



1
00:00:46,600 --> 00:00:42,690

[Music]

2
00:00:50,290 --> 00:00:46,610

this hope radio for the masses Atlanta

3
00:00:52,270 --> 00:00:50,300

between July 8 1947 the Army Air Force

4
00:00:54,100 --> 00:00:52,280

with open arms and applying this has

5
00:00:57,280 --> 00:00:54,110

been found and is now in the possession

6
00:01:01,330 --> 00:00:57,290

of the RA the game is rigged changed the

7
00:01:04,570 --> 00:01:01,340

game changer I occasionally think how

8
00:01:08,320 --> 00:01:04,580

quickly our differences worldwide would

9
00:01:12,660 --> 00:01:08,330

vanish if we were facing an alien threat

10
00:01:17,940 --> 00:01:15,210

[Applause]

11
00:01:20,910 --> 00:01:17,950

this is fade to black with your host

12
00:01:24,590 --> 00:01:20,920

Jimmy Church on the game changer radio

13
00:01:28,050 --> 00:01:24,600

network and kgr a the global rain

14

00:01:38,750 --> 00:01:28,060

[Music]

15

00:01:40,940 --> 00:01:38,760

you listening today too

16

00:01:41,890 --> 00:01:40,950

with jimmy touch only game change in

17

00:01:44,660 --> 00:01:41,900

that word

18

00:01:47,420 --> 00:01:44,670

[Music]

19

00:01:49,450 --> 00:01:47,430

good evening fade to black

20

00:01:53,719 --> 00:01:49,460

[Music]

