00:36:16,160

forth and people who are

945

00:36:20,150 --> 00:36:18,480

what i might call honest uh ufo

946

00:36:21,910 --> 00:36:20,160

researchers are aware of that and they

947

00:36:24,069 --> 00:36:21,920

try to to

948

00:36:25,190 --> 00:36:24,079

you know get rid of those

949

00:36:26,790 --> 00:36:25,200

um

950

00:36:29,190 --> 00:36:26,800

but

951
00:36:31,670 --> 00:36:29,200
i just will need a lot better evidence

952
00:36:34,230 --> 00:36:31,680
than i have seen so far

953
00:36:36,470 --> 00:36:34,240
and and and i admit that i am not you

954
00:36:37,510 --> 00:36:36,480
know not dug into every particular

955
00:36:38,950 --> 00:36:37,520
report

956
00:36:41,750 --> 00:36:38,960
but um

957
00:36:44,069 --> 00:36:41,760
you know we live in a world with um

958
00:36:46,790 --> 00:36:44,079
everybody's got a cell phone we live in

959
00:36:47,990 --> 00:36:46,800
a world where

960
00:36:50,710 --> 00:36:48,000
you know it's just seems that it would

961
00:36:52,390 --> 00:36:50,720
be easier to get far better evidence

962
00:36:54,230 --> 00:36:52,400
than the things that i've seen

963
00:36:56,230 --> 00:36:54,240

everything i see is always you know kind

964

00:36:57,990 --> 00:36:56,240

of fuzzy and

965

00:36:59,990 --> 00:36:58,000

camera jitters and

966

00:37:01,349 --> 00:37:00,000

or it's just a report of something

967

00:37:03,430 --> 00:37:01,359

someone saw and of course i've seen

968

00:37:05,990 --> 00:37:03,440

things that i don't know what they are

969

00:37:07,270 --> 00:37:06,000

myself i don't mean ufos just you know

970

00:37:10,470 --> 00:37:07,280

things out of the corner of my eye and i

971

00:37:13,109 --> 00:37:10,480

turn and it's not there so um

972

00:37:15,349 --> 00:37:13,119

yeah i just need a stronger

973

00:37:17,510 --> 00:37:15,359

level of evidence to persuade me

974

00:37:19,030 --> 00:37:17,520

i understand and the other scientists

975

00:37:21,270 --> 00:37:19,040

i've spoke to have

976

00:37:23,589 --> 00:37:21,280

said very similar things

977

00:37:25,349 --> 00:37:23,599

and i think it it's to the point where

978

00:37:28,710 --> 00:37:25,359

either if the

979

00:37:30,790 --> 00:37:28,720

the image or the video is blurry then

980

00:37:33,510 --> 00:37:30,800

it's discounted but if it's too good

981

00:37:36,790 --> 00:37:33,520

then it's also discounted as being fake

982

00:37:38,870 --> 00:37:36,800

even video or or photo evidences is weak

983

00:37:41,589 --> 00:37:38,880

unless the witness reports are real

984

00:37:43,349 --> 00:37:41,599

solid and uh it is a very alluding

985

00:37:45,670 --> 00:37:43,359

phenomenon for sure

986

00:37:48,150 --> 00:37:45,680

so this kind of leads me to ask you what

987

00:37:50,150 --> 00:37:48,160

you think about seti

988

00:37:51,670 --> 00:37:50,160

i think it's fantastic i wrote about it

989

00:37:53,030 --> 00:37:51,680

in the book the last chapter of the book

990

00:37:56,870 --> 00:37:53,040

is about seti

991

00:37:59,750 --> 00:37:56,880

i think um given the difficulties

992

00:38:01,510 --> 00:37:59,760

that with extraterrestrial travel as we

993

00:38:04,470 --> 00:38:01,520

understand it now setting aside such

994

00:38:07,990 --> 00:38:04,480

things as warp drive and

995

00:38:10,230 --> 00:38:08,000

you know star gates and whatnot um

996

00:38:13,670 --> 00:38:10,240

we do know that you can

997

00:38:15,270 --> 00:38:13,680

uh radio waves can travel

998

00:38:16,829 --> 00:38:15,280

many light years hundreds of lights

999

