



1  
00:00:54,530 --> 00:00:50,740

[Music]

2  
00:00:58,340 --> 00:00:54,540

this hope radio for the masses at Lyon

3  
00:01:00,320 --> 00:00:58,350

abyssal in July 1947 here on the airport

4  
00:01:02,150 --> 00:01:00,330

with open arms and applying this has

5  
00:01:05,329 --> 00:01:02,160

been found and is now in the possession

6  
00:01:09,380 --> 00:01:05,339

of the RA the game is rigged changed the

7  
00:01:12,620 --> 00:01:09,390

game changer I occasionally think how

8  
00:01:16,370 --> 00:01:12,630

quickly our differences worldwide would

9  
00:01:20,710 --> 00:01:16,380

vanish if we were facing an alien threat

10  
00:01:20,720 --> 00:01:24,179

[Applause]

11  
00:01:29,459 --> 00:01:26,639

fade to black with your host Jimmy

12  
00:01:36,020 --> 00:01:29,469

church on the GameChanger radio network

13  
00:01:39,480 --> 00:01:37,490

I need your help to do

14

00:01:41,140 --> 00:01:39,490

year 19

15

00:01:44,899 --> 00:01:41,150

five

16

00:01:46,999 --> 00:01:44,909

[Music]

17

00:01:49,930 --> 00:01:47,009

you're listening to fade to black with

18

00:02:05,840 --> 00:01:49,940

Jimmy judge on the game changer Network

19

00:02:09,740 --> 00:02:05,850

[Music]

20

00:02:09,750 --> 00:02:12,710

fade to black

21

00:02:19,590 --> 00:02:17,420

his spoke radio for

22

00:02:19,600 --> 00:02:23,600

masses

23

00:02:29,270 --> 00:02:26,510

[Music]

