

FEBRUARY 13, 2019
7 PM PT / 10 PM ET LIVE BROADCAST

SPECIAL GUEST
ISAAC ARTHUR
THE FERMI PARADOX

Ep. 995

F2B
WITH JIMMY CHURCH



ISAACARTHUR.NET

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1
00:00:18,840 --> 00:00:14,930

[Music]

2
00:00:21,420 --> 00:00:18,850

this hope radio for the masses Atlanta

3
00:00:23,160 --> 00:00:21,430

this in July 8 1947

4
00:00:25,620 --> 00:00:23,170

here are the airport through person ops

5
00:00:28,200 --> 00:00:25,630

been applying this - found and there's

6
00:00:31,910 --> 00:00:28,210

now in the possession of the RA the game

7
00:00:34,740 --> 00:00:31,920

is rigged changed the game changer I

8
00:00:39,060 --> 00:00:34,750

occasionally think how quickly our

9
00:00:41,700 --> 00:00:39,070

differences worldwide would vanish if we

10
00:00:43,130 --> 00:00:41,710

were facing an alien threat from outside

11
00:00:44,960 --> 00:00:43,140

this way

12
00:00:46,970 --> 00:00:44,970

[Music]

13
00:00:50,190 --> 00:00:46,980

[Applause]

14

00:00:53,130 --> 00:00:50,200

this is baked and black with your host

15

00:00:56,130 --> 00:00:53,140

Jimmy church on the game-changer Radio

16

00:00:59,190 --> 00:00:56,140

Network and K GRA the Global Radio

17

00:00:59,200 --> 00:01:02,930

[Music]

18

00:01:09,050 --> 00:01:05,330

1985

19

00:01:11,210 --> 00:01:09,060

[Music]

20

00:01:13,370 --> 00:01:11,220

you are listening to fade to black with

21

00:01:14,140 --> 00:01:13,380

Jimmy judge on the game change in that

22

00:01:30,020 --> 00:01:14,150

word

23

00:01:33,840 --> 00:01:30,030

[Music]

24

00:01:33,850 --> 00:01:36,929

fade to black

25

00:01:36,939 --> 00:01:43,770

his spoke radio for

26

00:01:50,660 --> 00:01:45,410

masses

27

00:01:59,010 --> 00:01:53,450

tonight's the night it's Wednesday

28

00:02:05,220 --> 00:02:01,980

forty-four days into the new year just

29

00:02:07,690 --> 00:02:05,230

321 days left we are live from a bunker

30

00:02:09,580 --> 00:02:07,700

somewhere in the middle of beautiful

31

00:02:11,110 --> 00:02:09,590

downtown Burbank California and I would

32

00:02:12,570 --> 00:02:11,120

like to welcome everybody listening all

33

00:02:17,070 --> 00:02:12,580

around the world

34

00:02:19,410 --> 00:02:17,080

across the United States hither and

35

00:02:21,690 --> 00:02:19,420

thither to and fro back and forth up and

36

00:02:22,890 --> 00:02:21,700

down east and west north and south far

37

00:02:27,030 --> 00:02:22,900

and near

38

00:02:31,650 --> 00:02:27,040

this is Veda block for kjc are the game

39

00:02:33,240 --> 00:02:31,660

changer networking kg are aid the planet

40

00:02:38,040 --> 00:02:33,250

I am your host to be Church what is

41

00:02:38,970 --> 00:02:38,050

cracking everybody how are you doing how

42

00:02:42,750 --> 00:02:38,980

are you good

43

00:02:46,440 --> 00:02:42,760

you guys are getting so quick on the

44

00:02:51,320 --> 00:02:46,450

Twitter man grabbing the the video feeds

45

00:02:54,120 --> 00:02:52,680

yeah

46

00:02:57,800 --> 00:02:54,130

you like those guitar picks don't you

47

00:03:01,290 --> 00:02:57,810

hey he has a quick man I mean that was

48

00:03:03,240 --> 00:03:01,300

seconds follow me on twitter @ JT radio

49

00:03:06,780 --> 00:03:03,250

that's what you want to do at Jay Church

50

00:03:09,000 --> 00:03:06,790

radio hashtag F to B is the sandbox in

51
00:03:10,920 --> 00:03:09,010
real-time that's where a conversation

52
00:03:12,920 --> 00:03:10,930
goes down but other conversations go

53
00:03:16,800 --> 00:03:12,930
down and Spreaker in that chat room and

54
00:03:20,000 --> 00:03:16,810
kgr a the planet at that chat room got

55
00:03:21,840 --> 00:03:20,010
email popping in real-time that's right

56
00:03:24,570 --> 00:03:21,850
email in real-time

57
00:03:28,800 --> 00:03:24,580
jimmy head to maturity o calm imagine

58
00:03:31,650 --> 00:03:28,810
that emails gonna be big yeah it's gonna

59
00:03:35,040 --> 00:03:31,660
be big one day you're gonna see email

60
00:03:38,540 --> 00:03:35,050
you're gonna have one yeah Jimmy Jimmy

61
00:03:42,690 --> 00:03:38,550
turret radio.com how quick email has

62
00:03:45,830 --> 00:03:42,700
become passé alright I mean we all still

63
00:03:48,390 --> 00:03:45,840

use it but now it's about texting and

64

00:03:51,300 --> 00:03:48,400

Twitter you know I tell you get ahold

65

00:03:54,800 --> 00:03:51,310

people may do did you get my a Facebook

66

00:03:57,300 --> 00:03:54,810

message dude pick up the phone call me

67

00:04:03,120 --> 00:03:57,310

we'll look to your message on facebook

68

00:04:07,170 --> 00:04:03,130

ah it's crazy how we communicate today

69

00:04:11,070 --> 00:04:07,180

alright tonight right here on fade to

70

00:04:15,420 --> 00:04:11,080

black Isaac Arthur returns tonight we're

71

00:04:18,090 --> 00:04:15,430

gonna discuss the Fermi paradox Isaac

72

00:04:21,630 --> 00:04:18,100

did did the full show with me Sunday

73

00:04:25,570 --> 00:04:21,640

night over on coast to coast full four

74

00:04:29,580 --> 00:04:25,580

hours and he is absolutely

75

00:04:32,980 --> 00:04:29,590

and I promised you a Fermi paradox show

76

00:04:35,409 --> 00:04:32,990

for over a year I've kind of danced in

77

00:04:36,820 --> 00:04:35,419

and out of it certainly danced in and

78

00:04:39,219 --> 00:04:36,830

out of it for the last four or five

79

00:04:42,790 --> 00:04:39,229

years but but I have promised the Fermi

80

00:04:45,159 --> 00:04:42,800

paradox show tonight it is here alright

81

00:04:47,170 --> 00:04:45,169

alright that's what we're gonna do we're

82

00:04:49,779 --> 00:04:47,180

gonna do it from top to bottom you have

83

00:04:52,420 --> 00:04:49,789

the Fermi paradox tomorrow night open

84

00:04:54,490 --> 00:04:52,430

lines all night long we do have Serena

85

00:04:56,890 --> 00:04:54,500

and Doug Taylor will be here tomorrow

86

00:04:59,260 --> 00:04:56,900

night Serena right Taylor and Douglas

87

00:05:04,149 --> 00:04:59,270

Taylor will be with this tomorrow night

88

00:05:06,760 --> 00:05:04,159

and also open lines all night long okay

89

00:05:10,659 --> 00:05:06,770

there you go you know what to do when it

90

00:05:14,110 --> 00:05:10,669

comes to social media right on stellar

91

00:05:15,730 --> 00:05:14,120

Twitter Facebook YouTube it's all easy

92

00:05:17,589 --> 00:05:15,740

to get to head over to Jimmy Church

93

00:05:21,100 --> 00:05:17,599

radio.com you can follow like and

94

00:05:24,249 --> 00:05:21,110

subscribe right there and hashtag F to B

95

00:05:27,580 --> 00:05:24,259

is the sandbox hashtag F to be Q on

96

00:05:30,999 --> 00:05:27,590

Twitter is fade to black

97

00:05:33,580 --> 00:05:31,009

questions okay it's really that simple

98

00:05:37,200 --> 00:05:33,590

and I keep everything up in front of me

99

00:05:44,829 --> 00:05:37,210

I know I talk about it but it's you guys

100

00:05:47,320 --> 00:05:44,839

alright listen the Twitter situation and

101
00:05:49,510 --> 00:05:47,330
as well as the chat rooms and everything

102
00:05:53,170 --> 00:05:49,520
but Twitter you guys created this

103
00:05:56,860 --> 00:05:53,180
monster you guys did it I didn't do it

104
00:05:59,379 --> 00:05:56,870
read it ended nope you guys did it you

105
00:06:01,420 --> 00:05:59,389
guys named it the sandbox you guys came

106
00:06:03,610 --> 00:06:01,430
up with the hashtags I don't know why

107
00:06:05,649 --> 00:06:03,620
you put the number 2 in there it could

108
00:06:08,980 --> 00:06:05,659
have been FTB that would have made

109
00:06:11,230 --> 00:06:08,990
things easy but no we got a no we got to

110
00:06:14,740 --> 00:06:11,240
throw a 2 in there so ok but you guys

111
00:06:17,890 --> 00:06:14,750
did all of that he created this so yeah

112
00:06:19,950 --> 00:06:17,900
I'm proud but now I've got to pay

113
00:06:24,309 --> 00:06:19,960

attention to it throughout the entire

114

00:06:29,290 --> 00:06:24,319

show it is incredible what is happening

115

00:06:33,420 --> 00:06:29,300

here it I just it's something where I'm

116

00:06:35,199 --> 00:06:33,430

so humbled by it and now the

117

00:06:37,360 --> 00:06:35,209

communication I'm just talking about

118

00:06:38,269 --> 00:06:37,370

this a second ago the communication

119

00:06:40,489 --> 00:06:38,279

where

120

00:06:42,769 --> 00:06:40,499

I am interacting with everybody I don't

121

00:06:45,109 --> 00:06:42,779

necessarily check my email I might do

122

00:06:48,589 --> 00:06:45,119

that a couple times a day unless the

123

00:06:52,939 --> 00:06:48,599

alert comes in I might check all right

124

00:06:56,269 --> 00:06:52,949

but now I'm a Twitter Facebook Facebook

125

00:06:59,659 --> 00:06:56,279

I'll jump over there once a day for a

126

00:07:01,399 --> 00:06:59,669

minute see if there's an emergency or

127

00:07:03,199 --> 00:07:01,409

any messages I don't even have facebook

128

00:07:06,229 --> 00:07:03,209

messenger on my phone anymore that

129

00:07:09,079 --> 00:07:06,239

that's been turned off for for a long

130

00:07:11,419 --> 00:07:09,089

time so I don't even do that alright it

131

00:07:14,089 --> 00:07:11,429

is just it's a Twitter world these days

132

00:07:15,949 --> 00:07:14,099

it really really is all right so you

133

00:07:19,009 --> 00:07:15,959

know what to do with social media okay

134

00:07:21,579 --> 00:07:19,019

and now we've got some breaking news it

135

00:07:23,499 --> 00:07:21,589

was announced today that's right

136

00:07:26,569 --> 00:07:23,509

opportunity

137

00:07:29,899 --> 00:07:26,579

last night NASA reached out one final

138

00:07:32,509 --> 00:07:29,909

time to opportunity that rover on Mars

139

00:07:34,939 --> 00:07:32,519

which has been chugging along for so

140

00:07:38,329 --> 00:07:34,949

many years now hoping that it would

141

00:07:40,669 --> 00:07:38,339

reach out and communicate maybe phone

142

00:07:43,879 --> 00:07:40,679

home with some good news I'm back I'm

143

00:07:47,299 --> 00:07:43,889

okay my windshield wipers work since

144

00:07:50,569 --> 00:07:47,309

June it's been completely unresponsive

145

00:07:53,839 --> 00:07:50,579

and it's most likely because of a

146

00:07:57,169 --> 00:07:53,849

planet-wide a sandstorm has covered its

147

00:08:01,189 --> 00:07:57,179

solar panels with dust and NASA pinged

148

00:08:03,319 --> 00:08:01,199

it over 1,000 times hoping over the last

149

00:08:06,469 --> 00:08:03,329

eight months to to get a response

150

00:08:09,769 --> 00:08:06,479

nothing happened and today nASA has

151

00:08:18,799 --> 00:08:09,779

announced that opportunity is officially

152

00:08:21,739 --> 00:08:18,809

dead dead like Momo dead sad - sad and

153

00:08:24,199 --> 00:08:21,749

the okay let me let me jump in and say

154

00:08:27,079 --> 00:08:24,209

something last night I brought up the

155

00:08:30,409 --> 00:08:27,089

new TV series well it's not new 2016

156

00:08:33,649 --> 00:08:30,419

2017 Mars and we're binging it now and

157

00:08:37,249 --> 00:08:33,659

it's really really good I don't know

158

00:08:39,439 --> 00:08:37,259

what episode were on right now seven

159

00:08:41,659 --> 00:08:39,449

maybe eight number nine somewhere in

160

00:08:46,189 --> 00:08:41,669

there and they're going through a dust

161

00:08:48,410 --> 00:08:46,199

storm on Mars and I started to think

162

00:08:50,749 --> 00:08:48,420

about opportunity when the word was

163

00:08:51,380 --> 00:08:50,759

coming out and Corby Way said he's got

164

00:08:53,120 --> 00:08:51,390

some news

165

00:08:54,470 --> 00:08:53,130

he's about to communicate with us we

166

00:08:56,240 --> 00:08:54,480

might have Corby on the show tomorrow

167

00:08:58,520 --> 00:08:56,250

night he's probably listening right now

168

00:09:01,190 --> 00:08:58,530

would like to get Corby out and I know

169

00:09:04,160 --> 00:09:01,200

that he was over at JPL when all of this

170

00:09:05,180 --> 00:09:04,170

was going down and but I started

171

00:09:08,990 --> 00:09:05,190

thinking last night

172

00:09:11,690 --> 00:09:09,000

solar panels we have over on our house

173

00:09:13,460 --> 00:09:11,700

we have solar panels we have solar power

174

00:09:16,550 --> 00:09:13,470

and what you have to do those solar

175

00:09:17,990 --> 00:09:16,560

panels is you've got to wash them right

176
00:09:19,520 --> 00:09:18,000
like window washers you know and they

177
00:09:24,320 --> 00:09:19,530
come out and they go up there and and

178
00:09:28,040 --> 00:09:24,330
clean them off well why wouldn't there

179
00:09:32,000 --> 00:09:28,050
be like windshield wipers on the solar

180
00:09:32,690 --> 00:09:32,010
panels yeah we all know about the dust

181
00:09:34,820 --> 00:09:32,700
on Mars

182
00:09:36,410 --> 00:09:34,830
why isn't there something you know okay

183
00:09:38,780 --> 00:09:36,420
so the solar panels here why isn't there

184
00:09:43,240 --> 00:09:38,790
something to go goes ree-ree

185
00:09:48,290 --> 00:09:43,250
and knocks the dust off where is that

186
00:09:50,000 --> 00:09:48,300
technology I don't get it I just you

187
00:09:52,640 --> 00:09:50,010
know you dot you design something like

188
00:09:55,040 --> 00:09:52,650

that it weights as much as a car you

189

00:09:58,790 --> 00:09:55,050

know it's a beautiful technology if it

190

00:10:05,210 --> 00:09:58,800

did it did work for years but why wasn't

191

00:10:07,370 --> 00:10:05,220

there a wiper clean that stuff off all

192

00:10:09,320 --> 00:10:07,380

right all right I know it sounds so

193

00:10:13,240 --> 00:10:09,330

simple now hopefully in the future and

194

00:10:15,920 --> 00:10:13,250

it's the same thing with isn't there

195

00:10:17,930 --> 00:10:15,930

like with the ISS or all of the

196

00:10:20,120 --> 00:10:17,940

satellites that are up there now you

197

00:10:22,220 --> 00:10:20,130

know if you're up there for 2 3 4 5 10

198

00:10:27,850 --> 00:10:22,230

15 years at a crack

199

00:10:29,560 --> 00:10:27,860

aren't you accumulating dust right I

200

00:10:32,210 --> 00:10:29,570

think so

201
00:10:34,310 --> 00:10:32,220
so are they cleaning it or do they go

202
00:10:36,310 --> 00:10:34,320
out to do the astronauts go out I'm not

203
00:10:40,430 --> 00:10:36,320
making fun here I'm not being cavalier

204
00:10:40,880 --> 00:10:40,440
do they go out and wipe the solar panels

205
00:10:43,630 --> 00:10:40,890
down

206
00:10:48,580 --> 00:10:43,640
that's funny Kevin thank you for that

207
00:10:51,440 --> 00:10:48,590
yeah I'm serious

208
00:10:53,600 --> 00:10:51,450
I'm serious it just bums me out

209
00:10:57,770 --> 00:10:53,610
opportunity was really really cool come

210
00:10:59,960 --> 00:10:57,780
join us next week for the 2019 conscious

211
00:11:04,160 --> 00:10:59,970
life Expo right here in Los Angeles at

212
00:11:05,620 --> 00:11:04,170
the LAX Hilton gotten a lot of texts and

213
00:11:09,200 --> 00:11:05,630

tweets and email

214

00:11:11,660 --> 00:11:09,210

over the last week you know excited to

215

00:11:15,500 --> 00:11:11,670

come and hang out and meet you and stuff

216

00:11:18,860 --> 00:11:15,510

and it's weird how it's ramping up right

217

00:11:22,610 --> 00:11:18,870

now but next week today's the 13th next

218

00:11:26,240 --> 00:11:22,620

week unbelievable February 22nd through

219

00:11:28,610 --> 00:11:26,250

the 25th at the LAX Hilton and just head

220

00:11:30,410 --> 00:11:28,620

over to conscious life Expo comm and get

221

00:11:33,410 --> 00:11:30,420

a full conference schedule right there

222

00:11:36,320 --> 00:11:33,420

with the correct times by the way and

223

00:11:38,360 --> 00:11:36,330

Friday night I'll be hosting the ancient

224

00:11:40,610 --> 00:11:38,370

aliens panel with Erich von Daniken's

225

00:11:42,170 --> 00:11:40,620

celebrating the 50th anniversary of

226

00:11:44,240 --> 00:11:42,180

Chariots of the Gods you've got to get

227

00:11:47,930 --> 00:11:44,250

tickets for that panel in advance

228

00:11:50,150 --> 00:11:47,940

that's Friday night at 7 p.m. coming up

229

00:11:52,940 --> 00:11:50,160

after that is contacting the desert that

230

00:11:55,310 --> 00:11:52,950

is May 31st through June 3rd in Indian

231

00:11:57,650 --> 00:11:55,320

Wells Palm Springs California tickets

232

00:11:59,540 --> 00:11:57,660

and info over at contact in the desert

233

00:12:00,380 --> 00:11:59,550

common when you go over and get your

234

00:12:04,250 --> 00:12:00,390

tickets there

235

00:12:07,280 --> 00:12:04,260

don't forget the on Saturday night I'll

236

00:12:10,250 --> 00:12:07,290

be hosting the awards dinner so you want

237

00:12:14,000 --> 00:12:10,260

to get your tickets for that at contact

238

00:12:16,340 --> 00:12:14,010

in the desert calm and then 2019 soul

239

00:12:18,410 --> 00:12:16,350

tech conference is happening over the

240

00:12:21,050 --> 00:12:18,420

July 4th weekend at the sunrise ranch in

241

00:12:24,340 --> 00:12:21,060

Loveland Colorado sign up for tickets

242

00:12:26,720 --> 00:12:24,350

and info right now at Sol tech gathering

243

00:12:29,540 --> 00:12:26,730

dot-com all right don't forget to

244

00:12:32,180 --> 00:12:29,550

subscribe to our podcast it is just two

245

00:12:34,640 --> 00:12:32,190

dollars per month go to Jimmy tortilla

246

00:12:36,200 --> 00:12:34,650

com click on that podcast banner also

247

00:12:42,290 --> 00:12:36,210

and I made this announcement last night

248

00:12:46,670 --> 00:12:42,300

I did it last week send us your pictures

249

00:12:49,160 --> 00:12:46,680

of you and your fade to black gear ok

250

00:12:51,980 --> 00:12:49,170

hats t-shirts because we're gonna be

251
00:12:54,560 --> 00:12:51,990
building up a fader not gallery over at

252
00:12:57,500 --> 00:12:54,570
Jimmy Church radio calm with all of you

253
00:13:01,010 --> 00:12:57,510
we have hundreds hundreds literally

254
00:13:04,220 --> 00:13:01,020
hundreds of pictures I want them all I

255
00:13:06,560 --> 00:13:04,230
want them all we we send out stuff every

256
00:13:09,620 --> 00:13:06,570
single day so post him up in Twitter

257
00:13:11,870 --> 00:13:09,630
send them to me via email take care of

258
00:13:14,329 --> 00:13:11,880
it I want all of you in the fader not

259
00:13:16,640 --> 00:13:14,339
gallery you can go and get your fate or

260
00:13:17,810 --> 00:13:16,650
not gear over in our membership section

261
00:13:19,610 --> 00:13:17,820
on the site you can

262
00:13:23,260 --> 00:13:19,620
also order t-shirts there at Jimmy

263
00:13:26,120 --> 00:13:23,270

Church radio.com in the store okay

264

00:13:31,820 --> 00:13:26,130

alright where are we happy birthday to

265

00:13:36,440 --> 00:13:31,830

today Peter Gabriel Peter Gabriel today

266

00:13:40,730 --> 00:13:36,450

is 69 Henry Rollins the guy with the

267

00:13:43,520 --> 00:13:40,740

neck right Henry Rollins today Black

268

00:13:48,890 --> 00:13:43,530

Flag today is 58

269

00:13:51,170 --> 00:13:48,900

Robbie UFO Williams today is only 45

270

00:13:53,870 --> 00:13:51,180

Stockard Channing one of my favorite

271

00:13:57,020 --> 00:13:53,880

actresses every year I say happy

272

00:14:00,320 --> 00:13:57,030

birthday to her today she is 75 and also

273

00:14:07,130 --> 00:14:00,330

Peter Tork bass player for the Monkees

274

00:14:11,920 --> 00:14:07,140

Peter Tork today is 77 okay alright let

275

00:14:16,430 --> 00:14:11,930

me hit this coffee River Moon

276

00:14:17,450 --> 00:14:16,440

fade to black blend f2b blend go to

277

00:14:21,230 --> 00:14:17,460

River moon coffee

278

00:14:22,760 --> 00:14:21,240

fade to black Plan F to B blend 15% off

279

00:14:25,010 --> 00:14:22,770

of your order that's your that's your

280

00:14:27,230 --> 00:14:25,020

promo code you've got to get some of

281

00:14:28,880 --> 00:14:27,240

this coffee and is the best I cannot

282

00:14:30,890 --> 00:14:28,890

make it through a show I can't make it

283

00:14:34,340 --> 00:14:30,900

through a day I can't you know how I get

284

00:14:36,380 --> 00:14:34,350

out of bed in the morning Rita that's

285

00:14:38,810 --> 00:14:36,390

how I get out of bed cuz I smell the

286

00:14:40,550 --> 00:14:38,820

coffee from downstairs oh my god you

287

00:14:43,220 --> 00:14:40,560

know and once you get that whiff you

288

00:14:46,370 --> 00:14:43,230

can't you can't go back to sleep you

289

00:14:49,720 --> 00:14:46,380

can't do it something triggers in your

290

00:14:52,970 --> 00:14:49,730

body got that fade to black blend coffee

291

00:14:54,530 --> 00:14:52,980

that's exactly what happens and you need

292

00:14:56,770 --> 00:14:54,540

to go through that you need to go

293

00:14:59,840 --> 00:14:56,780

through the addiction that I have

294

00:15:02,360 --> 00:14:59,850

alright NASA is a good storyteller yes

295

00:15:03,170 --> 00:15:02,370

thank you so much for that Dan on this

296

00:15:08,650 --> 00:15:03,180

day in history

297

00:15:11,750 --> 00:15:08,660

ot D 1633 on this day

298

00:15:15,890 --> 00:15:11,760

Galileo arrives in Rome to face charges

299

00:15:18,800 --> 00:15:15,900

of heresy for advocating the Copernican

300

00:15:23,810 --> 00:15:18,810

theory which said that the Earth

301
00:15:27,560 --> 00:15:23,820
revolves around the Sun ended up going

302
00:15:30,320 --> 00:15:27,570
to jail house arrest for the rest of his

303
00:15:31,670 --> 00:15:30,330
life yeah he had to plead guilty to

304
00:15:34,579 --> 00:15:31,680
lesser charges the acts

305
00:15:37,430 --> 00:15:34,589
had that kind of thing back in 1633

306
00:15:38,269 --> 00:15:37,440
thank you Eric look at that see that's

307
00:15:40,790 --> 00:15:38,279
what I'm talking about

308
00:15:43,010 --> 00:15:40,800
Eric's tit in his full fader gears gonna

309
00:15:45,590 --> 00:15:43,020
get a retweet he wants to be the top

310
00:15:47,180 --> 00:15:45,600
person in the fader not gallery and you

311
00:15:49,280 --> 00:15:47,190
know what you keep whipping out pictures

312
00:15:52,370 --> 00:15:49,290
like that look you know what he looks

313
00:15:54,050 --> 00:15:52,380

good I like the way the autograph shows

314

00:15:58,010 --> 00:15:54,060

up on the hat to Eric that's really cool

315

00:16:00,380 --> 00:15:58,020

but that's not what I see here I see is

316

00:16:03,079 --> 00:16:00,390

that a coffee is that a French press in

317

00:16:05,870 --> 00:16:03,089

the background that's what I see I see

318

00:16:09,010 --> 00:16:05,880

the French press on the countertop in

319

00:16:11,540 --> 00:16:09,020

the amazing artwork right there is that

320

00:16:15,710 --> 00:16:11,550

I'm not even gonna say it on the air I

321

00:16:18,650 --> 00:16:15,720

think that's my poster behind Eric look

322

00:16:24,740 --> 00:16:18,660

at that okay all right where am I at

323

00:16:29,540 --> 00:16:24,750

Galileo 16 33 where am I at 16 33

324

00:16:33,760 --> 00:16:29,550

Galileo Galileo fader fact Elvis

325

00:16:35,120 --> 00:16:33,770

Presley's manager Colonel Tom Parker

326

00:16:40,699 --> 00:16:35,130

sold

327

00:16:43,600 --> 00:16:40,709

I hate Elvis buttons and badges as a way

328

00:16:48,670 --> 00:16:43,610

to make money off of people at concerts

329

00:16:52,670 --> 00:16:50,570

that's a true story

330

00:16:55,280 --> 00:16:52,680

I had heard those rumors when I was a

331

00:17:01,070 --> 00:16:55,290

kid you know that you could buy I hate

332

00:17:03,380 --> 00:17:01,080

Elvis buttons because they wanted to

333

00:17:07,130 --> 00:17:03,390

make money and you know I heard you know

334

00:17:11,809 --> 00:17:07,140

but it turns out yes it was in deed true

335

00:17:13,520 --> 00:17:11,819

all right all right tonight right here

336

00:17:15,140 --> 00:17:13,530

very special guests

337

00:17:17,840 --> 00:17:15,150

Isaac Arthur we're going to be talking

338

00:17:18,620 --> 00:17:17,850

about the Fermi paradox we're gonna

339

00:17:21,079 --> 00:17:18,630

break it all down

340

00:17:24,590 --> 00:17:21,089

tomorrow night's open lines and we do

341

00:17:27,169 --> 00:17:24,600

have serene and right Taylor and Douglas

342

00:17:29,930 --> 00:17:27,179

Taylor here to join us and have a little

343

00:17:32,360 --> 00:17:29,940

conversation to warm up the show for all

344

00:17:38,660 --> 00:17:32,370

of you tomorrow night but first I wanted

345

00:17:41,450 --> 00:17:38,670

to discuss the Fermi paradox tonight

346

00:17:43,909 --> 00:17:41,460

Isaac Arthur's here and we're going to

347

00:17:44,990 --> 00:17:43,919

be spending all of our time discussing

348

00:17:50,029 --> 00:17:45,000

the quest

349

00:17:52,310 --> 00:17:50,039

right where is everybody where is ZT and

350

00:17:54,409 --> 00:17:52,320

it's possible answer so that's the

351

00:17:56,000 --> 00:17:54,419

question the Fermi paradox and it's

352

00:17:58,760 --> 00:17:56,010

possible answers and there are many

353

00:17:59,930 --> 00:17:58,770

there's a lot of answers so that we

354

00:18:02,000 --> 00:17:59,940

don't have to take away from the show

355

00:18:04,789 --> 00:18:02,010

tonight here's a little historical

356

00:18:07,070 --> 00:18:04,799

perspective on the on the paradox and

357

00:18:09,560 --> 00:18:07,080

how it evolved because back in 1950

358

00:18:12,919 --> 00:18:09,570

while working at the Los Alamos National

359

00:18:17,000 --> 00:18:12,929

Laboratory firming Fermi had a casual

360

00:18:19,149 --> 00:18:17,010

conversation while walking to lunch with

361

00:18:26,750 --> 00:18:19,159

a meal

362

00:18:30,110 --> 00:18:26,760

kind of cut a Pinsky Edward Teller right

363

00:18:34,159 --> 00:18:30,120

the physicist at Herbert York the men

364

00:18:38,060 --> 00:18:34,169

discussed a recent spate of UFO reports

365

00:18:41,110 --> 00:18:38,070

and Alan and an Allen Dunn cartoon that

366

00:18:45,409 --> 00:18:41,120

was blaming the disappearance of

367

00:18:47,390 --> 00:18:45,419

municipal trash cans on aliens all right

368

00:18:49,430 --> 00:18:47,400

so that's what was going down the

369

00:18:52,820 --> 00:18:49,440

conversation shifted to other subjects

370

00:18:57,710 --> 00:18:52,830

until during lunch Fermi suddenly

371

00:19:01,039 --> 00:18:57,720

exclaimed where are they right where is

372

00:19:03,770 --> 00:19:01,049

everybody and Teller Edward Teller says

373

00:19:06,560 --> 00:19:03,780

he remembers that and I'm quoting the

374

00:19:08,899 --> 00:19:06,570

result of his question was a general

375

00:19:11,720 --> 00:19:08,909

laughter because of the strange fact

376

00:19:14,779 --> 00:19:11,730

that in spite of Fermi's question coming

377

00:19:16,909 --> 00:19:14,789

out from the clear blue everybody around

378

00:19:18,880 --> 00:19:16,919

the table seemed to understand at once

379

00:19:22,549 --> 00:19:18,890

that he was talking about

380

00:19:25,700 --> 00:19:22,559

extraterrestrial life and quote Herbert

381

00:19:27,279 --> 00:19:25,710

you're Creek recalls that Fermi followed

382

00:19:30,230 --> 00:19:27,289

up on his comment with a series of

383

00:19:32,299 --> 00:19:30,240

calculations on the probability of

384

00:19:34,909 --> 00:19:32,309

earth-like planets the probability of

385

00:19:38,240 --> 00:19:34,919

life the likely rise in duration of high

386

00:19:41,120 --> 00:19:38,250

technology etc and concluded that we

387

00:19:47,720 --> 00:19:41,130

ought to have been visited long ago and

388

00:19:50,570 --> 00:19:47,730

many times over ok now although Fermi's

389

00:19:54,380 --> 00:19:50,580

name is most commonly associated with

390

00:19:58,340 --> 00:19:54,390

the paradox he was not the first ask the

391

00:19:58,920 --> 00:19:58,350

question an earlier mention was made by

392

00:20:06,270 --> 00:19:58,930

Costas

393

00:20:09,060 --> 00:20:06,280

tene CL coughs key all right in an

394

00:20:11,460 --> 00:20:09,070

unpublished manuscript from 1933 he

395

00:20:13,320 --> 00:20:11,470

noted people deny the presence of

396

00:20:16,650 --> 00:20:13,330

intelligent beings on planets of the

397

00:20:19,020 --> 00:20:16,660

universe because of one if such beings

398

00:20:22,440 --> 00:20:19,030

exist they would have visited earth and

399

00:20:25,980 --> 00:20:22,450

- if such civilizations existed they

400

00:20:29,460 --> 00:20:25,990

would have been giving us some sign of

401
00:20:32,490 --> 00:20:29,470
their existence and quote this was not a

402
00:20:34,710 --> 00:20:32,500
paradox you know for others who took

403
00:20:38,370 --> 00:20:34,720
this - implied that the absent of ETS

404
00:20:40,110 --> 00:20:38,380
but more that it was for him since he

405
00:20:42,090 --> 00:20:40,120
himself was a strong believer in

406
00:20:44,280 --> 00:20:42,100
extraterrestrial life in the possibility

407
00:20:45,390 --> 00:20:44,290
of space travel therefore and that was

408
00:20:48,720 --> 00:20:45,400
in 1933

409
00:20:52,350 --> 00:20:48,730
therefore he proposed what is now known

410
00:20:54,990 --> 00:20:52,360
as the zoo hypothesis and speculated

411
00:20:58,530 --> 00:20:55,000
that mankind is not yet ready for higher

412
00:21:00,720 --> 00:20:58,540
beings to contact us right he himself

413
00:21:03,540 --> 00:21:00,730

may have not been the first to discover

414

00:21:06,410 --> 00:21:03,550

the paradox and suggested by his

415

00:21:09,060 --> 00:21:06,420

above-mentioned reference to others

416

00:21:11,930 --> 00:21:09,070

reasons for denying the existence of

417

00:21:15,960 --> 00:21:11,940

extraterrestrial civilizations now

418

00:21:19,350 --> 00:21:15,970

moving on Michael H Hart published in

419

00:21:24,120 --> 00:21:19,360

1975 a detailed examination of the

420

00:21:26,940 --> 00:21:24,130

paradox which seems to have become a

421

00:21:28,670 --> 00:21:26,950

theoretical reference point for for much

422

00:21:31,680 --> 00:21:28,680

of the research into what is now

423

00:21:32,490 --> 00:21:31,690

sometimes known as the fermi heart

424

00:21:37,880 --> 00:21:32,500

paradox

425

00:21:42,780 --> 00:21:37,890

well Fermi laid it out in 1950 Hart

426

00:21:47,610 --> 00:21:42,790

revisited it in depth in 1975 and today

427

00:21:51,690 --> 00:21:47,620

in 2019 we we know magnitudes more than

428

00:21:58,050 --> 00:21:51,700

we did in 1995 let alone back in 75 or

429

00:22:01,650 --> 00:21:58,060

1950 my view of the paradox is not as

430

00:22:07,260 --> 00:22:01,660

much as where are they as much as why

431

00:22:12,090 --> 00:22:07,270

are they ET holding back why are they

432

00:22:15,300 --> 00:22:12,100

holding back or are they see I think

433

00:22:17,730 --> 00:22:15,310

I think that many many many different

434

00:22:21,930 --> 00:22:17,740

civilizations are visiting us every

435

00:22:24,000 --> 00:22:21,940

single day not just one a lot you can go

436

00:22:27,090 --> 00:22:24,010

out on any given night and see at least

437

00:22:28,710 --> 00:22:27,100

one strange thing in the sky not a

438

00:22:32,460 --> 00:22:28,720

satellite or something that's

439

00:22:37,770 --> 00:22:32,470

explainable I mean at least one strange

440

00:22:41,280 --> 00:22:37,780

thing that you can explain but where is

441

00:22:43,410 --> 00:22:41,290

the gigantic mothership not something

442

00:22:46,500 --> 00:22:43,420

that arrives here on earth and flies

443

00:22:50,660 --> 00:22:46,510

over New York City and Parks itself I'm

444

00:22:54,510 --> 00:22:50,670

just talking about like a crazy fly by

445

00:22:57,360 --> 00:22:54,520

something like something that's the size

446

00:22:59,220 --> 00:22:57,370

of our Moon look you can go anywhere on

447

00:23:01,740 --> 00:22:59,230

this planet look up and see the moon

448

00:23:04,080 --> 00:23:01,750

right there it is for everybody to see

449

00:23:07,200 --> 00:23:04,090

so what about that something that

450

00:23:09,600 --> 00:23:07,210

ginormous something that we could

451
00:23:12,510 --> 00:23:09,610
clearly see you know all the nations of

452
00:23:15,660 --> 00:23:12,520
the earth you know and see words that

453
00:23:17,850 --> 00:23:15,670
and just look and go that that that's et

454
00:23:21,330 --> 00:23:17,860
you know just something just you know a

455
00:23:23,160 --> 00:23:21,340
fly by just to fly by not not entering

456
00:23:25,140 --> 00:23:23,170
the atmosphere or not landing not this

457
00:23:28,170 --> 00:23:25,150
not that take me to your leader I'm just

458
00:23:29,390 --> 00:23:28,180
talking about just a cruise you know I'm

459
00:23:32,460 --> 00:23:29,400
gonna hang out there for a little bit

460
00:23:35,670 --> 00:23:32,470
where is that that's the part of the

461
00:23:38,520 --> 00:23:35,680
paradox that baffles me and maybe just

462
00:23:43,350 --> 00:23:38,530
maybe maybe maybe that although we see

463
00:23:47,280 --> 00:23:43,360

our planet as unique maybe there are

464

00:23:50,160 --> 00:23:47,290

billions just like ours just like Earth

465

00:23:53,880 --> 00:23:50,170

maybe even better maybe bigger maybe

466

00:23:59,820 --> 00:23:53,890

nicer that are you know that are worth

467

00:24:04,890 --> 00:23:59,830

et's time yeah right but maybe when it

468

00:24:10,470 --> 00:24:04,900

comes to earth et is like man Earth is

469

00:24:15,120 --> 00:24:10,480

ok but let's go to Planet Vegas baby you

470

00:24:17,310 --> 00:24:15,130

know maybe it's like that think about it

471

00:24:22,920 --> 00:24:17,320

that maybe we're just not that unique

472

00:24:25,630 --> 00:24:22,930

maybe were just like hey so ok let's say

473

00:24:30,580 --> 00:24:25,640

that I'm right

474

00:24:34,210 --> 00:24:30,590

let's say that et many et's know we are

475

00:24:36,220 --> 00:24:34,220

here and they visit all the time but

476
00:24:40,620 --> 00:24:36,230
they just kind of leave us alone they're

477
00:24:46,840 --> 00:24:40,630
not that interested the bigger paradox

478
00:24:49,690 --> 00:24:46,850
the church paradox is who on this planet

479
00:24:54,990 --> 00:24:49,700
knows the truth and why are they not

480
00:24:59,669 --> 00:24:55,000
telling us because that's a paradox and

481
00:25:03,760 --> 00:24:59,679
that's the bigger question I know any

482
00:25:07,210 --> 00:25:03,770
skeptic anybody because I was one I know

483
00:25:10,390 --> 00:25:07,220
that I can take out on any given I take

484
00:25:12,400 --> 00:25:10,400
out my night vision just go out and and

485
00:25:15,310 --> 00:25:12,410
look to the Stars look to them and see

486
00:25:18,370 --> 00:25:15,320
something try I know that we are being

487
00:25:24,190 --> 00:25:18,380
visited every single day and what I have

488
00:25:25,690 --> 00:25:24,200

always always suggested very strongly is

489

00:25:27,310 --> 00:25:25,700

that we are doing the same thing we're

490

00:25:28,780 --> 00:25:27,320

trying to figure it out we're out there

491

00:25:31,659 --> 00:25:28,790

looking to the stars we've been

492

00:25:33,430 --> 00:25:31,669

wondering since day one are we alone in

493

00:25:35,110 --> 00:25:33,440

the universe that's what we do

494

00:25:37,620 --> 00:25:35,120

et's got to be doing the same thing

495

00:25:40,180 --> 00:25:37,630

alright and traveling these fast

496

00:25:43,840 --> 00:25:40,190

distances forget about the universe just

497

00:25:46,900 --> 00:25:43,850

inside of our Milky Way takes time take

498

00:25:52,330 --> 00:25:46,910

a million years to cross the Milky Way a

499

00:25:54,370 --> 00:25:52,340

million years a million and everything

500

00:25:56,200 --> 00:25:54,380

gets investigated in between so you

501
00:25:58,090 --> 00:25:56,210
wouldn't you would do that you know what

502
00:26:01,409 --> 00:25:58,100
you would do that with with what we are

503
00:26:03,640 --> 00:26:01,419
seeing in the skies probes things

504
00:26:08,640 --> 00:26:03,650
cruising collecting data

505
00:26:12,760 --> 00:26:08,650
splitting not by one civilization by

506
00:26:15,400 --> 00:26:12,770
thousands because if I can go anywhere

507
00:26:18,640 --> 00:26:15,410
on any given night and pick a spot on

508
00:26:21,130 --> 00:26:18,650
this planet pick a spot in my state just

509
00:26:24,490 --> 00:26:21,140
go out and look and see something that

510
00:26:27,549 --> 00:26:24,500
means right over my head that means it's

511
00:26:30,010 --> 00:26:27,559
going on all over the planet you can go

512
00:26:33,490 --> 00:26:30,020
anywhere so we're being visited by

513
00:26:36,750 --> 00:26:33,500

thousands thousands of civilizations not

514

00:26:38,380 --> 00:26:36,760

just one that's just one they all

515

00:26:41,140 --> 00:26:38,390

communicate

516

00:26:43,960 --> 00:26:41,150

talk to Isaac about this tonight you

517

00:26:48,250 --> 00:26:43,970

know an advanced civilization out there

518

00:26:49,960 --> 00:26:48,260

that is out of crossing the univer are

519

00:26:52,240 --> 00:26:49,970

in communication with other

520

00:26:53,710 --> 00:26:52,250

civilizations hey man what have you

521

00:26:55,180 --> 00:26:53,720

found we found something over here

522

00:26:55,930 --> 00:26:55,190

really check this out we found some

523

00:26:57,850 --> 00:26:55,940

stuff over here

524

00:27:00,190 --> 00:26:57,860

really all right I'm gonna go visit

525

00:27:01,810 --> 00:27:00,200

where you just were you go just visit

526
00:27:03,730 --> 00:27:01,820
where I am here's the coordinates and

527
00:27:06,520 --> 00:27:03,740
I'll see you later we'll talk next week

528
00:27:08,020 --> 00:27:06,530
alright Ralph our our our I Bob and and

529
00:27:10,660 --> 00:27:08,030
the way they go they're all

530
00:27:13,120 --> 00:27:10,670
communicating with each other they have

531
00:27:16,510 --> 00:27:13,130
to is the only way to map this thing and

532
00:27:19,090 --> 00:27:16,520
the log all of the information that we

533
00:27:21,010 --> 00:27:19,100
have not only with the Stars but with

534
00:27:24,460 --> 00:27:21,020
the multiple planets that are with each

535
00:27:28,300 --> 00:27:24,470
star we're talking about a hundred

536
00:27:29,910 --> 00:27:28,310
billion we're talking about if you if

537
00:27:32,770 --> 00:27:29,920
you really stop and think about this

538
00:27:35,140 --> 00:27:32,780

maybe five hundred billion stars or

539

00:27:37,390 --> 00:27:35,150

planets that's what we're dealing with

540

00:27:39,580 --> 00:27:37,400

today it's absolutely incredible

541

00:27:42,460 --> 00:27:39,590

this is fade to black I am your host Amy

542

00:27:45,520 --> 00:27:42,470

Church our guest tonight is Isaac Arthur

543

00:27:48,130 --> 00:27:45,530

we're discussing the Fermi paradox and

544

00:27:50,620 --> 00:27:48,140

we are gonna go top to bottom all right

545

00:27:53,440 --> 00:27:50,630

fade to black on the game changer

546

00:27:54,880 --> 00:27:53,450

Network in kg ra the planet arm you'll

547

00:27:58,420 --> 00:27:54,890

see me Church follow me on Twitter at

548

00:28:00,010 --> 00:27:58,430

JTA radio you know how to follow Isaac

549

00:28:01,690 --> 00:28:00,020

Arthur he's right there and Twitter

550

00:28:05,610 --> 00:28:01,700

right now and I'll be right back with

551
00:28:05,620 --> 00:28:38,280

[Music]