00:38:19,510 --> 00:38:16,839

thousands of light years

1000

00:38:22,950 --> 00:38:19,520

so it would not shock me in the

1001

00:38:25,430 --> 00:38:22,960

slightest if there is a nearby

1002

00:38:28,390 --> 00:38:25,440

extraterrestrial civilization at our

1003

00:38:30,870 --> 00:38:28,400

level of of sophistication or higher

1004

00:38:34,150 --> 00:38:30,880

that the first way we'll encounter it is

1005

00:38:36,550 --> 00:38:34,160

through radio contact so i'm very

1006

00:38:39,109 --> 00:38:36,560

strongly supportive of that i mean i

1007

00:38:41,750 --> 00:38:39,119

really would like to to

1008

00:38:43,349 --> 00:38:41,760

um find out that we're not alone

1009

00:38:45,270 --> 00:38:43,359

but uh

1010

00:38:47,430 --> 00:38:45,280

you know i think that the seti's

1011

00:38:48,710 --> 00:38:47,440

probably the best way to do that our

1012

00:38:50,630 --> 00:38:48,720

last guest

1013

00:38:51,750 --> 00:38:50,640

who's an astronomer was

1014

00:38:54,150 --> 00:38:51,760

saying that

1015

00:38:57,270 --> 00:38:54,160

it's a possibility to see signs of life

1016

00:38:59,829 --> 00:38:57,280

through chemical analysis of exoplanets

1017

00:39:01,589 --> 00:38:59,839

so that is also another way to explore

1018

00:39:04,069 --> 00:39:01,599

and it seems like we are getting closer

1019

00:39:04,870 --> 00:39:04,079

and closer to finding that that truth

1020

00:39:07,190 --> 00:39:04,880

out

1021

00:39:10,230 --> 00:39:07,200

oh absolutely um it's a shame that the

1022

00:39:12,310 --> 00:39:10,240

kepler satellite the the gyroscopes

1023

00:39:15,190 --> 00:39:12,320

broke i mean yes that that's that's

1024

00:39:16,630 --> 00:39:15,200

that's a complete shame i hope that nasa

1025

00:39:18,630 --> 00:39:16,640

puts something else up there and keeps

1026

00:39:21,109 --> 00:39:18,640

working on that because that is

1027

00:39:23,990 --> 00:39:21,119

fascinating science i think it's taken

1028

00:39:25,589 --> 00:39:24,000

us a leap forward for sure and i i

1029

00:39:28,150 --> 00:39:25,599

really hope that they continue that i

1030

00:39:29,910 --> 00:39:28,160

think it's very very important and i

1031

00:39:31,910 --> 00:39:29,920

hope they get the funding for it can you

1032

00:39:34,870 --> 00:39:31,920

touch on a couple of other areas in your

1033

00:39:36,310 --> 00:39:34,880

book that are interesting

1034

00:39:37,990 --> 00:39:36,320

well

1035

00:39:39,190 --> 00:39:38,000

it's all interesting every every single

1036

00:39:40,470 --> 00:39:39,200

word of it if i didn't it wasn't

1037

00:39:42,470 --> 00:39:40,480

interesting i wouldn't have written it i

1038

00:39:43,349 --> 00:39:42,480

didn't like that

1039

00:39:45,670 --> 00:39:43,359

i know

1040

00:39:48,630 --> 00:39:45,680

um i like the stories i mean there are

1041

00:39:51,109 --> 00:39:48,640

people in who are clearly clever and

1042

00:39:54,230 --> 00:39:51,119

fakes and uh but they have an impact uh

1043

00:39:57,510 --> 00:39:54,240

for instance george adamski um

1044

00:39:58,950 --> 00:39:57,520

you know if you read his the story um i

1045

00:40:00,550 --> 00:39:58,960

don't know if the your

1046

00:40:03,430 --> 00:40:00,560

listeners are completely familiar with

1047

00:40:04,870 --> 00:40:03,440

it but he was a spiritual leader he had

1048

00:40:09,190 --> 00:40:04,880

um

1049

00:40:11,190 --> 00:40:09,200

students that would be with him and

1050

00:40:12,950 --> 00:40:11,200

one day he took them and

1051
00:40:14,790 --> 00:40:12,960