24

00:02:34,840 --> 00:02:29,280

tonight's the night it's Wednesday

25

00:02:40,810 --> 00:02:37,770

forty-four days into the new year just

26

00:02:43,510 --> 00:02:40,820

321 days left we are live from a bunker

27

00:02:45,400 --> 00:02:43,520

somewhere in the middle of the beautiful

28

00:02:46,930 --> 00:02:45,410

downtown Burbank California and I would

29

00:02:48,340 --> 00:02:46,940

like to welcome everybody listening all

30

00:02:51,980 --> 00:02:48,350

around the

31

00:02:56,450 --> 00:02:54,590

hither and thither to and fro back and

32

00:02:58,700 --> 00:02:56,460

forth up and down east and west north

33

00:03:02,870 --> 00:02:58,710

and south far and near

34

00:03:07,460 --> 00:03:02,880

this is fade to black for KJ CR the game

35

00:03:09,050 --> 00:03:07,470

changer network in kg are aid the planet

36

00:03:13,470 --> 00:03:09,060

I am your host to be Church what is

37

00:03:21,089 --> 00:03:16,440

how you dude you guys are getting so

38

00:03:23,610 --> 00:03:21,099

quick on the Twitter man grabbing the

39

00:03:28,500 --> 00:03:23,620

the video feeds from look at that man

40

00:03:29,940 --> 00:03:28,510

you guys are fast yeah

41

00:03:33,589 --> 00:03:29,950

you like those guitar picks don't you

42

00:03:36,509 --> 00:03:33,599

hey you guys a quick man I mean that was

43

00:03:38,039 --> 00:03:36,519

seconds follow me on twitter at Jade

44

00:03:41,850 --> 00:03:38,049

Turks radio that's what you want to do

45

00:03:44,130 --> 00:03:41,860

at Jade Church radio hashtag f2 B is the

46

00:03:45,809 --> 00:03:44,140

sandbox in real time that's where a

47

00:03:47,819 --> 00:03:45,819

conversation goes down but other

48

00:03:50,819 --> 00:03:47,829

conversations go down and Spreaker in

49

00:03:54,059 --> 00:03:50,829

that chat room and kgr a the planet to

50

00:03:57,660 --> 00:03:54,069

that chat room got email popping in real

51  
00:03:59,580 --> 00:03:57,670  
time that's right email in real time

52  
00:04:04,259 --> 00:03:59,590  
Jimmy had Jimmy Church radio calm

53  
00:04:06,089 --> 00:04:04,269  
imagine that emails gonna be big yeah

54  
00:04:09,750 --> 00:04:06,099  
it's gonna be big one day you're gonna

55  
00:04:12,390 --> 00:04:09,760  
see email you're gonna have one yeah

56  
00:04:17,909 --> 00:04:12,400  
Jimmy Jimmy turret radio DICOM how quick

57  
00:04:20,279 --> 00:04:17,919  
email has become passé all right I mean

58  
00:04:23,640 --> 00:04:20,289  
we all still use it but now it's about

59  
00:04:26,219 --> 00:04:23,650  
texting and and Twitter you know I tell

60  
00:04:28,409 --> 00:04:26,229  
you get a hold of people Mandy did you

61  
00:04:30,960 --> 00:04:28,419  
get my a Facebook message dude pick up

62  
00:04:33,150 --> 00:04:30,970  
the phone call me

63  
00:04:38,940 --> 00:04:33,160

we'll look at your message on Facebook

64

00:04:42,990 --> 00:04:38,950

ah it's crazy how we communicate today

65

00:04:43,379 --> 00:04:43,000

all right tonight right here on fade to

66

00:04:47,040 --> 00:04:43,389

black

67

00:04:52,469 --> 00:04:47,050

Isaac Arthur returns tonight we're gonna

68

00:04:54,690 --> 00:04:52,479

discuss the Fermi paradox Isaac did did

69

00:04:59,879 --> 00:04:54,700

the full show with me Sunday night over

70

00:05:03,839 --> 00:04:59,889

on coast to coast full four hours and he

71

00:05:07,050 --> 00:05:03,849

is absolutely amazing and I promised you

72

00:05:09,629 --> 00:05:07,060

a Fermi paradox show for over a year

73

00:05:11,820 --> 00:05:09,639

I've kind of danced in and out of it

74

00:05:13,950 --> 00:05:11,830

certainly danced in and out of it for

75

00:05:15,629 --> 00:05:13,960

the last four or five years but but I

76

00:05:19,409 --> 00:05:15,639

have promised a Fermi paradox show

77

00:05:21,060 --> 00:05:19,419

tonight it is here all right all right

78

00:05:23,130 --> 00:05:21,070

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

79

00:05:25,980 --> 00:05:23,140

do it from top to bottom you have the

80

00:05:27,150 --> 00:05:25,990

Fermi paradox tomorrow night open lines

81

00:05:29,850 --> 00:05:27,160

all night long we

82

00:05:31,950 --> 00:05:29,860

to have Serena and Doug Taylor will be

83

00:05:34,320 --> 00:05:31,960

here tomorrow night Serena right Taylor

84

00:05:38,280 --> 00:05:34,330

and Douglas Taylor will be with this

85

00:05:41,220 --> 00:05:38,290

tomorrow night and also open lines all

86

00:05:42,870 --> 00:05:41,230

night long okay there you go

87

00:05:47,460 --> 00:05:42,880

you know what to do when it comes to

88

00:05:50,490 --> 00:05:47,470

social media right on stellar Twitter

89

00:05:52,470 --> 00:05:50,500

Facebook YouTube it's all easy to get to

90

00:05:54,540 --> 00:05:52,480

head over to Jimmy Trudeau calm you can

91

00:05:57,930 --> 00:05:54,550

follow like and subscribe right there

92

00:06:02,640 --> 00:05:57,940

and hashtag F to B is the sandbox

93

00:06:06,510 --> 00:06:02,650

hashtag F to be Q on Twitter is fade to

94

00:06:09,150 --> 00:06:06,520

black questions okay it's really that

95

00:06:12,060 --> 00:06:09,160

simple and I keep everything up in front

96

00:06:19,130 --> 00:06:12,070

of me I know I talked about it but it's

97

00:06:22,740 --> 00:06:19,140

you guys alright listen the Twitter

98

00:06:24,480 --> 00:06:22,750

situation and as well as the chat rooms

99

00:06:28,110 --> 00:06:24,490

and everything but Twitter you guys

100

00:06:31,710 --> 00:06:28,120

created this monster you guys did it I

101  
00:06:33,390 --> 00:06:31,720  
didn't do it read it in the nope you

102  
00:06:35,700 --> 00:06:33,400  
guys did it you guys named it the

103  
00:06:37,650 --> 00:06:35,710  
sandbox you guys came up with the

104  
00:06:40,440 --> 00:06:37,660  
hashtags I don't know why you put the

105  
00:06:42,390 --> 00:06:40,450  
number 2 in there it could have been FTB

106  
00:06:45,750 --> 00:06:42,400  
that would have made things easy but no

107  
00:06:48,110 --> 00:06:45,760  
we got a no we got to throw a 2 in there

108  
00:06:52,920 --> 00:06:48,120  
so okay but you guys did all of that he

109  
00:06:54,480 --> 00:06:52,930  
created this so yeah I'm proud but now

110  
00:06:57,930 --> 00:06:54,490  
I've got to pay attention to it

111  
00:07:02,760 --> 00:06:57,940  
throughout the entire show it is

112  
00:07:05,430 --> 00:07:02,770  
incredible what is happening here it I

113  
00:07:10,230 --> 00:07:05,440

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

114

00:07:11,730 --> 00:07:10,240

humbled by it and now the communication

115

00:07:14,280 --> 00:07:11,740

I was just talking about this a second

116

00:07:16,290 --> 00:07:14,290

ago the communication where I am

117

00:07:18,570 --> 00:07:16,300

interacting with everybody I don't

118

00:07:20,940 --> 00:07:18,580

necessarily check my email I might do

119

00:07:24,360 --> 00:07:20,950

that a couple times a day unless the

120

00:07:28,950 --> 00:07:24,370

alert comes in I might check all right

121

00:07:33,090 --> 00:07:28,960

but now a Twitter Facebook Facebook I'll

122

00:07:35,730 --> 00:07:33,100

jump over there once a day for a minute

123

00:07:37,230 --> 00:07:35,740

see if there's an emergency or any

124

00:07:39,240 --> 00:07:37,240

messages I don't even have facebook

125

00:07:42,060 --> 00:07:39,250

messenger on my phone anymore that

126

00:07:44,910 --> 00:07:42,070

that's been turned off for for a long

127

00:07:47,070 --> 00:07:44,920

time so I don't even do that alright it

128

00:07:50,100 --> 00:07:47,080

is just it's a Twitter world these days

129

00:07:52,160 --> 00:07:50,110

it really really is alright so you know

130

00:07:55,020 --> 00:07:52,170

what to do with social media okay and

131

00:07:59,300 --> 00:07:55,030

now we've got some breaking news it was

132

00:08:02,400 --> 00:07:59,310

announced today that's right opportunity

133

00:08:05,730 --> 00:08:02,410

last night NASA reached out one final

134

00:08:08,310 --> 00:08:05,740

time to opportunity that rover on Mars

135

00:08:10,770 --> 00:08:08,320

which has been chugging along for so

136

00:08:14,130 --> 00:08:10,780

many years now hoping that it would

137

00:08:16,470 --> 00:08:14,140

reach out and communicate maybe phone

138

00:08:19,710 --> 00:08:16,480

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

139

00:08:23,130 --> 00:08:19,720

okay my windshield wipers work since

140

00:08:26,370 --> 00:08:23,140

June it's been completely unresponsive

141

00:08:29,640 --> 00:08:26,380

and it's most likely because of a

142

00:08:32,969 --> 00:08:29,650

planet-wide sandstorm has covered its

143

00:08:37,020 --> 00:08:32,979

solar panels with dust and NASA pinged

144

00:08:39,240 --> 00:08:37,030

it over 1,000 times hoping over the last

145

00:08:42,300 --> 00:08:39,250

eight months to to get a response

146

00:08:45,600 --> 00:08:42,310

nothing happened and today nASA has

147

00:08:54,630 --> 00:08:45,610

announced that opportunity is officially

148

00:08:57,570 --> 00:08:54,640

dead dead like Momo dead sad - sad and

149

00:09:00,030 --> 00:08:57,580

the okay let me let me jump in and say

150

00:09:02,660 --> 00:09:00,040

something last night I brought up the

151  
00:09:05,940 --> 00:09:02,670  
new TV series well it's not new

152  
00:09:09,450 --> 00:09:05,950  
2016-2017 Mars and we're binging it now

153  
00:09:13,079 --> 00:09:09,460  
and it's really really good I don't know

154  
00:09:15,270 --> 00:09:13,089  
what episode were on right now seven

155  
00:09:17,460 --> 00:09:15,280  
maybe eight number nine somewhere in

156  
00:09:22,350 --> 00:09:17,470  
there and they're going through a dust

157  
00:09:24,210 --> 00:09:22,360  
storm on Mars and I started to think

158  
00:09:26,579 --> 00:09:24,220  
about opportunity when the word was

159  
00:09:28,350 --> 00:09:26,589  
coming out and Corby Way said he's got

160  
00:09:30,090 --> 00:09:28,360  
some news he's about to communicate with

161  
00:09:30,690 --> 00:09:30,100  
us we might have Corby on the show

162  
00:09:33,000 --> 00:09:30,700  
tomorrow night

163  
00:09:34,620 --> 00:09:33,010

he's probably listening right now we'd

164

00:09:37,170 --> 00:09:34,630

like to get Corby out and I know that he

165

00:09:40,050 --> 00:09:37,180

was over at JPL when all of this was

166

00:09:44,220 --> 00:09:40,060

going down and but I started thinking

167

00:09:46,980 --> 00:09:44,230

last night solar panels we have over on

168

00:09:48,870 --> 00:09:46,990

our house we have solar panels we have

169

00:09:50,970 --> 00:09:48,880

solar power and what you have to do with

170

00:09:51,630 --> 00:09:50,980

those solar panels is you've got to wash

171

00:09:53,730 --> 00:09:51,640

them

172

00:09:55,139 --> 00:09:53,740

right like window washers you know and

173

00:09:59,610 --> 00:09:55,149

they come out and they go up there and

174

00:10:03,600 --> 00:09:59,620

and clean them off well why wouldn't

175

00:10:07,560 --> 00:10:03,610

there be like windshield wipers on the

176  
00:10:08,639 --> 00:10:07,570  
solar panels yeah we all know about the

177  
00:10:10,620 --> 00:10:08,649  
dust on Mars

178  
00:10:12,210 --> 00:10:10,630  
why isn't there something you know okay

179  
00:10:15,360 --> 00:10:12,220  
so the solar panels here why isn't there

180  
00:10:20,660 --> 00:10:15,370  
something to go goes re3 and knocks the

181  
00:10:24,900 --> 00:10:20,670  
dust off where is that technology I

182  
00:10:26,730 --> 00:10:24,910  
don't get it I just you know you dot you

183  
00:10:29,850 --> 00:10:26,740  
design something like that it weights as

184  
00:10:32,280 --> 00:10:29,860  
much as a car you know it's beautiful

185  
00:10:38,060 --> 00:10:32,290  
technology if it did it did work for

186  
00:10:41,579 --> 00:10:38,070  
years but why wasn't there a wiper we

187  
00:10:43,740 --> 00:10:41,589  
clean that stuff off all right

188  
00:10:45,780 --> 00:10:43,750

all right I know it sounds so simple now

189

00:10:50,220 --> 00:10:45,790

hopefully in the future and it's the

190

00:10:52,380 --> 00:10:50,230

same thing with isn't there like with

191

00:10:54,300 --> 00:10:52,390

the ISS or all of the satellites that

192

00:10:57,750 --> 00:10:54,310

are up there now you know if you're up

193

00:11:03,710 --> 00:10:57,760

there for 2 3 4 5 10 15 years at a crack

194

00:11:07,710 --> 00:11:03,720

aren't you accumulating dust right I

195

00:11:09,750 --> 00:11:07,720

think so so are they cleaning it or do

196

00:11:11,699 --> 00:11:09,760

they go out to do the astronauts go out

197

00:11:15,569 --> 00:11:11,709

I'm not making fun here I'm not being

198

00:11:18,210 --> 00:11:15,579

cavalier do they go out and wipe the

199

00:11:24,410 --> 00:11:18,220

solar panels down that's funny Kevin

200

00:11:27,240 --> 00:11:24,420

thank you for that yeah II I'm serious

201  
00:11:29,400 --> 00:11:27,250  
I'm serious it just bums me out

202  
00:11:33,569 --> 00:11:29,410  
opportunity was really really cool come

203  
00:11:35,790 --> 00:11:33,579  
join us next week for the 2019 conscious

204  
00:11:39,930 --> 00:11:35,800  
life Expo right here in Los Angeles at

205  
00:11:44,160 --> 00:11:39,940  
the LAX Hilton gotten a lot of texts and

206  
00:11:46,439 --> 00:11:44,170  
tweets and email over the last week you

207  
00:11:49,829 --> 00:11:46,449  
know excited to come and hang out and

208  
00:11:53,250 --> 00:11:49,839  
meet you and stuff and it's weird how

209  
00:11:56,430 --> 00:11:53,260  
it's ramping up right now but next week

210  
00:11:59,370 --> 00:11:56,440  
today's the 13th next week unbelievable

211  
00:12:02,430 --> 00:11:59,380  
February 22nd through the 25th at the

212  
00:12:04,550 --> 00:12:02,440  
LAX Hilton and just head over to

213  
00:12:06,230 --> 00:12:04,560

conscious life Expo calm and get

214

00:12:09,260 --> 00:12:06,240

full conference schedule right there

215

00:12:12,140 --> 00:12:09,270

with the correct times by the way and

216

00:12:14,180 --> 00:12:12,150

Friday night I'll be hosting the ancient

217

00:12:16,430 --> 00:12:14,190

aliens panel with Erich von Daniken's

218

00:12:18,019 --> 00:12:16,440

celebrating the 50th anniversary of

219

00:12:20,060 --> 00:12:18,029

Chariots of the Gods you've got to get

220

00:12:23,750 --> 00:12:20,070

tickets for that panel in advance

221

00:12:25,940 --> 00:12:23,760

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

222

00:12:28,760 --> 00:12:25,950

after that is contacting the desert that

223

00:12:31,130 --> 00:12:28,770

is May 31st through June 3rd in Indian

224

00:12:33,470 --> 00:12:31,140

Wells Palm Springs California tickets

225

00:12:35,329 --> 00:12:33,480

and info over at contact in the desert

226

00:12:36,200 --> 00:12:35,339

common when you go over and get your

227

00:12:40,070 --> 00:12:36,210

tickets there

228

00:12:43,100 --> 00:12:40,080

don't forget the on Saturday night I'll

229

00:12:46,070 --> 00:12:43,110

be hosting the awards dinner so you want

230

00:12:49,820 --> 00:12:46,080

to get your tickets for that at contact

231

00:12:52,160 --> 00:12:49,830

in the desert calm and then 2019 soul

232

00:12:54,230 --> 00:12:52,170

tech conference is happening over the

233

00:12:56,720 --> 00:12:54,240

July 4th weekend at the sunrise ranch in

234

00:12:58,880 --> 00:12:56,730

Loveland Colorado sign up for tickets

235

00:13:02,360 --> 00:12:58,890

and info right now at soul tech

236

00:13:04,940 --> 00:13:02,370

gathering dot-com all right don't forget

237

00:13:07,550 --> 00:13:04,950

to subscribe to our podcast it is just

238

00:13:09,170 --> 00:13:07,560

two dollars per month go to Jimmy

239

00:13:11,600 --> 00:13:09,180

tortilla com click on that podcast

240

00:13:17,030 --> 00:13:11,610

banner also and I made this announcement

241

00:13:21,200 --> 00:13:17,040

last night I did it last week send us

242

00:13:24,410 --> 00:13:21,210

your pictures of you and your fade to

243

00:13:26,600 --> 00:13:24,420

black gear ok hats t-shirts because

244

00:13:29,000 --> 00:13:26,610

we're gonna be building up a fader not

245

00:13:32,090 --> 00:13:29,010

gallery over at Jimmy Church radio calm

246

00:13:34,790 --> 00:13:32,100

with all of you we have hundreds

247

00:13:38,300 --> 00:13:34,800

hundreds literally hundreds of pictures

248

00:13:41,660 --> 00:13:38,310

I want them all I want them all we we

249

00:13:43,520 --> 00:13:41,670

send out stuff every single day so post

250

00:13:46,579 --> 00:13:43,530

them up in Twitter send them to me via

251

00:13:49,460 --> 00:13:46,589

email take care of it I want all of you

252

00:13:51,500 --> 00:13:49,470

in the fader not gallery you can go and

253

00:13:53,449 --> 00:13:51,510

get your fate or not gear over in our

254

00:13:55,430 --> 00:13:53,459

membership section on the site you can

255

00:13:58,370 --> 00:13:55,440

also order t-shirts there at Jimmy

256

00:14:01,880 --> 00:13:58,380

Church radio calm in the store

257

00:14:07,010 --> 00:14:01,890

ok alright where are we happy birthday

258

00:14:12,230 --> 00:14:07,020

to today Peter Gabriel Peter Gabriel

259

00:14:16,550 --> 00:14:12,240

today is 69 Henry Rollins the guy with

260

00:14:17,060 --> 00:14:16,560

the neck right Henry Rollins today Black

261

00:14:18,440 --> 00:14:17,070

Flag

262

00:14:26,990 --> 00:14:18,450

today is

263

00:14:29,690 --> 00:14:27,000

Stockard Channing one of my favorite

264

00:14:32,840 --> 00:14:29,700

actresses every year I say happy

265

00:14:36,110 --> 00:14:32,850

birthday to her today she is 75 and also

266

00:14:42,740 --> 00:14:36,120

Peter Tork bass player for the Monkees

267

00:14:47,740 --> 00:14:42,750

Peter Tork today is 77 okay all right

268

00:14:52,250 --> 00:14:47,750

let me hit this coffee River Moon

269

00:14:53,390 --> 00:14:52,260

fade to black blend f2b blend go to

270

00:14:57,050 --> 00:14:53,400

River moon coffee

271

00:14:58,580 --> 00:14:57,060

fade to black Plan F to B blend 15% off

272

00:15:00,830 --> 00:14:58,590

of your order that's your that's your

273

00:15:03,260 --> 00:15:00,840

promo code you've got to get some of

274

00:15:04,700 --> 00:15:03,270

this coffee and is the but I cannot make

275

00:15:06,710 --> 00:15:04,710

it through a show I can't make it

276

00:15:10,160 --> 00:15:06,720

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

277

00:15:12,200 --> 00:15:10,170

out of bed in the morning Rita that's

278

00:15:14,630 --> 00:15:12,210

how I get out of bed cuz I smell the

279

00:15:16,370 --> 00:15:14,640

coffee from downstairs oh my god you

280

00:15:19,040 --> 00:15:16,380

know and once you get that whiff you

281

00:15:22,190 --> 00:15:19,050

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

282

00:15:24,830 --> 00:15:22,200

can't do it something triggers in your

283

00:15:27,290 --> 00:15:24,840

body it's like man got that fade to

284

00:15:29,630 --> 00:15:27,300

black blend coffee that's exactly what

285

00:15:31,370 --> 00:15:29,640

happens and you need to go through that

286

00:15:34,730 --> 00:15:31,380

you need to go through the addiction

287

00:15:36,770 --> 00:15:34,740

that I have all right NASA is a good

288

00:15:38,990 --> 00:15:36,780

storyteller yes thank you so much for

289

00:15:46,310 --> 00:15:39,000

that Dan on this day in history

290

00:15:49,600 --> 00:15:46,320

ot D 1633 on this day Galileo arrives in

291

00:15:53,270 --> 00:15:49,610

Rome to face charges of heresy for

292

00:15:56,600 --> 00:15:53,280

advocating the Copernican theory which

293

00:16:01,660 --> 00:15:56,610

said that the Earth revolves around the

294

00:16:05,330 --> 00:16:01,670

Sun ended up going to jail house arrest

295

00:16:07,190 --> 00:16:05,340

for the rest of his life yeah he had to

296

00:16:09,470 --> 00:16:07,200

plead guilty to lesser charges they

297

00:16:12,920 --> 00:16:09,480

actually had that kind of thing back in

298

00:16:14,090 --> 00:16:12,930

1633 thank you Eric look at that see

299

00:16:16,400 --> 00:16:14,100

that's what I'm talking about

300

00:16:18,590 --> 00:16:16,410

Eric stood in his full Fader gear is

301  
00:16:21,200 --> 00:16:18,600  
gonna get a retweet he wants to be the

302  
00:16:22,580 --> 00:16:21,210  
top person in the fader not Gallery and

303  
00:16:24,980 --> 00:16:22,590  
you know what you keep whipping out

304  
00:16:27,190 --> 00:16:24,990  
pictures like that look you know what he

305  
00:16:29,360 --> 00:16:27,200  
looks good I think the way the autograph

306  
00:16:31,250 --> 00:16:29,370  
shows up on the hat to Eric that's

307  
00:16:32,090 --> 00:16:31,260  
really cool but that's not what I see

308  
00:16:35,390 --> 00:16:32,100  
here

309  
00:16:38,090 --> 00:16:35,400  
I see is that a coffee is that a French

310  
00:16:41,420 --> 00:16:38,100  
press in the background that's why I see

311  
00:16:44,210 --> 00:16:41,430  
I see the French press on the countertop

312  
00:16:46,820 --> 00:16:44,220  
in the amazing artwork right there is

313  
00:16:50,780 --> 00:16:46,830

that I'm not even gonna say it on the

314

00:16:52,990 --> 00:16:50,790

air I think that's my poster behind Eric

315

00:16:59,830 --> 00:16:53,000

look at that okay all right

316

00:17:05,360 --> 00:16:59,840

where am I at Galileo 1633 where am i ad

317

00:17:09,579 --> 00:17:05,370

1633 Galileo Galileo fader fact Elvis

318

00:17:10,939 --> 00:17:09,589

Presley's manager Colonel Tom Parker

319

00:17:16,520 --> 00:17:10,949

sold

320

00:17:19,420 --> 00:17:16,530

I hate Elvis buttons and badges as a way

321

00:17:24,490 --> 00:17:19,430

to make money off of people at concerts

322

00:17:28,490 --> 00:17:26,510

that's a true story

323

00:17:31,100 --> 00:17:28,500

I had heard those rumors when I was a

324

00:17:37,220 --> 00:17:31,110

kid you know that you could buy I hate

325

00:17:39,440 --> 00:17:37,230

Elvis buttons because they want to make

326

00:17:43,820 --> 00:17:39,450

money and you know I heard you know but

327

00:17:45,740 --> 00:17:43,830

it turns out yes it was in deed true all

328

00:17:49,340 --> 00:17:45,750

right all right

329

00:17:50,960 --> 00:17:49,350

tonight right here very special guest

330

00:17:53,660 --> 00:17:50,970

Isaac Arthur we're going to be talking

331

00:17:54,440 --> 00:17:53,670

about the Fermi paradox we're gonna

332

00:17:56,900 --> 00:17:54,450

break it all down

333

00:18:00,410 --> 00:17:56,910

tomorrow night's open lines and we do

334

00:18:02,990 --> 00:18:00,420

have sarena right Taylor and Douglas

335

00:18:05,750 --> 00:18:03,000

Taylor here to join us and have a little

336

00:18:08,150 --> 00:18:05,760

conversation to warm up the show for all

337

00:18:14,480 --> 00:18:08,160

of you tomorrow night but first I wanted

338

00:18:17,240 --> 00:18:14,490

to discuss the Fermi paradox tonight

339

00:18:19,730 --> 00:18:17,250

Isaac Arthur's here and we're going to

340

00:18:22,730 --> 00:18:19,740

be spending all of our time discussing

341

00:18:27,710 --> 00:18:22,740

the question right where is everybody

342

00:18:29,150 --> 00:18:27,720

where is et and it's possible answer so

343

00:18:31,580 --> 00:18:29,160

that's the question the Fermi paradox

344

00:18:34,580 --> 00:18:31,590

and it's possible answers and there are

345

00:18:35,900 --> 00:18:34,590

many there's a lot of answers so that we

346

00:18:37,570 --> 00:18:35,910

don't have to take away from the show

347

00:18:40,640 --> 00:18:37,580

tonight here's a little historical

348

00:18:42,890 --> 00:18:40,650

perspective on the on the paradox and

349

00:18:45,620 --> 00:18:42,900

how it evolved because back in 1950

350

00:18:48,740 --> 00:18:45,630

while working at the Los Alamos National

351

00:18:53,320 --> 00:18:48,750

laboratory firming Fermi had a casual

352

00:18:54,970 --> 00:18:53,330

conversation while walking to lunch with

353

00:19:00,650 --> 00:18:54,980

Emil

354

00:19:04,460 --> 00:19:00,660

kind of be caught up in ski Edward

355

00:19:08,380 --> 00:19:04,470

Teller right the physicist at Herbert

356

00:19:12,350 --> 00:19:08,390

York the men discussed a recent spate of

357

00:19:15,620 --> 00:19:12,360

UFO reports and Alan and an Alan done

358

00:19:19,640 --> 00:19:15,630

cartoon that was blaming the

359

00:19:20,420 --> 00:19:19,650

disappearance of municipal trash cans on

360

00:19:22,640 --> 00:19:20,430

aliens

361

00:19:24,650 --> 00:19:22,650

alright so that's what was going down

362

00:19:28,280 --> 00:19:24,660

the conversation shifted to other

363

00:19:32,690 --> 00:19:28,290

subjects until during lunch Fermi

364

00:19:35,600 --> 00:19:32,700

suddenly exclaimed where are they right

365

00:19:38,750 --> 00:19:35,610

where is everybody and Teller

366

00:19:41,690 --> 00:19:38,760

Edward Teller says he remembers that and

367

00:19:44,060 --> 00:19:41,700

I'm quoting the result of his question

368

00:19:46,670 --> 00:19:44,070

was a general laughter because of the

369

00:19:49,360 --> 00:19:46,680

strange fact that in spite of Fermi's

370

00:19:51,410 --> 00:19:49,370

question coming out from the clear blue

371

00:19:53,990 --> 00:19:51,420

everybody around the table seemed to

372

00:19:57,400 --> 00:19:54,000

understand at once that he was talking

373

00:20:01,100 --> 00:19:57,410

about extraterrestrial life and quote

374

00:20:03,020 --> 00:20:01,110

Herbert your creek recalls that Fermi

375

00:20:05,960 --> 00:20:03,030

followed up on his comment with a series

376

00:20:08,270 --> 00:20:05,970

of calculations on the probability of

377

00:20:10,730 --> 00:20:08,280

earth-like planets the probability of

378

00:20:14,060 --> 00:20:10,740

life the likely rise in duration of high

379

00:20:16,970 --> 00:20:14,070

technology etc and concluded that we

380

00:20:20,390 --> 00:20:16,980

ought to have been visited long ago and

381

00:20:24,410 --> 00:20:20,400

many times over okay

382

00:20:28,940 --> 00:20:24,420

now although Fermi's name is most

383

00:20:30,890 --> 00:20:28,950

commonly associated with the paradox he

384

00:20:38,260 --> 00:20:30,900

was not the first to ask the question an

385

00:20:45,500 --> 00:20:42,560

click offski alright in an unpublished

386

00:20:48,200 --> 00:20:45,510

manuscript from 1933 he noted people

387

00:20:50,270 --> 00:20:48,210

deny the presence of intelligent beings

388

00:20:53,600 --> 00:20:50,280

on planets of the universe because of

389

00:20:56,420 --> 00:20:53,610

one if such beings exist they would have

390

00:20:58,799 --> 00:20:56,430

visited earth and - if such

391

00:21:02,369 --> 00:20:58,809

civilizations existed they would have

392

00:21:04,230 --> 00:21:02,379

and giving us some sign of their

393

00:21:07,200 --> 00:21:04,240

existence end quote

394

00:21:09,450 --> 00:21:07,210

this was not a paradox you know for

395

00:21:12,419 --> 00:21:09,460

others who took this too implied that

396

00:21:15,419 --> 00:21:12,429

the absent of ETS but more that it was

397

00:21:17,249 --> 00:21:15,429

for him since he himself was a strong

398

00:21:19,409 --> 00:21:17,259

believer in extraterrestrial life in the

399

00:21:21,210 --> 00:21:19,419

possibility of space travel therefore

400

00:21:24,570 --> 00:21:21,220

and that was in 1933

401  
00:21:28,169 --> 00:21:24,580  
therefore he proposed what is now known

402  
00:21:30,840 --> 00:21:28,179  
as the zoo hypothesis and speculated

403  
00:21:34,379 --> 00:21:30,850  
that mankind is not yet ready for higher

404  
00:21:36,119 --> 00:21:34,389  
beings to contact us right he himself

405  
00:21:39,060 --> 00:21:36,129  
may have not been the first who

406  
00:21:42,230 --> 00:21:39,070  
discovered the paradox and suggested by

407  
00:21:44,879 --> 00:21:42,240  
his above-mentioned reference to others

408  
00:21:47,779 --> 00:21:44,889  
reasons for denying the existence of

409  
00:21:51,779 --> 00:21:47,789  
extraterrestrial civilizations now

410  
00:21:55,169 --> 00:21:51,789  
moving on Michael H Hart published in

411  
00:21:59,940 --> 00:21:55,179  
1975 a detailed examination of the

412  
00:22:02,759 --> 00:21:59,950  
paradox which seems to have become a

413  
00:22:04,519 --> 00:22:02,769

theoretical reference point for for much

414

00:22:07,529 --> 00:22:04,529

of the research into what is now

415

00:22:08,460 --> 00:22:07,539

sometimes known as the Fermi Hart

416

00:22:13,700 --> 00:22:08,470

paradox

417

00:22:18,600 --> 00:22:13,710

well Fermi laid it out in 1950 Hart

418

00:22:23,460 --> 00:22:18,610

revisited it in depth in 1975 and today

419

00:22:27,509 --> 00:22:23,470

in 2019 we we know magnitudes more than

420

00:22:33,869 --> 00:22:27,519

we did in 1995 led long back in 75 or

421

00:22:37,470 --> 00:22:33,879

1950 my view of the paradox is not as

422

00:22:43,080 --> 00:22:37,480

much as where are they as much as why

423

00:22:48,230 --> 00:22:43,090

are they et holding back why are they

424

00:22:51,149 --> 00:22:48,240

holding back or are they see I think I

425

00:22:53,549 --> 00:22:51,159

think that many many many different

426

00:22:57,749 --> 00:22:53,559

civilizations are visiting us every

427

00:22:59,850 --> 00:22:57,759

single day not just one a lot you can go

428

00:23:02,909 --> 00:22:59,860

out on any given night and see at least

429

00:23:04,529 --> 00:23:02,919

one strange thing in the sky not a

430

00:23:08,279 --> 00:23:04,539

satellite or something that's

431

00:23:10,570 --> 00:23:08,289

explainable I mean at least one strange

432

00:23:14,769 --> 00:23:10,580

thing that you can ik

433

00:23:17,590 --> 00:23:14,779

Blayne but where is the gigantic

434

00:23:20,169 --> 00:23:17,600

mothership not something that arrives

435

00:23:23,110 --> 00:23:20,179

here on earth and flies over New York

436

00:23:28,560 --> 00:23:23,120

City and parts itself I'm just talking

437

00:23:31,000 --> 00:23:28,570

about like a crazy fly by something like

438

00:23:33,519 --> 00:23:31,010

something that's the size of our moon

439

00:23:35,980 --> 00:23:33,529

look you can go anywhere on this planet

440

00:23:38,980 --> 00:23:35,990

look up and see the moon right there it

441

00:23:42,370 --> 00:23:38,990

is for everybody to see so what about

442

00:23:44,350 --> 00:23:42,380

that something that ginormous something

443

00:23:47,019 --> 00:23:44,360

that we could clearly see you know all

444

00:23:49,539 --> 00:23:47,029

the nations of the earth you know and

445

00:23:52,779 --> 00:23:49,549

see words that and just look and go that

446

00:23:55,840 --> 00:23:52,789

that that's et you know just something

447

00:23:58,090 --> 00:23:55,850

just you know a fly by just to fly by

448

00:24:00,100 --> 00:23:58,100

not not entering the atmosphere or not

449

00:24:01,990 --> 00:24:00,110

landing not this not that take me to

450

00:24:04,779 --> 00:24:02,000

your leader I'm just talking about just

451  
00:24:07,659 --> 00:24:04,789  
a cruise you know and hang out there for

452  
00:24:10,060 --> 00:24:07,669  
a little bit where is that that's the

453  
00:24:13,210 --> 00:24:10,070  
part of the paradox that baffles me and

454  
00:24:17,519 --> 00:24:13,220  
maybe just maybe maybe maybe that

455  
00:24:21,629 --> 00:24:17,529  
although we see our planet as unique

456  
00:24:25,149 --> 00:24:21,639  
maybe there are billions just like ours

457  
00:24:28,539 --> 00:24:25,159  
just like Earth maybe even better maybe

458  
00:24:34,899 --> 00:24:28,549  
bigger maybe nicer that are you know

459  
00:24:38,409 --> 00:24:34,909  
that are worth et's time yeah right but

460  
00:24:44,169 --> 00:24:38,419  
maybe when it comes to earth et is like

461  
00:24:49,379 --> 00:24:44,179  
man earth is ok but let's go to Planet

462  
00:24:52,600 --> 00:24:49,389  
Vegas baby you know maybe it's like that

463  
00:24:55,379 --> 00:24:52,610

think about it that maybe we're just not

464

00:25:01,990 --> 00:24:55,389

that unique maybe we were just like hey

465

00:25:07,360 --> 00:25:02,000

so ok let's say that I'm right let's say

466

00:25:10,509 --> 00:25:07,370

that et many et's know we are here and

467

00:25:12,730 --> 00:25:10,519

they visit all the time but they just

468

00:25:17,980 --> 00:25:12,740

kind of leave us alone they're not that

469

00:25:23,350 --> 00:25:17,990

interested the bigger paradox the church

470

00:25:24,130 --> 00:25:23,360

paradox is who on this planet knows the

471

00:25:28,150 --> 00:25:24,140

truth

472

00:25:32,440 --> 00:25:28,160

and why are they not telling us because

473

00:25:37,750 --> 00:25:32,450

that's a paradox and that's the bigger

474

00:25:40,990 --> 00:25:37,760

question I know any skeptic anybody

475

00:25:43,750 --> 00:25:41,000

because I was one I know that I can take

476

00:25:46,930 --> 00:25:43,760

out on any given I take out my night

477

00:25:48,730 --> 00:25:46,940

vision just go out and and look to the

478

00:25:52,080 --> 00:25:48,740

Stars look to them and see something try

479

00:25:56,400 --> 00:25:52,090

I know that we are being visited every

480

00:26:00,460 --> 00:25:56,410

single day and what I have always always

481

00:26:01,840 --> 00:26:00,470

suggested very strongly is that we are

482

00:26:03,550 --> 00:26:01,850

doing the same thing we're trying to

483

00:26:06,340 --> 00:26:03,560

figure it out we're out there looking to

484

00:26:08,110 --> 00:26:06,350

the stars we've been wondering since day

485

00:26:10,660 --> 00:26:08,120

one are we alone in the universe

486

00:26:12,850 --> 00:26:10,670

that's what we do et's got to be doing

487

00:26:15,400 --> 00:26:12,860

the same thing alright and traveling

488

00:26:17,470 --> 00:26:15,410

these vast distances forget about the

489

00:26:21,640 --> 00:26:17,480

universe just inside of our Milky Way

490

00:26:25,690 --> 00:26:21,650

takes time take a million years to cross

491

00:26:29,560 --> 00:26:25,700

the Milky Way a million years a million

492

00:26:31,390 --> 00:26:29,570

and everything gets investigated in

493

00:26:32,560 --> 00:26:31,400

between so you wouldn't you would do

494

00:26:34,540 --> 00:26:32,570

that you know what you would do that

495

00:26:39,070 --> 00:26:34,550

with with what we are seeing in the

496

00:26:39,490 --> 00:26:39,080

skies probes things cruising collecting

497

00:26:44,490 --> 00:26:39,500

data

498

00:26:48,370 --> 00:26:44,500

splitting not by one civilization by

499

00:26:51,220 --> 00:26:48,380

thousands because if I can go anywhere

500

00:26:54,490 --> 00:26:51,230

on any given night and pick a spot on

501  
00:26:56,980 --> 00:26:54,500  
this planet pick a spot in my state just

502  
00:26:58,990 --> 00:26:56,990  
go out and look and see something that

503  
00:27:01,780 --> 00:26:59,000  
means right over my head

504  
00:27:04,960 --> 00:27:01,790  
that means it's going on all over the

505  
00:27:08,160 --> 00:27:04,970  
planet you can go anywhere so we're

506  
00:27:11,740 --> 00:27:08,170  
being visited by thousands thousands of

507  
00:27:14,590 --> 00:27:11,750  
civilizations not just one that's just

508  
00:27:17,500 --> 00:27:14,600  
one they all communicate I'm gonna talk

509  
00:27:21,450 --> 00:27:17,510  
to Isaac about this tonight you know an

510  
00:27:25,270 --> 00:27:21,460  
advanced civilization out there that is

511  
00:27:27,880 --> 00:27:25,280  
crossing the univer are in communication

512  
00:27:29,230 --> 00:27:27,890  
with other civilizations hey man what

513  
00:27:31,030 --> 00:27:29,240

have you found we found something over

514

00:27:33,340 --> 00:27:31,040

here really check this out we found some

515

00:27:35,050 --> 00:27:33,350

stuff over here really all right I'm

516

00:27:37,090 --> 00:27:35,060

gonna go visit where you just were you

517

00:27:38,950 --> 00:27:37,100

go just visit where I am here's the

518

00:27:41,020 --> 00:27:38,960

ordnance and I'll see you later we'll

519

00:27:43,870 --> 00:27:41,030

talk next week alright Ralph our our our

520

00:27:46,750 --> 00:27:43,880

a Bob and the way they go they're all

521

00:27:48,970 --> 00:27:46,760

communicating with each other they have

522

00:27:52,360 --> 00:27:48,980

to is the only way to map this thing and

523

00:27:54,940 --> 00:27:52,370

the log all of the information that we

524

00:27:56,770 --> 00:27:54,950

have not only with the Stars but with

525

00:28:00,310 --> 00:27:56,780

the multiple planets that are with each

526

00:28:04,120 --> 00:28:00,320

star we're talking about a hundred

527

00:28:05,789 --> 00:28:04,130

billion we're talking about if you if

528

00:28:09,149 --> 00:28:05,799

you really stop and think about this

529

00:28:11,260 --> 00:28:09,159

maybe 500 billion stars or planets

530

00:28:13,360 --> 00:28:11,270

that's what we're dealing with today

531

00:28:15,250 --> 00:28:13,370

it's absolutely incredible

532

00:28:17,680 --> 00:28:15,260

this is fade to black I am your host

533

00:28:20,560 --> 00:28:17,690

Jimmy Church our guest tonight is Isaac

534

00:28:22,419 --> 00:28:20,570

Arthur we're discussing the Fermi

535

00:28:23,110 --> 00:28:22,429

paradox and we are gonna go top to

536

00:28:25,659 --> 00:28:23,120

bottom

537

00:28:29,080 --> 00:28:25,669

all right fade to black on the game

538

00:28:30,730 --> 00:28:29,090

changer Network in kg ra the planet our

539

00:28:33,310 --> 00:28:30,740

military church follow me on twitter at

540

00:28:35,590 --> 00:28:33,320

Jade's Hertz radio you know how to file

541

00:28:37,149 --> 00:28:35,600

follow Isaac Arthur he's right there and

542

00:28:41,450 --> 00:28:37,159

Twitter right now and I'll be right back

543

00:29:14,170 --> 00:29:10,440

[Music]

544

00:29:18,670 --> 00:29:16,630

this is Nicole Church daughter of

545

00:29:21,190 --> 00:29:18,680

you-know-who and you're listening to

546

00:29:25,870 --> 00:29:21,200

fade to black on Jimmy Church radio.com

547

00:29:31,140 --> 00:29:25,880

and the GameChanger network you're

548

00:29:39,180 --> 00:29:33,930

[Music]