21

00:01:53,729 --> 00:02:00,710

for Masse's

22

00:02:12,820 --> 00:02:03,969

yeah

23

00:02:19,680 --> 00:02:12,830

it it does mass's I love Frank Zappa

24

00:02:24,040 --> 00:02:19,690

today's Monday January 7th 2019 just

25

00:02:30,180 --> 00:02:24,050

seven days into the new year 358 days

26
00:02:33,369 --> 00:02:30,190
left as always we are live from a bunker

27
00:02:35,350 --> 00:02:33,379
somewhere in the middle of beautiful

28
00:02:36,910 --> 00:02:35,360
downtown Burbank California and I would

29
00:02:40,570 --> 00:02:36,920
like to welcome everybody listening all

30
00:02:44,500 --> 00:02:40,580
around the world all across the United

31
00:02:47,110 --> 00:02:44,510
States hither and thither to and fro

32
00:02:53,830 --> 00:02:47,120
back and forth up and down east and west

33
00:02:59,140 --> 00:02:56,500
this is fade to black for kjc are the

34
00:03:02,740 --> 00:02:59,150
game changer Network in kg ra the

35
00:03:05,670 --> 00:03:02,750
planets hi I'm your host Jimmy Church

36
00:03:13,540 --> 00:03:05,680
what is cracking everybody how you doing

37
00:03:15,670 --> 00:03:13,550
how are you doing all right 2019 lays

38
00:03:22,500 --> 00:03:15,680

out in front of us and we've got our

39

00:03:24,930 --> 00:03:22,510

sights laser focused on 2019 tonight

40

00:03:28,539 --> 00:03:24,940

I've been looking forward to this show

41

00:03:32,680 --> 00:03:28,549

for a few years now Isaac

42

00:03:35,920 --> 00:03:32,690

Arthur is finally here and tonight we're

43

00:03:38,199 --> 00:03:35,930

gonna discuss alien technology we're

44

00:03:40,930 --> 00:03:38,209

gonna discuss faster-than-light space

45

00:03:43,960 --> 00:03:40,940

travel we're gonna talk about ET contact

46

00:03:45,339 --> 00:03:43,970

and with Isaac now that's just like

47

00:03:47,080 --> 00:03:45,349

three things I'm laying out there on the

48

00:03:49,420 --> 00:03:47,090

table with Isaac and if you're familiar

49

00:03:53,170 --> 00:03:49,430

with Isaac you know that we can go in

50

00:03:54,940 --> 00:03:53,180

any direction tonight and most likely we

51

00:03:58,509 --> 00:03:54,950

will now if I can get these three

52

00:04:00,310 --> 00:03:58,519

subjects in with Isaac we're all winners

53

00:04:03,220 --> 00:04:00,320

and I'm gonna knock this one out of the

54

00:04:05,229 --> 00:04:03,230

park tonight with all of you but Isaac

55

00:04:09,569 --> 00:04:05,239

is one of the brightest one of the best

56

00:04:15,280 --> 00:04:09,579

and since the very beginning of his

57

00:04:19,150 --> 00:04:15,290

presentations he had me and Rita has

58

00:04:22,840 --> 00:04:19,160

endured Isaac over the years many many

59

00:04:26,260 --> 00:04:22,850

many nights many repeats I just go back

60

00:04:33,070 --> 00:04:26,270

and I listen to him over and over again

61

00:04:36,129 --> 00:04:33,080

and my favorite way of his his material

62

00:04:38,260 --> 00:04:36,139

is I listen to it in the dark without

63

00:04:41,920 --> 00:04:38,270

the visuals I I've got you know I go

64

00:04:45,010 --> 00:04:41,930

back and I watch him but I really absorb

65

00:04:48,640 --> 00:04:45,020

his stuff when I just listen to it

66

00:04:51,190 --> 00:04:48,650

he is absolutely amazing and just look

67

00:04:52,390 --> 00:04:51,200

forward to this tonight and this is

68

00:04:53,740 --> 00:04:52,400

gonna be one of those shows you're gonna

69

00:04:56,710 --> 00:04:53,750

listen to over and over again we're

70

00:04:59,409 --> 00:04:56,720

gonna have Isaac on again very soon

71

00:05:01,899 --> 00:04:59,419

because there's other subjects that we

72

00:05:05,280 --> 00:05:01,909

need to get into and get into rather

73

00:05:07,580 --> 00:05:05,290

deeply and he is the absolute best

74

00:05:10,620 --> 00:05:07,590

now I am sure that tonight on the show

75

00:05:12,360 --> 00:05:10,630

as you listen to Arthur and I talk and

76
00:05:13,440 --> 00:05:12,370
have our conversation where you're gonna

77
00:05:17,940 --> 00:05:13,450
go ow

78
00:05:21,990 --> 00:05:17,950
that's where Jimmy is getting this oh I

79
00:05:25,380 --> 00:05:22,000
get well yeah okay I listen to Isaac a

80
00:05:30,120 --> 00:05:25,390
lot but the other thing that I enjoy

81
00:05:32,820 --> 00:05:30,130
about Isaac is that the first time that

82
00:05:35,040 --> 00:05:32,830
I listen to them and and if you go back

83
00:05:37,080 --> 00:05:35,050
to fade to black you know you go back

84
00:05:39,960 --> 00:05:37,090
years ago and and the things that I

85
00:05:42,330 --> 00:05:39,970
presented and where my mind was going

86
00:05:44,580 --> 00:05:42,340
you know that's and I was always in

87
00:05:46,260 --> 00:05:44,590
search of right well I found Isaac and

88
00:05:47,610 --> 00:05:46,270

I'm listening to him like listen this

89

00:05:52,230 --> 00:05:47,620

guy gets it

90

00:05:54,120 --> 00:05:52,240

he gets me this is what I enjoy this is

91

00:05:56,250 --> 00:05:54,130

right on this is perfect

92

00:05:59,520 --> 00:05:56,260

well that's what's gonna happen tonight

93

00:06:01,860 --> 00:05:59,530

and I'm really looking forward to this

94

00:06:03,870 --> 00:06:01,870

all right now tomorrow night now talk

95

00:06:06,240 --> 00:06:03,880

about an amazing week here on fader

96

00:06:06,720 --> 00:06:06,250

block tomorrow night another first-time

97

00:06:10,500 --> 00:06:06,730

guest

98

00:06:13,770 --> 00:06:10,510

Carolyn Ford is here that's right the

99

00:06:16,380 --> 00:06:13,780

guardian of Einstein the ancient crystal

100

00:06:18,270 --> 00:06:16,390

skull of consciousness that's right

101
00:06:20,100 --> 00:06:18,280
Carolyn Ford is with us tomorrow so

102
00:06:23,970 --> 00:06:20,110
we're gonna do a full night of crystal

103
00:06:28,430 --> 00:06:23,980
skulls and everybody knows we've got a

104
00:06:33,810 --> 00:06:28,440
lot of crystal skulls and here's Jose

105
00:06:37,650 --> 00:06:33,820
Jose grew up sitting next to Einstein

106
00:06:41,100 --> 00:06:37,660
and I was talking to Carolyn and about

107
00:06:43,170 --> 00:06:41,110
about Jose Jose Jose Jose is you know he

108
00:06:45,570 --> 00:06:43,180
got energized from Einstein us that I

109
00:06:47,580 --> 00:06:45,580
know and that's what we're gonna do

110
00:06:49,980 --> 00:06:47,590
tomorrow night yeah I got all kinds of

111
00:06:51,540 --> 00:06:49,990
little crystal skulls in here and

112
00:06:54,270 --> 00:06:51,550
there's another one right there that

113
00:06:55,440 --> 00:06:54,280

one's real cool and then I got my my

114

00:07:01,040 --> 00:06:55,450

little cruiser dude

115

00:07:05,070 --> 00:07:01,050

a little Cruiser Cruiser and of course

116

00:07:10,890 --> 00:07:05,080

skull vodka skull vodka bottle in the

117

00:07:12,270 --> 00:07:10,900

studio I got the big ones down over over

118

00:07:15,240 --> 00:07:12,280

down on the floor over there I should

119

00:07:18,030 --> 00:07:15,250

bring out the big crystal skull vodka

120

00:07:20,430 --> 00:07:18,040

okay all right so that's where am I at

121

00:07:25,020 --> 00:07:20,440

that's tomorrow night Wednesday night

122

00:07:29,160 --> 00:07:25,030

David Wilcock is back and we are going

123

00:07:33,180 --> 00:07:29,170

to discuss what is ahead for us in 2019

124

00:07:35,130 --> 00:07:33,190

very important show an amazing week that

125

00:07:37,530 --> 00:07:35,140

we've got here and of course Thursday

126

00:07:38,970 --> 00:07:37,540

night is fate or night teresi and eros

127

00:07:41,190 --> 00:07:38,980

is going to be here to buy in frequency

128

00:07:43,740 --> 00:07:41,200

on the airwaves and of course followed

129

00:07:46,290 --> 00:07:43,750

by open lines all night long now don't

130

00:07:47,940 --> 00:07:46,300

forget to head over to Jimmy Trudeau

131

00:07:50,220 --> 00:07:47,950

calm where you can follow like and

132

00:07:52,710 --> 00:07:50,230

subscribe of course there is on stellar

133

00:07:56,010 --> 00:07:52,720

on stellar comm Twitter you can follow

134

00:07:57,930 --> 00:07:56,020

me there at Jay Church radio Facebook

135

00:08:00,300 --> 00:07:57,940

Jimmy Church radio is right over there

136

00:08:02,130 --> 00:08:00,310

and of course YouTube and hello to

137

00:08:06,090 --> 00:08:02,140

everybody out there that happens to be

138

00:08:09,240 --> 00:08:06,100

watching it's kind of weird for me radio

139

00:08:11,940 --> 00:08:09,250

is something that is is a one-on-one

140

00:08:14,130 --> 00:08:11,950

thing you know there was no video right

141

00:08:17,580 --> 00:08:14,140

there was never video and you were able

142

00:08:19,800 --> 00:08:17,590

to as a broadcast as a host you just did

143

00:08:22,640 --> 00:08:19,810

your own thing right your imagination is

144

00:08:25,770 --> 00:08:22,650

going today you know now we've got

145

00:08:28,560 --> 00:08:25,780

cameras in the studio and it's just not

146

00:08:30,660 --> 00:08:28,570

the same thing but there you go

147

00:08:32,339 --> 00:08:30,670

so it's it's like radio and television

148

00:08:36,270 --> 00:08:32,349

so every night I have to wear a clean

149

00:08:40,080 --> 00:08:36,280

shirt I have to shave right I have to

150

00:08:43,080 --> 00:08:40,090

comb my hair but back in the day right

151
00:08:46,530 --> 00:08:43,090
you could just show up wearing shorts

152
00:08:48,540 --> 00:08:46,540
and we're the same ac/dc t-shirt you're

153
00:08:50,310 --> 00:08:48,550
Ozzie blizzard of Ozz t-shirt you can

154
00:08:52,410 --> 00:08:50,320
wear it seven days in a row nobody's

155
00:08:54,930 --> 00:08:52,420
gonna know nobody's gonna know if you've

156
00:08:56,850 --> 00:08:54,940
shaved or not but it's not that kind of

157
00:08:57,960 --> 00:08:56,860
party anymore but hello everybody out

158
00:08:59,790 --> 00:08:57,970
there alright

159
00:09:02,760 --> 00:08:59,800
hashtag you have to be on Twitter is

160
00:09:04,320 --> 00:09:02,770
where we hang out each night and that is

161
00:09:06,030 --> 00:09:04,330
the sandbox and if you have any

162
00:09:07,860 --> 00:09:06,040
questions or comments during tonight's

163
00:09:10,080 --> 00:09:07,870

show or any other show by the way

164

00:09:11,970 --> 00:09:10,090

just use hash tag you have to be cute

165

00:09:15,600 --> 00:09:11,980

tonight with Isaac Arthur you're gonna

166

00:09:18,110 --> 00:09:15,610

have questions and it is absolutely

167

00:09:21,780 --> 00:09:18,120

imperative that you post them up on

168

00:09:23,790 --> 00:09:21,790

hashtag if 2bq on twitter okay and I

169

00:09:26,730 --> 00:09:23,800

will get to them all I always do you can

170

00:09:30,900 --> 00:09:26,740

also email Jimmy at Jimmy Church

171

00:09:31,260 --> 00:09:30,910

radio.com all right I announced a couple

172

00:09:34,590 --> 00:09:31,270

of month

173

00:09:39,330 --> 00:09:34,600

to go now it's about a month ago that

174

00:09:43,830 --> 00:09:39,340

come January first we would have our new

175

00:09:48,630 --> 00:09:43,840

website up now drew drew the geek sent

176
00:09:49,380 --> 00:09:48,640
me this press release today for you this

177
00:09:54,990 --> 00:09:49,390
is Drew

178
00:09:58,020 --> 00:09:55,000
is an official release from Drew the

179
00:10:00,660 --> 00:09:58,030
geek the Jimmy Church radio website is

180
00:10:03,540 --> 00:10:00,670
due for an overhaul and a new look to

181
00:10:05,970 --> 00:10:03,550
that end this week you may find some

182
00:10:07,770 --> 00:10:05,980
small glitches as I work on the cool

183
00:10:10,650 --> 00:10:07,780
geeky stuff on the back end of the

184
00:10:12,810 --> 00:10:10,660
website if all goes well the fader not

185
00:10:15,630 --> 00:10:12,820
should have a new look by the end of

186
00:10:18,510 --> 00:10:15,640
this weekend the new site will have

187
00:10:21,480 --> 00:10:18,520
easier upgrades and signups more

188
00:10:28,530 --> 00:10:21,490

searchable archives faster load times

189

00:10:31,500 --> 00:10:28,540

and on-site HTTP premium chat for the

190

00:10:34,410 --> 00:10:31,510

bunker bacon bar and game changer and

191

00:10:37,500 --> 00:10:34,420

yes we will have a better way to make

192

00:10:40,890 --> 00:10:37,510

sure that game changers get their shirts

193

00:10:45,420 --> 00:10:40,900

and hats and then he follows that up

194

00:10:47,880 --> 00:10:45,430

with and maybe even a special blog by me

195

00:10:52,070 --> 00:10:47,890

to let you know about site updates

196

00:10:59,490 --> 00:10:52,080

changes and things to be aware of signed

197

00:11:01,050 --> 00:10:59,500

drew drew do we have dancing girls you

198

00:11:01,680 --> 00:11:01,060

guys are too quick on Twitter yeah I

199

00:11:06,060 --> 00:11:01,690

know right

200

00:11:08,310 --> 00:11:06,070

alright that's drew says yes drew says

201
00:11:09,990 --> 00:11:08,320
yes alright and this announcement came

202
00:11:11,550 --> 00:11:10,000
out today it was out under the radar

203
00:11:13,230 --> 00:11:11,560
with all the other political stuff

204
00:11:14,730 --> 00:11:13,240
that's going on and I don't do politics

205
00:11:17,430 --> 00:11:14,740
on the show I just don't do it I do the

206
00:11:20,340 --> 00:11:17,440
conspiracy of politics including this

207
00:11:23,270 --> 00:11:20,350
announcement today President Trump is

208
00:11:26,490 --> 00:11:23,280
saying that Washington and Pyongyang

209
00:11:31,410 --> 00:11:26,500
have been in talks over the venue for

210
00:11:36,540 --> 00:11:31,420
his second to second meeting with North

211
00:11:40,530 --> 00:11:36,550
Korean leader Kim fatty fat so there you

212
00:11:43,500 --> 00:11:40,540
go all right come join us for the 2019

213
00:11:44,430 --> 00:11:43,510

conscious life Expo right here in Los

214

00:11:48,150 --> 00:11:44,440

Angeles

215

00:11:50,810 --> 00:11:48,160

he's California at the LAX Hilton and it

216

00:11:53,790 --> 00:11:50,820

goes on from February 22nd through

217

00:11:58,590 --> 00:11:53,800

February 25th I can't believe it it's a

218

00:12:02,420 --> 00:11:58,600

month away such a huge huge fun event

219

00:12:06,000 --> 00:12:02,430

and again last year 10,000 people or

220

00:12:07,920 --> 00:12:06,010

15,000 through the doors over those

221

00:12:11,040 --> 00:12:07,930

three days think about that for a second

222

00:12:12,420 --> 00:12:11,050

its massive it's great and come and hang

223

00:12:13,710 --> 00:12:12,430

out with us because this year we're

224

00:12:16,710 --> 00:12:13,720

gonna be celebrating the 50th

225

00:12:18,930 --> 00:12:16,720

anniversary of Chariots of the Gods with

226

00:12:21,570 --> 00:12:18,940

Erich von däniken I will be hosting the

227

00:12:25,440 --> 00:12:21,580

panel with Eric Linda Moulton Howe Jason

228

00:12:26,160 --> 00:12:25,450

Martel Billy Carson rabbi ariel bar za

229

00:12:29,160 --> 00:12:26,170

dulk

230

00:12:32,190 --> 00:12:29,170

and of course myself and that will be

231

00:12:35,520 --> 00:12:32,200

Friday night and that is the the keynote

232

00:12:36,930 --> 00:12:35,530

panel kick off on Friday evening and

233

00:12:39,000 --> 00:12:36,940

you've got to get your tickets for that

234

00:12:41,580 --> 00:12:39,010

that is a separate event and it will

235

00:12:43,800 --> 00:12:41,590

sell out George Noory nassim haramain

236

00:12:47,190 --> 00:12:43,810

Robert Schoch Danny Brinkley grant

237

00:12:50,070 --> 00:12:47,200

Cameron Julia Moss bridge story and

238

00:12:53,910 --> 00:12:50,080

another 50 speakers will be presenting

239

00:12:56,280 --> 00:12:53,920

at the 2019 conscious live Expo just go

240

00:12:58,440 --> 00:12:56,290

to conscious life Expo com for tickets

241

00:13:02,760 --> 00:12:58,450

and info and a full conference schedule

242

00:13:05,400 --> 00:13:02,770

and on top of that okay on top of that

243

00:13:08,010 --> 00:13:05,410

we have a banner over to maturity Oh

244

00:13:11,660 --> 00:13:08,020

calm click on that it'll take you

245

00:13:13,680 --> 00:13:11,670

straight there okay all right all right

246

00:13:17,450 --> 00:13:13,690

where am I at

247

00:13:21,210 --> 00:13:17,460

Oh Hoffman's optics Hoffman's optics.com

248

00:13:23,400 --> 00:13:21,220

they build my night-vision goggles right

249

00:13:26,520 --> 00:13:23,410

the Jimmy Church model yeah

250

00:13:29,400 --> 00:13:26,530

the deep blues and you can get your very

251
00:13:31,920 --> 00:13:29,410
own Hoffman's optics.com click on the

252
00:13:34,320 --> 00:13:31,930
banner over at Jimmy Church radio.com go

253
00:13:36,780 --> 00:13:34,330
and talk to Alec Hoffman the the best

254
00:13:41,340 --> 00:13:36,790
the best premium night-vision goggles

255
00:13:43,950 --> 00:13:41,350
anywhere on the planet and Alec is gonna

256
00:13:46,140 --> 00:13:43,960
be with us on fade to black on Monday at

257
00:13:47,550 --> 00:13:46,150
the beginning of the show too to talk

258
00:13:49,500 --> 00:13:47,560
about all the new products and what is

259
00:13:52,079 --> 00:13:49,510
going on over there at Hoffman's optics

260
00:13:54,210 --> 00:13:52,089
so don't forget to check that out on

261
00:13:55,829 --> 00:13:54,220
Monday and you can subscribe to our

262
00:13:56,820 --> 00:13:55,839
podcast it's just two dollars a month

263
00:13:59,010 --> 00:13:56,830

click out

264

00:14:02,580 --> 00:13:59,020

Podcast banner over on the website and

265

00:14:04,920 --> 00:14:02,590

also the fader not membership section

266

00:14:06,780 --> 00:14:04,930

become a fader not today and just go

267

00:14:09,030 --> 00:14:06,790

over to Jimmy Church radio calm the new

268

00:14:13,230 --> 00:14:09,040

website we're rolling it out this week

269

00:14:14,760 --> 00:14:13,240

are you excited excited I am it looks

270

00:14:17,310 --> 00:14:14,770

good and don't forget to visit all of

271

00:14:19,340 --> 00:14:17,320

our sponsors here at Jimmy Church radio

272

00:14:23,100 --> 00:14:19,350

comm click on all of their banners

273

00:14:25,860 --> 00:14:23,110

ancient life oil life change T River

274

00:14:27,840 --> 00:14:25,870

moon coffee the absolute best coffee in

275

00:14:32,460 --> 00:14:27,850

the world the best bad you know what I

276

00:14:36,210 --> 00:14:32,470

really I enjoy night vision night

277

00:14:39,300 --> 00:14:36,220

watches sky watches time travel the

278

00:14:40,470 --> 00:14:39,310

universe space all conspiracies and

279

00:14:42,720 --> 00:14:40,480

everything else but you know what I

280

00:14:45,690 --> 00:14:42,730

really enjoy you know what I really

281

00:14:49,050 --> 00:14:45,700

really enjoy I enjoy when I get that

282

00:14:52,140 --> 00:14:49,060

email Church that fade to black blend

283

00:14:53,340 --> 00:14:52,150

you guys are selling you're not hyping

284

00:14:56,760 --> 00:14:53,350

it up enough man

285

00:14:58,620 --> 00:14:56,770

you're not hyping it up enough this is

286

00:14:59,490 --> 00:14:58,630

absolutely the best coffee in the world

287

00:15:02,760 --> 00:14:59,500

thank you

288

00:15:04,560 --> 00:15:02,770

well it really really is it is the best

289

00:15:09,330 --> 00:15:04,570

so go get yourself some today

290

00:15:12,900 --> 00:15:09,340

alright f2b blend is the I think that's

291

00:15:15,420 --> 00:15:12,910

it is that it f to be blend I believe is

292

00:15:17,010 --> 00:15:15,430

what she used the promo code alright 15%

293

00:15:20,280 --> 00:15:17,020

off of your order okay let's get this