some of his students and a few other

1052
00:40:16,870 --> 00:40:14,800
people into the wilderness

1053
00:40:21,270 --> 00:40:16,880
and told them to wait while he went off

1054
00:40:25,030 --> 00:40:23,030
aliens ufos

1055
00:40:26,390 --> 00:40:25,040
and and actual people and these people

1056
00:40:28,790 --> 00:40:26,400
were beautiful

1057
00:40:31,270 --> 00:40:28,800
um reminiscent of angels

1058
00:40:34,150 --> 00:40:31,280
and so then he came back with a message

1059
00:40:37,670 --> 00:40:34,160
from them i mean this just you know is a

1060
00:40:40,310 --> 00:40:37,680
lovely uh use of

1061
00:40:42,230 --> 00:40:40,320
an awful lot of religious um stories

1062
00:40:45,990 --> 00:40:42,240
that have happened over the years and

1063
00:40:47,750 --> 00:40:46,000

now damski i'm pretty confident was uh

1064

00:40:49,190 --> 00:40:47,760

caught man um

1065

00:40:52,630 --> 00:40:49,200

and that's

1066

00:40:54,310 --> 00:40:52,640

perhaps harsh but i mean this guy was uh

1067

00:40:56,710 --> 00:40:54,320

charming and genial

1068

00:40:59,270 --> 00:40:56,720

and uh later in life he went around

1069

00:41:00,790 --> 00:40:59,280

giving talks accompanied by the nugent

1070

00:41:02,230 --> 00:41:00,800

bodyguards which are these two

1071

00:41:04,950 --> 00:41:02,240

statuesque

1072

00:41:06,950 --> 00:41:04,960

amazonian women beautiful women

1073

00:41:08,630 --> 00:41:06,960

they're supposed to be his uh

1074

00:41:10,710 --> 00:41:08,640

bodyguards from venus

1075

00:41:12,069 --> 00:41:10,720

and then he explained uh what the back

1076

00:41:14,470 --> 00:41:12,079

of the moon looked like and what venus

1077

00:41:16,150 --> 00:41:14,480

looked like and so forth um

1078

00:41:19,109 --> 00:41:16,160

which we now know to be completely

1079

00:41:21,990 --> 00:41:19,119

untrue um but it's a lovely story he's a

1080

00:41:24,390 --> 00:41:22,000

charming man um von danikan's another

1081

00:41:26,069 --> 00:41:24,400

guy who i talk a little bit about and i

1082

00:41:28,150 --> 00:41:26,079

mean

1083

00:41:31,349 --> 00:41:28,160

you know i i am unpred i was never

1084

00:41:33,750 --> 00:41:31,359

persuaded by his um writings although

1085

00:41:35,829 --> 00:41:33,760

when his writings came out i was a uh

1086

00:41:37,910 --> 00:41:35,839

teenager and i read them avidly i

1087

00:41:39,829 --> 00:41:37,920

thought they were amazing but i've

1088

00:41:41,990 --> 00:41:39,839

actually seen him

1089

00:41:44,470 --> 00:41:42,000

speak i mean recordings of him speaking

1090

00:41:46,710 --> 00:41:44,480

where people pointed out

1091

00:41:48,870 --> 00:41:46,720

inaccuracies in what he wrote and he

1092

00:41:50,309 --> 00:41:48,880

would say things like well you know

1093

00:41:51,670 --> 00:41:50,319

sometimes you have to change the story

1094

00:41:53,190 --> 00:41:51,680

to make it a little bit better i mean

1095

00:41:55,589 --> 00:41:53,200

and he said that it's not like people

1096

00:41:57,589 --> 00:41:55,599

reported it and i wrote a trans i mean i

1097

00:41:59,910 --> 00:41:57,599

read a transcript i saw this guy say

1098

00:42:02,950 --> 00:41:59,920

that yeah so um

1099

00:42:04,470 --> 00:42:02,960

you know it's i like that part of it too

1100

00:42:07,510 --> 00:42:04,480

because there's a lovely human element

1101
00:42:08,550 --> 00:42:07,520
to this people want there to be

1102
00:42:10,790 --> 00:42:08,560
um

1103
00:42:13,270 --> 00:42:10,800
you know extraterrestrials

1104
00:42:15,030 --> 00:42:13,280