552
00:28:42,840 --> 00:28:40,770
this is Nicole Church daughter of

553
00:28:44,820 --> 00:28:42,850
you-know-who and you're listening to

554
00:28:50,040 --> 00:28:44,830
fade to black on Jimmy Church radio.com

555
00:28:55,300 --> 00:28:50,050
and the GameChanger network you're

556
00:29:02,780 --> 00:28:58,820
[Music]

557
00:29:12,450 --> 00:29:10,140
are a radio when you take the beams from

558
00:29:14,910 --> 00:29:12,460
Central America with dashes of

559
00:29:17,280 --> 00:29:14,920
Indonesian and African mixed in and then

560
00:29:20,160 --> 00:29:17,290
roast it to the dark side of fade to

561
00:29:23,310 --> 00:29:20,170
black you create the ultimate brew of

562
00:29:27,060 --> 00:29:23,320
Fringe introducing the fade to black

563
00:29:29,670 --> 00:29:27,070

blend from River moon coffee yes River

564

00:29:32,670 --> 00:29:29,680

moons darkest customized roast was

565

00:29:35,670 --> 00:29:32,680

created for the love of fade to black

566

00:29:38,340 --> 00:29:35,680

the alchemy of masterful roasting and

567

00:29:41,910 --> 00:29:38,350

smoking the beans is in every sip of

568

00:29:44,910 --> 00:29:41,920

this full-bodied dark Java I need my

569

00:29:47,250 --> 00:29:44,920

coffee dog deep with distinct

570

00:29:49,950 --> 00:29:47,260

bittersweet chocolate highlights just

571

00:29:52,380 --> 00:29:49,960

like the bunker leaning further into the

572

00:29:55,680 --> 00:29:52,390

darkness of the roast is fade to black

573

00:29:57,330 --> 00:29:55,690

blend from river moon coffee just click

574

00:30:00,630 --> 00:29:57,340

on the banner at Jimmy Church radio.com

575

00:30:05,960 --> 00:30:00,640

and use the promo code F to B blend for

576

00:30:08,640 --> 00:30:05,970

15% off of your order today gobekli tepe

577

00:30:12,000 --> 00:30:08,650

this is Jimmy Church a fade to black and

578

00:30:14,220 --> 00:30:12,010

you can get our podcast for just \$2 per

579

00:30:16,560 --> 00:30:14,230

month all you have to do is click on the

580

00:30:19,830 --> 00:30:16,570

podcast banner over at Jimmy Church

581

00:30:21,600 --> 00:30:19,840

radio.com hey folks guess what the

582

00:30:24,120 --> 00:30:21,610

number one phrase that life changed t

583

00:30:27,870 --> 00:30:24,130

receipts by email you ready we love this

584

00:30:30,900 --> 00:30:27,880

T we love this t time after time week

585

00:30:32,160 --> 00:30:30,910

after week we love this t life change t

586

00:30:35,280 --> 00:30:32,170

gives you more energy

587

00:30:37,920 --> 00:30:35,290

a beautiful cleansing and fulfills its

588

00:30:39,720 --> 00:30:37,930

slogan perfectly that t that makes you

589

00:30:42,570 --> 00:30:39,730

go so if you want to be on your health

590

00:30:45,150 --> 00:30:42,580

game log on to get the t calm and order

591

00:30:47,760 --> 00:30:45,160

life change super strength t packages

592

00:30:50,040 --> 00:30:47,770

come in a one month supply and when you

593

00:30:50,610 --> 00:30:50,050

brew this stuff wait until you see the

594

00:30:51,200 --> 00:30:50,620

results

595

00:30:53,210 --> 00:30:51,210

our

596

00:30:55,730 --> 00:30:53,220

we all about the results and with a lot

597

00:30:57,500 --> 00:30:55,740

of people's health struggling we can use

598

00:31:01,399 --> 00:30:57,510

a little bit of help doctors will tell

599

00:31:05,210 --> 00:31:01,409

you disease starts in the gut so log on

600

00:31:08,840 --> 00:31:05,220

to get the t.com that's get the t.com be

601
00:31:12,470 --> 00:31:08,850
our next email saying I love this tea I

602
00:31:15,830 --> 00:31:12,480
mean I love this tea get the tea at get

603
00:31:16,159 --> 00:31:15,840
the t.com help in America one tea bag at

604
00:31:22,580 --> 00:31:16,169
a time

605
00:31:23,210 --> 00:31:22,590
9 out of 10 geneticists agreed fade to

606
00:31:28,580 --> 00:31:23,220
black

607
00:31:32,960 --> 00:31:28,590
is not your father's radio show on the

608
00:31:36,260 --> 00:31:32,970
GameChanger radio network and kgr a the

609
00:31:41,330 --> 00:31:38,690
do you want to lose weight but have no

610
00:31:43,460 --> 00:31:41,340
idea where to begin the fast start diet

611
00:31:44,060 --> 00:31:43,470
a three-day weight loss plan is the

612
00:31:46,400 --> 00:31:44,070
answer

613
00:31:48,740 --> 00:31:46,410

three days of nutritionally balanced

614

00:31:51,650 --> 00:31:48,750

calorie restricted meals delivered right

615

00:31:54,020 --> 00:31:51,660

to your door no shopping no measuring

616

00:31:56,780 --> 00:31:54,030

and no cooking everything is prepared

617

00:31:57,110 --> 00:31:56,790

for you and ready to eat at home or on

618

00:31:59,960 --> 00:31:57,120

the go

619

00:32:01,669 --> 00:31:59,970

the fast start diet has all the amazing

620

00:32:02,570 --> 00:32:01,679

benefits of intermittent fasting without

621

00:32:04,850 --> 00:32:02,580

starving

622

00:32:06,110 --> 00:32:04,860

we've helped thousands of people who

623

00:32:06,980 --> 00:32:06,120

have struggled to reach their

624

00:32:09,590 --> 00:32:06,990

weight-loss goals

625

00:32:11,750 --> 00:32:09,600

isn't it time we helped you with the

626

00:32:14,750 --> 00:32:11,760

fast start diet you'll lose weight and

627

00:32:17,240 --> 00:32:14,760

feel great fine fast start diet on

628

00:32:20,000 --> 00:32:17,250

Amazon or go too fast start diet calm

629

00:32:22,220 --> 00:32:20,010

and use promo code talk to get 10% off

630

00:32:24,799 --> 00:32:22,230

your first box and as a special bonus

631

00:32:27,560 --> 00:32:24,809

fast start will include their number one

632

00:32:29,870 --> 00:32:27,570

rated lipo 3 appetite suppressant spray

633

00:32:32,210 --> 00:32:29,880

free with your order this is Jimmy

634

00:32:53,030 --> 00:32:32,220

church and whatever your diet plans are

635

00:32:53,040 --> 00:33:02,980

[Music]