294

00:15:24,090 --> 00:15:20,290

show cracking happy birthday - today

295

00:15:26,190 --> 00:15:24,100

Nicolas Cage is 55 years old and now

296

00:15:30,290 --> 00:15:26,200

aside from everything else that Nicolas

297

00:15:32,880 --> 00:15:30,300

is done and Honeymoon in Vegas right

298

00:15:34,980 --> 00:15:32,890

yeah pretty good pretty good

299

00:15:38,910 --> 00:15:34,990

aside from all of that stuff especially

300

00:15:40,440 --> 00:15:38,920

they released his first movie Fast Times

301
00:15:42,060 --> 00:15:40,450
at Ridgemont High and I know you're

302
00:15:45,360 --> 00:15:42,070
gonna go wait a minute he's not in Fast

303
00:15:47,730 --> 00:15:45,370
Times at Ridgemont High yes he is when

304
00:15:50,220 --> 00:15:47,740
they go into all-american burger right

305
00:15:52,560 --> 00:15:50,230
and they shot from the counter and they

306
00:15:56,460 --> 00:15:52,570
and there you can see the cooks in the

307
00:16:01,560 --> 00:15:56,470
back that's Nic Cage and he looks right

308
00:16:04,200 --> 00:16:01,570
at the camera and it's a young Nick Cage

309
00:16:06,210 --> 00:16:04,210
he's a knight he's in two scenes in the

310
00:16:08,780 --> 00:16:06,220
movie but there you go Nicholas Cage

311
00:16:12,380 --> 00:16:08,790
today is 55 years old

312
00:16:14,030 --> 00:16:12,390
and jeremy renner today is 48 The Hurt

313
00:16:16,510 --> 00:16:14,040

Locker and of course he plays Hawkeye in

314

00:16:22,430 --> 00:16:16,520

the Avengers and also one of the greats

315

00:16:26,030 --> 00:16:22,440

Kenny Loggins today is 71 kenny loggins

316

00:16:30,110 --> 00:16:26,040

wow that's incredible 71 years old

317

00:16:33,710 --> 00:16:30,120

on this day in history OTD 1785 it went

318

00:16:37,580 --> 00:16:33,720

down Frenchman Jean Pierre Brossard and

319

00:16:41,690 --> 00:16:37,590

American John Jeffries travel from Dover

320

00:16:45,530 --> 00:16:41,700

England to Calais France in a gas

321

00:16:49,940 --> 00:16:45,540

balloon becoming the first to cross the

322

00:16:54,530 --> 00:16:49,950

English Channel by air that's a big day

323

00:16:56,630 --> 00:16:54,540

and it happened in 1785 Fader fact now

324

00:17:00,080 --> 00:16:56,640

look I whipped these facts out they're

325

00:17:02,050 --> 00:17:00,090

all vetted they're all real okay but but

326

00:17:05,600 --> 00:17:02,060

listen to this alright

327

00:17:10,610 --> 00:17:05,610

the 1980 u.s. hockey team was playing

328

00:17:13,460 --> 00:17:10,620

the USSR in a pre Olympics exhibition it

329

00:17:18,130 --> 00:17:13,470

was revealed that during the game that a

330

00:17:23,390 --> 00:17:18,140

Soviet player had a gun under his jersey

331

00:17:26,630 --> 00:17:23,400

the player air quotes the player was a

332

00:17:32,300 --> 00:17:26,640

KGB agent used to prevent players from

333

00:17:34,760 --> 00:17:32,310

defecting to the West that is your fader

334

00:17:40,480 --> 00:17:34,770

fact and you really need to think about

335

00:17:43,160 --> 00:17:40,490

oh my oh my and I guess it worked

336

00:17:44,420 --> 00:17:43,170

tonight very special guest Issac Arthur

337

00:17:47,450 --> 00:17:44,430

is here I'm really looking forward to

338

00:17:49,250 --> 00:17:47,460

this conversation tonight and he has a

339

00:17:51,980 --> 00:17:49,260

way of presenting technology and

340

00:17:53,810 --> 00:17:51,990

theories and ideas and physics and the

341

00:17:56,510 --> 00:17:53,820

universe in a way that we all can

342

00:17:58,370 --> 00:17:56,520

understand and certainly with with my

343

00:17:59,930 --> 00:17:58,380

brain I've been able to absorb it

344

00:18:01,160 --> 00:17:59,940

tonight get comfortable it's going to be

345

00:18:03,410 --> 00:18:01,170

one of those conversations

346

00:18:05,180 --> 00:18:03,420

tomorrow night Carolyn Ford is here

347

00:18:07,790 --> 00:18:05,190

we're going to talk about Einstein

348

00:18:10,190 --> 00:18:07,800

ancient crystal skull Wednesday night

349

00:18:12,110 --> 00:18:10,200

David Wilcock is good to be here now

350

00:18:14,450 --> 00:18:12,120

we're gonna talk a little bit about 2018

351
00:18:16,190 --> 00:18:14,460
and disclosure what what happened and

352
00:18:19,640 --> 00:18:16,200
what didn't right and then we're gonna

353
00:18:21,350 --> 00:18:19,650
take a look forward ahead into 2019 and

354
00:18:22,620 --> 00:18:21,360
see what what's in store for our

355
00:18:25,680 --> 00:18:22,630
community right to go

356
00:18:27,570 --> 00:18:25,690
the Great Awakening disclosure all of

357
00:18:29,820 --> 00:18:27,580
that on Wednesday night Thursday is

358
00:18:32,400 --> 00:18:29,830
another Fator night with Teresa in Aris

359
00:18:34,380 --> 00:18:32,410
divine frequency on the airwaves open

360
00:18:37,110 --> 00:18:34,390
lines all night long all right let me

361
00:18:48,140 --> 00:18:37,120
hit this coffee talking about Isaac

362
00:18:52,950 --> 00:18:48,150
Arthur the one thing if I've tried to

363
00:18:56,520 --> 00:18:52,960

get one thing into everybody's heads

364

00:19:00,620 --> 00:18:56,530

here on this show is the one thing that

365

00:19:05,390 --> 00:19:00,630

is it just absolutely blows my mind and

366

00:19:08,070 --> 00:19:05,400

that is how far we have come in

367

00:19:11,160 --> 00:19:08,080

understanding our universe in such a

368

00:19:13,980 --> 00:19:11,170

short period of time one of the things

369

00:19:16,950 --> 00:19:13,990

that I I talk about so much is that if

370

00:19:21,150 --> 00:19:16,960

somebody was born in 1890 right live 400

371

00:19:22,700 --> 00:19:21,160

years died in 1990 what the things that

372

00:19:26,610 --> 00:19:22,710

they would have seen in their lifetime

373

00:19:30,210 --> 00:19:26,620

going from you know horses horse and

374

00:19:34,320 --> 00:19:30,220

buggies right all the way through to Van

375

00:19:36,390 --> 00:19:34,330

Halen think about that and all of the

376

00:19:37,310 --> 00:19:36,400

technology that happened in the middle

377

00:19:41,160 --> 00:19:37,320

of all of that

378

00:19:46,560 --> 00:19:41,170

stereos television radio you know cars

379

00:19:51,480 --> 00:19:46,570

jets planes rockets Apollo space travel

380

00:19:54,710 --> 00:19:51,490

right lasers and the internet I mean

381

00:19:58,050 --> 00:19:54,720

it's just nuts it's nuts

382

00:19:59,520 --> 00:19:58,060

and-and-and I appreciate that and when I

383

00:20:01,890 --> 00:19:59,530

look at somebody's date of birth and

384

00:20:07,370 --> 00:20:01,900

when they die just think about what what

385

00:20:22,200 --> 00:20:11,810

it doesn't even eclipse in my opinion

386

00:20:24,600 --> 00:20:22,210

what we have learned since 1995 1995 the

387

00:20:27,860 --> 00:20:24,610

progress that we have made on a

388

00:20:31,410 --> 00:20:27,870

technical level not only with our

389

00:20:33,030 --> 00:20:31,420

civilian lives our consumer lives and

390

00:20:33,720 --> 00:20:33,040

the lives that we live every single day

391

00:20:39,570 --> 00:20:33,730

or

392

00:20:40,200 --> 00:20:39,580

does the advances have been just a leap

393

00:20:42,750 --> 00:20:40,210

frogging

394

00:20:45,240 --> 00:20:42,760

over each other and what we went through

395

00:20:47,010 --> 00:20:45,250

from 1995 to the year 2000 one of the

396

00:20:50,880 --> 00:20:47,020

biggest technical explosions in the

397

00:20:54,150 --> 00:20:50,890

history of all mankind and to go from

398

00:20:57,480 --> 00:20:54,160

tube televisions to flat screens to go

399

00:21:00,030 --> 00:20:57,490

from the Internet of where the internet

400

00:21:02,370 --> 00:21:00,040

was in 1995 to what happened by the year

401
00:21:07,590 --> 00:21:02,380
2000 and everything else

402
00:21:09,860 --> 00:21:07,600
cell phones crazy GPS and I can just go

403
00:21:13,560 --> 00:21:09,870
on and on and on the technological

404
00:21:16,050 --> 00:21:13,570
achievements have been tremendous and

405
00:21:20,910 --> 00:21:16,060
that's around us that's what we know

406
00:21:25,440 --> 00:21:20,920
about it's out there what we know now

407
00:21:28,320 --> 00:21:25,450
about our universe our galaxy dark

408
00:21:32,160 --> 00:21:28,330
energy dark matter the expansion of the

409
00:21:36,480 --> 00:21:32,170
universe right there has been so much

410
00:21:39,300 --> 00:21:36,490
learned that I now can look back at my

411
00:21:42,870 --> 00:21:39,310
own life just like I've looked back at

412
00:21:46,590 --> 00:21:42,880
others and go holy crap I lived through

413
00:21:50,370 --> 00:21:46,600

all of this I've seen it I've seen it

414

00:21:57,150 --> 00:21:50,380

happen and it's incredible to me because

415

00:22:00,060 --> 00:21:57,160

I I can go back and think about how many

416

00:22:09,350 --> 00:22:00,070

planets that we knew about outside of

417

00:22:14,130 --> 00:22:09,360

our solar system in 1995 right 0 to 2 I

418

00:22:18,630 --> 00:22:14,140

think about that today the known planets

419

00:22:22,170 --> 00:22:18,640

is one thing 5,000 4,000 5,000 that

420

00:22:25,770 --> 00:22:22,180

better catalogued another 5,000 that are

421

00:22:28,710 --> 00:22:25,780

registered and ready to go and another

422

00:22:33,900 --> 00:22:28,720

hundred billion in our galaxy hundred

423

00:22:40,080 --> 00:22:33,910

billion 100 billion and I need that

424

00:22:44,070 --> 00:22:40,090

thought that very germ of an idea into

425

00:22:46,440 --> 00:22:44,080

everybody's heads think about that it

426
00:22:47,730 --> 00:22:46,450
doesn't get any more extraordinary more

427
00:22:49,890 --> 00:22:47,740
extreme

428
00:22:53,220 --> 00:22:49,900
you know and when we go back to Galileo

429
00:22:55,620 --> 00:22:53,230
or Copernicus and and their knowledge

430
00:22:57,450 --> 00:22:55,630
and how they were trying to piece this

431
00:22:59,669 --> 00:22:57,460
thing together with the Sun and our

432
00:23:01,680 --> 00:22:59,679
solar system and and they're noticing

433
00:23:04,680 --> 00:23:01,690
things out there and they're trying to

434
00:23:10,130 --> 00:23:04,690
figure it out right that that was big

435
00:23:14,460 --> 00:23:10,140
stuff what we know today blows that just

436
00:23:18,150 --> 00:23:14,470
that's where we are today so now let's

437
00:23:23,669 --> 00:23:18,160
take it to the next step how rare is

438
00:23:26,580 --> 00:23:23,679

life and how rare is it because in our

439

00:23:29,940 --> 00:23:26,590

own lifetime going back just a short

440

00:23:32,910 --> 00:23:29,950

decade or two ago a short decade or two

441

00:23:36,150 --> 00:23:32,920

ago we were questioning things well you

442

00:23:38,280 --> 00:23:36,160

know how how special are we how unique

443

00:23:39,990 --> 00:23:38,290

are we we are we're seeing things in the

444

00:23:42,330 --> 00:23:40,000

skies and we've had visitations and

445

00:23:44,460 --> 00:23:42,340

we've seen things we've got Roswell and

446

00:23:47,010 --> 00:23:44,470

Rendlesham and all these other events

447

00:23:51,000 --> 00:23:47,020

you know Aztec sure right Maury island

448

00:23:52,799 --> 00:23:51,010

we've got these things but how rare is

449

00:23:55,950 --> 00:23:52,809

life and that was the question that

450

00:23:58,919 --> 00:23:55,960

every but now it's not we've moved on

451
00:24:01,710 --> 00:23:58,929
from that because today it's not how

452
00:24:04,530 --> 00:24:01,720
rare is life it says how much of it is

453
00:24:07,919 --> 00:24:04,540
out there how old is it how advanced is

454
00:24:10,080 --> 00:24:07,929
it right how much is there that's the

455
00:24:14,220 --> 00:24:10,090
other side and that's where we are today

456
00:24:16,460 --> 00:24:14,230
it all comes from one thing comes from

457
00:24:22,169 --> 00:24:16,470
one thing our knowledge of the universe

458
00:24:25,680 --> 00:24:22,179
and Edwin Hubble in 1925 there was

459
00:24:30,450 --> 00:24:25,690
nothing the universe was our galaxy by

460
00:24:32,790 --> 00:24:30,460
1929 we found a second galaxy in 2/3 and

461
00:24:35,549 --> 00:24:32,800
started to think oh wait a minute

462
00:24:40,500 --> 00:24:35,559
we are not the univer the universe's oh

463
00:24:42,299 --> 00:24:40,510

oh oh oh to today because of the Hubble

464

00:24:44,940 --> 00:24:42,309

telescope and what we understand what is

465

00:24:49,760 --> 00:24:44,950

really going on with our universe this

466

00:24:53,910 --> 00:24:49,770

is where my mind just goes pull it's

467

00:24:57,270 --> 00:24:53,920

unbelievably huge it's way beyond our

468

00:24:59,400 --> 00:24:57,280

wildest dreams and now today coupled

469

00:25:01,070 --> 00:24:59,410

with everything else that we are

470

00:25:04,790 --> 00:25:01,080

understanding the expansion

471

00:25:06,650 --> 00:25:04,800

of the visible universe why well I'm

472

00:25:10,760 --> 00:25:06,660

going to be talking to Isaac about this

473

00:25:15,080 --> 00:25:10,770

here in a few minutes when now today one

474

00:25:17,900 --> 00:25:15,090

of the things that cosmologists and

475

00:25:22,330 --> 00:25:17,910

physicists are talking about now is the

476
00:25:23,570 --> 00:25:22,340
visible universe why faster than light

477
00:25:25,850 --> 00:25:23,580
now

478
00:25:29,410 --> 00:25:25,860
if the universe on its outer edges is

479
00:25:32,170 --> 00:25:29,420
expanding to the point where these

480
00:25:36,350 --> 00:25:32,180
galaxies and objects on the extreme

481
00:25:39,380 --> 00:25:36,360
edges of our visible universe are now

482
00:25:42,070 --> 00:25:39,390
surpassing the speed of light then once

483
00:25:43,910 --> 00:25:42,080
they go they are now ahead of light

484
00:25:46,760 --> 00:25:43,920
can't see him anymore

485
00:25:48,500 --> 00:25:46,770
they're still there but it's now

486
00:25:53,440 --> 00:25:48,510
traveling faster than the speed of light

487
00:25:58,160 --> 00:25:53,450
so our universe is only what we can see

488
00:26:00,710 --> 00:25:58,170

even theoretically see so think about

489

00:26:05,660 --> 00:26:00,720

that and that's where we are today Isaac

490

00:26:08,420 --> 00:26:05,670

Arthur presents in his video series not

491

00:26:12,170 --> 00:26:08,430

only all of these the physics side of

492

00:26:14,690 --> 00:26:12,180

this and the cosmology side of this but

493

00:26:18,730 --> 00:26:14,700

the theoretical side and tying all of

494

00:26:22,730 --> 00:26:18,740

that into the et or alien contact

495

00:26:25,610 --> 00:26:22,740

question and the the Fermi paradox and

496

00:26:27,410 --> 00:26:25,620

if life is out there what's the status

497

00:26:29,870 --> 00:26:27,420

of it not only visiting us

498

00:26:33,070 --> 00:26:29,880

but populating other celestial bodies

499

00:26:35,840 --> 00:26:33,080

and discovering other galaxies and in

500

00:26:38,000 --> 00:26:35,850

interstellar travel and how they would

501
00:26:39,770 --> 00:26:38,010
do it what these ships are like what the

502
00:26:43,430 --> 00:26:39,780
propulsion systems are like are they at

503
00:26:46,370 --> 00:26:43,440
war are they trading right and are they

504
00:26:48,800 --> 00:26:46,380
visiting here think about that for a

505
00:26:51,080 --> 00:26:48,810
second and when you have somebody on the

506
00:26:53,840 --> 00:26:51,090
show tonight like Isaac it goes back to

507
00:26:58,310 --> 00:26:53,850
the very fabric of what the show was

508
00:27:01,130 --> 00:26:58,320
about which is science and this show and

509
00:27:03,710 --> 00:27:01,140
our community are starting to cross

510
00:27:08,840 --> 00:27:03,720
we're starting to understand each other

511
00:27:12,320 --> 00:27:08,850
and the the conversation of not only et

512
00:27:14,720 --> 00:27:12,330
in the UFOs but mainstream and science

513
00:27:17,330 --> 00:27:14,730

is what is going on all over this

514

00:27:19,490 --> 00:27:17,340

planet and this this question of

515

00:27:21,470 --> 00:27:19,500

disclosure which will be talking to

516

00:27:23,990 --> 00:27:21,480

Isaak about this in a few minutes this

517

00:27:27,289 --> 00:27:24,000

question of disclosure is getting closer

518

00:27:30,799 --> 00:27:27,299

and closer and closer just a few years

519

00:27:32,539 --> 00:27:30,809

ago it seemed unachievable it didn't

520

00:27:37,789 --> 00:27:32,549

seem like we were going to get there

521

00:27:40,220 --> 00:27:37,799

today everybody is talking about it it's

522

00:27:43,220 --> 00:27:40,230

the best part of what I do it's the best

523

00:27:45,560 --> 00:27:43,230

part when I'm gonna get out of here so I

524

00:27:49,039 --> 00:27:45,570

can get Arthur on here but his past

525

00:27:51,260 --> 00:27:49,049

weekend over on coast to coast

526

00:27:55,490 --> 00:27:51,270

I had Tyler Glockner on the show from

527

00:27:58,250 --> 00:27:55,500

secure team and in Chad Cale ik and both

528

00:28:02,030 --> 00:27:58,260

of those guests and if you think about

529

00:28:04,430 --> 00:28:02,040

this Tyler's YouTube channel you know 2

530

00:28:07,789 --> 00:28:04,440

million subscribers it's just past it

531

00:28:10,909 --> 00:28:07,799

right Chad callek who not only has been

532

00:28:12,980 --> 00:28:10,919

a director of documentaries but also

533

00:28:15,740 --> 00:28:12,990

director and producer of television

534

00:28:19,100 --> 00:28:15,750

programming on the subject of the

535

00:28:22,039 --> 00:28:19,110

paranormal is now visiting the UFO

536

00:28:24,409 --> 00:28:22,049

subject too as well and this is a global

537

00:28:26,570 --> 00:28:24,419

audience this is a huge thing and it was

538

00:28:29,450 --> 00:28:26,580

an easy show to do and it was a show

539

00:28:31,789 --> 00:28:29,460

that the coast audience that is reaching

540

00:28:34,430 --> 00:28:31,799

back to me is like this is exactly where

541

00:28:36,919 --> 00:28:34,440

we are at this is exactly it you know

542

00:28:38,900 --> 00:28:36,929

art would have been proud and think

543

00:28:41,330 --> 00:28:38,910

about that all right so that's the show

544

00:28:44,450 --> 00:28:41,340

tonight that's where I'm at if we can

545

00:28:47,120 --> 00:28:44,460

just understand one thing is how much we

546

00:28:48,740 --> 00:28:47,130

have learned in the last 20 years it's

547

00:28:50,960 --> 00:28:48,750

been an incredible ride

548

00:28:53,090 --> 00:28:50,970

this is fade to black I am your host

549

00:28:55,690 --> 00:28:53,100

Jimmy Church our guest tonight Isaac

550

00:28:59,299 --> 00:28:55,700

Arthur tomorrow night Carolyn Ford

551
00:29:00,890 --> 00:28:59,309
Wednesday night David Wilcock Thursday

552
00:29:03,770 --> 00:29:00,900
night's Fator night with Theresa Ian

553
00:29:05,210 --> 00:29:03,780
Aris followed by open lines all night

554
00:29:08,419 --> 00:29:05,220
long I'm your host Jimmy church follow

555
00:29:11,470 --> 00:29:08,429
me on Twitter at J Church radio we're on

556
00:29:13,820 --> 00:29:11,480
the game changer network and Katie RA

557
00:29:15,230 --> 00:29:13,830
the planet I'll be right back stay with

558
00:29:47,880 --> 00:29:15,240
us

559
00:29:52,450 --> 00:29:50,380
this is Nicole Church daughter of

560
00:29:54,430 --> 00:29:52,460
you-know-who and you're listening to

561
00:29:59,650 --> 00:29:54,440
fade to black on Jimmy Church radio.com

562
00:30:04,920 --> 00:29:59,660
and the GameChanger Network you're

563
00:30:12,390 --> 00:30:07,700

[Music]