or at least a lot of people do i mean it

1105
00:42:18,309 --> 00:42:15,040
it's it

1106
00:42:21,030 --> 00:42:18,319
um you know it excites the imagination

1107
00:42:23,670 --> 00:42:21,040
and so people who tell these stories are

1108
00:42:26,790 --> 00:42:23,680
telling them to an audience that that

1109
00:42:28,870 --> 00:42:26,800
wants them to be true so i i you know

1110
00:42:32,630 --> 00:42:28,880
very much enjoyed learning about some of

1111
00:42:34,309 --> 00:42:32,640
these characters as i did the research

1112
00:42:35,430 --> 00:42:34,319
there's another neat story in the book

1113
00:42:37,829 --> 00:42:35,440

that i like

1114

00:42:39,670 --> 00:42:37,839

and this is in 1835 it's the great moon

1115

00:42:41,589 --> 00:42:39,680

hoax

1116

00:42:45,910 --> 00:42:41,599

and

1117

00:42:49,990 --> 00:42:45,920

in the new york sun they had a multi-day

1118

00:42:52,069 --> 00:42:50,000

article talking about how a researcher

1119

00:42:53,829 --> 00:42:52,079

figured out some way to hook a

1120

00:42:55,910 --> 00:42:53,839

microscope up to a telescope so that he

1121

00:42:57,750 --> 00:42:55,920

could look at the moon

1122

00:42:58,790 --> 00:42:57,760

well enough to actually see insects on

1123

00:43:02,870 --> 00:42:58,800

the moon

1124

00:43:05,589 --> 00:43:02,880

and over the course of the multiple days

1125

00:43:08,710 --> 00:43:05,599

the story unfolded as to what was seen

1126

00:43:11,670 --> 00:43:08,720

on each day ending up with

1127

00:43:13,030 --> 00:43:11,680

alien life on the moon and that was neat

1128

00:43:15,270 --> 00:43:13,040

it was well known to be a hoax

1129

00:43:17,190 --> 00:43:15,280

scientists knew that it was a hoax but

1130

00:43:19,670 --> 00:43:17,200

it took the world by storm and the thing

1131

00:43:22,069 --> 00:43:19,680

i found interesting about that is it did

1132

00:43:23,990 --> 00:43:22,079

occur in 1835 and why is that

1133

00:43:26,069 --> 00:43:24,000

interesting well it's because it was

1134

00:43:28,710 --> 00:43:26,079

only in 1830

1135

00:43:30,870 --> 00:43:28,720

that inexpensive newspapers were

1136

00:43:33,670 --> 00:43:30,880

available prior to that newspapers were

1137

00:43:34,630 --> 00:43:33,680

very expensive and only printed for the

1138

00:43:37,190 --> 00:43:34,640

wealthy

1139

00:43:39,589 --> 00:43:37,200

but the in in 1830 they had what they

1140

00:43:41,190 --> 00:43:39,599

called the penny press so a newspaper

1141

00:43:42,950 --> 00:43:41,200

would cost a penny

1142

00:43:44,790 --> 00:43:42,960

and um

1143

00:43:47,190 --> 00:43:44,800

the the way that business model worked

1144

00:43:49,030 --> 00:43:47,200

is if you made it for a penny you had to

1145

00:43:51,589 --> 00:43:49,040

sell a ton of them and so that was the

1146

00:43:53,270 --> 00:43:51,599

era where you have got little kids with

1147

00:43:55,270 --> 00:43:53,280

hats on saying extra extra read all

1148

00:43:57,030 --> 00:43:55,280

about it began

1149

00:44:00,470 --> 00:43:57,040

and

1150

00:44:03,990 --> 00:44:00,480

so with the advent of this new

1151

00:44:06,950 --> 00:44:04,000

multimedia that allows people to

1152

00:44:09,510 --> 00:44:06,960

communicate much more freely than before

1153

00:44:11,910 --> 00:44:09,520

we had this first mass hoax of

1154

00:44:13,750 --> 00:44:11,920

life on the moon and

1155

00:44:16,630 --> 00:44:13,760

you know we live in a new world now

1156

00:44:20,150 --> 00:44:16,640

where the internet provides a amazing

1157