636

00:33:08,330 --> 00:33:05,330

all right welcome back pay the black I'm

637

00:33:11,990 --> 00:33:08,340

your host Jimmy church to follow me on

638

00:33:15,230 --> 00:33:12,000

Twitter at J Church radio that's what

639

00:33:17,870 --> 00:33:15,240

you want to do at JT radio you can

640

00:33:20,570 --> 00:33:17,880

follow Isaac at Isaac I think it's Isaac

641

00:33:22,760 --> 00:33:20,580

hey Arthur with an underscore but we've

642

00:33:26,560 --> 00:33:22,770

got all the links up for Isaac right

643

00:33:29,560 --> 00:33:26,570

there in Twitter so go and follow Isaac

644

00:33:32,630 --> 00:33:29,570

he's the host of science and futurism

645

00:33:35,299 --> 00:33:32,640

well it's science and futurism with

646

00:33:38,150 --> 00:33:35,309

Isaac Arthur and that's on YouTube he's

647

00:33:40,850 --> 00:33:38,160

got over 300,000 subscribers he's got

648

00:33:44,810 --> 00:33:40,860

over 200 I think it's over 200 I'll ask

649

00:33:47,960 --> 00:33:44,820

Isaac 200 episodes covering topics like

650

00:33:50,020 --> 00:33:47,970

the colonization of the solar system

651
00:33:53,060 --> 00:33:50,030
interstellar travel the Fermi paradox

652
00:33:56,450 --> 00:33:53,070
artificial intelligence and everything

653
00:33:58,580 --> 00:33:56,460
else that kind of challenges humanity he

654
00:34:00,740 --> 00:33:58,590
received his degree in physics from Kent

655
00:34:03,560 --> 00:34:00,750
State University graduating top of his

656
00:34:05,450 --> 00:34:03,570
class at the age of 20 remain there for

657
00:34:08,300 --> 00:34:05,460
graduate studies before joining the US

658
00:34:10,129 --> 00:34:08,310
Army served in Iraq he also worked as a

659
00:34:12,619 --> 00:34:10,139
civilian researcher at the Air Force

660
00:34:15,379 --> 00:34:12,629
Institute of Technology in Dayton Ohio

661
00:34:17,899 --> 00:34:15,389
and I would like to welcome back to fade

662
00:34:20,510 --> 00:34:17,909
to black coming off of a back-to-back

663
00:34:23,810 --> 00:34:20,520

for our appearance Sunday night on coast

664

00:34:27,050 --> 00:34:23,820

to coast am Isaac Arthur Isaac you're a

665

00:34:27,440 --> 00:34:27,060

rock star these days my friend Thank You

666

00:34:30,139 --> 00:34:27,450

Jimmy

667

00:34:32,090 --> 00:34:30,149

I got it seems like been so long since

668

00:34:35,060 --> 00:34:32,100

we last talked I think I'm gonna have to

669

00:34:38,149 --> 00:34:35,070

start going through your agent soon to

670

00:34:41,210 --> 00:34:38,159

get a hold of you but you know the thing

671

00:34:44,330 --> 00:34:41,220

is with the sharing of your information

672

00:34:47,510 --> 00:34:44,340

and and how you do it I want to thank

673

00:34:50,300 --> 00:34:47,520

you for that because it is so digestible

674

00:34:53,149 --> 00:34:50,310

I keeps using that word with you but

675

00:34:55,190 --> 00:34:53,159

it's important because it can get very

676
00:34:58,070 --> 00:34:55,200
technical and for most people if they

677
00:34:59,870 --> 00:34:58,080
don't get it they just tune out but I

678
00:35:02,240 --> 00:34:59,880
don't do that with you so I want to

679
00:35:06,650 --> 00:35:02,250
thank you where did you where did you

680
00:35:08,870 --> 00:35:06,660
come up with the concepts to to get

681
00:35:10,880 --> 00:35:08,880
science to the masses like this so we

682
00:35:13,070 --> 00:35:10,890
could all figure something out well

683
00:35:14,930 --> 00:35:13,080
that's the funniest way it got started

684
00:35:16,400 --> 00:35:14,940
was I was just kind of doing as a hobby

685
00:35:18,079 --> 00:35:16,410
talking a bunch of all

686
00:35:19,760 --> 00:35:18,089
Arthur's and oldest who will walk you

687
00:35:22,220 --> 00:35:19,770
science fiction I was complaining about

688
00:35:24,170 --> 00:35:22,230

how it seemed kind of stagnant they

689

00:35:25,970 --> 00:35:24,180

won't lady learn new ideas so I've been

690

00:35:29,240 --> 00:35:25,980

throwing some ideas out there and I just

691

00:35:31,010 --> 00:35:29,250

one day compiled an episode of various

692

00:35:33,559 --> 00:35:31,020

concepts to look at and what the size

693

00:35:36,260 --> 00:35:33,569

behind them was and somehow that mutated

694

00:35:38,450 --> 00:35:36,270

into a channel so four years later here

695

00:35:42,260 --> 00:35:38,460

we are now I didn't ask you this the

696

00:35:44,329 --> 00:35:42,270

other night I'm gonna do it now I'm

697

00:35:47,000 --> 00:35:44,339

gonna go right there the Air Force

698

00:35:53,260 --> 00:35:47,010

Institute of Technology in Dayton Ohio

699

00:35:55,370 --> 00:35:53,270

oh yeah all right are you a man in black

700

00:35:58,010 --> 00:35:55,380

you know we go in a completely

701
00:36:00,319 --> 00:35:58,020
windowless bunk over play sat on a place

702
00:36:01,640 --> 00:36:00,329
where I was researching at and but I

703
00:36:03,140 --> 00:36:01,650
hate to say we really had nothing

704
00:36:05,569 --> 00:36:03,150
interesting going on I mean I thought it

705
00:36:07,250 --> 00:36:05,579
was interesting but we have wonder why

706
00:36:08,750 --> 00:36:07,260
is this building got no windows in it

707
00:36:10,910 --> 00:36:08,760
and I said because we used to store film

708
00:36:13,460 --> 00:36:10,920
here and now we do laser experiments but

709
00:36:15,470 --> 00:36:13,470
I hate to say it was a fairly boy and I

710
00:36:19,549 --> 00:36:15,480
was just an intern helping out I was 19

711
00:36:21,859 --> 00:36:19,559
at the time so no secrets did you accept

712
00:36:24,440 --> 00:36:21,869
that explanation for a windowless

713
00:36:26,720 --> 00:36:24,450

building come on Arthur well I kind of

714

00:36:28,490 --> 00:36:26,730

had to cuz I got to see everything was

715

00:36:31,599 --> 00:36:28,500

going on inside the place and we did

716

00:36:33,650 --> 00:36:31,609

actually have some old film I don't what

717

00:36:34,309 --> 00:36:33,660

film for that age that stuff was

718

00:36:37,160 --> 00:36:34,319

flammable

719

00:36:39,920 --> 00:36:37,170

now that was yet totally still is by the

720

00:36:42,620 --> 00:36:39,930

way completely flammable but Isaac was

721

00:36:45,799 --> 00:36:42,630

this on base was this at wright-patt oh

722

00:36:47,150 --> 00:36:45,809

yeah I was 145 building one photos right

723

00:36:49,099 --> 00:36:47,160

by the main facility there's there's a

724

00:36:51,380 --> 00:36:49,109

larger building for the main campus of

725

00:36:53,720 --> 00:36:51,390

the Air Force Institute but some selling

726

00:36:56,630 --> 00:36:53,730

Saudis Emil just up the road from the

727

00:36:59,839 --> 00:36:56,640

museum which was if you've never been a

728

00:37:01,190 --> 00:36:59,849

big museum I have yes I have I've been

729

00:37:04,970 --> 00:37:01,200

there many times I've been there many

730

00:37:08,150 --> 00:37:04,980

times one of the one of the great wealth

731

00:37:10,339 --> 00:37:08,160

certainly for for planes for aircraft

732

00:37:13,130 --> 00:37:10,349

but one of the great museums period in

733

00:37:17,660 --> 00:37:13,140

this country is is right there at Dayton

734

00:37:19,880 --> 00:37:17,670

now okay but there is I've talked to a

735

00:37:23,870 --> 00:37:19,890

lot of people that have worked at the

736

00:37:26,359 --> 00:37:23,880

base and they all say that the running

737

00:37:28,650 --> 00:37:26,369

joke around the bases you know have you

738

00:37:31,110 --> 00:37:28,660

seen have you seen et

739

00:37:32,130 --> 00:37:31,120

have you seen the bodies and they joke

740

00:37:35,580 --> 00:37:32,140

about it did

741

00:37:37,500 --> 00:37:35,590

did you hear references to to aliens at

742

00:37:38,940 --> 00:37:37,510

wright-patt oh yeah it was a fairly

743

00:37:41,220 --> 00:37:38,950

common joke at that time because I think

744

00:37:42,960 --> 00:37:41,230

if and I have to double check my memory

745

00:37:44,040 --> 00:37:42,970

on this one but I believe they had said

746

00:37:47,040 --> 00:37:44,050

they'd moved much of the stuff up from

747

00:37:48,420 --> 00:37:47,050

area 51 today at that time and there was

748

00:37:50,430 --> 00:37:48,430

one of the buildings ever when it fly

749

00:37:52,200 --> 00:37:50,440

dislocation and if there was anything

750

00:37:54,270 --> 00:37:52,210

going on there I know nothing about it

751

00:37:55,890 --> 00:37:54,280

but it was it was quite a joke at the

752

00:37:57,360 --> 00:37:55,900

time and there was obviously a lot of

753

00:37:58,560 --> 00:37:57,370

secretly so what's going on there but I

754

00:38:03,810 --> 00:37:58,570

wasn't too involved in anything

755

00:38:09,330 --> 00:38:03,820

interesting in that go okay okay okay

756

00:38:11,880 --> 00:38:09,340

but I'm sure that you accept this

757

00:38:13,730 --> 00:38:11,890

statement where there is smoke there's

758

00:38:15,900 --> 00:38:13,740

fire

759

00:38:17,310 --> 00:38:15,910

usually speaker then I mean it was

760

00:38:19,320 --> 00:38:17,320

certainly there was a lot of secretly so

761

00:38:20,880 --> 00:38:19,330

what's going on there but you know I

762

00:38:23,580 --> 00:38:20,890

wasn't involved with it so I just can't

763

00:38:25,380 --> 00:38:23,590

do more than speculate so are you

764

00:38:31,590 --> 00:38:25,390

squirming in your seat right now are you

765

00:38:33,390 --> 00:38:31,600

uncomfortable would have to be men you

766

00:38:35,490 --> 00:38:33,400

worked at the Air Force Institute of

767

00:38:38,070 --> 00:38:35,500

Technology at wright-patt where they

768

00:38:40,650 --> 00:38:38,080

have all the alien secrets you write

769

00:38:43,680 --> 00:38:40,660

about this you make videos about these

770

00:38:45,360 --> 00:38:43,690

subjects so I've got to you know for it

771

00:38:48,330 --> 00:38:45,370

for my audience I have to do the right

772

00:38:50,880 --> 00:38:48,340

thing and and just just wonder if there

773

00:38:52,470 --> 00:38:50,890

is a connection here it is teased

774

00:38:54,810 --> 00:38:52,480

sometimes that because after people come

775

00:38:56,310 --> 00:38:54,820

by this was before 9/11 this was in 2000

776

00:38:57,780 --> 00:38:56,320

so Billy there's a lot more openness the

777

00:39:00,180 --> 00:38:57,790

base and people would come by asking

778

00:39:02,100 --> 00:39:00,190

questions what was inside you know the

779

00:39:03,660 --> 00:39:02,110

putting custard out and you could not

780

00:39:05,910 --> 00:39:03,670

tease people a little bit because

781

00:39:07,530 --> 00:39:05,920

obviously had quite the the non-american

782

00:39:08,700 --> 00:39:07,540

sounding voice the time so as woman what

783

00:39:11,040 --> 00:39:08,710

are you doing there with you're not in

784

00:39:12,900 --> 00:39:11,050

uniform because I was civilian and don't

785

00:39:15,780 --> 00:39:12,910

sound like you from this area mm-hmm

786

00:39:16,860 --> 00:39:15,790

but no I mean if it's it was I would say

787

00:39:19,320 --> 00:39:16,870

if again if you haven't been in that

788

00:39:22,530 --> 00:39:19,330

museum it's amazing and my past and I

789

00:39:24,240 --> 00:39:22,540

obviously max army so I always reserved

790

00:39:25,590 --> 00:39:24,250

the Air Force's really nice spaces but

791

00:39:27,540 --> 00:39:25,600

it's just a gorgeous campus then

792

00:39:29,580 --> 00:39:27,550

everybody walked with was wonderful

793

00:39:31,500 --> 00:39:29,590

guys they were their spare time they

794

00:39:34,110 --> 00:39:31,510

will fighter pilots scientists and

795

00:39:37,470 --> 00:39:34,120

trying out for NASA so it's it's a

796

00:39:39,330 --> 00:39:37,480

ginormous base most people you know it's

797

00:39:42,200 --> 00:39:39,340

in Ohio you know it's a date and it

798

00:39:44,420 --> 00:39:42,210

doesn't make you know Cincinnati Dayton

799

00:39:47,000 --> 00:39:44,430

it most people wouldn't think about the

800

00:39:50,660 --> 00:39:47,010

airforce having a base there they do and

801

00:39:54,829 --> 00:39:50,670

not only is it there but it is huge that

802

00:39:56,180 --> 00:39:54,839

is a big big piece of property well of

803

00:39:58,010 --> 00:39:56,190

course all of us in Ohio always a little

804

00:40:00,530 --> 00:39:58,020

bit smug about although in the aerospace

805

00:40:01,430 --> 00:40:00,540

Todd mines you like light pass and

806

00:40:04,430 --> 00:40:01,440

obviously being a reference to the

807

00:40:06,500 --> 00:40:04,440

Wright brothers and home for John Glenn

808

00:40:09,140 --> 00:40:06,510

Daniel Armstrong folks like that so

809

00:40:11,390 --> 00:40:09,150

we've always been very happy to host the

810

00:40:14,630 --> 00:40:11,400

very large Air Force Base they are for

811

00:40:15,200 --> 00:40:14,640

both patriotic patriotic and economic

812

00:40:17,510 --> 00:40:15,210

reasons

813

00:40:19,760 --> 00:40:17,520

now what about okay last question about

814

00:40:23,630 --> 00:40:19,770

right Pat did you uh did you ever see

815

00:40:25,339 --> 00:40:23,640

hangar 18 I think I remember hearing

816

00:40:28,790 --> 00:40:25,349

about it but I don't recall if I don't

817

00:40:37,190 --> 00:40:28,800

see no not so you're playing the

818

00:40:38,960 --> 00:40:37,200

politician I do not recall that's the

819

00:40:41,270 --> 00:40:38,970

first thing if I'm working there I'm

820

00:40:45,440 --> 00:40:41,280

going okay where are the bodies where's

821

00:40:47,000 --> 00:40:45,450

hangar 18 I mean that was very brand-new

822

00:40:48,710 --> 00:40:47,010

it was the you know the late 90s or

823

00:40:49,910 --> 00:40:48,720

2000s was just when folks were starting

824

00:40:52,070 --> 00:40:49,920

to think that that had been wish nothing

825

00:40:53,839 --> 00:40:52,080

been moved to so you know you were just

826

00:40:55,099 --> 00:40:53,849

catching the edge of that so yeah very

827

00:40:57,400 --> 00:40:55,109

interesting that they were making

828

00:41:00,349 --> 00:40:57,410

references to area 51 about that too

829

00:41:02,270 --> 00:41:00,359

well whether it's joking or not right

830

00:41:05,960 --> 00:41:02,280

now we don't have we moved it all over

831

00:41:08,690 --> 00:41:05,970

to a Nevada well you know it's for us

832

00:41:10,700 --> 00:41:08,700

conspiracy guys that's so simple see

833

00:41:12,260 --> 00:41:10,710

that's what I'm on about right there

834

00:41:14,450 --> 00:41:12,270

they're cracking jokes but they're

835

00:41:16,609 --> 00:41:14,460

trying to run the smokescreen on us man

836

00:41:18,380 --> 00:41:16,619

it's not really a joke and they're

837

00:41:20,270 --> 00:41:18,390

trying to deflect you know that's what

838

00:41:21,500 --> 00:41:20,280

we do it's it's the nature of the

839

00:41:23,900 --> 00:41:21,510

business in this community

840

00:41:25,550 --> 00:41:23,910

oh and so if there was anything going on

841

00:41:27,500 --> 00:41:25,560

they oh and I'm not gonna say there is

842

00:41:28,579 --> 00:41:27,510

it was I just don't know because I mean

843

00:41:29,570 --> 00:41:28,589

they wouldn't be telling you think it's

844

00:41:31,040 --> 00:41:29,580

like that anyway and of course if I

845

00:41:33,620 --> 00:41:31,050

didn't know I wouldn't say anything you

846

00:41:35,060 --> 00:41:33,630

know what I have said after the show

847

00:41:37,339 --> 00:41:35,070

tonight they're gonna call you up and go

848

00:41:39,680 --> 00:41:37,349

good job man that was good deflecting

849

00:41:43,339 --> 00:41:39,690

and you're gonna go yeah did I do good

850

00:41:45,589 --> 00:41:43,349

Oh according to plan

851
00:41:48,079 --> 00:41:45,599
all right let's let's get started here

852
00:41:50,960 --> 00:41:48,089
we've got a lot to discuss tonight it is

853
00:41:54,050 --> 00:41:50,970
going to be a very thick show with

854
00:41:56,520 --> 00:41:54,060
information and I want to start off here

855
00:41:59,700 --> 00:41:56,530
with

856
00:42:02,010 --> 00:41:59,710
the Fermi paradox okay all right and

857
00:42:04,920 --> 00:42:02,020
then and then we're gonna take off but

858
00:42:08,279 --> 00:42:04,930
this is the Fermi paradox that there are

859
00:42:11,970 --> 00:42:08,289
500 billion stars in our Milky Way with

860
00:42:14,940 --> 00:42:11,980
over 500 billion planets billions of

861
00:42:18,180 --> 00:42:14,950
which are earth-like and possibly have

862
00:42:21,859 --> 00:42:18,190
intelligent life and there could be 1

863
00:42:24,089 --> 00:42:21,869

trillion galaxies in our universe so

864

00:42:27,150 --> 00:42:24,099

where is everybody

865

00:42:30,510 --> 00:42:27,160

that's the Fermi paradox the church

866

00:42:34,470 --> 00:42:30,520

version that's my update my 2019 update

867

00:42:37,500 --> 00:42:34,480

to the Fermi paradox and now we have the

868

00:42:44,220 --> 00:42:37,510

question which is laid out there and we

869

00:42:46,319 --> 00:42:44,230

have a 2000 answers that we are going

870

00:42:49,349 --> 00:42:46,329

the ones that have been explored the

871

00:42:51,870 --> 00:42:49,359

most that you do too as well Isaac and

872

00:42:54,510 --> 00:42:51,880

we're gonna explore each one of these

873

00:42:58,680 --> 00:42:54,520

answers I'm gonna give you the answer

874

00:43:01,230 --> 00:42:58,690

and then you are going to expand on it

875

00:43:03,269 --> 00:43:01,240

all right are you ready to go let's go

876
00:43:04,740 --> 00:43:03,279
man this is so in your wheelhouse you're

877
00:43:08,579 --> 00:43:04,750
like this is gonna be the easiest show

878
00:43:11,069 --> 00:43:08,589
I've ever done this is how US you're a

879
00:43:13,529 --> 00:43:11,079
seer SATs right here you've got a cheat

880
00:43:16,440 --> 00:43:13,539
sheet but let's let's that so let's

881
00:43:19,529 --> 00:43:16,450
break this down where is everybody well

882
00:43:23,519 --> 00:43:19,539
ok let's go to answer number 1 which you

883
00:43:27,230 --> 00:43:23,529
explore really really well and it's the

884
00:43:29,819 --> 00:43:27,240
best foundation to start which is that

885
00:43:34,710 --> 00:43:29,829
extraterrestrial life is rare or

886
00:43:36,420 --> 00:43:34,720
non-existent I would say the usual

887
00:43:38,130 --> 00:43:36,430
approach on this is to say you know

888
00:43:39,809 --> 00:43:38,140

based on the hall conjecture which is

889

00:43:42,000 --> 00:43:39,819

kind with a form a paradox got started

890

00:43:43,500 --> 00:43:42,010

if you've got life and if you can get

891

00:43:45,630 --> 00:43:43,510

out there and settle the stars and

892

00:43:48,029 --> 00:43:45,640

galaxies it should be virtually

893

00:43:50,789 --> 00:43:48,039

impossible not to find aliens because

894

00:43:52,200 --> 00:43:50,799

they should be everywhere not just they

895

00:43:53,760 --> 00:43:52,210

usually have a bunch of plants with them

896

00:43:56,430 --> 00:43:53,770

but they should have a Starbucks on the

897

00:43:57,960 --> 00:43:56,440

moon by now and so if things do get out

898

00:43:59,460 --> 00:43:57,970

there and expand which is what

899

00:44:01,289 --> 00:43:59,470

biologically evolved life should

900

00:44:03,329 --> 00:44:01,299

generally tend to do if it's possible

901
00:44:04,680 --> 00:44:03,339
travel out to the Stahl's issue be

902
00:44:06,750 --> 00:44:04,690
impossible to miss them

903
00:44:09,460 --> 00:44:06,760
and this is the basic notion so we don't

904
00:44:11,080 --> 00:44:09,470
see that anywhere it only takes one

905
00:44:12,850 --> 00:44:11,090
the folks were on the scene you know if

906
00:44:14,410 --> 00:44:12,860
humanity hadn't evolved for something

907
00:44:16,660 --> 00:44:14,420
should come along after us and have done

908
00:44:18,910 --> 00:44:16,670
the same job one way or another the

909
00:44:21,910 --> 00:44:18,920
space fills up and that's basically the

910
00:44:23,350 --> 00:44:21,920
reason behind the idea that we would say

911
00:44:25,090 --> 00:44:23,360
life is very rare

912
00:44:27,100 --> 00:44:25,100
or at least intelligent life is very

913
00:44:29,110 --> 00:44:27,110

rare in the universe because we don't

914

00:44:32,110 --> 00:44:29,120

see that and almost every solution after

915

00:44:35,050 --> 00:44:32,120

that has to base itself on either a why

916

00:44:37,210 --> 00:44:35,060

we don't see them B why we can't see

917

00:44:39,160 --> 00:44:37,220

them or they don't expand outward or see

918

00:44:40,570 --> 00:44:39,170

that we do see them all the time of

919

00:44:43,000 --> 00:44:40,580

course and we just can't convince

920

00:44:46,750 --> 00:44:43,010

ourselves they're true and we're I have

921

00:44:51,130 --> 00:44:46,760

problems with this answer is if you look

922

00:44:56,500 --> 00:44:51,140

at earth we can't stop life here right

923

00:44:59,830 --> 00:44:56,510

you can't stop it it continued you burn

924

00:45:02,410 --> 00:44:59,840

down burn down a forest down to Carbon

925

00:45:04,570 --> 00:45:02,420

down to charcoal I've come littering the

926

00:45:06,880 --> 00:45:04,580

ground but we literally have types of

927

00:45:11,050 --> 00:45:06,890

trees that manage to paly themselves by

928

00:45:13,600 --> 00:45:11,060

being toasted that's what you cannot

929

00:45:15,460 --> 00:45:13,610

stop life here you can do whatever you

930

00:45:17,770 --> 00:45:15,470

want you could choke out ozone

931

00:45:21,070 --> 00:45:17,780

everything else and a couple years later

932

00:45:24,700 --> 00:45:21,080

Ozone's back life is back choke the

933

00:45:28,180 --> 00:45:24,710

oxygen out of the oceans you know give a

934

00:45:30,550 --> 00:45:28,190

dead pond a stagnant whatever you know

935

00:45:33,370 --> 00:45:30,560

one season and then you're fishing there

936

00:45:36,280 --> 00:45:33,380

a year later you know you can't stop

937

00:45:38,680 --> 00:45:36,290

life on this planet why would it be any

938

00:45:42,910 --> 00:45:38,690

different forget about intelligent life

939

00:45:45,840 --> 00:45:42,920

sentient life but just microbial life

940

00:45:48,870 --> 00:45:45,850

you would think that it is absolutely

941

00:45:51,790 --> 00:45:48,880

everywhere on anything that is is

942

00:45:54,370 --> 00:45:51,800

resembling a rocky planet well that's

943

00:45:56,320 --> 00:45:54,380

the base of the the core Vale hypothesis

944

00:45:57,940 --> 00:45:56,330

that just says life is poly available cuz

945

00:45:59,890 --> 00:45:57,950

there was one thing life does better

946

00:46:02,620 --> 00:45:59,900

than anything else it is a machine that

947

00:46:05,650 --> 00:46:02,630

once it's in place folks it's all of its

948

00:46:07,570 --> 00:46:05,660

effort for millions of years on going to

949

00:46:09,460 --> 00:46:07,580

be better at surviving right it is the

950

00:46:11,950 --> 00:46:09,470

survival machine that is literally the

951
00:46:12,610 --> 00:46:11,960
definition of life so any place that

952
00:46:14,530 --> 00:46:12,620
pops up

953
00:46:16,090 --> 00:46:14,540
unless there's something truly whole

954
00:46:17,320 --> 00:46:16,100
what happens that that water gets

955
00:46:20,230 --> 00:46:17,330
smacked by another one or something like

956
00:46:21,130 --> 00:46:20,240
that it should still be there and every

957
00:46:22,620 --> 00:46:21,140
year should be getting better and better

958
00:46:24,890 --> 00:46:22,630
at surviving

959
00:46:26,789 --> 00:46:24,900
so I know it has to be that either

960
00:46:28,229 --> 00:46:26,799
intelligence doesn't evolve from that

961
00:46:31,200 --> 00:46:28,239
very much which has some reason behind

962
00:46:34,019 --> 00:46:31,210
it or they just almost never get started

963
00:46:35,609 --> 00:46:34,029

in the first place and that is very hard

964

00:46:36,900 --> 00:46:35,619

for a lot of us to swallow because it

965

00:46:40,859 --> 00:46:36,910

just doesn't seem like that should be

966

00:46:43,920 --> 00:46:40,869

the way it is yeah life it is so strange

967

00:46:46,589 --> 00:46:43,930

the one thing let me tell you when I say

968

00:46:49,279 --> 00:46:46,599

you can't stop life okay one of the most

969

00:46:52,200 --> 00:46:49,289

horrific thoughts you can have is

970

00:46:54,390 --> 00:46:52,210

cannibalism right that's the one thing

971

00:46:56,549 --> 00:46:54,400

if somebody says oh man that's that's

972

00:46:58,739 --> 00:46:56,559

this poor tastes pretty good that's not

973

00:46:59,789 --> 00:46:58,749

pork man that's that's monkey you're

974

00:47:02,279 --> 00:46:59,799

gonna throw up

975

00:47:07,130 --> 00:47:02,289

your brain triggers right your brain

976

00:47:11,609 --> 00:47:07,140

triggers it's like but if you're hungry

977

00:47:13,529 --> 00:47:11,619

you're gonna eat your own arm right you

978

00:47:17,339 --> 00:47:13,539

will do whatever it takes to survive

979

00:47:21,359 --> 00:47:17,349

life is is is something you cannot stop

980

00:47:22,979 --> 00:47:21,369

on this planet so to have this as answer

981

00:47:25,319 --> 00:47:22,989

number one which is the first go to

982

00:47:26,579 --> 00:47:25,329

right an extraterrestrial life is either

983

00:47:28,289 --> 00:47:26,589

rare or non-existent

984

00:47:31,410 --> 00:47:28,299

I can almost scratch that one off the

985

00:47:33,450 --> 00:47:31,420

list a lot of I mean that's the biggest

986

00:47:35,339 --> 00:47:33,460

source of problem with us when we simmer

987

00:47:36,749 --> 00:47:35,349

the formu paradox almost all the

988

00:47:38,789 --> 00:47:36,759

reasoning is based off the assumption

989

00:47:40,650 --> 00:47:38,799

that it must be really common for life

990

00:47:42,569 --> 00:47:40,660

to pop up we don't know how come and

991

00:47:44,880 --> 00:47:42,579

maybe once every few thousand plants

992

00:47:47,729 --> 00:47:44,890

maybe every solar system and more than

993

00:47:50,249 --> 00:47:47,739

once but right but most people just tend

994

00:47:52,229 --> 00:47:50,259

to feel a biogenesis that 4slice bulk

995

00:47:54,120 --> 00:47:52,239

must happen pretty often

996

00:47:55,950 --> 00:47:54,130

problem is we don't actually have any

997

00:47:57,509 --> 00:47:55,960

data to back that up it's just we all

998

00:47:59,630 --> 00:47:57,519

kind of feel like that should be true

999

00:48:01,680 --> 00:47:59,640

and almost every other Fermi paradox

1000

00:48:04,559 --> 00:48:01,690

hypothesis is kind of based off that

1001

00:48:08,069 --> 00:48:04,569

assumption now let's go to answer number

1002

00:48:11,880 --> 00:48:08,079

two okay question is so where is

1003

00:48:15,979 --> 00:48:11,890

everybody where is et and the answer no

1004

00:48:19,559 --> 00:48:15,989

other intelligent species have arisen

1005

00:48:22,289 --> 00:48:19,569

now I need you to respond to that as

1006

00:48:24,029 --> 00:48:22,299

directly as you can now there does have

1007

00:48:25,890 --> 00:48:24,039

to be a second cation that when we say

1008

00:48:28,109 --> 00:48:25,900

no other intelligent species has arisen

1009

00:48:30,390 --> 00:48:28,119

we always want to say that modification

1010

00:48:32,999 --> 00:48:30,400

on that is no other technological

1011

00:48:34,979 --> 00:48:33,009

civilization has arisen and not died off

1012

00:48:36,310 --> 00:48:34,989

because it could be that the entire

1013

00:48:39,220 --> 00:48:36,320

galaxy is cover

1014

00:48:41,200 --> 00:48:39,230

in cavemen we spent on New Year's going

1015

00:48:43,210 --> 00:48:41,210

from file before we actually all about

1016

00:48:45,070 --> 00:48:43,220

doing pottery on your medal walk and

1017

00:48:47,140 --> 00:48:45,080

then we wrote your space fairly soon

1018

00:48:48,970 --> 00:48:47,150

thereafter right 1% of the time it took

1019

00:48:51,460 --> 00:48:48,980

us to go from file to meta walking and

1020

00:48:54,070 --> 00:48:51,470

pottery right is how I stick that's to

1021

00:48:55,840 --> 00:48:54,080

go from those to the moon right so it

1022

00:48:57,220 --> 00:48:55,850

could be that the galaxy is covered in

1023

00:48:59,140 --> 00:48:57,230

places where they just didn't get much

1024

00:49:01,390 --> 00:48:59,150

into technology and we have historical

1025

00:49:04,450 --> 00:49:01,400

precedent of that happening too I do not

1026
00:49:06,340 --> 00:49:04,460
like that answer but there's no evidence

1027
00:49:07,840 --> 00:49:06,350
to counterindicated either you know so

1028
00:49:10,780 --> 00:49:07,850
Metis for me paradox things they all

1029
00:49:13,000 --> 00:49:10,790
have something not light with them so

1030
00:49:15,640 --> 00:49:13,010
well and I'll give you okay now here's

1031
00:49:17,470 --> 00:49:15,650
my example one that you've touched on to

1032
00:49:21,040 --> 00:49:17,480
over the last couple of years it's a

1033
00:49:27,160 --> 00:49:21,050
very simple one it was announced last

1034
00:49:30,100 --> 00:49:27,170
year last summer that octopus octopi are

1035
00:49:32,080 --> 00:49:30,110
in alien species right that they are

1036
00:49:33,610 --> 00:49:32,090
unique onto this planet they're into

1037
00:49:35,950 --> 00:49:33,620
they're sentient they're intelligent

1038
00:49:37,750 --> 00:49:35,960

they they they have everything that we

1039

00:49:39,250 --> 00:49:37,760

have they're probably smarter than us

1040

00:49:41,680 --> 00:49:39,260

but they're not like anything else on

1041

00:49:44,290 --> 00:49:41,690

this planet therefore they must have

1042

00:49:46,750 --> 00:49:44,300

been brought here from somewhere else

1043

00:49:51,310 --> 00:49:46,760

and now the reason why I bring that up

1044

00:49:53,620 --> 00:49:51,320

is and and look at like Europa for

1045

00:49:55,930 --> 00:49:53,630

instance or you know one of the

1046

00:49:58,420 --> 00:49:55,940

jupiter's moons where there could be

1047

00:50:00,610 --> 00:49:58,430

life there maybe even intelligent life

1048

00:50:07,180 --> 00:50:00,620

but it's underwater well if you're

1049

00:50:08,740 --> 00:50:07,190

underwater what do you lack fire come up

1050

00:50:10,270 --> 00:50:08,750

with some really strange to know I was

1051
00:50:12,670 --> 00:50:10,280
reading a whole episode on that with

1052
00:50:13,840 --> 00:50:12,680
with my friend Sean on uplifting you

1053
00:50:15,160 --> 00:50:13,850
know how you might have to go and help

1054
00:50:17,560 --> 00:50:15,170
these speech down because you might come

1055
00:50:19,810 --> 00:50:17,570
across a technological civilization that

1056
00:50:21,790 --> 00:50:19,820
lives under the water they can use tools

1057
00:50:23,950 --> 00:50:21,800
but you really can't do chemistry or

1058
00:50:26,410 --> 00:50:23,960
fire or metallurgy they are and if it

1059
00:50:28,300 --> 00:50:26,420
took us a million years using file

1060
00:50:31,210 --> 00:50:28,310
regularly to come with the idea of

1061
00:50:32,230 --> 00:50:31,220
making pots and pans and knives how long

1062
00:50:35,260 --> 00:50:32,240
does it take you to do that when you

1063
00:50:37,030 --> 00:50:35,270

can't start a file so if we can't roll

1064

00:50:39,010 --> 00:50:37,040

out that you might get into space one

1065

00:50:41,130 --> 00:50:39,020

day if you will live in an ocean but if

1066

00:50:43,330 --> 00:50:41,140

you're living in a subsurface ocean -

1067

00:50:44,410 --> 00:50:43,340

you don't have any place to go up to the

1068

00:50:46,060 --> 00:50:44,420

MU oppa

1069

00:50:47,290 --> 00:50:46,070

there was no ale up there - born a file

1070

00:50:47,830 --> 00:50:47,300

if you'd actually do go up to the

1071

00:50:49,690 --> 00:50:47,840

surface

1072

00:50:50,140 --> 00:50:49,700

and there's just radiation all over the

1073

00:50:51,760 --> 00:50:50,150

place

1074

00:50:53,320 --> 00:50:51,770

you're not going to be able to look up

1075

00:50:55,930 --> 00:50:53,330

at the night sky cuz it's a big empty

1076
00:50:57,790 --> 00:50:55,940
ice ball above you and so places like

1077
00:51:00,190 --> 00:50:57,800
that they could have intelligent life on

1078
00:51:02,800 --> 00:51:00,200
them for millions or billions of years

1079
00:51:04,270 --> 00:51:02,810
it just sticks that way but the one

1080
00:51:06,310 --> 00:51:04,280
thing they use do have going against

1081
00:51:08,170 --> 00:51:06,320
them is there's not much energy flow and

1082
00:51:11,020 --> 00:51:08,180
the big thing you need for a really

1083
00:51:12,790 --> 00:51:11,030
complex and diverse ecology is a lot of

1084
00:51:15,040 --> 00:51:12,800
energy flow and most of those places

1085
00:51:17,200 --> 00:51:15,050
will not have it so they might have life

1086
00:51:19,930 --> 00:51:17,210
but it might be kept fairly simple to

1087
00:51:22,930 --> 00:51:19,940
could you imagine you know being smart

1088
00:51:29,110 --> 00:51:22,940

like an octopus but being underwater so

1089

00:51:35,380 --> 00:51:29,120

that means no no no bongs no cigarettes

1090

00:51:36,940 --> 00:51:35,390

no hot food right there God is chemical

1091

00:51:39,940 --> 00:51:36,950

thermal events but maybe they'll figure

1092

00:51:42,460 --> 00:51:39,950

out some way to use those ah you could

1093

00:51:45,370 --> 00:51:42,470

light your one-hit bong off a thermal

1094

00:51:47,050 --> 00:51:45,380

vent that's possible it's possible

1095

00:51:50,530 --> 00:51:47,060

you're supposed to laugh at that point

1096

00:51:51,670 --> 00:51:50,540

Isaac that's these are good jokes these

1097

00:51:55,600 --> 00:51:51,680

are good jokes all right let's go to

1098

00:52:00,340 --> 00:51:55,610

answer number three okay so where is

1099

00:52:03,820 --> 00:52:00,350

everybody where is et answer intelligent

1100

00:52:06,270 --> 00:52:03,830

alien species lack advanced technology

1101
00:52:08,830 --> 00:52:06,280
we just touched upon this as a subgroup

1102
00:52:10,900 --> 00:52:08,840
but this is something that needs to be

1103
00:52:13,690 --> 00:52:10,910
visited and it reminds me of the movie

1104
00:52:16,000 --> 00:52:13,700
it's hard to be a god I don't know if

1105
00:52:19,570 --> 00:52:16,010
you've seen it but it's an incredible

1106
00:52:21,060 --> 00:52:19,580
movie a Russian movie about us visiting

1107
00:52:24,370 --> 00:52:21,070
another planet

1108
00:52:26,920 --> 00:52:24,380
humans look just like us but they're

1109
00:52:28,710 --> 00:52:26,930
stuck in the dark ages and they're happy

1110
00:52:31,560 --> 00:52:28,720
about that they don't want to learn

1111
00:52:33,790 --> 00:52:31,570
they're okay about being right there

1112
00:52:35,350 --> 00:52:33,800
well it's contemplations of that that

1113
00:52:36,790 --> 00:52:35,360

give us things like the Star Trek prime

1114

00:52:39,010 --> 00:52:36,800

directive and one of our more popular

1115

00:52:41,890 --> 00:52:39,020

categories for the Fermi paradox the zoo

1116

00:52:43,360 --> 00:52:41,900

hypothesis and back to the uplifting

1117

00:52:45,460 --> 00:52:43,370

thing for a moment if you come across a

1118

00:52:47,020 --> 00:52:45,470

species you've got three basic ways that

1119

00:52:49,330 --> 00:52:47,030

you could lift them up as a war to our

1120

00:52:51,190 --> 00:52:49,340

level purely technological would be like

1121

00:52:52,540 --> 00:52:51,200

you meet cavemen they got the brains and

1122

00:52:54,940 --> 00:52:52,550

the physiology for it you're just given

1123

00:52:56,560 --> 00:52:54,950

the knowledge physiological which is

1124

00:52:58,150 --> 00:52:56,570

like dolphins they don't have opposable

1125

00:53:00,550 --> 00:52:58,160

thumb so you might have to give them to

1126
00:53:02,410 --> 00:53:00,560
them and neurological which might be

1127
00:53:03,280 --> 00:53:02,420
something like you know you come across

1128
00:53:04,720 --> 00:53:03,290
some crab

1129
00:53:07,120 --> 00:53:04,730
and you make them small enough that they

1130
00:53:08,740 --> 00:53:07,130
can use technology and then of course

1131
00:53:10,750 --> 00:53:08,750
there's always that ethics thing is what

1132
00:53:12,790 --> 00:53:10,760
do you do and where's the line I think a

1133
00:53:15,340 --> 00:53:12,800
lot of us would say that if you came

1134
00:53:19,030 --> 00:53:15,350
across a species that was trapped on a

1135
00:53:20,320 --> 00:53:19,040
subsurface ocean like Europa it's maybe

1136
00:53:21,850 --> 00:53:20,330
you should leave them be but the same

1137
00:53:22,990 --> 00:53:21,860
hand they've kind of stuck they on and

1138
00:53:25,690 --> 00:53:23,000

if you know they've been stuck there for

1139

00:53:27,280 --> 00:53:25,700

a million years maybe you should just go

1140

00:53:29,290 --> 00:53:27,290

ahead and make contact with them and

1141

00:53:30,910 --> 00:53:29,300

give them technology because it would

1142

00:53:33,040 --> 00:53:30,920

seem like such ashamedly them trapped

1143

00:53:37,390 --> 00:53:33,050

there forever what kind of technology do

1144

00:53:39,190 --> 00:53:37,400

you throw them a pack of matches I know

1145

00:53:40,950 --> 00:53:39,200

that's what I'm saying what what kind of

1146

00:53:43,510 --> 00:53:40,960

what would you what would you suggest

1147

00:53:45,370 --> 00:53:43,520

well I'm trying to think you know we

1148

00:53:47,530 --> 00:53:45,380

invented torches that would walk onto

1149

00:53:48,580 --> 00:53:47,540

water back in what war one I think but

1150

00:53:50,830 --> 00:53:48,590

so there are things you can use

1151

00:53:52,150 --> 00:53:50,840

underwater you can create oxygen under

1152

00:53:54,940 --> 00:53:52,160

there obviously because it's mostly

1153

00:53:56,770 --> 00:53:54,950

oxygen biomass but you have to give them

1154

00:53:59,050 --> 00:53:56,780

you know you can invent this technology

1155

00:54:01,120 --> 00:53:59,060

they owe in theory but it's much easier

1156

00:54:03,250 --> 00:54:01,130

to invent but you actually have a file

1157

00:54:04,570 --> 00:54:03,260

walking me easily in the first place so

1158

00:54:06,160 --> 00:54:04,580

you'd probably introduce technologies

1159

00:54:07,930 --> 00:54:06,170

that were designed to walk underwater

1160

00:54:10,030 --> 00:54:07,940

which is actually quite difficult course

1161

00:54:11,770 --> 00:54:10,040

but not only to have them underwater

1162

00:54:13,870 --> 00:54:11,780

like a submarine is but actually have

1163

00:54:15,730 --> 00:54:13,880

them underwater and exposed and

1164

00:54:18,370 --> 00:54:15,740

obviously salt water for instance saws

1165

00:54:20,200 --> 00:54:18,380

horrible things to - most electronics

1166

00:54:21,940 --> 00:54:20,210

but it should be possible to build and

1167

00:54:23,110 --> 00:54:21,950

manufacture stuff that would walk under

1168

00:54:25,210 --> 00:54:23,120

there that we could show them how to

1169

00:54:29,560 --> 00:54:25,220

make and refine and do on their own

1170

00:54:31,780 --> 00:54:29,570

now what about Arthur C Clark's you know

1171

00:54:34,570 --> 00:54:31,790

approach to this where you know let's

1172

00:54:36,520 --> 00:54:34,580

say you and I land on the planet I

1173

00:54:39,190 --> 00:54:36,530

always say you and I because you know

1174

00:54:41,950 --> 00:54:39,200

it's the smart guy and the dumb guy you

1175

00:54:46,120 --> 00:54:41,960

and I land on the planet and we run into

1176

00:54:48,910 --> 00:54:46,130

a species like Australopithecus right or

1177

00:54:51,550 --> 00:54:48,920

you know just something that is right on

1178

00:54:55,180 --> 00:54:51,560

the cusp of some kind of evolutionary

1179

00:54:58,690 --> 00:54:55,190

move do we drop a monolith yes yeah do

1180

00:55:03,280 --> 00:54:58,700

we drop a monolith or or radically

1181

00:55:05,920 --> 00:55:03,290

change them I myself would favor doing

1182

00:55:08,320 --> 00:55:05,930

so because you know the alternative is

1183

00:55:10,270 --> 00:55:08,330

to quarantine that plan off of everybody

1184

00:55:12,910 --> 00:55:10,280

else for millions of years

1185

00:55:16,390 --> 00:55:12,920

so you splint do you split do you drop

1186

00:55:17,030 --> 00:55:16,400

it off and go no I'd land they owe and

1187

00:55:18,350 --> 00:55:17,040

talk to

1188

00:55:20,090 --> 00:55:18,360

well I wouldn't land they won't talk

1189

00:55:21,860 --> 00:55:20,100

them as a human I'd I'd take some time

1190

00:55:23,690 --> 00:55:21,870

to learn about them papi mock up some

1191

00:55:24,890 --> 00:55:23,700

androids that looked more like them and

1192

00:55:27,080 --> 00:55:24,900

could toss them in their own tongue and

1193

00:55:29,240 --> 00:55:27,090

just try to introduce themselves without

1194

00:55:31,880 --> 00:55:29,250

playing God but something that backs you

1195

00:55:33,800 --> 00:55:31,890

into a corner ethically but you know

1196

00:55:35,660 --> 00:55:33,810

they're small enough to be Oh to calm

1197

00:55:37,430 --> 00:55:35,670

you know contemplate abstract concepts

1198

00:55:38,900 --> 00:55:37,440

that could lead to technology I feel

1199

00:55:40,750 --> 00:55:38,910

like it they're probably small enough to

1200

00:55:45,980 --> 00:55:40,760

try to have a conversation with and

1201
00:55:50,860 --> 00:55:45,990
let's let's suppose something else let's

1202
00:55:53,780 --> 00:55:50,870
suppose that we dropped it off and

1203
00:55:56,240 --> 00:55:53,790
allowed them no communication no direct

1204
00:55:59,600 --> 00:55:56,250
anything the monolith type of idea right

1205
00:56:02,690 --> 00:55:59,610
whether now they just they either get it

1206
00:56:05,420 --> 00:56:02,700
or they don't but we split and we come

1207
00:56:07,880 --> 00:56:05,430
back in a thousand years and see where

1208
00:56:11,090 --> 00:56:07,890
what they did with it and then maybe

1209
00:56:13,250 --> 00:56:11,100
help them again if they didn't quite get

1210
00:56:15,980 --> 00:56:13,260
it isn't that a more logical approach

1211
00:56:17,690 --> 00:56:15,990
because now you're not interfering only

1212
00:56:19,670 --> 00:56:17,700
on forced inspection this is where the

1213
00:56:21,920 --> 00:56:19,680

real problem gets in here is in that

1214

00:56:23,870 --> 00:56:21,930

thousand years how have you kept anybody

1215

00:56:25,730 --> 00:56:23,880

else when come in poking around you know

1216

00:56:28,520 --> 00:56:25,740

I know when I get there my motors all

1217

00:56:29,480 --> 00:56:28,530

probably reasonably pure ish I don't

1218

00:56:32,390 --> 00:56:29,490

know who's gonna show up in the meantime

1219

00:56:34,430 --> 00:56:32,400

try some glass beads or play God or even

1220

00:56:37,610 --> 00:56:34,440

just try to upload them too fast so they

1221

00:56:39,710 --> 00:56:37,620

blow themselves up and what about okay

1222

00:56:41,630 --> 00:56:39,720

and that what could also happen those

1223

00:56:44,600 --> 00:56:41,640

thousand years is you come back and

1224

00:56:45,800 --> 00:56:44,610

they've been enslaved or you come back

1225

00:56:50,960 --> 00:56:45,810

but you can't come back because you've

1226

00:56:54,920 --> 00:56:50,970

been defunded yes yes have you seen have

1227

00:56:58,100 --> 00:56:54,930

you seen Mars the the Ron Howard produce

1228

00:57:00,320 --> 00:56:58,110

TV series on Angie oh I've got part of

1229

00:57:03,350 --> 00:57:00,330

it but I'm and I'm loyal I now at the

1230

00:57:05,720 --> 00:57:03,360

Andy wheel Phil okay all right yeah fair

1231

00:57:08,870 --> 00:57:05,730

enough that that's that's fair but check

1232

00:57:10,280 --> 00:57:08,880

out Mars because one of the things that

1233

00:57:12,470 --> 00:57:10,290

they do they deal with today's

1234

00:57:16,250 --> 00:57:12,480

technology Elon Musk and they shoe it

1235

00:57:18,200 --> 00:57:16,260

shoot a documentary style for present

1236

00:57:20,750 --> 00:57:18,210

day but then they go to you know twenty

1237

00:57:22,730 --> 00:57:20,760

thirty three and you know getting to

1238

00:57:26,360 --> 00:57:22,740

Mars but they go through all of those

1239

00:57:29,690 --> 00:57:26,370

funding D funding issues it's pretty

1240

00:57:30,370 --> 00:57:29,700

realistic no aliens no laser cannons you

1241

00:57:32,710 --> 00:57:30,380

know there's

1242

00:57:35,110 --> 00:57:32,720

nothing like that it is purely a

1243

00:57:38,200 --> 00:57:35,120

day-to-day existence of survival on Mars

1244

00:57:40,960 --> 00:57:38,210

but it's very very interesting and it

1245

00:57:43,990 --> 00:57:40,970

makes me wonder if those writers haven't

1246

00:57:46,390 --> 00:57:44,000

been peeping out science and futurism

1247

00:57:49,030 --> 00:57:46,400

was a cart because it's all right there

1248

00:57:51,490 --> 00:57:49,040

let's take a break Isaac let's do it

1249

00:57:52,720 --> 00:57:51,500

right here this is fade to black I'm

1250

00:57:55,300 --> 00:57:52,730

yours Jimmy cherish our guest tonight

1251

00:57:59,020 --> 00:57:55,310

Isaac Arthur this is the Fermi paradox

1252

00:58:01,450 --> 00:57:59,030

from A to Z stay with us we'll be right

1253

00:58:04,780 --> 00:58:01,460

back after this short break on the game

1254

00:58:08,570 --> 00:58:04,790

changer network and kg RA the planets

1255

00:58:08,580 --> 00:58:31,320

[Music]

1256

00:58:37,089 --> 00:58:34,060

this is fade to black with Jimmy Church

1257

00:58:40,800 --> 00:58:37,099

on the game changer radio network and K

1258

00:58:44,109 --> 00:58:40,810

GRA the global radio alliance

1259

00:58:47,440 --> 00:58:44,119

this is kera digital broadcasting

1260

00:58:56,470 --> 00:58:47,450

station Salt Lake City Utah Van Buren

1261

00:58:59,290 --> 00:58:56,480

Arkansas come join us for the 2019

1262

00:59:02,500 --> 00:58:59,300

conscious life Expo in Los Angeles at

1263

00:59:04,780 --> 00:59:02,510

the LAX Hilton this year we are

1264

00:59:06,880 --> 00:59:04,790

celebrating the 50th anniversary of

1265

00:59:09,370 --> 00:59:06,890

Chariots of the Gods with Erich von

1266

00:59:12,640 --> 00:59:09,380

däniken and I'll be hosting the panel

1267

00:59:15,430 --> 00:59:12,650

with Eric Linda Moulton Howe Jason

1268

00:59:17,770 --> 00:59:15,440

Martel Billy Carson and joint George

1269

00:59:20,349 --> 00:59:17,780

Noory nassim haramain Robert Schoch

1270

00:59:22,930 --> 00:59:20,359

dannion brinkley grant Cameron Julie

1271

00:59:25,020 --> 00:59:22,940

amaz bridge and another 50 speakers who

1272

00:59:27,760 --> 00:59:25,030

will be presenting at the 2019

1273

00:59:30,010 --> 00:59:27,770

unconscious life Expo just go through

1274

00:59:32,859 --> 00:59:30,020

conscious life Expo comm for tickets and

1275

00:59:34,990 --> 00:59:32,869

a full conference schedule or click on

1276

00:59:38,870 --> 00:59:35,000

the see le banner ad jimmy church

1277

00:59:42,370 --> 00:59:38,880

radio.com gobekli tepe

1278

00:59:48,559 --> 00:59:44,989

folks this is very important information

1279

00:59:51,440 --> 00:59:48,569

what's to be said about CBD ancient life

1280

00:59:54,289 --> 00:59:51,450

oil calm our CBD is made from hemp and

1281

00:59:57,049 --> 00:59:54,299

has point zero zero three THC which

1282

00:59:59,569 --> 00:59:57,059

means this wonderful product won't get

1283

01:00:02,420 --> 00:59:59,579

you high no matter what amount you take

1284

01:00:05,359 --> 01:00:02,430

what a CBD do for the body my hands are

1285

01:00:07,640 --> 01:00:05,369

tied but you can Google CBD benefits and

1286

01:00:09,710 --> 01:00:07,650

be astounded when you're finished

1287

01:00:12,259 --> 01:00:09,720

reading you'll want to log on to ancient

1288

01:00:15,259 --> 01:00:12,269

life oil calm that's ancient life oil

1289

01:00:17,299 --> 01:00:15,269

calm and purchase life is good when you

1290

01:00:19,339 --> 01:00:17,309

feel good people are tired of pain

1291

01:00:22,249 --> 01:00:19,349

people are asking for non-gmo organic

1292

01:00:24,950 --> 01:00:22,259

products to help them with you fill in

1293

01:00:27,170 --> 01:00:24,960

the blank legal in 49 states and again

1294

01:00:30,019 --> 01:00:27,180

our CBD is made from hemp ancient life

1295

01:00:30,920 --> 01:00:30,029

oil is about helping people one by one

1296

01:00:32,420 --> 01:00:30,930

by one

1297

01:00:35,809 --> 01:00:32,430

if you wonder how good the product is

1298

01:00:38,269 --> 01:00:35,819

the CEO takes it every day without miss

1299

01:00:49,219 --> 01:00:38,279

ancient life oil calm that's ancient

1300

01:00:51,079 --> 01:00:49,229

life oil calm have a great day this is

1301
01:00:53,269 --> 01:00:51,089
ray sobs here repping the planet and

1302
01:00:54,019 --> 01:00:53,279
you're listening to my good friend Jimmy

1303
01:00:56,299 --> 01:00:54,029
Church

1304
01:00:59,150 --> 01:00:56,309
fade to black on the game changer

1305
01:01:03,380 --> 01:00:59,160
network and the kgr a digital broadcast

1306
01:01:05,289 --> 01:01:03,390
station this is Toby Kebbell you're

1307
01:01:16,910 --> 01:01:05,299
listening to Jimmy Church radio.com

1308
01:01:22,460 --> 01:01:19,890
and I'm article where the honey brothers

1309
01:01:25,859 --> 01:01:22,470
and you're listening to Jimmy Church

1310
01:01:28,589 --> 01:01:25,869
Revolution reclaim your active lifestyle

1311
01:01:30,660 --> 01:01:28,599
with NGO Prem angiogram is the original

1312
01:01:32,729 --> 01:01:30,670
liquid oral chelation supplement

1313
01:01:34,890 --> 01:01:32,739

chelation helps remove toxins heavy

1314

01:01:36,440 --> 01:01:34,900

metals and cholesterol in your veins and

1315

01:01:38,519 --> 01:01:36,450

arteries that can cause blockages

1316

01:01:40,410 --> 01:01:38,529

scientific research proves the active

1317

01:01:42,680 --> 01:01:40,420

ingredient in angio primp has superior

1318

01:01:43,979 --> 01:01:42,690

oral chelation action that helps promote

1319

01:01:46,259 --> 01:01:43,989

cardiovascular health

1320

01:01:48,390 --> 01:01:46,269

find out more come to angio primm calm

1321

01:01:50,370 --> 01:01:48,400

talk to a trained consultant by calling

1322

01:01:53,180 --> 01:01:50,380

energy of Prim toll free eight seven

1323

01:01:55,499 --> 01:01:53,190

seven eighty two seventy two twenty one

1324

01:01:57,809 --> 01:01:55,509

this is jimmy church of fade to black

1325

01:02:00,120 --> 01:01:57,819

and you can become an official fader not

1326

01:02:04,259 --> 01:02:00,130

by just going to our membership section

1327

01:02:05,759 --> 01:02:04,269

at jimmy church radio calm hey it's

1328

01:02:08,099 --> 01:02:05,769

grace can we talk about something

1329

01:02:10,950 --> 01:02:08,109

serious for a minute your age getting

1330

01:02:13,470 --> 01:02:10,960

old has its perks but remember being a

1331

01:02:15,210 --> 01:02:13,480

few years younger you know your hair was

1332

01:02:17,430 --> 01:02:15,220

thicker you didn't have so many wrinkles

1333

01:02:19,799 --> 01:02:17,440

that extra weight wasn't haunting you

1334

01:02:21,749 --> 01:02:19,809

and you just felt better well we can't

1335

01:02:24,059 --> 01:02:21,759

turn back the clocks and go back ten or

1336

01:02:26,190 --> 01:02:24,069

fifteen years but you can start feeling

1337

01:02:29,160 --> 01:02:26,200

and looking ten or fifteen years younger

1338

01:02:31,019 --> 01:02:29,170

with nature's youth RSF it's a doctor

1339

01:02:33,029 --> 01:02:31,029

formulated daily supplement that helps

1340

01:02:35,069 --> 01:02:33,039

your body maintain its peak performance

1341

01:02:36,960 --> 01:02:35,079

and fight the aging process imagine

1342

01:02:38,160 --> 01:02:36,970

sleeping better looking better and

1343

01:02:40,559 --> 01:02:38,170

feeling better

1344

01:02:42,479 --> 01:02:40,569

see how Nature's youth RSF has helped

1345

01:02:45,120 --> 01:02:42,489

thousands of people just like you at

1346

01:02:46,950 --> 01:02:45,130

nature's youth calm nature's youth calm

1347

01:02:48,509 --> 01:02:46,960

imagine how it will feel when your

1348

01:02:50,970 --> 01:02:48,519

family and friends are asking you what

1349

01:02:53,549 --> 01:02:50,980

you did to look so good your secret will

1350

01:02:55,799 --> 01:02:53,559

be nature's youth RSF it's time to start

1351

01:02:57,960 --> 01:02:55,809

looking better and feeling better learn

1352

01:03:00,180 --> 01:02:57,970

more in order your nature's use RSS at

1353

01:03:03,739 --> 01:03:00,190

nature's youth Calm that's nature's

1354

01:03:06,299 --> 01:03:03,749

youth calm that's nature's youth calm

1355

01:03:08,579 --> 01:03:06,309

hello this is Serena right kayla from

1356

01:03:11,099 --> 01:03:08,589

conscious life Expo and you're listening

1357

01:03:13,349 --> 01:03:11,109

to fade to black with Jimmy Church who

1358

01:03:18,109 --> 01:03:13,359

holds the lucky pony record for the best

1359

01:03:20,640 --> 01:03:18,119

astrological chart since 1963 true story

1360

01:03:22,229 --> 01:03:20,650

this is Micah Hank's of the gray lien

1361

01:03:24,569 --> 01:03:22,239

report and you're listening to Jimmy

1362

01:03:26,530 --> 01:03:24,579

church on fade to black across the globe

1363

01:03:28,780 --> 01:03:26,540

on the GameChanger radio network

1364

01:03:29,810 --> 01:03:28,790

the one and only kg are a radio the

1365

01:03:46,730 --> 01:03:29,820

planet

1366

01:03:51,940 --> 01:03:49,560

[Music]