549

00:29:48,160 --> 00:29:45,940

radio when you take the beans from

550

00:29:50,740 --> 00:29:48,170

Central America with dashes of

551  
00:29:53,140 --> 00:29:50,750  
indonesian and african mixed in and then

552  
00:29:55,990 --> 00:29:53,150  
roasted to the dark side of fade to

553  
00:29:59,140 --> 00:29:56,000  
black you create the ultimate brew of

554  
00:30:02,920 --> 00:29:59,150  
fringe introducing the fade to black

555  
00:30:05,500 --> 00:30:02,930  
blend from river moon coffee yes river

556  
00:30:07,150 --> 00:30:05,510  
moon's darkest customized roast was

557  
00:30:10,780 --> 00:30:07,160  
created for the love of

558  
00:30:13,300 --> 00:30:10,790  
fade to black the alchemy of masterful

559  
00:30:16,540 --> 00:30:13,310  
roasting and smoking the beans is in

560  
00:30:20,740 --> 00:30:16,550  
every sip of this full-bodied dark Java

561  
00:30:23,080 --> 00:30:20,750  
I need my coffee doc deep with distinct

562  
00:30:25,810 --> 00:30:23,090  
bittersweet chocolate highlights just

563  
00:30:28,210 --> 00:30:25,820

like the bunker leaning further into the

564

00:30:31,510 --> 00:30:28,220

darkness of the roast is fade to black

565

00:30:33,160 --> 00:30:31,520

blend from river moon coffee just click

566

00:30:36,460 --> 00:30:33,170

on the banner at Jimmy Church radio.com

567

00:30:41,790 --> 00:30:36,470

and use the promo code F to B blend for

568

00:30:44,050 --> 00:30:41,800

15% off of your order today gobekli tepe

569

00:30:47,560 --> 00:30:44,060

this is Jimmy Church of fade to black

570

00:30:49,900 --> 00:30:47,570

and you can get our podcast for just \$2

571

00:30:52,390 --> 00:30:49,910

per month all you have to do is click on

572

00:30:55,660 --> 00:30:52,400

the podcast banner over at Jimmy Church

573

00:30:57,430 --> 00:30:55,670

radio.com hey folks guess what the

574

00:30:59,950 --> 00:30:57,440

number one phrase that life-change tea

575

00:31:03,250 --> 00:30:59,960

receives by email you ready we love this

576

00:31:06,250 --> 00:31:03,260

tea we love this tea time after time

577

00:31:07,990 --> 00:31:06,260

week after week we love this tea life

578

00:31:11,110 --> 00:31:08,000

change tea gives you more energy

579

00:31:13,750 --> 00:31:11,120

a beautiful cleansing and fulfills its

580

00:31:15,550 --> 00:31:13,760

slogan perfectly that tea that makes you

581

00:31:18,040 --> 00:31:15,560

go so if you want to be on your health

582

00:31:20,290 --> 00:31:18,050

game log on to get the tea calm and

583

00:31:22,840 --> 00:31:20,300

order life change super strength tea

584

00:31:25,360 --> 00:31:22,850

packages come in a one month supply and

585

00:31:26,440 --> 00:31:25,370

when you brew this stuff wait until you

586

00:31:27,060 --> 00:31:26,450

see the results

587

00:31:29,039 --> 00:31:27,070

our

588

00:31:31,560 --> 00:31:29,049

we all about the results and with a lot

589

00:31:33,360 --> 00:31:31,570

of people's health struggling we can use

590

00:31:37,259 --> 00:31:33,370

a little bit of help doctors will tell

591

00:31:41,039 --> 00:31:37,269

you disease starts in the gut so log on

592

00:31:44,700 --> 00:31:41,049

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

593

00:31:48,419 --> 00:31:44,710

our next email saying I love this D I

594

00:31:51,749 --> 00:31:48,429

mean I love this T get the T I get the

595

00:31:51,990 --> 00:31:51,759

t.com help in America one tea bag at a

596

00:31:56,840 --> 00:31:52,000

time

597

00:32:02,820 --> 00:31:56,850

9 out of 10 geneticists agreed

598

00:32:06,480 --> 00:32:02,830

fade to black is not your father's radio

599

00:32:12,090 --> 00:32:06,490

show on the game changer radio network

600

00:32:17,190 --> 00:32:14,520

do you want to lose weight but have no

601  
00:32:19,320 --> 00:32:17,200  
idea where to begin the fast start diet

602  
00:32:19,890 --> 00:32:19,330  
a three-day weight loss plan is the

603  
00:32:22,230 --> 00:32:19,900  
answer

604  
00:32:24,570 --> 00:32:22,240  
three days of nutritionally balanced

605  
00:32:27,480 --> 00:32:24,580  
calorie restricted meals delivered right

606  
00:32:30,060 --> 00:32:27,490  
to your door no shopping no measuring

607  
00:32:32,610 --> 00:32:30,070  
and no cooking everything is prepared

608  
00:32:35,220 --> 00:32:32,620  
for you and ready to eat at home or on

609  
00:32:37,110 --> 00:32:35,230  
the go the fast start diet has all the

610  
00:32:39,990 --> 00:32:37,120  
amazing benefits of intermittent fasting

611  
00:32:41,700 --> 00:32:40,000  
without starving we've helped thousands

612  
00:32:44,010 --> 00:32:41,710  
of people who have struggled to reach

613  
00:32:46,230 --> 00:32:44,020

their weight loss goals isn't it time we

614

00:32:48,660 --> 00:32:46,240

helped you with the fast start diet

615

00:32:51,510 --> 00:32:48,670

you'll lose weight and feel great

616

00:32:54,030 --> 00:32:51,520

fine fast start diet on Amazon or go to

617

00:32:56,940 --> 00:32:54,040

fast start diet calm and use promo code

618

00:32:59,610 --> 00:32:56,950

talk to get 10% off your first box and

619

00:33:01,830 --> 00:32:59,620

as a special bonus fast start will

620

00:33:04,170 --> 00:33:01,840

include their number one rated lipo 3

621

00:33:06,240 --> 00:33:04,180

appetite suppressant spray free with

622

00:33:08,910 --> 00:33:06,250

your order this is Jimmy church and

623

00:33:15,060 --> 00:33:08,920

whatever your diet plans are do what I

624

00:33:39,220 --> 00:33:15,070

did go to fast start Diet calm and

625

00:33:44,169 --> 00:33:41,169

all right welcome back fade to black I'm

626  
00:33:47,830 --> 00:33:44,179  
your host Jimmy Church can follow me on

627  
00:33:51,009 --> 00:33:47,840  
twitter at Jay Church radio that's what

628  
00:33:53,110 --> 00:33:51,019  
you want to do at Jay cherish radio you

629  
00:33:55,899 --> 00:33:53,120  
can follow Isaac at Isaac I think it's

630  
00:33:58,360 --> 00:33:55,909  
Isaac hey Arthur with an underscore but

631  
00:34:00,129 --> 00:33:58,370  
we've got all the links up for Isaac

632  
00:34:04,690 --> 00:34:00,139  
right there in Twitter so go and follow

633  
00:34:07,930 --> 00:34:04,700  
Isaac he's the host of science and

634  
00:34:10,960 --> 00:34:07,940  
futurism well it's science and futurism

635  
00:34:13,839 --> 00:34:10,970  
with Isaac Arthur and that's on YouTube

636  
00:34:16,450 --> 00:34:13,849  
he's got over 300,000 subscribers he's

637  
00:34:20,079 --> 00:34:16,460  
got over 200 I think it's over 200 I'll

638  
00:34:23,349 --> 00:34:20,089

ask Isaac 200 episodes covering topics

639

00:34:25,270 --> 00:34:23,359

like the colonization of the solar

640

00:34:27,899 --> 00:34:25,280

system interstellar travel the Fermi

641

00:34:30,720 --> 00:34:27,909

paradox artificial intelligence and

642

00:34:33,339 --> 00:34:30,730

everything else that kind of challenges

643

00:34:35,500 --> 00:34:33,349

humanity he received his degree in

644

00:34:37,359 --> 00:34:35,510

physics from Kent State University

645

00:34:40,240 --> 00:34:37,369

graduating top of his class at the age

646

00:34:42,220 --> 00:34:40,250

of 20 remain there for graduate studies

647

00:34:44,770 --> 00:34:42,230

before joining the US Army served in

648

00:34:47,020 --> 00:34:44,780

Iraq he also worked as a civilian

649

00:34:50,139 --> 00:34:47,030

researcher at the Air Force Institute of

650

00:34:51,490 --> 00:34:50,149

Technology in Dayton Ohio and I would

651  
00:34:54,399 --> 00:34:51,500  
like to welcome back to fade to black

652  
00:34:56,530 --> 00:34:54,409  
coming off of a back-to-back for our

653  
00:34:59,650 --> 00:34:56,540  
appearance Sunday night on coast to

654  
00:35:02,859 --> 00:34:59,660  
coast am Isaac Arthur Isaac you're a

655  
00:35:05,800 --> 00:35:02,869  
rock star these days my friend Thank You

656  
00:35:07,630 --> 00:35:05,810  
Jimmy I got it seems like been so long

657  
00:35:09,460 --> 00:35:07,640  
since we last talked I think I'm gonna

658  
00:35:13,300 --> 00:35:09,470  
have to start going through your agent

659  
00:35:16,210 --> 00:35:13,310  
soon to get a hold of you but you know

660  
00:35:19,809 --> 00:35:16,220  
the thing is with the sharing of your

661  
00:35:22,349 --> 00:35:19,819  
information and and how you do it I want

662  
00:35:25,240 --> 00:35:22,359  
to thank you for that because it is so

663  
00:35:28,540 --> 00:35:25,250

digestible I keeps using that word with

664

00:35:30,700 --> 00:35:28,550

you but it's important because it can

665

00:35:32,609 --> 00:35:30,710

get very technical and for most people

666

00:35:35,650 --> 00:35:32,619

if they don't get it they just tune out

667

00:35:38,050 --> 00:35:35,660

but I don't do that with you so I want

668

00:35:42,490 --> 00:35:38,060

to thank you where did you where did you

669

00:35:44,680 --> 00:35:42,500

come up with the concepts to to get

670

00:35:46,089 --> 00:35:44,690

science to the masses like this so we

671

00:35:48,579 --> 00:35:46,099

could all figure something out

672

00:35:50,440 --> 00:35:48,589

well that's the funniest way it got

673

00:35:52,400 --> 00:35:50,450

started was I was just kind of doing as

674

00:35:54,380 --> 00:35:52,410

a hobby talking a bunch of all those

675

00:35:55,940 --> 00:35:54,390

as an oldest who will walk yon science

676

00:35:58,400 --> 00:35:55,950

fiction I was complaining about how it

677

00:36:00,380 --> 00:35:58,410

seemed kind of stagnant they won't lead

678

00:36:02,690 --> 00:36:00,390

you on new ideas so I've been throwing

679

00:36:05,630 --> 00:36:02,700

some ideas out there and I just one day

680

00:36:07,310 --> 00:36:05,640

compiled an episode of various concepts

681

00:36:09,680 --> 00:36:07,320

to look at and what the size behind him

682

00:36:12,380 --> 00:36:09,690

was and somehow that mutated into a

683

00:36:14,420 --> 00:36:12,390

channel so four years later here we are

684

00:36:18,470 --> 00:36:14,430

now I didn't ask you this the other

685

00:36:21,110 --> 00:36:18,480

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

686

00:36:24,890 --> 00:36:21,120

right there the Air Force Institute of

687

00:36:30,200 --> 00:36:24,900

Technology in Dayton Ohio oh yeah all

688

00:36:32,330 --> 00:36:30,210

right are you a man in black uh you know

689

00:36:34,220 --> 00:36:32,340

we go in a completely windowless bunk

690

00:36:36,860 --> 00:36:34,230

over place a place where I was

691

00:36:38,360 --> 00:36:36,870

researching ant and but I hate to say we

692

00:36:39,680 --> 00:36:38,370

really had nothing interesting going on

693

00:36:41,960 --> 00:36:39,690

I mean I thought it was interesting but

694

00:36:43,700 --> 00:36:41,970

do we ever wonder why is this building

695

00:36:45,410 --> 00:36:43,710

got no windows in it and I said because

696

00:36:48,020 --> 00:36:45,420

we used to store film here and now we do

697

00:36:49,730 --> 00:36:48,030

laser experiments but I hate to say it

698

00:36:51,680 --> 00:36:49,740

was a fairly boy and I was just an

699

00:36:56,390 --> 00:36:51,690

intern helping out I was 19 at the time

700

00:36:58,940 --> 00:36:56,400

so how did you accept that explanation

701  
00:37:02,180 --> 00:36:58,950  
for a windowless building come on Arthur

702  
00:37:03,620 --> 00:37:02,190  
well I kind of had to cuz I got to see

703  
00:37:05,270 --> 00:37:03,630  
everything was going on inside the place

704  
00:37:09,470 --> 00:37:05,280  
and we did actually have some old film

705  
00:37:10,130 --> 00:37:09,480  
line on film for that age that stuff was

706  
00:37:12,980 --> 00:37:10,140  
flammable

707  
00:37:15,740 --> 00:37:12,990  
now that was yet totally still is by the

708  
00:37:18,440 --> 00:37:15,750  
way completely flammable but Isaac was

709  
00:37:21,830 --> 00:37:18,450  
this on base was this at wright-patt oh

710  
00:37:23,000 --> 00:37:21,840  
yeah I was 145 building 140 was right by

711  
00:37:24,950 --> 00:37:23,010  
the main facility there's there's a

712  
00:37:27,260 --> 00:37:24,960  
larger building for the main campus of

713  
00:37:29,570 --> 00:37:27,270

the Air Force Institute but some salient

714

00:37:32,450 --> 00:37:29,580

Saudis meal just up the road from the

715

00:37:35,660 --> 00:37:32,460

museum which was if you've never been in

716

00:37:37,010 --> 00:37:35,670

busy high I have yes I have I've been

717

00:37:40,820 --> 00:37:37,020

there many times I've been there many

718

00:37:43,970 --> 00:37:40,830

times one of the one of the great wealth

719

00:37:46,190 --> 00:37:43,980

certainly for for planes for aircraft

720

00:37:48,980 --> 00:37:46,200

but one of the great museums period in

721

00:37:53,480 --> 00:37:48,990

this country is is right there at Dayton

722

00:37:55,940 --> 00:37:53,490

now okay but there is I've talked to a

723

00:37:59,690 --> 00:37:55,950

lot of people that have worked at the

724

00:38:02,180 --> 00:37:59,700

base and they all say that the running

725

00:38:04,470 --> 00:38:02,190

joke around the bases you know have you

726

00:38:06,930 --> 00:38:04,480

seen have you seen et

727

00:38:09,660 --> 00:38:06,940

have you seen the bodies and they joke

728

00:38:12,960 --> 00:38:09,670

about it did did you hear references to

729

00:38:14,250 --> 00:38:12,970

to aliens at wright-patt oh yeah it was

730

00:38:16,170 --> 00:38:14,260

a fairly common joke at that time

731

00:38:18,120 --> 00:38:16,180

because I think if and you have to

732

00:38:19,260 --> 00:38:18,130

double check my memory on this one but I

733

00:38:21,060 --> 00:38:19,270

believe they had said they'd moved much

734

00:38:23,370 --> 00:38:21,070

of the stuff Oh from area 51 today at

735

00:38:25,170 --> 00:38:23,380

that time and there was one of the

736

00:38:26,970 --> 00:38:25,180

buildings there when it fly dislocation

737

00:38:29,130 --> 00:38:26,980

and if there was anything going on there

738

00:38:31,050 --> 00:38:29,140

I know nothing about it but it was it

739

00:38:32,190 --> 00:38:31,060

was quite the joke at the time and there

740

00:38:33,960 --> 00:38:32,200

was obviously a lot of secret research

741

00:38:38,730 --> 00:38:33,970

going on there but I wasn't too involved

742

00:38:45,150 --> 00:38:38,740

and eating interesting in that go ok ok

743

00:38:47,700 --> 00:38:45,160

ok but I'm sure that you accept this

744

00:38:49,550 --> 00:38:47,710

statement where there is smoke there's

745

00:38:51,750 --> 00:38:49,560

fire

746

00:38:53,160 --> 00:38:51,760

usually speaker then I mean it was

747

00:38:55,170 --> 00:38:53,170

certainly there was a lot of secretly so

748

00:38:56,700 --> 00:38:55,180

what's going on there but you know I

749

00:38:59,430 --> 00:38:56,710

wasn't involved or that so I just can't

750

00:39:01,200 --> 00:38:59,440

do more than speculate so are you

751  
00:39:07,200 --> 00:39:01,210  
squirring in your seat right now are you

752  
00:39:09,270 --> 00:39:07,210  
uncomfortable it would have to be men

753  
00:39:11,339 --> 00:39:09,280  
you worked at the Air Force Institute of

754  
00:39:13,890 --> 00:39:11,349  
Technology at wright-patt where they

755  
00:39:16,500 --> 00:39:13,900  
have all the alien secrets you write

756  
00:39:19,920 --> 00:39:16,510  
about this you make videos about these

757  
00:39:21,480 --> 00:39:19,930  
subjects so I've got to you know for my

758  
00:39:24,300 --> 00:39:21,490  
audience I have to do the right thing

759  
00:39:26,099 --> 00:39:24,310  
and and just just wonder if there is a

760  
00:39:27,870 --> 00:39:26,109  
connection here it is

761  
00:39:29,760 --> 00:39:27,880  
tease sometimes it because I have to be

762  
00:39:31,559 --> 00:39:29,770  
people come by this was before 9/11 this

763  
00:39:33,240 --> 00:39:31,569

was in 2000 so Billy there's a lot more

764

00:39:35,819 --> 00:39:33,250

openness the base and people will come

765

00:39:37,740 --> 00:39:35,829

by asking questions what was inside you

766

00:39:39,390 --> 00:39:37,750

know the plane cuts torn out and you

767

00:39:40,980 --> 00:39:39,400

could not tease people a little bit

768

00:39:42,870 --> 00:39:40,990

because obvious had quite the be

769

00:39:44,400 --> 00:39:42,880

non-american sounding voice the time so

770

00:39:46,859 --> 00:39:44,410

as women what are you doing there do not

771

00:39:48,059 --> 00:39:46,869

uniform because I was civilian and don't

772

00:39:51,210 --> 00:39:48,069

sound like you from this area

773

00:39:52,559 --> 00:39:51,220

mm-hmm but no I mean if it's it was I

774

00:39:54,720 --> 00:39:52,569

would say if again if you haven't been

775

00:39:58,109 --> 00:39:54,730

in that museum it's amazing and my past

776

00:39:59,370 --> 00:39:58,119

and I obviously an ex-army so I always

777

00:40:01,079 --> 00:39:59,380

reserved the air forces really nice

778

00:40:02,490 --> 00:40:01,089

spaces but it's just a gorgeous campus

779

00:40:04,650 --> 00:40:02,500

there everybody I walked with was

780

00:40:06,120 --> 00:40:04,660

wonderful yeah those guys they were

781

00:40:07,890 --> 00:40:06,130

their spare time they will fighter

782

00:40:11,790 --> 00:40:07,900

pilots scientists and trying out for

783

00:40:14,250 --> 00:40:11,800

NASA so it's it's a ginormous base most

784

00:40:16,620 --> 00:40:14,260

people you know it's in Ohio you know

785

00:40:17,800 --> 00:40:16,630

it's in date and it doesn't make you

786

00:40:20,560 --> 00:40:17,810

know Cincinnati day

787

00:40:23,200 --> 00:40:20,570

Mille wouldn't think about the airforce

788

00:40:26,950 --> 00:40:23,210

having a base there they do and not only

789

00:40:30,730 --> 00:40:26,960

is is it there but it is huge that is a

790

00:40:32,170 --> 00:40:30,740

big big piece of property well of course

791

00:40:33,730 --> 00:40:32,180

all of us in Ohio always a little bit

792

00:40:35,920 --> 00:40:33,740

smug about all wool in the a oh

793

00:40:37,210 --> 00:40:35,930

space-time mines you know like like

794

00:40:40,000 --> 00:40:37,220

pasture obviously being a reference to

795

00:40:42,370 --> 00:40:40,010

the Wright brothers and home for John

796

00:40:45,010 --> 00:40:42,380

Glenn Neil Armstrong folks like that so

797

00:40:47,230 --> 00:40:45,020

we've always been very happy to host the

798

00:40:50,470 --> 00:40:47,240

very large Air Force Base they are for

799

00:40:51,070 --> 00:40:50,480

both patriotic patriotic and economic

800

00:40:53,350 --> 00:40:51,080

reasons

801  
00:40:55,630 --> 00:40:53,360  
now what about okay last question about

802  
00:40:59,470 --> 00:40:55,640  
right Pat did you uh did you ever see

803  
00:41:01,180 --> 00:40:59,480  
hangar 18 I think I remember hearing

804  
00:41:04,660 --> 00:41:01,190  
about it but I don't recall if I don't

805  
00:41:13,030 --> 00:41:04,670  
see no not so man you're playing the

806  
00:41:14,800 --> 00:41:13,040  
politician I do not recall that's the

807  
00:41:16,180 --> 00:41:14,810  
first thing if I'm working there I'm

808  
00:41:20,620 --> 00:41:16,190  
going okay where are the bodies

809  
00:41:22,450 --> 00:41:20,630  
where's hangar 18 I mean that was very

810  
00:41:24,310 --> 00:41:22,460  
brand-new it was the you know the late

811  
00:41:25,270 --> 00:41:24,320  
90s or 2000s was just when folks was

812  
00:41:27,040 --> 00:41:25,280  
starting to think that that had been

813  
00:41:28,720 --> 00:41:27,050

wish nothing been moved to so you know

814

00:41:30,760 --> 00:41:28,730

you were just catching the edge of that

815

00:41:32,920 --> 00:41:30,770

so yeah very interesting that they were

816

00:41:36,190 --> 00:41:32,930

making references to area 51 about that

817

00:41:38,110 --> 00:41:36,200

- well whether it's joking or not right

818

00:41:41,800 --> 00:41:38,120

now we don't have we moved it all over

819

00:41:44,530 --> 00:41:41,810

to a Nevada well you know it's for us

820

00:41:46,510 --> 00:41:44,540

conspiracy guys that's so simple see

821

00:41:48,100 --> 00:41:46,520

that's what I'm on about right there

822

00:41:50,290 --> 00:41:48,110

they're cracking jokes but they're

823

00:41:52,450 --> 00:41:50,300

trying to run the smokescreen on us man

824

00:41:54,250 --> 00:41:52,460

it's not really a joke and they're

825

00:41:56,110 --> 00:41:54,260

trying to deflect you know that's what

826

00:41:57,490 --> 00:41:56,120

we do it's it's the nature of the

827

00:41:59,710 --> 00:41:57,500

business in this community

828

00:42:01,390 --> 00:41:59,720

oh and so if there was anything going on

829

00:42:03,190 --> 00:42:01,400

they oh and I'm not gonna say there is

830

00:42:04,300 --> 00:42:03,200

it wasn't I just don't know because I

831

00:42:05,410 --> 00:42:04,310

mean they wouldn't be telling you think

832

00:42:06,880 --> 00:42:05,420

it's like that anyway and of course if I

833

00:42:10,030 --> 00:42:06,890

didn't know I wouldn't say anything you

834

00:42:11,710 --> 00:42:10,040

know after the show tonight they're

835

00:42:13,840 --> 00:42:11,720

gonna call you up and go good job man

836

00:42:15,550 --> 00:42:13,850

that was good deflecting and you're

837

00:42:19,780 --> 00:42:15,560

gonna go yeah did I do good

838

00:42:21,820 --> 00:42:19,790

Oh planning the plan all right

839

00:42:24,490 --> 00:42:21,830

let's let's get started here we've got a

840

00:42:28,090 --> 00:42:24,500

lot to discuss tonight it is going to be

841

00:42:32,390 --> 00:42:28,100

a very thick show with information and I

842

00:42:37,820 --> 00:42:35,540

the Fermi paradox okay all right and

843

00:42:40,760 --> 00:42:37,830

then and then we're gonna take off but

844

00:42:44,120 --> 00:42:40,770

this is the Fermi paradox that there are

845

00:42:47,810 --> 00:42:44,130

500 billion stars in our Milky Way with

846

00:42:50,780 --> 00:42:47,820

over 500 billion planets billions of

847

00:42:54,020 --> 00:42:50,790

which are earth-like and possibly have

848

00:42:57,730 --> 00:42:54,030

intelligent life and there could be 1

849

00:42:59,960 --> 00:42:57,740

trillion galaxies in our universe so

850

00:43:02,990 --> 00:42:59,970

where is everybody

851

00:43:06,380 --> 00:43:03,000

that's the Fermi paradox the church

852

00:43:10,310 --> 00:43:06,390

version that's my update my 2019 update

853

00:43:13,340 --> 00:43:10,320

to the Fermi paradox and now we have the

854

00:43:19,520 --> 00:43:13,350

question which is laid out there and we

855

00:43:21,890 --> 00:43:19,530

have 20 official answers that we are

856

00:43:24,680 --> 00:43:21,900

going the ones that have been explored

857

00:43:27,530 --> 00:43:24,690

the most that you do too as well Isaac

858

00:43:29,900 --> 00:43:27,540

and we're gonna explore each one of

859

00:43:34,040 --> 00:43:29,910

these answers I'm gonna give you the

860

00:43:36,080 --> 00:43:34,050

answer and then you are going to expand

861

00:43:38,390 --> 00:43:36,090

on it all right are you ready to go

862

00:43:39,890 --> 00:43:38,400

let's go man this is so in your

863

00:43:42,650 --> 00:43:39,900

wheelhouse you're like this is gonna be

864

00:43:46,160 --> 00:43:42,660

the easiest show I've ever done this is

865

00:43:48,710 --> 00:43:46,170

how us you're a seer SATs right here

866

00:43:50,840 --> 00:43:48,720

you've got a cheat sheet but let's let's

867

00:43:53,630 --> 00:43:50,850

so let's break this down where is

868

00:43:56,810 --> 00:43:53,640

everybody well ok let's go to answer

869

00:44:00,380 --> 00:43:56,820

number one which you explore really

870

00:44:04,070 --> 00:44:00,390

really well and it's the best foundation

871

00:44:09,950 --> 00:44:04,080

to start which is that extraterrestrial

872

00:44:12,170 --> 00:44:09,960

life is rare or non-existent I would say

873

00:44:13,880 --> 00:44:12,180

the usual approach on this is to say you

874

00:44:16,130 --> 00:44:13,890

know based on the hall conjecture which

875

00:44:17,990 --> 00:44:16,140

is comma deform a paradox got started if

876

00:44:19,940 --> 00:44:18,000

you've got life and if you can get out

877

00:44:22,490 --> 00:44:19,950

there and settle the stars and galaxies

878

00:44:25,160 --> 00:44:22,500

it should be virtually impossible not to

879

00:44:27,110 --> 00:44:25,170

find aliens because they should be

880

00:44:28,580 --> 00:44:27,120

everywhere not just they usually have a

881

00:44:29,960 --> 00:44:28,590

bunch of plants with them but they

882

00:44:32,420 --> 00:44:29,970

should have a Starbucks on the moon by

883

00:44:34,520 --> 00:44:32,430

now and so if things do get out there

884

00:44:36,290 --> 00:44:34,530

and expand which is what biologically

885

00:44:38,510 --> 00:44:36,300

evolved life should generally tend to do

886

00:44:40,400 --> 00:44:38,520

if it's possible travel out to the stars

887

00:44:42,590 --> 00:44:40,410

you should be impossible to miss them

888

00:44:44,220 --> 00:44:42,600

and this is the basic notions we don't

889

00:44:46,349 --> 00:44:44,230

see that anywhere

890

00:44:47,730 --> 00:44:46,359

only takes one the folks weren't on the

891

00:44:49,260 --> 00:44:47,740

scene you know if humanity hadn't

892

00:44:51,630 --> 00:44:49,270

evolved for something should come along

893

00:44:53,580 --> 00:44:51,640

after us and have done the same job one

894

00:44:55,650 --> 00:44:53,590

way or another the space fills up and

895

00:44:59,190 --> 00:44:55,660

that's basically the reason behind the

896

00:45:00,990 --> 00:44:59,200

idea that we would say life is very rare

897

00:45:02,940 --> 00:45:01,000

or at least intelligent life is very

898

00:45:04,950 --> 00:45:02,950

rare in the universe because we don't

899

00:45:07,950 --> 00:45:04,960

see that and almost every solution after

900

00:45:10,890 --> 00:45:07,960

that has to base itself on either a why

901  
00:45:13,080 --> 00:45:10,900  
we don't see them B why we can't see

902  
00:45:15,030 --> 00:45:13,090  
them or they don't expand outward or see

903  
00:45:16,440 --> 00:45:15,040  
that we do see them all the time of

904  
00:45:18,840 --> 00:45:16,450  
course and we just can't convince

905  
00:45:22,620 --> 00:45:18,850  
ourselves they're true and we're I have

906  
00:45:27,780 --> 00:45:22,630  
problems with this answer is if you look

907  
00:45:32,340 --> 00:45:27,790  
at Earth we can't stop life here right

908  
00:45:35,700 --> 00:45:32,350  
you can't stop it it continued you burn

909  
00:45:38,250 --> 00:45:35,710  
down burn down a forest down to carbon

910  
00:45:40,410 --> 00:45:38,260  
down to charcoal I've come littering the

911  
00:45:42,180 --> 00:45:40,420  
ground but we literally have types of

912  
00:45:43,980 --> 00:45:42,190  
trees that manage to pollinate

913  
00:45:48,510 --> 00:45:43,990

themselves by being toasted me that's

914

00:45:50,550 --> 00:45:48,520

what you cannot stop life here you can

915

00:45:53,160 --> 00:45:50,560

do whatever you want could choke out

916

00:45:55,730 --> 00:45:53,170

ozone everything else and a couple of

917

00:46:00,150 --> 00:45:55,740

years later Ozone's back life is back

918

00:46:02,190 --> 00:46:00,160

choke the oxygen out of the oceans you

919

00:46:05,490 --> 00:46:02,200

know give a dead pond a stagnant

920

00:46:07,920 --> 00:46:05,500

whatever you know one season and then

921

00:46:10,260 --> 00:46:07,930

you're fishing there a year later you

922

00:46:12,990 --> 00:46:10,270

know you can't stop life on this planet

923

00:46:16,590 --> 00:46:13,000

why would it be any different forget

924

00:46:20,010 --> 00:46:16,600

about intelligent life sentient life but

925

00:46:23,609 --> 00:46:20,020

just microbial life you would think that

926  
00:46:26,490 --> 00:46:23,619  
it is absolutely everywhere on anything

927  
00:46:29,460 --> 00:46:26,500  
that is his resembling a rocky planet

928  
00:46:31,080 --> 00:46:29,470  
well that's the base of the core veil or

929  
00:46:33,780 --> 00:46:31,090  
thigh pathi cyst it just says life is

930  
00:46:35,730 --> 00:46:33,790  
Pali veil is one thing life does better

931  
00:46:38,490 --> 00:46:35,740  
than anything else it is a machine that

932  
00:46:41,490 --> 00:46:38,500  
once it's in place folks it's all of its

933  
00:46:43,410 --> 00:46:41,500  
effort for millions of years on going to

934  
00:46:45,390 --> 00:46:43,420  
be better at surviving right it is the

935  
00:46:47,670 --> 00:46:45,400  
survival machine that is literally the

936  
00:46:50,070 --> 00:46:47,680  
definition of life so any place that

937  
00:46:51,930 --> 00:46:50,080  
pops up unless there's something truly

938  
00:46:53,220 --> 00:46:51,940

whole what happens that that water gets

939

00:46:55,080 --> 00:46:53,230

smacked by another one or something like

940

00:46:56,670 --> 00:46:55,090

that it should still be there

941

00:46:57,620 --> 00:46:56,680

and every year I should be getting

942

00:47:00,730 --> 00:46:57,630

better and better at survive

943

00:47:02,540 --> 00:47:00,740

so I know it has to be that either

944

00:47:04,070 --> 00:47:02,550

intelligence doesn't evolve from that

945

00:47:07,040 --> 00:47:04,080

very much which has some reason behind

946

00:47:09,860 --> 00:47:07,050

it or they just almost never get started

947

00:47:11,480 --> 00:47:09,870

in the first place and that is very hard

948

00:47:12,830 --> 00:47:11,490

for a lot of us to swallow because it