564

00:30:21,940 --> 00:30:19,750

are a radio when you take the beans from

565

00:30:24,520 --> 00:30:21,950

Central America with dashes of

566

00:30:26,890 --> 00:30:24,530

indonesian and african mixed in and then

567

00:30:29,770 --> 00:30:26,900

roast it to the dark side of fade to

568

00:30:32,919 --> 00:30:29,780

black you create the ultimate brew of

569

00:30:36,669 --> 00:30:32,929

Fringe introducing the fade to black

570

00:30:39,280 --> 00:30:36,679

blend from River moon coffee yes River

571

00:30:42,280 --> 00:30:39,290

moons darkest customized roast was

572

00:30:45,280 --> 00:30:42,290

created for the love of fade to black

573

00:30:47,950 --> 00:30:45,290

the alchemy of masterful roasting and

574

00:30:51,520 --> 00:30:47,960

smoking the beans is in every sip of

575

00:30:54,520 --> 00:30:51,530

this full-bodied dark Java I need my

576

00:30:56,380 --> 00:30:54,530

coffee dog deep with distinct

577

00:30:59,560 --> 00:30:56,390

bittersweet chocolate highlights just

578

00:31:01,990 --> 00:30:59,570

like the bunker leaning further into the

579

00:31:05,290 --> 00:31:02,000

darkness of the roast is fade to black

580

00:31:06,940 --> 00:31:05,300

blend from river moon coffee just click

581

00:31:10,240 --> 00:31:06,950

on the banner at Jimmy Church radio.com

582

00:31:15,570 --> 00:31:10,250

and use the promo code F to B blend for

583

00:31:17,830 --> 00:31:15,580

15% off of your order today gobekli tepe

584

00:31:21,340 --> 00:31:17,840

this is Jimmy Church of fade to black

585

00:31:23,650 --> 00:31:21,350

and you can get our podcast for just \$2

586

00:31:26,169 --> 00:31:23,660

per month all you have to do is click on

587

00:31:27,520 --> 00:31:26,179

the podcast banner over at Jimmy Church

588

00:31:29,860 --> 00:31:27,530

radio.com

589

00:31:31,780 --> 00:31:29,870

hey folks guess what the number one

590

00:31:34,930 --> 00:31:31,790

phrase that life changed t receipts by

591

00:31:38,049 --> 00:31:34,940

email you ready we love this T we love

592

00:31:40,990 --> 00:31:38,059

this T time after time week after week

593

00:31:41,770 --> 00:31:41,000

we love this t life change t gives you

594

00:31:44,890 --> 00:31:41,780

more energy

595

00:31:47,530 --> 00:31:44,900

a beautiful cleansing and fulfills its

596

00:31:49,330 --> 00:31:47,540

slogan perfectly that t that makes you

597

00:31:52,180 --> 00:31:49,340

go so if you want to be on your health

598

00:31:54,760 --> 00:31:52,190

game log on to get the t calm and order

599

00:31:57,370 --> 00:31:54,770

life change super strength t packages

600

00:31:59,650 --> 00:31:57,380

come in a one month supply and when you

601
00:32:00,220 --> 00:31:59,660
brew this stuff wait until you see the

602
00:32:00,840 --> 00:32:00,230
results

603
00:32:02,970 --> 00:32:00,850
our

604
00:32:05,370 --> 00:32:02,980
all about the results and with a lot of

605
00:32:07,170 --> 00:32:05,380
people's health struggling we can use a

606
00:32:11,160 --> 00:32:07,180
little bit of help doctors will tell you

607
00:32:14,430 --> 00:32:11,170
disease starts in the gut so log on to

608
00:32:18,030 --> 00:32:14,440
get the t.com that's get the t-dot-com

609
00:32:22,080 --> 00:32:18,040
be our next email saying I love this tea

610
00:32:25,440 --> 00:32:22,090
I mean I love this tea get the tea I get

611
00:32:26,070 --> 00:32:25,450
the t.com help in America one tea bag at

612
00:32:32,190 --> 00:32:26,080
a time

613
00:32:37,440 --> 00:32:32,200

9 out of 10 geneticists agreed failed do

614

00:32:41,010 --> 00:32:37,450

black is not your father's radio show on

615

00:32:44,430 --> 00:32:41,020

the game changer of Radio Network and K

616

00:32:45,870 --> 00:32:44,440

GRA the planet

617

00:32:48,299 --> 00:32:45,880

[Music]