00:44:23,750 --> 00:44:20,160

amount of ability to communicate and so

1158

00:44:25,829 --> 00:44:23,760

we see and not i'm not picking on um

1159

00:44:29,349 --> 00:44:25,839

you know ufos or aliens here you see an

1160

00:44:32,069 --> 00:44:29,359

awful lot of hoaxes and so forth because

1161

00:44:34,630 --> 00:44:32,079

they're the filter between

1162

00:44:36,550 --> 00:44:34,640

the writer and the reader there's often

1163

00:44:38,150 --> 00:44:36,560

not the editor there to

1164

00:44:40,790 --> 00:44:38,160

weed out the uh

1165

00:44:44,150 --> 00:44:40,800

shall we say creative stories there but

1166

00:44:46,710 --> 00:44:44,160

anyways i really like this this uh um

1167

00:44:48,950 --> 00:44:46,720

uh the moon hoax of 1835 i i was unaware

1168

00:44:50,710 --> 00:44:48,960

of this when i started my book yeah that

1169

00:44:52,150 --> 00:44:50,720

that really is amazing i didn't know the

1170

00:44:53,829 --> 00:44:52,160

details of that

1171

00:44:56,390 --> 00:44:53,839

i've always wondered what the genesis of

1172

00:44:58,710 --> 00:44:56,400

hoaxers are and a lot of them is fame

1173

00:45:00,309 --> 00:44:58,720

possibly but also along the lines of

1174

00:45:01,750 --> 00:45:00,319

what you're talking about

1175

00:45:03,829 --> 00:45:01,760

most likely

1176

00:45:05,270 --> 00:45:03,839

now arthur

1177

00:45:07,270 --> 00:45:05,280

had a nice

1178

00:45:09,589 --> 00:45:07,280

uh saying he said two possibilities

1179

00:45:11,589 --> 00:45:09,599

exist either we're alone in the universe

1180

00:45:13,030 --> 00:45:11,599

or not either one is terrifying it's

1181

00:45:15,750 --> 00:45:13,040

along those lines

1182

00:45:18,309 --> 00:45:15,760

um kind of goes along with uh with your

1183

00:45:20,550 --> 00:45:18,319

book and what you're you're saying here

1184

00:45:22,710 --> 00:45:20,560

it's true and if there is life out there

1185

00:45:24,550 --> 00:45:22,720

it's potentially terrifying because i

1186

00:45:27,670 --> 00:45:24,560

mean

1187

00:45:29,589 --> 00:45:27,680

it's hard to understand the psychology

1188

00:45:31,990 --> 00:45:29,599

of a species that we can't even

1189

00:45:34,710 --> 00:45:32,000

understand their biology but we do have

1190

00:45:36,630 --> 00:45:34,720

ample examples in our history of

1191

00:45:39,349 --> 00:45:36,640

advanced cultures encountering less

1192

00:45:42,950 --> 00:45:39,359

advanced less advanced cultures and the

1193

00:45:44,550 --> 00:45:42,960

less advanced cultures rarely do well

1194

00:45:47,109 --> 00:45:44,560

and if

1195

00:45:49,510 --> 00:45:47,119

aliens were to come to earth

1196

00:45:51,349 --> 00:45:49,520

uh they certainly have a transport

1197

00:45:53,270 --> 00:45:51,359

technology that we don't have

1198

00:45:55,109 --> 00:45:53,280

there it is possible that they would

1199

00:45:57,430 --> 00:45:55,119

have other technology weapons and so

1200

00:45:59,349 --> 00:45:57,440

forth so you know

1201

00:46:01,430 --> 00:45:59,359

there's a degree to which

1202

00:46:03,430 --> 00:46:01,440

you have to wonder is it really a good

1203

00:46:05,589 --> 00:46:03,440

idea to be telling the universe that

1204

00:46:08,790 --> 00:46:05,599

we're here

1205

00:46:10,630 --> 00:46:08,800

yeah we can't uh we can't stop all the

1206

00:46:12,790 --> 00:46:10,640

radio signals we sent out already though

1207

00:46:14,550 --> 00:46:12,800

for one thing that's true

1208

00:46:16,150 --> 00:46:14,560

yeah that's only a radio bubble that's

1209