1367

01:03:53,230 --> 01:03:51,950

welcome back fade to black I am your

1368

01:03:59,190 --> 01:03:53,240

host Jimmy Church our guest tonight

1369

01:04:05,920 --> 01:04:02,800

you've always had questions right and I

1370

01:04:08,110 --> 01:04:05,930

get that the Fermi paradox is complex

1371

01:04:11,980 --> 01:04:08,120

but we're gonna do it all tonight hey

1372

01:04:16,090 --> 01:04:11,990

Isaac are you hip to CBD CBD

1373

01:04:17,890 --> 01:04:16,100

yeah CBD oil not familiar with it oh man

1374

01:04:21,070 --> 01:04:17,900

it's this miracle stuff you know it

1375

01:04:26,470 --> 01:04:21,080

comes as you know derived from hemp oh

1376

01:04:30,070 --> 01:04:26,480

yes yeah yeah CBD and it works last

1377

01:04:32,460 --> 01:04:30,080

summer I had this violent a woodchipper

1378

01:04:37,030 --> 01:04:32,470

accident right chop my head off right

1379

01:04:40,090 --> 01:04:37,040

clean off a couple of drops CBD grew

1380

01:04:41,830 --> 01:04:40,100

back it's incredible it's incredible it

1381

01:04:44,560 --> 01:04:41,840

was and it happened quick most people

1382

01:04:49,930 --> 01:04:44,570

didn't even know what happened okay

1383

01:04:52,780 --> 01:04:49,940

we're moving on like Church you know so

1384

01:04:56,710 --> 01:04:52,790

check this out and I I'm sober I'm drug

1385

01:04:59,200 --> 01:04:56,720

free right I and and I make jokes about

1386

01:05:02,500 --> 01:04:59,210

this kind of stuff often and just popped

1387

01:05:05,050 --> 01:05:02,510

the bong joke and in Twitter now people

1388

01:05:08,610 --> 01:05:05,060

are showing me pictures of people

1389

01:05:12,160 --> 01:05:08,620

smoking smoking weed underwater

1390

01:05:14,790 --> 01:05:12,170

that it can be done someone is gonna put

1391

01:05:18,850 --> 01:05:14,800

it up on YouTube just to prove this to

1392

01:05:23,140 --> 01:05:18,860

you right now oh okay here we go let's

1393

01:05:26,830 --> 01:05:23,150

continue the question is so where is et

1394

01:05:29,320 --> 01:05:26,840

where is everybody answer it is the

1395

01:05:33,280 --> 01:05:29,330

nature of intelligent life to destroy

1396

01:05:35,920 --> 01:05:33,290

itself and then answer number two is the

1397

01:05:40,900 --> 01:05:35,930

answer the nature of intelligent life is

1398

01:05:43,270 --> 01:05:40,910

to destroy others now my take on that I

1399

01:05:47,800 --> 01:05:43,280

need yours of course but that is this is

1400

01:05:49,510 --> 01:05:47,810

derived from humanity mm-hmm well here's

1401

01:05:51,400 --> 01:05:49,520

the core power that we were saying all

1402

01:05:54,070 --> 01:05:51,410

Iran that one of the biggest problems we

1403

01:05:56,740 --> 01:05:54,080

all have with this original real life

1404

01:05:59,200 --> 01:05:56,750

concept where all of hypothesis is that

1405

01:06:02,140 --> 01:05:59,210

it's virtually impossible to kill off

1406

01:06:02,830 --> 01:06:02,150

life and you know humanity's been around

1407

01:06:04,600 --> 01:06:02,840

for me

1408

01:06:06,430 --> 01:06:04,610

Neal as we haven't cured ourselves off

1409

01:06:08,710 --> 01:06:06,440

yet we seem to keep growing and

1410

01:06:11,230 --> 01:06:08,720

prospering actually if everyone was

1411

01:06:13,120 --> 01:06:11,240

alive when this concept came up for me

1412

01:06:15,760 --> 01:06:13,130

himself they they just invented the

1413

01:06:18,580 --> 01:06:15,770

h-bomb him and Teller they thought it

1414

01:06:21,400 --> 01:06:18,590

was very easy to believe that life wiped

1415

01:06:23,950 --> 01:06:21,410

itself out and that may indeed be the

1416

01:06:26,020 --> 01:06:23,960

case but you know we get closer and

1417

01:06:27,730 --> 01:06:26,030

closer to being out in space every day

1418

01:06:30,220 --> 01:06:27,740

so we don't have all our eggs in one

1419

01:06:31,750 --> 01:06:30,230

basket and we still haven't blown

1420

01:06:33,490 --> 01:06:31,760

ourselves up and it doesn't really feel

1421

01:06:34,990 --> 01:06:33,500

like that's too close on the highs for

1422

01:06:38,320 --> 01:06:35,000

all of us who live back in the Cold War

1423

01:06:41,320 --> 01:06:38,330

that that we don't feel as endangered as

1424

01:06:44,140 --> 01:06:41,330

we did then so I that's obviously one we

1425

01:06:46,060 --> 01:06:44,150

can't rule out by any means but I find

1426

01:06:47,860 --> 01:06:46,070

hard to believe that all of them do it

1427

01:06:49,480 --> 01:06:47,870

you know even if we assume 90% of them

1428

01:06:51,160 --> 01:06:49,490

do and I'm a tech no optimus I don't

1429

01:06:53,890 --> 01:06:51,170

think very many of them would but Eve

1430

01:06:56,110 --> 01:06:53,900

was 90 percent Eva was 99 percent if

1431

01:06:58,090 --> 01:06:56,120

that's you know a thousand civilizations

1432

01:06:59,830 --> 01:06:58,100

poor galaxies that's still ten of them

1433

01:07:02,800 --> 01:06:59,840

that survived to go on and you know

1434

01:07:05,410 --> 01:07:02,810

expand out to the galaxy right and and

1435

01:07:08,620 --> 01:07:05,420

the other part of it is an dispersed

1436

01:07:10,680 --> 01:07:08,630

especially with Fermi and Teller and the

1437

01:07:14,500 --> 01:07:10,690

nuclear fear that they had

1438

01:07:18,940 --> 01:07:14,510

understandable but even if we went

1439

01:07:21,610 --> 01:07:18,950

through a gnarly nuclear exchange there

1440

01:07:23,440 --> 01:07:21,620

would be survivors yeah it is it is very

1441

01:07:24,940 --> 01:07:23,450

hard to kill a he meant they always

1442

01:07:26,620 --> 01:07:24,950

talked about how tough the cockroach is

1443

01:07:28,540 --> 01:07:26,630

only sit when I was kid nowadays is the

1444

01:07:30,610 --> 01:07:28,550

tardigrade we all talk about right

1445

01:07:31,990 --> 01:07:30,620

I think they overestimate the cockroach

1446

01:07:32,740 --> 01:07:32,000

and underestimate the survivability of

1447

01:07:35,200 --> 01:07:32,750

humans

1448

01:07:37,060 --> 01:07:35,210

I have never figured out a way short of

1449

01:07:38,830 --> 01:07:37,070

sterilizing the entire surface of the

1450

01:07:40,420 --> 01:07:38,840

planet that you can reliably kill off

1451

01:07:42,880 --> 01:07:40,430

all humans in a way that wouldn't have

1452

01:07:46,360 --> 01:07:42,890

us back here what about what about what

1453

01:07:48,250 --> 01:07:46,370

about something biological 100% fatality

1454

01:07:49,720 --> 01:07:48,260

rates would require an awful lot of

1455

01:07:51,610 --> 01:07:49,730

engineering we've never pulled that up

1456

01:07:53,590 --> 01:07:51,620

for and even then you'd have people who

1457

01:07:55,120 --> 01:07:53,600

hoard about it spreading or just way out

1458

01:07:56,710 --> 01:07:55,130

on a cabin in the woods somewhere and

1459

01:07:58,990 --> 01:07:56,720

they'd all get together afterwards and

1460

01:08:00,850 --> 01:07:59,000

talk to each other by ham radio and you

1461

01:08:01,810 --> 01:08:00,860

know make a new civilization or someone

1462

01:08:04,330 --> 01:08:01,820

would be in a bunk or somewhere

1463

01:08:07,210 --> 01:08:04,340

surviving and some would be naturally

1464

01:08:09,670 --> 01:08:07,220

immune and probably yeah we've never had

1465

01:08:11,710 --> 01:08:09,680

an illness that was that effective and I

1466

01:08:13,000 --> 01:08:11,720

think something like that mmm the

1467

01:08:14,290 --> 01:08:13,010

technology need to make something like

1468

01:08:16,140 --> 01:08:14,300

that is pretty close to what you need to

1469

01:08:17,880 --> 01:08:16,150

fix it I would think too

1470

01:08:19,410 --> 01:08:17,890

and you know you might have one crazy

1471

01:08:21,570 --> 01:08:19,420

lunatic who's a genius putting that

1472

01:08:23,970 --> 01:08:21,580

together but you'd have millions of

1473

01:08:26,099 --> 01:08:23,980

other scientists who had that same level

1474

01:08:28,410 --> 01:08:26,109

of technological access working on a fix

1475

01:08:31,229 --> 01:08:28,420

or preventative measure so it can't be

1476

01:08:32,760 --> 01:08:31,239

ruled out of course but again 99% of

1477

01:08:35,579 --> 01:08:32,770

civilizations might go down that way

1478

01:08:37,919 --> 01:08:35,589

forsythia be less than 1 but someone's

1479

01:08:40,610 --> 01:08:37,929

was loved and what about the second half

1480

01:08:43,079 --> 01:08:40,620

of this which is it's the nature of

1481

01:08:46,439 --> 01:08:43,089

intelligent life to destroy others and

1482

01:08:48,809 --> 01:08:46,449

certainly with us we we shoot first and

1483

01:08:51,899 --> 01:08:48,819

ask questions later right and and I

1484

01:08:53,820 --> 01:08:51,909

understand this this this concept do we

1485

01:08:55,919 --> 01:08:53,830

I'm their business notion when we were

1486

01:08:57,660 --> 01:08:55,929

growing up that humanity had wiped out

1487

01:08:59,039 --> 01:08:57,670

the other species like Neanderthal

1488

01:09:00,360 --> 01:08:59,049

things like that and that was a pretty

1489

01:09:02,309 --> 01:09:00,370

common thought was that you know we

1490

01:09:03,780 --> 01:09:02,319

wiped out the other hominids a hominid

1491

01:09:05,010 --> 01:09:03,790

species now it looks more like we you

1492

01:09:07,050 --> 01:09:05,020

know bred with a lot of them and

1493

01:09:09,809 --> 01:09:07,060

certainly we have a long history of

1494

01:09:11,939 --> 01:09:09,819

violence but truth be told most

1495

01:09:13,289 --> 01:09:11,949

interactions between new civilizations

1496

01:09:15,510 --> 01:09:13,299

are just bumped into each other for the

1497

01:09:17,130 --> 01:09:15,520

first time have been fairly peaceful I

1498

01:09:18,809 --> 01:09:17,140

mean we have people who will trade with

1499

01:09:20,970 --> 01:09:18,819

other tribes who didn't even speak the

1500

01:09:22,439 --> 01:09:20,980

same language they would just put stuff

1501

01:09:23,490 --> 01:09:22,449

on the River Shore and the other guys

1502

01:09:24,899 --> 01:09:23,500

would put stuff on them it was sure

1503

01:09:26,189 --> 01:09:24,909

until everyone thought it was good and

1504

01:09:27,899 --> 01:09:26,199

they never said a word to each other and

1505

01:09:29,789 --> 01:09:27,909

they exchanged there's suddenly a

1506

01:09:31,470 --> 01:09:29,799

history of violence with humanity mutton

1507

01:09:33,450 --> 01:09:31,480

you know can't hide that can't pretend

1508

01:09:35,010 --> 01:09:33,460

otherwise but I think that can get

1509

01:09:36,269 --> 01:09:35,020

exaggerated a little bit time zwi we've

1510

01:09:39,990 --> 01:09:36,279

tended to be pretty good at making

1511

01:09:42,329 --> 01:09:40,000

friends too so intelligent life would

1512

01:09:44,880 --> 01:09:42,339

you know especially much more advanced

1513

01:09:48,510 --> 01:09:44,890

than us wouldn't be out there smoking

1514

01:09:51,479 --> 01:09:48,520

other planets with you know adults laser

1515

01:09:52,800 --> 01:09:51,489

cannons one thing we can say with

1516

01:09:54,689 --> 01:09:52,810

reasonable certainty about and we can

1517

01:09:55,979 --> 01:09:54,699

never speak with much Saudi about aliens

1518

01:09:57,959 --> 01:09:55,989

period but one of the things we could

1519

01:10:00,720 --> 01:09:57,969

say with a certain amount of Santi is

1520

01:10:02,640 --> 01:10:00,730

that to make a civilization you need to

1521

01:10:04,740 --> 01:10:02,650

have some social skills you might be

1522

01:10:07,260 --> 01:10:04,750

hypo aggressive and psychotic to some

1523

01:10:08,820 --> 01:10:07,270

degree but you can't push it too far

1524

01:10:11,729 --> 01:10:08,830

the more advanced species on this planet

1525

01:10:14,189 --> 01:10:11,739

types of mammals all social animals they

1526

01:10:16,919 --> 01:10:14,199

do well by walking together with their

1527

01:10:18,510 --> 01:10:16,929

pack for Humanity the thing that allowed

1528

01:10:20,700 --> 01:10:18,520

us to get technology was the ability to

1529

01:10:22,800 --> 01:10:20,710

build big cities full of people you know

1530

01:10:23,970 --> 01:10:22,810

those old portion cities of thousands of

1531

01:10:25,770 --> 01:10:23,980

people would be unthinkable in

1532

01:10:27,720 --> 01:10:25,780

hunter-gatherer civilization right

1533

01:10:28,300 --> 01:10:27,730

everyone was specialized and couldn't

1534

01:10:30,940 --> 01:10:28,310

you know spend

1535

01:10:32,980 --> 01:10:30,950

whole life walkie on one trade that's

1536

01:10:34,900 --> 01:10:32,990

how you get to technology I'd have

1537

01:10:37,330 --> 01:10:34,910

difficulty imagining when doing that who

1538

01:10:39,760 --> 01:10:37,340

was openly genocide I'll automatically

1539

01:10:43,600 --> 01:10:39,770

to everybody just totally hostile the

1540

01:10:44,560 --> 01:10:43,610

question is so where is et where is

1541

01:10:48,280 --> 01:10:44,570

everybody

1542

01:10:53,590 --> 01:10:48,290

answer periodic extinction by natural

1543

01:10:56,170 --> 01:10:53,600

events now of course we the inclination

1544

01:10:59,860 --> 01:10:56,180

is to think of earthquakes volcanoes

1545

01:11:03,460 --> 01:10:59,870

hurricanes right asteroids but then

1546

01:11:05,350 --> 01:11:03,470

there's also the star right stars and

1547

01:11:08,790 --> 01:11:05,360

and so forth uh you know solar

1548

01:11:11,440 --> 01:11:08,800

engagement what how do we look at this

1549

01:11:13,270 --> 01:11:11,450

hasn't succeeded in wiping out life in

1550

01:11:15,430 --> 01:11:13,280

so far at least not any sort of

1551
01:11:18,060 --> 01:11:15,440
timeframe that would be relevant to the

1552
01:11:20,350 --> 01:11:18,070
human race like we've been around for

1553
01:11:22,420 --> 01:11:20,360
thousands of years of civilization and

1554
01:11:24,250 --> 01:11:22,430
we'll just about immune to these things

1555
01:11:26,560 --> 01:11:24,260
it's not going to be much longer for we

1556
01:11:29,470 --> 01:11:26,570
could just you know shrug off almost say

1557
01:11:31,030 --> 01:11:29,480
these things so statistically we're not

1558
01:11:32,950 --> 01:11:31,040
an anomaly and having survived that long

1559
01:11:34,240 --> 01:11:32,960
we'd have to assume that some plants

1560
01:11:36,460 --> 01:11:34,250
probably would get natural disasters

1561
01:11:38,920 --> 01:11:36,470
that wiped them out but a lot would not

1562
01:11:40,270 --> 01:11:38,930
so give me that issue of exclusivity we

1563
01:11:42,520 --> 01:11:40,280

cannot assume that this is gonna get

1564

01:11:44,500 --> 01:11:42,530

everybody and heed to any civilization

1565

01:11:46,750 --> 01:11:44,510

probably beyond by the next century or

1566

01:11:49,360 --> 01:11:46,760

so if you see a big asteroid coming

1567

01:11:50,710 --> 01:11:49,370

towards your planet everyone might stop

1568

01:11:52,210 --> 01:11:50,720

walking but all you go check their

1569

01:11:53,740 --> 01:11:52,220

stocks for commodities because it's like

1570

01:11:54,790 --> 01:11:53,750

free gold moving toward your planet

1571

01:11:56,710 --> 01:11:54,800

you're not worried about that hitting

1572

01:11:58,180 --> 01:11:56,720

you you're waiting to go work that thing

1573

01:12:00,430 --> 01:11:58,190

in because it's free money yeah

1574

01:12:05,350 --> 01:12:00,440

resources it's full of diamonds right

1575

01:12:09,160 --> 01:12:05,360

and and so let's let's take this one

1576

01:12:12,270 --> 01:12:09,170

step further though when we look at when

1577

01:12:15,630 --> 01:12:12,280

we go 65 70 million years ago asteroid

1578

01:12:18,160 --> 01:12:15,640

impacts earth wipes out dinosaurs right

1579

01:12:20,710 --> 01:12:18,170

and wiped out just about everything on

1580

01:12:23,260 --> 01:12:20,720

this planet ninety ninety percent right

1581

01:12:26,910 --> 01:12:23,270

that's a pretty high percentage rate

1582

01:12:31,150 --> 01:12:26,920

sharks survived cockroaches survived but

1583

01:12:34,780 --> 01:12:31,160

it didn't take very long for everything

1584

01:12:37,510 --> 01:12:34,790

to just repopulate with new species and

1585

01:12:39,970 --> 01:12:37,520

it happened nearly overnight and in the

1586

01:12:41,709 --> 01:12:39,980

big timescale yeah we can't even say how

1587

01:12:43,750 --> 01:12:41,719

I was because we try to be estimate

1588

01:12:46,419 --> 01:12:43,760

periods is such a big mole Gervais or on

1589

01:12:48,310 --> 01:12:46,429

both how few fast was we have my period

1590

01:12:50,439 --> 01:12:48,320

and just the time dating we do our that

1591

01:12:52,029 --> 01:12:50,449

that we don't know if that stuff

1592

01:12:53,350 --> 01:12:52,039

actually died off then it might Bend

1593

01:12:55,600 --> 01:12:53,360

that almost all them did and they are

1594

01:12:57,250 --> 01:12:55,610

pushed off the the hill by something

1595

01:12:58,419 --> 01:12:57,260

else having a chance to rise up and

1596

01:13:00,370 --> 01:12:58,429

displace them and it might have taken

1597

01:13:01,479 --> 01:13:00,380

thousands of years right who could

1598

01:13:03,759 --> 01:13:01,489

easily have been dinosaurs walking

1599

01:13:05,229 --> 01:13:03,769

around this planet for several thousand

1600

01:13:06,790 --> 01:13:05,239

years after that event and we wouldn't

1601

01:13:08,739 --> 01:13:06,800

be able to tell from our fossil record

1602

01:13:10,060 --> 01:13:08,749

because we can't date them that

1603

01:13:12,219 --> 01:13:10,070

accurately and we just don't have very

1604

01:13:15,430 --> 01:13:12,229

many dinosaur fossils especially from

1605

01:13:18,040 --> 01:13:15,440

that Tyler time period there so and it

1606

01:13:20,350 --> 01:13:18,050

takes so little time for simple life to

1607

01:13:21,969 --> 01:13:20,360

be populated planet humans and other

1608

01:13:23,140 --> 01:13:21,979

large animals take a little bit of time

1609

01:13:25,149 --> 01:13:23,150

because we breathe slowly

1610

01:13:26,859 --> 01:13:25,159

if you wiped out everything on this

1611

01:13:28,540 --> 01:13:26,869

planet just cure them all or nothing

1612

01:13:30,819 --> 01:13:28,550

changed the plan itself and that's one

1613

01:13:31,899 --> 01:13:30,829

single amoeba the plan will be covered

1614

01:13:34,569 --> 01:13:31,909

again with them in a couple of years

1615

01:13:35,080 --> 01:13:34,579

really just one because they divide so

1616

01:13:39,430 --> 01:13:35,090

fast

1617

01:13:40,839 --> 01:13:39,440

debt we're not talking about DNA we're

1618

01:13:43,479 --> 01:13:40,849

not talking about something with a brain

1619

01:13:45,129 --> 01:13:43,489

we're just talking about life yeah and

1620

01:13:46,719 --> 01:13:45,139

you get into something like a cat or dog

1621

01:13:48,310 --> 01:13:46,729

you know you got one family a cat a dog

1622

01:13:50,680 --> 01:13:48,320

left over it would only take them a few

1623

01:13:52,629 --> 01:13:50,690

centuries to repopulate the earth back

1624

01:13:54,069 --> 01:13:52,639

to their previous numbers humans a

1625

01:13:55,600 --> 01:13:54,079

little bit slow if we knock them down

1626

01:13:57,459 --> 01:13:55,610

that fall but we can double in a

1627

01:14:00,609 --> 01:13:57,469

generation if we need to even more if we

1628

01:14:02,799 --> 01:14:00,619

have to and we quadrupled in well I had

1629

01:14:04,689 --> 01:14:02,809

the last century doesn't take too many

1630

01:14:06,549 --> 01:14:04,699

doublings to get yourself back from a

1631

01:14:10,060 --> 01:14:06,559

thousand to a billion yeah that's only

1632

01:14:11,589 --> 01:14:10,070

twenty doublings yeah quadruple each

1633

01:14:14,169 --> 01:14:11,599

time five centuries in your back to know

1634

01:14:16,959 --> 01:14:14,179

more right right right right if it flips

1635

01:14:19,450 --> 01:14:16,969

me out when we when I look at math that

1636

01:14:21,520 --> 01:14:19,460

way you know you take a penny you double

1637

01:14:23,919 --> 01:14:21,530

it in two days you got two pennies and

1638

01:14:26,169 --> 01:14:23,929

and then you've got four pennies and in

1639

01:14:28,209 --> 01:14:26,179

30 days you're worth fifty billion

1640

01:14:30,819 --> 01:14:28,219

dollars you know it's just so crazy

1641

01:14:33,009 --> 01:14:30,829

number but okay let's let's let's

1642

01:14:35,859 --> 01:14:33,019

continue we got a lot to cover here the

1643

01:14:36,700 --> 01:14:35,869

question is so where is et where is

1644

01:14:40,540 --> 01:14:36,710

everybody

1645

01:14:46,930 --> 01:14:40,550

the answer is inflation hypothesis and

1646

01:14:49,569 --> 01:14:46,940

the youngness argument the general idea

1647

01:14:51,640 --> 01:14:49,579

that that life might just be Dean's

1648

01:14:53,379 --> 01:14:51,650

daughter now that's you know with all

1649

01:14:55,270 --> 01:14:53,389

these civilizations have just popped up

1650

01:14:56,800 --> 01:14:55,280

in the last million years or so

1651

01:14:58,480 --> 01:14:56,810

doesn't hold up too well to our current

1652

01:14:59,980 --> 01:14:58,490

dating astronomy and now mind you

1653

01:15:01,570 --> 01:14:59,990

there's always a chance our numbers are

1654

01:15:03,190 --> 01:15:01,580

off on the dating especially at the

1655

01:15:04,750 --> 01:15:03,200

extra galactic scale cuz it's so much

1656

01:15:05,350 --> 01:15:04,760

harder for skip direct measurements

1657

01:15:07,270 --> 01:15:05,360

right

1658

01:15:09,100 --> 01:15:07,280

but based on what we know you know

1659

01:15:10,870 --> 01:15:09,110

plants they're lucky like both have been

1660

01:15:13,780 --> 01:15:10,880

getting more common as time goes on as

1661

01:15:15,370 --> 01:15:13,790

the metallicity of stalls how much stuff

1662

01:15:17,770 --> 01:15:15,380

besides hydrogen helium to have in them

1663

01:15:20,230 --> 01:15:17,780

has increased but we can look back and

1664

01:15:22,990 --> 01:15:20,240

see stars know about as metallic as our

1665

01:15:25,270 --> 01:15:23,000

own Sun as far back as 8 or 9 billion

1666

01:15:27,040 --> 01:15:25,280

years ago and they were a lot less

1667

01:15:28,960 --> 01:15:27,050

common to be sure but they'd have gotten

1668

01:15:30,940 --> 01:15:28,970

stored then and then you know as

1669

01:15:33,040 --> 01:15:30,950

time goes on to get more and more common

1670

01:15:35,470 --> 01:15:33,050

but we're still talking about billions

1671

01:15:37,480 --> 01:15:35,480

of years timeline when realistically you

1672

01:15:39,820 --> 01:15:37,490

maybe need a million years to colonize a

1673

01:15:41,200 --> 01:15:39,830

galaxy and that's where the no we were

1674

01:15:43,360 --> 01:15:41,210

just talking moment ago about doublings

1675

01:15:45,430 --> 01:15:43,370

and how it kind of breaks the mind right

1676

01:15:47,500 --> 01:15:45,440

it's so easy to look at you know the

1677

01:15:49,000 --> 01:15:47,510

universe and say civilizations thousands

1678

01:15:50,530 --> 01:15:49,010

of years older the galaxy might take

1679

01:15:52,350 --> 01:15:50,540

millions of years to colonize and the

1680

01:15:55,660 --> 01:15:52,360

galaxy is billions of years old and

1681

01:15:58,480 --> 01:15:55,670

forget just how huge a time gap that

1682

01:16:01,240 --> 01:15:58,490

really is in comparison most people

1683

01:16:05,440 --> 01:16:01,250

don't realize because we use you know

1684

01:16:07,540 --> 01:16:05,450

the word billion is is everywhere now

1685

01:16:09,610 --> 01:16:07,550

billionaires are everywhere when we were

1686

01:16:11,590 --> 01:16:09,620

growing up there was one billionaire

1687

01:16:13,840 --> 01:16:11,600

right now there venus is like every

1688

01:16:16,540 --> 01:16:13,850

single a new billionaire and if there

1689

01:16:20,380 --> 01:16:16,550

was 3,000 the US alone yes it's it's a

1690

01:16:23,980 --> 01:16:20,390

crazy thing we don't understand how long

1691

01:16:26,860 --> 01:16:23,990

it takes to go from 1 million to 1

1692

01:16:28,900 --> 01:16:26,870

billion that that's and then when you

1693

01:16:32,680 --> 01:16:28,910

flip that around and you're going from 1

1694

01:16:34,450 --> 01:16:32,690

billion to a trillion how many millions

1695

01:16:36,670 --> 01:16:34,460

are involved with these sort of those

1696

01:16:39,910 --> 01:16:36,680

billions and then how many billions are

1697

01:16:43,570 --> 01:16:39,920

involved to accumulate up to a trillion

1698

01:16:45,700 --> 01:16:43,580

these are huge huge vast numbers that

1699

01:16:47,380 --> 01:16:45,710

take time to do mm-hmm

1700

01:16:49,540 --> 01:16:47,390

there's a little under a hundred

1701

01:16:51,430 --> 01:16:49,550

thousand seconds in a day if we treat

1702

01:16:52,990 --> 01:16:51,440

the galaxy at ten billion years ago is

1703

01:16:54,970 --> 01:16:53,000

when the earliest rocky plants could

1704

01:16:56,350 --> 01:16:54,980

form and we divide it up by a hundred

1705

01:16:58,630 --> 01:16:56,360

thousand you couldn't of seconds they

1706

01:17:00,820 --> 01:16:58,640

are each of those then would be 10

1707

01:17:02,950 --> 01:17:00,830

billion be a hundred thousand years

1708

01:17:03,970 --> 01:17:02,960

hopefully I didn't just mess that up

1709

01:17:05,350 --> 01:17:03,980

that's right each of those little

1710

01:17:08,050 --> 01:17:05,360

increments be a hundred thousand years

1711

01:17:09,010 --> 01:17:08,060

and a hundred thousand years as one

1712

01:17:11,320 --> 01:17:09,020

second that means

1713

01:17:14,020 --> 01:17:11,330

the entire humanoid species developed

1714

01:17:16,120 --> 01:17:14,030

fire ten seconds ago yes miss lactic day

1715

01:17:17,890 --> 01:17:16,130

yes and it means that any species that

1716

01:17:19,930 --> 01:17:17,900

might have arisen could easily of arisen

1717

01:17:22,120 --> 01:17:19,940

any time in the a.m period if without

1718

01:17:24,610 --> 01:17:22,130

getting close to midnight and they would

1719

01:17:26,320 --> 01:17:24,620

only have needed a couple of minutes to

1720

01:17:30,550 --> 01:17:26,330

colonize the entire galaxy that's right

1721

01:17:34,060 --> 01:17:30,560

and so you could take a slice about the

1722

01:17:37,420 --> 01:17:34,070

thickness of a business card in that

1723

01:17:39,790 --> 01:17:37,430

time scale right and slice it up and

1724

01:17:41,410 --> 01:17:39,800

something could have come and gone yeah

1725

01:17:42,490 --> 01:17:41,420

you would just completely have missed it

1726

01:17:44,380 --> 01:17:42,500

but of course that's assuming they

1727

01:17:46,660 --> 01:17:44,390

didn't stick around that's right and

1728

01:17:49,150 --> 01:17:46,670

that it's it's a mind-blowing concept

1729

01:17:52,510 --> 01:17:49,160

and I use it a lot I try to get as

1730

01:17:54,700 --> 01:17:52,520

visual as I can with it just like you

1731

01:17:56,620 --> 01:17:54,710

just explained it and that's because I

1732

01:18:01,120 --> 01:17:56,630

stole it from you let's go to the next

1733

01:18:02,950 --> 01:18:01,130

one okay question so where is et where

1734

01:18:06,970 --> 01:18:02,960

is everybody

1735

01:18:11,320 --> 01:18:06,980

answer intelligent civilizations are too

1736

01:18:16,020 --> 01:18:11,330

far apart in space and time you've spent

1737

01:18:19,870 --> 01:18:16,030

a lot a lot of time no pun intended on

1738

01:18:22,150 --> 01:18:19,880

this subject and this answer so let's

1739

01:18:24,700 --> 01:18:22,160

let's pick this apart a little bit how

1740

01:18:27,460 --> 01:18:24,710

much how much how much distance are we

1741

01:18:29,290 --> 01:18:27,470

talking about in space and time well

1742

01:18:31,120 --> 01:18:29,300

always comes down to how Vale was saying

1743

01:18:33,010 --> 01:18:31,130

this life is and then this what kind of

1744

01:18:34,600 --> 01:18:33,020

albumen kind of falls back to the

1745

01:18:36,310 --> 01:18:34,610

available of hypotheses to begin with

1746

01:18:38,620 --> 01:18:36,320

because if they're popping up in almost

1747

01:18:40,330 --> 01:18:38,630

every solar system then you you don't

1748

01:18:41,590 --> 01:18:40,340

have this you should to begin with but

1749

01:18:43,300 --> 01:18:41,600

it you have to assume some amount of

1750

01:18:45,220 --> 01:18:43,310

ability for this argument to make sense

1751

01:18:46,990 --> 01:18:45,230

in the first place is to say they don't

1752

01:18:48,910 --> 01:18:47,000

exist or they don't exist very long and

1753

01:18:50,610 --> 01:18:48,920

they don't pop up much and I say we

1754

01:18:53,590 --> 01:18:50,620

couldn't possibly have heard them and

1755

01:18:55,510 --> 01:18:53,600

the problem is that while it's very hard

1756

01:18:58,390 --> 01:18:55,520

to hear our radio signals even with all

1757

01:19:00,760 --> 01:18:58,400

really good telescopes one star system

1758

01:19:02,740 --> 01:19:00,770

over it is so easy for a spacefaring

1759

01:19:04,720 --> 01:19:02,750

civilization just inside our own solar

1760

01:19:06,820 --> 01:19:04,730

system to build some gigantic solar

1761

01:19:08,950 --> 01:19:06,830

powered radio that you could hear across

1762

01:19:10,510 --> 01:19:08,960

the galaxy mm-hmm and it's also very

1763

01:19:12,070 --> 01:19:10,520

easy to potentially build telescopes

1764

01:19:14,500 --> 01:19:12,080

because actually easier to build

1765

01:19:18,070 --> 01:19:14,510

telescopes in space that all just

1766

01:19:19,690 --> 01:19:18,080

kilometres cost giant giant dishes no

1767

01:19:22,060 --> 01:19:19,700

gravity or wind messing up your ability

1768

01:19:22,840 --> 01:19:22,070

to build them huge so you've got the

1769

01:19:25,030 --> 01:19:22,850

ability to make really

1770

01:19:27,100 --> 01:19:25,040

systems and to make one's now very

1771

01:19:29,320 --> 01:19:27,110

sensitive so you could hear them the

1772

01:19:31,120 --> 01:19:29,330

question is can you hear them before

1773

01:19:32,680 --> 01:19:31,130

they stop transmitting and that goes

1774

01:19:34,660 --> 01:19:32,690

back to that question of why do they

1775

01:19:36,160 --> 01:19:34,670

stop transmitting and of course it goes

1776

01:19:38,080 --> 01:19:36,170

to the for the problem which is this

1777

01:19:39,990 --> 01:19:38,090

assumption that foam you ate himself was

1778

01:19:43,330 --> 01:19:40,000

that interstellar travel is impossible

1779

01:19:44,410 --> 01:19:43,340

he just assumed that this was 1950s that

1780

01:19:46,900 --> 01:19:44,420

we would never figure out a way to

1781

01:19:48,760 --> 01:19:46,910

travel to other solar systems so a lot

1782

01:19:50,200 --> 01:19:48,770

of what we do on the channel in science

1783

01:19:51,640 --> 01:19:50,210

fiction everyone assumes you get an FTL

1784

01:19:52,900 --> 01:19:51,650

ship and you can do it that way and that

1785

01:19:55,120 --> 01:19:52,910

makes things great you got a warp drive

1786

01:19:56,860 --> 01:19:55,130

and on the channel we try to focus on

1787

01:19:58,780 --> 01:19:56,870

assume we never get that assuming were

1788

01:20:01,000 --> 01:19:58,790

limited to just the science we have

1789

01:20:03,730 --> 01:20:01,010

right now could you colonize the galaxy

1790

01:20:05,140 --> 01:20:03,740

and all evidences yeah you absolutely

1791

01:20:06,760 --> 01:20:05,150

could if you can get a good

1792

01:20:08,500 --> 01:20:06,770

infrastructure into orbit around Earth

1793

01:20:10,210 --> 01:20:08,510

you don't need a single new

1794

01:20:13,060 --> 01:20:10,220

technological development in terms of

1795

01:20:14,620 --> 01:20:13,070

propulsion to build gigantic meals and

1796

01:20:16,450 --> 01:20:14,630

lasers that will let you push ships up

1797

01:20:18,340 --> 01:20:16,460

and Espino to relativistic speed to get

1798

01:20:19,480 --> 01:20:18,350

to other solve systems there's a lot of

1799

01:20:21,310 --> 01:20:19,490

technology that would make that a lot

1800

01:20:23,230 --> 01:20:21,320

easier and more functional but you can

1801

01:20:25,810 --> 01:20:23,240

do it at that point you don't need truly

1802

01:20:27,550 --> 01:20:25,820

advanced technology right so how can

1803

01:20:29,800 --> 01:20:27,560

they be that rail if you can do space

1804

01:20:31,720 --> 01:20:29,810

travel the argument that we can't hear

1805

01:20:34,240 --> 01:20:31,730

them has to assume they don't last very

1806

01:20:38,830 --> 01:20:34,250

long and they can't do space travel now

1807

01:20:41,830 --> 01:20:38,840

what about this this concept I need you

1808

01:20:46,360 --> 01:20:41,840

to help me understand this with the

1809

01:20:50,850 --> 01:20:46,370

projection of those radio telescopes and

1810

01:20:55,270 --> 01:20:50,860

the ability to get this information out

1811

01:20:59,230 --> 01:20:55,280

does it have to be laser-focused towards

1812

01:21:03,760 --> 01:20:59,240

Earth or does it permeate in a 360

1813

01:21:05,350 --> 01:21:03,770

degree universe worldview well there was

1814

01:21:06,790 --> 01:21:05,360

a thought that when you're trying to

1815

01:21:08,440 --> 01:21:06,800

send messages to another solar system

1816

01:21:10,300 --> 01:21:08,450

you want to condense that beam up as

1817

01:21:11,710 --> 01:21:10,310

much as possible knightley's those are

1818

01:21:13,750 --> 01:21:11,720

no things like that do not actually stay

1819

01:21:15,430 --> 01:21:13,760

as a tight so no they do spread out same

1820

01:21:17,500 --> 01:21:15,440

as normal omnidirectional waves

1821

01:21:19,720 --> 01:21:17,510

eventually yes they do do it a lot more

1822

01:21:21,340 --> 01:21:19,730

slowly as a walk right but an

1823

01:21:23,430 --> 01:21:21,350

omnidirectional signal is not very

1824

01:21:26,260 --> 01:21:23,440

efficient for broadcasting galaxy-wide

1825

01:21:28,120 --> 01:21:26,270

that's got two problems with though the

1826

01:21:29,320 --> 01:21:28,130

forced is if you're trying to talk to

1827

01:21:31,210 --> 01:21:29,330

everyone an omnidirectional signal

1828

01:21:33,930 --> 01:21:31,220

probably is easier than trying to target

1829

01:21:35,530 --> 01:21:33,940

a billion individual beams to locations

1830

01:21:38,230 --> 01:21:35,540

and

1831

01:21:40,000 --> 01:21:38,240

you have the entire output of a Sun to

1832

01:21:41,500 --> 01:21:40,010

walk with if you need it if you right

1833

01:21:44,350 --> 01:21:41,510

there it's they or you can make giant

1834

01:21:46,720 --> 01:21:44,360

solar panels to power thing and that's

1835

01:21:48,070 --> 01:21:46,730

more than loud enough that's many orders

1836

01:21:49,480 --> 01:21:48,080

of magnitude more energy than you need

1837

01:21:52,540 --> 01:21:49,490

to produce a radio signal you can do

1838

01:21:54,670 --> 01:21:52,550

galaxy-wide on a normal radio sitting on

1839

01:21:56,530 --> 01:21:54,680

the ground and then the other part about

1840

01:21:58,420 --> 01:21:56,540

that is the one thing you absolutely

1841

01:22:01,150 --> 01:21:58,430

would want to always do omnidirectional

1842

01:22:02,050 --> 01:22:01,160

e and not encrypt it and we say we might

1843

01:22:03,250 --> 01:22:02,060

not be able to hear them because they

1844

01:22:05,200 --> 01:22:03,260

encrypt everything or they use

1845

01:22:06,880 --> 01:22:05,210

point-to-point transmissions like lasers

1846

01:22:09,460 --> 01:22:06,890

right right one thing you always

1847

01:22:11,800 --> 01:22:09,470

transmit omnidirectional e is the time

1848

01:22:12,610 --> 01:22:11,810

code the GPS the galactic positioning

1849

01:22:14,950 --> 01:22:12,620

system

1850

01:22:17,050 --> 01:22:14,960

people are gonna need to know where they

1851
01:22:19,300 --> 01:22:17,060
are located exactly and neutron stars

1852
01:22:20,830 --> 01:22:19,310
are not good enough to really give you

1853
01:22:23,080 --> 01:22:20,840
an exact focus we talked about using

1854
01:22:24,460 --> 01:22:23,090
post hauls that do fixes and you can do

1855
01:22:27,070 --> 01:22:24,470
that that won't give you the accuracy

1856
01:22:29,500 --> 01:22:27,080
that you want you're going to have a big

1857
01:22:32,860 --> 01:22:29,510
loud signal that just broadcasts a one

1858
01:22:35,080 --> 01:22:32,870
over again the time is 12:01 p.m. and

1859
01:22:36,790 --> 01:22:35,090
that's whatever and you don't care

1860
01:22:39,190 --> 01:22:36,800
that's going fast tonight you want it to

1861
01:22:40,690 --> 01:22:39,200
go at relativistic normal speeds because

1862
01:22:43,140 --> 01:22:40,700
that's what people use to figure out

1863
01:22:48,970 --> 01:22:43,150

where you are right right right

1864

01:22:51,130 --> 01:22:48,980

now let's let's jump right to the the

1865

01:22:53,110 --> 01:22:51,140

next answer and the question is of

1866

01:22:56,710 --> 01:22:53,120

course where is et where is everybody

1867

01:22:59,080 --> 01:22:56,720

and the answer to this one we're gonna

1868

01:23:02,050 --> 01:22:59,090

spend a lot of time on again which is

1869

01:23:05,050 --> 01:23:02,060

the lack of resources to spread

1870

01:23:07,930 --> 01:23:05,060

physically throughout the galaxy and

1871

01:23:11,320 --> 01:23:07,940

before you answer let me let me pop this

1872

01:23:13,210 --> 01:23:11,330

in there I look at our planet because

1873

01:23:14,620 --> 01:23:13,220

when somebody hears this answer they

1874

01:23:16,210 --> 01:23:14,630

think well you know we have a hard time

1875

01:23:18,940 --> 01:23:16,220

getting oil out of the ground we have a

1876

01:23:21,910 --> 01:23:18,950

heart Gold is rare you know we have to

1877

01:23:24,300 --> 01:23:21,920

manufacture steel and we have problems

1878

01:23:29,560 --> 01:23:24,310

in with resources here for our own

1879

01:23:31,360 --> 01:23:29,570

infrastructure we don't have an orbiting

1880

01:23:33,670 --> 01:23:31,370

space station we haven't colonized the

1881

01:23:36,040 --> 01:23:33,680

moon it takes a lot of resources to do

1882

01:23:39,370 --> 01:23:36,050

that so they understand this point

1883

01:23:42,220 --> 01:23:39,380

really quickly but you've got a counter

1884

01:23:45,220 --> 01:23:42,230

to this answer which I think is is

1885

01:23:47,170 --> 01:23:45,230

amazing there is a ton of resource in

1886

01:23:49,030 --> 01:23:47,180

the solar system earth has a very big

1887

01:23:50,350 --> 01:23:49,040

share the easy accessible ones but the

1888

01:23:52,450 --> 01:23:50,360

easiest ones access or things like

1889

01:23:54,220 --> 01:23:52,460

asteroids we live at the bottom of

1890

01:23:56,050 --> 01:23:54,230

gravity well that makes it hard to get

1891

01:23:57,760 --> 01:23:56,060

that off there as does a full place like

1892

01:24:00,400 --> 01:23:57,770

Mars or Jupiter where they have tons of

1893

01:24:01,990 --> 01:24:00,410

resources but our biggest problem

1894

01:24:04,030 --> 01:24:02,000

getting resources on earth besides

1895

01:24:05,200 --> 01:24:04,040

things like oil which are biological

1896

01:24:08,440 --> 01:24:05,210

nature so we wouldn't find them too much

1897

01:24:10,390 --> 01:24:08,450

in space is that we live on top of all

1898

01:24:12,370 --> 01:24:10,400

those resources so to get at them we

1899

01:24:14,260 --> 01:24:12,380

have to dig up a lot of stuff including

1900

01:24:16,000 --> 01:24:14,270

valuable real estate when you're up in

1901

01:24:17,110 --> 01:24:16,010

space walking on some asteroid a few

1902

01:24:19,090 --> 01:24:17,120

kilometers across

1903

01:24:21,310 --> 01:24:19,100

you can disassemble that whole thing and

1904

01:24:24,070 --> 01:24:21,320

your typical metallic asteroid is going

1905

01:24:26,020 --> 01:24:24,080

to have more iron in it then we've

1906

01:24:29,080 --> 01:24:26,030

produced in like an entire century it's

1907

01:24:31,630 --> 01:24:29,090

a cubic kilometer of iron you know that's

1908

01:24:33,520 --> 01:24:31,640

a lot of metal most of those large or

1909

01:24:36,070 --> 01:24:33,530

medium range asteroids have enough

1910

01:24:38,620 --> 01:24:36,080

metals in them develop easily accesible

1911

01:24:41,380 --> 01:24:38,630

to build aircraft size carry or

1912

01:24:44,140 --> 01:24:41,390

starships by the billion you only need

1913

01:24:46,480 --> 01:24:44,150

to exhaust one of those ok hold on hold

1914

01:24:49,890 --> 01:24:46,490

on how galaxies all I'm pump the brakes

1915

01:24:53,050 --> 01:24:49,900

there Isaak repeat what you just said

1916

01:24:54,520 --> 01:24:53,060

your typical asteroid medium-scale one

1917

01:24:55,630 --> 01:24:54,530

is gonna have enough metals in it to

1918

01:24:58,210 --> 01:24:55,640

make something the size of an aircraft

1919

01:25:00,580 --> 01:24:58,220

carrier or spaceship that size a billion

1920

01:25:02,890 --> 01:25:00,590

times over again so enough to send one

1921

01:25:05,020 --> 01:25:02,900

to every single star system in this

1922

01:25:07,360 --> 01:25:05,030

galaxy and there was enough resources in

1923

01:25:09,400 --> 01:25:07,370

this solar system easily accessible

1924

01:25:12,160 --> 01:25:09,410

resources to be able to build whole

1925

01:25:15,310 --> 01:25:12,170

fleets of these for every single star

1926

01:25:16,660 --> 01:25:15,320

system out there and so and you don't

1927

01:25:18,040 --> 01:25:16,670

have to go to those a lot of distance

1928

01:25:19,990 --> 01:25:18,050

star systems you can stop your nearest

1929

01:25:21,970 --> 01:25:20,000

neighbor and grab more resources and

1930

01:25:24,250 --> 01:25:21,980

spread out from there and you would only

1931

01:25:26,590 --> 01:25:24,260

have scratched the resources in the

1932

01:25:29,140 --> 01:25:26,600

solar system by doing that it's a scale

1933

01:25:31,540 --> 01:25:29,150

thing the solar system and the earth for

1934

01:25:33,400 --> 01:25:31,550

that matter is so enormous compared to

1935

01:25:36,070 --> 01:25:33,410

what we think of as the earth we live in

1936

01:25:38,470 --> 01:25:36,080

a tiny Tiger or like oil counting of

1937

01:25:41,080 --> 01:25:38,480

around the surface of this planet it's a

1938

01:25:43,810 --> 01:25:41,090

couple kilometers the plants thousands

1939

01:25:46,540 --> 01:25:43,820

of clon was wide so our solution is the

1940

01:25:48,490 --> 01:25:46,550

asteroid belt that's the easiest ones to

1941

01:25:50,500 --> 01:25:48,500

get at they don't have that much the

1942

01:25:52,390 --> 01:25:50,510

asteroid belt in its entirety has less

1943

01:25:53,710 --> 01:25:52,400

material set than the moon it's in fact

1944

01:25:55,000 --> 01:25:53,720

the difference between the moon and the

1945

01:25:56,980 --> 01:25:55,010

earth is about same as the moon in the

1946

01:25:58,870 --> 01:25:56,990

asteroid belt very small amount of metal

1947

01:26:01,950 --> 01:25:58,880

sail but compared to what we normally

1948

01:26:04,229 --> 01:26:01,960

use here on earth it's staggering it's

1949

01:26:06,360 --> 01:26:04,239

huge you know we talked about megatons

1950

01:26:11,690 --> 01:26:06,370

of steel production forget that the

1951

01:26:17,459 --> 01:26:11,700

earth is a billion trillion tons of mass

1952

01:26:19,290 --> 01:26:17,469

right and the you don't have to this is

1953

01:26:21,030 --> 01:26:19,300

the other point with this is it's

1954

01:26:22,800 --> 01:26:21,040

getting it off of the earth you got to

1955

01:26:24,420 --> 01:26:22,810

get it out of the earth first

1956

01:26:27,060 --> 01:26:24,430

yeah but then you've got to get it off

1957

01:26:30,060 --> 01:26:27,070

planet right you've got to get it up

1958

01:26:32,610 --> 01:26:30,070

into Earth orbit low Earth orbit to

1959

01:26:34,530 --> 01:26:32,620

start to build these ships or to the

1960

01:26:36,150 --> 01:26:34,540

moon a funny thing is in many cases

1961

01:26:38,100 --> 01:26:36,160

gonna be easier to get material back

1962

01:26:39,930 --> 01:26:38,110

from the asteroid belt on the moon into

1963

01:26:41,040 --> 01:26:39,940

orbit around or that is to get up from

1964

01:26:43,380 --> 01:26:41,050

Earth when it's only a hundred

1965

01:26:45,510 --> 01:26:43,390

kilometers away so hundred million

1966

01:26:47,430 --> 01:26:45,520

kilometers away pick up an asteroid and

1967

01:26:48,720 --> 01:26:47,440

bring it back to orbit around or easier

1968

01:26:51,810 --> 01:26:48,730

than you might be gonna bring a mountain

1969

01:26:55,050 --> 01:26:51,820

up from Earth and there was only about

1970

01:26:57,300 --> 01:26:55,060

1% of 1% of the material in the asteroid

1971

01:27:00,360 --> 01:26:57,310

belt that the earth has but it's still

1972

01:27:04,050 --> 01:27:00,370

millions of times what we normally use

1973

01:27:06,450 --> 01:27:04,060

so what it would be doing is out there

1974

01:27:08,910 --> 01:27:06,460

with their interstellar craft would be

1975

01:27:11,640 --> 01:27:08,920

seeking out asteroids they wouldn't

1976

01:27:13,560 --> 01:27:11,650

necessarily be looking for planets that

1977

01:27:15,770 --> 01:27:13,570

wouldn't necessarily be a first choice

1978

01:27:18,360 --> 01:27:15,780

would it that would be able to find

1979

01:27:20,220 --> 01:27:18,370

plants have no value at all to a

1980

01:27:23,280 --> 01:27:20,230

civilization unless they were interested

1981

01:27:24,959 --> 01:27:23,290

in the biology on them and you know if

1982

01:27:26,550 --> 01:27:24,969

you want that biology or that alt and

1983

01:27:28,350 --> 01:27:26,560

culture let's say oh they're grades but

1984

01:27:30,030 --> 01:27:28,360

otherwise a planet is just one big

1985

01:27:31,920 --> 01:27:30,040

lumberyard that's in conveniently

1986

01:27:33,510 --> 01:27:31,930

located far from the exit ramp but you

1987

01:27:34,650 --> 01:27:33,520

go for the asteroids forced then you go

1988

01:27:36,840 --> 01:27:34,660

for the moons then you go for the

1989

01:27:38,490 --> 01:27:36,850

planets then you go for the Sun itself

1990

01:27:39,720 --> 01:27:38,500

and usually you can get a lot of metal

1991

01:27:42,750 --> 01:27:39,730

out of the Sun if you want to a

1992

01:27:48,840 --> 01:27:42,760

lumberyard I like that okay and also

1993

01:27:51,479 --> 01:27:48,850

there's one other point water we're sure

1994

01:27:53,430 --> 01:27:51,489

we've got a lot of water on this planet

1995

01:27:55,440 --> 01:27:53,440

but there's a lot of water just floating

1996

01:27:57,420 --> 01:27:55,450

around in space floating around in space

1997

01:27:59,820 --> 01:27:57,430

you don't have to go to a planet earth

1998

01:28:01,709 --> 01:27:59,830

is unique in the inner solar system and

1999

01:28:03,450 --> 01:28:01,719

it has large amounts of accessible water

2000

01:28:05,010 --> 01:28:03,460

that's real and you know solar system

2001

01:28:06,570 --> 01:28:05,020

because hydrogen is really no solar

2002

01:28:08,040 --> 01:28:06,580

system but it's the most plentiful stuff

2003

01:28:09,510 --> 01:28:08,050

in the universe and the third most

2004

01:28:12,450 --> 01:28:09,520

plentiful stuff in the universe is

2005

01:28:14,340 --> 01:28:12,460

oxygen and they are they are quasars out

2006

01:28:15,089 --> 01:28:14,350

there that push out entire planets were

2007

01:28:21,180 --> 01:28:15,099

the

2008

01:28:23,250 --> 01:28:21,190

inner solar system Neos tall as well

2009

01:28:25,770 --> 01:28:23,260

tends to get blown away I need to take a

2010

01:28:28,709 --> 01:28:25,780

break right here Isaac Isaac Arthur is

2011

01:28:30,390 --> 01:28:28,719

our guest we are discussing the Fermi

2012

01:28:31,950 --> 01:28:30,400

paradox and they're about halfway

2013

01:28:34,470 --> 01:28:31,960

through Isaac we're doing pretty good

2014

01:28:36,290 --> 01:28:34,480

here we're doing pretty good we're

2015

01:28:38,490 --> 01:28:36,300

burning with gasoline no pun intended

2016

01:28:40,950 --> 01:28:38,500

stayed to black on the game changer

2017

01:28:46,350 --> 01:28:40,960

network and kgr a the planet stay with

2018

01:28:46,360 --> 01:28:56,230

[Music]