618

00:32:50,940 --> 00:32:48,309

do you want to lose weight but have no

619

00:32:53,070 --> 00:32:50,950

idea where to begin the fast start diet

620

00:32:53,669 --> 00:32:53,080

a three-day weight loss plan is the

621

00:32:56,010 --> 00:32:53,679

answer

622

00:32:58,350 --> 00:32:56,020

three days of nutritionally balanced

623

00:33:01,260 --> 00:32:58,360

calorie restricted meals delivered right

624

00:33:03,840 --> 00:33:01,270

to your door no shopping no measuring

625

00:33:06,390 --> 00:33:03,850

and no cooking everything is prepared

626
00:33:06,720 --> 00:33:06,400
for you and ready to eat at home or on

627
00:33:09,299 --> 00:33:06,730
the go

628
00:33:11,460 --> 00:33:09,309
the fast start diet has all the amazing

629
00:33:13,860 --> 00:33:11,470
benefits of intermittent fasting without

630
00:33:15,720 --> 00:33:13,870
starving we've helped thousands of

631
00:33:17,940 --> 00:33:15,730
people who have struggled to reach their

632
00:33:20,520 --> 00:33:17,950
weight loss goals isn't it time we

633
00:33:23,460 --> 00:33:20,530
helped you with a fast start diet you'll

634
00:33:25,919 --> 00:33:23,470
lose weight and feel great fine fast

635
00:33:28,919 --> 00:33:25,929
start diet on Amazon or go to fast start

636
00:33:31,620 --> 00:33:28,929
diet calm and use promo code talk to get

637
00:33:33,930 --> 00:33:31,630
10% off your first box and as a special

638
00:33:36,270 --> 00:33:33,940

bonus fast start will include their

639

00:33:38,460 --> 00:33:36,280

number one rated lipo 3 appetite

640

00:33:40,860 --> 00:33:38,470

suppressant spray free with your order

641

00:33:44,039 --> 00:33:40,870

this is Jimmy Church and whatever your

642

00:34:12,099 --> 00:33:44,049

diet plans are do what I did go to fast

643

00:34:18,729 --> 00:34:15,180

all right welcome back fade to black

644

00:34:19,509 --> 00:34:18,739

tonight Isaac Arthur is here tomorrow

645

00:34:23,259 --> 00:34:19,519

night

646

00:34:26,499 --> 00:34:23,269

Carolyn Ford Einstein ancient crystal

647

00:34:28,690 --> 00:34:26,509

skull Wednesday night David Wilcock he

648

00:34:30,519 --> 00:34:28,700

is back Thursday night's Fator night

649

00:34:33,309 --> 00:34:30,529

teresi and eros of course is going to be

650

00:34:36,579 --> 00:34:33,319

here followed by open lines all night

651
00:34:40,059 --> 00:34:36,589
long tonight it's all about Isaac Isaac

652
00:34:42,159 --> 00:34:40,069
Arthur he's the host of science and

653
00:34:45,039 --> 00:34:42,169
futurism with Isaac Arthur on YouTube

654
00:34:47,739 --> 00:34:45,049
it's got over 300,000 subscribers right

655
00:34:49,710 --> 00:34:47,749
now probably more than that and nearly

656
00:34:52,419 --> 00:34:49,720
200 episodes covering topics like

657
00:34:54,669 --> 00:34:52,429
colonizing the solar system interstellar

658
00:34:55,950 --> 00:34:54,679
travel the Fermi paradox artificial

659
00:34:58,660 --> 00:34:55,960
intelligence and other topics

660
00:35:00,309 --> 00:34:58,670
representing possible future paths and

661
00:35:02,589 --> 00:35:00,319
challenges for Humanity

662
00:35:05,200 --> 00:35:02,599
Isaac received his degree in physics

663
00:35:07,630 --> 00:35:05,210

from Kent State University graduating

664

00:35:09,519 --> 00:35:07,640

top of his class at the age of 20 and

665

00:35:11,440 --> 00:35:09,529

remained there for graduate studies

666

00:35:13,720 --> 00:35:11,450

before joining the US Army and serving

667

00:35:15,970 --> 00:35:13,730

in Iraq he also worked as a civilian

668

00:35:18,549 --> 00:35:15,980

researcher at the Air Force Institute of

669

00:35:20,950 --> 00:35:18,559

Technology in Dayton Ohio after the

670

00:35:23,440 --> 00:35:20,960

military he returned to his home and

671

00:35:26,289 --> 00:35:23,450

serves as the chairman of the board of

672

00:35:28,599 --> 00:35:26,299

elections for his area when he's not

673

00:35:30,970 --> 00:35:28,609

working on his channel and of course his

674

00:35:32,829 --> 00:35:30,980

website is Isaac Arthur dotnet the links

675

00:35:34,420 --> 00:35:32,839

are over at Jimmy Church radio.com I

676

00:35:36,039 --> 00:35:34,430

would like to welcome for the first time

677

00:35:39,039 --> 00:35:36,049

to fade to black Isaac Arthur

678

00:35:40,569 --> 00:35:39,049

Isaac good evening how are you doing

679

00:35:42,910 --> 00:35:40,579

great Jimmy thanks for having me on oh

680

00:35:45,039 --> 00:35:42,920

it's it's been a long time coming but

681

00:35:45,549 --> 00:35:45,049

we've got you here and before we get

682

00:35:48,069 --> 00:35:45,559

started

683

00:35:51,519 --> 00:35:48,079

Isaac you get the first-time guests

684

00:35:53,380 --> 00:35:51,529

disclaimer yeah you ready for it what's

685

00:35:57,339 --> 00:35:53,390

that yeah the first time guest

686

00:35:59,200 --> 00:35:57,349

disclaimer which is this issac is just

687

00:36:01,359 --> 00:35:59,210

you and I sitting on my couch having a

688

00:36:03,009 --> 00:36:01,369

conversation as friends and where the

689

00:36:05,109 --> 00:36:03,019

conversation starts it starts and where

690

00:36:07,720 --> 00:36:05,119

it ends it ends but we're gonna end his

691

00:36:10,989 --> 00:36:07,730

friends see simple you ready

692

00:36:15,039 --> 00:36:10,999

sounds great let's go let's do it you

693

00:36:17,289 --> 00:36:15,049

know okay I actually want to start here

694

00:36:19,089 --> 00:36:17,299

and if I can catch you off guard if I'm

695

00:36:22,410 --> 00:36:19,099

gonna do it anywhere it might be right

696

00:36:24,999 --> 00:36:22,420

now which is which is this you've got

697

00:36:25,850 --> 00:36:25,009

fantastic writing you've got a great

698

00:36:29,240 --> 00:36:25,860

team behind

699

00:36:32,660 --> 00:36:29,250

you their presentations are awesome and

700

00:36:34,730 --> 00:36:32,670

all of that and okay and we're gonna be

701
00:36:39,080 --> 00:36:34,740
discussing that tonight but what about

702
00:36:42,020 --> 00:36:39,090
you you talk about et & Aliens so much

703
00:36:44,860 --> 00:36:42,030
and present this information but have

704
00:36:48,170 --> 00:36:44,870
you seen something strange in the sky

705
00:36:49,940 --> 00:36:48,180
um well actually yeah but every case

706
00:36:51,650 --> 00:36:49,950
I've had it happen with me poorly and

707
00:36:54,410 --> 00:36:51,660
again I can only speak to my own you

708
00:36:55,550 --> 00:36:54,420
know what I post a scene I've been there

709
00:36:57,140 --> 00:36:55,560
for a couple of times but someone has

710
00:36:59,180 --> 00:36:57,150
seen something but it was always one of

711
00:37:00,830 --> 00:36:59,190
those cases away or I don't think that's

712
00:37:03,800 --> 00:37:00,840
what you think it is because you know

713
00:37:05,900 --> 00:37:03,810

it's got navigation lights on it right I

714

00:37:07,460 --> 00:37:05,910

live near enough airports but sometimes

715

00:37:09,740 --> 00:37:07,470

folks would be surprised they see 120

716

00:37:11,210 --> 00:37:09,750

overhead and say that can't be you know

717

00:37:13,310 --> 00:37:11,220

that can't be a normal aircraft it's

718

00:37:15,370 --> 00:37:13,320

it's towing too fast say that's a Cessna

719

00:37:17,630 --> 00:37:15,380

doing a normal landing man mm-hmm but

720

00:37:20,900 --> 00:37:17,640

you know we've all been exposed a lot of

721

00:37:23,540 --> 00:37:20,910

weird events and you know you can't say

722

00:37:26,720 --> 00:37:23,550

for sure what they wore sometimes you

723

00:37:28,940 --> 00:37:26,730

can but I think it gives us all you know

724

00:37:30,740 --> 00:37:28,950

life's a long strange thing it'd be a

725

00:37:33,590 --> 00:37:30,750

boring life you never collected anything

726

00:37:34,910 --> 00:37:33,600

that was out of the ordinary and we just

727

00:37:36,800 --> 00:37:34,920

try to figure out what that is you know

728

00:37:39,350 --> 00:37:36,810

that's that's fundamentally the human

729

00:37:43,220 --> 00:37:39,360

condition find weird things figure out

730

00:37:45,470 --> 00:37:43,230

what they mean my night you know the

731

00:37:48,320 --> 00:37:45,480

invitation is open but one night you

732

00:37:51,230 --> 00:37:48,330

should come out and hang out with us

733

00:37:53,720 --> 00:37:51,240

with our night vision and we'll have a

734

00:37:57,080 --> 00:37:53,730

couple of hundred people there and and

735

00:38:00,530 --> 00:37:57,090

just watch and when you see things in

736

00:38:02,180 --> 00:38:00,540

the sky now look obviously you're gonna

737

00:38:03,760 --> 00:38:02,190

see a lot of satellites you're gonna see

738

00:38:06,920 --> 00:38:03,770

a lot of things that are completely

739

00:38:08,870 --> 00:38:06,930

terrestrial man-made and explainable but

740

00:38:12,800 --> 00:38:08,880

then there's the other stuff right

741

00:38:13,850 --> 00:38:12,810

that's like wait a minute here what is

742

00:38:16,790 --> 00:38:13,860

that

743

00:38:20,690 --> 00:38:16,800

and it's an epiphany when it happens and

744

00:38:23,030 --> 00:38:20,700

I think that for you for what you do it

745

00:38:24,740 --> 00:38:23,040

would answer a lot of questions for you

746

00:38:27,020 --> 00:38:24,750

and then open up the other doors that

747

00:38:29,840 --> 00:38:27,030

maybe you don't want to open or would

748

00:38:32,180 --> 00:38:29,850

you be ready for an epiphany like that

749

00:38:34,100 --> 00:38:32,190

I'd like to think so but you never know

750

00:38:35,690 --> 00:38:34,110

on these things but I say with I never

751

00:38:36,650 --> 00:38:35,700

like to count myself as a skeptic just

752

00:38:39,040 --> 00:38:36,660

because so many people who call

753

00:38:41,230 --> 00:38:39,050

themselves skeptics these days all

754

00:38:43,090 --> 00:38:41,240

really just cynics in disguise but you

755

00:38:44,920 --> 00:38:43,100

always approach everything with doubt

756

00:38:47,080 --> 00:38:44,930

and they try to reason your way through

757

00:38:48,820 --> 00:38:47,090

it and that includes mean having to

758

00:38:50,560 --> 00:38:48,830

reassess what you've used all if it

759

00:38:53,020 --> 00:38:50,570

turns out that you're wrong and it could

760

00:38:54,580 --> 00:38:53,030

be possible you know that's that science

761

00:38:58,150 --> 00:38:54,590

for you we've had a change of use quite

762

00:38:59,470 --> 00:38:58,160

a few times over the centuries and you

763

00:39:01,240 --> 00:38:59,480

know then again eyewitness observations

764

00:39:02,650 --> 00:39:01,250

you know it's it's one of those things

765

00:39:04,180 --> 00:39:02,660

where you can't always trust your own

766

00:39:05,380 --> 00:39:04,190

eyes either sometimes you'll see

767

00:39:07,000 --> 00:39:05,390

something you'll be sure that's exactly

768

00:39:08,920 --> 00:39:07,010

what is then when you take it apart

769

00:39:10,450 --> 00:39:08,930

afterwards you find out that you will

770

00:39:12,310 --> 00:39:10,460

tricking yourself to so you don't know

771

00:39:13,960 --> 00:39:12,320

you need to go out they'll see it and

772

00:39:17,590 --> 00:39:13,970

document and reason your way through it

773

00:39:19,510 --> 00:39:17,600

right right and as a as a physicist or I

774

00:39:22,360 --> 00:39:19,520

don't know if you classify yourself as

775

00:39:24,040 --> 00:39:22,370

physicist you've discussed this before

776

00:39:27,370 --> 00:39:24,050

but certainly you've got your degree I

777

00:39:31,210 --> 00:39:27,380

want you to imagine this for a second

778

00:39:34,690 --> 00:39:31,220

I'm going to be very brief but I'm

779

00:39:37,360 --> 00:39:34,700

standing with 200 people on the edge of

780

00:39:42,450 --> 00:39:37,370

a cliff right at night in the desert and

781

00:39:45,250 --> 00:39:42,460

off to my left about a mile away maybe

782

00:39:47,710 --> 00:39:45,260

500 feet off of the ground maybe a

783

00:39:52,420 --> 00:39:47,720

thousand feet about a mile away

784

00:39:54,190 --> 00:39:52,430

is a giant green glowing ball and it's

785

00:39:56,980 --> 00:39:54,200

traveling at a pretty good clip and it

786

00:40:00,580 --> 00:39:56,990

comes out from the side of this mountain

787

00:40:03,250 --> 00:40:00,590

now everything is on videotape the

788

00:40:05,350 --> 00:40:03,260

Canadian CBC they are there document

789

00:40:07,990 --> 00:40:05,360

shooting a documentary so there was

790

00:40:09,610 --> 00:40:08,000

multiple cameras there many people there

791

00:40:11,610 --> 00:40:09,620

as a witness but this is what happens

792

00:40:14,830 --> 00:40:11,620

Isaac now wrap your mind around this

793

00:40:19,030 --> 00:40:14,840

over a five minute period this thing

794

00:40:22,270 --> 00:40:19,040

shoots across the desert floor right and

795

00:40:24,670 --> 00:40:22,280

then slowly starts to ascend and it

796

00:40:26,770 --> 00:40:24,680

starts to take off I'm tracking it I've

797

00:40:31,600 --> 00:40:26,780

got night vision you can see it clearly

798

00:40:34,840 --> 00:40:31,610

with the naked eye and I can see it

799

00:40:36,910 --> 00:40:34,850

reflecting it looks like a green chrome

800

00:40:39,190 --> 00:40:36,920

Christmas ornament that's what it looks

801
00:40:41,740 --> 00:40:39,200
like right and it's reflecting and the

802
00:40:44,170 --> 00:40:41,750
lasers are bouncing off of it and it

803
00:40:47,620 --> 00:40:44,180
starts to ascend and over a five minute

804
00:40:51,800 --> 00:40:47,630
period it goes straight up from the from

805
00:40:56,110 --> 00:40:51,810
the ground straight up and turns into

806
00:40:59,570 --> 00:40:56,120
a star stops straight up above us and

807
00:41:03,470 --> 00:40:59,580
sits there and then now it's just a star

808
00:41:06,200 --> 00:41:03,480
in the sky and then 90-degree angle

809
00:41:09,590 --> 00:41:06,210
shoots off to the left and disappears

810
00:41:10,100 --> 00:41:09,600
into space now when I tell you something

811
00:41:13,310 --> 00:41:10,110
like that

812
00:41:15,290 --> 00:41:13,320
that's about as Fantasma chol as it gets

813
00:41:18,950 --> 00:41:15,300

right it's like wait a minute hold on

814

00:41:22,070 --> 00:41:18,960

but it happened and I can't explain that

815

00:41:25,130 --> 00:41:22,080

I do not know what I saw I'm not saying

816

00:41:27,350 --> 00:41:25,140

ET I'm just describing you the event

817

00:41:29,930 --> 00:41:27,360

with the other 200 people that were

818

00:41:32,360 --> 00:41:29,940

there witnessing it now as if as

819

00:41:35,570 --> 00:41:32,370

somebody that's trained in physics what

820

00:41:37,190 --> 00:41:35,580

do you think I saw well that's I mean

821

00:41:39,110 --> 00:41:37,200

again without actually seeing it and

822

00:41:40,490 --> 00:41:39,120

this is one of the things the eyeball

823

00:41:42,650 --> 00:41:40,500

was not a great measurement device

824

00:41:44,240 --> 00:41:42,660

something can look stationary at a great

825

00:41:46,190 --> 00:41:44,250

distance when it's actually just kind of

826

00:41:48,860 --> 00:41:46,200

finishing out it's all can starting to

827

00:41:50,270 --> 00:41:48,870

fall back down again you need to get out

828

00:41:52,910 --> 00:41:50,280

there what instruments we can actually

829

00:41:53,720 --> 00:41:52,920

measure very precisely houses moving how

830

00:41:56,120 --> 00:41:53,730

far away is it

831

00:41:57,680 --> 00:41:56,130

you know jangling in sexual position so

832

00:41:58,970 --> 00:41:57,690

you know for sure is this stationary oh

833

00:42:01,100 --> 00:41:58,980

it's just moving slowly in different

834

00:42:03,200 --> 00:42:01,110

direction and then for instance if we

835

00:42:05,090 --> 00:42:03,210

looked at and we said right here we can

836

00:42:07,850 --> 00:42:05,100

say beyond a doubt that this accelerated

837

00:42:09,260 --> 00:42:07,860

at 100 G is for moments then we say

838

00:42:11,360 --> 00:42:09,270

there's nobody on board that it's an

839

00:42:13,790 --> 00:42:11,370

unmanned whatever it is is unmanned but

840

00:42:15,920 --> 00:42:13,800

maybe not human at least um right and

841

00:42:18,230 --> 00:42:15,930

then we could say well that's not a man

842

00:42:19,760 --> 00:42:18,240

vessel so assuming for the moment that

843

00:42:23,060 --> 00:42:19,770

it's something we made maybe it's a

844

00:42:24,650 --> 00:42:23,070

drone maybe it's a missile and of course

845

00:42:26,480 --> 00:42:24,660

the inevitable problem with a lot of the

846

00:42:27,980 --> 00:42:26,490

military hardware that secret is that

847

00:42:30,470 --> 00:42:27,990

it's it's secret because his military

848

00:42:32,390 --> 00:42:30,480

hold whale we'd expected to do Bo things

849

00:42:35,360 --> 00:42:32,400

because there wasn't they wouldn't feel

850

00:42:38,120 --> 00:42:35,370