949

00:47:16,700 --> 00:47:12,840

just doesn't seem like that should be

950

00:47:19,760 --> 00:47:16,710

the way it is yeah life it is so strange

951  
00:47:22,430 --> 00:47:19,770  
the one thing let me tell you when I say

952  
00:47:25,150 --> 00:47:22,440  
you can't stop life okay one of the most

953  
00:47:28,070 --> 00:47:25,160  
horrific thoughts you can have is

954  
00:47:30,500 --> 00:47:28,080  
cannibalism right that's the one thing

955  
00:47:32,390 --> 00:47:30,510  
if somebody says oh man that that's the

956  
00:47:34,610 --> 00:47:32,400  
this poor tastes pretty good that's not

957  
00:47:37,670 --> 00:47:34,620  
pork man that's that's monkey you're

958  
00:47:41,000 --> 00:47:37,680  
gonna throw up your brain triggers right

959  
00:47:44,930 --> 00:47:41,010  
your brain triggers it's like ah but if

960  
00:47:48,800 --> 00:47:44,940  
you're hungry you're gonna eat your own

961  
00:47:52,400 --> 00:47:48,810  
arm right you will do whatever it takes

962  
00:47:56,420 --> 00:47:52,410  
to survive life is is is something you

963  
00:47:58,250 --> 00:47:56,430

cannot stop on this planet so to have

964

00:48:00,650 --> 00:47:58,260

this as answer number one which is the

965

00:48:02,420 --> 00:48:00,660

first go to right an extraterrestrial

966

00:48:04,130 --> 00:48:02,430

life is either rare or non-existent

967

00:48:06,950 --> 00:48:04,140

I can almost scratch that one off the

968

00:48:08,660 --> 00:48:06,960

list a lot of us I mean that's the

969

00:48:10,940 --> 00:48:08,670

biggest source of the problem with us

970

00:48:12,050 --> 00:48:10,950

when we sit with a for me paradox almost

971

00:48:14,360 --> 00:48:12,060

all the reasoning is based off the

972

00:48:16,040 --> 00:48:14,370

assumption that it must be really common

973

00:48:18,200 --> 00:48:16,050

for life to pop up we don't know how

974

00:48:20,570 --> 00:48:18,210

come and maybe once every few thousand

975

00:48:23,240 --> 00:48:20,580

plants maybe every solar system and more

976

00:48:25,730 --> 00:48:23,250

than once but right but most people just

977

00:48:29,180 --> 00:48:25,740

tend to feel abiogenesis that 4slice

978

00:48:30,860 --> 00:48:29,190

bulk must happen pretty often problem is

979

00:48:32,420 --> 00:48:30,870

we don't actually have any data to back

980

00:48:34,370 --> 00:48:32,430

that up it's just we all kind of feel

981

00:48:36,650 --> 00:48:34,380

like that should be true and almost

982

00:48:39,230 --> 00:48:36,660

every other phony paradox hypothesis is

983

00:48:41,410 --> 00:48:39,240

kind of based off that assumption now

984

00:48:44,630 --> 00:48:41,420

let's go to answer number two okay

985

00:48:48,220 --> 00:48:44,640

question is so where is everybody where

986

00:48:53,360 --> 00:48:48,230

is et and the answer no other

987

00:48:55,760 --> 00:48:53,370

intelligent species have arisen now I

988

00:48:58,490 --> 00:48:55,770

need you to respond to that as directly

989

00:49:00,260 --> 00:48:58,500

as you can now there does have to be a

990

00:49:02,660 --> 00:49:00,270

second cation that when we say no other

991

00:49:04,580 --> 00:49:02,670

intelligent species as arisen we always

992

00:49:07,130 --> 00:49:04,590

want to say that modification on that is

993

00:49:09,160 --> 00:49:07,140

no other technological civilization has

994

00:49:10,840 --> 00:49:09,170

arisen and not died

995

00:49:13,930 --> 00:49:10,850

because it could be that the entire

996

00:49:16,630 --> 00:49:13,940

galaxy is covered in cavemen we spent on

997

00:49:18,340 --> 00:49:16,640

New Year's going from fire before we

998

00:49:20,410 --> 00:49:18,350

actually all about doing pottery or your

999

00:49:22,630 --> 00:49:20,420

metal walk and then we wrote your space

1000

00:49:24,490 --> 00:49:22,640

fairly soon thereafter right 1% of the

1001  
00:49:27,040 --> 00:49:24,500  
time it took us to go from file to metal

1002  
00:49:28,690 --> 00:49:27,050  
walking and pottery right is how I stick

1003  
00:49:31,180 --> 00:49:28,700  
that's to go from those to the moon

1004  
00:49:32,860 --> 00:49:31,190  
right so it could be that the galaxy is

1005  
00:49:34,570 --> 00:49:32,870  
covered in places where they just didn't

1006  
00:49:36,190 --> 00:49:34,580  
get much into technology and we have

1007  
00:49:39,910 --> 00:49:36,200  
historical precedent of that happened to

1008  
00:49:41,980 --> 00:49:39,920  
I do not like that answer but there's no

1009  
00:49:43,360 --> 00:49:41,990  
evidence to counter indicated either you

1010  
00:49:46,120 --> 00:49:43,370  
know so me these for me paradox things

1011  
00:49:48,610 --> 00:49:46,130  
they all have something not light with

1012  
00:49:50,290 --> 00:49:48,620  
them so well and I'll give you okay now

1013  
00:49:52,540 --> 00:49:50,300

here's my example one that you've

1014

00:49:55,870 --> 00:49:52,550

touched on to over the last couple of

1015

00:50:00,900 --> 00:49:55,880

years it's a very simple one it was

1016

00:50:06,820 --> 00:50:04,750

octopus octopi are an alien species

1017

00:50:08,650 --> 00:50:06,830

right that they are unique onto this

1018

00:50:11,020 --> 00:50:08,660

planet they're in - they're sentient

1019

00:50:12,730 --> 00:50:11,030

they're intelligent they they they have

1020

00:50:14,380 --> 00:50:12,740

everything that we have they're probably

1021

00:50:16,240 --> 00:50:14,390

smarter than us but they're not like

1022

00:50:19,510 --> 00:50:16,250

anything else on this planet therefore

1023

00:50:22,090 --> 00:50:19,520

they must have been brought here from

1024

00:50:25,570 --> 00:50:22,100

somewhere else and now the reason why I

1025

00:50:29,350 --> 00:50:25,580

bring that up is and and look at like

1026

00:50:31,810 --> 00:50:29,360

Europa for instance or you know one of

1027

00:50:34,300 --> 00:50:31,820

the Jupiter's moons where there could be

1028

00:50:36,460 --> 00:50:34,310

life there maybe even intelligent life

1029

00:50:43,060 --> 00:50:36,470

but it's underwater well if you're

1030

00:50:44,710 --> 00:50:43,070

underwater what do you lack fire come up

1031

00:50:46,780 --> 00:50:44,720

with some really strange - no I was we

1032

00:50:48,730 --> 00:50:46,790

did a whole episode on that with with my

1033

00:50:49,930 --> 00:50:48,740

friend Sean on uplifting you know how

1034

00:50:51,520 --> 00:50:49,940

you might have to go and help these

1035

00:50:53,620 --> 00:50:51,530

speech sounds you might come across they

1036

00:50:55,960 --> 00:50:53,630

a technological civilization that lives

1037

00:50:58,000 --> 00:50:55,970

under the water they can use tools but

1038

00:51:00,250 --> 00:50:58,010

you really can't do chemistry or fire or

1039

00:51:02,620 --> 00:51:00,260

metallurgy they are if it took us a

1040

00:51:04,150 --> 00:51:02,630

million years using fire

1041

00:51:07,240 --> 00:51:04,160

regularly to come up with the idea of

1042

00:51:09,220 --> 00:51:07,250

making pots and knives how long does it

1043

00:51:11,650 --> 00:51:09,230

take you to do that when you can't start

1044

00:51:13,630 --> 00:51:11,660

a file so if we can't roll out that you

1045

00:51:15,220 --> 00:51:13,640

might get into space one day if you are

1046

00:51:18,280 --> 00:51:15,230

living in an ocean but if you're living

1047

00:51:20,440 --> 00:51:18,290

in a subsurface ocean - you don't have

1048

00:51:22,120 --> 00:51:20,450

any place to go up to the Europa there

1049

00:51:23,050 --> 00:51:22,130

was no ale up there - born a file if

1050

00:51:25,300 --> 00:51:23,060

you'd actually do

1051  
00:51:27,010 --> 00:51:25,310  
the surface there's just radiation all

1052  
00:51:28,540 --> 00:51:27,020  
over the place you're not going to be

1053  
00:51:30,610 --> 00:51:28,550  
able to look up at the night sky cuz

1054  
00:51:32,740 --> 00:51:30,620  
it's a big empty ice ball above you and

1055  
00:51:35,350 --> 00:51:32,750  
so places like that they could have

1056  
00:51:37,300 --> 00:51:35,360  
intelligent life on them for millions or

1057  
00:51:39,580 --> 00:51:37,310  
billions of years that just sticks that

1058  
00:51:41,140 --> 00:51:39,590  
way but the one thing they use do have

1059  
00:51:43,270 --> 00:51:41,150  
going against them is there's not much

1060  
00:51:45,310 --> 00:51:43,280  
energy flow and the big thing you need

1061  
00:51:48,460 --> 00:51:45,320  
for a really complex and diverse ecology

1062  
00:51:50,020 --> 00:51:48,470  
is a lot of energy flow and most of

1063  
00:51:52,510 --> 00:51:50,030

those places will not have it so they

1064

00:51:54,910 --> 00:51:52,520

might have life it might be kept fairly

1065

00:51:57,910 --> 00:51:54,920

simple too could you imagine you know

1066

00:52:03,240 --> 00:51:57,920

being smart like an octopus but being

1067

00:52:10,450 --> 00:52:03,250

underwater so that means no no no bongs

1068

00:52:12,400 --> 00:52:10,460

no cigarettes no hot food right there's

1069

00:52:13,810 --> 00:52:12,410

chemical thermal events but it may be

1070

00:52:17,680 --> 00:52:13,820

they'll figure out some way to use those

1071

00:52:21,100 --> 00:52:17,690

ah you could light your one-hit bong off

1072

00:52:22,480 --> 00:52:21,110

a thermal vent that's possible it's

1073

00:52:25,750 --> 00:52:22,490

possible you're supposed to laugh at

1074

00:52:27,340 --> 00:52:25,760

that point Isaac that's these are good

1075

00:52:31,240 --> 00:52:27,350

jokes these are good jokes alright let's

1076  
00:52:35,220 --> 00:52:31,250  
go to answer number three okay so where

1077  
00:52:38,830 --> 00:52:35,230  
is everybody where is et answer

1078  
00:52:41,380 --> 00:52:38,840  
intelligent alien species lack advanced

1079  
00:52:44,290 --> 00:52:41,390  
technology we just touched upon this as

1080  
00:52:46,180 --> 00:52:44,300  
a subgroup but this is something that

1081  
00:52:49,240 --> 00:52:46,190  
needs to be visited and it reminds me of

1082  
00:52:51,370 --> 00:52:49,250  
the movie it's hard to be a god I don't

1083  
00:52:54,310 --> 00:52:51,380  
know if you've seen it but it's an

1084  
00:52:57,910 --> 00:52:54,320  
incredible movie a Russian movie about

1085  
00:53:00,910 --> 00:52:57,920  
us visiting another planet it's humans

1086  
00:53:02,980 --> 00:53:00,920  
look just like us but they're stuck in

1087  
00:53:05,560 --> 00:53:02,990  
the dark ages and they're happy about

1088  
00:53:08,530 --> 00:53:05,570

that they don't want to learn they're

1089

00:53:09,910 --> 00:53:08,540

okay about being right there well it's

1090

00:53:11,200 --> 00:53:09,920

contemplations of that that give us

1091

00:53:12,640 --> 00:53:11,210

things like the Star Trek prime

1092

00:53:14,470 --> 00:53:12,650

directive and one of our more popular

1093

00:53:17,320 --> 00:53:14,480

categories for the phone we paired ask

1094

00:53:18,910 --> 00:53:17,330

the zoo hypothesis and back to the

1095

00:53:20,950 --> 00:53:18,920

uplifting thing for a moment if you come

1096

00:53:22,420 --> 00:53:20,960

across a species you've got three basic

1097

00:53:24,400 --> 00:53:22,430

ways that you could lift them up as a

1098

00:53:26,500 --> 00:53:24,410

war to our level purely technological

1099

00:53:27,910 --> 00:53:26,510

which we like you meet cavemen they got

1100

00:53:29,490 --> 00:53:27,920

the brains and the physiology for it

1101

00:53:31,660 --> 00:53:29,500

you're just given the knowledge

1102

00:53:33,010 --> 00:53:31,670

physiological which is like dolphins

1103

00:53:34,830 --> 00:53:33,020

they don't have opposable thumbs so you

1104

00:53:36,790 --> 00:53:34,840

might have to give them to them and

1105

00:53:38,890 --> 00:53:36,800

neurological which might be some

1106

00:53:40,570 --> 00:53:38,900

like you know you come across some crabs

1107

00:53:42,850 --> 00:53:40,580

and you make them small enough that they

1108

00:53:44,590 --> 00:53:42,860

can use technology and then of course

1109

00:53:46,600 --> 00:53:44,600

there's always that ethics thing is what

1110

00:53:48,640 --> 00:53:46,610

do you do and where's the line I think a

1111

00:53:51,160 --> 00:53:48,650

lot of us would say that if you came

1112

00:53:54,910 --> 00:53:51,170

across a species that was trapped on a

1113

00:53:56,170 --> 00:53:54,920

subsurface ocean like Europa it's maybe

1114

00:53:57,700 --> 00:53:56,180

you should leave them be but the same

1115

00:53:58,870 --> 00:53:57,710

hand they've kind of stuck they own and

1116

00:54:01,570 --> 00:53:58,880

if you know they've been stuck there for

1117

00:54:03,130 --> 00:54:01,580

a million years maybe you should just go

1118

00:54:05,140 --> 00:54:03,140

ahead and make contact with them and

1119

00:54:06,400 --> 00:54:05,150

give them technology because it would

1120

00:54:08,020 --> 00:54:06,410

seem like such a shame to leave them

1121

00:54:09,940 --> 00:54:08,030

trapped there forever what kind of

1122

00:54:13,900 --> 00:54:09,950

technology do you throw them a pack of

1123

00:54:15,640 --> 00:54:13,910

matches I mean I know that's what I'm

1124

00:54:18,190 --> 00:54:15,650

saying what what kind of what would you

1125

00:54:20,650 --> 00:54:18,200

what would you suggest well I'm trying

1126

00:54:22,450 --> 00:54:20,660

to think you know we invented torches

1127

00:54:24,100 --> 00:54:22,460

that would walk onto water back in what

1128

00:54:25,900 --> 00:54:24,110

well one I think but so there are things

1129

00:54:27,310 --> 00:54:25,910

you can use underwater you can create

1130

00:54:30,280 --> 00:54:27,320

oxygen under there obviously because

1131

00:54:31,750 --> 00:54:30,290

it's mostly oxygen biomass but you have

1132

00:54:34,300 --> 00:54:31,760

to give them you know you can invent

1133

00:54:35,590 --> 00:54:34,310

this technology they are in theory but

1134

00:54:37,990 --> 00:54:35,600

it's much easier to invent it but you

1135

00:54:39,430 --> 00:54:38,000

actually have file walking me easily in

1136

00:54:40,630 --> 00:54:39,440

the first place so you probably

1137

00:54:42,430 --> 00:54:40,640

introduce technologies that were

1138

00:54:44,980 --> 00:54:42,440

designed to walk underwater which is

1139

00:54:46,300 --> 00:54:44,990

actually quite difficult course but not

1140

00:54:47,830 --> 00:54:46,310

only to have them underwater like a

1141

00:54:50,410 --> 00:54:47,840

submarine is but actually have them

1142

00:54:52,390 --> 00:54:50,420

underwater and exposed and obviously

1143

00:54:55,090 --> 00:54:52,400

salt water for instance horrible things

1144

00:54:56,860 --> 00:54:55,100

to to most electronics well should be

1145

00:54:58,300 --> 00:54:56,870

possible to build and manufacture stuff

1146

00:54:59,950 --> 00:54:58,310

that would walk under there that we

1147

00:55:01,060 --> 00:54:59,960

could show them how to make and refine

1148

00:55:05,320 --> 00:55:01,070

and do on their own

1149

00:55:07,330 --> 00:55:05,330

now what about Arthur C Clarke's you

1150

00:55:09,820 --> 00:55:07,340

know approach to this where you know

1151  
00:55:11,830 --> 00:55:09,830  
let's say you and I and land on the

1152  
00:55:14,200 --> 00:55:11,840  
planet I always say you and I because

1153  
00:55:16,360 --> 00:55:14,210  
you know it's if the smart guy in the

1154  
00:55:19,770 --> 00:55:16,370  
dumb guy you and I land on the planet

1155  
00:55:23,080 --> 00:55:19,780  
and we run into a species like

1156  
00:55:25,930 --> 00:55:23,090  
Australopithecus right or you know just

1157  
00:55:29,290 --> 00:55:25,940  
something that is right on the cusp of

1158  
00:55:31,420 --> 00:55:29,300  
some kind of evolutionary move do we

1159  
00:55:36,930 --> 00:55:31,430  
drop a monolith yes yeah do we drop a

1160  
00:55:40,600 --> 00:55:36,940  
model a third or radically change them I

1161  
00:55:43,000 --> 00:55:40,610  
myself would favor doing so because you

1162  
00:55:44,530 --> 00:55:43,010  
know the alternative is to quarantine

1163  
00:55:47,440 --> 00:55:44,540

that plant off of everybody else

1164

00:55:49,970 --> 00:55:47,450

for millions of years so you splint do

1165

00:55:53,000 --> 00:55:49,980

you split do you drop it off and

1166

00:55:54,230 --> 00:55:53,010

go know I'd land Leo and talk to him

1167

00:55:55,730 --> 00:55:54,240

well I wouldn't land they owe and talk

1168

00:55:57,710 --> 00:55:55,740

to them as a human I'd I'd take some

1169

00:55:59,540 --> 00:55:57,720

time Lord about them papi mock-up some

1170

00:56:01,010 --> 00:55:59,550

androids that looked more like them and

1171

00:56:02,990 --> 00:56:01,020

could toss them in their own tongue and

1172

00:56:05,120 --> 00:56:03,000

just try to introduce themselves without

1173

00:56:07,760 --> 00:56:05,130

playing God but something that backs you

1174

00:56:09,650 --> 00:56:07,770

into a corner ethically but you know

1175

00:56:11,510 --> 00:56:09,660

they're small enough to be Oh to calm

1176

00:56:13,280 --> 00:56:11,520

you know contemplate abstract concepts

1177

00:56:14,780 --> 00:56:13,290

that could lead to technology I feel

1178

00:56:16,599 --> 00:56:14,790

like it they're probably small enough to

1179

00:56:21,859 --> 00:56:16,609

try to have a conversation with and

1180

00:56:26,710 --> 00:56:21,869

let's let's suppose something else let's

1181

00:56:29,660 --> 00:56:26,720

suppose that we dropped it off and

1182

00:56:32,090 --> 00:56:29,670

allowed them no communication no direct

1183

00:56:35,300 --> 00:56:32,100

anything the monolith type of idea right

1184

00:56:38,300 --> 00:56:35,310

where the now they just they either get

1185

00:56:41,000 --> 00:56:38,310

it or they don't but we split and we

1186

00:56:43,220 --> 00:56:41,010

come back in a thousand years and see

1187

00:56:46,190 --> 00:56:43,230

where what they did with it and then

1188

00:56:49,010 --> 00:56:46,200

maybe help them again if they didn't

1189

00:56:50,240 --> 00:56:49,020

quite get it isn't that a more logical

1190

00:56:53,030 --> 00:56:50,250

approach because now you're not

1191

00:56:54,410 --> 00:56:53,040

interfering only on forced inspection

1192

00:56:56,990 --> 00:56:54,420

this is where the real problem gets in

1193

00:56:58,820 --> 00:56:57,000

here is in that thousand years how have

1194

00:57:00,770 --> 00:56:58,830

you kept anybody else can come in poking

1195

00:57:03,080 --> 00:57:00,780

around you know I know when I get there

1196

00:57:05,090 --> 00:57:03,090

my motors all probably reasonably pure

1197

00:57:07,130 --> 00:57:05,100

ish I don't know who's gonna show up in

1198

00:57:09,260 --> 00:57:07,140

the meantime try some glass beads or

1199

00:57:12,290 --> 00:57:09,270

play God or even just try to upload them

1200

00:57:14,930 --> 00:57:12,300

too fast so they blow themselves up and

1201

00:57:17,030 --> 00:57:14,940

what about okay and then what could also

1202

00:57:20,090 --> 00:57:17,040

happen those thousand years is you come

1203

00:57:21,200 --> 00:57:20,100

back and they've been enslaved or you

1204

00:57:24,849 --> 00:57:21,210

come back but you can't come back

1205

00:57:29,720 --> 00:57:24,859

because you've been defunded yes yes

1206

00:57:32,090 --> 00:57:29,730

have you seen have you seen Mars the the

1207

00:57:35,510 --> 00:57:32,100

Ron Howard produced TV series on Angie

1208

00:57:38,540 --> 00:57:35,520

oh I've got part of it but I'm I'm loyal

1209

00:57:39,859 --> 00:57:38,550

I now at the Andy wheel Phil okay all

1210

00:57:42,800 --> 00:57:39,869

right yeah fair enough that that's

1211

00:57:45,650 --> 00:57:42,810

that's fair but I check out Mars because

1212

00:57:47,900 --> 00:57:45,660

one of the things that they do they deal

1213

00:57:50,450 --> 00:57:47,910

with today's technology Elon Musk and

1214

00:57:53,599 --> 00:57:50,460

they shoe it shoot a documentary style

1215

00:57:55,760 --> 00:57:53,609

for present day but then they go to you

1216

00:57:57,950 --> 00:57:55,770

know twenty thirty three and you know

1217

00:58:01,860 --> 00:57:57,960

getting to Mars but they go through all

1218

00:58:04,530 --> 00:58:01,870

of those funding D funding issues it

1219

00:58:06,480 --> 00:58:04,540

pretty realistic no aliens no laser

1220

00:58:09,390 --> 00:58:06,490

cannons you know there's nothing like

1221

00:58:12,900 --> 00:58:09,400

that it is purely a day-to-day existence

1222

00:58:14,790 --> 00:58:12,910

of survival on Mars but it's very very

1223

00:58:18,720 --> 00:58:14,800

interesting and it makes me wonder if

1224

00:58:21,150 --> 00:58:18,730

those writers haven't been peeping out

1225

00:58:23,430 --> 00:58:21,160

science of futurism with Isaac Arthur

1226

00:58:25,530 --> 00:58:23,440

because it's all right there let's take

1227

00:58:27,510 --> 00:58:25,540

a break Isaac let's do it right here

1228

00:58:28,740 --> 00:58:27,520

this is fade to black I'm you know

1229

00:58:31,170 --> 00:58:28,750

stupid Church our guest tonight

1230

00:58:35,220 --> 00:58:31,180

Isaac Arthur this is the Fermi paradox

1231

00:58:37,290 --> 00:58:35,230

from A to Z stay with us we'll be right

1232

00:58:40,620 --> 00:58:37,300

back after this short break on the game

1233

00:58:44,380 --> 00:58:40,630

changer network and kg RA the planets

1234

00:58:44,390 --> 00:59:07,170

[Music]

1235

00:59:11,170 --> 00:59:09,040

this is fade to black

1236

00:59:14,859 --> 00:59:11,180

with Jimmy Church on the game changer

1237

00:59:16,650 --> 00:59:14,869

radio network and kgr a the global radio

1238

00:59:19,960 --> 00:59:16,660

alliance

1239

00:59:23,290 --> 00:59:19,970

this is KCRA digital broadcasting

1240

00:59:32,320 --> 00:59:23,300

station Salt Lake City Utah Van Buren

1241

00:59:35,200 --> 00:59:32,330

Arkansas come join us for the 2019

1242

00:59:38,350 --> 00:59:35,210

conscious life Expo in Los Angeles at

1243

00:59:40,810 --> 00:59:38,360

the LAX Hilton this year we are

1244

00:59:42,730 --> 00:59:40,820

celebrating the 50th anniversary of

1245

00:59:45,220 --> 00:59:42,740

Chariots of the Gods with Erich von

1246

00:59:47,710 --> 00:59:45,230

däniken and I'll be hosting the panel

1247

00:59:50,890 --> 00:59:47,720

with Eric Linda Moulton Howe

1248

00:59:53,320 --> 00:59:50,900

Jason Martel Billy Carson and joint

1249

00:59:55,810 --> 00:59:53,330

George Noory nassim haramein Robert

1250

00:59:58,090 --> 00:59:55,820

Schoch dannion brinkley grant hammer and

1251

00:59:59,859 --> 00:59:58,100

Julia Moss bridge and another 50

1252

01:00:03,609 --> 00:59:59,869

speakers who will be presenting at the

1253

01:00:05,950 --> 01:00:03,619

2019 conscious life Expo just go through

1254

01:00:08,740 --> 01:00:05,960

conscious life Expo comm for tickets and

1255

01:00:10,840 --> 01:00:08,750

a full conference schedule or click on

1256

01:00:19,900 --> 01:00:10,850

the see le banner at jimmy church

1257

01:00:21,970 --> 01:00:19,910

radio.com gobekli tepe folks this is

1258

01:00:25,780 --> 01:00:21,980

very important information what's to be

1259

01:00:28,930 --> 01:00:25,790

said about CBD ancient life oil calm our

1260

01:00:31,930 --> 01:00:28,940

CBD is made from hemp and has point 0 0

1261

01:00:34,840 --> 01:00:31,940

3 THC which means this wonderful product

1262

01:00:37,780 --> 01:00:34,850

won't get you high no matter what amount

1263

01:00:40,480 --> 01:00:37,790

you take what a CBD do for the body my

1264

01:00:43,150 --> 01:00:40,490

hands are tied but you can Google CBD

1265

01:00:45,250 --> 01:00:43,160

benefits and be astounded when you're

1266

01:00:47,500 --> 01:00:45,260

finished reading you'll want to log on

1267

01:00:50,680 --> 01:00:47,510

to ancient life oil calm that's ancient

1268

01:00:52,900 --> 01:00:50,690

life oil calm and purchase life is good

1269

01:00:55,060 --> 01:00:52,910

when you feel good people are tired of

1270

01:00:57,760 --> 01:00:55,070

pain people are asking for non-gmo

1271

01:01:00,220 --> 01:00:57,770

organic products to help them with you

1272

01:01:02,890 --> 01:01:00,230

fill in the blank legal in 49 states and

1273

01:01:05,290 --> 01:01:02,900

again our CBD is made from hemp ancient

1274

01:01:06,640 --> 01:01:05,300

life oil is about helping people one by

1275

01:01:08,260 --> 01:01:06,650

one by one

1276

01:01:11,650 --> 01:01:08,270

if you wonder how good the product is

1277

01:01:14,109 --> 01:01:11,660

the CEO takes it every day without miss

1278

01:01:16,070 --> 01:01:14,119

ancient life oil calm that's ancient

1279

01:01:25,850 --> 01:01:16,080

life oil calm have a

1280

01:01:27,350 --> 01:01:25,860

great day hi this is ray sobs here

1281

01:01:30,470 --> 01:01:27,360

reppin the planet and you're listening

1282

01:01:31,160 --> 01:01:30,480

to my good friend Jimmy Church fade to

1283

01:01:33,230 --> 01:01:31,170

black

1284

01:01:37,790 --> 01:01:33,240

on the game changer Network and the K

1285

01:01:40,010 --> 01:01:37,800

GRA digital broadcast station this is

1286

01:02:01,160 --> 01:01:40,020

Toby Kebbell you're listening to Jimmy

1287

01:02:03,920 --> 01:02:01,170

Church radio.com reclaim your active

1288

01:02:05,630 --> 01:02:03,930

lifestyle with NGO Prem NGO print is the

1289

01:02:08,270 --> 01:02:05,640

original liquid oral chelation

1290

01:02:10,010 --> 01:02:08,280

supplement chelation helps remove toxins

1291

01:02:11,930 --> 01:02:10,020

heavy metals and cholesterol in your

1292

01:02:14,090 --> 01:02:11,940

veins and arteries that can cause

1293

01:02:15,770 --> 01:02:14,100

blockages scientific research proves the

1294

01:02:17,960 --> 01:02:15,780

active ingredient in angio primp has

1295

01:02:19,850 --> 01:02:17,970

superior oral chelation action that

1296

01:02:22,130 --> 01:02:19,860

helps promote cardiovascular health

1297

01:02:23,780 --> 01:02:22,140

find out more come to an geo-print comm

1298

01:02:25,850 --> 01:02:23,790

talked to a trained consultant by

1299

01:02:27,860 --> 01:02:25,860

calling angio priem toll free eight

1300

01:02:31,100 --> 01:02:27,870

seven seven eight eight to seventy two

1301  
01:02:33,080 --> 01:02:31,110  
twenty one this is Jimmy Church of fade

1302  
01:02:34,940 --> 01:02:33,090  
to black and you can become an official

1303  
01:02:37,490 --> 01:02:34,950  
fade or not by just going to our

1304  
01:02:38,750 --> 01:02:37,500  
membership section at Jimmy Church

1305  
01:02:41,300 --> 01:02:38,760  
radio.com

1306  
01:02:43,340 --> 01:02:41,310  
hey it's grace can we talk about

1307  
01:02:46,370 --> 01:02:43,350  
something serious for a minute your age

1308  
01:02:48,800 --> 01:02:46,380  
getting old has its perks but remember

1309  
01:02:50,780 --> 01:02:48,810  
being a few years younger you know your

1310  
01:02:52,610 --> 01:02:50,790  
hair was thicker you didn't have so many

1311  
01:02:54,530 --> 01:02:52,620  
wrinkles that extra weight wasn't

1312  
01:02:56,810 --> 01:02:54,540  
haunting you and you just felt better

1313  
01:02:59,450 --> 01:02:56,820

well we can't turn back the clocks and

1314

01:03:01,760 --> 01:02:59,460

go back 10 or 15 years but you can start

1315

01:03:04,640 --> 01:03:01,770

feeling and looking 10 or 15 years

1316

01:03:06,620 --> 01:03:04,650

younger with nature's youth RSF it's a

1317

01:03:08,270 --> 01:03:06,630

doctor formulated daily supplement that

1318

01:03:09,940 --> 01:03:08,280

helps your body maintain its peak

1319

01:03:12,530 --> 01:03:09,950

performance and fight the aging process

1320

01:03:13,850 --> 01:03:12,540

imagine sleeping better looking better

1321

01:03:16,400 --> 01:03:13,860

and feeling better

1322

01:03:18,320 --> 01:03:16,410

see how Nature's youth RSF has helped

1323

01:03:20,990 --> 01:03:18,330

thousands of people just like you at

1324

01:03:22,790 --> 01:03:21,000

nature's youth calm nature's youth calm

1325

01:03:24,380 --> 01:03:22,800

imagine how it will feel when your

1326

01:03:26,810 --> 01:03:24,390

family and friends are asking you what

1327

01:03:28,750 --> 01:03:26,820

you did to look so good your secret will

1328

01:03:30,700 --> 01:03:28,760

be nature's youth RSF

1329

01:03:32,890 --> 01:03:30,710

time to start looking better and feeling

1330

01:03:35,440 --> 01:03:32,900

better learn more in order your nature's

1331

01:03:38,170 --> 01:03:35,450

use RSS at nature's youth calm that's

1332

01:03:41,680 --> 01:03:38,180

nature's youth calm that's nature's

1333

01:03:43,660 --> 01:03:41,690

youth calm hello this is Serena right

1334

01:03:45,880 --> 01:03:43,670

kayla from conscious life Expo and

1335

01:03:48,100 --> 01:03:45,890

you're listening to fade to black with

1336

01:03:50,380 --> 01:03:48,110

Jimmy Church who holds the lucky pony

1337

01:03:55,390 --> 01:03:50,390

record for the best astrological chart

1338

01:03:57,010 --> 01:03:55,400

since 1963 true story this is Micah

1339

01:03:58,870 --> 01:03:57,020

Hank's of the gray lien report and

1340

01:04:00,610 --> 01:03:58,880

you're listening to Jimmy church on fade

1341

01:04:02,680 --> 01:04:00,620

to black across the globe on the

1342

01:04:05,710 --> 01:04:02,690

GameChanger radio network and the one

1343

01:04:09,680 --> 01:04:05,720

and only kgr a radio the planet

1344

01:04:10,000 --> 01:04:09,690

[Music]

1345

01:04:21,090 --> 01:04:10,010

[Applause]

1346

01:04:27,799 --> 01:04:25,390

[Music]