00:46:17,990 --> 00:46:16,160

only 100 light years in every direction

1210

00:46:21,270 --> 00:46:18,000

and there are not many

1211

00:46:25,349 --> 00:46:21,280

pla stars in that bubble

1212

00:46:27,990 --> 00:46:25,359

that that have uh

1213

00:46:30,470 --> 00:46:28,000

that are sufficiently similar to ours

1214

00:46:32,390 --> 00:46:30,480

that it would be likely that creatures

1215

00:46:33,589 --> 00:46:32,400

would have a similar biology and be

1216

00:46:35,990 --> 00:46:33,599

interested in

1217

00:46:37,829 --> 00:46:36,000

in earth i mean if you had creatures

1218

00:46:39,910 --> 00:46:37,839

that i don't know like to live on titan

1219

00:46:42,710 --> 00:46:39,920

or something they might come here and

1220

00:46:44,150 --> 00:46:42,720

hang out on titan but it's uh you know

1221

00:46:45,829 --> 00:46:44,160

they wouldn't like living here would be

1222

00:46:46,790 --> 00:46:45,839

a bad place for them

1223

00:46:47,829 --> 00:46:46,800

so

1224

00:46:48,630 --> 00:46:47,839

i mean

1225

00:46:50,790 --> 00:46:48,640

you know

1226
00:46:52,390 --> 00:46:50,800
it plus another thing is 100 years ago

1227
00:46:53,670 --> 00:46:52,400
the radio signals really weren't that

1228
00:46:55,910 --> 00:46:53,680
strong

1229
00:46:57,829 --> 00:46:55,920
so the the real effective bubble is

1230
00:46:59,109 --> 00:46:57,839
smaller than that but it's true it's

1231
00:47:01,030 --> 00:46:59,119
absolutely true that we have a radio

1232
00:47:02,950 --> 00:47:01,040
bubble and it's expanding and if there's

1233
00:47:04,069 --> 00:47:02,960
something out there listening he might

1234
00:47:07,349 --> 00:47:04,079
say hi

1235
00:47:10,950 --> 00:47:07,359
right right now the last guest i had on

1236
00:47:13,750 --> 00:47:10,960
the astronomer said that with the

1237
00:47:15,910 --> 00:47:13,760
work that kepler has been doing

1238
00:47:18,390 --> 00:47:15,920

you can calculate that in our galaxy

1239

00:47:20,950 --> 00:47:18,400

alone there's possibly 17

1240

00:47:24,390 --> 00:47:20,960

billion habitable planets and growing

1241

00:47:27,349 --> 00:47:24,400

that was according to what he said

1242

00:47:29,670 --> 00:47:27,359

but you mentioned earlier that

1243

00:47:31,589 --> 00:47:29,680

the possibility for life and the

1244

00:47:33,349 --> 00:47:31,599

possibility for intelligent life there's

1245

00:47:34,390 --> 00:47:33,359

a big difference can you go into that a

1246

00:47:35,430 --> 00:47:34,400

little more

1247

00:47:38,309 --> 00:47:35,440

well

1248

00:47:40,950 --> 00:47:38,319

this is just a numbers game and we only

1249

00:47:43,990 --> 00:47:40,960

have one example to really look at

1250

00:47:46,309 --> 00:47:44,000

but we are we know that life formed on

1251
00:47:48,069 --> 00:47:46,319
earth shortly after

1252
00:47:50,309 --> 00:47:48,079
um the earth cooled enough to have a

1253
00:47:51,510 --> 00:47:50,319
solid surface in water

1254
00:47:55,589 --> 00:47:51,520
um

1255
00:47:57,270 --> 00:47:55,599
on your

1256
00:47:58,150 --> 00:47:57,280
threshold of belief

1257
00:48:01,109 --> 00:47:58,160
but

1258
00:48:02,710 --> 00:48:01,119
um life could have formed on earth

1259
00:48:05,510 --> 00:48:02,720
you know of order three billion years

1260
00:48:08,390 --> 00:48:05,520
ago and that's not long after the

1261
00:48:09,750 --> 00:48:08,400
you know it became even possible

1262
00:48:11,510 --> 00:48:09,760
on the other hand

1263
00:48:14,150 --> 00:48:11,520

from you know three billion or twenty

1264