that obliged to keep its secrets so what

851
00:42:39,260 --> 00:42:38,130
was something like that could be yeah I

852
00:42:40,640 --> 00:42:39,270
can throw out all your number of

853
00:42:41,960 --> 00:42:40,650
thoughts about what it could be but it's

854
00:42:45,320 --> 00:42:41,970
gonna be the same ones everyone else is

855
00:42:47,960 --> 00:42:45,330
probably come up with um and I would say

856
00:42:49,640 --> 00:42:47,970
you know that's not something I can

857
00:42:51,230 --> 00:42:49,650
really offer when he knew inside into

858
00:42:53,780 --> 00:42:51,240
you know if you study it you get the

859
00:42:55,460 --> 00:42:53,790
exact song its structure ease its speeds

860
00:42:57,050 --> 00:42:55,470
and I mean the real exact not the

861
00:43:00,590 --> 00:42:57,060
eyeball estimates people make where they

862
00:43:01,970 --> 00:43:00,600
say I think that's toning too fast then

863
00:43:03,410 --> 00:43:01,980

you can actually start to say what it

864

00:43:04,819 --> 00:43:03,420

can and can't be into his

865

00:43:06,440 --> 00:43:04,829

characteristics

866

00:43:08,599 --> 00:43:06,450

and we can move some stuff out from that

867

00:43:10,400 --> 00:43:08,609

like I was saying if it's going too fast

868

00:43:13,160 --> 00:43:10,410

on its acceleration we know it's not

869

00:43:15,469 --> 00:43:13,170

manned or someone's come up with some

870

00:43:17,029 --> 00:43:15,479

really cool way to avoid acceleration

871

00:43:20,660 --> 00:43:17,039

damage on people which would be great

872

00:43:22,789 --> 00:43:20,670

and the implications of what it is all

873

00:43:24,140 --> 00:43:22,799

different you know I can't speak to the

874

00:43:26,209 --> 00:43:24,150

engineering and stuff like that I'm not

875

00:43:27,680 --> 00:43:26,219

an aerospace engineer but if you

876

00:43:29,749 --> 00:43:27,690

suddenly had a technology that allows

877

00:43:33,140 --> 00:43:29,759

you to accelerate a hundred G's with a

878

00:43:35,509 --> 00:43:33,150

person that has huge impact on things

879

00:43:38,329 --> 00:43:35,519

like military's hard way of course but

880

00:43:40,609 --> 00:43:38,339

also on spaceflight since a lot of the

881

00:43:42,410 --> 00:43:40,619

devices we'd like to use to do space

882

00:43:44,509 --> 00:43:42,420

travel with would tend to involve very

883

00:43:46,819 --> 00:43:44,519

high acceleration rates and we'll all

884

00:43:49,670 --> 00:43:46,829

constrained by not wine to celebrate you

885

00:43:55,729 --> 00:43:49,680

fast in many occasions now I wanted to

886

00:43:58,489 --> 00:43:55,739

ask you this is there you discuss

887

00:44:01,430 --> 00:43:58,499

faster-than-light quite a bit and what I

888

00:44:05,359 --> 00:44:01,440

find fascinating with the conversations

889

00:44:10,099 --> 00:44:05,369

of of FTL these days is that it is now

890

00:44:12,380 --> 00:44:10,109

part of the conversation where it used

891

00:44:14,900 --> 00:44:12,390

to be the speed of light is it nothing

892

00:44:18,680 --> 00:44:14,910

can go faster that you know that is

893

00:44:21,829 --> 00:44:18,690

there anything in mind Stein's special

894

00:44:24,939 --> 00:44:21,839

relativity that said that nothing could

895

00:44:26,989 --> 00:44:24,949

travel faster than the speed of light um

896

00:44:28,670 --> 00:44:26,999

that's kind of depends on how you look

897

00:44:30,229 --> 00:44:28,680

at it if you take something like you be

898

00:44:31,999 --> 00:44:30,239

a warp drive for instance we would

899

00:44:34,579 --> 00:44:32,009

usually say that's fast and light but

900

00:44:37,249 --> 00:44:34,589

technically it's not it's going to move

901
00:44:38,779 --> 00:44:37,259
you from point A to point B faster but

902
00:44:40,789 --> 00:44:38,789
it's actually doing that by cutting down

903
00:44:43,400 --> 00:44:40,799
the space in between the points so it's

904
00:44:45,559 --> 00:44:43,410
not exceeding light speed same something

905
00:44:47,209 --> 00:44:45,569
like a wormhole jumping into hyperspace

906
00:44:49,489 --> 00:44:47,219
if that exists those or getting around

907
00:44:52,069 --> 00:44:49,499
it we don't think there was any way to

908
00:44:54,349 --> 00:44:52,079
actually move any sort of classic way

909
00:44:56,930 --> 00:44:54,359
faster speed of light or even at the

910
00:44:59,209 --> 00:44:56,940
speed of light and nothing's budged that

911
00:45:01,039 --> 00:44:59,219
you have some options things like

912
00:45:03,769 --> 00:45:01,049
tachyons that might be able to move

913
00:45:06,049 --> 00:45:03,779

faster speed of light to but you've got

914

00:45:07,609 --> 00:45:06,059

the the problem of that asymptotic limit

915

00:45:09,739 --> 00:45:07,619

where as you get closer and closer it

916

00:45:10,789 --> 00:45:09,749

takes more and more energy and you've

917

00:45:13,519 --> 00:45:10,799

also got the problem that on the other

918

00:45:15,259 --> 00:45:13,529

side of that you've you've got a going

919

00:45:18,000 --> 00:45:15,269

backwards in time we would say negative

920

00:45:22,170 --> 00:45:18,010

time or imaginary time a case like that

921

00:45:24,690 --> 00:45:22,180

and which is fine on paper but we have

922

00:45:26,730 --> 00:45:24,700

this this issue already where I say if

923

00:45:28,140 --> 00:45:26,740

we've got fashion light travel then we

924

00:45:30,000 --> 00:45:28,150

have to worry about people from outside

925

00:45:32,040 --> 00:45:30,010

the absorber universe coming to visit us

926

00:45:34,890 --> 00:45:32,050

- it's not just who's in our galaxy or

927

00:45:37,380 --> 00:45:34,900

who's in the local volume of space right

928

00:45:39,450 --> 00:45:37,390

if you throw time travel into that - or

929

00:45:42,000 --> 00:45:39,460

for window travel to other dimensions

930

00:45:43,470 --> 00:45:42,010

out and atolls then you've got to deal

931

00:45:46,650 --> 00:45:43,480

with people showing up from your own

932

00:45:47,700 --> 00:45:46,660

future to say hello and these are one of

933

00:45:49,349 --> 00:45:47,710

those things where you can't really

934

00:45:51,030 --> 00:45:49,359

regulate that if you're some you know

935

00:45:53,910 --> 00:45:51,040

high-tech government fall in the future

936

00:45:55,980 --> 00:45:53,920

because you can't you can prevent people

937

00:45:57,900 --> 00:45:55,990

doing it regularly but you can't really

938

00:46:00,000 --> 00:45:57,910

prevent them from doing it ever and you

939

00:46:01,980 --> 00:46:00,010

only ever have to do it once yeah right

940

00:46:04,080 --> 00:46:01,990

so I was back in time and they changed

941

00:46:04,560 --> 00:46:04,090

history just one time that's all it

942

00:46:06,990 --> 00:46:04,570

takes

943

00:46:10,620 --> 00:46:07,000

yeah and when when I hear you discuss

944

00:46:12,630 --> 00:46:10,630

this it's one thing to talk about time

945

00:46:14,250 --> 00:46:12,640

travel at the speed of light and clearly

946

00:46:17,630 --> 00:46:14,260

Einstein

947

00:46:19,740 --> 00:46:17,640

you know documented this possibility I

948

00:46:21,780 --> 00:46:19,750

understand that and I think that we all

949

00:46:24,540 --> 00:46:21,790

do that's a real form of time travel if

950

00:46:27,210 --> 00:46:24,550

we could you know jump on a spaceship

951
00:46:28,650 --> 00:46:27,220
and travel from Earth achieve a certain

952
00:46:30,210 --> 00:46:28,660
speed turn around and come back what

953
00:46:32,849 --> 00:46:30,220
were time travelers it's not a time

954
00:46:37,050 --> 00:46:32,859
machine we're just time traveling I get

955
00:46:39,900 --> 00:46:37,060
that part but if we go full FTL and you

956
00:46:43,109 --> 00:46:39,910
and I are on the bridge right of our

957
00:46:45,810 --> 00:46:43,119
faster-than-light craft and we we cross

958
00:46:50,099 --> 00:46:45,820
that threshold what happens to you and I

959
00:46:53,760 --> 00:46:50,109
do we actually reverse in age I mean do

960
00:46:56,970 --> 00:46:53,770
we become infants we shouldn't and I was

961
00:46:58,680 --> 00:46:56,980
thinking of 2001 look so what it happens

962
00:47:00,599 --> 00:46:58,690
okay but right right right

963
00:47:02,370 --> 00:47:00,609

normally whatever you're doing has no

964

00:47:04,650 --> 00:47:02,380

effect on your frame of reference where

965

00:47:06,540 --> 00:47:04,660

you're at it's everybody else around you

966

00:47:08,400 --> 00:47:06,550

that's having the issue so you just

967

00:47:10,859 --> 00:47:08,410

travel back in time but you always want

968

00:47:12,990 --> 00:47:10,869

to put caveat on that because we only

969

00:47:15,810 --> 00:47:13,000

can do this on paper by assuming

970

00:47:18,630 --> 00:47:15,820

imaginary numbers actually exist and

971

00:47:20,250 --> 00:47:18,640

they're called imaginary for a reason so

972

00:47:22,470 --> 00:47:20,260

we stop there's no experimental evidence

973

00:47:24,150 --> 00:47:22,480

about what happens as the time slowing

974

00:47:24,930 --> 00:47:24,160

down there's tons it's it's not even

975

00:47:26,940 --> 00:47:24,940

something that we have to be the

976
00:47:29,220 --> 00:47:26,950
spaceship for every student physics lab

977
00:47:30,769 --> 00:47:29,230
has to slow something down right every

978
00:47:33,409 --> 00:47:30,779
time it was over mu on week

979
00:47:35,299 --> 00:47:33,419
see that in practice we slow time down

980
00:47:37,640 --> 00:47:35,309
on particle is all the time every

981
00:47:39,079 --> 00:47:37,650
supercollider does that but we've never

982
00:47:40,789 --> 00:47:39,089
actually done anything where we'll be

983
00:47:42,499 --> 00:47:40,799
going faster then I'll actually at the

984
00:47:44,719 --> 00:47:42,509
speed of light where a time would stop

985
00:47:46,399 --> 00:47:44,729
so we can't really say for sure what

986
00:47:47,899 --> 00:47:46,409
that effect is going to be we have kind

987
00:47:50,689 --> 00:47:47,909
of logical way through it and as we get

988
00:47:52,189 --> 00:47:50,699

the doctor who or the Tomio kind of

989

00:47:53,929 --> 00:47:52,199

strange time launch it because it

990

00:47:55,969 --> 00:47:53,939

doesn't seem to really ever quite work

991

00:47:57,769 --> 00:47:55,979

out well when you think about it now

992

00:48:00,409 --> 00:47:57,779

though there is the the way around there

993

00:48:02,749 --> 00:48:00,419

is arguably the multiverse theory which

994

00:48:04,849 --> 00:48:02,759

says that pretty much every scenario

995

00:48:08,509 --> 00:48:04,859

that could possibly happen is happening

996

00:48:10,099 --> 00:48:08,519

in another universe and that your your

997

00:48:12,229 --> 00:48:10,109

arrow of time the pathway you're taking

998

00:48:13,909 --> 00:48:12,239

through time is really more navigating

999

00:48:15,529 --> 00:48:13,919

back and forth between every last

1000

00:48:18,769 --> 00:48:15,539

picture or the universe and every

1001
00:48:20,989 --> 00:48:18,779
possible combination and in a case like

1002
00:48:23,179 --> 00:48:20,999
that you wouldn't really be time

1003
00:48:24,949 --> 00:48:23,189
traveling but you know it would feel

1004
00:48:28,789 --> 00:48:24,959
like it it would seem like it it would

1005
00:48:30,199 --> 00:48:28,799
be the exact same to you and well what

1006
00:48:32,239 --> 00:48:30,209
happens okay

1007
00:48:35,870 --> 00:48:32,249
there's there's two things that I need

1008
00:48:38,599 --> 00:48:35,880
my mind clear on if something happened

1009
00:48:40,579 --> 00:48:38,609
at the speed of light and I'm talking

1010
00:48:43,819 --> 00:48:40,589
about a physical object not a light beam

1011
00:48:47,929 --> 00:48:43,829
right but a physical object what happens

1012
00:48:51,709 --> 00:48:47,939
to space you know does it collapse on

1013
00:48:53,989 --> 00:48:51,719

itself - do we go do things dissolve is

1014

00:48:56,809 --> 00:48:53,999

there something that would occur in the

1015

00:48:59,449 --> 00:48:56,819

world of physics very much does collapse

1016

00:49:00,949 --> 00:48:59,459

on itself actually the universe because

1017

00:49:03,890 --> 00:49:00,959

that's the asymptotic limit that's

1018

00:49:05,449 --> 00:49:03,900

hitting infinity or 0 as well right the

1019

00:49:06,949 --> 00:49:05,459

closer you get they are the more space

1020

00:49:09,589 --> 00:49:06,959

in whatever direction you're traveling

1021

00:49:12,199 --> 00:49:09,599

is shrinking right and which you get

1022

00:49:15,849 --> 00:49:12,209

right there at that distance it's going

1023

00:49:18,709 --> 00:49:15,859

to turn into a 3-dimensional disc and

1024

00:49:20,899 --> 00:49:18,719

you would be seen everything in front of

1025

00:49:22,249 --> 00:49:20,909

you flattened out people looking at you

1026

00:49:25,219 --> 00:49:22,259

would see you planned out but they'd

1027

00:49:26,569 --> 00:49:25,229

also see time stopped for you and that's

1028

00:49:28,880 --> 00:49:26,579

another one of problems you can't really

1029

00:49:30,199 --> 00:49:28,890

have an event take place at the speed of

1030

00:49:31,579 --> 00:49:30,209

light with anything it's got matter

1031

00:49:34,509 --> 00:49:31,589

because it's there's no time being

1032

00:49:37,159 --> 00:49:34,519

experienced to have an event of core I

1033

00:49:40,249 --> 00:49:37,169

get it it reminds me a little bit you

1034

00:49:42,049 --> 00:49:40,259

can laugh in the movie space balls right

1035

00:49:44,530 --> 00:49:42,059

where they go past the speed of light to

1036

00:49:47,530 --> 00:49:44,540

ludicrous speed then they go to play

1037

00:49:50,620 --> 00:49:47,540

right you know what happens beyond that

1038

00:49:52,990 --> 00:49:50,630

now this is my second question you and I

1039

00:49:56,620 --> 00:49:53,000

again run the bridge right we're

1040

00:49:58,570 --> 00:49:56,630

piloting and let's say we're just in

1041

00:50:01,390 --> 00:49:58,580

cruise mode we're doing a hundred

1042

00:50:03,700 --> 00:50:01,400

thousand miles an hour right rather

1043

00:50:08,560 --> 00:50:03,710

we're at a decent clip and we're really

1044

00:50:11,290 --> 00:50:08,570

slow yeah but but then we turn on our

1045

00:50:15,430 --> 00:50:11,300

high beams to look out in front of us or

1046

00:50:20,380 --> 00:50:15,440

we fire a laser out in front of our ship

1047

00:50:23,650 --> 00:50:20,390

is that laser or our speed of light high

1048

00:50:25,720 --> 00:50:23,660

beams is that are they now traveling

1049

00:50:28,030 --> 00:50:25,730

faster than the speed of light because

1050

00:50:29,650 --> 00:50:28,040

of the momentum of our ship already

1051
00:50:31,750 --> 00:50:29,660
traveling at say a hundred thousand

1052
00:50:33,510 --> 00:50:31,760
miles an hour no and this is the thing

1053
00:50:35,670 --> 00:50:33,520
that I actually got a special relativity

1054
00:50:37,840 --> 00:50:35,680
over here in Cleveland

1055
00:50:40,030 --> 00:50:37,850
background the to last century we had

1056
00:50:42,120 --> 00:50:40,040
the micro-sim all the experiments prior

1057
00:50:44,290 --> 00:50:42,130
to that we'd always assumed that

1058
00:50:45,760 --> 00:50:44,300
anything that's moving if I know if I'm

1059
00:50:47,440 --> 00:50:45,770
on a train for instance always use the

1060
00:50:49,840 --> 00:50:47,450
Train Audi's for special relativity and

1061
00:50:51,820 --> 00:50:49,850
I throw a ball that ball was moving with

1062
00:50:54,310 --> 00:50:51,830
my speed plus the Train speed plus the

1063
00:50:56,380 --> 00:50:54,320

speed you're turning right light seems

1064

00:50:58,810 --> 00:50:56,390

to move and this is we don't know why

1065

00:51:00,040 --> 00:50:58,820

right it was the thing that caused the

1066

00:51:01,990 --> 00:51:00,050

big problem that was solved by the

1067

00:51:03,850 --> 00:51:02,000

ultimately anyway it will move with the

1068

00:51:05,950 --> 00:51:03,860

same speed look also how fast you're

1069

00:51:08,440 --> 00:51:05,960

going everyone sees the light moving at

1070

00:51:10,060 --> 00:51:08,450

the exact same speed and they

1071

00:51:11,200 --> 00:51:10,070

established that you know through Mike's

1072

00:51:12,370 --> 00:51:11,210

Morley experiments that anything they

1073

00:51:14,350 --> 00:51:12,380

could do it they just kept coming back

1074

00:51:16,480 --> 00:51:14,360

to the same speed it was weird

1075

00:51:18,640 --> 00:51:16,490

and so the entirety of special

1076

00:51:22,330 --> 00:51:18,650

relativity is built around that specific

1077

00:51:24,430 --> 00:51:22,340

fact that light will always seem to be

1078

00:51:26,500 --> 00:51:24,440

moving to everyone who's observing it

1079

00:51:29,470 --> 00:51:26,510

regards of how fast they were going at

1080

00:51:30,580 --> 00:51:29,480