1347

01:04:29,569 --> 01:04:27,809

welcome back fade to black I am your

1348

01:04:35,049 --> 01:04:29,579

host Jimmy Church I guess tonight Isaac

1349

01:04:41,769 --> 01:04:38,660

you've always had questions right and I

1350

01:04:43,969 --> 01:04:41,779

get that the Fermi paradox is complex

1351

01:04:47,989 --> 01:04:43,979

what we're gonna do it all tonight hey

1352

01:04:51,410 --> 01:04:47,999

Isaac are you hip to CBD CBD

1353

01:04:53,660 --> 01:04:51,420

yeah CBD oil not familiar with it

1354

01:04:56,359 --> 01:04:53,670

oh man it's this miracle stuff you know

1355

01:05:01,609 --> 01:04:56,369

it comes it's uh you know derived from

1356

01:05:04,900 --> 01:05:01,619

hemp oh yes yeah yeah CBD and it works

1357

01:05:07,759 --> 01:05:04,910

last summer I had this violent

1358

01:05:11,870 --> 01:05:07,769

woodchipper accident right chop my head

1359

01:05:15,140 --> 01:05:11,880

off right clean off a couple of drops

1360

01:05:17,089 --> 01:05:15,150

CBD grew back it's incredible it's

1361

01:05:18,349 --> 01:05:17,099

incredible it was and it happened quick

1362

01:05:24,009 --> 01:05:18,359

most people didn't even know what

1363

01:05:26,930 --> 01:05:24,019

happened okay we're moving on like

1364

01:05:31,519 --> 01:05:26,940

Church you know so check this out and I

1365

01:05:33,349 --> 01:05:31,529

I'm sober I'm drug-free right and and I

1366

01:05:36,650 --> 01:05:33,359

I make jokes about this kind of stuff

1367

01:05:39,170 --> 01:05:36,660

often and just popped the bong joke and

1368

01:05:42,920 --> 01:05:39,180

in Twitter now people are showing me

1369

01:05:47,539 --> 01:05:42,930

pictures of people smoking smoking weed

1370

01:05:49,160 --> 01:05:47,549

underwater that it can be done someone

1371

01:05:54,199 --> 01:05:49,170

is gonna put it up on YouTube just to

1372

01:05:56,900 --> 01:05:54,209

prove this to you right now oh okay

1373

01:06:00,519 --> 01:05:56,910

here we go let's continue the question

1374

01:06:03,859 --> 01:06:00,529

is so where is et where is everybody

1375

01:06:07,579 --> 01:06:03,869

answer it is the nature of intelligent

1376

01:06:10,579 --> 01:06:07,589

life to destroy itself and then answer

1377

01:06:13,339 --> 01:06:10,589

number two is the answer the nature of

1378

01:06:17,599 --> 01:06:13,349

intelligent life is to destroy others

1379

01:06:20,049 --> 01:06:17,609

now my take on that I need yours of

1380

01:06:22,309 --> 01:06:20,059

course but that is this is derived from

1381

01:06:24,799 --> 01:06:22,319

humanity mm-hmm

1382

01:06:26,420 --> 01:06:24,809

well here's the core power that we were

1383

01:06:28,370 --> 01:06:26,430

saying earlier on that one of the

1384

01:06:30,949 --> 01:06:28,380

biggest problems we all have with this

1385

01:06:33,170 --> 01:06:30,959

original real life concept where with

1386

01:06:36,979 --> 01:06:33,180

hypothesis is that it's virtually

1387

01:06:38,870 --> 01:06:36,989

impossible to kill off life and you know

1388

01:06:39,230 --> 01:06:38,880

humanity's been around for a million

1389

01:06:41,150 --> 01:06:39,240

years

1390

01:06:42,590 --> 01:06:41,160

we haven't cured ourselves off yet we

1391

01:06:45,440 --> 01:06:42,600

seem to keep growing and prospering

1392

01:06:47,750 --> 01:06:45,450

actually if everyone was alive when this

1393

01:06:49,850 --> 01:06:47,760

concept came up forming himself they

1394

01:06:52,490 --> 01:06:49,860

they just invented the h-bomb him and

1395

01:06:55,550 --> 01:06:52,500

Teller they thought it was very easy to

1396

01:06:59,000 --> 01:06:55,560

believe that life wiped itself out and

1397

01:07:00,920 --> 01:06:59,010

that may indeed be the case but you know

1398

01:07:02,990 --> 01:07:00,930

we get closer and closer to being out in

1399

01:07:05,840 --> 01:07:03,000

space every day so we don't have all our

1400

01:07:07,430 --> 01:07:05,850

eggs in one basket and we still haven't

1401

01:07:08,840 --> 01:07:07,440

blown ourselves up and it doesn't really

1402

01:07:10,340 --> 01:07:08,850

feel like that's too close on the

1403

01:07:13,060 --> 01:07:10,350

horizon for all of us who live back in

1404

01:07:16,580 --> 01:07:13,070

the cord war that that we don't feel as

1405

01:07:18,410 --> 01:07:16,590

endangered as we did then so I that's

1406

01:07:20,750 --> 01:07:18,420

obviously one we can't rule out by any

1407

01:07:22,580 --> 01:07:20,760

means but I find hard to believe that

1408

01:07:24,170 --> 01:07:22,590

all of them do it you know even if we

1409

01:07:25,609 --> 01:07:24,180

assume 90% of them do and I'm a

1410

01:07:27,980 --> 01:07:25,619

technical term is I don't think very

1411

01:07:31,370 --> 01:07:27,990

many of them would but even was 90% even

1412

01:07:33,500 --> 01:07:31,380

was 99% if that's you know a thousand

1413

01:07:35,150 --> 01:07:33,510

civilizations poor galaxies that's still

1414

01:07:37,070 --> 01:07:35,160

ten of them that survived to go on and

1415

01:07:40,820 --> 01:07:37,080

then you know expand out to the galaxies

1416

01:07:43,430 --> 01:07:40,830

right and and the other part of it is an

1417

01:07:46,040 --> 01:07:43,440

dispersed especially with Fermi and

1418

01:07:50,330 --> 01:07:46,050

Teller and the nuclear fear that they

1419

01:07:53,800 --> 01:07:50,340

had understandable but even if we went

1420

01:07:57,290 --> 01:07:53,810

through an arleigh nuclear exchange

1421

01:07:59,240 --> 01:07:57,300

there would be survivors yeah it is it

1422

01:08:00,590 --> 01:07:59,250

is very hard to kill a humanity always

1423

01:08:02,270 --> 01:08:00,600

talk about how tough the cockroach is

1424

01:08:04,430 --> 01:08:02,280

Elisa's it when I was kid nowadays is

1425

01:08:06,470 --> 01:08:04,440

the tardigrade we all talk about right I

1426

01:08:07,849 --> 01:08:06,480

think they overestimate the cockroach

1427

01:08:08,599 --> 01:08:07,859

and underestimate the survivability of

1428

01:08:11,030 --> 01:08:08,609

humans

1429

01:08:12,890 --> 01:08:11,040

I have never figure out a way short of

1430

01:08:14,690 --> 01:08:12,900

sterilizing the entire surface of the

1431

01:08:16,280 --> 01:08:14,700

planet that you can reliably kill off

1432

01:08:18,740 --> 01:08:16,290

all humans in a way that wouldn't have

1433

01:08:22,220 --> 01:08:18,750

us back here what about what about what

1434

01:08:24,200 --> 01:08:22,230

about something biological 100% fatality

1435

01:08:25,579 --> 01:08:24,210

rates would require an awful lot of

1436

01:08:27,499 --> 01:08:25,589

engineering we've never pulled that up

1437

01:08:29,450 --> 01:08:27,509

for and even then you'd have people who

1438

01:08:30,980 --> 01:08:29,460

heard about it spreading or just way out

1439

01:08:32,570 --> 01:08:30,990

on the cabin in the woods some whale and

1440

01:08:34,880 --> 01:08:32,580

they'd all get together afterwards and

1441

01:08:36,440 --> 01:08:34,890

touch each other by hand radio and you

1442

01:08:37,670 --> 01:08:36,450

know make a new civilization at was

1443

01:08:40,190 --> 01:08:37,680

someone would be in a bunk or somewhere

1444

01:08:43,249 --> 01:08:40,200

surviving and some would be naturally

1445

01:08:45,530 --> 01:08:43,259

immune probably yeah we've never had an

1446

01:08:47,599 --> 01:08:45,540

illness that was that effective and I

1447

01:08:48,890 --> 01:08:47,609

think something like that mmm the

1448

01:08:50,150 --> 01:08:48,900

technology need to make something like

1449

01:08:52,059 --> 01:08:50,160

that is pretty close to what you need to

1450

01:08:53,740 --> 01:08:52,069

fix it I would think too

1451

01:08:55,269 --> 01:08:53,750

and you know you might have one crazy

1452

01:08:57,399 --> 01:08:55,279

lunatic who's a genius putting that

1453

01:08:59,859 --> 01:08:57,409

together but you'd have millions of

1454

01:09:01,990 --> 01:08:59,869

other scientists who had that same level

1455

01:09:04,209 --> 01:09:02,000

of technological access working on a fix

1456

01:09:07,089 --> 01:09:04,219

or preventative measure so it can't be

1457

01:09:09,309 --> 01:09:07,099

ruled out of course but again 99% of

1458

01:09:10,749 --> 01:09:09,319

civilizations might go down that way for

1459

01:09:13,419 --> 01:09:10,759

sadly it'd be less than one but

1460

01:09:15,819 --> 01:09:13,429

someone's was loved and what about the

1461

01:09:18,309 --> 01:09:15,829

second half of this which is it's the

1462

01:09:21,819 --> 01:09:18,319

nature of intelligent life to destroy

1463

01:09:24,189 --> 01:09:21,829

others and certainly with us we we shoot

1464

01:09:26,609 --> 01:09:24,199

first and ask questions later right and

1465

01:09:28,780 --> 01:09:26,619

and I understand this this this concept

1466

01:09:30,370 --> 01:09:28,790

do we I mean they're their business

1467

01:09:32,680 --> 01:09:30,380

notion when we were growing up that

1468

01:09:34,419 --> 01:09:32,690

humanity had wiped out the other species

1469

01:09:35,680 --> 01:09:34,429

like Neanderthal things like that and

1470

01:09:36,910 --> 01:09:35,690

that was a pretty common thought was

1471

01:09:39,099 --> 01:09:36,920

that you know we wiped out the other

1472

01:09:40,390 --> 01:09:39,109

hominids a hominid species now it looks

1473

01:09:42,430 --> 01:09:40,400

more like we you know bred with a lot of

1474

01:09:45,669 --> 01:09:42,440

them and suddenly we have a long history

1475

01:09:47,769 --> 01:09:45,679

of violence but truth be told most

1476

01:09:49,180 --> 01:09:47,779

interactions between new civilizations

1477

01:09:51,189 --> 01:09:49,190

have just bumped into each other for the

1478

01:09:52,660 --> 01:09:51,199

first time have been fairly peaceful

1479

01:09:54,399 --> 01:09:52,670

yeah I mean you have people who will

1480

01:09:55,899 --> 01:09:54,409

trade with other tribes who didn't even

1481

01:09:58,060 --> 01:09:55,909

speak the same language they would just

1482

01:09:58,990 --> 01:09:58,070

put stuff on the river shore and the

1483

01:10:00,399 --> 01:09:59,000

other guys would put stuff on the

1484

01:10:01,720 --> 01:10:00,409

wilshire until everyone thought it was

1485

01:10:03,669 --> 01:10:01,730

good and they never said a word to each

1486

01:10:05,770 --> 01:10:03,679

other and they exchanged there's so many

1487

01:10:07,720 --> 01:10:05,780

a history of violence with humanity you

1488

01:10:09,939 --> 01:10:07,730

can't hide that can't pretend otherwise

1489

01:10:11,560 --> 01:10:09,949

but I think that can get exaggerated a

1490

01:10:13,050 --> 01:10:11,570

little bit time we've tended to be

1491

01:10:16,600 --> 01:10:13,060

pretty good at making friends too so

1492

01:10:18,780 --> 01:10:16,610

intelligent life would you know

1493

01:10:21,040 --> 01:10:18,790

especially much more advanced than us

1494

01:10:24,370 --> 01:10:21,050

wouldn't be out there smoking other

1495

01:10:27,339 --> 01:10:24,380

planets with you know the pulps laser

1496

01:10:28,689 --> 01:10:27,349

cannons one thing we can say with

1497

01:10:30,550 --> 01:10:28,699

reasonable certainty about and we can

1498

01:10:31,870 --> 01:10:30,560

never speak with much Saudi about aliens

1499

01:10:33,819 --> 01:10:31,880

period but one of the things we could

1500

01:10:36,580 --> 01:10:33,829

say with a certain amount of Saudi is

1501  
01:10:38,500 --> 01:10:36,590  
that to make a civilization you need to

1502  
01:10:40,600 --> 01:10:38,510  
have some social skills you might be

1503  
01:10:43,209 --> 01:10:40,610  
hype aggressive and psychotic to some

1504  
01:10:44,740 --> 01:10:43,219  
degree but you can't push it too far the

1505  
01:10:47,589 --> 01:10:44,750  
more advanced species on this planet

1506  
01:10:50,050 --> 01:10:47,599  
types of mammals all social animals they

1507  
01:10:52,780 --> 01:10:50,060  
do well by walking together with their

1508  
01:10:54,430 --> 01:10:52,790  
pack for Humanity the thing that allowed

1509  
01:10:56,589 --> 01:10:54,440  
us to get technology was he ability to

1510  
01:10:58,720 --> 01:10:56,599  
build big cities full of people you know

1511  
01:10:59,859 --> 01:10:58,730  
those old portion cities of thousands of

1512  
01:11:01,660 --> 01:10:59,869  
people would be unthinkable in

1513  
01:11:03,760 --> 01:11:01,670

hunter-gatherer or civilization right

1514

01:11:05,260 --> 01:11:03,770

everyone was specialized and could you

1515

01:11:07,330 --> 01:11:05,270

know spend the whole life walking on

1516

01:11:09,520 --> 01:11:07,340

one trade that's how you get to

1517

01:11:12,070 --> 01:11:09,530

technology I'd have difficulty imagining

1518

01:11:13,720 --> 01:11:12,080

when doing that who was openly Jenna

1519

01:11:17,320 --> 01:11:13,730

Seidel automatically to everybody it's

1520

01:11:20,410 --> 01:11:17,330

just totally hostile the question is so

1521

01:11:24,160 --> 01:11:20,420

where is et where is everybody

1522

01:11:29,350 --> 01:11:24,170

answer periodic extinction by natural

1523

01:11:32,050 --> 01:11:29,360

events now of course we the inclination

1524

01:11:35,740 --> 01:11:32,060

is to think of earthquakes volcanoes

1525

01:11:39,340 --> 01:11:35,750

hurricanes right asteroids but then

1526

01:11:42,190 --> 01:11:39,350

there's also the star right stars and

1527

01:11:45,640 --> 01:11:42,200

and so forth you know solar engagement

1528

01:11:47,860 --> 01:11:45,650

what how do we look at this hasn't

1529

01:11:50,020 --> 01:11:47,870

succeeded in wiping out life it's so far

1530

01:11:52,540 --> 01:11:50,030

at least not any sort of timeframe that

1531

01:11:55,180 --> 01:11:52,550

would be relevant to the human race like

1532

01:11:57,340 --> 01:11:55,190

we've been around for thousands of years

1533

01:11:59,020 --> 01:11:57,350

of civilization and we'll just about

1534

01:12:01,330 --> 01:11:59,030

immune to these things it's not going to

1535

01:12:02,920 --> 01:12:01,340

be much long before we could just you

1536

01:12:05,650 --> 01:12:02,930

know shrug off almost say these things

1537

01:12:07,300 --> 01:12:05,660

so statistically we're not an anomaly

1538

01:12:09,070 --> 01:12:07,310

and having survived that long we'd have

1539

01:12:10,420 --> 01:12:09,080

to assume that some plants probably

1540

01:12:13,000 --> 01:12:10,430

would get natural disasters that wiped

1541

01:12:15,160 --> 01:12:13,010

them out but a lot would not so give me

1542

01:12:16,450 --> 01:12:15,170

hit that issue of exclusivity we cannot

1543

01:12:19,270 --> 01:12:16,460

assume that this is gonna get everybody

1544

01:12:21,310 --> 01:12:19,280

and deed to any civilization probably

1545

01:12:23,020 --> 01:12:21,320

beyond by the next century or so if you

1546

01:12:25,870 --> 01:12:23,030

see a big asteroid coming towards your

1547

01:12:27,190 --> 01:12:25,880

planet everyone might stop walking but

1548

01:12:28,570 --> 01:12:27,200

all you go check their stocks for

1549

01:12:29,860 --> 01:12:28,580

commodities because it's like free gold

1550

01:12:31,540 --> 01:12:29,870

moving toward your planet you're not

1551

01:12:33,070 --> 01:12:31,550

worried about that hitting you you're a

1552

01:12:35,380 --> 01:12:33,080

way to go work that thing in because

1553

01:12:39,880 --> 01:12:35,390

it's free money resources it's full of

1554

01:12:43,480 --> 01:12:39,890

diamonds right and and so let's let's

1555

01:12:46,690 --> 01:12:43,490

take this one step further though when

1556

01:12:49,990 --> 01:12:46,700

we look at when we go 65 70 million

1557

01:12:53,380 --> 01:12:50,000

years ago asteroid impacts earth wipes

1558

01:12:55,120 --> 01:12:53,390

out dinosaurs right and wiped out just

1559

01:12:57,460 --> 01:12:55,130

about everything on this planet ninety

1560

01:13:00,370 --> 01:12:57,470

ninety percent right that's a pretty

1561

01:13:04,450 --> 01:13:00,380

high percentage rate sharks survived

1562

01:13:07,780 --> 01:13:04,460

cockroaches survived but it didn't take

1563

01:13:10,870 --> 01:13:07,790

very long for everything to just

1564

01:13:13,630 --> 01:13:10,880

repopulate with new species and it

1565

01:13:15,850 --> 01:13:13,640

happened nearly overnight in in the big

1566

01:13:17,470 --> 01:13:15,860

timescale yeah we can't even say how

1567

01:13:19,060 --> 01:13:17,480

long was because we try to be estimate

1568

01:13:21,370 --> 01:13:19,070

these periods there's such a big mole

1569

01:13:23,650 --> 01:13:21,380

they are on both how few fast was we

1570

01:13:25,810 --> 01:13:23,660

have met period and just the time dating

1571

01:13:27,580 --> 01:13:25,820

we do all that that we don't know if

1572

01:13:29,020 --> 01:13:27,590

that stuff actually died off then it

1573

01:13:31,060 --> 01:13:29,030

might Bend that almost all them didn't

1574

01:13:32,680 --> 01:13:31,070

they are pushed off the the hill by

1575

01:13:34,150 --> 01:13:32,690

something else having a chance to rise

1576

01:13:36,070 --> 01:13:34,160

up and displace them and it might have

1577

01:13:37,600 --> 01:13:36,080

taken in thousands of years right who

1578

01:13:39,670 --> 01:13:37,610

could easily bend dinosaurs marking on

1579

01:13:41,260 --> 01:13:39,680

this planet for several thousand years

1580

01:13:43,030 --> 01:13:41,270

after that event and we wouldn't be able

1581

01:13:45,190 --> 01:13:43,040

to tell from our fossil record because

1582

01:13:46,870 --> 01:13:45,200

we can't date them that accurately and

1583

01:13:49,000 --> 01:13:46,880

we just don't have very many dinosaur

1584

01:13:52,120 --> 01:13:49,010

fossils especially from that Tyler time

1585

01:13:54,520 --> 01:13:52,130

period there so and it takes so little

1586

01:13:56,920 --> 01:13:54,530

time for simple life to repopulate the

1587

01:13:58,120 --> 01:13:56,930

planet humans and other large animals

1588

01:13:58,990 --> 01:13:58,130

take a little bit of time because we

1589

01:14:01,030 --> 01:13:59,000

breathe slowly

1590

01:14:02,710 --> 01:14:01,040

if you wiped out everything on this

1591

01:14:04,420 --> 01:14:02,720

planet just cure them all or not nothing

1592

01:14:06,700 --> 01:14:04,430

changed the plan itself and that's one

1593

01:14:07,750 --> 01:14:06,710

single amoeba the plan will be covered

1594

01:14:10,450 --> 01:14:07,760

again over them in a couple of years

1595

01:14:10,990 --> 01:14:10,460

really just one yeah cuz they divide so

1596

01:14:15,280 --> 01:14:11,000

fast

1597

01:14:16,720 --> 01:14:15,290

debt we're not talking about DNA we're

1598

01:14:19,330 --> 01:14:16,730

not talking about something with a brain

1599

01:14:21,010 --> 01:14:19,340

we're just talking about life yeah and

1600

01:14:22,600 --> 01:14:21,020

you get into something like a cat or dog

1601  
01:14:24,040 --> 01:14:22,610  
you know you got one family a cat a dog

1602  
01:14:26,530 --> 01:14:24,050  
left over it would only take them a few

1603  
01:14:28,510 --> 01:14:26,540  
centuries to repopulate the earth back

1604  
01:14:29,950 --> 01:14:28,520  
to their previous numbers humans a

1605  
01:14:31,480 --> 01:14:29,960  
little bit slow if we knock them down

1606  
01:14:33,340 --> 01:14:31,490  
that fall but we can double in a

1607  
01:14:36,460 --> 01:14:33,350  
generation if we need to even more if we

1608  
01:14:38,650 --> 01:14:36,470  
have to and we quadrupled in what I had

1609  
01:14:40,420 --> 01:14:38,660  
the last century doesn't take too many

1610  
01:14:42,430 --> 01:14:40,430  
doublings to get yourself back from a

1611  
01:14:46,180 --> 01:14:42,440  
thousand to a billion yeah that's only

1612  
01:14:47,650 --> 01:14:46,190  
20 doublings yeah quadruple each time

1613  
01:14:50,350 --> 01:14:47,660

five centuries in your back to know more

1614

01:14:53,050 --> 01:14:50,360

right right right right if it flips me

1615

01:14:55,480 --> 01:14:53,060

out when we when I look at math that way

1616

01:14:57,580 --> 01:14:55,490

you know you take a penny you double it

1617

01:15:00,100 --> 01:14:57,590

in two days you got two pennies and and

1618

01:15:02,740 --> 01:15:00,110

then you've got four pennies and in 30

1619

01:15:05,380 --> 01:15:02,750

days you're worth fifty billion dollars

1620

01:15:07,720 --> 01:15:05,390

you know it's just some crazy number but

1621

01:15:10,630 --> 01:15:07,730

okay let's let's continue we got a lot

1622

01:15:12,580 --> 01:15:10,640

to cover here the question is so where

1623

01:15:16,420 --> 01:15:12,590

is ET where is everybody

1624

01:15:22,810 --> 01:15:16,430

the answer is inflation hypothesis and

1625

01:15:25,450 --> 01:15:22,820

the youngness argument the general idea

1626

01:15:27,520 --> 01:15:25,460

that that life might just be Dean's

1627

01:15:29,260 --> 01:15:27,530

daughter now that's you know with all

1628

01:15:31,360 --> 01:15:29,270

these civilizations have just popped up

1629

01:15:32,979 --> 01:15:31,370

in the last million years or so doesn't

1630

01:15:34,540 --> 01:15:32,989

hold up to buy our corn

1631

01:15:36,250 --> 01:15:34,550

astronomy and now mind you there's

1632

01:15:37,839 --> 01:15:36,260

always a chance our numbers are off on

1633

01:15:39,370 --> 01:15:37,849

the dating especially at the extra

1634

01:15:41,410 --> 01:15:39,380

galactic scale cuz it's so much harder

1635

01:15:43,779 --> 01:15:41,420

for us get direct measurements right but

1636

01:15:45,339 --> 01:15:43,789

based on what we know you know plants

1637

01:15:47,319 --> 01:15:45,349

they're lucky like oh I'm getting more

1638

01:15:49,660 --> 01:15:47,329

common as time goes on as the

1639

01:15:51,100 --> 01:15:49,670

metallicity of stars how much stuff

1640

01:15:53,319 --> 01:15:51,110

besides hydrogen helium they have in

1641

01:15:55,959 --> 01:15:53,329

them has increased but we can look back

1642

01:15:58,600 --> 01:15:55,969

and see stars are about as metallic as

1643

01:16:00,970 --> 01:15:58,610

our own Sun as far back as 8 or 9

1644

01:16:02,620 --> 01:16:00,980

billion years ago and they were a lot

1645

01:16:04,629 --> 01:16:02,630

less common to be sure but they'd have

1646

01:16:06,339 --> 01:16:04,639

gotten stored then and then you know

1647

01:16:08,169 --> 01:16:06,349

as time goes on they get more and more

1648

01:16:10,209 --> 01:16:08,179

common but we're still talking about

1649

01:16:12,520 --> 01:16:10,219

billions of years timeline when

1650

01:16:14,950 --> 01:16:12,530

realistically you maybe need a million

1651

01:16:16,120 --> 01:16:14,960

years to colonize a galaxy and that's

1652

01:16:17,680 --> 01:16:16,130

where the know you we were just talking

1653

01:16:19,810 --> 01:16:17,690

moment ago about doublings and how it

1654

01:16:21,609 --> 01:16:19,820

kind of breaks the mind right it's so

1655

01:16:23,589 --> 01:16:21,619

easy to look at you know the universe

1656

01:16:25,359 --> 01:16:23,599

and say civilizations thousands of years

1657

01:16:26,830 --> 01:16:25,369

older the galaxy might take millions of

1658

01:16:29,560 --> 01:16:26,840

years to colonize and the galaxy is

1659

01:16:32,259 --> 01:16:29,570

billions of years old and forget just

1660

01:16:35,109 --> 01:16:32,269

how huge a time gap that really is in

1661

01:16:38,680 --> 01:16:35,119

comparison most people don't realize

1662

01:16:42,339 --> 01:16:38,690

because we use you know the word billion

1663

01:16:44,080 --> 01:16:42,349

is is everywhere now billionaires are

1664

01:16:46,540 --> 01:16:44,090

everywhere when we were growing up there

1665

01:16:48,609 --> 01:16:46,550

was one billionaire right now there's

1666

01:16:50,799 --> 01:16:48,619

like every single date new billionaire

1667

01:16:53,680 --> 01:16:50,809

and if there's three thousand the US

1668

01:16:54,879 --> 01:16:53,690

alone yes it's it's a crazy thing we

1669

01:16:58,359 --> 01:16:54,889

don't understand

1670

01:17:02,620 --> 01:16:58,369

how long it takes to go from 1 million

1671

01:17:04,239 --> 01:17:02,630

to 1 billion that that's and then when

1672

01:17:07,899 --> 01:17:04,249

you flip that around and you're going

1673

01:17:10,089 --> 01:17:07,909

from 1 billion to a trillion how many

1674

01:17:11,799 --> 01:17:10,099

millions are involved with these sort of

1675

01:17:14,379 --> 01:17:11,809

those billions and then how many

1676

01:17:18,759 --> 01:17:14,389

billions are involved to accumulate up

1677

01:17:22,120 --> 01:17:18,769

to a trillion these are huge huge vast

1678

01:17:23,259 --> 01:17:22,130

numbers that take time to do mm-hmm

1679

01:17:25,419 --> 01:17:23,269

there's a little under a hundred

1680

01:17:27,310 --> 01:17:25,429

thousand seconds in a day if we treat

1681

01:17:28,870 --> 01:17:27,320

the galaxy at ten billion years ago is

1682

01:17:30,850 --> 01:17:28,880

when the earliest rocky plants could

1683

01:17:32,229 --> 01:17:30,860

form and we divide that up by a hundred

1684

01:17:34,750 --> 01:17:32,239

thousand equivalent of seconds they are

1685

01:17:37,750 --> 01:17:34,760

each of those then would be 10 billion

1686

01:17:39,189 --> 01:17:37,760

be a hundred thousand years hopefully I

1687

01:17:40,330 --> 01:17:39,199

didn't just mess that up that's right

1688

01:17:42,879 --> 01:17:40,340

each of those little increments be a

1689

01:17:44,799 --> 01:17:42,889

hundred thousand years and a hundred

1690

01:17:46,930 --> 01:17:44,809

thousand years as one second that means

1691

01:17:50,439 --> 01:17:46,940

the entire humanoid species

1692

01:17:52,209 --> 01:17:50,449

FIO ten seconds ago yes lactic day yes

1693

01:17:54,100 --> 01:17:52,219

and it means that any species that might

1694

01:17:55,780 --> 01:17:54,110

have arisen could easily have arisen any

1695

01:17:58,000 --> 01:17:55,790

time in the a.m period if we're now

1696

01:18:00,490 --> 01:17:58,010

getting close to midnight and they would

1697

01:18:02,380 --> 01:18:00,500

only have needed a couple of minutes to

1698

01:18:06,430 --> 01:18:02,390

colonize the entire galaxy that's right

1699

01:18:09,939 --> 01:18:06,440

and so you could take a slice about the

1700

01:18:13,300 --> 01:18:09,949

thickness of a business card in that

1701

01:18:15,670 --> 01:18:13,310

time scale right and slice it up and

1702

01:18:17,290 --> 01:18:15,680

something could have come and gone yeah

1703

01:18:18,370 --> 01:18:17,300

you would just completely have missed it

1704

01:18:20,260 --> 01:18:18,380

but of course that's assuming they

1705

01:18:22,930 --> 01:18:20,270

didn't stick around that's right and

1706

01:18:25,030 --> 01:18:22,940

that it's it's a mind-blowing concept

1707

01:18:28,390 --> 01:18:25,040

and I use it a lot I try to get as

1708

01:18:30,670 --> 01:18:28,400

visual as I can with it just like you

1709

01:18:32,500 --> 01:18:30,680

just explained it and that's because I

1710

01:18:37,000 --> 01:18:32,510

stole it from you let's go to the next

1711

01:18:38,830 --> 01:18:37,010

one okay question so where is et where