00:48:16,550 --> 00:48:14,160

two and a half billion years ago to

1265

00:48:18,829 --> 00:48:16,560

500 million years ago you had

1266

00:48:21,829 --> 00:48:18,839

unsophisticated life

1267

00:48:23,030 --> 00:48:21,839

underwater uh often unicellular and some

1268

00:48:25,030 --> 00:48:23,040

of it was not unicellular was

1269

00:48:27,990 --> 00:48:25,040

multicellular but it was not

1270

00:48:29,510 --> 00:48:28,000

um very complex it's only 500 million

1271

00:48:31,670 --> 00:48:29,520

years ago so

1272

00:48:34,950 --> 00:48:31,680

you know billions of years of life

1273

00:48:37,109 --> 00:48:34,960

before we had uh for a little bit more

1274

00:48:39,589 --> 00:48:37,119

complex life where oxygen started to

1275

00:48:41,510 --> 00:48:39,599

become prevalent in the atmosphere and

1276

00:48:43,349 --> 00:48:41,520

oxygen provided the power to make

1277

00:48:44,470 --> 00:48:43,359

animals possible

1278

00:48:47,190 --> 00:48:44,480

um

1279

00:48:49,270 --> 00:48:47,200

and then from there 500 million years

1280

00:48:51,910 --> 00:48:49,280

ago to

1281

00:48:53,750 --> 00:48:51,920

you know you could set the threshold in

1282

00:48:55,750 --> 00:48:53,760

several places but approximately a

1283

00:48:58,069 --> 00:48:55,760

hundred thousand years ago homo sapiens

1284

00:49:01,349 --> 00:48:58,079

evolved you might go back a few million

1285

00:49:05,109 --> 00:49:01,359

years ago prior to that where um

1286

00:49:07,109 --> 00:49:05,119

the hominid line evolved um but if we

1287

00:49:08,390 --> 00:49:07,119

didn't exist if the hominid line got

1288

00:49:10,630 --> 00:49:08,400

wiped out

1289

00:49:12,790 --> 00:49:10,640

and this came close a couple of times in

1290

00:49:13,990 --> 00:49:12,800

our species history

1291

00:49:17,910 --> 00:49:14,000

there's no

1292

00:49:21,109 --> 00:49:17,920

know we're not fighting with intelligent

1293

00:49:22,069 --> 00:49:21,119

cats or something like that and so

1294

00:49:25,750 --> 00:49:22,079

the

1295

00:49:27,750 --> 00:49:25,760

um it took a long time for our variety

1296

00:49:29,750 --> 00:49:27,760

of intelligence to evolve

1297

00:49:30,630 --> 00:49:29,760

whereas it took life almost no time to

1298

00:49:33,190 --> 00:49:30,640

begin

1299

00:49:35,510 --> 00:49:33,200

and so granted it's only one planet it's

1300

00:49:36,390 --> 00:49:35,520

hard to generalize from a single data

1301

00:49:38,230 --> 00:49:36,400

point

1302

00:49:40,630 --> 00:49:38,240

but

1303

00:49:42,150 --> 00:49:40,640

uh it's not completely fair to call it a

1304

00:49:45,190 --> 00:49:42,160

single data point because there were

1305

00:49:46,309 --> 00:49:45,200

those 500 million years from

1306

00:49:50,069 --> 00:49:46,319

uh

1307

00:49:51,030 --> 00:49:50,079

sort of complex multicellular life to us

1308

00:49:52,470 --> 00:49:51,040

and

1309

00:49:54,870 --> 00:49:52,480

you know it didn't evolve dinosaurs

1310

00:49:56,630 --> 00:49:54,880

didn't evolve our kind of intelligence

1311

00:49:58,630 --> 00:49:56,640

you know earlier creatures didn't it

1312

00:49:59,670 --> 00:49:58,640

took a very long time and that suggests

1313

00:50:01,270 --> 00:49:59,680

to me

1314

00:50:03,990 --> 00:50:01,280

given the millions of species that are

1315

00:50:04,950 --> 00:50:04,000

out there that intelligent life is rare

1316

00:50:07,750 --> 00:50:04,960

and

1317

00:50:09,910 --> 00:50:07,760

it's not a airtight case i don't suggest

1318

00:50:11,829 --> 00:50:09,920