the same speed a different direction you

1081

00:51:33,160 --> 00:51:30,590

know obviously if we should have laser

1082

00:51:36,220 --> 00:51:33,170

at an angle but it's just moving at that

1083

00:51:38,530 --> 00:51:36,230

speed as we're getting faster we're

1084

00:51:40,030 --> 00:51:38,540

getting close to speed of light it's

1085

00:51:41,320 --> 00:51:40,040

going to seem to be moving away from us

1086

00:51:42,730 --> 00:51:41,330

at that same speed but anybody else

1087

00:51:45,430 --> 00:51:42,740

who's looking at it it's going to see it

1088

00:51:47,830 --> 00:51:45,440

doing that too and that's where the time

1089

00:51:49,360 --> 00:51:47,840

dilation comes in now if we actually hit

1090

00:51:50,830 --> 00:51:49,370

the speed of light for the moment and

1091

00:51:51,910 --> 00:51:50,840

then when you emitted a laser beam we

1092

00:51:54,220 --> 00:51:51,920

couldn't do that because he in time

1093

00:51:57,220 --> 00:51:54,230

stopped but if we if we could that light

1094

00:51:58,060 --> 00:51:57,230

would seem to not go anywhere because we

1095

00:52:01,990 --> 00:51:58,070

are now moving at the

1096

00:52:05,160 --> 00:52:02,000

speed of light too so it that should be

1097

00:52:07,210 --> 00:52:05,170

the exception way it doesn't happen so

1098

00:52:08,770 --> 00:52:07,220

that's P it would seem to get white

1099

00:52:10,960 --> 00:52:08,780

although or we would read [h__\h] away

1100

00:52:12,700 --> 00:52:10,970

Hamas but a blue shift towards us we

1101
00:52:16,840 --> 00:52:12,710
caught back up with it right right right

1102
00:52:19,810 --> 00:52:16,850
the blue red shift so if you and I again

1103
00:52:21,610 --> 00:52:19,820
run the bridge and we're approaching the

1104
00:52:26,020 --> 00:52:21,620
speed of light let's say we're there and

1105
00:52:27,790 --> 00:52:26,030
I flick on my flashlight then the light

1106
00:52:29,710 --> 00:52:27,800
would only come out an inch in front of

1107
00:52:31,410 --> 00:52:29,720
it you know what I mean that's it we're

1108
00:52:34,060 --> 00:52:31,420
we're there we're at the speed of light

1109
00:52:36,250 --> 00:52:34,070
as we just get real closely if we flick

1110
00:52:37,960 --> 00:52:36,260
the thing on like four we heads then it

1111
00:52:40,210 --> 00:52:37,970
has just enough time to travel you know

1112
00:52:41,530 --> 00:52:40,220
a meter or so it should seem to freeze

1113
00:52:42,910 --> 00:52:41,540

in front of us now of course we wouldn't

1114

00:52:45,100 --> 00:52:42,920

be able to actually see it freezing

1115

00:52:47,590 --> 00:52:45,110

because we absorb light by seeing it hit

1116

00:52:49,360 --> 00:52:47,600

us but it would have frozen in place in

1117

00:52:51,850 --> 00:52:49,370

front of us right when we hit this B in

1118

00:52:53,380 --> 00:52:51,860

itself but again that's the same problem

1119

00:52:55,600 --> 00:52:53,390

it's more this case where you really

1120

00:52:57,730 --> 00:52:55,610

should never be able to do that so it

1121

00:53:00,790 --> 00:52:57,740

gets a little if he talking about what

1122

00:53:02,530 --> 00:53:00,800

should definitely happen because it's

1123

00:53:07,000 --> 00:53:02,540

not really a case that you could do

1124

00:53:08,800 --> 00:53:07,010

anyway to you it seems like to a laser

1125

00:53:10,450 --> 00:53:08,810

beam if I shoot a laser beam out and I'm

1126
00:53:13,210 --> 00:53:10,460
on each of those photons they come out

1127
00:53:14,800 --> 00:53:13,220
the you know photon a movie at the front

1128
00:53:17,680 --> 00:53:14,810
and then you got photon B right behind

1129
00:53:19,060 --> 00:53:17,690
it should see photon a still in front of

1130
00:53:20,500 --> 00:53:19,070
it the whole time it's traveling at the

1131
00:53:24,040 --> 00:53:20,510
same distance they're both movie at the

1132
00:53:25,750 --> 00:53:24,050
same speed but you can't actually absorb

1133
00:53:27,520 --> 00:53:25,760
anything from these because there's no

1134
00:53:30,400 --> 00:53:27,530
time passing for them a photon

1135
00:53:31,570 --> 00:53:30,410
experiences no time you know anything

1136
00:53:33,430 --> 00:53:31,580
moving the speed of light like a

1137
00:53:35,620 --> 00:53:33,440
neutrino probably moves the speed of

1138
00:53:36,880 --> 00:53:35,630

light they experience no time nutriyums

1139

00:53:38,650 --> 00:53:36,890

might move just a little slower than

1140

00:53:42,400 --> 00:53:38,660

light speed we're never quite positive

1141

00:53:43,870 --> 00:53:42,410

it's real close and oh for that metal

1142

00:53:45,700 --> 00:53:43,880

the speed of light might be just a hay

1143

00:53:47,740 --> 00:53:45,710

or high or then light actually travels

1144

00:53:49,840 --> 00:53:47,750

if it turned out that photons head just

1145

00:53:51,580 --> 00:53:49,850

a little tiny amount of mass right and

1146

00:53:53,980 --> 00:53:51,590

we it's one of those things we can't

1147

00:53:55,570 --> 00:53:53,990

eliminate the possibility soon as we can

1148

00:53:56,800 --> 00:53:55,580

ever say anything is completely infinite

1149

00:53:58,660 --> 00:53:56,810

or not you know if you got a rope that's

1150

00:54:00,970 --> 00:53:58,670

infinitely long you go by counting that

1151
00:54:02,710 --> 00:54:00,980
by pulling out or walking next to it you

1152
00:54:04,480 --> 00:54:02,720
can establish how long it is but you can

1153
00:54:06,040 --> 00:54:04,490
never say for sure that it's not long

1154
00:54:07,240 --> 00:54:06,050
until you get to the end you know if

1155
00:54:09,490 --> 00:54:07,250
it's infinite you can't prove it's

1156
00:54:11,340 --> 00:54:09,500
infinite and it's kind of same thing

1157
00:54:13,470 --> 00:54:11,350
here you can never prove

1158
00:54:16,470 --> 00:54:13,480
that a photon has absolutely no mass

1159
00:54:18,270 --> 00:54:16,480
then we can infer and we can never prove

1160
00:54:19,860 --> 00:54:18,280
that it has no time at all but we can

1161
00:54:22,560 --> 00:54:19,870
count before we can say it definitely

1162
00:54:24,600 --> 00:54:22,570
doesn't have more than this amount and

1163
00:54:25,950 --> 00:54:24,610

so sometimes what we say it shouldn't

1164

00:54:27,540 --> 00:54:25,960

call it the speed of light but the speed

1165

00:54:29,550 --> 00:54:27,550

of information because that one we're

1166

00:54:30,780 --> 00:54:29,560

pretty confident about right lines just

1167

00:54:32,490 --> 00:54:30,790

happens to be the first thing we found

1168

00:54:35,040 --> 00:54:32,500

that moved to that speed and it's is the

1169

00:54:36,630 --> 00:54:35,050

speed that no mass moves that basically

1170

00:54:39,960 --> 00:54:36,640

if you have no mass that's how fast you

1171

00:54:41,940 --> 00:54:39,970

go and the reason why that is starts

1172

00:54:44,880 --> 00:54:41,950

getting a little complicated with

1173

00:54:47,850 --> 00:54:44,890

Minkowski space and other things but it

1174

00:54:50,010 --> 00:54:47,860

was a worldwide pass when we come back

1175

00:54:51,600 --> 00:54:50,020

after the break I want to continue this

1176
00:54:54,440 --> 00:54:51,610
because it's one of the most fascinating

1177
00:54:57,840 --> 00:54:54,450
aspects of all of this because if we are

1178
00:55:00,990 --> 00:54:57,850
going to visit the stars and and other

1179
00:55:02,430 --> 00:55:01,000
planets or if we are getting visited all

1180
00:55:04,470 --> 00:55:02,440
of these questions have to be answered

1181
00:55:06,060 --> 00:55:04,480
and thought about so we'll continue this

1182
00:55:09,650 --> 00:55:06,070
but I wanted to ask you this before the

1183
00:55:14,340 --> 00:55:09,660
break we've got four minutes it when

1184
00:55:17,040 --> 00:55:14,350
ship is out there even our own you know

1185
00:55:19,500 --> 00:55:17,050
Voyager or whatever pioneer our own

1186
00:55:21,210 --> 00:55:19,510
things that we're shooting but if if

1187
00:55:27,870 --> 00:55:21,220
we're out there traveling at these great

1188
00:55:32,700 --> 00:55:27,880

speeds and we encounter a small asteroid

1189

00:55:35,790 --> 00:55:32,710

or meteorite and and it wouldn't the

1190

00:55:38,760 --> 00:55:35,800

impact at those speeds be ginormous

1191

00:55:40,320 --> 00:55:38,770

oh yeah no it's it's it's even at like a

1192

00:55:42,480 --> 00:55:40,330

tenth the speed of light anything you

1193

00:55:45,030 --> 00:55:42,490

hit is going out like a nuclear bombs a

1194

00:55:48,300 --> 00:55:45,040

mass would so how do we how do we avoid

1195

00:55:51,360 --> 00:55:48,310

that I and and I understand the laser

1196

00:55:54,480 --> 00:55:51,370

aspects and and defensive positioning

1197

00:55:57,510 --> 00:55:54,490

and and radar and scanning out but I

1198

00:55:59,520 --> 00:55:57,520

would think at those speeds the

1199

00:56:02,460 --> 00:55:59,530

calculations and the logistics would

1200

00:56:06,360 --> 00:56:02,470

just be off the charts but but if we did

1201

00:56:08,130 --> 00:56:06,370

make contact it would be over mm-hmm and

1202

00:56:10,500 --> 00:56:08,140

it's the thing about moving that quickly

1203

00:56:12,090 --> 00:56:10,510

it's one of means of always say the unit

1204

00:56:13,710 --> 00:56:12,100

you could go faster and light you may be

1205

00:56:15,380 --> 00:56:13,720

when it wants you because you can't even

1206

00:56:18,120 --> 00:56:15,390

get a tone signal at that point right

1207

00:56:20,130 --> 00:56:18,130

running up on things like this like if

1208

00:56:22,020 --> 00:56:20,140

you're going fast and lights everything

1209

00:56:23,790 --> 00:56:22,030

in front of you looks dead white yeah

1210

00:56:25,120 --> 00:56:23,800

because everything sped up so much it's

1211

00:56:27,130 --> 00:56:25,130

blue [h__\h] you so much and everything

1212

00:56:29,740 --> 00:56:27,140

you look like a black hole right no mic

1213

00:56:32,140 --> 00:56:29,750

which is up to you right trying to

1214

00:56:34,120 --> 00:56:32,150

actually do detection on things like

1215

00:56:35,859 --> 00:56:34,130

that is quite tricky even you're stoking

1216

00:56:37,960 --> 00:56:35,869

up to about half the speed of lights

1217

00:56:40,269 --> 00:56:37,970

anything you run into is like hitting an

1218

00:56:41,740 --> 00:56:40,279

antimatter bomb a single coffee cup is

1219

00:56:42,759 --> 00:56:41,750

gonna hit you like the hiroshima device

1220

00:56:45,759 --> 00:56:42,769

right right right

1221

00:56:48,009 --> 00:56:45,769

um and you have to make sure that

1222

00:56:49,690 --> 00:56:48,019

doesn't happen yeah you know you can

1223

00:56:51,160 --> 00:56:49,700

absorb a particle or two getting hit by

1224

00:56:53,650 --> 00:56:51,170

relativistic particle you know they say

1225

00:56:55,329 --> 00:56:53,660

if you hit a single hydrogen atom no not

1226
00:56:56,890 --> 00:56:55,339
unless you're moving that you know the

1227
00:57:00,370 --> 00:56:56,900
lens factor of like a hundred you know

1228
00:57:02,470 --> 00:57:00,380
which really have no reason ever do but

1229
00:57:06,009 --> 00:57:02,480
any particle any grain of sand is gonna

1230
00:57:07,390 --> 00:57:06,019
do a lot of damage and so you have to be

1231
00:57:08,980 --> 00:57:07,400
constants caning around for that and

1232
00:57:10,390 --> 00:57:08,990
consuming how fast you're moving you're

1233
00:57:12,069 --> 00:57:10,400
talking about teen the scan area the

1234
00:57:14,950 --> 00:57:12,079
size of our solar system like out to

1235
00:57:17,319 --> 00:57:14,960
Pluto it's a spot somebody the size of a

1236
00:57:20,499 --> 00:57:17,329
pebble right and that gets worse and

1237
00:57:22,329 --> 00:57:20,509
worse the faster you go and there are

1238
00:57:24,880 --> 00:57:22,339

many ways you can tackle that but it

1239

00:57:25,930 --> 00:57:24,890

does start to say maybe we don't want to

1240

00:57:28,720 --> 00:57:25,940

be going that fast

1241

00:57:32,019 --> 00:57:28,730

even if we could maybe a little bit slow

1242

00:57:33,579 --> 00:57:32,029

as the wiser course of action and so I

1243

00:57:35,650 --> 00:57:33,589

usually tend to assume you wouldn't go

1244

00:57:37,930 --> 00:57:35,660

much faster than about twenty percent of

1245

00:57:39,789 --> 00:57:37,940

light speed unless you actually started

1246

00:57:42,730 --> 00:57:39,799

creating a highway system through space

1247

00:57:44,140 --> 00:57:42,740

not a classic one obviously a way you're

1248

00:57:46,029 --> 00:57:44,150

sweeping all that matter out of the way

1249

00:57:47,589 --> 00:57:46,039

constantly you've gotten your sensor

1250

00:57:49,749 --> 00:57:47,599

grids along the way that are spotting

1251
00:57:51,460 --> 00:57:49,759
even agreeing a dust and just vaporizing

1252
00:57:54,249 --> 00:57:51,470
a thing you clear it out to make a

1253
00:57:56,380 --> 00:57:54,259
hyperspace bypass at law now you can

1254
00:57:58,769 --> 00:57:56,390
start looking at traveling close to

1255
00:58:00,430 --> 00:57:58,779
speed of light and you don't necessarily

1256
00:58:02,170 --> 00:58:00,440
propellant with you because you could be

1257
00:58:03,339 --> 00:58:02,180
using lace or step bounce the ships

1258
00:58:05,410 --> 00:58:03,349
around at high speeds

1259
00:58:06,759 --> 00:58:05,420
that's one way you could do that that

1260
00:58:08,319 --> 00:58:06,769
doesn't get you to new solar systems

1261
00:58:10,089 --> 00:58:08,329
that lets you get to systems that you've

1262
00:58:12,670 --> 00:58:10,099
already colonized and then you know back

1263
00:58:14,289 --> 00:58:12,680

and forth between them so same has gone

1264

00:58:16,029 --> 00:58:14,299

to the Oregon Trail takes you you get

1265

00:58:18,430 --> 00:58:16,039

Oregon nowadays you can drive out there

1266

00:58:21,430 --> 00:58:18,440

a couple of days so you always have a

1267

00:58:23,349 --> 00:58:21,440

slow expansion front as you explain but

1268

00:58:24,730 --> 00:58:23,359

you probably can get away with traveling

1269

00:58:26,410 --> 00:58:24,740

pretty close to the speed of light back

1270

00:58:28,960 --> 00:58:26,420

and forth between solar systems it's

1271

00:58:29,620 --> 00:58:28,970

just trying to find a bestest safest way

1272

00:58:32,289 --> 00:58:29,630

to do it

1273

00:58:34,779 --> 00:58:32,299

yeah I'm picturing because when I've

1274

00:58:36,930 --> 00:58:34,789

heard you discuss this this shows you

1275

00:58:38,400 --> 00:58:36,940

where my mind is I was picturing

1276

00:58:42,930 --> 00:58:38,410

interstellar

1277

00:58:45,510 --> 00:58:42,940

highway street cleaners to clear the

1278

00:58:46,799 --> 00:58:45,520

path and of course the idea would be

1279

00:58:48,359 --> 00:58:46,809

that they'd be using they wouldn't be

1280

00:58:51,839 --> 00:58:48,369

using a classic boom but they'd be using

1281

00:58:53,730 --> 00:58:51,849

a laser Picasso said they sweep all the

1282

00:58:55,829 --> 00:58:53,740

gas and dust out of the way but it would

1283

00:58:58,440 --> 00:58:55,839

have to be that way because if you're

1284

00:59:01,680 --> 00:58:58,450

just going out there willy nilly space

1285

00:59:04,079 --> 00:59:01,690

is big and it's vast but it only takes

1286

00:59:05,760 --> 00:59:04,089

like you said a little micrometeorite

1287

00:59:08,390 --> 00:59:05,770

the size of a grain of sand at that

1288

00:59:09,539 --> 00:59:08,400

speed would cause you a lot of trouble

1289

00:59:11,130 --> 00:59:09,549

mm-hmm

1290

00:59:12,839 --> 00:59:11,140

so you either want to go slow you want

1291

00:59:14,789 --> 00:59:12,849

to make sure you've got a really Clio

1292

00:59:16,289 --> 00:59:14,799

system in front of you and this is

1293

00:59:18,270 --> 00:59:16,299

something we deal with you know I've fun

1294

00:59:19,589 --> 00:59:18,280

walking around my house or on the front

1295

00:59:21,120 --> 00:59:19,599

lawn I don't have to worry about a

1296

00:59:23,099 --> 00:59:21,130

little wrong if I'm driving down the

1297

00:59:24,839 --> 00:59:23,109

freeway I can do a lot of damage so

1298

00:59:26,220 --> 00:59:24,849

they'll drop me outside of a bridge or

1299

00:59:28,069 --> 00:59:26,230

even just hitting something like a

1300

00:59:30,660 --> 00:59:28,079

bottle on the road can cause problems

1301
00:59:33,420 --> 00:59:30,670
let's take a break right here Isaac

1302
00:59:35,099 --> 00:59:33,430
fantastic start to this evening in this

1303
00:59:38,069 --> 00:59:35,109
conversation or guess tonight Isaac

1304
00:59:40,079 --> 00:59:38,079
Arthur Isaac Arthur dotnet is the web

1305
00:59:42,839 --> 00:59:40,089
site of course his YouTube channel is

1306
00:59:44,700 --> 00:59:42,849
his right there as well fade to black

1307
00:59:49,110 --> 00:59:44,710
I'm your host Jimmy Church I'll be right

1308
00:59:49,120 --> 01:00:11,870
[Music]