1712

01:18:42,850 --> 01:18:38,840

is everybody

1713

01:18:47,140 --> 01:18:42,860

answer intelligent civilizations are too

1714

01:18:51,900 --> 01:18:47,150

far apart in space and time you've spent

1715

01:18:55,750 --> 01:18:51,910

a lot a lot of time no pun intended on

1716

01:18:58,030 --> 01:18:55,760

this subject and this answer so let's

1717

01:19:00,490 --> 01:18:58,040

let's pick this apart a little bit how

1718

01:19:03,370 --> 01:19:00,500

much how much how much distance are we

1719

01:19:05,170 --> 01:19:03,380

talking about in space and time well it

1720

01:19:07,000 --> 01:19:05,180

always comes down to how Vale was saying

1721

01:19:08,950 --> 01:19:07,010

this life is and then this what kind of

1722

01:19:10,479 --> 01:19:08,960

argument kind of falls back to the

1723

01:19:12,310 --> 01:19:10,489

available of hypotheses to begin with

1724

01:19:14,650 --> 01:19:12,320

because if they're popping up in almost

1725

01:19:16,540 --> 01:19:14,660

every solar system then you don't have

1726

01:19:17,620 --> 01:19:16,550

this you should to begin with but it you

1727

01:19:19,360 --> 01:19:17,630

have to assume some amount of ability

1728

01:19:21,430 --> 01:19:19,370

for this argument to make sense in the

1729

01:19:22,990 --> 01:19:21,440

first place is to say they don't exist

1730

01:19:25,000 --> 01:19:23,000

or they don't exist very long and they

1731

01:19:27,790 --> 01:19:25,010

don't pop up much and I say we couldn't

1732

01:19:29,950 --> 01:19:27,800

possibly have heard them and the problem

1733

01:19:31,930 --> 01:19:29,960

is that while it's very hard to hear our

1734

01:19:35,709 --> 01:19:31,940

radio signals even with all really good

1735

01:19:37,810 --> 01:19:35,719

telescopes one star system over it is so

1736

01:19:39,310 --> 01:19:37,820

easy for a spacefaring civilization just

1737

01:19:41,830 --> 01:19:39,320

inside our own solar system to build

1738

01:19:43,930 --> 01:19:41,840

some gigantic solar powered radio that

1739

01:19:45,910 --> 01:19:43,940

you could hear across the galaxy mm-hmm

1740

01:19:47,740 --> 01:19:45,920

and it's also very easy to potentially

1741

01:19:49,990 --> 01:19:47,750

build telescopes because actually easier

1742

01:19:53,650 --> 01:19:50,000

to build telescopes in space that all

1743

01:19:55,330 --> 01:19:53,660

just kilometres cost giant giant dishes

1744

01:19:57,790 --> 01:19:55,340

no gravity or wind messing up your

1745

01:19:59,229 --> 01:19:57,800

ability to build them huge so you've got

1746

01:20:00,070 --> 01:19:59,239

the ability to make really loud systems

1747

01:20:02,260 --> 01:20:00,080

and to

1748

01:20:04,150 --> 01:20:02,270

once though very sensitive so you could

1749

01:20:06,670 --> 01:20:04,160

hear them the question is can you hear

1750

01:20:08,230 --> 01:20:06,680

them before they stop transmitting and

1751  
01:20:10,360 --> 01:20:08,240  
that goes back to that question of why

1752  
01:20:11,860 --> 01:20:10,370  
do they stop transmitting and of course

1753  
01:20:13,270 --> 01:20:11,870  
it goes to the for the problem which is

1754  
01:20:15,430 --> 01:20:13,280  
this assumption that foam you ate

1755  
01:20:17,860 --> 01:20:15,440  
himself was that interstellar travel is

1756  
01:20:20,080 --> 01:20:17,870  
impossible he just assumed that this was

1757  
01:20:22,570 --> 01:20:20,090  
1950s that we would never figure out a

1758  
01:20:24,280 --> 01:20:22,580  
way to travel to other solar systems so

1759  
01:20:25,570 --> 01:20:24,290  
a lot of what we do on the channel in

1760  
01:20:27,280 --> 01:20:25,580  
science fiction everyone soon as you get

1761  
01:20:28,480 --> 01:20:27,290  
an FTL ship and you can do it that way

1762  
01:20:30,490 --> 01:20:28,490  
and then makes things great you got a

1763  
01:20:32,200 --> 01:20:30,500

warp drive on the channel we try to

1764

01:20:34,030 --> 01:20:32,210

focus on assume we never get that

1765

01:20:36,130 --> 01:20:34,040

assuming were limited to just the

1766

01:20:38,650 --> 01:20:36,140

science we have right now could you

1767

01:20:40,780 --> 01:20:38,660

colonize the galaxy and all evidences

1768

01:20:42,370 --> 01:20:40,790

yeah you absolutely could if you can get

1769

01:20:44,380 --> 01:20:42,380

a good infrastructure into orbit around

1770

01:20:46,120 --> 01:20:44,390

Earth you don't need a single new

1771

01:20:48,970 --> 01:20:46,130

technological development in terms of

1772

01:20:50,500 --> 01:20:48,980

propulsion to build gigantic meals and

1773

01:20:52,300 --> 01:20:50,510

lasers that will let you push ships up

1774

01:20:54,220 --> 01:20:52,310

and Espino to relativistic speed to get

1775

01:20:55,360 --> 01:20:54,230

to other star systems there's a lot of

1776

01:20:57,220 --> 01:20:55,370

technology that would make that a lot

1777

01:20:59,110 --> 01:20:57,230

easier and more functional but you can

1778

01:21:01,510 --> 01:20:59,120

do it at that point you don't need truly

1779

01:21:03,430 --> 01:21:01,520

advanced technology right so how can

1780

01:21:05,680 --> 01:21:03,440

they be that rail if you can do space

1781

01:21:07,600 --> 01:21:05,690

travel the argument that we can't hear

1782

01:21:10,120 --> 01:21:07,610

them has to assume they don't last very

1783

01:21:14,710 --> 01:21:10,130

long and they can't do space travel now

1784

01:21:17,710 --> 01:21:14,720

what about this this concept I need you

1785

01:21:22,240 --> 01:21:17,720

to help me understand this with the

1786

01:21:26,730 --> 01:21:22,250

projection of those radio telescopes and

1787

01:21:31,150 --> 01:21:26,740

the ability to get this information out

1788

01:21:35,110 --> 01:21:31,160

does it have to be laser-focused towards

1789

01:21:39,640 --> 01:21:35,120

Earth or does it permeate in a 360

1790

01:21:41,230 --> 01:21:39,650

degree universe worldview well there was

1791

01:21:42,940 --> 01:21:41,240

a thought that when you're trying to

1792

01:21:44,320 --> 01:21:42,950

send messages to another solar system

1793

01:21:46,270 --> 01:21:44,330

you want to condense that beam up as

1794

01:21:47,650 --> 01:21:46,280

much as possible Manley's those know

1795

01:21:49,270 --> 01:21:47,660

things like that do not actually stay as

1796

01:21:51,310 --> 01:21:49,280

a tight zone well they do spread out

1797

01:21:53,350 --> 01:21:51,320

same as normal omnidirectional waves

1798

01:21:55,570 --> 01:21:53,360

eventually yes they do do it a lot more

1799

01:21:57,220 --> 01:21:55,580

slowly as a walk right but an

1800

01:21:59,410 --> 01:21:57,230

omnidirectional signal is not very

1801  
01:22:02,140 --> 01:21:59,420  
efficient for broadcasting galaxy-wide

1802  
01:22:04,000 --> 01:22:02,150  
that's got two problems with though the

1803  
01:22:05,200 --> 01:22:04,010  
forced is if you're trying to talk to

1804  
01:22:07,090 --> 01:22:05,210  
everyone an omnidirectional signal

1805  
01:22:09,810 --> 01:22:07,100  
probably is easier than trying to target

1806  
01:22:13,750 --> 01:22:09,820  
a billion individual beams two locations

1807  
01:22:15,880 --> 01:22:13,760  
and you have the entire output of a Sun

1808  
01:22:17,500 --> 01:22:15,890  
to walk with if you meet it if you right

1809  
01:22:20,229 --> 01:22:17,510  
there it's they or you can make giant

1810  
01:22:22,600 --> 01:22:20,239  
solar panels to power thing and that's

1811  
01:22:23,950 --> 01:22:22,610  
more than loud enough that's many orders

1812  
01:22:25,360 --> 01:22:23,960  
of magnitude more energy than you need

1813  
01:22:28,420 --> 01:22:25,370

to produce a radio signal you could hear

1814

01:22:30,550 --> 01:22:28,430

galaxy-wide on a normal radio sitting on

1815

01:22:32,410 --> 01:22:30,560

the ground and then the other part about

1816

01:22:34,300 --> 01:22:32,420

that is the one thing you absolutely

1817

01:22:37,120 --> 01:22:34,310

would want to always do omnidirectional

1818

01:22:37,930 --> 01:22:37,130

e and not encrypt it we say we might not

1819

01:22:39,100 --> 01:22:37,940

be able to hear them because they

1820

01:22:41,050 --> 01:22:39,110

encrypt everything or they use

1821

01:22:42,760 --> 01:22:41,060

point-to-point transmissions like lasers

1822

01:22:45,340 --> 01:22:42,770

right right one thing you always

1823

01:22:47,680 --> 01:22:45,350

transmit omnidirectional e is the time

1824

01:22:48,490 --> 01:22:47,690

code the GPS the galactic positioning

1825

01:22:50,740 --> 01:22:48,500

system

1826

01:22:52,600 --> 01:22:50,750

people are gonna need to know where are

1827

01:22:55,090 --> 01:22:52,610

they all located exactly and neutron

1828

01:22:56,710 --> 01:22:55,100

stars are not good enough to really give

1829

01:22:58,960 --> 01:22:56,720

you an exact focus we talked about using

1830

01:23:00,460 --> 01:22:58,970

postholes to do fixes and you can do

1831

01:23:03,280 --> 01:23:00,470

that it won't give you the accuracy that

1832

01:23:05,590 --> 01:23:03,290

you want you're going to have a big loud

1833

01:23:05,979 --> 01:23:05,600

signal that just broadcasts a one over

1834

01:23:09,700 --> 01:23:05,989

again

1835

01:23:11,170 --> 01:23:09,710

the time is 12:01 p.m. and that's

1836

01:23:13,060 --> 01:23:11,180

whatever and you don't care if that's

1837

01:23:15,040 --> 01:23:13,070

going fast tonight you want it to go at

1838

01:23:16,570 --> 01:23:15,050

relativistic normal speeds because

1839

01:23:19,680 --> 01:23:16,580

that's what people use to figure out

1840

01:23:25,150 --> 01:23:19,690

where you are right right right now

1841

01:23:27,250 --> 01:23:25,160

let's let's jump right to the the next

1842

01:23:29,229 --> 01:23:27,260

answer and the question is of course

1843

01:23:32,590 --> 01:23:29,239

where is et where is everybody

1844

01:23:34,960 --> 01:23:32,600

and the answer to this one we're gonna

1845

01:23:37,930 --> 01:23:34,970

spend a lot of time on again which is

1846

01:23:40,900 --> 01:23:37,940

the lack of resources to spread

1847

01:23:43,600 --> 01:23:40,910

physically throughout the galaxy and

1848

01:23:47,350 --> 01:23:43,610

before you answer let me let me pop this

1849

01:23:49,090 --> 01:23:47,360

in there I look at our planet because

1850

01:23:50,500 --> 01:23:49,100

when somebody hears this answer they

1851  
01:23:52,090 --> 01:23:50,510  
think well you know we have a hard time

1852  
01:23:54,700 --> 01:23:52,100  
getting oil out of the ground we have a

1853  
01:23:56,950 --> 01:23:54,710  
hard time gold is rare you know we have

1854  
01:24:00,100 --> 01:23:56,960  
to manufacture steel and we have

1855  
01:24:04,840 --> 01:24:00,110  
problems in with resources here for our

1856  
01:24:06,520 --> 01:24:04,850  
own infrastructure we don't have a an

1857  
01:24:08,530 --> 01:24:06,530  
orbiting space station we haven't

1858  
01:24:09,790 --> 01:24:08,540  
colonized the moon it takes a lot of

1859  
01:24:12,700 --> 01:24:09,800  
resources to do that

1860  
01:24:16,000 --> 01:24:12,710  
so they understand this point really

1861  
01:24:19,780 --> 01:24:16,010  
quickly but you've got a counter to this

1862  
01:24:21,670 --> 01:24:19,790  
answer which I think is is amazing there

1863  
01:24:23,620 --> 01:24:21,680

is a ton of resource in the solar system

1864

01:24:25,390 --> 01:24:23,630

earth has a very big share the easy

1865

01:24:26,990 --> 01:24:25,400

accessible ones but the easiest ones

1866

01:24:28,850 --> 01:24:27,000

access are things like Astro

1867

01:24:30,410 --> 01:24:28,860

it's we live at the bottom of gravity

1868

01:24:32,330 --> 01:24:30,420

well that makes it hard to get that off

1869

01:24:33,650 --> 01:24:32,340

there as does a full place like Mars or

1870

01:24:36,260 --> 01:24:33,660

Jupiter where they have tons of

1871

01:24:38,060 --> 01:24:36,270

resources but our biggest problem

1872

01:24:39,950 --> 01:24:38,070

getting resources on earth besides

1873

01:24:41,120 --> 01:24:39,960

things like oil which are biological in

1874

01:24:44,300 --> 01:24:41,130

nature so we wouldn't find them too much

1875

01:24:46,280 --> 01:24:44,310

in space is that we live on top of all

1876

01:24:48,230 --> 01:24:46,290

those resources so to get at them we

1877

01:24:50,150 --> 01:24:48,240

have to dig up a lot of stuff including

1878

01:24:51,860 --> 01:24:50,160

valuable real estate when you're up in

1879

01:24:52,970 --> 01:24:51,870

space will be on some asteroid a few

1880

01:24:54,980 --> 01:24:52,980

kilometres across

1881

01:24:57,320 --> 01:24:54,990

you can disassemble that whole thing and

1882

01:24:59,930 --> 01:24:57,330

your typical metallic asteroid is going

1883

01:25:01,880 --> 01:24:59,940

to have more lowan in it then we've

1884

01:25:05,090 --> 01:25:01,890

produced in like an entire century it's

1885

01:25:05,810 --> 01:25:05,100

a cubic kilometer of iron you do that's a

1886

01:25:08,180 --> 01:25:05,820

lot of metal

1887

01:25:10,100 --> 01:25:08,190

most of those large or medium range

1888

01:25:12,950 --> 01:25:10,110

asteroids have enough metals in them

1889

01:25:15,410 --> 01:25:12,960

develop easily accessible to build

1890

01:25:18,200 --> 01:25:15,420

aircraft size carry o starships by the

1891

01:25:20,810 --> 01:25:18,210

billion you will need to exhaust one of

1892

01:25:23,480 --> 01:25:20,820

those okay hold on hold on how galaxies

1893

01:25:27,020 --> 01:25:23,490

all arm pump the brakes there Isaac

1894

01:25:29,360 --> 01:25:27,030

repeat what you just said your typical

1895

01:25:30,560 --> 01:25:29,370

asteroid medium-scale one is going to

1896

01:25:31,520 --> 01:25:30,570

have enough metals in it to make

1897

01:25:34,100 --> 01:25:31,530

something the size of an aircraft

1898

01:25:36,470 --> 01:25:34,110

carrier or spaceship that size a billion

1899

01:25:38,810 --> 01:25:36,480

times over again so enough to send one

1900

01:25:40,910 --> 01:25:38,820

to every single star system in this

1901

01:25:43,220 --> 01:25:40,920

galaxy and there was enough resources in

1902

01:25:45,260 --> 01:25:43,230

this solar system ease the accessible

1903

01:25:48,050 --> 01:25:45,270

resources to be able to build whole

1904

01:25:51,200 --> 01:25:48,060

fleets of these for every single star

1905

01:25:52,730 --> 01:25:51,210

system out there and so and you don't

1906

01:25:53,930 --> 01:25:52,740

have to go to those other distant star

1907

01:25:55,850 --> 01:25:53,940

systems you can stop your nearest

1908

01:25:57,860 --> 01:25:55,860

neighbor and grab more resources and

1909

01:26:00,110 --> 01:25:57,870

spread out from there and you would only

1910

01:26:02,480 --> 01:26:00,120

have scratched the resources in the

1911

01:26:05,000 --> 01:26:02,490

solar system by doing that it's a scale

1912

01:26:07,370 --> 01:26:05,010

thing the solar system and the earth for

1913

01:26:09,290 --> 01:26:07,380

that matter is so enormous compared to

1914

01:26:11,900 --> 01:26:09,300

what we think of as the earth we live in

1915

01:26:14,330 --> 01:26:11,910

a tiny tiny door like oil coating of

1916

01:26:16,970 --> 01:26:14,340

around the surface of this planet it's a

1917

01:26:19,700 --> 01:26:16,980

couple kilometers the planets thousands

1918

01:26:22,490 --> 01:26:19,710

of cloud was wide so our solution is the

1919

01:26:24,350 --> 01:26:22,500

asteroid belt that's the easiest ones to

1920

01:26:26,390 --> 01:26:24,360

get at they don't have that much the

1921

01:26:28,520 --> 01:26:26,400

asteroid belt in its entirety has less

1922

01:26:29,600 --> 01:26:28,530

materials than the moon it's in fact the

1923

01:26:30,860 --> 01:26:29,610

difference between the moon and the

1924

01:26:32,870 --> 01:26:30,870

earth is about same as the moon in the

1925

01:26:34,730 --> 01:26:32,880

asteroid belt very small amount of metal

1926

01:26:37,520 --> 01:26:34,740

sail but compared to what we normally

1927

01:26:38,490 --> 01:26:37,530

use here on earth it's staggering it's

1928

01:26:40,230 --> 01:26:38,500

huge

1929

01:26:42,540 --> 01:26:40,240

you know we talked about megatons of

1930

01:26:48,570 --> 01:26:42,550

steel production forget that the earth

1931

01:26:53,640 --> 01:26:48,580

is a billion trillion tons of mass right

1932

01:26:55,650 --> 01:26:53,650

and the you don't have to this is the

1933

01:26:57,300 --> 01:26:55,660

other point with this is it's getting it

1934

01:26:58,680 --> 01:26:57,310

off of the earth you got to get it out

1935

01:27:00,300 --> 01:26:58,690

of the earth first

1936

01:27:02,940 --> 01:27:00,310

yeah but then you've got to get it off

1937

01:27:06,180 --> 01:27:02,950

planet right you've got to get it up

1938

01:27:08,490 --> 01:27:06,190

into Earth orbit low Earth orbit to

1939

01:27:10,410 --> 01:27:08,500

start to build these ships or to the

1940

01:27:12,030 --> 01:27:10,420

moon a funny thing is in many cases

1941

01:27:13,980 --> 01:27:12,040

gonna be easier to get material back

1942

01:27:15,600 --> 01:27:13,990

from the asteroid belt on the moon into

1943

01:27:16,830 --> 01:27:15,610

orbit around Earth then is to get up

1944

01:27:19,260 --> 01:27:16,840

from Earth when it's only a hundred

1945

01:27:21,390 --> 01:27:19,270

kilometers away so 100 million

1946

01:27:23,310 --> 01:27:21,400

kilometers away pick up an asteroid and

1947

01:27:24,690 --> 01:27:23,320

bring it back to orbit around or easier

1948

01:27:28,410 --> 01:27:24,700

than you might go to bring a mountain up

1949

01:27:31,170 --> 01:27:28,420

far more and there was only about 1% of

1950

01:27:33,180 --> 01:27:31,180

1% of the material in the asteroid belt

1951

01:27:36,240 --> 01:27:33,190

that the earth has but it's still

1952

01:27:39,930 --> 01:27:36,250

millions of times what we normally use

1953

01:27:42,330 --> 01:27:39,940

so what it would be doing is out there

1954

01:27:44,790 --> 01:27:42,340

with their interstellar craft would be

1955

01:27:47,490 --> 01:27:44,800

seeking out asteroids they wouldn't

1956

01:27:49,440 --> 01:27:47,500

necessarily be looking for planets that

1957

01:27:51,650 --> 01:27:49,450

wouldn't necessarily be a first choice

1958

01:27:54,210 --> 01:27:51,660

would it that would be able to find

1959

01:27:56,130 --> 01:27:54,220

plants have no value at all to a

1960

01:27:59,160 --> 01:27:56,140

civilization unless they were interested

1961

01:28:00,840 --> 01:27:59,170

in the biology on them and you know if

1962

01:28:02,400 --> 01:28:00,850

you want that biology or that alt and

1963

01:28:04,230 --> 01:28:02,410

culture that say oh they're great but

1964

01:28:05,910 --> 01:28:04,240

otherwise a planet is just one big

1965

01:28:07,800 --> 01:28:05,920

lumberyard that's in conveniently

1966

01:28:09,360 --> 01:28:07,810

located far from the exit ramp but you

1967

01:28:10,530 --> 01:28:09,370

go for the asteroids forced then you go

1968

01:28:12,660 --> 01:28:10,540

for the moons then you go for the

1969

01:28:14,370 --> 01:28:12,670

planets then you go for the Sun itself

1970

01:28:15,600 --> 01:28:14,380

and usually you can get a lot of metal

1971

01:28:18,630 --> 01:28:15,610

out of the Sun if you want to a

1972

01:28:24,720 --> 01:28:18,640

lumberyard I like that ok and also

1973

01:28:26,910 --> 01:28:24,730

there's one other point water we're sure

1974

01:28:28,770 --> 01:28:26,920

we've gotten a lot of water on this

1975

01:28:31,020 --> 01:28:28,780

planet but there's a lot of water just

1976

01:28:32,160 --> 01:28:31,030

floating around in space floating around

1977

01:28:34,770 --> 01:28:32,170

in space you don't have to go to a

1978

01:28:36,810 --> 01:28:34,780

planet earth is unique in the inner

1979

01:28:38,550 --> 01:28:36,820

solar system and it has large amounts of

1980

01:28:40,290 --> 01:28:38,560

accessible water that's real and you

1981

01:28:41,670 --> 01:28:40,300

know solar system because hydrogen is we

1982

01:28:43,500 --> 01:28:41,680

only know solar system but it's the most

1983

01:28:44,760 --> 01:28:43,510

plentiful stuff in the universe and the

1984

01:28:47,640 --> 01:28:44,770

third most plentiful stuff in the

1985

01:28:49,500 --> 01:28:47,650

universe is oxygen and they are they are

1986

01:28:52,200 --> 01:28:49,510

quasars out there that push out entire

1987

01:28:55,229 --> 01:28:52,210

planets worth of water they just whatōs

1988

01:28:57,180 --> 01:28:55,239

was the only place that's real is in the

1989

01:28:59,130 --> 01:28:57,190

inner solar system neo stall as well it

1990

01:29:01,650 --> 01:28:59,140

tends to get blown away I need to take a

1991

01:29:04,590 --> 01:29:01,660

break right here Isaac Isaac Arthur is

1992

01:29:06,510 --> 01:29:04,600

our guest we are discussing the Fermi

1993

01:29:08,910 --> 01:29:06,520

paradox and we are about halfway through

1994

01:29:10,860 --> 01:29:08,920

Isaac we're doing pretty good here we're

1995

01:29:12,390 --> 01:29:10,870

doing pretty good we're burning with

1996

01:29:13,979 --> 01:29:12,400

gasoline no pun intended

1997

01:29:16,860 --> 01:29:13,989

it's fade to black on the GameChanger

1998

01:29:22,280 --> 01:29:16,870

network and kgr a the planet stay with

1999

01:29:22,290 --> 01:29:32,120

[Music]

2000

01:29:39,600 --> 01:29:35,300

way out here we listen to Jimmy Church

2001  
01:29:41,640 --> 01:29:39,610  
you're listening to fade to black always

2002  
01:29:44,190 --> 01:29:41,650  
on the edge of the hottest alternative

2003  
01:30:03,720 --> 01:29:44,200  
talk chilly church with fade to black

2004  
01:30:07,440 --> 01:30:03,730  
stay GRA radio.com hurricanes

2005  
01:30:09,210 --> 01:30:07,450  
earthquakes wildfires this year we've

2006  
01:30:12,000 --> 01:30:09,220  
experienced more than our fair share

2007  
01:30:14,490 --> 01:30:12,010  
this is Jimmy Church a fade to black and

2008  
01:30:16,710 --> 01:30:14,500  
last month I decided to make sure my

2009  
01:30:18,840 --> 01:30:16,720  
family does not have to worry about food

2010  
01:30:22,590 --> 01:30:18,850  
should we get caught in a real emergency

2011  
01:30:24,480 --> 01:30:22,600  
situation introducing Humana healthy

2012  
01:30:26,280 --> 01:30:24,490  
storable product that tastes so good

2013  
01:30:28,080 --> 01:30:26,290

that you'll want to eat it every day

2014

01:30:30,840 --> 01:30:28,090

instead of just during those times of

2015

01:30:34,230 --> 01:30:30,850

duress all new manna products have a 25

2016

01:30:36,350 --> 01:30:34,240

year shelf life our msg and GMO free no

2017

01:30:38,790 --> 01:30:36,360

preservatives and are made in America

2018

01:30:40,800 --> 01:30:38,800

with the new manna pack in your home

2019

01:30:43,320 --> 01:30:40,810

you'll be able to sleep at night knowing

2020

01:30:46,140 --> 01:30:43,330

that you've protected your family not

2021

01:30:48,690 --> 01:30:46,150

only have I tasted and tested I own it

2022

01:30:50,430 --> 01:30:48,700

now you can too just click on the new

2023

01:30:52,740 --> 01:30:50,440

manna banner on Jimmy Church radio.com

2024

01:30:55,200 --> 01:30:52,750

and use the promo code Jimmy when you

2025

01:30:56,850 --> 01:30:55,210

order in addition to a discount we'll

2026

01:31:01,500 --> 01:30:56,860

send you an autograph fade to black

2027

01:31:03,660 --> 01:31:01,510

t-shirt seriously gobekli tepe do you

2028

01:31:06,330 --> 01:31:03,670

want to be an official fade or not of

2029

01:31:08,730 --> 01:31:06,340

course you do this is Jimmy Church of

2030

01:31:13,230 --> 01:31:08,740

fade to black just go to our membership

2031

01:31:15,930 --> 01:31:13,240

section at Jimmy Church radio.com so you

2032

01:31:18,990 --> 01:31:15,940

love talk radio then you'll love talk

2033

01:31:21,840 --> 01:31:19,000

stream live.com talk stream live is

2034

01:31:24,090 --> 01:31:21,850

always on 24/7 with the best streaming

2035

01:31:26,160 --> 01:31:24,100

talk shows find your favorite talkers

2036

01:31:28,800 --> 01:31:26,170

and discover some new ones it's free

2037

01:31:31,080 --> 01:31:28,810

readily available online or on mobile

2038

01:31:32,970 --> 01:31:31,090

with any smartphone or tablet finding

2039

01:31:35,490 --> 01:31:32,980

your favorite talk shows all in one

2040

01:31:38,310 --> 01:31:35,500

place has gotten a whole lot easier just

2041

01:31:38,950 --> 01:31:38,320

go to Talk screen live.com be sure to

2042

01:31:41,410 --> 01:31:38,960

download the

2043

01:31:46,120 --> 01:31:41,420

free apps from Google Play or the iTunes

2044

01:31:53,470 --> 01:31:46,130

App Store you listen to us and we listen

2045

01:31:56,350 --> 01:31:53,480

to you and so does the CIA kgr a radio

2046

01:31:58,360 --> 01:31:56,360

calm if you have hard water the lime

2047

01:32:00,370 --> 01:31:58,370

scale not only leaves white spots it

2048

01:32:02,290 --> 01:32:00,380

clogs pipes and breaks down appliances

2049

01:32:04,510 --> 01:32:02,300

costing you hundreds of dollars in

2050

01:32:06,459 --> 01:32:04,520

energy and where eliminate limescale and

2051

01:32:08,380 --> 01:32:06,469

other water issues like brown staining

2052

01:32:10,270 --> 01:32:08,390

and bad odors with hydro care water

2053

01:32:12,640 --> 01:32:10,280

products available from wave home

2054

01:32:14,740 --> 01:32:12,650

solutions waves affordable water systems

2055

01:32:16,780 --> 01:32:14,750

don't use salts or chemicals you'll love

2056

01:32:19,000 --> 01:32:16,790

the way your water tastes smells and

2057

01:32:21,700 --> 01:32:19,010

looks satisfaction guaranteed for more

2058

01:32:25,450 --> 01:32:21,710

information go to best water 1 2 3 com

2059

01:32:28,150 --> 01:32:25,460

that's best water 1 2 3 com are you

2060

01:32:30,700 --> 01:32:28,160

intrigued by paranormal talk radio you

2061

01:32:33,670 --> 01:32:30,710

love the new paranormal radio app from

2062

01:32:35,860 --> 01:32:33,680

torque stream live you'll find a great

2063

01:32:38,979 --> 01:32:35,870

selection of talk shows covering UFOs

2064

01:32:41,410 --> 01:32:38,989

ghosts strange phenomena and much more

2065

01:32:43,630 --> 01:32:41,420

download the paranormal radio app now

2066

01:32:45,970 --> 01:32:43,640

and start listening to the very best in

2067

01:32:47,500 --> 01:32:45,980

paranormal talk entertainment including

2068

01:32:50,470 --> 01:32:47,510

the network you're listening to right

2069

01:32:55,110 --> 01:32:50,480

now the paranormal radio app free in

2070

01:32:57,459 --> 01:32:55,120

Google Play and the iOS App Store you

2071

01:32:59,740 --> 01:32:57,469

are listening to fade to black

2072

01:33:04,540 --> 01:32:59,750

with Jimmy Church on the game changer

2073

01:33:06,640 --> 01:33:04,550

Network hi I'm Lisa Vance you're

2074

01:33:09,580 --> 01:33:06,650

listening to Jimmy Church this is a

2075

01:33:18,800 --> 01:33:09,590

revolution the revolution will not be

2076

01:33:56,240 --> 01:33:53,420

[Music]

2077

01:33:58,320 --> 01:33:56,250

[Applause]