that it is but i think it's a compelling

1319

00:50:13,190 --> 00:50:11,839

case

1320

00:50:15,190 --> 00:50:13,200

your book you

1321

00:50:17,510 --> 00:50:15,200

mentioned basically that

1322

00:50:19,190 --> 00:50:17,520

intelligent life if it were underwater

1323

00:50:21,109 --> 00:50:19,200

it couldn't really advance i thought

1324

00:50:23,430 --> 00:50:21,119

that made a lot of sense

1325

00:50:25,030 --> 00:50:23,440

well it i mean i believe that

1326

00:50:29,109 --> 00:50:25,040

there it's possible that there could be

1327

00:50:32,870 --> 00:50:29,119

the equivalent of cavemen dolphins but

1328

00:50:37,270 --> 00:50:35,589

focused predominantly on

1329

00:50:39,030 --> 00:50:37,280

intelligence

1330

00:50:41,030 --> 00:50:39,040

of the type that might

1331

00:50:42,870 --> 00:50:41,040

explore the galaxy and i find it very

1332

00:50:43,910 --> 00:50:42,880

difficult to imagine

1333

00:50:46,230 --> 00:50:43,920

um

1334

00:50:47,270 --> 00:50:46,240

a intelligent species being able to

1335

00:50:49,589 --> 00:50:47,280

evolve

1336

00:50:52,150 --> 00:50:49,599

very far technologically without being

1337

00:50:53,270 --> 00:50:52,160

able to form metal

1338

00:50:55,030 --> 00:50:53,280

and

1339

00:50:57,430 --> 00:50:55,040

you know you just can't have fires

1340

00:50:58,950 --> 00:50:57,440

underwater so you can't smell metal so

1341

00:51:00,470 --> 00:50:58,960

that's the

1342

00:51:01,910 --> 00:51:00,480

uh

1343

00:51:04,470 --> 00:51:01,920

the the real

1344

00:51:07,510 --> 00:51:04,480

turning point there it's the the

1345

00:51:09,750 --> 00:51:07,520

inability to have combustion

1346

00:51:11,190 --> 00:51:09,760

right right so where would someone find

1347

00:51:12,549 --> 00:51:11,200

your book

1348

00:51:14,069 --> 00:51:12,559

uh amazon

1349

00:51:16,470 --> 00:51:14,079

amazon.com

1350

00:51:17,670 --> 00:51:16,480

and do you also have a website

1351
00:51:19,349 --> 00:51:17,680
um i do

1352
00:51:21,910 --> 00:51:19,359
um i have a

1353
00:51:23,990 --> 00:51:21,920
my website is more generic it's not just

1354
00:51:25,190 --> 00:51:24,000
about this book it's about the many

1355
00:51:28,069 --> 00:51:25,200
different types of scientific

1356
00:51:30,710 --> 00:51:28,079
communication that i uh play with but

1357
00:51:32,549 --> 00:51:30,720
i'm on facebook and so facebook.com

1358
00:51:36,470 --> 00:51:32,559
slash doctor

1359
00:51:39,510 --> 00:51:36,480
or doctor period dawn period lincoln um

1360
00:51:41,190 --> 00:51:39,520
and i chattered with people who

1361
00:51:43,349 --> 00:51:41,200
post there and

1362
00:51:45,030 --> 00:51:43,359
it's a i hope it's a neat site i talk

1363
00:51:47,910 --> 00:51:45,040

about all sorts of neat science that

1364

00:51:49,750 --> 00:51:47,920

we're doing at our laboratory and uh

1365

00:51:51,510 --> 00:51:49,760

anything neat that comes up about aliens

1366

00:51:52,950 --> 00:51:51,520

i'll post that there as well so thank

1367

00:51:54,710 --> 00:51:52,960

you very much for joining us today it

1368

00:51:55,990 --> 00:51:54,720

was a real pleasure

1369

00:51:57,430 --> 00:51:56,000

you're quite welcome

1370

00:51:59,190 --> 00:51:57,440

i enjoyed it very much

1371

00:52:02,270 --> 00:51:59,200

thank you for listening to our show and

1372

00:52:04,549 --> 00:52:02,280

please remember to check out our website

1373

00:52:07,510 --> 00:52:04,559

podcastufo.com for the latest blogs and

1374

00:52:09,750 --> 00:52:07,520

forums we'll be back next week thanks