2019

01:29:02,440 --> 01:28:59,440

way out here we listen to Jimmy Church

2020

01:29:04,970 --> 01:29:02,450

you're listening to faint and black

2021

01:29:07,820 --> 01:29:04,980

always on the edge of the hottest

2022

01:29:08,600 --> 01:29:07,830

alternative talk chilly church with fade

2023

01:29:27,830 --> 01:29:08,610

to black

2024

01:29:31,580 --> 01:29:27,840

stay GRA radio.com hurricanes

2025

01:29:33,320 --> 01:29:31,590

earthquakes wildfires this year we've

2026

01:29:36,110 --> 01:29:33,330

experienced more than our fair share

2027

01:29:38,600 --> 01:29:36,120

this is Jimmy Church a fade to black and

2028

01:29:40,790 --> 01:29:38,610

last month I decided to make sure my

2029

01:29:42,950 --> 01:29:40,800

family does not have to worry about food

2030

01:29:46,700 --> 01:29:42,960

should we get caught in a real emergency

2031

01:29:48,590 --> 01:29:46,710

situation introducing Humana a healthy

2032

01:29:50,210 --> 01:29:48,600

storable product that tastes so good

2033

01:29:52,190 --> 01:29:50,220

that you'll want to eat it every day

2034

01:29:54,950 --> 01:29:52,200

instead of just during those times of

2035

01:29:58,340 --> 01:29:54,960

duress all new manna products have a 25

2036

01:30:00,460 --> 01:29:58,350

year shelf life our msg and GMO free no

2037

01:30:02,900 --> 01:30:00,470

preservatives and are made in America

2038

01:30:04,700 --> 01:30:02,910

with the new manna pack in your home

2039

01:30:07,430 --> 01:30:04,710

you'll be able to sleep at night knowing

2040

01:30:10,250 --> 01:30:07,440

that you've protected your family not

2041

01:30:12,800 --> 01:30:10,260

only have I tasted and tested I own it

2042

01:30:14,540 --> 01:30:12,810

now you can too just click on the new

2043

01:30:16,850 --> 01:30:14,550

manna banner on Jimmy Church radio.com

2044

01:30:19,310 --> 01:30:16,860

and use the promo code Jimmy when you

2045

01:30:20,960 --> 01:30:19,320

order in addition to a discount we'll

2046

01:30:24,500 --> 01:30:20,970

send you an autograph fade to black

2047

01:30:27,350 --> 01:30:24,510

t-shirt seriously gobekli tepe

2048

01:30:30,050 --> 01:30:27,360

do you want to be an official fade or

2049

01:30:32,240 --> 01:30:30,060

not of course you do this is Jimmy

2050

01:30:34,130 --> 01:30:32,250

Church of fade to black just go to our

2051
01:30:38,930 --> 01:30:34,140
membership section at Jimmy Church

2052
01:30:42,260 --> 01:30:38,940
radio.com so you love talk radio then

2053
01:30:45,320 --> 01:30:42,270
you'll love talk stream live.com talk

2054
01:30:47,330 --> 01:30:45,330
stream live is always on 24/7 with the

2055
01:30:49,310 --> 01:30:47,340
best streaming talk shows find your

2056
01:30:51,590 --> 01:30:49,320
favorite talkers and discover some new

2057
01:30:54,260 --> 01:30:51,600
ones it's free readily available online

2058
01:30:56,120 --> 01:30:54,270
or on mobile with any smartphone or

2059
01:30:58,520 --> 01:30:56,130
tablet finding your favorite talk shows

2060
01:31:01,640 --> 01:30:58,530
all in one place has gotten a whole lot

2061
01:31:03,090 --> 01:31:01,650
easier just go to Talk screen live.com

2062
01:31:05,310 --> 01:31:03,100
be sure to download the

2063
01:31:10,230 --> 01:31:05,320

free apps from Google Play or the iTunes

2064

01:31:18,780 --> 01:31:10,240

Appstore you listen to us and we listen

2065

01:31:20,670 --> 01:31:18,790

to you so does the CIA kgr a radio com

2066

01:31:22,740 --> 01:31:20,680

if you have hard water the lime scale

2067

01:31:25,110 --> 01:31:22,750

not only leaves white spots at clogs

2068

01:31:26,970 --> 01:31:25,120

pipes and breaks down appliances costing

2069

01:31:28,920 --> 01:31:26,980

you hundreds of dollars in energy and

2070

01:31:31,020 --> 01:31:28,930

where eliminate limescale and other

2071

01:31:33,090 --> 01:31:31,030

water issues like brown staining and bad

2072

01:31:35,370 --> 01:31:33,100

odors with hydro care water products

2073

01:31:37,620 --> 01:31:35,380

available from wave home solutions waves

2074

01:31:39,390 --> 01:31:37,630

affordable water systems don't use salts

2075

01:31:41,060 --> 01:31:39,400

or chemicals you'll love the way your

2076

01:31:43,110 --> 01:31:41,070

water tastes smells and looks

2077

01:31:45,810 --> 01:31:43,120

satisfaction guaranteed for more

2078

01:31:48,540 --> 01:31:45,820

information go to best water 1 2 3 com

2079

01:31:51,300 --> 01:31:48,550

that's best water 1 2 3 com

2080

01:31:53,880 --> 01:31:51,310

are you intrigued by paranormal talk

2081

01:31:57,420 --> 01:31:53,890

radio you love the new paranormal radio

2082

01:31:59,460 --> 01:31:57,430

app from torque stream live you'll find

2083

01:32:02,850 --> 01:31:59,470

a great selection of talk shows covering

2084

01:32:05,250 --> 01:32:02,860

UFOs ghosts strange phenomena and much

2085

01:32:07,500 --> 01:32:05,260

more download the paranormal radio app

2086

01:32:09,050 --> 01:32:07,510

now and start listening to the very best

2087

01:32:11,220 --> 01:32:09,060

in paranormal talk entertainment

2088

01:32:13,620 --> 01:32:11,230

including the network you're listening

2089

01:32:16,800 --> 01:32:13,630

to right now the paranormal radio app

2090

01:32:21,570 --> 01:32:16,810

free in Google Play and the iOS App

2091

01:32:23,880 --> 01:32:21,580

Store you are listening to fade to black

2092

01:32:28,680 --> 01:32:23,890

with Jimmy Church on the game changing

2093

01:32:30,750 --> 01:32:28,690

Network hi I'm Lisa Vance you're

2094

01:32:33,690 --> 01:32:30,760

listening to Jimmy Church this is a

2095

01:32:37,520 --> 01:32:33,700

revolution the revolution will not be

2096

01:32:42,940 --> 01:32:37,530

televised the revolution is on radio

2097

01:32:42,950 --> 01:33:20,340

[Music]