2078

01:33:59,700 --> 01:33:58,330

welcome back fade to black I'm the host

2079

01:34:02,580 --> 01:33:59,710

Jimmy church tonight

2080

01:34:04,410 --> 01:34:02,590

Isaac Arthur is here we're discussing

2081

01:34:06,590 --> 01:34:04,420

the Fermi paradox

2082

01:34:09,900 --> 01:34:06,600

we're gonna go top to bottom tonight

2083

01:34:11,700 --> 01:34:09,910

tomorrow night's is Fator night it's

2084

01:34:13,830 --> 01:34:11,710

open lines all night long and serene

2085

01:34:15,660 --> 01:34:13,840

a'right Taylor and Douglas Taylor are

2086

01:34:18,540 --> 01:34:15,670

going to be here to hang out too as well

2087

01:34:21,360 --> 01:34:18,550

to kick off the evening so tomorrow

2088

01:34:25,380 --> 01:34:21,370

night open lines Isaac let's continue

2089

01:34:28,290 --> 01:34:25,390

with the question and answer the Fermi

2090

01:34:31,350 --> 01:34:28,300

paradox question is of course with all

2091

01:34:33,270 --> 01:34:31,360

of this action going on in our galaxy in

2092

01:34:34,230 --> 01:34:33,280

the Milky Way with all these planets all

2093

01:34:36,840 --> 01:34:34,240

these stars

2094

01:34:41,040 --> 01:34:36,850

there must be something out there so

2095

01:34:45,740 --> 01:34:41,050

where is it where is everybody that's

2096

01:34:49,100 --> 01:34:45,750

the question the next answer is lack of

2097

01:34:54,050 --> 01:34:49,110

resources oh I'm sorry it's cheaper to

2098

01:34:56,070 --> 01:34:54,060

transfer information for exploration

2099

01:34:57,870 --> 01:34:56,080

well the problem with transferring

2100

01:35:00,210 --> 01:34:57,880

information is you need a receiver on

2101  
01:35:01,560 --> 01:35:00,220  
the other ends and the other point thing

2102  
01:35:03,420 --> 01:35:01,570  
is it introduces a false dichotomy

2103  
01:35:05,900 --> 01:35:03,430  
there's this notion that you might send

2104  
01:35:08,400 --> 01:35:05,910  
signal as information but you can send

2105  
01:35:10,470 --> 01:35:08,410  
information and that information can be

2106  
01:35:12,510 --> 01:35:10,480  
a person it could be an artificial

2107  
01:35:14,160 --> 01:35:12,520  
intelligence it might be their

2108  
01:35:16,440 --> 01:35:14,170  
civilization doesn't even draw a line

2109  
01:35:19,290 --> 01:35:16,450  
between those things so you might have

2110  
01:35:21,960 --> 01:35:19,300  
these probes whose only job is to arrive

2111  
01:35:23,130 --> 01:35:21,970  
at a location and scan buys the scene it

2112  
01:35:25,590 --> 01:35:23,140  
and they say oh the Sabine teresting

2113  
01:35:27,870 --> 01:35:25,600

here and so a follow-up Pope stops they

2114

01:35:29,700 --> 01:35:27,880

oh and it builds a big receiver and you

2115

01:35:31,410 --> 01:35:29,710

transmit in your science team or they're

2116

01:35:34,560 --> 01:35:31,420

just stored there as a drawer key on

2117

01:35:36,120 --> 01:35:34,570

board that ship to begin with right what

2118

01:35:39,360 --> 01:35:36,130

they've been doing that I think they do

2119

01:35:40,560 --> 01:35:39,370

that every day if they do they you know

2120

01:35:42,270 --> 01:35:40,570

that's one of the things where is the

2121

01:35:44,220 --> 01:35:42,280

receiver at we might be looking for that

2122

01:35:45,600 --> 01:35:44,230

and it'll be hard to find us you know if

2123

01:35:47,100 --> 01:35:45,610

they were actually a big receiver unlike

2124

01:35:49,590 --> 01:35:47,110

the dark side of the moon for instance

2125

01:35:51,120 --> 01:35:49,600

we probably picked that up by now but

2126

01:35:52,860 --> 01:35:51,130

there's a lot of places that you could

2127

01:35:54,450 --> 01:35:52,870

hide from us in the solar system if

2128

01:35:56,100 --> 01:35:54,460

you're doing something like that and of

2129

01:35:57,810 --> 01:35:56,110

course that implies there monitoring so

2130

01:35:59,760 --> 01:35:57,820

that one's not really a good solution

2131

01:36:01,200 --> 01:35:59,770

not because it's not viable but because

2132

01:36:02,820 --> 01:36:01,210

it more or less falls in the categories

2133

01:36:04,380 --> 01:36:02,830

the other ones that's just the way

2134

01:36:06,030 --> 01:36:04,390

they'd be doing it we're saying they'll

2135

01:36:07,370 --> 01:36:06,040

post biological they send people

2136

01:36:10,899 --> 01:36:07,380

digitally or they

2137

01:36:13,700 --> 01:36:10,909

we teleport them right right but but

2138

01:36:18,379 --> 01:36:13,710

they know that at wright-patt

2139

01:36:19,879 --> 01:36:18,389

I guarantee see this is this is what and

2140

01:36:24,860 --> 01:36:19,889

you and I have talked about this and

2141

01:36:26,560 --> 01:36:24,870

let's be very clear here that the forget

2142

01:36:28,640 --> 01:36:26,570

about the gray goo fridge is

2143

01:36:31,430 --> 01:36:28,650

self-replicating you know let's just put

2144

01:36:34,100 --> 01:36:31,440

all of that aside but jumping from

2145

01:36:36,260 --> 01:36:34,110

planet to planet and from solar system

2146

01:36:39,010 --> 01:36:36,270

the solar system with probes out there

2147

01:36:41,419 --> 01:36:39,020

exploring where you're not wasting

2148

01:36:44,120 --> 01:36:41,429

biological life or building you know

2149

01:36:46,580 --> 01:36:44,130

generational ships and so forth that is

2150

01:36:49,240 --> 01:36:46,590

the way to get it done that's what we

2151  
01:36:51,560 --> 01:36:49,250  
are attempting to do right now right

2152  
01:36:57,350 --> 01:36:51,570  
we're doing that in our own solar system

2153  
01:36:59,990 --> 01:36:57,360  
right now opportunity died today right

2154  
01:37:01,220 --> 01:37:00,000  
there man oops right all right people

2155  
01:37:03,680 --> 01:37:01,230  
will say oh that's got to be a solution

2156  
01:37:06,080 --> 01:37:03,690  
when those unmanned probes this has one

2157  
01:37:07,700 --> 01:37:06,090  
fatal flaw to it it does walk the system

2158  
01:37:09,620 --> 01:37:07,710  
the palm is that's not actually as

2159  
01:37:11,419 --> 01:37:09,630  
advantageous as most people think it

2160  
01:37:13,640 --> 01:37:11,429  
does have an edge but it's actually a

2161  
01:37:15,590 --> 01:37:13,650  
fairly minimal edge so it's some other

2162  
01:37:17,209 --> 01:37:15,600  
things where if you want to do it either

2163  
01:37:19,160 --> 01:37:17,219

way you go with the one you prefer to

2164

01:37:21,530 --> 01:37:19,170

use right now we have a big problem

2165

01:37:23,000 --> 01:37:21,540

keeping people alive in space we're not

2166

01:37:24,350 --> 01:37:23,010

gonna be launching car emissions until

2167

01:37:27,470 --> 01:37:24,360

we've got that late in the first place

2168

01:37:29,570 --> 01:37:27,480

right but if you try to send a probe out

2169

01:37:31,640 --> 01:37:29,580

the only real advantage because it still

2170

01:37:33,620 --> 01:37:31,650

has to stop at the other end is that it

2171

01:37:35,479 --> 01:37:33,630

could accelerate and decelerate faster

2172

01:37:37,490 --> 01:37:35,489

well you really don't spend that much

2173

01:37:39,200 --> 01:37:37,500

time accelerating or decelerating on

2174

01:37:41,300 --> 01:37:39,210

interstellar trips because you get up to

2175

01:37:43,070 --> 01:37:41,310

speed and you know even for a biological

2176  
01:37:45,260 --> 01:37:43,080  
life-form we're gonna do in 1g of

2177  
01:37:47,240 --> 01:37:45,270  
acceleration you up to neo Lightspeed

2178  
01:37:48,560 --> 01:37:47,250  
after just one year of acceleration and

2179  
01:37:50,600 --> 01:37:48,570  
that's how it takes you slow down too

2180  
01:37:52,280 --> 01:37:50,610  
and you still have to slow down the

2181  
01:37:54,229 --> 01:37:52,290  
other side these space probes don't get

2182  
01:37:55,580 --> 01:37:54,239  
to magically you know going to orbit

2183  
01:37:57,500 --> 01:37:55,590  
around a planet they have to slow down

2184  
01:38:00,560 --> 01:37:57,510  
and they have to slow down even do a

2185  
01:38:02,540 --> 01:38:00,570  
decent flyby because it takes time with

2186  
01:38:05,000 --> 01:38:02,550  
anything like that to actually get a

2187  
01:38:07,700 --> 01:38:05,010  
good photograph these exposure time it

2188  
01:38:08,810 --> 01:38:07,710

flies through some solar system at you

2189

01:38:11,270 --> 01:38:08,820

know nearly the speed of light

2190

01:38:13,520 --> 01:38:11,280

it's only got a few hours to survey that

2191

01:38:16,490 --> 01:38:13,530

place and it's gonna have Hubble level

2192

01:38:17,810 --> 01:38:16,500

stuff just to get a decent picture not a

2193

01:38:20,030 --> 01:38:17,820

good picture you know just be able to

2194

01:38:21,080 --> 01:38:20,040

get like one there you can tell that

2195

01:38:24,169 --> 01:38:21,090

Mars has constant

2196

01:38:27,410 --> 01:38:24,179

oh sure and they don't want to stop I

2197

01:38:31,700 --> 01:38:27,420

totally get that I totally get that but

2198

01:38:34,990 --> 01:38:31,710

I cannot escape from and I will not back

2199

01:38:38,120 --> 01:38:35,000

off of this thought that there has to be

2200

01:38:41,750 --> 01:38:38,130

there it's not like there might be there

2201  
01:38:43,939 --> 01:38:41,760  
has to be literally tens of thousands of

2202  
01:38:47,660 --> 01:38:43,949  
intelligent civilizations out here that

2203  
01:38:50,990 --> 01:38:47,670  
are building self-replicating probes

2204  
01:38:53,209 --> 01:38:51,000  
that are out scanning the universe

2205  
01:38:55,729 --> 01:38:53,219  
mapping it and just checking out to see

2206  
01:38:58,129 --> 01:38:55,739  
what is cool that is it I won't accept

2207  
01:38:59,540 --> 01:38:58,139  
anything else and would tickets are

2208  
01:39:01,129 --> 01:38:59,550  
given that that's the full step that's

2209  
01:39:03,290 --> 01:39:01,139  
what I would do I'd send out a series of

2210  
01:39:05,330 --> 01:39:03,300  
self up game pose with very limited

2211  
01:39:06,649 --> 01:39:05,340  
intelligence dumb within door knobs like

2212  
01:39:07,939 --> 01:39:06,659  
they might be a threat if you don't want

2213  
01:39:10,520 --> 01:39:07,949

to send out really advanced probes or

2214

01:39:12,169 --> 01:39:10,530

you might decide to come home but then

2215

01:39:13,430 --> 01:39:12,179

the follow-up on that is you've got

2216

01:39:16,729 --> 01:39:13,440

these probes that can build more

2217

01:39:18,439 --> 01:39:16,739

themselves around other star systems if

2218

01:39:20,390 --> 01:39:18,449

you've got that it's even easier to tell

2219

01:39:22,250 --> 01:39:20,400

those probes to go pinpoint that

2220

01:39:24,560 --> 01:39:22,260

asteroid in your own solar system and

2221

01:39:26,419 --> 01:39:24,570

say make me a gigantic spaceship I can

2222

01:39:28,550 --> 01:39:26,429

put people on board sure the same

2223

01:39:29,870 --> 01:39:28,560

technology yes it's the same thing it's

2224

01:39:32,720 --> 01:39:29,880

the same thing there's there's no

2225

01:39:35,030 --> 01:39:32,730

question about it and that's why when I

2226

01:39:37,280 --> 01:39:35,040

go out and I'm seeing the things that

2227

01:39:39,800 --> 01:39:37,290

I'm seeing and then others are seeing

2228

01:39:41,149 --> 01:39:39,810

too as well this is not you know I'm not

2229

01:39:42,709 --> 01:39:41,159

the only person in the world that's out

2230

01:39:44,540 --> 01:39:42,719

there with night vision goggles and

2231

01:39:47,270 --> 01:39:44,550

wondering what the heck is flying up

2232

01:39:51,220 --> 01:39:47,280

there in the dark I see it myself and I

2233

01:39:54,680 --> 01:39:51,230

just have to you know most of it is ours

2234

01:39:56,689 --> 01:39:54,690

okay I get that part of it but it's the

2235

01:39:58,430 --> 01:39:56,699

is the one or two or three or four

2236

01:40:02,149 --> 01:39:58,440

things that you see in a night that you

2237

01:40:04,879 --> 01:40:02,159

cannot explain and I'm just naturally

2238

01:40:06,410 --> 01:40:04,889

think that that's that's drawn me yeah I

2239

01:40:07,070 --> 01:40:06,420

mean there we always come across things

2240

01:40:08,810 --> 01:40:07,080

we can't explain

2241

01:40:10,100 --> 01:40:08,820

sometimes we explain them with natural

2242

01:40:11,629 --> 01:40:10,110

solutions we got a lot of things we've

2243

01:40:13,760 --> 01:40:11,639

been sitting on for you know a good

2244

01:40:15,350 --> 01:40:13,770

century that we haven't gotten entirely

2245

01:40:17,450 --> 01:40:15,360

good solutions to yet and we got plenty

2246

01:40:18,950 --> 01:40:17,460

we have so we never say that these

2247

01:40:20,270 --> 01:40:18,960

things cannot go at least we should not

2248

01:40:22,129 --> 01:40:20,280

be saying that these things cannot be

2249

01:40:23,750 --> 01:40:22,139

intelligent we always want to go out the

2250

01:40:25,010 --> 01:40:23,760

checklist though and try to rule out all

2251  
01:40:27,709 --> 01:40:25,020  
the natural ones because they teach us

2252  
01:40:29,720 --> 01:40:27,719  
science and you know that's that's how

2253  
01:40:30,979 --> 01:40:29,730  
when alone these things but any number

2254  
01:40:32,379 --> 01:40:30,989  
these things you know if someone tells

2255  
01:40:34,970 --> 01:40:32,389  
me I don't know what that is in the sky

2256  
01:40:36,860 --> 01:40:34,980  
what's the answer anybody gives that's

2257  
01:40:38,630 --> 01:40:36,870  
good and so is well let's find out I

2258  
01:40:41,780 --> 01:40:38,640  
know I know I can't assume what it is

2259  
01:40:43,040 --> 01:40:41,790  
you find out what I can't wait until one

2260  
01:40:44,900 --> 01:40:43,050  
night you're gonna come out with us

2261  
01:40:48,650 --> 01:40:44,910  
right we're gonna go out and we're just

2262  
01:40:50,810 --> 01:40:48,660  
gonna hang out and imagine this for a

2263  
01:40:53,270 --> 01:40:50,820

second I'm gonna give you 30 seconds and

2264

01:40:56,030 --> 01:40:53,280

we got to get to the next question is

2265

01:40:58,190 --> 01:40:56,040

this imagine you and I standing with a

2266

01:41:00,050 --> 01:40:58,200

group of people let's say 20 people and

2267

01:41:02,630 --> 01:41:00,060

we're standing there and we're looking

2268

01:41:06,350 --> 01:41:02,640

up at the stars and then in front of you

2269

01:41:10,490 --> 01:41:06,360

taking up above you at 12 o'clock taking

2270

01:41:13,310 --> 01:41:10,500

up 60 degrees of the sky right as far

2271

01:41:15,820 --> 01:41:13,320

apart as you can put your your your

2272

01:41:18,860 --> 01:41:15,830

hands right your hands three feet apart

2273

01:41:24,430 --> 01:41:18,870

above you at about five thousand feet

2274

01:41:28,550 --> 01:41:24,440

and then suddenly an aquamarine ball

2275

01:41:33,080 --> 01:41:28,560

sputters lights up in and in two seconds

2276

01:41:37,400 --> 01:41:33,090

two goes from right to left

2277

01:41:41,030 --> 01:41:37,410

stops goes down and zags and then

2278

01:41:44,390 --> 01:41:41,040

continues and does a backwards Z in the

2279

01:41:47,840 --> 01:41:44,400

sky sputters out flashes its high beams

2280

01:41:50,060 --> 01:41:47,850

and then flies away just like a SAP

2281

01:41:51,800 --> 01:41:50,070

now you're gonna you're gonna turn

2282

01:41:54,470 --> 01:41:51,810

you're gonna turn to me and go well that

2283

01:41:56,770 --> 01:41:54,480

wasn't a meteor that wasn't a satellite

2284

01:42:00,410 --> 01:41:56,780

that wasn't a plane that wasn't a

2285

01:42:02,750 --> 01:42:00,420

helicopter that wasn't a rocket that was

2286

01:42:05,330 --> 01:42:02,760

I don't know what the hell that was

2287

01:42:08,030 --> 01:42:05,340

Jimmy and and so when you see something

2288

01:42:11,090 --> 01:42:08,040

like that that's what I'm saying I'm not

2289

01:42:14,060 --> 01:42:11,100

talking about any kind of natural no it

2290

01:42:15,740 --> 01:42:14,070

is something that you you Isaac will

2291

01:42:18,380 --> 01:42:15,750

have problems with and it's a

2292

01:42:20,360 --> 01:42:18,390

life-changing event I don't doubt it

2293

01:42:21,920 --> 01:42:20,370

and somebody see something like that the

2294

01:42:24,410 --> 01:42:21,930

core thing that having which we think is

2295

01:42:26,120 --> 01:42:24,420

let's find out what that is and we don't

2296

01:42:28,310 --> 01:42:26,130

go with any preconceptions it may be

2297

01:42:29,690 --> 01:42:28,320

it's artificial maybe it's natural we

2298

01:42:31,100 --> 01:42:29,700

don't want to assume either one the

2299

01:42:34,070 --> 01:42:31,110

skeptic can get in the habit of just

2300

01:42:36,140 --> 01:42:34,080

saying this must be natural and that's

2301  
01:42:37,670 --> 01:42:36,150  
in many ways just as bad reasoning as to

2302  
01:42:39,710 --> 01:42:37,680  
simply assume automatically and that it

2303  
01:42:41,420 --> 01:42:39,720  
must be artificial absolutely the truth

2304  
01:42:43,100 --> 01:42:41,430  
is what the truth is you find out what

2305  
01:42:45,110 --> 01:42:43,110  
it is and you never go into these things

2306  
01:42:46,640 --> 01:42:45,120  
just assuming it's got to be X Y or Z

2307  
01:42:49,139 --> 01:42:46,650  
and we're all guilty of doing that it's

2308  
01:42:51,239 --> 01:42:49,149  
so easy from either angle these

2309  
01:42:54,149 --> 01:42:51,249  
have it want to be what it is that you

2310  
01:42:56,759 --> 01:42:54,159  
want to be and the real science is never

2311  
01:42:58,619 --> 01:42:56,769  
know and what it is it's saying what the

2312  
01:42:59,669 --> 01:42:58,629  
heck was that that was surprising you

2313  
01:43:01,589 --> 01:42:59,679

know that's what you go to find out

2314

01:43:03,899 --> 01:43:01,599

these new things from yeah with that

2315

01:43:06,959 --> 01:43:03,909

what I just described to you happened

2316

01:43:09,179 --> 01:43:06,969

with 200 people and we were all standing

2317

01:43:12,569 --> 01:43:09,189

there we all saw it and we all screamed

2318

01:43:14,639 --> 01:43:12,579

at the same time and and I'm not going

2319

01:43:18,330 --> 01:43:14,649

to take that experience away from

2320

01:43:20,520 --> 01:43:18,340

anybody I need to continue to talk about

2321

01:43:22,560 --> 01:43:20,530

it because I can't explain it Arthur

2322

01:43:27,080 --> 01:43:22,570

I keep saying Arthur I have a cousin

2323

01:43:29,399 --> 01:43:27,090

Arthur Arthur in the front of my brain

2324

01:43:31,020 --> 01:43:29,409

I can't explain it

2325

01:43:35,189 --> 01:43:31,030

Isak okay let's go to the next one here

2326

01:43:37,399 --> 01:43:35,199

we go all right question so where is et

2327

01:43:42,359 --> 01:43:37,409

where is everybody

2328

01:43:46,139 --> 01:43:42,369

answer humans have not existed long

2329

01:43:47,909 --> 01:43:46,149

enough well we've been around for a

2330

01:43:50,339 --> 01:43:47,919

million years that's an eye blink across

2331

01:43:53,219 --> 01:43:50,349

the span of galaxies but you know that's

2332

01:43:54,750 --> 01:43:53,229

still pretty decently long time assuming

2333

01:43:56,100 --> 01:43:54,760

nobody pops up more often that or they

2334

01:43:58,350 --> 01:43:56,110

don't spread out this basically just

2335

01:44:00,659 --> 01:43:58,360

follows back that same issue of is space

2336

01:44:03,000 --> 01:44:00,669

travel possible because we can go out

2337

01:44:04,560 --> 01:44:03,010

there on colonize the galaxy it doesn't

2338

01:44:06,149 --> 01:44:04,570

matter if your original home planet only

2339

01:44:07,560 --> 01:44:06,159

lasts for a thousand years or not some

2340

01:44:09,299 --> 01:44:07,570

of those splint I'll County wards are

2341

01:44:11,879 --> 01:44:09,309

going to have survived and come back up

2342

01:44:14,279 --> 01:44:11,889

from nothing if they had to so it's kind

2343

01:44:16,109 --> 01:44:14,289

of notion is you know if you'll still

2344

01:44:18,209 --> 01:44:16,119

exploring the galaxy you know finding a

2345

01:44:19,770 --> 01:44:18,219

lian's wait because eventually you will

2346

01:44:21,149 --> 01:44:19,780

they might be from your planet

2347

01:44:21,779 --> 01:44:21,159

originally but they're going to be left

2348

01:44:24,060 --> 01:44:21,789

behind

2349

01:44:25,619 --> 01:44:24,070

whatever you have a colony situation and

2350

01:44:26,879 --> 01:44:25,629

then we have this but like if Earth

2351

01:44:28,649 --> 01:44:26,889

might have been one of their colonies

2352

01:44:30,689 --> 01:44:28,659

and say well if it was they either had

2353

01:44:32,069 --> 01:44:30,699

to bioform us an example where they take

2354

01:44:33,330 --> 01:44:32,079

the existing things and just kind of

2355

01:44:35,279 --> 01:44:33,340

change it to be more like themselves

2356

01:44:38,189 --> 01:44:35,289

right all they had to do it four billion

2357

01:44:39,839 --> 01:44:38,199

years ago but if we Oh example such a

2358

01:44:41,520 --> 01:44:39,849

County what about all the others I mean

2359

01:44:43,409 --> 01:44:41,530

we probably won't the only one named

2360

01:44:45,509 --> 01:44:43,419

Bobby did that thousands for millions of

2361

01:44:47,189 --> 01:44:45,519

times right or we just the Force Ones

2362

01:44:48,899 --> 01:44:47,199

the build ourselves back up from some

2363

01:44:50,669 --> 01:44:48,909

catastrophe and then that just kind of

2364

01:44:52,379 --> 01:44:50,679

kicks the ball back because we'd be

2365

01:44:53,969 --> 01:44:52,389

saying oh well the other Force Ones what

2366

01:44:56,279 --> 01:44:53,979

about all the other civilizations won't

2367

01:44:59,129 --> 01:44:56,289

they are others that evolved too or you

2368

01:45:00,000 --> 01:44:59,139

know they did it and we did it and if we

2369

01:45:01,589 --> 01:45:00,010

did it from them

2370

01:45:03,120 --> 01:45:01,599

where all the other colonies they made

2371

01:45:05,939 --> 01:45:03,130

and we'll all the other civil

2372

01:45:07,379 --> 01:45:05,949

they start on their own so that's kinda

2373

01:45:09,720 --> 01:45:07,389

the issue with they use sort of short

2374

01:45:10,950 --> 01:45:09,730

time exposure once you get life in place

2375

01:45:12,720 --> 01:45:10,960

they can actually go out there and

2376

01:45:17,280 --> 01:45:12,730

colonize the galaxy assuming that's

2377

01:45:19,950 --> 01:45:17,290

possible what's making it go away next

2378

01:45:23,669 --> 01:45:19,960

answer of course to the question so

2379

01:45:27,300 --> 01:45:23,679

where is everybody where is et well we

2380

01:45:28,979 --> 01:45:27,310

just aren't listening properly well

2381

01:45:30,840 --> 01:45:28,989

that's entirely possible we don't know

2382

01:45:33,419 --> 01:45:30,850

we know we've been playing the science

2383

01:45:35,810 --> 01:45:33,429

game for at best 400 years we could be a

2384

01:45:38,220 --> 01:45:35,820

BB kind and give another couple thousand

2385

01:45:39,990 --> 01:45:38,230

and in that time we have discovered

2386

01:45:42,180 --> 01:45:40,000

stuff that we would never imagine and

2387

01:45:44,370 --> 01:45:42,190

while I always try to focus on the stuff

2388

01:45:45,780 --> 01:45:44,380

that's inside known science right now I

2389

01:45:47,490 --> 01:45:45,790

never pretend for a moment that I

2390

01:45:48,810 --> 01:45:47,500

actually expect that a couple of

2391

01:45:50,399 --> 01:45:48,820

centuries from now we want to discover

2392

01:45:53,070 --> 01:45:50,409

something that will just shock and blow

2393

01:45:55,050 --> 01:45:53,080

my mind mm-hmm and to be honest I think

2394

01:45:56,790 --> 01:45:55,060

most of all core physical laws are going

2395

01:45:58,320 --> 01:45:56,800

to stay in place because most of us have

2396

01:45:59,700 --> 01:45:58,330

not really changed that much Newton

2397

01:46:01,950 --> 01:45:59,710

needle a bit of adaptation and

2398

01:46:03,899 --> 01:46:01,960

Einstein's how to pretty solidly for the

2399

01:46:05,340 --> 01:46:03,909

last century but we could have something

2400

01:46:08,430 --> 01:46:05,350

combined just knock over the whole house

2401  
01:46:10,020 --> 01:46:08,440  
of cards and if that's the case you know

2402  
01:46:11,669 --> 01:46:10,030  
if we have something much much better

2403  
01:46:15,060 --> 01:46:11,679  
than radio we're not really gonna use

2404  
01:46:16,530 --> 01:46:15,070  
the radio very much and so how will we

2405  
01:46:18,180 --> 01:46:16,540  
listen for what they all listening to

2406  
01:46:19,860 --> 01:46:18,190  
and that's where we get into more the

2407  
01:46:21,689 --> 01:46:19,870  
die sonne and SETI things where you're

2408  
01:46:23,520 --> 01:46:21,699  
not looking for the active signal as

2409  
01:46:26,220 --> 01:46:23,530  
these civilizations send off but things

2410  
01:46:27,750 --> 01:46:26,230  
like their waste heat or you know who

2411  
01:46:29,729 --> 01:46:27,760  
hides a civilization is always the

2412  
01:46:31,200 --> 01:46:29,739  
question there are so many ways to find

2413  
01:46:33,479 --> 01:46:31,210

them when people say well maybe they're

2414

01:46:36,450 --> 01:46:33,489

hiding and we say why would you hide

2415

01:46:38,669 --> 01:46:36,460

name me one civilization rather than the

2416

01:46:39,840 --> 01:46:38,679

Sentinelese that actually hides near

2417

01:46:41,399 --> 01:46:39,850

they don't actually hide they're just

2418

01:46:43,800 --> 01:46:41,409

hostile Darfur knows who come to the

2419

01:46:45,209 --> 01:46:43,810

island most cities not only don't hide

2420

01:46:47,430 --> 01:46:45,219

and could be protected so many different

2421

01:46:49,200 --> 01:46:47,440

ways the easiest way to detect them is

2422

01:46:50,070 --> 01:46:49,210

all the billboards they put up and cause

2423

01:46:53,760 --> 01:46:50,080

you to come visit

2424

01:46:55,320 --> 01:46:53,770

that's correct positions out there they

2425

01:46:57,419 --> 01:46:55,330

do want to hide but what about all the

2426

01:47:00,780 --> 01:46:57,429

other ones that don't and we have to

2427

01:47:02,220 --> 01:47:00,790

look at ourselves here in that we you

2428

01:47:04,470 --> 01:47:02,230

just said it we've been dealing with

2429

01:47:06,540 --> 01:47:04,480

radio for a hundred years right we're

2430

01:47:09,149 --> 01:47:06,550

very close to not using it at all

2431

01:47:14,330 --> 01:47:09,159

anymore even though I'm a radio

2432

01:47:17,030 --> 01:47:14,340

broadcaster but we will figure out ways

2433

01:47:19,520 --> 01:47:17,040

eventually in a hundred years there

2434

01:47:22,790 --> 01:47:19,530

could be zero communication going

2435

01:47:25,520 --> 01:47:22,800

through the ether that we will be done

2436

01:47:28,430 --> 01:47:25,530

another way and that would mean we would

2437

01:47:30,620 --> 01:47:28,440

have to assume that et went through the

2438

01:47:32,660 --> 01:47:30,630

same processes and the way that they

2439

01:47:35,420 --> 01:47:32,670

communicate now has nothing to do with

2440

01:47:37,040 --> 01:47:35,430

us today we see even ultimately that one

2441

01:47:38,750 --> 01:47:37,050

walk because we had two problems with

2442

01:47:40,610 --> 01:47:38,760

that first we do have a lot of things to

2443

01:47:42,920 --> 01:47:40,620

kick around long after there there are

2444

01:47:44,960 --> 01:47:42,930

normal parent lifespan I'm already

2445

01:47:47,810 --> 01:47:44,970

predicting video stats back when TV

2446

01:47:49,370 --> 01:47:47,820

killed the radiostar sure I'm sure

2447

01:47:51,290 --> 01:47:49,380

that hasn't happened yet and it's never

2448

01:47:53,420 --> 01:47:51,300

going to happen entirely for the same

2449

01:47:55,700 --> 01:47:53,430

reason we still have people making

2450

01:47:59,030 --> 01:47:55,710

vintage people and having Renaissance

2451

01:48:00,440 --> 01:47:59,040

Fairs and also the secondary on that is

2452

01:48:02,210 --> 01:48:00,450

even assuming you don't have a bunch of

2453

01:48:03,500 --> 01:48:02,220

civilizations that just have little

2454

01:48:05,960 --> 01:48:03,510

villages that still like to communicate

2455

01:48:07,580 --> 01:48:05,970

by radio you're gonna have some people

2456

01:48:10,010 --> 01:48:07,590

in that civilization that want to talk

2457

01:48:12,530 --> 01:48:10,020

to other people and we broadcast you on

2458

01:48:14,210 --> 01:48:12,540

radio anyway for that not to walk you

2459

01:48:16,880 --> 01:48:14,220

have to then assume they don't want to

2460

01:48:18,980 --> 01:48:16,890

be hard a civilization that doesn't mind

2461

01:48:21,200 --> 01:48:18,990

being hard but just doesn't use radio

2462

01:48:22,970 --> 01:48:21,210

anymore will still be visible because

2463

01:48:25,280 --> 01:48:22,980

they're not hiding they just don't use

2464

01:48:26,660 --> 01:48:25,290

all method of communication and they

2465

01:48:29,030 --> 01:48:26,670

know a lot of civilizations will use

2466

01:48:31,640 --> 01:48:29,040

that too so they're broadcast on that to

2467

01:48:34,190 --> 01:48:31,650

say hello they had to be hiding and not

2468

01:48:38,630 --> 01:48:34,200

use radio for that one to walk there was

2469

01:48:41,030 --> 01:48:38,640

an episode of the Orval which I love I

2470

01:48:43,070 --> 01:48:41,040

think that it's a great show great show

2471

01:48:46,730 --> 01:48:43,080

and you remember the episode from a

2472

01:48:48,830 --> 01:48:46,740

couple of weeks ago where they they get

2473

01:48:50,300 --> 01:48:48,840

on they find it you know a new uncharted

2474

01:48:52,070 --> 01:48:50,310

planet they go down there's a life-form

2475

01:48:55,660 --> 01:48:52,080

detected and a civilization that come

2476

01:48:59,600 --> 01:48:55,670

down and everything is cool but they

2477

01:49:02,630 --> 01:48:59,610

didn't want to be found right and they

2478

01:49:05,570 --> 01:49:02,640

couldn't believe end and that was their

2479

01:49:06,950 --> 01:49:05,580

thing well so I got hung up on you

2480

01:49:08,150 --> 01:49:06,960

saying that day was an episode a couple

2481

01:49:10,400 --> 01:49:08,160

of weeks ago is this season to come out

2482

01:49:14,000 --> 01:49:10,410

already yes

2483

01:49:16,760 --> 01:49:14,010

oh no you're messing with me Isaac don't

2484

01:49:18,200 --> 01:49:16,770

even mess with me I often wait to see

2485

01:49:22,940 --> 01:49:18,210

you for the entire season come out but I

2486

01:49:27,330 --> 01:49:22,950

did not know they already had man okay

2487

01:49:29,560 --> 01:49:27,340

okay well it was just that way

2488

01:49:34,000 --> 01:49:29,570

civilizations you know tend to isolate

2489

01:49:36,400 --> 01:49:34,010

themselves and that's exactly what this

2490

01:49:39,310 --> 01:49:36,410

episode of the Oroville was dealing with

2491

01:49:41,590 --> 01:49:39,320

a fully advanced upright technically

2492

01:49:45,010 --> 01:49:41,600

advanced civilization

2493

01:49:47,440 --> 01:49:45,020

right but they just didn't want to be

2494

01:49:49,180 --> 01:49:47,450

found out they just want to be left

2495

01:49:51,459 --> 01:49:49,190

alone and here's the problem with that

2496

01:49:53,830 --> 01:49:51,469

that's possible but it wouldn't there's

2497

01:49:55,570 --> 01:49:53,840

a few problems we have with this first

2498

01:49:57,760 --> 01:49:55,580

is it's assuming everyone does if you