2098

01:33:24,910 --> 01:33:22,419

welcome back fade to black I'm your host

2099

01:33:28,689 --> 01:33:24,920

Jimmy church tonight Isaac Arthur is

2100

01:33:30,689 --> 01:33:28,699

here we're discussing the Fermi paradox

2101

01:33:34,030 --> 01:33:30,699

we're gonna go top to bottom tonight

2102

01:33:35,830 --> 01:33:34,040

tomorrow night's is Fator night it's

2103

01:33:37,930 --> 01:33:35,840

open lines all night long and sarena

2104

01:33:40,090 --> 01:33:37,940

right Taylor and Douglas Taylor are

2105

01:33:42,700 --> 01:33:40,100

gonna be here to hang out too as well to

2106

01:33:46,930 --> 01:33:42,710

kick off the evening so tomorrow night

2107

01:33:49,540 --> 01:33:46,940

open lines Isaac let's continue with the

2108

01:33:52,689 --> 01:33:49,550

question and answer the Fermi paradox

2109

01:33:55,510 --> 01:33:52,699

question is of course with all of this

2110

01:33:57,430 --> 01:33:55,520

action going on in our galaxy in the

2111

01:33:58,180 --> 01:33:57,440

Milky Way with all these planets all

2112

01:34:00,939 --> 01:33:58,190

these stars

2113

01:34:05,140 --> 01:34:00,949

there must be something out there so

2114

01:34:09,840 --> 01:34:05,150

where is it where is everybody that's

2115

01:34:13,200 --> 01:34:09,850

the question the next answer is lack of

2116

01:34:18,180 --> 01:34:13,210

resources oh I'm sorry it's cheaper to

2117

01:34:20,169 --> 01:34:18,190

transfer information for exploration

2118

01:34:22,000 --> 01:34:20,179

well the problem with transferring

2119

01:34:24,340 --> 01:34:22,010

information is you need a receiver on

2120

01:34:25,689 --> 01:34:24,350

the other end and the other point thing

2121

01:34:27,550 --> 01:34:25,699

is it introduces a false dichotomy

2122

01:34:30,030 --> 01:34:27,560

there's this notion that you might send

2123

01:34:32,530 --> 01:34:30,040

signals information but you can send

2124

01:34:34,570 --> 01:34:32,540

information and that information can be

2125

01:34:36,610 --> 01:34:34,580

a Polson it could be an artificial

2126

01:34:38,290 --> 01:34:36,620

intelligence it might be their

2127

01:34:40,570 --> 01:34:38,300

civilization doesn't even draw a line

2128

01:34:43,450 --> 01:34:40,580

between those things so you might have

2129

01:34:46,060 --> 01:34:43,460

these probes whose only job is to arrive

2130

01:34:47,439 --> 01:34:46,070

at a location then scan buys a scene it

2131

01:34:49,720 --> 01:34:47,449

and they say oh there's something here

2132

01:34:51,970 --> 01:34:49,730

and so a follow-up Pope stops they oh

2133

01:34:53,800 --> 01:34:51,980

and it builds a big receiver and you

2134

01:34:55,540 --> 01:34:53,810

transmit in your science team or they're

2135

01:34:58,689 --> 01:34:55,550

just stored there as a drawer Kyle on

2136

01:35:00,220 --> 01:34:58,699

board that ship to begin with right but

2137

01:35:03,459 --> 01:35:00,230

they've been doing that I think they do

2138

01:35:04,660 --> 01:35:03,469

that every day if they do they you know

2139

01:35:06,399 --> 01:35:04,670

that's one of the things where is the

2140

01:35:08,200 --> 01:35:06,409

receiver at we might be looking for that

2141

01:35:09,399 --> 01:35:08,210

and it would be hard to find us you know

2142

01:35:10,840 --> 01:35:09,409

if they were actually a big receiver

2143

01:35:13,180 --> 01:35:10,850

unlike the dark side of the moon for

2144

01:35:15,129 --> 01:35:13,190

instance we probably picked that up by

2145

01:35:16,899 --> 01:35:15,139

now but there's a lot of places that you

2146

01:35:18,459 --> 01:35:16,909

could hide from us in the solar system

2147

01:35:19,870 --> 01:35:18,469

if you're doing something like that and

2148

01:35:21,820 --> 01:35:19,880

of course that implies their monitoring

2149

01:35:23,860 --> 01:35:21,830

so that one's not really a good solution

2150

01:35:24,879 --> 01:35:23,870

not because it's not viable but because

2151

01:35:26,680 --> 01:35:24,889

it more or less follows in the

2152

01:35:28,270 --> 01:35:26,690

categories the other ones that's just

2153

01:35:30,129 --> 01:35:28,280

the way they'd be doing it would say

2154

01:35:31,500 --> 01:35:30,139

they'll post biological they send people

2155

01:35:35,000 --> 01:35:31,510

digitally or they

2156

01:35:37,799 --> 01:35:35,010

they teleport them right right but but

2157

01:35:42,479 --> 01:35:37,809

they know that at wright-patt

2158

01:35:43,979 --> 01:35:42,489

I guarantee see this is this is what and

2159

01:35:48,959 --> 01:35:43,989

you and I have talked about this and

2160

01:35:50,660 --> 01:35:48,969

let's be very clear here that the forget

2161

01:35:52,740 --> 01:35:50,670

about the gray goo fridge is

2162

01:35:55,529 --> 01:35:52,750

self-replicating you know let's just put

2163

01:35:58,200 --> 01:35:55,539

all of that aside but jumping from

2164

01:36:00,359 --> 01:35:58,210

planet to planet and from solar system

2165

01:36:03,109 --> 01:36:00,369

to solar system with probes out there

2166

01:36:05,520 --> 01:36:03,119

exploring where you're not wasting

2167

01:36:08,490 --> 01:36:05,530

biological life or building you know

2168

01:36:10,680 --> 01:36:08,500

generational ships and so forth that is

2169

01:36:13,339 --> 01:36:10,690

the way to get it done that's what we

2170

01:36:15,660 --> 01:36:13,349

are attempting to do right now right

2171

01:36:21,450 --> 01:36:15,670

we're doing that in our own solar system

2172

01:36:23,009 --> 01:36:21,460

right now opportunity died today right

2173

01:36:24,839 --> 01:36:23,019

there man oops

2174

01:36:26,189 --> 01:36:24,849

right right people will say oh that's

2175

01:36:28,950 --> 01:36:26,199

gotta be solution when those unmanned

2176

01:36:30,959 --> 01:36:28,960

probes this has one fatal flaw to it it

2177

01:36:33,000 --> 01:36:30,969

does walk the system the palm is that's

2178

01:36:35,100 --> 01:36:33,010

not actually as advantageous as most

2179

01:36:36,899 --> 01:36:35,110

people think it does have an edge but

2180

01:36:38,879 --> 01:36:36,909

it's actually a fairly minimal edge so

2181

01:36:40,709 --> 01:36:38,889

it's some other things where if you want

2182

01:36:42,839 --> 01:36:40,719

to do it either way you go with the one

2183

01:36:44,520 --> 01:36:42,849

you prefer to use right now we have a

2184

01:36:46,169 --> 01:36:44,530

big problem keeping people alive in

2185

01:36:47,549 --> 01:36:46,179

space we're not gonna be launching

2186

01:36:50,430 --> 01:36:47,559

calling missions until we've got that

2187

01:36:52,709 --> 01:36:50,440

late in the first place right but if you

2188

01:36:54,240 --> 01:36:52,719

try to send a probe out the only real

2189

01:36:55,830 --> 01:36:54,250

advantage because it still has to stop

2190

01:36:58,500 --> 01:36:55,840

at the other end is that it could

2191

01:36:59,609 --> 01:36:58,510

accelerate and decelerate faster well

2192

01:37:01,589 --> 01:36:59,619

you really don't spend that much time

2193

01:37:03,299 --> 01:37:01,599

accelerating or decelerating on

2194

01:37:05,399 --> 01:37:03,309

interstellar trips because you get up to

2195

01:37:07,169 --> 01:37:05,409

speed and you know even for a biological

2196

01:37:09,089 --> 01:37:07,179

life-form we're only doing one g of

2197

01:37:11,370 --> 01:37:09,099

acceleration you up to near light speed

2198

01:37:12,660 --> 01:37:11,380

after just one year of acceleration and

2199

01:37:13,290 --> 01:37:12,670

that's how it takes you slow down -

2200

01:37:14,700 --> 01:37:13,300

mm-hmm

2201

01:37:16,379 --> 01:37:14,710

and you still have to slow down the

2202

01:37:18,330 --> 01:37:16,389

other side these space probes don't get

2203

01:37:19,500 --> 01:37:18,340

to magically you know going to orbit

2204

01:37:21,569 --> 01:37:19,510

around a planet they have to slow down

2205

01:37:24,689 --> 01:37:21,579

and they have to slow down even do a

2206

01:37:26,640 --> 01:37:24,699

decent flyby because it takes time with

2207

01:37:29,100 --> 01:37:26,650

anything like that to actually get a

2208

01:37:31,229 --> 01:37:29,110

good photograph these exposure time if

2209

01:37:33,569 --> 01:37:31,239

it flies through some solar system at

2210

01:37:35,370 --> 01:37:33,579

you know nearly the speed of light it's

2211

01:37:37,620 --> 01:37:35,380

only got a few hours to survey that

2212

01:37:40,589 --> 01:37:37,630

place and it's gonna have Hubble level

2213

01:37:41,939 --> 01:37:40,599

stuff just to get a decent picture not a

2214

01:37:44,100 --> 01:37:41,949

good picture you know just be able to

2215

01:37:45,280 --> 01:37:44,110

get like one there you can tell that

2216

01:37:48,280 --> 01:37:45,290

Mars has constant

2217

01:37:51,490 --> 01:37:48,290

oh sure and I don't want to stop I

2218

01:37:55,510 --> 01:37:51,500

totally get that I totally get that

2219

01:37:58,690 --> 01:37:55,520

but I cannot escape from and I will not

2220

01:38:01,300 --> 01:37:58,700

back off of this thought that there has

2221

01:38:04,930 --> 01:38:01,310

to be there it's not like there might be

2222

01:38:06,670 --> 01:38:04,940

there has to be literally tens of

2223

01:38:10,170 --> 01:38:06,680

thousands of intelligent civilizations

2224

01:38:13,690 --> 01:38:10,180

out here that are building

2225

01:38:16,120 --> 01:38:13,700

self-replicating probes that are out

2226

01:38:18,310 --> 01:38:16,130

scanning the universe mapping it and

2227

01:38:20,500 --> 01:38:18,320

just checking out to see what is cool

2228

01:38:22,630 --> 01:38:20,510

that is it I won't accept anything else

2229

01:38:24,130 --> 01:38:22,640

and would take it as a given that that's

2230

01:38:25,960 --> 01:38:24,140

the first step that's what I would do

2231

01:38:28,330 --> 01:38:25,970

I'd send out a series of self up game

2232

01:38:30,340 --> 01:38:28,340

pose with very limited intelligence dumb

2233

01:38:31,270 --> 01:38:30,350

within door knobs it might be a threat

2234

01:38:32,860 --> 01:38:31,280

if you don't want to send out really

2235

01:38:35,530 --> 01:38:32,870

advanced puzzle you might decide to come

2236

01:38:37,270 --> 01:38:35,540

home but then the follow up on that is

2237

01:38:39,700 --> 01:38:37,280

you've got these probes that can build

2238

01:38:41,830 --> 01:38:39,710

more themselves around other star

2239

01:38:43,690 --> 01:38:41,840

systems if you've got that it's even

2240

01:38:45,790 --> 01:38:43,700

easier to tell those probes to go

2241

01:38:47,680 --> 01:38:45,800

pinpoint that asteroid in your own solar

2242

01:38:50,110 --> 01:38:47,690

system and say make me a gigantic

2243

01:38:52,210 --> 01:38:50,120

spaceship I can put people on board sure

2244

01:38:53,500 --> 01:38:52,220

the same technology yes it's the same

2245

01:38:54,790 --> 01:38:53,510

thing it's the same thing there's

2246

01:38:57,760 --> 01:38:54,800

there's no question about it

2247

01:39:00,430 --> 01:38:57,770

and that's why when I go out and I'm

2248

01:39:02,590 --> 01:39:00,440

seeing the things that I'm seeing and

2249

01:39:04,270 --> 01:39:02,600

then others are seeing too as well this

2250

01:39:05,710 --> 01:39:04,280

is not you know I'm not the only person

2251

01:39:07,780 --> 01:39:05,720

in the world that's out there with night

2252

01:39:09,550 --> 01:39:07,790

vision goggles and wondering what the

2253

01:39:13,420 --> 01:39:09,560

heck is flying up there in the dark I

2254

01:39:17,950 --> 01:39:13,430

see it myself and I just have to do most

2255

01:39:20,230 --> 01:39:17,960

of it is ours okay I get that part of it

2256

01:39:22,030 --> 01:39:20,240

but it's the is the one or two or three

2257

01:39:25,960 --> 01:39:22,040

or four things that you see in a night

2258

01:39:28,720 --> 01:39:25,970

that you cannot explain and I'm just

2259

01:39:30,220 --> 01:39:28,730

naturally think that that's strana me

2260

01:39:31,150 --> 01:39:30,230

yeah I mean there we always come across

2261

01:39:32,680 --> 01:39:31,160

things we can't explain

2262

01:39:34,180 --> 01:39:32,690

sometimes we explain them with natural

2263

01:39:35,620 --> 01:39:34,190

solutions we got a lot of things we've

2264

01:39:37,840 --> 01:39:35,630

been sitting on for you know a good

2265

01:39:39,460 --> 01:39:37,850

century that we haven't gotten entirely

2266

01:39:41,560 --> 01:39:39,470

good solutions to yet and we got plenty

2267

01:39:43,180 --> 01:39:41,570

we have solved we never say that these

2268

01:39:44,380 --> 01:39:43,190

things cannot go least we should not be

2269

01:39:46,240 --> 01:39:44,390

saying that these things cannot be

2270

01:39:47,860 --> 01:39:46,250

intelligent we always want to go out the

2271

01:39:49,120 --> 01:39:47,870

checklist though and try to rule out all

2272

01:39:51,790 --> 01:39:49,130

the natural ones because they teach us

2273

01:39:53,980 --> 01:39:51,800

science and you know that's that's how

2274

01:39:55,090 --> 01:39:53,990

when alone these things but CD number

2275

01:39:56,490 --> 01:39:55,100

these things you know if someone tells

2276

01:39:59,169 --> 01:39:56,500

me I don't know what that is in the sky

2277

01:40:00,969 --> 01:39:59,179

what's the answer any buddy gives that's

2278

01:40:02,739 --> 01:40:00,979

good and so is well let's find house I

2279

01:40:04,750 --> 01:40:02,749

know I know I can't assume what it is

2280

01:40:06,910 --> 01:40:04,760

you find out what it is I can't wait

2281

01:40:08,379 --> 01:40:06,920

until one night you're gonna come out

2282

01:40:11,890 --> 01:40:08,389

with us right we're gonna go out and

2283

01:40:14,259 --> 01:40:11,900

we're just gonna hang out and imagine

2284

01:40:15,790 --> 01:40:14,269

this for a second I'm gonna give you 30

2285

01:40:19,120 --> 01:40:15,800

seconds and we got to get to the next

2286

01:40:21,069 --> 01:40:19,130

question is this imagine you and I

2287

01:40:23,560 --> 01:40:21,079

standing with a group of people let's

2288

01:40:25,449 --> 01:40:23,570

say 20 people and we're standing there

2289

01:40:28,540 --> 01:40:25,459

and we're looking up at the stars and

2290

01:40:29,709 --> 01:40:28,550

then in front of you taking up above you

2291

01:40:34,299 --> 01:40:29,719

at 12 o'clock

2292

01:40:37,419 --> 01:40:34,309

taking up 60 degrees of the sky right as

2293

01:40:39,929 --> 01:40:37,429

far apart as you can put your your your

2294

01:40:42,939 --> 01:40:39,939

hands right your hands three feet apart

2295

01:40:48,540 --> 01:40:42,949

above you at about five thousand feet

2296

01:40:52,660 --> 01:40:48,550

and then suddenly an aquamarine ball

2297

01:40:57,189 --> 01:40:52,670

sputters lights up and in two seconds

2298

01:41:01,479 --> 01:40:57,199

two goes from right to left

2299

01:41:05,140 --> 01:41:01,489

stops goes down and zags and then

2300

01:41:08,500 --> 01:41:05,150

continues and does a backwards Z in the

2301
01:41:11,919 --> 01:41:08,510
sky sputters out flashes it's high beams

2302
01:41:14,169 --> 01:41:11,929
and then flies away just like a SAP

2303
01:41:15,879 --> 01:41:14,179
now you're gonna go you're gonna turn

2304
01:41:18,580 --> 01:41:15,889
you're gonna turn to me and go well that

2305
01:41:20,879 --> 01:41:18,590
wasn't a meteor that wasn't a satellite

2306
01:41:24,520 --> 01:41:20,889
that wasn't a plane that wasn't a

2307
01:41:26,859 --> 01:41:24,530
helicopter that wasn't a rocket that was

2308
01:41:29,439 --> 01:41:26,869
I don't know what the hell that was

2309
01:41:31,959 --> 01:41:29,449
Jimmy and and so when you see something

2310
01:41:35,199 --> 01:41:31,969
like that that's what I'm saying I'm not

2311
01:41:38,169 --> 01:41:35,209
talking about any kind of natural no it

2312
01:41:40,060 --> 01:41:38,179
is something that you you Isaac will

2313
01:41:42,489 --> 01:41:40,070

have problems with and it's a life

2314

01:41:44,469 --> 01:41:42,499

changing event so I don't doubt it

2315

01:41:45,729 --> 01:41:44,479

and somebody see something like that the

2316

01:41:47,529 --> 01:41:45,739

cool thing that everyone should be

2317

01:41:49,689 --> 01:41:47,539

thinking is let's find out what that is

2318

01:41:51,370 --> 01:41:49,699

and we don't go with any preconceptions

2319

01:41:53,229 --> 01:41:51,380

it may be it's artificial maybe it's

2320

01:41:55,000 --> 01:41:53,239

natural we don't want to assume either

2321

01:41:57,759 --> 01:41:55,010

one the skeptic can get in the habit of

2322

01:41:59,529 --> 01:41:57,769

just saying this must be natural and

2323

01:42:00,819 --> 01:41:59,539

that's in many ways just as bad

2324

01:42:02,739 --> 01:42:00,829

reasoning as to simply assume

2325

01:42:04,419 --> 01:42:02,749

automatically that it must be artificial

2326

01:42:06,549 --> 01:42:04,429

absolutely the truth is what the truth

2327

01:42:08,080 --> 01:42:06,559

is you find out what it is and you never

2328

01:42:09,910 --> 01:42:08,090

go into these things just assuming it's

2329

01:42:12,489 --> 01:42:09,920

gotta be X Y or Z and we're all guilty

2330

01:42:13,220 --> 01:42:12,499

of doing that it's so easy from either

2331

01:42:15,350 --> 01:42:13,230

angle these

2332

01:42:18,260 --> 01:42:15,360

haven't want to be what it is that you

2333

01:42:20,840 --> 01:42:18,270

want to be and the real science is never

2334

01:42:22,729 --> 01:42:20,850

know and what it is it's saying what the

2335

01:42:23,780 --> 01:42:22,739

heck was that that was surprising you

2336

01:42:25,640 --> 01:42:23,790

know that's what you go to find out

2337

01:42:28,010 --> 01:42:25,650

these new things from yeah with that

2338

01:42:30,950 --> 01:42:28,020

what I just described to you happened

2339

01:42:33,260 --> 01:42:30,960

with 200 people and we were all standing

2340

01:42:36,680 --> 01:42:33,270

there we all saw it and we all screamed

2341

01:42:38,750 --> 01:42:36,690

at the same time and and I'm not going

2342

01:42:42,410 --> 01:42:38,760

to take that experience away from

2343

01:42:44,600 --> 01:42:42,420

anybody I need to continue to talk about

2344

01:42:46,670 --> 01:42:44,610

it because I can't explain it Arthur

2345

01:42:52,370 --> 01:42:46,680

I keep saying Arthur I have a cousin

2346

01:42:55,130 --> 01:42:53,479

I can't explain it

2347

01:42:57,860 --> 01:42:55,140

Isaac okay let's go to the next one here

2348

01:43:01,550 --> 01:42:57,870

we go all right question

2349

01:43:06,440 --> 01:43:01,560

so where is et where is everybody

2350

01:43:10,250 --> 01:43:06,450

answer humans have not existed long

2351

01:43:12,020 --> 01:43:10,260

enough well we've been around for a

2352

01:43:14,390 --> 01:43:12,030

million years that's an eye blink across

2353

01:43:16,910 --> 01:43:14,400

the span of galaxies but you know that's

2354

01:43:18,620 --> 01:43:16,920

still a pretty decently long time if we

2355

01:43:20,120 --> 01:43:18,630

assuming nobody pops up more often that

2356

01:43:21,979 --> 01:43:20,130

or they don't spread out this basically

2357

01:43:24,650 --> 01:43:21,989

just follows back that same issue of is

2358

01:43:26,720 --> 01:43:24,660

space travel possible because we can go

2359

01:43:28,160 --> 01:43:26,730

out there on colonize the galaxy it

2360

01:43:29,630 --> 01:43:28,170

doesn't matter if your original home

2361

01:43:31,280 --> 01:43:29,640

planet only asked for a thousand years

2362

01:43:32,840 --> 01:43:31,290

or not some of those splint or County

2363

01:43:34,640 --> 01:43:32,850

Ward's are going to have survived and

2364

01:43:37,670 --> 01:43:34,650

come back up from nothing if they had to

2365

01:43:39,560 --> 01:43:37,680

so it's kind of notion is you know if

2366

01:43:41,600 --> 01:43:39,570

you'll still exploring the galaxy you

2367

01:43:43,460 --> 01:43:41,610

know finding aliens wait because

2368

01:43:44,960 --> 01:43:43,470

eventually you will they might be from

2369

01:43:46,970 --> 01:43:44,970

your planet originally but they're going

2370

01:43:48,710 --> 01:43:46,980

to be left behind whatever you have a

2371

01:43:50,360 --> 01:43:48,720

colony situation and we have this but

2372

01:43:52,160 --> 01:43:50,370

like if Earth might have been one of

2373

01:43:54,350 --> 01:43:52,170

their colonies and say well if it was

2374

01:43:55,850 --> 01:43:54,360

they either had to bioform us an example

2375

01:43:57,229 --> 01:43:55,860

where they take the existing things and

2376

01:43:59,000 --> 01:43:57,239

just kind of change it to be more like

2377

01:44:01,550 --> 01:43:59,010

themselves right all they had to do it

2378

01:44:03,350 --> 01:44:01,560

four billion years ago but if we Oh

2379

01:44:04,670 --> 01:44:03,360

example such a County what about all the

2380

01:44:06,920 --> 01:44:04,680

others I mean you probably won't the

2381

01:44:08,990 --> 01:44:06,930

only one named Bobby did that thousands

2382

01:44:10,700 --> 01:44:09,000

for millions of times right are we just

2383

01:44:12,650 --> 01:44:10,710

the first ones that build ourselves back

2384

01:44:14,030 --> 01:44:12,660

up from some catastrophe and the net

2385

01:44:15,950 --> 01:44:14,040

just kind of kicks the ball back because

2386

01:44:16,940 --> 01:44:15,960

we'd be saying oh well the other Force

2387

01:44:18,890 --> 01:44:16,950

Ones what about all the other

2388

01:44:21,770 --> 01:44:18,900

civilizations won't they are others that

2389

01:44:23,810 --> 01:44:21,780

evolved too or you know they did it and

2390

01:44:25,700 --> 01:44:23,820

we did it and if we did it from then

2391

01:44:27,200 --> 01:44:25,710

where all the other colonies they made

2392

01:44:29,840 --> 01:44:27,210

and where all the other super

2393

01:44:31,490 --> 01:44:29,850

that start on their own so that's kind

2394

01:44:33,800 --> 01:44:31,500

of the issue with the use sort of short

2395

01:44:35,060 --> 01:44:33,810

time exposure once you get life in place

2396

01:44:36,830 --> 01:44:35,070

that can actually go out there and

2397

01:44:37,750 --> 01:44:36,840

colonize the galaxy assuming that's

2398

01:44:42,380 --> 01:44:37,760

possible

2399

01:44:44,600 --> 01:44:42,390

what's making it go away next answer of

2400

01:44:48,110 --> 01:44:44,610

course to the question so where is

2401

01:44:51,500 --> 01:44:48,120

everybody where is ZT well we just

2402

01:44:53,570 --> 01:44:51,510

aren't listening properly that's

2403

01:44:55,460 --> 01:44:53,580

entirely possible we don't know we know

2404

01:44:58,070 --> 01:44:55,470

we've been playing the science game for

2405

01:45:01,190 --> 01:44:58,080

at best 400 years we could be a BB kind

2406

01:45:02,810 --> 01:45:01,200

and give another couple thousand and in

2407

01:45:04,970 --> 01:45:02,820

that time we have discovered stuff that

2408

01:45:06,440 --> 01:45:04,980

we wouldn't never imagine and while I

2409

01:45:08,510 --> 01:45:06,450

always try to focus on the stuff that's

2410

01:45:10,130 --> 01:45:08,520

inside known science right now I never

2411

01:45:12,050 --> 01:45:10,140

pretend for a moment that I actually

2412

01:45:13,460 --> 01:45:12,060

expect that a couple of centuries from

2413

01:45:15,620 --> 01:45:13,470

now we want to discover something that

2414

01:45:17,540 --> 01:45:15,630

will just shock and blow my mind mm-hmm

2415

01:45:19,490 --> 01:45:17,550

and to be honest I think most of all

2416

01:45:21,260 --> 01:45:19,500

core physical laws are going to stay in

2417

01:45:22,700 --> 01:45:21,270

place because most of us have not really

2418

01:45:25,220 --> 01:45:22,710

changed that much Newton need a little

2419

01:45:27,440 --> 01:45:25,230

bit of adaptation and Einstein's held up

2420

01:45:28,340 --> 01:45:27,450

pretty solidly for the last century but

2421

01:45:30,380 --> 01:45:28,350

we could have something come by just

2422

01:45:33,290 --> 01:45:30,390

knock over the whole house of cards and

2423

01:45:34,610 --> 01:45:33,300

if that's the case you know if we have

2424

01:45:36,170 --> 01:45:34,620

something much much better than radio

2425

01:45:39,680 --> 01:45:36,180

we're not really gonna use the radio

2426

01:45:41,330 --> 01:45:39,690

very much and so how will we listen for

2427

01:45:43,100 --> 01:45:41,340

what they all listening to and that's

2428

01:45:44,600 --> 01:45:43,110

where we get into more the die sonne and

2429

01:45:46,310 --> 01:45:44,610

SETI things where you're not looking for

2430

01:45:48,290 --> 01:45:46,320

the active signal as these civilizations

2431

01:45:51,530 --> 01:45:48,300

send off but things like their waste

2432

01:45:53,210 --> 01:45:51,540

heat or you who hides a civilization is

2433

01:45:54,650 --> 01:45:53,220

always the question there are so many

2434

01:45:57,080 --> 01:45:54,660

ways to find them and people say well

2435

01:45:59,260 --> 01:45:57,090

maybe they're hiding and we say why

2436

01:46:01,730 --> 01:45:59,270

would you hide name me one civilization

2437

01:46:03,080 --> 01:46:01,740

rather than the Sentinelese that

2438

01:46:04,430 --> 01:46:03,090

actually hides neither they don't

2439

01:46:06,500 --> 01:46:04,440

actually hide they're just hostile

2440

01:46:08,390 --> 01:46:06,510

Darfur knows who come to the island most

2441

01:46:10,250 --> 01:46:08,400

cities not only don't hide and can be

2442

01:46:11,960 --> 01:46:10,260

detected so many different ways the

2443

01:46:13,580 --> 01:46:11,970

easiest way to detect them is all the

2444

01:46:16,420 --> 01:46:13,590

billboards they put up encourage you to

2445

01:46:18,350 --> 01:46:16,430

come visit that's correct

2446

01:46:19,760 --> 01:46:18,360

sensations out there that do want to

2447

01:46:21,860 --> 01:46:19,770

hide but what about all the other ones

2448

01:46:25,400 --> 01:46:21,870

that don't and we have to look at

2449

01:46:27,110 --> 01:46:25,410

ourselves here in that we you just said

2450

01:46:29,180 --> 01:46:27,120

it we've been dealing with radio for a

2451
01:46:31,760 --> 01:46:29,190
hundred years right we're very close to

2452
01:46:34,489 --> 01:46:31,770
not using it at all anymore even though

2453
01:46:39,350 --> 01:46:34,499
I'm a radio broadcaster

2454
01:46:41,859 --> 01:46:39,360
but we will figure out ways eventually

2455
01:46:44,660 --> 01:46:41,869
in a hundred years there could be zero

2456
01:46:47,899 --> 01:46:44,670
communication going through the ether

2457
01:46:50,540 --> 01:46:47,909
that we will be done another way and

2458
01:46:53,660 --> 01:46:50,550
that would mean we would have to assume

2459
01:46:55,520 --> 01:46:53,670
that it went through the same processes

2460
01:46:57,109 --> 01:46:55,530
and the way that they communicate now

2461
01:46:59,509 --> 01:46:57,119
has nothing to do with us

2462
01:47:01,129 --> 01:46:59,519
today we see even ultimately that one

2463
01:47:02,719 --> 01:47:01,139

walk because we got two problems with

2464

01:47:04,969 --> 01:47:02,729

that force we do have a lot of things

2465

01:47:07,399 --> 01:47:04,979

that kick around long after there are no

2466

01:47:09,979 --> 01:47:07,409

more parent lifespan I'll be taking

2467

01:47:10,850 --> 01:47:09,989

video step back when TV killed the

2468

01:47:12,919 --> 01:47:10,860

radiostar

2469

01:47:15,109 --> 01:47:12,929

sure I'm sure that hasn't happened yet

2470

01:47:17,180 --> 01:47:15,119

it's never going to happen entirely for

2471

01:47:19,219 --> 01:47:17,190

the same reason we still have people

2472

01:47:22,700 --> 01:47:19,229

making vintage people and having

2473

01:47:24,140 --> 01:47:22,710

Renaissance Fairs and also the secretary

2474

01:47:25,939 --> 01:47:24,150

on that is even assuming you don't have

2475

01:47:27,439 --> 01:47:25,949

a bunch of civilizations that just have

2476

01:47:29,569 --> 01:47:27,449

little villages that still like to

2477

01:47:31,219 --> 01:47:29,579

communicate by radio you're gonna have

2478

01:47:33,140 --> 01:47:31,229

some people in that civilization they

2479

01:47:35,600 --> 01:47:33,150

want to talk to other people and we

2480

01:47:37,459 --> 01:47:35,610

broadcast you on radio anyway for that

2481

01:47:39,979 --> 01:47:37,469

not to walk you have to then assume they

2482

01:47:42,259 --> 01:47:39,989

don't want to be horde a civilization

2483

01:47:44,629 --> 01:47:42,269

that doesn't mind being horde but just

2484

01:47:46,640 --> 01:47:44,639

doesn't use radio anymore will still be

2485

01:47:47,989 --> 01:47:46,650

visible because they're not hiding they

2486

01:47:49,759 --> 01:47:47,999

just don't use our method of

2487

01:47:51,919 --> 01:47:49,769

communication and they know a lot of

2488

01:47:53,660 --> 01:47:51,929

civilizations will use that too so

2489

01:47:56,359 --> 01:47:53,670

they're broadcast on that to say hello

2490

01:47:58,489 --> 01:47:56,369

they have to be hiding and not use radio

2491

01:48:02,719 --> 01:47:58,499

for that one to walk there was an

2492

01:48:05,120 --> 01:48:02,729

episode of the Orval which I love I

2493

01:48:07,189 --> 01:48:05,130

think that it's a great show great show

2494

01:48:10,790 --> 01:48:07,199

and you remember the episode from a

2495

01:48:12,379 --> 01:48:10,800

couple of weeks ago where they they you

2496

01:48:13,910 --> 01:48:12,389

know they find it you know a new

2497

01:48:15,919 --> 01:48:13,920

uncharted planet they go down there's a

2498

01:48:17,270 --> 01:48:15,929

life-form detected and a civilization

2499

01:48:22,370 --> 01:48:17,280

that come down and everything is cool

2500

01:48:25,219 --> 01:48:22,380

but they didn't want to be found

2501
01:48:29,330 --> 01:48:25,229
right and they couldn't believe end and

2502
01:48:30,560 --> 01:48:29,340
that was their thing well so I got hung

2503
01:48:31,520 --> 01:48:30,570
up on you saying that they it was an

2504
01:48:33,069 --> 01:48:31,530
episode of a couple weeks ago is this

2505
01:48:37,879 --> 01:48:33,079
season to come out already

2506
01:48:40,700 --> 01:48:37,889
yes oh no you're messing with me Isaac

2507
01:48:42,290 --> 01:48:40,710
don't even mess with me I often wait to

2508
01:48:45,770 --> 01:48:42,300
see for the entire season come out but I

2509
01:48:53,419 --> 01:48:49,609
man okay okay well it was just that

2510
01:48:57,109 --> 01:48:53,429
where civilizations you know tend to

2511
01:49:00,080 --> 01:48:57,119
isolate themselves and that's exactly

2512
01:49:02,410 --> 01:49:00,090
what this episode of the Oroville was

2513
01:49:05,689 --> 01:49:02,420

dealing with a fully advanced upright

2514

01:49:09,109 --> 01:49:05,699

technically advanced civilization

2515

01:49:11,540 --> 01:49:09,119

right but they just didn't want to be

2516

01:49:13,310 --> 01:49:11,550

found out they just want to be left

2517

01:49:15,560 --> 01:49:13,320

alone and here's the problem with that

2518

01:49:18,020 --> 01:49:15,570

that's possible but it wouldn't there's

2519

01:49:19,669 --> 01:49:18,030

a few problems we have with this forced

2520

01:49:21,859 --> 01:49:19,679

is it's assuming everyone does if you

2521

01:49:23,990 --> 01:49:21,869

got thousands civilizations it doesn't

2522

01:49:26,450 --> 01:49:24,000

matter of hundreds of them hide and the

2523

01:49:28,580 --> 01:49:26,460

other found though is hiding is not the

2524

01:49:30,350 --> 01:49:28,590

best way to be left alone we say I don't

2525

01:49:32,540 --> 01:49:30,360

want to be talked to these people I'm

2526

01:49:34,430 --> 01:49:32,550

gonna hide if you want to be left alone

2527

01:49:36,950 --> 01:49:34,440

in your cabin in the woods you stick up

2528

01:49:39,740 --> 01:49:36,960

no trespassing signs and you do this for

2529

01:49:41,299 --> 01:49:39,750

a very simple reason one it keeps people

2530

01:49:44,029 --> 01:49:41,309

from actually coming by for the most

2531

01:49:46,399 --> 01:49:44,039

part most people respect that and two it

2532

01:49:48,229 --> 01:49:46,409

means if they still invade and they

2533

01:49:50,000 --> 01:49:48,239

still come by be curious and you shoot

2534

01:49:51,500 --> 01:49:50,010

at them to meet them go away or you

2535

01:49:54,589 --> 01:49:51,510

don't help them if they run out of fuel

2536

01:49:57,020 --> 01:49:54,599

right nobody can come by and say you

2537

01:49:58,819 --> 01:49:57,030

screwed all citizens over if I got a big

2538

01:50:01,220 --> 01:49:58,829

galactic battle fleet and I hear that

2539

01:50:03,260 --> 01:50:01,230

you've destroyed one of my exploration

2540

01:50:05,029 --> 01:50:03,270

ships that was there peacefully I might

2541

01:50:07,549 --> 01:50:05,039

come by with that fleet to have a

2542

01:50:09,319 --> 01:50:07,559

conversation about your manners whereas

2543

01:50:11,270 --> 01:50:09,329

if there was a no trespassing sign up or

2544

01:50:13,339 --> 01:50:11,280

a signal saying leave us alone we don't

2545

01:50:15,020 --> 01:50:13,349

want to talk to you things are a lot

2546

01:50:16,549 --> 01:50:15,030

easier everyone who respects that sort

2547

01:50:17,990 --> 01:50:16,559

of thing is gonna leave you be and

2548

01:50:19,700 --> 01:50:18,000

everyone who doesn't you've got

2549

01:50:21,140 --> 01:50:19,710

authorization to shoot at without most

2550

01:50:23,390 --> 01:50:21,150

people sign that you need to get shot

2551
01:50:25,399 --> 01:50:23,400
yourself right if you want to be left

2552
01:50:29,149 --> 01:50:25,409
alone the best thing to do is put up a

2553
01:50:32,390 --> 01:50:29,159
sign says no solicitors make sense it

2554
01:50:36,549 --> 01:50:32,400
absolutely makes sense and one of want

2555
01:50:40,160 --> 01:50:36,559
to spend to the top of the hour here on

2556
01:50:41,959 --> 01:50:40,170
this next one which is okay where is et

2557
01:50:47,169 --> 01:50:41,969
where is everybody

2558
01:50:49,729 --> 01:50:47,179
and the answer is they're just too alien

2559
01:50:51,830 --> 01:50:49,739
and that is always one of those ones we

2560
01:50:54,169 --> 01:50:51,840
have such a problem with because we

2561
01:50:56,870 --> 01:50:54,179
don't know anything about how aliens

2562
01:50:58,520 --> 01:50:56,880
behave there was a book a few well

2563
01:50:59,629 --> 01:50:58,530

actually it's about thirty years ago the

2564

01:51:01,669 --> 01:50:59,639

killing stall by

2565

01:51:03,109 --> 01:51:01,679

Thomas Pellegrino in that they say

2566

01:51:05,689 --> 01:51:03,119

there's only three things we know about

2567

01:51:08,029 --> 01:51:05,699

aliens for sure and even that's in doubt

2568

01:51:10,100 --> 01:51:08,039

the forced is that they want to survive

2569

01:51:12,020 --> 01:51:10,110

they might be peaceful they might be

2570

01:51:13,609 --> 01:51:12,030

hostile but they want to live more than

2571

01:51:14,839 --> 01:51:13,619

they want you to live so if it comes

2572

01:51:17,270 --> 01:51:14,849

down to it they are going to protect

2573

01:51:18,469 --> 01:51:17,280

themselves forced the second one is

2574

01:51:20,120 --> 01:51:18,479

they're probably going to be very good

2575

01:51:22,489 --> 01:51:20,130

at that because evolution does not

2576

01:51:25,040 --> 01:51:22,499

produce wimps even if they're pacifists

2577

01:51:28,159 --> 01:51:25,050

they're going to be very good at being

2578

01:51:29,540 --> 01:51:28,169

aggressive when they need to be and the

2579

01:51:31,639 --> 01:51:29,550

third one is they're going to know that

2580

01:51:32,270 --> 01:51:31,649

both of those things are true about us

2581

01:51:34,009 --> 01:51:32,280

too

2582

01:51:35,719 --> 01:51:34,019

that you're not gonna have evolution

2583

01:51:37,699 --> 01:51:35,729

produce anything that is you know

2584

01:51:41,449 --> 01:51:37,709

basically just wimpy in that respect

2585

01:51:42,949 --> 01:51:41,459

easy to die out now we can't be sure

2586

01:51:44,839 --> 01:51:42,959

about something even like that there's

2587

01:51:47,120 --> 01:51:44,849

these very few things we just and eating

2588

01:51:48,649 --> 01:51:47,130

beyond that is up for grabs but we're

2589

01:51:50,659 --> 01:51:48,659

saying olio that would be hard for a

2590

01:51:53,330 --> 01:51:50,669

super aggressive species that was just

2591

01:51:56,270 --> 01:51:53,340

incredibly xenophobic to ever become a

2592

01:51:57,620 --> 01:51:56,280

civilization because xenophobia doesn't

2593

01:51:59,479 --> 01:51:57,630

start against aliens no-one's going to

2594

01:52:01,489 --> 01:51:59,489

evolve on their planet afraid of motions

2595

01:52:03,259 --> 01:52:01,499

they don't know what it was all yet that

2596

01:52:05,719 --> 01:52:03,269

kind of xenophobia has to start early on

2597

01:52:07,549 --> 01:52:05,729

meaning you're probably attacking every

2598

01:52:09,439 --> 01:52:07,559

other tribe you come to contact with and

2599

01:52:11,330 --> 01:52:09,449

you are going to be costly it was you

2600

01:52:12,859 --> 01:52:11,340

wanted more of those and you're gonna be

2601
01:52:14,810 --> 01:52:12,869
constantly breaking down from civil wars

2602
01:52:16,370 --> 01:52:14,820
when those folks they don't have the

2603
01:52:18,080 --> 01:52:16,380
right shade of red in their hair or

2604
01:52:20,029 --> 01:52:18,090
something like that how to build a

2605
01:52:22,310 --> 01:52:20,039
civilization that way could happen but

2606
01:52:24,169 --> 01:52:22,320
probably not too often and so we'd say

2607
01:52:26,120 --> 01:52:24,179
you probably have fairly cooperative and

2608
01:52:27,529 --> 01:52:26,130
diplomatic aliens out there they had

2609
01:52:28,790 --> 01:52:27,539
they might not be as much as us they

2610
01:52:31,250 --> 01:52:28,800
might be more than us but they're gonna

2611
01:52:33,319 --> 01:52:31,260
know what these concepts are then we get

2612
01:52:35,389 --> 01:52:33,329
in there really alien stuff though stuff

2613
01:52:37,819 --> 01:52:35,399

that maybe was not evolved but was

2614

01:52:39,109 --> 01:52:37,829

created by the mule Skynet takes over

2615

01:52:42,020 --> 01:52:39,119

the planet and extinguished all the

2616

01:52:43,729 --> 01:52:42,030

humans yes or they just came up a

2617

01:52:46,279 --> 01:52:43,739

completely different pathway to us and

2618

01:52:48,379 --> 01:52:46,289

we wouldn't even recognize you know

2619

01:52:50,419 --> 01:52:48,389

let's say that they came from a parallel

2620

01:52:53,089 --> 01:52:50,429

universe traumas that was just congruous

2621

01:52:54,889 --> 01:52:53,099

with with all congruent with all but

2622

01:52:56,540 --> 01:52:54,899

it's got four dimensions and the math

2623

01:52:58,939 --> 01:52:56,550

there doesn't walk like pi does not

2624

01:53:00,290 --> 01:52:58,949

equal 3.14 you know how would they even

2625

01:53:03,020 --> 01:53:00,300

know how to talk to us because we say

2626

01:53:08,000 --> 01:53:03,030

math is the universal language in this

2627

01:53:09,620 --> 01:53:08,010

universe in ours we don't know even that

2628

01:53:11,330 --> 01:53:09,630

for sure their arguments say maybe math

2629

01:53:14,089 --> 01:53:11,340

is not universal but

2630

01:53:16,339 --> 01:53:14,099

even then just here they all presumably

2631

01:53:17,990 --> 01:53:16,349

places where two plus two equals five if

2632

01:53:20,479 --> 01:53:18,000

you've got the whole multiverse thing

2633

01:53:22,399 --> 01:53:20,489

that has different fiscal hours and in

2634

01:53:23,990 --> 01:53:22,409

that case they might have no way to even

2635

01:53:25,700 --> 01:53:24,000

talk to us that way you know we're not

2636

01:53:27,500 --> 01:53:25,710

gonna we say let's send them prime

2637

01:53:30,770 --> 01:53:27,510

numbers let's send the digits of pi in

2638

01:53:32,570 --> 01:53:30,780

binary and that would walk on anyone in

2639

01:53:34,790 --> 01:53:32,580

this galaxy presumably because the prime

2640

01:53:36,589 --> 01:53:34,800

numbers and pi should be the same but if

2641

01:53:38,750 --> 01:53:36,599

you send Ian into the the other tenth

2642

01:53:39,740 --> 01:53:38,760

dimension they might have no clue what

2643

01:53:42,589 --> 01:53:39,750

you're sending them or that you're

2644

01:53:44,180 --> 01:53:42,599

sending them anything at all and so you

2645

01:53:45,800 --> 01:53:44,190

might not even recognize those but we'd

2646

01:53:49,419 --> 01:53:45,810

otherwise say normally that intelligence

2647

01:53:52,250 --> 01:53:49,429

recognize intelligence I could mistake a

2648

01:53:53,839 --> 01:53:52,260

stone axe for something natural so I'm

2649

01:53:56,570 --> 01:53:53,849

at the Giant's Causeway where it's all

2650

01:53:57,620 --> 01:53:56,580

these big hexagons looks artificial but

2651
01:53:58,910 --> 01:53:57,630
there's a difference between seeing

2652
01:54:01,250 --> 01:53:58,920
something natural that might be

2653
01:54:03,200 --> 01:54:01,260
artificial or vice versa and walking

2654
01:54:05,149 --> 01:54:03,210
into a tool shop and not recognizing

2655
01:54:07,220 --> 01:54:05,159
what it is would you about how aliens

2656
01:54:08,780 --> 01:54:07,230
might think autoStore cat was the

2657
01:54:11,240 --> 01:54:08,790
intelligent dominant life-form and

2658
01:54:13,490 --> 01:54:11,250
that's funny but probably very unlikely

2659
01:54:15,740 --> 01:54:13,500
did have to be very stupid too stupid to

2660
01:54:17,810 --> 01:54:15,750
master space travel not to rapidly

2661
01:54:19,790 --> 01:54:17,820
figure out that the humans were the ones

2662
01:54:22,399 --> 01:54:19,800
that were the intelligent species on

2663
01:54:23,450 --> 01:54:22,409

this planet and once they do they should

2664

01:54:25,459 --> 01:54:23,460

be able to see a pathway for

2665

01:54:26,930 --> 01:54:25,469

communication so we can only have a

2666

01:54:29,089 --> 01:54:26,940

guess on something like because if it's

2667

01:54:30,890 --> 01:54:29,099

alien enough how do you even you know

2668

01:54:33,080 --> 01:54:30,900

you know after them but are they all

2669

01:54:34,459 --> 01:54:33,090

that alien it may not even matter if

2670

01:54:35,839 --> 01:54:34,469

they exist or not because if that you

2671

01:54:37,220 --> 01:54:35,849

can't talk to them they can't talk to

2672

01:54:39,320 --> 01:54:37,230

you you can't even detect each other

2673

01:54:41,419 --> 01:54:39,330

then for all practical purposes you

2674

01:54:45,620 --> 01:54:41,429

really don't exist as far as shuttle can

2675

01:54:48,589 --> 01:54:45,630

so on to never would there is the

2676

01:54:51,200 --> 01:54:48,599

question of us even recognizing us in

2677

01:54:54,740 --> 01:54:51,210

10,000 years and that we may not even

2678

01:54:59,149 --> 01:54:54,750

have these meat sack bodies that we have

2679

01:55:02,359 --> 01:54:59,159

today we could you know presumably turn

2680

01:55:05,000 --> 01:55:02,369

into light beings or energy or even some

2681

01:55:08,270 --> 01:55:05,010

type of Android where we just transfer

2682

01:55:10,580 --> 01:55:08,280

our brains into something completely

2683

01:55:13,010 --> 01:55:10,590

artificial and manufactured but that

2684

01:55:15,589 --> 01:55:13,020

being said we may not even be able to

2685

01:55:18,410 --> 01:55:15,599

recognize ourselves in 10,000 years or

2686

01:55:21,859 --> 01:55:18,420

how to communicate or or anything that

2687

01:55:23,009 --> 01:55:21,869

we do today and if we go off planet and

2688

01:55:25,659 --> 01:55:23,019

and

2689

01:55:28,989 --> 01:55:25,669

encounter something alien it could be

2690

01:55:30,399 --> 01:55:28,999

just as alien as we would be in 10,000

2691

01:55:34,119 --> 01:55:30,409

years in that there would be an

2692

01:55:36,699 --> 01:55:34,129

impossible way to to see or recognize or

2693

01:55:38,169 --> 01:55:36,709

communicate worth for us yeah now

2694

01:55:39,699 --> 01:55:38,179

there's there's the thing on that ain't

2695

01:55:42,009 --> 01:55:39,709

uploaded mind on artificial intelligence

2696

01:55:45,069 --> 01:55:42,019

of a human is digit upload our thumb

2697

01:55:47,080 --> 01:55:45,079

drive teleported back to Rome Romans

2698

01:55:48,669 --> 01:55:47,090

don't know what a thumb drive is let's

2699

01:55:50,439 --> 01:55:48,679

say this is intelligent this is just a

2700

01:55:52,419 --> 01:55:50,449

piece of plastic and what is plastic but

2701
01:55:54,729 --> 01:55:52,429
we know what that is and we know what

2702
01:55:55,689 --> 01:55:54,739
Rome is we would recognize them we can't

2703
01:55:57,909 --> 01:55:55,699
communicate with them

2704
01:55:59,919 --> 01:55:57,919
anyone down the road ten thousand years

2705
01:56:02,290 --> 01:55:59,929
from now should be able to talk to us if

2706
01:56:03,729 --> 01:56:02,300
they want to so again this kind of fun

2707
01:56:06,699 --> 01:56:03,739
way paradox solution where they've kind

2708
01:56:08,859 --> 01:56:06,709
of evolved past us either they just not

2709
01:56:10,239 --> 01:56:08,869
recognize what to us relies on the

2710
01:56:12,219 --> 01:56:10,249
assumption that they don't want to talk

2711
01:56:14,739 --> 01:56:12,229
to us because they should be able to if

2712
01:56:16,330 --> 01:56:14,749
they want to communication only allows

2713
01:56:18,459 --> 01:56:16,340

one of the parties to be able to start

2714

01:56:19,929 --> 01:56:18,469

off the rosetta stone if they don't want

2715

01:56:21,939 --> 01:56:19,939

to talk to us we have a problem if they

2716

01:56:23,250 --> 01:56:21,949

do want to talk to us we don't because

2717

01:56:26,830 --> 01:56:23,260

they should be able to figure out how to

2718

01:56:31,989 --> 01:56:26,840

what do we do with situations like that

2719

01:56:35,619 --> 01:56:31,999

if for instance you know with CDs today

2720

01:56:37,719 --> 01:56:35,629

right DVDs we they're almost useless it

2721

01:56:40,659 --> 01:56:37,729

they were they were only useful for

2722

01:56:43,379 --> 01:56:40,669

about a decade right those any loud disc

2723

01:56:46,599 --> 01:56:43,389

and use them as a as a you know a

2724

01:56:48,489 --> 01:56:46,609

culture I'm doing it right now

2725

01:56:50,109 --> 01:56:48,499

and that's what they'd use them for if

2726

01:56:52,569 --> 01:56:50,119

they found in nature home to what pretty

2727

01:56:56,979 --> 01:56:52,579

Neos these oh yeah they would know what

2728

01:56:58,810 --> 01:56:56,989

to do and so you know a million years

2729

01:57:00,819 --> 01:56:58,820

from now or five hundred thousand years

2730

01:57:01,330 --> 01:57:00,829

from now they they're uncovering these

2731

01:57:03,790 --> 01:57:01,340

things

2732

01:57:05,830 --> 01:57:03,800

there's no way to playback that music or

2733

01:57:07,839 --> 01:57:05,840

there's no way to retrieve the data or

2734

01:57:10,179 --> 01:57:07,849

even to know that that's what they are

2735

01:57:13,270 --> 01:57:10,189

that there is data on those discs that

2736

01:57:14,049 --> 01:57:13,280

would have all of our history there

2737

01:57:16,389 --> 01:57:14,059

right

2738

01:57:17,889 --> 01:57:16,399

the Romans use them as coastal is

2739

01:57:19,659 --> 01:57:17,899

because they don't know what they are we

2740

01:57:21,099 --> 01:57:19,669

use them as coastal us because we don't

2741

01:57:23,080 --> 01:57:21,109

care about them they're useless to us

2742

01:57:25,089 --> 01:57:23,090

exactly if we needed access to them

2743

01:57:27,759 --> 01:57:25,099

though we know how to access them we can

2744

01:57:29,739 --> 01:57:27,769

access those and so there's the thing is

2745

01:57:31,509 --> 01:57:29,749

if we have like you fall civilization

2746

01:57:33,459 --> 01:57:31,519

fell apology and all we had to work with

2747

01:57:34,929 --> 01:57:33,469

was cds and we were knocked back to the

2748

01:57:36,050 --> 01:57:34,939

neolithic level we definitely have a

2749

01:57:37,190 --> 01:57:36,060

problem

2750

01:57:39,260 --> 01:57:37,200

fortunately you have things like books

2751

01:57:41,150 --> 01:57:39,270

and stuff lying around and so there's

2752

01:57:43,130 --> 01:57:41,160

the other aspect we say to olio we said

2753

01:57:44,420 --> 01:57:43,140

they wouldn't use radio anymore and I

2754

01:57:45,650 --> 01:57:44,430

mention how they might have Renaissance

2755

01:57:47,330 --> 01:57:45,660

Fairs that did that a lot of

2756

01:57:49,460 --> 01:57:47,340

civilizations might keep a lot of their

2757

01:57:51,170 --> 01:57:49,470

history around that way for the same

2758

01:57:52,550 --> 01:57:51,180

reason that we you know you got a bunk

2759

01:57:54,680 --> 01:57:52,560

with you build so you might want to have

2760

01:57:56,930 --> 01:57:54,690

Wikipedia on a data stick but you still

2761

01:57:58,760 --> 01:57:56,940

have some hard copy reference books - I

2762

01:58:00,200 --> 01:57:58,770

think a lot of these civilizations would

2763

01:58:03,110 --> 01:58:00,210

tend to keep a lot of the more classic

2764

01:58:05,090 --> 01:58:03,120

stuff around even if for no better

2765

01:58:06,290 --> 01:58:05,100

reason than historical appreciation but

2766

01:58:08,270 --> 01:58:06,300

against that little fear that someone

2767

01:58:09,770 --> 01:58:08,280

might come by and wipe it out that that

2768

01:58:12,020 --> 01:58:09,780

hi-oh technology they're dependent on

2769

01:58:14,030 --> 01:58:12,030

and the other thing about these guys

2770

01:58:15,800 --> 01:58:14,040

they might be nearly immortal but they

2771

01:58:18,260 --> 01:58:15,810

are the process of evolution they want

2772

01:58:21,200 --> 01:58:18,270

to live and we get more and more

2773

01:58:22,880 --> 01:58:21,210

cautious every year because we don't die

2774

01:58:25,100 --> 01:58:22,890

that much you know most of us live to

2775

01:58:26,450 --> 01:58:25,110

our old age these could be fellows who

2776

01:58:28,520 --> 01:58:26,460

could live for millions of years

2777

01:58:30,160 --> 01:58:28,530

potentially because they've got life

2778

01:58:32,420 --> 01:58:30,170

extension technology for instance

2779

01:58:33,740 --> 01:58:32,430

imagine a situation like that where

2780

01:58:34,580 --> 01:58:33,750

you're not afraid of dying of natural

2781

01:58:37,250 --> 01:58:34,590

causes

2782

01:58:40,070 --> 01:58:37,260

and you want to keep living just how

2783

01:58:41,420 --> 01:58:40,080

many measures are you know apropos take

2784

01:58:43,100 --> 01:58:41,430

some pretty extreme measures but these

2785

01:58:45,230 --> 01:58:43,110

guys might laugh at that as reckless

2786

01:58:46,670 --> 01:58:45,240

they probably go to some pretty extreme

2787

01:58:50,270 --> 01:58:46,680

efforts to make sure they are protected

2788

01:58:53,420 --> 01:58:50,280

against cataclysms well that's exactly

2789

01:58:55,760 --> 01:58:53,430

right and and and back to back to your

2790

01:58:59,660 --> 01:58:55,770

point when it comes to this often

2791

01:59:01,730 --> 01:58:59,670

wondered when Sagan you know designed or

2792

01:59:03,260 --> 01:59:01,740

show the designs for a phonograph player

2793

01:59:05,300 --> 01:59:03,270

for the record so they could play it

2794

01:59:08,510 --> 01:59:05,310

back that they would actually understand

2795

01:59:10,160 --> 01:59:08,520

what that said let's take a break right

2796

01:59:11,919 --> 01:59:10,170

here I guess tonight Isaac Arthur stay

2797

01:59:13,689 --> 01:59:11,929

with us

2798

01:59:20,680 --> 01:59:13,699

Ralph at the mental guard on Jimmy

2799

01:59:23,590 --> 01:59:20,690

Church radio calm this is kera digital

2800

01:59:27,160 --> 01:59:23,600

broadcasting station Salt Lake City Utah

2801
01:59:28,840 --> 01:59:27,170
Van Buren Arkansas poor water quality is

2802
01:59:29,860 --> 01:59:28,850
a major health issue and it's only

2803
01:59:31,780 --> 01:59:29,870
getting worse

2804
01:59:33,580 --> 01:59:31,790
municipalities can't keep up standards

2805
01:59:36,729 --> 01:59:33,590
have dropped and pollutants are

2806
01:59:38,530 --> 01:59:36,739
increasing where does it all end it ends

2807
01:59:40,240 --> 01:59:38,540
by keeping the pollutants outside of

2808
01:59:42,310 --> 01:59:40,250
your home with hydro cares advanced

2809
01:59:44,709 --> 01:59:42,320
systems available at wave home solutions

2810
01:59:46,390 --> 01:59:44,719
no less than the best purification

2811
01:59:48,250 --> 01:59:46,400
materials and processes have been

2812
01:59:49,720 --> 01:59:48,260
developed by Hydra care to provide you

2813
01:59:52,630 --> 01:59:49,730

with healthy clean water for drinking

2814

01:59:54,580 --> 01:59:52,640

cooking and showering hydro care far

2815

01:59:57,640 --> 01:59:54,590

surpasses the competition in removing

2816

02:00:00,640 --> 01:59:57,650

chlorine odors iron lab chemicals

2817

02:00:02,620 --> 02:00:00,650

limescale and much more don't settle for

2818

02:00:04,510 --> 02:00:02,630

less when it comes to your water we'll

2819

02:00:05,080 --> 02:00:04,520

take care of the toughest water problems

2820

02:00:07,140 --> 02:00:05,090

for you

2821

02:00:09,310 --> 02:00:07,150

whether it's from a city or well source

2822

02:00:11,200 --> 02:00:09,320

satisfaction guaranteed for more

2823

02:00:15,189 --> 02:00:11,210

information call eight eight eight nine

2824

02:00:18,580 --> 02:00:15,199

nine seven wave that's 8 8 8 9 9 7 w AV

2825

02:00:21,730 --> 02:00:18,590

e or go-to best water 1 2 3 comm that's

2826
02:00:22,650 --> 02:00:21,740
best water 1 2 3 calm

2827
02:00:25,740 --> 02:00:22,660
Solutions

2828
02:00:28,150 --> 02:00:25,750
[Music]

2829
02:00:29,790 --> 02:00:28,160
your contact for current news and

2830
02:00:33,730 --> 02:00:29,800
trending topics

2831
02:00:35,830 --> 02:00:33,740
KCRA radio.com does your basement or

2832
02:00:37,540 --> 02:00:35,840
crawlspce have a damp musty smell well

2833
02:00:39,730 --> 02:00:37,550
watch out that's a sign of too much

2834
02:00:41,590 --> 02:00:39,740
moisture and not enough ventilation and

2835
02:00:43,690 --> 02:00:41,600
that can mean increased mold growth and

2836
02:00:45,970 --> 02:00:43,700
the build-up of harmful toxins and gases

2837
02:00:48,100 --> 02:00:45,980
don't bother with a dehumidifier it just

2838
02:00:49,900 --> 02:00:48,110

circulates the same unhealthy air now

2839

02:00:51,790 --> 02:00:49,910

there's a better way to remove these

2840

02:00:54,160 --> 02:00:51,800

dangers and odors it's with the

2841

02:00:55,990 --> 02:00:54,170

computerized wave moisture control unit

2842

02:00:57,610 --> 02:00:56,000

that reduces moisture and expels

2843

02:00:59,620 --> 02:00:57,620

pollutants we replaced our old

2844

02:01:01,870 --> 02:00:59,630

dehumidifier with the wave unit and in

2845

02:01:04,270 --> 02:01:01,880

only three weeks our basement is dry and

2846

02:01:06,250 --> 02:01:04,280

the musty smell is gone wave units

2847

02:01:08,560 --> 02:01:06,260

require no maintenance no buckets of

2848

02:01:10,600 --> 02:01:08,570

water or filters and costs only pennies

2849

02:01:12,370 --> 02:01:10,610

a day to run breathe better live

2850

02:01:14,800 --> 02:01:12,380

healthier with an affordable no

2851
02:01:17,140 --> 02:01:14,810
maintenance wave unit call eight eight

2852
02:01:20,470 --> 02:01:17,150
eight seven one seven way eight eight

2853
02:01:26,180 --> 02:01:20,480
eight seven one seven wabe or visit dry

2854
02:01:32,590 --> 02:01:29,060
we want solutions

2855
02:01:36,890 --> 02:01:34,880
this is Jimmy Church of fade to black

2856
02:01:40,010 --> 02:01:36,900
and I only drink

2857
02:01:42,530 --> 02:01:40,020
fade to black blend coffee from River

2858
02:01:45,470 --> 02:01:42,540
Moon just click on the River Moon coffee

2859
02:01:49,580 --> 02:01:45,480
banner at Jimmy Church radio.com promo

2860
02:01:52,070 --> 02:01:49,590
code f2 b blend so are you tired of

2861
02:01:54,530 --> 02:01:52,080
being tired well then it's time to get

2862
02:01:56,900 --> 02:01:54,540
the tea hey it's Leeza here to tell you

2863
02:01:58,730 --> 02:01:56,910

about this all-natural all organic tea

2864

02:02:00,350 --> 02:01:58,740

I've been drinking that has had great

2865

02:02:03,290 --> 02:02:00,360

results for over 20 years

2866

02:02:05,120 --> 02:02:03,300

it's called life changed tea and it's

2867

02:02:07,730 --> 02:02:05,130

specially formulated to help detoxify

2868

02:02:10,430 --> 02:02:07,740

and cleanse your kidneys liver colon and

2869

02:02:11,810 --> 02:02:10,440

blood all at once the colon is one of

2870

02:02:14,600 --> 02:02:11,820

the most ignored organs in the human

2871

02:02:16,400 --> 02:02:14,610

body the faster that waste is eliminated

2872

02:02:18,410 --> 02:02:16,410

from the body the less time that way

2873

02:02:20,330 --> 02:02:18,420

sits in our intestine spreading toxins

2874

02:02:22,280 --> 02:02:20,340

to our bloodstream this tea helps

2875

02:02:24,530 --> 02:02:22,290

cleanse chemicals caused by outside

2876

02:02:27,200 --> 02:02:24,540

intruders from our entire digestive

2877

02:02:29,540 --> 02:02:27,210

system and get this weight loss can be a

2878

02:02:31,730 --> 02:02:29,550

side effect and with continued use of

2879

02:02:34,160 --> 02:02:31,740

the tea you can experience clearer

2880

02:02:36,830 --> 02:02:34,170

healthier younger looking skin increased

2881

02:02:38,240 --> 02:02:36,840

energy and a happier outlook on life so

2882

02:02:41,120 --> 02:02:38,250

if you're tired of being tired

2883

02:02:45,020 --> 02:02:41,130

get the life change tea at get the tea

2884

02:02:47,930 --> 02:02:45,030

calm that's get the tea calm and like me

2885

02:02:49,670 --> 02:02:47,940

you'll be glad you did did you know that

2886

02:02:51,980 --> 02:02:49,680

when you're on the road with limited

2887

02:02:53,900 --> 02:02:51,990

data or Wi-Fi available you can still

2888

02:02:56,660 --> 02:02:53,910

listen to every minute a fade to black

2889

02:02:59,780 --> 02:02:56,670

by just calling six oh five five six two

2890

02:03:02,090 --> 02:02:59,790

four four eight two no smartphone app or

2891

02:03:04,340 --> 02:03:02,100

internet needed it saves your data plan

2892

02:03:07,700 --> 02:03:04,350

and no extra cost if you have unlimited

2893

02:03:09,980 --> 02:03:07,710

minutes just call six oh five five six

2894

02:03:12,440 --> 02:03:09,990

two four four eight two you can listen

2895

02:03:24,339 --> 02:03:12,450

to me Jimmy Church on any phone anytime

2896

02:03:30,740 --> 02:03:26,629

you wanna know a secret

2897

02:03:33,680 --> 02:03:30,750

I love bullies I really love ponies I'm

2898

02:03:36,939 --> 02:03:33,690

serious I couldn't stay sane without

2899

02:03:43,470 --> 02:03:36,949

poor mr. Brooks why fade to black

2900

02:03:47,439 --> 02:03:45,310

this is fade to black

2901
02:03:51,130 --> 02:03:47,449
with Jimmy Church on the game changer

2902
02:03:58,370 --> 02:03:51,140
radio network and kgr a the global radio

2903
02:04:07,190 --> 02:04:04,810
[Music]

2904
02:04:08,390 --> 02:04:07,200
welcome back fade to black hi I'm your

2905
02:04:13,729 --> 02:04:08,400
host Jimmy Church my guest tonight

2906
02:04:18,170 --> 02:04:13,739
Isaac Arthur and Isaac just did four

2907
02:04:21,170 --> 02:04:18,180
hours hold a poll start to finish with

2908
02:04:24,530 --> 02:04:21,180
me on Sunday evening over on coast to

2909
02:04:28,010 --> 02:04:24,540
coast and and Isaac I just have to say

2910
02:04:30,950 --> 02:04:28,020
thank you for that but for a premier for

2911
02:04:33,860 --> 02:04:30,960
a debut on coast to coast to go through

2912
02:04:35,360 --> 02:04:33,870
that because you you broadcast you put

2913
02:04:37,760 --> 02:04:35,370

together your stuff every single week

2914

02:04:40,880 --> 02:04:37,770

too as well but that was a pretty good

2915

02:04:43,280 --> 02:04:40,890

experience out of the gate wasn't it did

2916

02:04:45,890 --> 02:04:43,290

you have a good time it was amazing I

2917

02:04:47,630 --> 02:04:45,900

mean it was exhausting as I'm not used

2918

02:04:50,060 --> 02:04:47,640

to doing the long live shows like that

2919

02:04:51,920 --> 02:04:50,070

and but it was just good and the

2920

02:04:53,900 --> 02:04:51,930

audience was just giving good questions

2921

02:04:56,000 --> 02:04:53,910

left and right so it was a great time

2922

02:04:58,459 --> 02:04:56,010

how's the feedback been from your

2923

02:05:00,350 --> 02:04:58,469

audience really good there's actually a

2924

02:05:02,000 --> 02:05:00,360

lot of crossover with the channel and

2925

02:05:03,410 --> 02:05:02,010

since I tend to be a more on the skeptic

2926

02:05:04,880 --> 02:05:03,420

side I think some folks will condo us

2927

02:05:06,650 --> 02:05:04,890

about saying they're regulars on coast

2928

02:05:08,870 --> 02:05:06,660

to coast but I've been listening to show

2929

02:05:12,110 --> 02:05:08,880

for a year or so I was less surprised by

2930

02:05:15,860 --> 02:05:12,120

that it's got to be exciting it's like

2931

02:05:18,590 --> 02:05:15,870

you know when you go and you are you

2932

02:05:20,690 --> 02:05:18,600

grow grow up next door to Madison Square

2933

02:05:23,180 --> 02:05:20,700

Garden right and you're always attending

2934

02:05:25,280 --> 02:05:23,190

concerts and then one day you're playing

2935

02:05:28,100 --> 02:05:25,290

yeah you're playing Madison Square

2936

02:05:30,080 --> 02:05:28,110

Garden but that's exactly what it was

2937

02:05:32,000 --> 02:05:30,090

like wasn't it oh it's awesome yeah I

2938

02:05:34,340 --> 02:05:32,010

just think yeah I mean just for the show

2939

02:05:36,080 --> 02:05:34,350

I grew up watching folks like sake and

2940

02:05:37,430 --> 02:05:36,090

I'm getting to do I mean obviously I

2941

02:05:40,280 --> 02:05:37,440

have nowhere near the outreach that

2942

02:05:42,290 --> 02:05:40,290

Sagan had but just to be doing something

2943

02:05:44,600 --> 02:05:42,300

a little bit like him is so amazing and

2944

02:05:46,400 --> 02:05:44,610

and you never really it never stops

2945

02:05:48,470 --> 02:05:46,410

being surprising and shocking you know

2946

02:05:52,010 --> 02:05:48,480

it's just but it's awesome so you can't

2947

02:05:53,660 --> 02:05:52,020

complain it's a great example of why it

2948

02:05:56,120 --> 02:05:53,670

is a good idea to keep you a more basic

2949

02:05:59,510 --> 02:05:56,130

technology around like radio if you got

2950

02:06:02,959 --> 02:05:59,520

all the more advanced stuff totally 100%

2951

02:06:05,840 --> 02:06:02,969

keep the analog version whatever it is

2952

02:06:09,740 --> 02:06:05,850

that you are doing still you know

2953

02:06:12,260 --> 02:06:09,750

everybody wants the USB hookup in their

2954

02:06:15,140 --> 02:06:12,270

car now right you can barely buy a radio

2955

02:06:17,530 --> 02:06:15,150

in the car I think that's a bad idea

2956

02:06:19,930 --> 02:06:17,540

I really dad

2957

02:06:22,000 --> 02:06:19,940

not subtract yeah you know when when

2958

02:06:24,490 --> 02:06:22,010

when we were all growing up you remember

2959

02:06:26,100 --> 02:06:24,500

the stereo stores at the mall right and

2960

02:06:29,110 --> 02:06:26,110

and you would have these ginormous

2961

02:06:32,470 --> 02:06:29,120

speakers and you know your cassette deck

2962

02:06:34,630 --> 02:06:32,480

and your equalizer and your have nobody

2963

02:06:37,690 --> 02:06:34,640

has radios in their house anymore

2964

02:06:39,520 --> 02:06:37,700

I stood I got a few but we lose the

2965

02:06:42,310 --> 02:06:39,530

power we're on that pretty regularly so

2966

02:06:46,150 --> 02:06:42,320

it pays to have a radio with batteries I

2967

02:06:47,590 --> 02:06:46,160

don't I I don't think we have one over

2968

02:06:51,280 --> 02:06:47,600

oh you know what I've got an emergency

2969

02:06:54,550 --> 02:06:51,290

radio in my bug-out kit right with the

2970

02:06:56,440 --> 02:06:54,560

crank up yeah that that I do have those

2971

02:06:57,700 --> 02:06:56,450

yeah well your batteries lying around

2972

02:07:00,100 --> 02:06:57,710

but it's nice to have something you can

2973

02:07:01,810 --> 02:07:00,110

actually hand crank so low is handy but

2974

02:07:05,800 --> 02:07:01,820

not at night time so yeah I've got all

2975

02:07:08,110 --> 02:07:05,810

of that I've got I've got lanterns that

2976

02:07:11,410 --> 02:07:08,120

you crank up that actually have USB

2977

02:07:14,350 --> 02:07:11,420

chargers on them I do I really do I've

2978

02:07:15,910 --> 02:07:14,360

got I've got another Bible kit the more

2979

02:07:17,290 --> 02:07:15,920

these kind of things you have on hand if

2980

02:07:18,910 --> 02:07:17,300

nothing else they give you a lot of

2981

02:07:21,340 --> 02:07:18,920

peace of mind and if you in some kind of

2982

02:07:22,870 --> 02:07:21,350

civilization that where you've got a lot

2983

02:07:24,250 --> 02:07:22,880

of prosperity you can do a lot of

2984

02:07:25,870 --> 02:07:24,260

preparing walk you know against

2985

02:07:28,360 --> 02:07:25,880

catastrophes if for no better reason

2986

02:07:29,350 --> 02:07:28,370

that peace of mind so it tells me one of

2987

02:07:31,810 --> 02:07:29,360

those reasons why I think they'd have a

2988

02:07:34,650 --> 02:07:31,820

lot of the old stuff lying around let's

2989

02:07:37,120 --> 02:07:34,660

uh let's continue here and now that

2990

02:07:38,740 --> 02:07:37,130

we're obviously gonna go and do some

2991

02:07:40,930 --> 02:07:38,750

overtime tonight so we can get the rest

2992

02:07:45,310 --> 02:07:40,940

of this in I want to complete these

2993

02:07:49,350 --> 02:07:45,320

thoughts and one of okay so the question

2994

02:07:54,910 --> 02:07:49,360

is where is et right where are they and

2995

02:07:59,920 --> 02:07:54,920

when you come to this next answer again

2996

02:08:05,020 --> 02:07:59,930

it gets deliberately what's the word I

2997

02:08:08,800 --> 02:08:05,030

want to say complex because maybe just

2998

02:08:14,710 --> 02:08:08,810

maybe earth is not contacted that they

2999

02:08:16,420 --> 02:08:14,720

are not they are avoiding us when we get

3000

02:08:17,770 --> 02:08:16,430

to those ones and this is kind of a zoo

3001

02:08:19,480 --> 02:08:17,780

hypothesis well in this case this

3002

02:08:20,740 --> 02:08:19,490

wouldn't be a zoo hypothesis assumes

3003

02:08:22,870 --> 02:08:20,750

they're not really avoiding us they're

3004

02:08:24,580 --> 02:08:22,880

watching us the version where they avoid

3005

02:08:27,190 --> 02:08:24,590

us when we sometimes call the quarantine

3006

02:08:29,170 --> 02:08:27,200

option is where for some reason they

3007

02:08:30,850 --> 02:08:29,180

want to stay away from us and usually

3008

02:08:34,899 --> 02:08:30,860

specifically ortho I might

3009

02:08:36,399 --> 02:08:34,909

any primitive civilization I can't think

3010

02:08:37,959 --> 02:08:36,409

of anything that earth would have going

3011

02:08:39,850 --> 02:08:37,969

for it that they'd want to specifically

3012

02:08:42,250 --> 02:08:39,860

avoid there often we'll see the films I

3013

02:08:44,740 --> 02:08:42,260

say well humans are so aggressive and

3014

02:08:46,419 --> 02:08:44,750

hostile I say well maybe these aliens

3015

02:08:48,550 --> 02:08:46,429

are a lot more peaceful but they

3016

02:08:51,370 --> 02:08:48,560

probably came up the ladder the same way

3017

02:08:54,640 --> 02:08:51,380

we did and you know the evolutions are

3018

02:08:56,709 --> 02:08:54,650

four billion year deep corpse pile he

3019

02:08:57,250 --> 02:08:56,719

tend to be aggressive to survives right

3020

02:08:58,990 --> 02:08:57,260

right

3021

02:09:01,090 --> 02:08:59,000

I can't think of any reason why they

3022

02:09:04,149 --> 02:09:01,100

would want to avoid us out of feel for

3023

02:09:07,750 --> 02:09:04,159

themselves so that one has the problem

3024

02:09:08,410 --> 02:09:07,760

that it doesn't really fit well that's

3025

02:09:10,810 --> 02:09:08,420

different

3026

02:09:13,709 --> 02:09:10,820

let's scratch that off the list then but

3027

02:09:17,229 --> 02:09:13,719

what would the other reasons be for not

3028

02:09:19,240 --> 02:09:17,239

they may not be negative reasons mm-hmm

3029

02:09:20,560 --> 02:09:19,250

they don't necessarily negative reasons

3030

02:09:21,910 --> 02:09:20,570

I mean they're they agree feel that

3031

02:09:23,649 --> 02:09:21,920

they're going to contaminate all-call

3032

02:09:25,030 --> 02:09:23,659

shortage and they've also that as an

3033

02:09:27,120 --> 02:09:25,040

option to where it might be more

3034

02:09:29,109 --> 02:09:27,130

widespread that alien civilizations

3035

02:09:30,430 --> 02:09:29,119

don't want to go to war with each other

3036

02:09:32,020 --> 02:09:30,440

they're not hostile but they always

3037

02:09:33,760 --> 02:09:32,030

leave big buffer zones and don't

3038

02:09:35,890 --> 02:09:33,770

communicate much because they've found

3039

02:09:37,750 --> 02:09:35,900

that you know no matter how you cut it

3040

02:09:40,000 --> 02:09:37,760

they've got cultural differences that

3041

02:09:43,149 --> 02:09:40,010

they just can't get along with they're

3042

02:09:44,830 --> 02:09:43,159

close to each other we often say that by

3043

02:09:46,959 --> 02:09:44,840

getting to know people we we've own to

3044

02:09:49,000 --> 02:09:46,969

understand them often when we don't

3045

02:09:51,280 --> 02:09:49,010

understand them we still don't get along

3046

02:09:53,350 --> 02:09:51,290

very well we have the example with a

3047

02:09:55,270 --> 02:09:53,360

Babel Fish from Dulles Adams they says

3048

02:09:56,950 --> 02:09:55,280

by having allowed everyone to speak each

3049

02:09:58,720 --> 02:09:56,960

other's language it's call us more

3050

02:10:01,000 --> 02:09:58,730

bloody wars than anything in history

3051

02:10:03,970 --> 02:10:01,010

right if you've got an alien species

3052

02:10:04,720 --> 02:10:03,980

that produces as fast as dogs or cats do

3053

02:10:07,000 --> 02:10:04,730

it has littles

3054

02:10:09,070 --> 02:10:07,010

they might have adopted very early on a

3055

02:10:12,070 --> 02:10:09,080

control of population where they kill

3056

02:10:13,270 --> 02:10:12,080

off 90% of their kids that aren't quite

3057

02:10:16,000 --> 02:10:13,280

up to snuff and the way they keep the

3058

02:10:17,680 --> 02:10:16,010

best 10% there was no way we were ever

3059

02:10:19,060 --> 02:10:17,690

gonna really allow them we don't want to

3060

02:10:21,220 --> 02:10:19,070

go to war with them but we don't want to

3061

02:10:22,959 --> 02:10:21,230

touch them and we also don't want them

3062

02:10:25,930 --> 02:10:22,969

and they don't want us poisoning new

3063

02:10:27,520 --> 02:10:25,940

civilizations against them so there

3064

02:10:29,620 --> 02:10:27,530

might be a kind of a loose rule that you

3065

02:10:31,510 --> 02:10:29,630

only expand out so far and you keep

3066

02:10:34,180 --> 02:10:31,520

pretty quiet you're not hiding you just

3067

02:10:36,370 --> 02:10:34,190

don't actively court conversations with

3068

02:10:39,129 --> 02:10:36,380

those civilizations and that one's a

3069

02:10:40,450 --> 02:10:39,139

viable ish for me paradox just because

3070

02:10:42,640 --> 02:10:40,460

it means if people don't expand or talk

3071

02:10:46,030 --> 02:10:42,650

much we might have missed them

3072

02:10:47,800 --> 02:10:46,040

so far that one though still pretty iffy

3073

02:10:50,320 --> 02:10:47,810

it requires a lot of assumptions about

3074

02:10:52,780 --> 02:10:50,330

how these civilizations would look to us

3075

02:10:56,460 --> 02:10:52,790

for your looking for them and what about

3076

02:11:01,210 --> 02:10:56,470

okay now this is the the church

3077

02:11:06,370 --> 02:11:01,220

hypothesis on this one maybe we're

3078

02:11:08,560 --> 02:11:06,380

boring maybe maybe there's more except

3079

02:11:10,720 --> 02:11:08,570

they know about us they visited us

3080

02:11:14,220 --> 02:11:10,730

they've checked us out but there are

3081

02:11:16,780 --> 02:11:14,230

just cooler versions of Earth to go to

3082

02:11:18,970 --> 02:11:16,790

it's the Kansas of the gallon that's

3083

02:11:21,850 --> 02:11:18,980

right I'm not trying to offend anybody

3084

02:11:25,270 --> 02:11:21,860

in Kansas but Vegas is a lot more

3085

02:11:28,180 --> 02:11:25,280

exciting right and so maybe they want to

3086

02:11:30,460 --> 02:11:28,190

go to Planet Vegas and that makes so

3087

02:11:33,040 --> 02:11:30,470

much sense except for one problem they

3088

02:11:37,120 --> 02:11:33,050

get millions of visitors to Kansas every

3089

02:11:39,010 --> 02:11:37,130

year you find your boy in place and

3090

02:11:40,990 --> 02:11:39,020

someone's gonna come by to visit you

3091

02:11:42,220 --> 02:11:41,000

know even if just to be like why does

3092

02:11:43,690 --> 02:11:42,230

nobody visit this place I need to go

3093

02:11:46,150 --> 02:11:43,700

right up and all across this or there'll

3094

02:11:49,030 --> 02:11:46,160

be someone saying hey this place gets no

3095

02:11:51,130 --> 02:11:49,040

tourism it's a live target

3096

02:11:52,570 --> 02:11:51,140

I'll go they all talk to them and get

3097

02:11:54,550 --> 02:11:52,580

their tourist industry boom you know

3098

02:11:58,060 --> 02:11:54,560

I'll make a billion you know cinterion

3099

02:12:00,460 --> 02:11:58,070

bucks by getting us tourism industry

3100

02:12:02,650 --> 02:12:00,470

going you know someone's gonna come by

3101

02:12:04,840 --> 02:12:02,660

to visit for some reason it doesn't

3102

02:12:09,970 --> 02:12:04,850

matter how boring the place is they're

3103

02:12:12,610 --> 02:12:09,980

gonna have stopped by well and I yes see

3104

02:12:14,770 --> 02:12:12,620

you lay it out pretty pretty well but I

3105

02:12:17,800 --> 02:12:14,780

just disagree with that and the only

3106

02:12:20,890 --> 02:12:17,810

reason why I disagree with it it comes

3107

02:12:23,560 --> 02:12:20,900

down to math that I know that there has

3108

02:12:26,740 --> 02:12:23,570

to be it's simple math there has to be

3109

02:12:29,590 --> 02:12:26,750

millions if not billions of versions of

3110

02:12:33,420 --> 02:12:29,600

Earth out there in this galaxy right

3111

02:12:36,340 --> 02:12:33,430

water everything plants nice beaches

3112

02:12:39,010 --> 02:12:36,350

great place to hang out but then there

3113

02:12:42,250 --> 02:12:39,020

are billions of versions of Earth out

3114

02:12:44,110 --> 02:12:42,260

there that are fun a little bit bigger

3115

02:12:46,570 --> 02:12:44,120

the temperatures are a little bit better

3116

02:12:50,920 --> 02:12:46,580

there's less earthquakes and there's

3117

02:12:52,690 --> 02:12:50,930

things and the great casinos and and the

3118

02:12:55,860 --> 02:12:52,700

food is just a little bit better you

3119

02:12:59,220 --> 02:12:55,870

know I'm just saying that maybe

3120

02:13:02,190 --> 02:12:59,230

that is the case where we are just we're

3121

02:13:04,140 --> 02:13:02,200

just boring there is no action here yeah

3122

02:13:05,790 --> 02:13:04,150

that is a real possibility for why we

3123

02:13:07,410 --> 02:13:05,800

wouldn't get much traffic but it doesn't

3124

02:13:08,730 --> 02:13:07,420

you know the bigger the population the

3125

02:13:10,650 --> 02:13:08,740

galaxy gets and we start talking about

3126

02:13:13,980 --> 02:13:10,660

galactic empires you're talking about

3127

02:13:15,630 --> 02:13:13,990

billions upon billions of potential

3128

02:13:18,390 --> 02:13:15,640

wards and habitats they might have built

3129

02:13:20,970 --> 02:13:18,400

with billions upon billions upon

3130

02:13:23,280 --> 02:13:20,980

billions of people mm-hmm there's just

3131

02:13:25,530 --> 02:13:23,290

however boy north is there's gonna be a

3132

02:13:27,690 --> 02:13:25,540

few people who think it's the coolest

3133

02:13:29,040 --> 02:13:27,700

place ever right of just cuz it's so

3134

02:13:30,990 --> 02:13:29,050

boring and they want to be able to tell

3135

02:13:33,690 --> 02:13:31,000

their friends how exciting this place

3136

02:13:35,160 --> 02:13:33,700

nobody else went to was someone's gonna

3137

02:13:36,720 --> 02:13:35,170

find it cool if there's one thing the

3138

02:13:38,760 --> 02:13:36,730

Internet has taught us is that no matter

3139

02:13:41,280 --> 02:13:38,770

how boring the hobby would seem to be

3140

02:13:42,540 --> 02:13:41,290

there are a lot of people who think it

3141

02:13:43,800 --> 02:13:42,550

is the coolest thing ever

3142

02:13:44,850 --> 02:13:43,810

that's right that is well you know

3143

02:13:46,890 --> 02:13:44,860

that's why the cool thing is about

3144

02:13:49,230 --> 02:13:46,900

nowadays you can find those 200 people

3145

02:13:52,280 --> 02:13:49,240

on the planet who share your obsession

3146

02:13:55,170 --> 02:13:52,290

with collecting 19th century pennies and

3147

02:13:56,670 --> 02:13:55,180

if Earth is a 19th century penny that

3148

02:13:58,230 --> 02:13:56,680

nobody else cares about there's still

3149

02:14:00,420 --> 02:13:58,240

gonna be those billions of people out

3150

02:14:03,930 --> 02:14:00,430

there on that Empire who think it's cool

3151

02:14:07,080 --> 02:14:03,940

and so how do we how do we answer that

3152

02:14:09,540 --> 02:14:07,090

when we think about the amount of and

3153

02:14:12,990 --> 02:14:09,550

we're gonna take a break in in in just a

3154

02:14:16,260 --> 02:14:13,000

minute here Isaac that all of those

3155

02:14:21,900 --> 02:14:16,270

civilizations that are out there in in

3156

02:14:25,400 --> 02:14:21,910

the Milky Way that coming here is easy

3157

02:14:28,830 --> 02:14:25,410

and we have only been here technically

3158

02:14:31,170 --> 02:14:28,840

in an electrical sense for about a

3159

02:14:32,580 --> 02:14:31,180

hundred years that they could have been

3160

02:14:34,980 --> 02:14:32,590

here a hundred thousand years ago which

3161

02:14:38,190 --> 02:14:34,990

is a blip of time a million years ago

3162

02:14:40,890 --> 02:14:38,200

ten thousand years ago where there was

3163

02:14:42,900 --> 02:14:40,900

no video cameras or photographs or a way

3164

02:14:45,120 --> 02:14:42,910

to document any of this and they've

3165

02:14:49,790 --> 02:14:45,130

simply moved on they know that Earth is

3166

02:14:54,540 --> 02:14:51,630

fundamentally that one comes up the

3167

02:14:56,760 --> 02:14:54,550

issue is you know Kansas is pretty well

3168

02:14:59,040 --> 02:14:56,770

documented - but people still keep

3169

02:15:01,140 --> 02:14:59,050

coming there every year not feeling bad

3170

02:15:03,060 --> 02:15:01,150

for the folks in Kansas but it's Pahlavi

3171

02:15:06,060 --> 02:15:03,070

all right that is what the boiling

3172

02:15:07,830 --> 02:15:06,070

places to live say saying about Ohio we

3173

02:15:08,970 --> 02:15:07,840

still get tons of notes I live in a

3174

02:15:10,470 --> 02:15:08,980

tourist trap you know we get

3175

02:15:12,630 --> 02:15:10,480

people visiting every summer by a

3176

02:15:14,729 --> 02:15:12,640

thousand and I think it's boy that's why

3177

02:15:17,160 --> 02:15:14,739

I like the place it's calm it's peaceful

3178

02:15:20,640 --> 02:15:17,170

yet folks come by to visit for exactly

3179

02:15:23,250 --> 02:15:20,650

that reason and so what you know how can

3180

02:15:25,260 --> 02:15:23,260

you exhaust entire plants options we

3181

02:15:27,810 --> 02:15:25,270

have changed they came here ten thousand

3182

02:15:29,160 --> 02:15:27,820

years ago have we not had ten thousand

3183

02:15:31,229 --> 02:15:29,170

years of history they might find

3184

02:15:33,720 --> 02:15:31,239

interesting why would they not want to

3185

02:15:36,990 --> 02:15:33,730

come back and see what's changed well I

3186

02:15:38,640 --> 02:15:37,000

would say that they do right they do but

3187

02:15:40,979 --> 02:15:38,650

that's the that's the best part of

3188

02:15:43,950 --> 02:15:40,989

having this type of conversation tonight

3189

02:15:45,930 --> 02:15:43,960

to give everybody something to think

3190

02:15:49,440 --> 02:15:45,940

about on both sides of the fence and

3191

02:15:51,390 --> 02:15:49,450

with that let's take our scheduled break

3192

02:15:53,370 --> 02:15:51,400

right now our guest tonight is Isaac

3193

02:15:56,460 --> 02:15:53,380

Arthur and when we come back we're

3194

02:15:58,200 --> 02:15:56,470

discussing the Fermi paradox and when we

3195

02:16:01,940 --> 02:15:58,210

come back we've got to jump into Stephen

3196

02:16:05,280 --> 02:16:01,950

Hawking we're gonna get to the rest of

3197

02:16:07,200 --> 02:16:05,290

the answers but I'm saving the best for

3198

02:16:09,050 --> 02:16:07,210

last when we come back after this short

3199

02:16:34,770 --> 02:16:09,060

break stay with us

3200

02:16:43,709 --> 02:16:38,259

my boy Jimmy Church on Jimmy Church

3201
02:16:50,789 --> 02:16:43,719
radio calm this my popular opinion

3202
02:16:58,150 --> 02:16:53,879
[Applause]

3203
02:17:00,070 --> 02:16:58,160
hurricanes earthquakes wildfires this

3204
02:17:02,530 --> 02:17:00,080
year we've experienced more than our

3205
02:17:04,839 --> 02:17:02,540
fair share this is Jimmy Church a fade

3206
02:17:06,850 --> 02:17:04,849
to black and last month I decided to

3207
02:17:09,250 --> 02:17:06,860
make sure my family does not have to

3208
02:17:12,429 --> 02:17:09,260
worry about food should we get caught in

3209
02:17:14,860 --> 02:17:12,439
a real emergency situation introducing

3210
02:17:16,540 --> 02:17:14,870
Humana a healthy storable product that

3211
02:17:18,580 --> 02:17:16,550
tastes so good that you'll want to eat

3212
02:17:21,339 --> 02:17:18,590
it every day instead of just during

3213
02:17:24,070 --> 02:17:21,349

those times of duress illumina products

3214

02:17:26,950 --> 02:17:24,080

have a 25 year shelf life our msg and

3215

02:17:29,500 --> 02:17:26,960

GMO free no preservatives and are made

3216

02:17:31,509 --> 02:17:29,510

in America with the new manna pack in

3217

02:17:33,310 --> 02:17:31,519

your home you'll be able to sleep at

3218

02:17:35,890 --> 02:17:33,320

night knowing that you protected your

3219

02:17:39,610 --> 02:17:35,900

family not only have I tasted and tested

3220

02:17:41,200 --> 02:17:39,620

I own it now you can too just click on

3221

02:17:43,600 --> 02:17:41,210

the new manna banner on Jimmy Church

3222

02:17:45,790 --> 02:17:43,610

radio.com and use the promo code Jimmy

3223

02:17:47,740 --> 02:17:45,800

when you order in addition to a discount

3224

02:17:51,600 --> 02:17:47,750

we'll send you an autograph fade to

3225

02:17:53,860 --> 02:17:51,610

black t-shirt seriously gobekli tepe

3226

02:17:56,830 --> 02:17:53,870

this is Jimmy Church of fade to black

3227

02:18:00,490 --> 02:17:56,840

and I take life changed he supplements

3228

02:18:04,860 --> 02:18:00,500

every single day it's what I do click on

3229

02:18:10,419 --> 02:18:07,780

when you take the beams from Central

3230

02:18:12,700 --> 02:18:10,429

America with dashes of indonesian and

3231

02:18:15,100 --> 02:18:12,710

african mixed in and then roast it to

3232

02:18:18,330 --> 02:18:15,110

the dark side of fade to black you

3233

02:18:21,370 --> 02:18:18,340

create the ultimate brew of fringe

3234

02:18:22,760 --> 02:18:21,380

introducing the fade to black blend from

3235

02:18:26,420 --> 02:18:22,770

river moon coffee

3236

02:18:29,090 --> 02:18:26,430

yes River moons darkus customized roast

3237

02:18:29,780 --> 02:18:29,100

was created for the love of fade to

3238

02:18:32,780 --> 02:18:29,790

black

3239

02:18:35,480 --> 02:18:32,790

the alchemy of masterful roasting and

3240

02:18:39,050 --> 02:18:35,490

smoking the beans is in every sip of

3241

02:18:42,050 --> 02:18:39,060

this full-bodied dark Java I need my

3242

02:18:43,910 --> 02:18:42,060

coffee doc deep with distinct

3243

02:18:47,090 --> 02:18:43,920

bittersweet chocolate highlights just

3244

02:18:49,520 --> 02:18:47,100

like the bunker leaning further into the

3245

02:18:52,790 --> 02:18:49,530

darkness of the roast is fade to black

3246

02:18:54,440 --> 02:18:52,800

blend from river moon coffee just click

3247

02:18:57,740 --> 02:18:54,450

on the banner at Jimmy Church radio.com

3248

02:19:00,470 --> 02:18:57,750

and use the promo code F to be blend for

3249

02:19:05,030 --> 02:19:00,480

15% off of your order today

3250

02:19:07,010 --> 02:19:05,040

go back Lee tapi hi folks CBD is the

3251
02:19:08,780 --> 02:19:07,020
home run hitter for health right now why

3252
02:19:11,330 --> 02:19:08,790
do you ask because of what it does for

3253
02:19:12,830 --> 02:19:11,340
the body unfortunately I can't tell you

3254
02:19:15,320 --> 02:19:12,840
all about the benefit you know there's

3255
02:19:17,720 --> 02:19:15,330
reasons do your due diligence and log on

3256
02:19:20,600 --> 02:19:17,730
to ancient life oil com that's ancient

3257
02:19:22,610 --> 02:19:20,610
life oil com angel life oil uses organic

3258
02:19:25,220 --> 02:19:22,620
ingredients and is blended in coconut

3259
02:19:28,550 --> 02:19:25,230
oil for some of the best benefits legal

3260
02:19:30,860 --> 02:19:28,560
in 50 states and none psychoactive logon

3261
02:19:34,100 --> 02:19:30,870
to ancient life oil calm that's ancient

3262
02:19:36,440 --> 02:19:34,110
life oil calm this is Jimmy Church of

3263
02:19:39,260 --> 02:19:36,450

fade to black and my family is safe

3264

02:19:42,200 --> 02:19:39,270

because of new manna emergency food

3265

02:19:45,590 --> 02:19:42,210

storage just go to the new manna banner

3266

02:19:50,390 --> 02:19:45,600

at Jimmy Church radio.com promo code

3267

02:19:53,030 --> 02:19:50,400

jimmy 10 are you intrigued by paranormal

3268

02:19:56,690 --> 02:19:53,040

talk radio you love the new paranormal

3269

02:19:58,430 --> 02:19:56,700

radio app from torque stream live you'll

3270

02:20:01,580 --> 02:19:58,440

find a great selection of talk shows

3271

02:20:04,280 --> 02:20:01,590

covering UFOs ghosts strange phenomena

3272

02:20:06,591 --> 02:20:04,290

and much more download the paranormal

3273

02:20:08,211 --> 02:20:06,601

radio app now and start listening to the

3274

02:20:10,220 --> 02:20:08,221

very best in paranormal talk

3275

02:20:11,990 --> 02:20:10,230

entertainment including the network

3276

02:20:14,900 --> 02:20:12,000

you're listening to right now the

3277

02:20:24,410 --> 02:20:14,910

paranormal radio app free in Google Play

3278

02:20:38,970 --> 02:20:28,140

it's not a lifestyle we chose we were

3279

02:20:43,710 --> 02:20:38,980

born this way k GRA radio.com this is KJ

3280

02:20:43,720 --> 02:20:55,710

[Music]