2499

01:49:59,920 --> 01:49:57,770

got thousands civilizations it doesn't

2500

01:50:02,140 --> 01:49:59,930

matter if hundreds of them hide and the

2501

01:50:04,180 --> 01:50:02,150

other problem though is hiding is not

2502

01:50:05,979 --> 01:50:04,190

the best way to be left alone we say I

2503

01:50:08,290 --> 01:50:05,989

don't want to be talked to these people

2504

01:50:10,000 --> 01:50:08,300

I'm gonna hide if you want to be left

2505

01:50:12,550 --> 01:50:10,010

alone in your cabin in the woods you

2506

01:50:14,979 --> 01:50:12,560

stick up no trespassing signs and you do

2507

01:50:16,690 --> 01:50:14,989

this for a very simple reason one it

2508

01:50:18,459 --> 01:50:16,700

keeps people from actually coming by for

2509

01:50:21,340 --> 01:50:18,469

the most part most people respect that

2510

01:50:23,740 --> 01:50:21,350

and two it means if they still invade

2511

01:50:25,060 --> 01:50:23,750

and they still come by be curious and

2512

01:50:27,130 --> 01:50:25,070

you shoot at them to meet them go away

2513

01:50:29,050 --> 01:50:27,140

or you don't help them with they run out

2514

01:50:32,500 --> 01:50:29,060

of fuel right no but you can come by and

2515

01:50:34,270 --> 01:50:32,510

say you screwed all citizens over if I

2516

01:50:36,340 --> 01:50:34,280

got a big galactic battle fleet and I

2517

01:50:37,750 --> 01:50:36,350

hear that you've destroyed one of my

2518

01:50:40,270 --> 01:50:37,760

exploration ships that was there

2519

01:50:42,070 --> 01:50:40,280

peacefully I might come by with that

2520

01:50:43,959 --> 01:50:42,080

fleet to have a conversation about your

2521

01:50:45,970 --> 01:50:43,969

manners whereas if there was a no

2522

01:50:47,740 --> 01:50:45,980

trespassing sign up or a signal saying

2523

01:50:50,110 --> 01:50:47,750

leave us alone we don't want to talk to

2524

01:50:51,370 --> 01:50:50,120

you things are a lot easier everyone who

2525

01:50:53,020 --> 01:50:51,380

respects that sort of thing

2526

01:50:54,640 --> 01:50:53,030

is gonna leave you be and everyone who

2527

01:50:56,140 --> 01:50:54,650

doesn't you've got authorization to

2528

01:50:58,660 --> 01:50:56,150

shoot at without most people assigned

2529

01:51:00,400 --> 01:50:58,670

you need to get shot yourself right so

2530

01:51:01,750 --> 01:51:00,410

you want to be left alone the best thing

2531

01:51:05,590 --> 01:51:01,760

to do is put up a side says no

2532

01:51:09,300 --> 01:51:05,600

solicitous makes sense it absolutely

2533

01:51:13,750 --> 01:51:09,310

makes sense and one of I want to spend

2534

01:51:16,720 --> 01:51:13,760

to the top of the hour here on this next

2535

01:51:18,010 --> 01:51:16,730

one which is okay where's et where is

2536

01:51:23,160 --> 01:51:18,020

everybody

2537

01:51:25,630 --> 01:51:23,170

and the answer is they're just too alien

2538

01:51:27,729 --> 01:51:25,640

and that is always one of those ones we

2539

01:51:30,070 --> 01:51:27,739

have such a problem with because we

2540

01:51:32,770 --> 01:51:30,080

don't know anything about how aliens

2541

01:51:34,420 --> 01:51:32,780

behave there was a book a few well

2542

01:51:36,580 --> 01:51:34,430

actually it's about thirty years ago the

2543

01:51:38,680 --> 01:51:36,590

killing stall by a cellist Pellegrino in

2544

01:51:39,669 --> 01:51:38,690

that they say there's only three things

2545

01:51:42,370 --> 01:51:39,679

we know about alien

2546

01:51:44,439 --> 01:51:42,380

for sure and even that's in doubt the

2547

01:51:46,509 --> 01:51:44,449

forced is that they want to survive they

2548

01:51:48,009 --> 01:51:46,519

might be peaceful they might be hostile

2549

01:51:49,750 --> 01:51:48,019

but they want to live more than they

2550

01:51:51,100 --> 01:51:49,760

want you to live so if it comes down to

2551  
01:51:53,350 --> 01:51:51,110  
it they are going to protect themselves

2552  
01:51:54,640 --> 01:51:53,360  
forced the second one is they're

2553  
01:51:56,979 --> 01:51:54,650  
probably gonna be very good at that

2554  
01:51:59,020 --> 01:51:56,989  
because evolution does not produce wimps

2555  
01:52:01,660 --> 01:51:59,030  
even if they're pacifists they're going

2556  
01:52:04,750 --> 01:52:01,670  
to be very good at being aggressive when

2557  
01:52:06,399 --> 01:52:04,760  
they need to be and the third one is

2558  
01:52:08,799 --> 01:52:06,409  
they're going to know that both of those

2559  
01:52:10,330 --> 01:52:08,809  
things are true about us too that you're

2560  
01:52:12,310 --> 01:52:10,340  
not gonna have evolution produce

2561  
01:52:13,870 --> 01:52:12,320  
anything that is you know basically just

2562  
01:52:17,199 --> 01:52:13,880  
wimpy in that respect

2563  
01:52:18,850 --> 01:52:17,209

easy to die out now we can't be sure

2564

01:52:20,589 --> 01:52:18,860

about something even like that there's

2565

01:52:22,689 --> 01:52:20,599

these very things we just said eating

2566

01:52:24,009 --> 01:52:22,699

beyond that is up for grabs

2567

01:52:26,109 --> 01:52:24,019

but we were saying olio that would be

2568

01:52:28,779 --> 01:52:26,119

hard for super aggressive species that

2569

01:52:31,839 --> 01:52:28,789

was just incredibly xenophobic to ever

2570

01:52:33,279 --> 01:52:31,849

become a civilization because xenophobia

2571

01:52:34,779 --> 01:52:33,289

doesn't start against aliens no-one's

2572

01:52:36,219 --> 01:52:34,789

going to evolve on their planet afraid

2573

01:52:38,529 --> 01:52:36,229

of emotions they don't know what those

2574

01:52:40,509 --> 01:52:38,539

are yet that kind of xenophobia has to

2575

01:52:42,459 --> 01:52:40,519

start early on meaning you're probably

2576  
01:52:44,469 --> 01:52:42,469  
attacking every other tribe you come to

2577  
01:52:46,000 --> 01:52:44,479  
contact with and you're going to be

2578  
01:52:47,949 --> 01:52:46,010  
costly it was you wanted more of those

2579  
01:52:49,929 --> 01:52:47,959  
and you're gonna be constantly breaking

2580  
01:52:51,580 --> 01:52:49,939  
down from civil wars when those folks

2581  
01:52:53,529 --> 01:52:51,590  
they don't have the right shade of red

2582  
01:52:55,390 --> 01:52:53,539  
in their hair or something like that how

2583  
01:52:57,939 --> 01:52:55,400  
to build a civilization that way could

2584  
01:52:59,319 --> 01:52:57,949  
happen but probably not too often and so

2585  
01:53:01,359 --> 01:52:59,329  
we'd say you probably have fairly

2586  
01:53:02,859 --> 01:53:01,369  
cooperative and diplomatic aliens out

2587  
01:53:04,419 --> 01:53:02,869  
there they had they might not be as much

2588  
01:53:05,649 --> 01:53:04,429

as us they might be more than us but

2589

01:53:08,379 --> 01:53:05,659

they're gonna know what these concepts

2590

01:53:10,629 --> 01:53:08,389

are then we get in there really alien

2591

01:53:13,239 --> 01:53:10,639

stuff though stuff that maybe was not of

2592

01:53:14,739 --> 01:53:13,249

all but was created by the meal Skynet

2593

01:53:17,679 --> 01:53:14,749

takes over the planet and extinguished

2594

01:53:19,419 --> 01:53:17,689

all the humans yes or they just came up

2595

01:53:22,179 --> 01:53:19,429

a completely different pathway to us

2596

01:53:24,279 --> 01:53:22,189

than we wouldn't even recognize you know

2597

01:53:26,319 --> 01:53:24,289

let's say that they came from a parallel

2598

01:53:29,020 --> 01:53:26,329

universe traumas that was just congruous

2599

01:53:30,790 --> 01:53:29,030

with with auth congruent with all but

2600

01:53:32,439 --> 01:53:30,800

it's got four dimensions and the math

2601

01:53:34,839 --> 01:53:32,449

there doesn't walk like pi does not

2602

01:53:36,189 --> 01:53:34,849

equal 3.14 you know how would they even

2603

01:53:38,919 --> 01:53:36,199

know how to talk to us because we say

2604

01:53:43,899 --> 01:53:38,929

math is the universal language in this

2605

01:53:45,520 --> 01:53:43,909

universe in ours we don't know even that

2606

01:53:46,660 --> 01:53:45,530

for sure their arguments say maybe math

2607

01:53:49,569 --> 01:53:46,670

is not universal

2608

01:53:51,310 --> 01:53:49,579

but even then just here they all

2609

01:53:53,330 --> 01:53:51,320

presumably places where two plus two

2610

01:53:54,770 --> 01:53:53,340

equals five if you've got the whole mall

2611

01:53:57,680 --> 01:53:54,780

for saying that has different fiscal

2612

01:53:59,510 --> 01:53:57,690

hours and in that case they might have

2613

01:54:01,280 --> 01:53:59,520

no way to even talk to us that way you

2614

01:54:02,629 --> 01:54:01,290

know we're not gonna we say let's send

2615

01:54:05,450 --> 01:54:02,639

them prime numbers so let's send the

2616

01:54:07,820 --> 01:54:05,460

digits of pi in binary and that would

2617

01:54:09,470 --> 01:54:07,830

walk on anyone in this galaxy presumably

2618

01:54:11,479 --> 01:54:09,480

because the prime numbers and PI should

2619

01:54:13,970 --> 01:54:11,489

be the same but if you send me an energy

2620

01:54:15,530 --> 01:54:13,980

the the tenth dimension they might have

2621

01:54:17,439 --> 01:54:15,540

no clue what you're sending them or that

2622

01:54:19,729 --> 01:54:17,449

you're sending them anything at all and

2623

01:54:20,990 --> 01:54:19,739

so you might not even recognize those

2624

01:54:23,600 --> 01:54:21,000

but we'd otherwise say normally that

2625

01:54:27,530 --> 01:54:23,610

intelligence recognize intelligence I

2626  
01:54:28,939 --> 01:54:27,540  
could mistake a stone axe for something

2627  
01:54:31,040 --> 01:54:28,949  
natural so I'm at the Giant's Causeway

2628  
01:54:33,020 --> 01:54:31,050  
where it's all these big hexagons looks

2629  
01:54:34,430 --> 01:54:33,030  
artificial but there's a difference

2630  
01:54:36,229 --> 01:54:34,440  
between seeing something natural that

2631  
01:54:38,359 --> 01:54:36,239  
might be artificial or vice versa and

2632  
01:54:40,490 --> 01:54:38,369  
walking into a tool shop and not

2633  
01:54:42,770 --> 01:54:40,500  
recognizing what it is we'll joke about

2634  
01:54:44,300 --> 01:54:42,780  
how aliens might think our toast or cat

2635  
01:54:46,850 --> 01:54:44,310  
was the intelligent dominant life-form

2636  
01:54:48,770 --> 01:54:46,860  
and that's funny but probably very

2637  
01:54:51,229 --> 01:54:48,780  
unlikely did have to be very stupid

2638  
01:54:53,419 --> 01:54:51,239

too stupid to master space travel not to

2639

01:54:55,250 --> 01:54:53,429

rapidly figure out that the humans were

2640

01:54:57,709 --> 01:54:55,260

the ones that were the intelligent

2641

01:54:59,359 --> 01:54:57,719

species on this planet and once they do

2642

01:55:01,370 --> 01:54:59,369

they should be able to see a pathway for

2643

01:55:02,839 --> 01:55:01,380

communication so we can only have a

2644

01:55:05,000 --> 01:55:02,849

guess on something like because if it's

2645

01:55:06,890 --> 01:55:05,010

alien enough how do you even you know

2646

01:55:07,640 --> 01:55:06,900

you know after them but if they all are

2647

01:55:09,589 --> 01:55:07,650

that alien

2648

01:55:11,060 --> 01:55:09,599

it may not even matter if they exist or

2649

01:55:12,290 --> 01:55:11,070

not because if that you can't talk to

2650

01:55:14,180 --> 01:55:12,300

them they can't talk to you you can't

2651

01:55:15,830 --> 01:55:14,190

even detect each other then for all

2652

01:55:17,660 --> 01:55:15,840

practical purposes you really don't

2653

01:55:22,370 --> 01:55:17,670

exist as far as shuttle can so on to

2654

01:55:25,939 --> 01:55:22,380

never would there is the question of us

2655

01:55:28,459 --> 01:55:25,949

even recognizing us in 10,000 years and

2656

01:55:32,530 --> 01:55:28,469

that we may not even have these meat

2657

01:55:35,629 --> 01:55:32,540

sack bodies that we have today we could

2658

01:55:38,479 --> 01:55:35,639

you know presumably turn into light

2659

01:55:41,180 --> 01:55:38,489

beings or energy or even some type of

2660

01:55:44,200 --> 01:55:41,190

Android where we just transfer our

2661

01:55:46,490 --> 01:55:44,210

brains into something completely

2662

01:55:48,919 --> 01:55:46,500

artificial and manufactured but that

2663

01:55:51,500 --> 01:55:48,929

being said we may not even be able to

2664

01:55:54,470 --> 01:55:51,510

recognize ourselves in 10,000 years or

2665

01:55:57,770 --> 01:55:54,480

how to communicate or or anything that

2666

01:56:01,310 --> 01:55:57,780

we do today and if we go off planet and

2667

01:56:04,220 --> 01:56:01,320

and encounter something alien it could

2668

01:56:06,710 --> 01:56:04,230

be just as alien as we would be in

2669

01:56:10,040 --> 01:56:06,720

10,000 years in that it would be in a

2670

01:56:12,830 --> 01:56:10,050

possible way to to see or recognize or

2671

01:56:14,060 --> 01:56:12,840

communicate with for us yeah now there's

2672

01:56:15,590 --> 01:56:14,070

there's the thing on that they ain't

2673

01:56:17,030 --> 01:56:15,600

uploaded mind that artificial

2674

01:56:19,340 --> 01:56:17,040

intelligence of a human II was digit

2675

01:56:21,710 --> 01:56:19,350

upload our thumb drive teleported back

2676

01:56:23,990 --> 01:56:21,720

to Rome Romans don't know what a thumb

2677

01:56:25,580 --> 01:56:24,000

drive is let's say this is intelligent

2678

01:56:28,010 --> 01:56:25,590

this is just a piece of plastic and what

2679

01:56:29,690 --> 01:56:28,020

is plastic but we know what that is and

2680

01:56:31,580 --> 01:56:29,700

we know what Rome is we would recognize

2681

01:56:33,800 --> 01:56:31,590

them we can't communicate with them

2682

01:56:35,810 --> 01:56:33,810

anyone down the road ten thousand years

2683

01:56:38,300 --> 01:56:35,820

from now should be able to talk to us if

2684

01:56:39,680 --> 01:56:38,310

they want to so again this kind of foamy

2685

01:56:42,590 --> 01:56:39,690

paradox solution where they've kind of

2686

01:56:44,750 --> 01:56:42,600

evolved past us either they just not

2687

01:56:46,160 --> 01:56:44,760

recognize what to us relies on the

2688

01:56:48,140 --> 01:56:46,170

assumption that they don't want to talk

2689

01:56:50,630 --> 01:56:48,150

to us because they should be able to if

2690

01:56:52,250 --> 01:56:50,640

they want to communication only allows

2691

01:56:54,350 --> 01:56:52,260

one of the parties to be able to start

2692

01:56:55,850 --> 01:56:54,360

off the rosetta stone if they don't want

2693

01:56:57,860 --> 01:56:55,860

to talk to us we have a problem if they

2694

01:56:59,140 --> 01:56:57,870

do want to talk to us we don't because

2695

01:57:03,020 --> 01:56:59,150

they should be able to figure out how to

2696

01:57:07,910 --> 01:57:03,030

what do we do with situations like that

2697

01:57:11,540 --> 01:57:07,920

if for instance you know with CDs today

2698

01:57:13,640 --> 01:57:11,550

right DVDs we they're almost useless it

2699

01:57:16,310 --> 01:57:13,650

they were they were only useful for

2700

01:57:21,380 --> 01:57:16,320

about a decade right those any allowed

2701  
01:57:23,660 --> 01:57:21,390  
this can use them as a as a you know I'm

2702  
01:57:24,830 --> 01:57:23,670  
doing it right now and that's what

2703  
01:57:26,810 --> 01:57:24,840  
they'd use them for if they found in

2704  
01:57:30,700 --> 01:57:26,820  
nature home to what pretty Neos these oh

2705  
01:57:33,470 --> 01:57:30,710  
yeah they would know what to do and so

2706  
01:57:34,970 --> 01:57:33,480  
you know a million years from now or

2707  
01:57:37,160 --> 01:57:34,980  
five hundred thousand years from now

2708  
01:57:39,710 --> 01:57:37,170  
they they're uncovering these things

2709  
01:57:41,750 --> 01:57:39,720  
there's no way to playback that music or

2710  
01:57:43,760 --> 01:57:41,760  
there's no way to retrieve the data or

2711  
01:57:46,430 --> 01:57:43,770  
even to know that that's what they are

2712  
01:57:49,190 --> 01:57:46,440  
that there is data on those discs that

2713  
01:57:49,970 --> 01:57:49,200

would have all of our history they're

2714

01:57:52,310 --> 01:57:49,980

right

2715

01:57:53,960 --> 01:57:52,320

the Romans use them as coastal is

2716

01:57:55,580 --> 01:57:53,970

because they don't know what they are we

2717

01:57:57,020 --> 01:57:55,590

use them as coastal us because we don't

2718

01:57:59,000 --> 01:57:57,030

care about them they're useless to us

2719

01:58:01,010 --> 01:57:59,010

exactly if we needed access to them

2720

01:58:03,680 --> 01:58:01,020

though we know how to access them we can

2721

01:58:05,660 --> 01:58:03,690

access those and so there's the thing is

2722

01:58:07,430 --> 01:58:05,670

if we have like you fall civilization

2723

01:58:09,380 --> 01:58:07,440

fell apology and all we had to work with

2724

01:58:10,850 --> 01:58:09,390

was CDs and we were knocked back to the

2725

01:58:12,770 --> 01:58:10,860

Neolithic level we definitely have a

2726

01:58:14,960 --> 01:58:12,780

problem fortunately you have things like

2727

01:58:16,640 --> 01:58:14,970

books and stuff lying around and so

2728

01:58:17,960 --> 01:58:16,650

there's the other aspect we say to Ollie

2729

01:58:19,700 --> 01:58:17,970

always said they wouldn't use radio

2730

01:58:19,950 --> 01:58:19,710

anymore and I mentioned how they might

2731

01:58:21,570 --> 01:58:19,960

have

2732

01:58:23,220 --> 01:58:21,580

sounds fair sir did that a lot of

2733

01:58:25,380 --> 01:58:23,230

civilizations might keep a lot of their

2734

01:58:27,090 --> 01:58:25,390

history around that way for the same

2735

01:58:28,320 --> 01:58:27,100

reason that we you know you got a bunk

2736

01:58:30,390 --> 01:58:28,330

with you filled so you might want to

2737

01:58:32,010 --> 01:58:30,400

have Wikipedia on a data stick but you

2738

01:58:33,720 --> 01:58:32,020

still have some hard copy reference

2739

01:58:35,640 --> 01:58:33,730

books too I think a lot of these

2740

01:58:38,640 --> 01:58:35,650

civilizations would tend to keep a lot

2741

01:58:40,080 --> 01:58:38,650

of the more classic stuff around even if

2742

01:58:41,580 --> 01:58:40,090

for no better reason than historical

2743

01:58:43,260 --> 01:58:41,590

appreciation but against that little

2744

01:58:44,970 --> 01:58:43,270

fear that someone might come by and wipe

2745

01:58:47,580 --> 01:58:44,980

it out that that hi-oh technology

2746

01:58:49,020 --> 01:58:47,590

they're dependent on and the other thing

2747

01:58:50,700 --> 01:58:49,030

about these guys they might be nearly

2748

01:58:53,670 --> 01:58:50,710

immortal but they are the process of

2749

01:58:55,740 --> 01:58:53,680

evolution they want to live and we get

2750

01:58:57,990 --> 01:58:55,750

more and more cautious every year

2751  
01:59:00,270 --> 01:58:58,000  
because we don't die that much you know

2752  
01:59:01,620 --> 01:59:00,280  
most of us live to our old age these

2753  
01:59:03,840 --> 01:59:01,630  
could be fellows who could live for

2754  
01:59:05,400 --> 01:59:03,850  
millions of years potentially because

2755  
01:59:07,830 --> 01:59:05,410  
they've got life extension technology

2756  
01:59:09,479 --> 01:59:07,840  
for instance imagine a situation like

2757  
01:59:11,760 --> 01:59:09,489  
that where you're not afraid of died of

2758  
01:59:14,520 --> 01:59:11,770  
natural causes and you want to keep

2759  
01:59:16,620 --> 01:59:14,530  
living just how many measures are you

2760  
01:59:18,270 --> 01:59:16,630  
know apropos take some pretty extreme

2761  
01:59:20,580 --> 01:59:18,280  
measures but these guys might laugh at

2762  
01:59:22,200 --> 01:59:20,590  
that as reckless they probably go to

2763  
01:59:24,470 --> 01:59:22,210

some pretty extreme efforts to make sure

2764

01:59:27,870 --> 01:59:24,480

they are protected against cataclysms

2765

01:59:30,300 --> 01:59:27,880

well that's exactly right and and and

2766

01:59:33,750 --> 01:59:30,310

back to back to your point when it comes

2767

01:59:36,780 --> 01:59:33,760

to this often wondered when Sagan you

2768

01:59:38,700 --> 01:59:36,790

know designed or show the designs for a

2769

01:59:40,229 --> 01:59:38,710

phonograph player for the record so they

2770

01:59:43,860 --> 01:59:40,239

could play it back that they would

2771

01:59:45,060 --> 01:59:43,870

actually understand what that said let's

2772

01:59:46,430 --> 01:59:45,070

take a break right here I guess tonight

2773

01:59:54,000 --> 01:59:46,440

Isaac Arthur stay with us

2774

01:59:59,830 --> 01:59:57,280

this is kera digital broadcasting

2775

02:00:03,070 --> 01:59:59,840

station Salt Lake City Utah

2776

02:00:04,780 --> 02:00:03,080

Van Buren Arkansas poor water quality is

2777

02:00:05,640 --> 02:00:04,790

a major health issue and it's only

2778

02:00:07,690 --> 02:00:05,650

getting worse

2779

02:00:09,490 --> 02:00:07,700

municipalities can't keep up standards

2780

02:00:12,640 --> 02:00:09,500

have dropped and pollutants are

2781

02:00:14,440 --> 02:00:12,650

increasing where does it all end it ends

2782

02:00:16,150 --> 02:00:14,450

by keeping the pollutants outside of

2783

02:00:18,250 --> 02:00:16,160

your home with hydro cares advanced

2784

02:00:20,650 --> 02:00:18,260

systems available at wave home solutions

2785

02:00:22,120 --> 02:00:20,660

no less than the best purification

2786

02:00:24,190 --> 02:00:22,130

materials and processes have been

2787

02:00:25,900 --> 02:00:24,200

developed by Hydra care to provide you

2788

02:00:28,540 --> 02:00:25,910

with healthy clean water for drinking

2789

02:00:30,490 --> 02:00:28,550

cooking and showering hydro care far

2790

02:00:33,580 --> 02:00:30,500

surpasses the competition in removing

2791

02:00:36,550 --> 02:00:33,590

chlorine odors iron lab chemicals

2792

02:00:38,530 --> 02:00:36,560

limescale and much more don't settle for

2793

02:00:40,420 --> 02:00:38,540

less when it comes to your water we'll

2794

02:00:42,490 --> 02:00:40,430

take care of the toughest water problems

2795

02:00:45,220 --> 02:00:42,500

for you whether it's from a city or well

2796

02:00:47,230 --> 02:00:45,230

source satisfaction guaranteed for more

2797

02:00:49,150 --> 02:00:47,240

information call eight eight eight nine

2798

02:00:52,540 --> 02:00:49,160

nine seven wave that's eight eight eight

2799

02:00:54,820 --> 02:00:52,550

nine nine seven w AV e or go to best

2800

02:00:57,459 --> 02:00:54,830

water one two three dot-com that's best

2801  
02:00:58,550 --> 02:00:57,469  
water one two three calm

2802  
02:01:01,659 --> 02:00:58,560  
Solutions

2803  
02:01:04,069 --> 02:01:01,669  
[Music]

2804  
02:01:09,020 --> 02:01:04,079  
your contact for current news and

2805  
02:01:10,879 --> 02:01:09,030  
trending topics kera radio.com does your

2806  
02:01:13,040 --> 02:01:10,889  
basement or crawlspace have a damp musty

2807  
02:01:14,779 --> 02:01:13,050  
smell while watch out that's a sign of

2808  
02:01:16,639 --> 02:01:14,789  
too much moisture and not enough

2809  
02:01:18,080 --> 02:01:16,649  
ventilation and that can mean increased

2810  
02:01:20,179 --> 02:01:18,090  
mold growth and their build-up of

2811  
02:01:22,399 --> 02:01:20,189  
harmful toxins and gases don't bother

2812  
02:01:24,439 --> 02:01:22,409  
with a dehumidifier it just circulates

2813  
02:01:26,540 --> 02:01:24,449

the same unhealthy air now there's a

2814

02:01:28,699 --> 02:01:26,550

better way to remove these dangers and

2815

02:01:30,770 --> 02:01:28,709

odors it's with the computerized wave

2816

02:01:32,750 --> 02:01:30,780

moisture control unit that reduces

2817

02:01:34,580 --> 02:01:32,760

moisture and expels pollutants we

2818

02:01:36,649 --> 02:01:34,590

replaced our old dehumidifier with the

2819

02:01:38,929 --> 02:01:36,659

wave unit and in only three weeks our

2820

02:01:41,120 --> 02:01:38,939

basement is dry and the musty smell is

2821

02:01:43,969 --> 02:01:41,130

gone wave units require no maintenance

2822

02:01:46,069 --> 02:01:43,979

no buckets of water or filters and costs

2823

02:01:48,290 --> 02:01:46,079

only pennies a day to run breathe better

2824

02:01:50,719 --> 02:01:48,300

live healthier with an affordable no

2825

02:01:53,060 --> 02:01:50,729

maintenance wave unit call eight eight

2826  
02:01:56,389 --> 02:01:53,070  
eight seven one seven way eight eight

2827  
02:02:02,090 --> 02:01:56,399  
eight seven one seven wav e or visit dry

2828  
02:02:08,490 --> 02:02:05,020  
we own solutions

2829  
02:02:12,700 --> 02:02:10,810  
this is Jimmy Church of fade to black

2830  
02:02:15,940 --> 02:02:12,710  
and I only drink

2831  
02:02:18,460 --> 02:02:15,950  
fade to black blend coffee from River

2832  
02:02:21,400 --> 02:02:18,470  
Moon just click on the River moon coffee

2833  
02:02:25,480 --> 02:02:21,410  
banner at Jimmy Church radio.com promo

2834  
02:02:28,000 --> 02:02:25,490  
code f2 b blend so are you tired of

2835  
02:02:30,430 --> 02:02:28,010  
being tired well then it's time to get

2836  
02:02:32,830 --> 02:02:30,440  
the tea hey it's Lisa here to tell you

2837  
02:02:34,630 --> 02:02:32,840  
about this all-natural all organic tea

2838  
02:02:36,280 --> 02:02:34,640

I've been drinking that has had great

2839

02:02:39,190 --> 02:02:36,290

results for over 20 years

2840

02:02:41,050 --> 02:02:39,200

it's called life changed tea and it's

2841

02:02:43,660 --> 02:02:41,060

specially formulated to help detoxify

2842

02:02:46,360 --> 02:02:43,670

and cleanse your kidneys liver colon and

2843

02:02:47,740 --> 02:02:46,370

blood all at once the colon is one of

2844

02:02:50,500 --> 02:02:47,750

the most ignored organs in the human

2845

02:02:52,330 --> 02:02:50,510

body the faster that waste is eliminated

2846

02:02:54,340 --> 02:02:52,340

from the body the less time that way

2847

02:02:56,230 --> 02:02:54,350

sits in our intestines sprinting toxins

2848

02:02:58,210 --> 02:02:56,240

to our bloodstream this tea helps

2849

02:03:00,070 --> 02:02:58,220

cleanse chemicals caused by outside

2850

02:03:03,130 --> 02:03:00,080

intruders from our entire digestive

2851  
02:03:05,440 --> 02:03:03,140  
system and get this weight loss can be a

2852  
02:03:07,660 --> 02:03:05,450  
side effect and with continued use of

2853  
02:03:10,090 --> 02:03:07,670  
the tea you can experience clearer

2854  
02:03:12,760 --> 02:03:10,100  
healthier younger looking skin increased

2855  
02:03:14,170 --> 02:03:12,770  
energy and a happier outlook on life so

2856  
02:03:17,050 --> 02:03:14,180  
if you're tired of being tired

2857  
02:03:17,860 --> 02:03:17,060  
get the life change tea at get the tea

2858  
02:03:22,470 --> 02:03:17,870  
calm

2859  
02:03:24,640 --> 02:03:22,480  
you'll be glad you did

2860  
02:03:26,380 --> 02:03:24,650  
did you know that when you're on the

2861  
02:03:28,840 --> 02:03:26,390  
road with limited data or Wi-Fi

2862  
02:03:30,760 --> 02:03:28,850  
available you can still listen to every

2863  
02:03:33,520 --> 02:03:30,770

minute of fade to black by just calling

2864

02:03:36,580 --> 02:03:33,530

six oh five five six two four four eight

2865

02:03:39,070 --> 02:03:36,590

two no smartphone app or Internet needed

2866

02:03:41,680 --> 02:03:39,080

it saves your data plan and no extra

2867

02:03:44,470 --> 02:03:41,690

cost if you have unlimited minutes just

2868

02:03:46,660 --> 02:03:44,480

call six oh five five six two four four

2869

02:03:49,390 --> 02:03:46,670

eight two you can listen to me Jimmy

2870

02:03:56,220 --> 02:03:49,400

Church on any phone anytime anywhere

2871

02:04:00,270 --> 02:03:57,920

[Music]

2872

02:04:02,380 --> 02:04:00,280

[Applause]

2873

02:04:06,640 --> 02:04:02,390

you wanna know a secret

2874

02:04:09,610 --> 02:04:06,650

I love police I really love ponies I'm

2875

02:04:13,870 --> 02:04:09,620

serious I couldn't stay sane without

2876  
02:04:19,370 --> 02:04:13,880  
poor mr. Brooks I fade to black because

2877  
02:04:23,370 --> 02:04:21,240  
this is fade to black

2878  
02:04:27,060 --> 02:04:23,380  
with Jimmy Church on the game changer

2879  
02:04:29,440 --> 02:04:27,070  
radio network and kgr a the global radio

2880  
02:04:40,739 --> 02:04:29,450  
alliance

2881  
02:04:43,120 --> 02:04:40,749  
[Music]

2882  
02:04:44,739 --> 02:04:43,130  
welcome back fade to black hi I'm your

2883  
02:04:51,180 --> 02:04:44,749  
host Jimmy Church I guess tonight Isaac

2884  
02:04:54,939 --> 02:04:51,190  
Arthur and Isaac just did four hours

2885  
02:04:57,370 --> 02:04:54,949  
hold a pole start to finish with me on

2886  
02:05:00,819 --> 02:04:57,380  
Sunday evening over on coast to coast

2887  
02:05:03,939 --> 02:05:00,829  
and and Isaac I just have to say thank

2888  
02:05:06,879 --> 02:05:03,949

you for that but for a premiere for a

2889

02:05:09,759 --> 02:05:06,889

debut on coast to coast to go through

2890

02:05:11,290 --> 02:05:09,769

that because you you broadcast you put

2891

02:05:13,719 --> 02:05:11,300

together your stuff every single week

2892

02:05:16,810 --> 02:05:13,729

too as well but that was a pretty good

2893

02:05:19,209 --> 02:05:16,820

experience out of the gate wasn't it did

2894

02:05:20,830 --> 02:05:19,219

you have a good time it was amazing I I

2895

02:05:22,629 --> 02:05:20,840

mean it was exhausting as I mean I you

2896

02:05:25,689 --> 02:05:22,639

know I I'm not used to in the long live

2897

02:05:27,370 --> 02:05:25,699

shows like that and but it was just good

2898

02:05:29,049 --> 02:05:27,380

and the audience was just giving good

2899

02:05:31,899 --> 02:05:29,059

questions left and right so it was a

2900

02:05:34,089 --> 02:05:31,909

great time how's the feedback been from

2901  
02:05:35,620 --> 02:05:34,099  
your audience really good there's

2902  
02:05:37,449 --> 02:05:35,630  
actually a lot of crossover at the

2903  
02:05:38,500 --> 02:05:37,459  
channel and since I tend to be a more on

2904  
02:05:40,029 --> 02:05:38,510  
the skeptic side I think some folks

2905  
02:05:42,069 --> 02:05:40,039  
Bulacan know us about saying they're

2906  
02:05:43,989 --> 02:05:42,079  
regulars on coast to coast but I've been

2907  
02:05:45,660 --> 02:05:43,999  
listening to show for a year or so so I

2908  
02:05:48,489 --> 02:05:45,670  
was less surprised by that

2909  
02:05:52,029 --> 02:05:48,499  
it's got to be exciting it's like you

2910  
02:05:54,520 --> 02:05:52,039  
know when you go and you are you grow

2911  
02:05:56,620 --> 02:05:54,530  
grow up next door to Madison Square

2912  
02:05:59,109 --> 02:05:56,630  
Garden right and you're always attending

2913  
02:06:01,209 --> 02:05:59,119

concerts and then one day you're playing

2914

02:06:04,029 --> 02:06:01,219

yeah you're playing Madison Square

2915

02:06:05,919 --> 02:06:04,039

Garden but that's exactly what it was

2916

02:06:07,959 --> 02:06:05,929

like wasn't it oh it's awesome yeah I

2917

02:06:10,330 --> 02:06:07,969

just think yeah I'm just for the show I

2918

02:06:12,100 --> 02:06:10,340

grew up watching folks like sake and I'm

2919

02:06:13,930 --> 02:06:12,110

getting to do I mean obviously I have

2920

02:06:16,270 --> 02:06:13,940

nowhere near the outreach that Sagan had

2921

02:06:18,640 --> 02:06:16,280

but just to be doing something a little

2922

02:06:20,649 --> 02:06:18,650

bit like him is so amazing and and you