3281

02:20:59,590 --> 02:20:57,790

welcome back fade to black

3282

02:21:02,050 --> 02:20:59,600

I'm your host Jimmy Church our guest

3283

02:21:04,750 --> 02:21:02,060

tonight Isaac Arthur we're discussing

3284

02:21:05,520 --> 02:21:04,760

the Fermi paradox saving the best for

3285

02:21:10,750 --> 02:21:05,530

last

3286

02:21:12,610 --> 02:21:10,760

and Isaac oh oh really quick Isaac my

3287

02:21:15,100 --> 02:21:12,620

twitter is a a church radio what is

3288

02:21:18,070 --> 02:21:15,110

yours let me double check I think it's

3289

02:21:20,740 --> 02:21:18,080

Isaac Isaac underscore a underscore

3290

02:21:25,150 --> 02:21:20,750

there you go you always do that

3291

02:21:27,550 --> 02:21:25,160

underscore and dots but I get it I get

3292

02:21:32,920 --> 02:21:27,560

it so it's it's Isaac underscore a

3293

02:21:35,170 --> 02:21:32,930

underscore Arthur yep okay now with I

3294

02:21:38,140 --> 02:21:35,180

want to know how much you researched or

3295

02:21:41,860 --> 02:21:38,150

read into you know guys like Stephen

3296

02:21:46,900 --> 02:21:41,870

Hawking and and Carl Sagan in the past

3297

02:21:49,570 --> 02:21:46,910

where I've always felt that Carl Sagan

3298

02:21:54,210 --> 02:21:49,580

did a pretty good flip-flop on us when

3299

02:21:57,429 --> 02:21:54,220

it came to UFOs and alien civilizations

3300

02:21:59,500 --> 02:21:57,439

and the same thing with Stephen Hawking

3301

02:22:03,130 --> 02:21:59,510

where I think he was very adventurous

3302

02:22:06,940 --> 02:22:03,140

for for a period there and then went one

3303

02:22:11,410 --> 02:22:06,950

pretty dark with alien contact and then

3304

02:22:14,200 --> 02:22:11,420

turned around and wanted to fly no stuff

3305

02:22:15,880 --> 02:22:14,210

to Alpha Centauri I think he gets a

3306

02:22:18,010 --> 02:22:15,890

little bit of an unfair reputation about

3307

02:22:19,810 --> 02:22:18,020

that towards the end he was often making

3308

02:22:21,790 --> 02:22:19,820

comments and the media mush out anytime

3309

02:22:23,410 --> 02:22:21,800

he'd say anything it was it was big news

3310

02:22:24,940 --> 02:22:23,420

after me he was just quoting something

3311

02:22:27,460 --> 02:22:24,950

that was established science for a

3312

02:22:29,290 --> 02:22:27,470

century or more you know he was a great

3313

02:22:31,510 --> 02:22:29,300

speaker and teacher for the field but

3314

02:22:33,700 --> 02:22:31,520

often he would say material that was you

3315

02:22:35,980 --> 02:22:33,710

know classic poets the field and people

3316

02:22:37,810 --> 02:22:35,990

say oh my god Hawking said this his

3317

02:22:39,880 --> 02:22:37,820

suggestion that I think people forward

3318

02:22:42,310 --> 02:22:39,890

to there is that we don't want to talk

3319

02:22:44,350 --> 02:22:42,320

to aliens because if you go making noise

3320

02:22:46,690 --> 02:22:44,360

in the woods a predator might come and

3321

02:22:48,580 --> 02:22:46,700

eat you and that's not his idea that's

3322

02:22:51,250 --> 02:22:48,590

that's a very classic and so on that's

3323

02:22:53,679 --> 02:22:51,260

the concept of Medi which is you know

3324

02:22:55,240 --> 02:22:53,689

active SETI the idea that you don't try

3325

02:22:57,310 --> 02:22:55,250

to listen you get out there and speak

3326

02:22:59,520 --> 02:22:57,320

and someone who's gonna point out if

3327

02:23:01,900 --> 02:22:59,530

you're out there yelling really loudly

3328

02:23:03,790 --> 02:23:01,910

someone might hear you and and you might

3329

02:23:07,090 --> 02:23:03,800

not want them to come by and let you

3330

02:23:08,030 --> 02:23:07,100

know that they are there so I think you

3331

02:23:10,190 --> 02:23:08,040

point that out very

3332

02:23:12,040 --> 02:23:10,200

fairly a lot of people do I do not worry

3333

02:23:15,020 --> 02:23:12,050

much about active City though because

3334

02:23:16,970 --> 02:23:15,030

any alien civilization shows up by now

3335

02:23:18,830 --> 02:23:16,980

decide to invade us or horn us that

3336

02:23:20,870 --> 02:23:18,840

wants to do this that has space travel

3337

02:23:22,850 --> 02:23:20,880

that can't hear us it's not gonna be a

3338

02:23:23,990 --> 02:23:22,860

contest they'd wipe us out so there's no

3339

02:23:26,180 --> 02:23:24,000

point even worried about something like

3340

02:23:28,490 --> 02:23:26,190

that we cannot hide from them and they

3341

02:23:30,380 --> 02:23:28,500

want us dead they're gonna guess dead so

3342

02:23:31,850 --> 02:23:30,390

it's a legitimate concern but there's

3343

02:23:33,110 --> 02:23:31,860

nothing we can do about it it's like

3344

02:23:34,820 --> 02:23:33,120

worried about an asteroid hitting your

3345

02:23:36,560 --> 02:23:34,830

civilization if you live in ancient Rome

3346

02:23:38,000 --> 02:23:36,570

you can't build a rock and to go blow

3347

02:23:40,850 --> 02:23:38,010

that thing up so there's not much point

3348

02:23:42,890 --> 02:23:40,860

worrying about it and I think that he

3349

02:23:44,090 --> 02:23:42,900

wasn't really saying that this is

3350

02:23:45,230 --> 02:23:44,100

something that we need to be worried

3351
02:23:47,450 --> 02:23:45,240
about though he might have but I don't

3352
02:23:48,860 --> 02:23:47,460
want to put words in his mouth I think

3353
02:23:50,660 --> 02:23:48,870
he was just pointing out that is one of

3354
02:23:53,990 --> 02:23:50,670
those concerns we had to have about SETI

3355
02:23:58,310 --> 02:23:54,000
is so is it dangerous to attempt

3356
02:24:00,620 --> 02:23:58,320
communication no because and this is

3357
02:24:02,780 --> 02:24:00,630
what it comes down to is they don't need

3358
02:24:04,730 --> 02:24:02,790
to hear all radio signals if you have

3359
02:24:07,670 --> 02:24:04,740
spaceflight and you've been around for a

3360
02:24:09,860 --> 02:24:07,680
long time you already know about every

3361
02:24:11,420 --> 02:24:09,870
plan out there that has life on it cuz

3362
02:24:13,040 --> 02:24:11,430
you won't waiting for radio signals she

3363
02:24:14,960 --> 02:24:13,050

was sending out active probes to go look

3364

02:24:16,880 --> 02:24:14,970

for stuff and you're building gigantic

3365

02:24:18,770 --> 02:24:16,890

telescopes that can pick up signs of

3366

02:24:20,330 --> 02:24:18,780

life on planets when there's just oxygen

3367

02:24:22,550 --> 02:24:20,340

in the atmosphere we'll be doing that

3368

02:24:24,500 --> 02:24:22,560

inside of 20 years they've been doing

3369

02:24:27,860 --> 02:24:24,510

that for millions videos and they saw us

3370

02:24:30,410 --> 02:24:27,870

you know very early on so they're not

3371

02:24:31,790 --> 02:24:30,420

gonna be hunting for radio signals if

3372

02:24:34,610 --> 02:24:31,800

they want to go wipe out our life

3373

02:24:35,840 --> 02:24:34,620

they're going to wipe out all life there

3374

02:24:37,550 --> 02:24:35,850

are so many ways you can do that without

3375

02:24:40,160 --> 02:24:37,560

even leaving your home solar system and

3376

02:24:43,730 --> 02:24:40,170

poor Gentile galaxies of people who do

3377

02:24:47,750 --> 02:24:43,740

not have technology equity alone when we

3378

02:24:50,900 --> 02:24:47,760

go back and look at it's not the same

3379

02:24:53,210 --> 02:24:50,910

kind of party today but when Tesla was

3380

02:24:57,700 --> 02:24:53,220

building those ginormous radio towers

3381

02:25:01,790 --> 02:24:57,710

right and and and Marconi and there were

3382

02:25:03,980 --> 02:25:01,800

100,000 watt you know blowtorch radio

3383

02:25:06,950 --> 02:25:03,990

stations all over this planet how much

3384

02:25:10,580 --> 02:25:06,960

of the cat was let out of the bag as far

3385

02:25:14,030 --> 02:25:10,590

as visibility goes from you know 1890

3386

02:25:15,680 --> 02:25:14,040

until 1950 more than now because we're a

3387

02:25:17,870 --> 02:25:15,690

lot quieter with our signals were more

3388

02:25:20,090 --> 02:25:17,880

efficient but less than was necessary to

3389

02:25:21,500 --> 02:25:20,100

see us cuz I mean you're doing a flyby

3390

02:25:22,910 --> 02:25:21,510

of this planet

3391

02:25:24,229 --> 02:25:22,920

two thousand years ago you see in the

3392

02:25:26,210 --> 02:25:24,239

pyramid sticking out like sore thumbs

3393

02:25:27,500 --> 02:25:26,220

seen like right on my when a great wall

3394

02:25:28,160 --> 02:25:27,510

got built but that's been around for

3395

02:25:30,920 --> 02:25:28,170

quite some time

3396

02:25:33,710 --> 02:25:30,930

mhm and even before that you look back

3397

02:25:35,149 --> 02:25:33,720

say a half million years ago

3398

02:25:36,649 --> 02:25:35,159

yeah and wonder what all those little

3399

02:25:38,210 --> 02:25:36,659

files are doing on the force and you'll

3400

02:25:40,309 --> 02:25:38,220

be to pick those up on night scopes

3401
02:25:42,229 --> 02:25:40,319
pretty easy and then you go back before

3402
02:25:44,719 --> 02:25:42,239
that you're looking for places where

3403
02:25:48,800 --> 02:25:44,729
life might develop the big blue planets

3404
02:25:50,899 --> 02:25:48,810
a pretty big giveaway so I don't see the

3405
02:25:52,880 --> 02:25:50,909
video as being a missed to us because as

3406
02:25:56,029 --> 02:25:52,890
loud as those sickness all they're not

3407
02:25:58,130 --> 02:25:56,039
nearly as loud as the wasn't I guess two

3408
02:26:00,050 --> 02:25:58,140
hundred quadrillion watts of power being

3409
02:26:02,809 --> 02:26:00,060
given off by this planet reflected from

3410
02:26:06,019 --> 02:26:02,819
the Sun well what about the concept that

3411
02:26:09,349 --> 02:26:06,029
was presented by Carl Sagan in his book

3412
02:26:10,370 --> 02:26:09,359
contact and in the movie I'm try to

3413
02:26:11,630 --> 02:26:10,380

remember what the differences were

3414

02:26:13,639 --> 02:26:11,640

between those so they might want to

3415

02:26:15,130 --> 02:26:13,649

contact us using the Planck scale as

3416

02:26:17,389 --> 02:26:15,140

always think I have a memo from that but

3417

02:26:20,359 --> 02:26:17,399

it's been so long since I saw that movie

3418

02:26:24,050 --> 02:26:20,369

well they took our television signals

3419

02:26:26,719 --> 02:26:24,060

and oh that's right right and then and

3420

02:26:30,439 --> 02:26:26,729

and sent them back to us with a scramble

3421

02:26:33,080 --> 02:26:30,449

in the in the carrier signal that

3422

02:26:35,090 --> 02:26:33,090

biggest concern there is is that the the

3423

02:26:36,349 --> 02:26:35,100

core idea is they didn't have to wait to

3424

02:26:38,120 --> 02:26:36,359

them they might have waited then to make

3425

02:26:39,889 --> 02:26:38,130

contact with us but that wouldn't have

3426

02:26:41,929 --> 02:26:39,899

been new to them if they can reach out

3427

02:26:43,819 --> 02:26:41,939

to us physically like that send probes

3428

02:26:45,979 --> 02:26:43,829

you know then then they knew about us

3429

02:26:47,779 --> 02:26:45,989

forehand why would you not go and

3430

02:26:49,279 --> 02:26:47,789

investigate every planet in your Galaxy

3431

02:26:51,380 --> 02:26:49,289

even if you didn't want to live on them

3432

02:26:53,300 --> 02:26:51,390

there has to be some motivations while

3433

02:26:55,489 --> 02:26:53,310

you're getting out into space and if

3434

02:26:56,660 --> 02:26:55,499

you'd find other planets boy and B

3435

02:26:57,950 --> 02:26:56,670

inhabit or nah you're not arresting

3436

02:27:00,529 --> 02:26:57,960

settling them you know understanding

3437

02:27:01,790 --> 02:27:00,539

exploiting them then you're not gonna be

3438

02:27:04,670 --> 02:27:01,800

listening for radio signals either

3439

02:27:06,830 --> 02:27:04,680

because you don't know well and so let's

3440

02:27:09,380 --> 02:27:06,840

break this down really quick

3441

02:27:14,870 --> 02:27:09,390

before we get to the the last question

3442

02:27:17,899 --> 02:27:14,880

how fast is a radio signal how fast is

3443

02:27:20,660 --> 02:27:17,909

it 300 million kilometres a second so I

3444

02:27:22,550 --> 02:27:20,670

300 million meters per second very quick

3445

02:27:26,269 --> 02:27:22,560

compared to light speed

3446

02:27:29,179 --> 02:27:26,279

same speed it's is it the same speed

3447

02:27:31,399 --> 02:27:29,189

radio signals are the exact same speed

3448

02:27:32,750 --> 02:27:31,409

as any other infrared radiation in the

3449

02:27:34,280 --> 02:27:32,760

vacuum they don't all move to quite the

3450

02:27:36,230 --> 02:27:34,290

same speed inside atmosphere

3451

02:27:42,080 --> 02:27:36,240

medium but it's pretty close it's pretty

3452

02:27:45,410 --> 02:27:42,090

close so then if we did simple math here

3453

02:27:48,980 --> 02:27:45,420

and we just said okay let's go with 50

3454

02:27:51,020 --> 02:27:48,990

years right and then we're because I'm

3455

02:27:54,290 --> 02:27:51,030

dealing with round numbers a hundred

3456

02:27:59,511 --> 02:27:54,300

years we're at 2019 so the radio signals

3457

02:28:03,980 --> 02:27:59,521

that were sent out in 1919 that went 50

3458

02:28:06,140 --> 02:28:03,990

light years away it's a is there only

3459

02:28:08,050 --> 02:28:06,150

out 200 by now but sorry 50 years away

3460

02:28:10,730 --> 02:28:08,060

could have sent back to us by now that

3461

02:28:12,140 --> 02:28:10,740

that's what that's see I like the way

3462

02:28:12,470 --> 02:28:12,150

you think that's where I'm going with

3463

02:28:15,920 --> 02:28:12,480

this

3464

02:28:18,410 --> 02:28:15,930

so somebody 50 light years away has

3465

02:28:21,020 --> 02:28:18,420

received the signals now they know where

3466

02:28:25,160 --> 02:28:21,030

we are and now they're headed this way

3467

02:28:27,200 --> 02:28:25,170

wouldn't they be arriving about now they

3468

02:28:29,090 --> 02:28:27,210

would be yeah now if they were waiting

3469

02:28:30,710 --> 02:28:29,100

and they were just happy on a planet say

3470

02:28:33,290 --> 02:28:30,720

you know 40 light years away they got

3471

02:28:35,150 --> 02:28:33,300

all message 60 years ago and they still

3472

02:28:36,170 --> 02:28:35,160

send a fleet our direction they might be

3473

02:28:38,210 --> 02:28:36,180

getting here we don't know how fast

3474

02:28:39,410 --> 02:28:38,220

those ships oh it might be 10% of speed

3475

02:28:40,940 --> 02:28:39,420

of light in which case we'll be a few

3476

02:28:42,710 --> 02:28:40,950

centuries still right they could have

3477

02:28:44,120 --> 02:28:42,720

got a signal back to us now they if they

3478

02:28:45,710 --> 02:28:44,130

don't have ships can move fairly close

3479

02:28:47,930 --> 02:28:45,720

to light speed they probably would send

3480

02:28:49,490 --> 02:28:47,940

a signal back forced if you move fairly

3481

02:28:52,090 --> 02:28:49,500

close to light speed though you probably

3482

02:28:55,310 --> 02:28:52,100

would go that way because you're getting

3483

02:28:57,170 --> 02:28:55,320

signals sooner once you know and close

3484

02:28:58,820 --> 02:28:57,180

on close to that time and it gives you

3485

02:29:00,280 --> 02:28:58,830

much more updated information so you

3486

02:29:02,660 --> 02:29:00,290

might as well let your diplomatic team

3487

02:29:04,820 --> 02:29:02,670

boil themselves down to the modern year

3488

02:29:06,620 --> 02:29:04,830

when they arrive and do the talking for

3489

02:29:08,390 --> 02:29:06,630

you without the risk of mistakes and

3490

02:29:13,100 --> 02:29:08,400

that's exactly the point

3491

02:29:14,900 --> 02:29:13,110

should we be concerned if you were the

3492

02:29:17,060 --> 02:29:14,910

head of the United Nations would you

3493

02:29:20,060 --> 02:29:17,070

have a delegation put together knowing

3494

02:29:22,420 --> 02:29:20,070

that if we just went with simple math

3495

02:29:25,880 --> 02:29:22,430

that 50 light years away

3496

02:29:27,680 --> 02:29:25,890

those potential civilizations know where

3497

02:29:31,850 --> 02:29:27,690

we are and would be arriving shortly

3498

02:29:33,920 --> 02:29:31,860

should we prepare something yes but not

3499

02:29:35,270 --> 02:29:33,930

to talk to the aliens we want to make

3500

02:29:36,440 --> 02:29:35,280

sure we have a prepared mechanism in

3501

02:29:37,910 --> 02:29:36,450

place so they were not tripping over

3502

02:29:40,011 --> 02:29:37,920

each other trying to figure out what to

3503

02:29:41,540 --> 02:29:40,021

do if they do say hi they're gonna know

3504

02:29:42,770 --> 02:29:41,550

how to talk to us they came here they've

3505

02:29:44,150 --> 02:29:42,780

been listening to our radio signals

3506

02:29:45,530 --> 02:29:44,160

while they came in there I've had plenty

3507

02:29:46,581 --> 02:29:45,540

of time to pass them and they've got a

3508

02:29:48,770 --> 02:29:46,591

game plan in mind

3509

02:29:50,541 --> 02:29:48,780

we most need to make sure that we don't

3510

02:29:52,281 --> 02:29:50,551

trip all over each other as various war

3511

02:29:54,470 --> 02:29:52,291

leaders try to decide who's supposed to

3512

02:29:56,211 --> 02:29:54,480

be doing the talking and you know which

3513

02:29:57,531 --> 02:29:56,221

country get stock forests and what kind

3514

02:29:59,751 --> 02:29:57,541

of team we should be using and what

3515

02:30:01,610 --> 02:29:59,761

message which was said and that's where

3516

02:30:03,411 --> 02:30:01,620

the issues come to play mostly making

3517

02:30:04,461 --> 02:30:03,421

sure that we don't fall into pieces we

3518

02:30:05,961 --> 02:30:04,471

don't really need to put much effort

3519

02:30:07,551 --> 02:30:05,971

into how to talk to them though cuz

3520

02:30:09,680 --> 02:30:07,561

they've solved that issue they want to

3521

02:30:13,791 --> 02:30:09,690

talk to us you know likelihood there is

3522

02:30:17,201 --> 02:30:13,801

a lot of rumor going around in our

3523

02:30:22,011 --> 02:30:17,211

community the United Nations has a

3524

02:30:23,781 --> 02:30:22,021

pointed forget the the world what

3525

02:30:26,531 --> 02:30:23,791

they're called but there is there is an

3526

02:30:29,150 --> 02:30:26,541

interstellar ambassador in place right

3527

02:30:31,491 --> 02:30:29,160

do you think that they've got a game

3528

02:30:34,610 --> 02:30:31,501

plan ready to go do you think that there

3529

02:30:36,741 --> 02:30:34,620

is a an official portal called manual

3530

02:30:39,440 --> 02:30:36,751

that's printed out and distributed just

3531

02:30:40,850 --> 02:30:39,450

in case uh I'm gonna be I mean to be

3532

02:30:42,560 --> 02:30:40,860

honest I would kind of expect that to be

3533

02:30:44,060 --> 02:30:42,570

public if there was one just because it

3534

02:30:46,190 --> 02:30:44,070

would be your familiar perspective I

3535

02:30:47,900 --> 02:30:46,200

think they'd mostly wind you know get

3536

02:30:49,400 --> 02:30:47,910

enthusiasm involved with the populace

3537

02:30:50,751 --> 02:30:49,410

like when they did the when the CDC

3538

02:30:52,911 --> 02:30:50,761

released that survive the zombie

3539

02:30:54,621 --> 02:30:52,921

apocalypse manual yes

3540

02:30:56,121 --> 02:30:54,631

I could easily says doing something like

3541

02:30:57,770 --> 02:30:56,131

that and I haven't be spies we already

3542

02:31:01,461 --> 02:30:57,780

had and if not I'd certainly suggest

3543

02:31:03,110 --> 02:31:01,471

it's good outreach but you know we we

3544

02:31:04,791 --> 02:31:03,120

all contingency plans I would assume

3545

02:31:06,560 --> 02:31:04,801

that most countries keep a file

3546

02:31:08,031 --> 02:31:06,570

somewhere on how to invade everybody

3547

02:31:10,011 --> 02:31:08,041

including their best neighbors of the

3548

02:31:11,421 --> 02:31:10,021

town next door near Capitol so I

3549

02:31:13,551 --> 02:31:11,431

wouldn't be surprised if I only had one

3550

02:31:15,470 --> 02:31:13,561

that was lying around they might want to

3551
02:31:17,631 --> 02:31:15,480
keep them secret or they might put them

3552
02:31:18,801 --> 02:31:17,641
out they are IRC couldn't say on that it

3553
02:31:21,201 --> 02:31:18,811
would to me what makes sense to have

3554
02:31:22,820 --> 02:31:21,211
such a manual I'm on The Skeptical in of

3555
02:31:24,381 --> 02:31:22,830
things that still say have one you send

3556
02:31:25,940 --> 02:31:24,391
spaceships out there I don't expect to

3557
02:31:27,890 --> 02:31:25,950
move on end Emily I just to include a

3558
02:31:30,110 --> 02:31:27,900
manual what to do in case that happened

3559
02:31:31,701 --> 02:31:30,120
even if I open up reason and they're not

3560
02:31:32,900 --> 02:31:31,711
worried about themselves the time

3561
02:31:35,031 --> 02:31:32,910
because they know they got a manual they

3562
02:31:41,211 --> 02:31:35,041
can crack open and read if that happens

3563
02:31:44,661 --> 02:31:41,221

I asked a police officer LAPD guide this

3564

02:31:46,701 --> 02:31:44,671

is two years ago and I happened to I

3565

02:31:48,171 --> 02:31:46,711

can't get into the details but I was

3566

02:31:50,600 --> 02:31:48,181

hanging out with this guy for like two

3567

02:31:55,701 --> 02:31:50,610

hours three hours and you know we're

3568

02:31:57,350 --> 02:31:55,711

just talking and I said so UFO lands he

3569

02:31:59,751 --> 02:31:57,360

goes what like a flying saucer

3570

02:32:03,680 --> 02:31:59,761

I said yeah right there

3571

02:32:06,111 --> 02:32:03,690

hun Sherman Way right and you're driving

3572

02:32:09,051 --> 02:32:06,121

down the road UFO lands and starts

3573

02:32:12,201 --> 02:32:09,061

blocking traffic what do you do yes I

3574

02:32:14,930 --> 02:32:12,211

don't know and I said well have you been

3575

02:32:18,081 --> 02:32:14,940

trained up you know has this ever been

3576

02:32:19,461 --> 02:32:18,091

talked about he said no I said okay what

3577

02:32:22,850 --> 02:32:19,471

would you do

3578

02:32:26,511 --> 02:32:22,860

he goes uh well I'd call it in but I

3579

02:32:30,261 --> 02:32:26,521

guess the National Guard you know that's

3580

02:32:32,481 --> 02:32:30,271

I mean he was looking at me so perplexed

3581

02:32:36,111 --> 02:32:32,491

now I don't know if he's ever thought

3582

02:32:37,761 --> 02:32:36,121

about UFOs or ETS or whatever but so

3583

02:32:40,401 --> 02:32:37,771

maybe he's never thought about this he's

3584

02:32:43,281 --> 02:32:40,411

never watched ancient aliens okay that's

3585

02:32:47,571 --> 02:32:43,291

fine but as far as any official protocol

3586

02:32:50,691 --> 02:32:47,581

goes he swore to me up and down there is

3587

02:32:52,341 --> 02:32:50,701

nothing on the books for it no I'm not

3588

02:32:54,081 --> 02:32:52,351

one either I I assume we don't have one

3589

02:32:55,461 --> 02:32:54,091

for my County someone would have thrown

3590

02:32:59,060 --> 02:32:55,471

it my way at a few more less it was

3591

02:33:00,981 --> 02:32:59,070

secret nobody gives it so if there is

3592

02:33:03,131 --> 02:33:00,991

one it's either but again you know we

3593

02:33:07,071 --> 02:33:03,141

presumed I said we probably have a

3594

02:33:08,541 --> 02:33:07,081

detailed invasion plan for Canada no one

3595

02:33:10,041 --> 02:33:08,551

expects - usually I'd imagine but it's

3596

02:33:11,810 --> 02:33:10,051

it's probably lying around somewhere

3597

02:33:13,251 --> 02:33:11,820

there's probably someone whose job it is

3598

02:33:14,810 --> 02:33:13,261

to make sure it's up to date and we

3599

02:33:17,151 --> 02:33:14,820

probably wouldn't follow it properly

3600

02:33:18,531 --> 02:33:17,161

effects she had occasion to use it but

3601
02:33:20,751 --> 02:33:18,541
you don't bother distribute that's all

3602
02:33:22,821 --> 02:33:20,761
the division commando is because they've

3603
02:33:24,201 --> 02:33:22,831
got a million such contingency plans and

3604
02:33:26,631 --> 02:33:24,211
the only center the ones that they think

3605
02:33:27,770 --> 02:33:26,641
all very likely come up and if it

3606
02:33:29,091 --> 02:33:27,780
becomes more likely it something like

3607
02:33:30,651 --> 02:33:29,101
that is gonna come up that's when you

3608
02:33:32,331 --> 02:33:30,661
send them to play and start updating it

3609
02:33:34,071 --> 02:33:32,341
you know you can only prepare for

3610
02:33:35,421 --> 02:33:34,081
contingencies to so much and a lot of

3611
02:33:37,011 --> 02:33:35,431
the reason why you do some of we're all

3612
02:33:38,151 --> 02:33:37,021
contingencies is to kind of give

3613
02:33:41,600 --> 02:33:38,161

yourself practice for thinking outside

3614

02:33:44,001 --> 02:33:41,610

the box so I would be surprised if we

3615

02:33:47,091 --> 02:33:44,011

didn't have them lying around um I just

3616

02:33:48,560 --> 02:33:47,101

have to dust them off yeah hopefully

3617

02:33:49,911 --> 02:33:48,570

someone's doing more on dust them off

3618

02:33:52,491 --> 02:33:49,921

because even retreat is a theoretical

3619

02:33:54,411 --> 02:33:52,501

exercise this is were an out-of-context

3620

02:33:55,791 --> 02:33:54,421

problem we sometimes say or a Black Swan

3621

02:33:58,701 --> 02:33:55,801

for something a little bit more of

3622

02:34:00,231 --> 02:33:58,711

regular you know when the ship was in

3623

02:34:02,901 --> 02:34:00,241

the home world made out of metal and

3624

02:34:04,100 --> 02:34:02,911

your Neolithic civilization that you

3625

02:34:06,321 --> 02:34:04,110

don't have any way to respond to that

3626

02:34:07,551 --> 02:34:06,331

and one of the ways you can prepare for

3627

02:34:08,661 --> 02:34:07,561

things like that where you just never

3628

02:34:10,191 --> 02:34:08,671

would have thought about it is to keep

3629

02:34:12,309 --> 02:34:10,201

the mind flexible and do a lot of these

3630

02:34:15,339 --> 02:34:12,319

contingencies because they will

3631

02:34:16,779 --> 02:34:15,349

aspects of that you can't handle you

3632

02:34:18,099 --> 02:34:16,789

know goon people start breaking out into

3633

02:34:20,949 --> 02:34:18,109

a riot because they're confused about

3634

02:34:23,319 --> 02:34:20,959

what's going on right then you release

3635

02:34:24,819 --> 02:34:23,329

do you know how to react to a riot so

3636

02:34:26,409 --> 02:34:24,829

you have these things around you know to

3637

02:34:28,599 --> 02:34:26,419

keep your mind flexible and to deal with

3638

02:34:29,709 --> 02:34:28,609

those parts where you can deal with so I

3639

02:34:31,059 --> 02:34:29,719

would actually go as well since we

3640

02:34:34,239 --> 02:34:31,069

didn't have a plan for that I'd be kind

3641

02:34:35,409 --> 02:34:34,249

of irresponsible on the other hand folks

3642

02:34:37,179 --> 02:34:35,419

might be nervous about making something

3643

02:34:39,789 --> 02:34:37,189

at that for fear they get ridiculed and

3644

02:34:42,429 --> 02:34:39,799

things like that so never government you

3645

02:34:44,949 --> 02:34:42,439

know but you bring it up the that whole

3646

02:34:47,589 --> 02:34:44,959

zombie apocalypse thing you know we

3647

02:34:51,219 --> 02:34:47,599

laughed about it but that was that was a

3648

02:34:53,889 --> 02:34:51,229

real contingency that was written up and

3649

02:34:55,479 --> 02:34:53,899

studied mm-hmm now to be fair was a lot

3650

02:34:56,859 --> 02:34:55,489

of the regular advice we tell I wanted

3651
02:34:58,449 --> 02:34:56,869
to have for disaster and the same would

3652
02:35:00,579 --> 02:34:58,459
apply for a lot of you know almost any

3653
02:35:02,079 --> 02:35:00,589
catastrophe might think about you know

3654
02:35:03,969 --> 02:35:02,089
there are certain basic preparatory

3655
02:35:05,169 --> 02:35:03,979
measures you should be taken and if this

3656
02:35:06,459 --> 02:35:05,179
is a way that we can teach people about

3657
02:35:08,260 --> 02:35:06,469
it because they find it interesting or

3658
02:35:10,029 --> 02:35:08,270
funny or they just watch oak about it

3659
02:35:11,709 --> 02:35:10,039
all the metal you know that gets them

3660
02:35:13,569 --> 02:35:11,719
thinking about it then they're thinking

3661
02:35:14,889 --> 02:35:13,579
about it and that means that they'll cut

3662
02:35:16,959 --> 02:35:14,899
wood when some kind of catastrophe

3663
02:35:19,119 --> 02:35:16,969

happens because they deal with a prank

3664

02:35:20,679 --> 02:35:19,129

on their own and then let's go and cover

3665

02:35:23,679 --> 02:35:20,689

down on it the folks who maybe didn't do

3666

02:35:25,089 --> 02:35:23,689

so much of it because each is hashed we

3667

02:35:27,399 --> 02:35:25,099

almost all that had the same basic

3668

02:35:29,260 --> 02:35:27,409

playbook a lot of variations balada

3669

02:35:33,099 --> 02:35:29,270

core stuff is the same yeah absolutely

3670

02:35:37,569 --> 02:35:33,109

absolutely which takes us to our last

3671

02:35:39,129 --> 02:35:37,579

answer the question is where is ET where

3672

02:35:41,949 --> 02:35:39,139

is everybody

3673

02:35:45,939 --> 02:35:41,959

and the answer is they are here

3674

02:35:49,179 --> 02:35:45,949

unacknowledged that is you know we often

3675

02:35:50,919 --> 02:35:49,189

say that that's the least popular and so

3676

02:35:52,569 --> 02:35:50,929

for a lot of folks in the scientific

3677

02:35:56,409 --> 02:35:52,579

community but in fact it's probably the

3678

02:35:58,569 --> 02:35:56,419

number two most favored to answer how

3679

02:36:01,929 --> 02:35:58,579

have the foamy paradox and the Pony

3680

02:36:03,909 --> 02:36:01,939

paradox says one basic question if this

3681

02:36:06,489 --> 02:36:03,919

universe is so big where we have so much

3682

02:36:08,499 --> 02:36:06,499

life in it way all all the aliens and

3683

02:36:10,539 --> 02:36:08,509

that force category we have the way

3684

02:36:13,239 --> 02:36:10,549

earth ones is not a good form a paradox

3685

02:36:15,609 --> 02:36:13,249

solution because it says there's no

3686

02:36:17,109 --> 02:36:15,619

paradox at all the universe is big but

3687

02:36:18,760 --> 02:36:17,119

we shouldn't assume life is very common

3688

02:36:21,519 --> 02:36:18,770

from that right the other half of that

3689

02:36:23,109 --> 02:36:21,529

of course is where all the aliens and so

3690

02:36:24,549 --> 02:36:23,119

the answer is right here all were just

3691

02:36:26,139 --> 02:36:24,559

not admitting that they're they also to

3692

02:36:28,059 --> 02:36:26,149

ourselves or to the rest apart

3693

02:36:30,790 --> 02:36:28,069

then that's also not a for me paradox

3694

02:36:33,580 --> 02:36:30,800

and so because there's no paradox the

3695

02:36:36,550 --> 02:36:33,590

questions wrong he says why are they

3696

02:36:39,969 --> 02:36:38,649

it breaks the basic paradigm there are

3697

02:36:42,010 --> 02:36:39,979

statements of the way or they are not

3698

02:36:43,960 --> 02:36:42,020

really fundamentally form a paradox

3699

02:36:47,019 --> 02:36:43,970

solutions because the Fermi paradox is

3700

02:36:49,599 --> 02:36:47,029

assuming life should be very common and

3701

02:36:51,159 --> 02:36:49,609

we don't see it and that's a problem

3702

02:36:52,659 --> 02:36:51,169

though winning because at that point we

3703

02:36:54,130 --> 02:36:52,669

can't disprove they're here or prove

3704

02:36:55,569 --> 02:36:54,140

they're here based on what we have so

3705

02:36:59,920 --> 02:36:55,579

far it's not conclusive enough to

3706

02:37:01,330 --> 02:36:59,930

convince most people and yet it it comes

3707

02:37:04,059 --> 02:37:01,340

down to motives with any of these

3708

02:37:05,380 --> 02:37:04,069

scenarios we can't say they can't hide

3709

02:37:07,510 --> 02:37:05,390

from us because they might have better

3710

02:37:09,519 --> 02:37:07,520

technology than us there are so many

3711

02:37:11,170 --> 02:37:09,529

reasons why they might visit and for

3712

02:37:12,670 --> 02:37:11,180

each one of those we have to say what is

3713

02:37:14,439 --> 02:37:12,680

the motivation and how should they be

3714

02:37:16,659 --> 02:37:14,449

behaving if that's what they're doing

3715

02:37:19,029 --> 02:37:16,669

based on what we see what is the

3716

02:37:20,979 --> 02:37:19,039

motivation so even if that's the

3717

02:37:22,599 --> 02:37:20,989

solution the if it is good they all heal

3718

02:37:23,920 --> 02:37:22,609

and which is not acknowledging them it

3719

02:37:26,139 --> 02:37:23,930

still doesn't answer the question

3720

02:37:28,960 --> 02:37:26,149

because the question really isn't all

3721

02:37:30,399 --> 02:37:28,970

there aliens the question is what are

3722

02:37:32,019 --> 02:37:30,409

they up to what's the civilization like

3723

02:37:33,370 --> 02:37:32,029

you know I don't want to know that

3724

02:37:36,010 --> 02:37:33,380

dolphins exist I want to know about

3725

02:37:39,069 --> 02:37:36,020

dolphins and so they're all aliens he'll

3726

02:37:40,840 --> 02:37:39,079

visit us in secret I want to know what

3727

02:37:42,340 --> 02:37:40,850

they want you know what what motivates

3728

02:37:44,800 --> 02:37:42,350

them what's their purpose what do they

3729

02:37:46,540 --> 02:37:44,810

want to do and we can see a million saw

3730

02:37:48,069 --> 02:37:46,550

one of them could land right there in

3731

02:37:49,510 --> 02:37:48,079

the middle of LA like you suggested and

3732

02:37:51,309 --> 02:37:49,520

that still doesn't answer the question

3733

02:37:53,590 --> 02:37:51,319

for us it's when they get out and they

3734

02:37:56,469 --> 02:37:53,600

talk to us and they answer all questions

3735

02:38:01,229 --> 02:37:56,479

that's when we get a solution do you

3736

02:38:04,630 --> 02:38:01,239

think that we would actually be close to

3737

02:38:07,929 --> 02:38:04,640

some of our ideas or theories now or

3738

02:38:10,120 --> 02:38:07,939

would we just not have a clue why they

3739

02:38:14,349 --> 02:38:10,130

were here we would just be completely

3740

02:38:15,729 --> 02:38:14,359

wrong oh I would say my skepticism in

3741

02:38:17,439 --> 02:38:15,739

that regard is to assume that we're

3742

02:38:18,969 --> 02:38:17,449

always going to be completely wrong and

3743

02:38:20,830 --> 02:38:18,979

all assumptions on things like this and

3744

02:38:23,019 --> 02:38:20,840

every one of these things I would say I

3745

02:38:24,989 --> 02:38:23,029

don't think either Fermi paradox answers

3746

02:38:27,519 --> 02:38:24,999

is probably gonna turn out to be right

3747

02:38:30,609 --> 02:38:27,529

insofar as most of them it's the answer

3748

02:38:32,019 --> 02:38:30,619

is why are they the least wrong when you

3749

02:38:33,909 --> 02:38:32,029

look at this there's got to be something

3750

02:38:35,679 --> 02:38:33,919

wrong and all basic thinking even with

3751

02:38:38,170 --> 02:38:35,689

the actual Rayo technology and auth

3752

02:38:40,010 --> 02:38:38,180

hypothesis the flaw there would have to

3753

02:38:41,689 --> 02:38:40,020

be all dull post

3754

02:38:43,309 --> 02:38:41,699

centric view of the universe we spent

3755

02:38:45,649 --> 02:38:43,319

centuries convincing ourselves that

3756

02:38:47,989 --> 02:38:45,659

authors not unique and not very

3757

02:38:51,229 --> 02:38:47,999

important and yet if life is that rail

3758

02:38:53,239 --> 02:38:51,239

that entire mindset that authors not all

3759

02:38:55,880 --> 02:38:53,249

that special it's just wrong and that's

3760

02:38:57,260 --> 02:38:55,890

a flaw nor thinking alternatively you

3761

02:38:58,880 --> 02:38:57,270

know with each one of these there has to

3762

02:39:00,710 --> 02:38:58,890

be some core flaw

3763

02:39:03,170 --> 02:39:00,720

you know our philosophy or post

3764

02:39:05,749 --> 02:39:03,180

knowledge all in what we know about the

3765

02:39:07,279 --> 02:39:05,759

universe this fall and that's that's

3766

02:39:09,319 --> 02:39:07,289

what's kind of cool about the phony

3767

02:39:11,420 --> 02:39:09,329

paradox in today is we know the answer

3768

02:39:13,309 --> 02:39:11,430

is gonna be something that requires us

3769

02:39:16,909 --> 02:39:13,319

to change the way we look at the

3770

02:39:20,659 --> 02:39:16,919

universe in some major fashion does that

3771

02:39:23,420 --> 02:39:20,669

scare you in that there's there's two

3772

02:39:26,989 --> 02:39:23,430

things that really freaked me out one

3773

02:39:28,939 --> 02:39:26,999

that there's no life after death that

3774

02:39:32,090 --> 02:39:28,949

scares the crap out of me that you just

3775

02:39:34,130 --> 02:39:32,100

die and turn into cosmic dust and you

3776

02:39:37,789 --> 02:39:34,140

achieve your place in evolution and

3777

02:39:39,559 --> 02:39:37,799

there's nothing else to it that scares

3778

02:39:41,510 --> 02:39:39,569

the crap out of me and you know what

3779

02:39:44,960 --> 02:39:41,520

else scares the crap out of me Isaac is

3780

02:39:49,519 --> 02:39:44,970

that there are people out there that

3781

02:39:51,409 --> 02:39:49,529

think that we are it that there is no

3782

02:39:54,559 --> 02:39:51,419

other life in the universe and if that

3783

02:39:57,260 --> 02:39:54,569

is the case if there's nothing to live

3784

02:39:59,659 --> 02:39:57,270

for then why don't we just burn this

3785

02:40:02,479 --> 02:39:59,669

planet down man why don't we just party

3786

02:40:04,760 --> 02:40:02,489

like it's 1999 Wow

3787

02:40:06,380 --> 02:40:04,770

well if we were the only life in the

3788

02:40:07,819 --> 02:40:06,390

universe and I mean I tend to think

3789

02:40:09,380 --> 02:40:07,829

we'll probably it for the galaxies in

3790

02:40:11,659 --> 02:40:09,390

terms of technology but the universe a

3791

02:40:14,749 --> 02:40:11,669

big place you know galaxies a tiny tiny

3792

02:40:17,059 --> 02:40:14,759

corner and but if we did to an out to be

3793

02:40:18,800 --> 02:40:17,069

the only intelligent life that arisen so

3794

02:40:20,779 --> 02:40:18,810

far and let's say no one's gonna come

3795

02:40:23,869 --> 02:40:20,789

into play anywhere for billions of years

3796

02:40:25,819 --> 02:40:23,879

then that means that you know we will

3797

02:40:27,859 --> 02:40:25,829

voted aliens one day as we get out there

3798

02:40:29,569 --> 02:40:27,869

and we make new buttons as we just go to

3799

02:40:32,479 --> 02:40:29,579

Ward after ward and settle them and they

3800

02:40:35,179 --> 02:40:32,489

diverge and it would be such a tragedy

3801
02:40:37,159 --> 02:40:35,189
if we were the only ones and we stayed

3802
02:40:38,809 --> 02:40:37,169
here and that's one of the reasons why I

3803
02:40:40,670 --> 02:40:38,819
figure is somebody would have had to be

3804
02:40:41,960 --> 02:40:40,680
forced whether it's us or not somebody

3805
02:40:44,149 --> 02:40:41,970
was the first on the scene in the

3806
02:40:45,859 --> 02:40:44,159
Oklahoma and they'd have to be thinking

3807
02:40:49,189 --> 02:40:45,869
the same stuff we're thinking right now

3808
02:40:51,079 --> 02:40:49,199
and if that's the case what a shame

3809
02:40:52,790 --> 02:40:51,089
would be if they said no we're gonna

3810
02:40:54,290 --> 02:40:52,800
stay heal

3811
02:40:55,790 --> 02:40:54,300
I can't see them doing that I have to

3812
02:40:58,490 --> 02:40:55,800
think that they would get out there and

3813
02:41:00,620 --> 02:40:58,500

explore and expand and colonize it's

3814

02:41:02,060 --> 02:41:00,630

because the universe is is you know we

3815

02:41:05,000 --> 02:41:02,070

always talk about how interesting space

3816

02:41:07,070 --> 02:41:05,010

is space is really boring but you only

3817

02:41:08,570 --> 02:41:07,080

looking at just the Vox and the star is

3818

02:41:09,830 --> 02:41:08,580

an ER the science the astronomy is

3819

02:41:13,070 --> 02:41:09,840

awesome but there's a lot of repetition

3820

02:41:15,470 --> 02:41:13,080

the uniqueness the coolness is what life

3821

02:41:18,680 --> 02:41:15,480

does I couldn't imagine leaving all

3822

02:41:20,330 --> 02:41:18,690

these systems the galaxy Baylin I'd want

3823

02:41:21,680 --> 02:41:20,340

to get out there and explore them and if

3824

02:41:26,660 --> 02:41:21,690

I found they were empty I'd want to put

3825

02:41:30,140 --> 02:41:26,670

something there yeah I mean the the goal

3826
02:41:31,940 --> 02:41:30,150
should be I would think that the goal

3827
02:41:35,841 --> 02:41:31,950
should be right now we should be

3828
02:41:38,570 --> 02:41:35,851
building interstellar generational ships

3829
02:41:40,820 --> 02:41:38,580
right now that's the we shouldn't be

3830
02:41:43,370 --> 02:41:40,830
focused on anything else but that and

3831
02:41:45,560 --> 02:41:43,380
putting you know three four or five

3832
02:41:47,990 --> 02:41:45,570
thousand people on them and shooting

3833
02:41:51,591 --> 02:41:48,000
them off in a direction whether it's

3834
02:41:54,591 --> 02:41:51,601
Alpha Centauri right I don't care pick

3835
02:41:56,060 --> 02:41:54,601
pick pick something and just head out in

3836
02:41:58,671 --> 02:41:56,070
that direction and eventually you're

3837
02:42:00,320 --> 02:41:58,681
gonna get there but this planet here

3838
02:42:03,110 --> 02:42:00,330

isn't going to be around forever and our

3839

02:42:04,790 --> 02:42:03,120

Sun is not either and that's what we

3840

02:42:06,320 --> 02:42:04,800

should be planning on is getting off

3841

02:42:11,150 --> 02:42:06,330

this planet we should have a goal that

3842

02:42:14,450 --> 02:42:11,160

unifies us all there is so much out

3843

02:42:16,551 --> 02:42:14,460

there that we can do and you know we

3844

02:42:18,410 --> 02:42:16,561

somewhere along the line we start off on

3845

02:42:21,020 --> 02:42:18,420

this earth it's a small tribe in one

3846

02:42:22,370 --> 02:42:21,030

location and we spread out even though

3847

02:42:23,750 --> 02:42:22,380

we couldn't talk to each other you know

3848

02:42:25,461 --> 02:42:23,760

you can't maintain a civilization

3849

02:42:27,921 --> 02:42:25,471

without faster than I travel over big

3850

02:42:29,870 --> 02:42:27,931

distances but you can set and colonies

3851

02:42:31,700 --> 02:42:29,880

out all those folks who set it all

3852

02:42:33,740 --> 02:42:31,710

across the planet back in the dawn of

3853

02:42:35,690 --> 02:42:33,750

time as a war they couldn't talk to each

3854

02:42:37,040 --> 02:42:35,700

other but they still spread out they

3855

02:42:39,980 --> 02:42:37,050

still sent their sons and daughters

3856

02:42:41,810 --> 02:42:39,990

after new places and I can't see us not

3857

02:42:43,881 --> 02:42:41,820

doing that and it's so hard for me to

3858

02:42:45,591 --> 02:42:43,891

imagine any other species choosing to do

3859

02:42:48,591 --> 02:42:45,601

that sunlight but they can't be the

3860

02:42:50,301 --> 02:42:48,601

majority they can't be all of them so

3861

02:42:52,250 --> 02:42:50,311

somebody's got to be out there doing it

3862

02:42:53,540 --> 02:42:52,260

and they're none this is where we always

3863

02:42:55,850 --> 02:42:53,550

come back to the possibility that we

3864

02:42:57,500 --> 02:42:55,860

might be really real I have to think it

3865

02:43:00,470 --> 02:42:57,510

was because we just had to be the first

3866

02:43:01,461 --> 02:43:00,480

on the scene but if we're not the only

3867

02:43:03,860 --> 02:43:01,471

thing that can make sense to me is

3868

02:43:05,440 --> 02:43:03,870

either in the long haul civilizations

3869

02:43:08,500 --> 02:43:05,450

just collapse out of existential

3870

02:43:10,120 --> 02:43:08,510

dread or they get out there and colonize

3871

02:43:11,710 --> 02:43:10,130

places and for some reason they just

3872

02:43:13,440 --> 02:43:11,720

haven't talked to us yet and there are

3873

02:43:16,240 --> 02:43:13,450

so many reasons that could be the case

3874

02:43:18,520 --> 02:43:16,250

maybe they do follow the prime directive

3875

02:43:20,620 --> 02:43:18,530

maybe they we just see the occasional

3876

02:43:22,630 --> 02:43:20,630

accident where somebody gets exposed but

3877

02:43:24,040 --> 02:43:22,640

they are trying to you know keep things

3878

02:43:26,440 --> 02:43:24,050

fairly quiet so they don't disrupt us

3879

02:43:27,580 --> 02:43:26,450

too much I can't imagine they have not

3880

02:43:29,290 --> 02:43:27,590

taken interest on us

3881

02:43:31,060 --> 02:43:29,300

if they all heal you know if they all

3882

02:43:33,670 --> 02:43:31,070

allowed the area how could they not find

3883

02:43:37,210 --> 02:43:33,680

us interesting we would yes or no

3884

02:43:43,210 --> 02:43:37,220

question would you go to Mars one way

3885

02:43:46,450 --> 02:43:43,220

trip no just gave us the best-case

3886

02:43:48,820 --> 02:43:46,460

scenario of generational ships and

3887

02:43:51,730 --> 02:43:48,830

colonizing but you won't sign up for

3888

02:43:53,710 --> 02:43:51,740

Mars if nobody else would I certainly

3889

02:43:55,240 --> 02:43:53,720

would but my philosophies they said well

3890

02:43:57,730 --> 02:43:55,250

this I got most of my traveling done

3891

02:43:59,679 --> 02:43:57,740

when I was younger I like staying at a

3892

02:44:02,170 --> 02:43:59,689

home right now and my nice quiet little

3893

02:44:03,730 --> 02:44:02,180

rule you know Haven there are so many

3894

02:44:06,100 --> 02:44:03,740

people who would be lying up for the

3895

02:44:07,510 --> 02:44:06,110

chance you know if this planet was

3896

02:44:09,400 --> 02:44:07,520

getting ready to go we had a hundred

3897

02:44:11,230 --> 02:44:09,410

million people that we could take off

3898

02:44:13,810 --> 02:44:11,240

plan to some new wall before the plant

3899

02:44:15,520 --> 02:44:13,820

blew up I'll give my ticket away if I

3900

02:44:16,929 --> 02:44:15,530

was lucky enough to win one because I'd

3901
02:44:18,490 --> 02:44:16,939
rather stay here and give to somebody

3902
02:44:20,710 --> 02:44:18,500
else who we are why are you out there

3903
02:44:22,870 --> 02:44:20,720
and explore I would love to hear about

3904
02:44:25,210 --> 02:44:22,880
what they see but I'm personally quite

3905
02:44:27,360 --> 02:44:25,220
happy to stay behind and let the folks

3906
02:44:29,200 --> 02:44:27,370
who enjoy the exploration and go do that

3907
02:44:32,020 --> 02:44:29,210
Isaac thank you for this conversation

3908
02:44:34,270 --> 02:44:32,030
tonight and let everybody know where

3909
02:44:36,190 --> 02:44:34,280
they can come and find you well thank

3910
02:44:37,480 --> 02:44:36,200
you for having me on Jimmy if you enjoy

3911
02:44:39,700 --> 02:44:37,490
the material my little more about the

3912
02:44:41,110 --> 02:44:39,710
fully paradox or colonizing galaxy just

3913
02:44:43,900 --> 02:44:41,120

check out YouTube

3914

02:44:48,100 --> 02:44:43,910

Isaac our Thor or Isaac or Thor dotnet

3915

02:44:50,200 --> 02:44:48,110

and how often do you put out new

3916

02:44:53,380 --> 02:44:50,210

material well we put out a weekly

3917

02:44:55,000 --> 02:44:53,390

episode every Thursday morning and we do

3918

02:44:56,860 --> 02:44:55,010

occasional some live streams in bonus

3919

02:44:59,800 --> 02:44:56,870

material too but every Thursday morning

3920

02:45:02,200 --> 02:44:59,810

new episode and really quick you have a

3921

02:45:05,679 --> 02:45:02,210

team that is behind you it's not just

3922

02:45:08,679 --> 02:45:05,689

all about Isaac Arthur who'd you like to

3923

02:45:11,530 --> 02:45:08,689

recognize with your team I think for

3924

02:45:13,480 --> 02:45:11,540

tonight we all recognize soggy Oh potato

3925

02:45:15,400 --> 02:45:13,490

is one of our artists working on some of

3926

02:45:17,920 --> 02:45:15,410

the episode material for cloud cities

3927

02:45:19,240 --> 02:45:17,930

episode next next week and I think folks

3928

02:45:20,740 --> 02:45:19,250

will love that we have so many

3929

02:45:22,180 --> 02:45:20,750

wonderful people though that have been

3930

02:45:23,890 --> 02:45:22,190

hope now on the channel that have just

3931

02:45:28,180 --> 02:45:23,900

made it so much better off yeah yeah

3932

02:45:30,430 --> 02:45:28,190

that's the thing you can you can do one

3933

02:45:33,370 --> 02:45:30,440

of two things with your stuff over on

3934

02:45:36,790 --> 02:45:33,380

the channel you can just sit and listen

3935

02:45:38,770 --> 02:45:36,800

in the dark or visually and just go

3936

02:45:40,330 --> 02:45:38,780

through the videos the amount of work

3937

02:45:43,540 --> 02:45:40,340

and production that goes into each one

3938

02:45:45,550 --> 02:45:43,550

is a true labor of love and it's great

3939

02:45:47,950 --> 02:45:45,560

to watch so thank you for all that you

3940

02:45:49,990 --> 02:45:47,960

do Isaac it's just an amazing body of

3941

02:45:52,030 --> 02:45:50,000

work now thank you for so much for

3942

02:45:52,870 --> 02:45:52,040

having me on Jimmy and we'll talk soon

3943

02:45:57,400 --> 02:45:52,880

Thank You Isaac

3944

02:46:01,120 --> 02:45:57,410

Oh Isaac say good night

3945

02:46:03,280 --> 02:46:01,130

good night I thought I lost you again at

3946

02:46:05,290 --> 02:46:03,290

the end of the show all right Isaac

3947

02:46:06,550 --> 02:46:05,300

Arthur everybody I'm gonna run credits

3948

02:46:10,840 --> 02:46:06,560

and get out of here thank you so much

3949

02:46:12,460 --> 02:46:10,850

Isaac it is Isaac Arthur dotnet and his

3950

02:46:16,330 --> 02:46:12,470

YouTube channel and everything else is

3951

02:46:18,850 --> 02:46:16,340

right there also Facebook Arthur I see

3952

02:46:20,860 --> 02:46:18,860

sort of Isaac other hangs out on

3953

02:46:23,710 --> 02:46:20,870

Facebook you can do whatever you need to

3954

02:46:26,350 --> 02:46:23,720

do all right I'll see everybody tomorrow

3955

02:46:28,390 --> 02:46:26,360

night right here for Fator night open

3956

02:46:31,720 --> 02:46:28,400

lines all night long we also have Serena

3957

02:46:32,650 --> 02:46:31,730

by Taylor and Douglas Taylor to warm up

3958

02:46:34,690 --> 02:46:32,660

the show tomorrow night

3959

02:46:36,940 --> 02:46:34,700

theta box executive producers Riddick

3960

02:46:39,910 --> 02:46:36,950

Murray on shows produced by Hilton Jay

3961

02:46:42,040 --> 02:46:39,920

Paul Renee Dennis and Bob announcers our

3962

02:46:44,230 --> 02:46:42,050

Steve Carter Jean Vito will mark D kovar

3963

02:46:47,200 --> 02:46:44,240

webmaster is true the geek music doug

3964

02:46:49,690 --> 02:46:47,210

aldrich intro space boys space boy music

3965

02:46:51,640 --> 02:46:49,700

calm fade to black is produced by

3966

02:46:55,180 --> 02:46:51,650

kjsurya game-changer network in

3967

02:46:57,340 --> 02:46:55,190

syndication as k gra the planet this

3968

02:46:58,780 --> 02:46:57,350

park has owned a copyright of 2019 by

3969

02:47:00,130 --> 02:46:58,790

fade to black in the game changer

3970

02:47:03,070 --> 02:47:00,140

network it cannot be rebroadcast

3971

02:47:04,750 --> 02:47:03,080

downloaded copy or use anywhere in the

3972

02:47:06,430 --> 02:47:04,760

known universe without written

3973

02:47:08,230 --> 02:47:06,440

permission from fade to black of the

3974

02:47:11,710 --> 02:47:08,240

GameChanger network I'm Mary Church

3975

02:47:15,460 --> 02:47:11,720

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02:47:25,880 --> 02:47:15,470

tomorrow night everybody be safe go back