1309
01:00:15,839 --> 01:00:13,710
this is fade to black

1310
01:00:19,530 --> 01:00:15,849
with Jimmy Church on the game changer

1311
01:00:21,320 --> 01:00:19,540
radio network and kgr a the global radio

1312
01:00:24,630 --> 01:00:21,330
alliance

1313
01:00:27,990 --> 01:00:24,640

this is kera digital broadcasting

1314

01:00:36,990 --> 01:00:28,000

station Salt Lake City Utah Van Buren

1315

01:00:39,870 --> 01:00:37,000

Arkansas come join us for the 2019

1316

01:00:43,020 --> 01:00:39,880

conscious life Expo in Los Angeles at

1317

01:00:45,300 --> 01:00:43,030

the LAX Hilton this year we are

1318

01:00:47,430 --> 01:00:45,310

celebrating the 50th anniversary of

1319

01:00:49,920 --> 01:00:47,440

Chariots of the Gods with Erich von

1320

01:00:52,380 --> 01:00:49,930

däniken and I'll be hosting the panel

1321

01:00:55,680 --> 01:00:52,390

with Eric Linda Moulton Howe

1322

01:00:58,500 --> 01:00:55,690

Jason Martel Billy Carson and David

1323

01:01:00,540 --> 01:00:58,510

Wilcock join George Noory Nassim

1324

01:01:03,240 --> 01:01:00,550

haramain Robert Schoch dannion Brinkley

1325

01:01:05,730 --> 01:01:03,250

grant hammer and Julia Moss bridge

1326
01:01:08,210 --> 01:01:05,740
Teresa Harris and another 50 speakers

1327
01:01:10,920 --> 01:01:08,220
who will be presenting at the 2019

1328
01:01:13,260 --> 01:01:10,930
unconscious life Expo just go through

1329
01:01:16,050 --> 01:01:13,270
conscious life Expo comm for tickets and

1330
01:01:18,150 --> 01:01:16,060
a full conference schedule or click on

1331
01:01:22,030 --> 01:01:18,160
the see le banner at jimmy church

1332
01:01:25,549 --> 01:01:22,040
radio.com gobekli tepe

1333
01:01:31,739 --> 01:01:28,170
folks this is very important information

1334
01:01:34,620 --> 01:01:31,749
what's to be said about CBD ancient life

1335
01:01:37,620 --> 01:01:34,630
oil calm our CBD is made from hemp and

1336
01:01:40,229 --> 01:01:37,630
has point zero zero three THC which

1337
01:01:42,749 --> 01:01:40,239
means this wonderful product won't get

1338
01:01:45,599 --> 01:01:42,759

you high no matter what amount you take

1339

01:01:48,539 --> 01:01:45,609

what a CBD do for the body my hands are

1340

01:01:50,819 --> 01:01:48,549

tied but you can Google CBD benefits and

1341

01:01:52,890 --> 01:01:50,829

be astounded when you're finished

1342

01:01:55,439 --> 01:01:52,900

reading you'll want to log on to ancient

1343

01:01:58,439 --> 01:01:55,449

life oil calm that's ancient life oil

1344

01:02:00,479 --> 01:01:58,449

calm and purchase life is good when you

1345

01:02:02,519 --> 01:02:00,489

feel good people are tired of pain

1346

01:02:05,429 --> 01:02:02,529

people are asking for non-gmo organic

1347

01:02:08,130 --> 01:02:05,439

products to help them with you fill in

1348

01:02:10,380 --> 01:02:08,140

the blank legal in 49 states and again

1349

01:02:13,170 --> 01:02:10,390

our CBD is made from hemp ancient life

1350

01:02:13,979 --> 01:02:13,180

oil is about helping people one by one

1351
01:02:15,599 --> 01:02:13,989
by one

1352
01:02:18,959 --> 01:02:15,609
if you wonder how good the product is

1353
01:02:21,449 --> 01:02:18,969
the CEO takes it every day without miss

1354
01:02:32,400 --> 01:02:21,459
ancient life oil calm that's ancient

1355
01:02:34,259 --> 01:02:32,410
life oil calm have a great day this is

1356
01:02:36,449 --> 01:02:34,269
ray sobs here repping the planet and

1357
01:02:39,479 --> 01:02:36,459
you're listening to my good friend Jimmy

1358
01:02:42,329 --> 01:02:39,489
Church fade to black on the game changer

1359
01:02:46,559 --> 01:02:42,339
network and the kgr a digital broadcast

1360
01:02:49,169 --> 01:02:46,569
station this is Toby Kebbell you're

1361
01:02:58,989 --> 01:02:49,179
listening to Jimmy Church radio.com oh

1362
01:03:02,569 --> 01:03:00,679
I'm Adrian Grenier

1363
01:03:05,089 --> 01:03:02,579

and I'm Ari Gold where the honey

1364

01:03:08,479 --> 01:03:05,099

brothers and you're listening to Jimmy

1365

01:03:11,239 --> 01:03:08,489

Church revolution reclaim your active

1366

01:03:12,949 --> 01:03:11,249

lifestyle with NGO Prem NGO print is the

1367

01:03:15,589 --> 01:03:12,959

original liquid oral chelation

1368

01:03:17,509 --> 01:03:15,599

supplement chelation helps remove toxins

1369

01:03:19,249 --> 01:03:17,519

heavy metals and cholesterol in your

1370

01:03:21,410 --> 01:03:19,259

veins and arteries that can cause

1371

01:03:23,089 --> 01:03:21,420

blockages scientific research proves the

1372

01:03:25,279 --> 01:03:23,099

active ingredient in angio primp has

1373

01:03:27,169 --> 01:03:25,289

superior oral chelation action that

1374

01:03:29,449 --> 01:03:27,179

helps promote cardiovascular health

1375

01:03:31,549 --> 01:03:29,459

find out more come to angio Primm calm

1376

01:03:33,739 --> 01:03:31,559

talk to a trained consultant by calling

1377

01:03:37,370 --> 01:03:33,749

angio primp toll free eight seven seven

1378

01:03:39,109 --> 01:03:37,380

eighty two seventy two twenty one this

1379

01:03:41,269 --> 01:03:39,119

is Jimmy Church of fade to black and you

1380

01:03:43,759 --> 01:03:41,279

can become an official fade or not by

1381

01:03:47,749 --> 01:03:43,769

just going to our membership section at

1382

01:03:49,729 --> 01:03:47,759

Jimmy Church radio.com hey it's grace

1383

01:03:52,339 --> 01:03:49,739

can we talk about something serious for

1384

01:03:54,559 --> 01:03:52,349

a minute your age getting old has its

1385

01:03:56,900 --> 01:03:54,569

perks but remember being a few years

1386

01:03:59,029 --> 01:03:56,910

younger you know your hair was thicker

1387

01:04:01,069 --> 01:03:59,039

you didn't have so many wrinkles that

1388

01:04:03,259 --> 01:04:01,079

extra weight wasn't haunting you and you

1389

01:04:05,390 --> 01:04:03,269

just felt better well we can't turn back

1390

01:04:08,329 --> 01:04:05,400

the clocks and go back 10 or 15 years

1391

01:04:10,669 --> 01:04:08,339

but you can start feeling and looking 10

1392

01:04:13,279 --> 01:04:10,679

or 15 years younger with nature's youth

1393

01:04:14,809 --> 01:04:13,289

RSF it's a doctor formulated daily

1394

01:04:16,939 --> 01:04:14,819

supplement that helps your body maintain

1395

01:04:19,729 --> 01:04:16,949

its peak performance and fight the aging

1396

01:04:21,199 --> 01:04:19,739

process imagine sleeping better looking

1397

01:04:23,719 --> 01:04:21,209

better and feeling better

1398

01:04:25,669 --> 01:04:23,729

see how Nature's youth RSF has helped

1399

01:04:28,309 --> 01:04:25,679

thousands of people just like you at

1400

01:04:30,109 --> 01:04:28,319

nature's youth calm nature's youth calm

1401

01:04:31,699 --> 01:04:30,119

imagine how it will feel when your

1402

01:04:34,130 --> 01:04:31,709

family and friends are asking you what

1403

01:04:36,739 --> 01:04:34,140

you did to look so good your secret will

1404

01:04:38,989 --> 01:04:36,749

be nature's youth RSS it's time to start

1405

01:04:41,120 --> 01:04:38,999

looking better and feeling better learn

1406

01:04:43,339 --> 01:04:41,130

more in order your nature's use RSS at

1407

01:04:46,929 --> 01:04:43,349

nature's youth calm that's nature's

1408

01:04:49,489 --> 01:04:46,939

youth calm that's nature's youth calm

1409

01:04:51,739 --> 01:04:49,499

hello this is Serena right kayla from

1410

01:04:54,289 --> 01:04:51,749

conscious life Expo and you're listening

1411

01:04:56,539 --> 01:04:54,299

to fade to black with Jimmy Church who

1412

01:05:01,299 --> 01:04:56,549

holds the lucky pony record for the best

1413

01:05:03,709 --> 01:05:01,309

astrological chart since 1963 true story

1414

01:05:05,419 --> 01:05:03,719

this is Micah Hanks of the graylien

1415

01:05:07,729 --> 01:05:05,429

report and you're listening to Jimmy

1416

01:05:09,510 --> 01:05:07,739

church on fade to black across the globe

1417

01:05:11,970 --> 01:05:09,520

on the GameChanger radio net

1418

01:05:13,030 --> 01:05:11,980

and the one and only kgr a radio the

1419

01:05:17,000 --> 01:05:13,040

planet

1420

01:05:17,320 --> 01:05:17,010

[Music]

1421

01:05:28,410 --> 01:05:17,330

[Applause]

1422

01:05:35,130 --> 01:05:32,640

[Music]

1423

01:05:36,809 --> 01:05:35,140

all right welcome back fade to black I

1424

01:05:39,950 --> 01:05:36,819

am your host Amy Church tonight our

1425

01:05:42,990 --> 01:05:39,960

guest is Isaac Arthur he is here

1426

01:05:45,779 --> 01:05:43,000

tomorrow night Carolyn Ford Einstein

1427

01:05:48,390 --> 01:05:45,789

that's tomorrow night Wednesday night

1428

01:05:50,490 --> 01:05:48,400

David Wilcock is back with us to talk

1429

01:05:53,010 --> 01:05:50,500

about 2019 and we're gonna look forward

1430

01:05:55,230 --> 01:05:53,020

Thursday night is open lines all night

1431

01:05:58,039 --> 01:05:55,240

long tonight it's Isaac Arthur and Isaac

1432

01:06:01,529 --> 01:05:58,049

this is one of the most fascinating

1433

01:06:03,660 --> 01:06:01,539

aspects of the error that you and I live

1434

01:06:07,799 --> 01:06:03,670

in right now and it's the knowledge of

1435

01:06:10,460 --> 01:06:07,809

our universe that is coming in it's the

1436

01:06:13,549 --> 01:06:10,470

data is is getting out of control and

1437

01:06:16,529 --> 01:06:13,559

watching cosmologists and

1438

01:06:19,140 --> 01:06:16,539

astrophysicists out there have to start

1439

01:06:21,510 --> 01:06:19,150

to look at these harsh numbers and where

1440

01:06:23,160 --> 01:06:21,520

things are going like dark energy write

1441

01:06:26,579 --> 01:06:23,170

them something that was never discussed

1442

01:06:29,120 --> 01:06:26,589

before now we're confronted with this

1443

01:06:32,039 --> 01:06:29,130

and the expansion of the universe but

1444

01:06:34,829 --> 01:06:32,049

there's another fascinating thing for me

1445

01:06:38,609 --> 01:06:34,839

and that is the discovery of exoplanets

1446

01:06:40,710 --> 01:06:38,619

and we're now in our own Milky Way where

1447

01:06:44,370 --> 01:06:40,720

we thought how there could be a couple

1448

01:06:47,370 --> 01:06:44,380

maybe there's more how unique are we to

1449

01:06:50,279 --> 01:06:47,380

the conversation today is our Milky Way

1450

01:06:53,609 --> 01:06:50,289

could have a hundred billion planets in

1451

01:06:56,609 --> 01:06:53,619

it this is yet probably more right it's

1452

01:06:59,190 --> 01:06:56,619

an extraordinary number that we never

1453

01:07:01,799 --> 01:06:59,200

even contemplated twenty years ago

1454

01:07:05,849 --> 01:07:01,809

right this is these are exciting times

1455

01:07:07,500 --> 01:07:05,859

but now let's take that data and take

1456

01:07:09,630 --> 01:07:07,510

that knowledge and go in the opposite

1457

01:07:12,930 --> 01:07:09,640

direction we're talking about speed of

1458

01:07:14,460 --> 01:07:12,940

light and if et is out there visiting

1459

01:07:17,970 --> 01:07:14,470

and I believe that they are and they're

1460

01:07:21,019 --> 01:07:17,980

coming at us how do you pump the brakes

1461

01:07:24,990 --> 01:07:21,029

on a ship that is moving at that speed

1462

01:07:26,370 --> 01:07:25,000

how long does it take to slow down well

1463

01:07:27,839 --> 01:07:26,380

I think we were talking only about how

1464

01:07:29,490 --> 01:07:27,849

fast something could accelerate or

1465

01:07:32,519 --> 01:07:29,500

decelerate and that that's actually a

1466

01:07:34,769 --> 01:07:32,529

really important one because by good

1467

01:07:37,500 --> 01:07:34,779

coincidence if you accelerate at 1 G

1468

01:07:39,210 --> 01:07:37,510

your normal with gravity for a year you

1469

01:07:40,410 --> 01:07:39,220

will get up to about light speed you

1470

01:07:42,690 --> 01:07:40,420

won't quite get there because you can

1471

01:07:44,730 --> 01:07:42,700

have a quiet get there but if you want

1472

01:07:46,380 --> 01:07:44,740

to get up to 10% of light speed you need

1473

01:07:47,849 --> 01:07:46,390

to be accelerating for a month and we

1474

01:07:50,579 --> 01:07:47,859

go down from that it's gonna take you a

1475

01:07:51,480 --> 01:07:50,589

month to if you're going in near the

1476

01:07:53,460 --> 01:07:51,490

speed of light

1477

01:07:55,740 --> 01:07:53,470

and again it's even gonna be way worse

1478

01:07:56,970 --> 01:07:55,750

for me I get to yell probably things

1479

01:08:00,150 --> 01:07:56,980

like the warp drive get around that

1480

01:08:03,630 --> 01:08:00,160

entirely you slam the brakes very slowly

1481

01:08:05,640 --> 01:08:03,640

yeah and that actually becomes issues if

1482

01:08:07,259 --> 01:08:05,650

you have access to effectively infinite

1483

01:08:10,319 --> 01:08:07,269

energy to be accelerating these ships

1484

01:08:12,059 --> 01:08:10,329

those kind of speeds you still have to

1485

01:08:14,250 --> 01:08:12,069

find some way to handle a very fast

1486

01:08:17,220 --> 01:08:14,260

acceleration or you're gonna experience

1487

01:08:18,809 --> 01:08:17,230

a lot of time personally and ideally

1488

01:08:21,090 --> 01:08:18,819

you'd before not to you might get around

1489

01:08:24,180 --> 01:08:21,100

that with something like cryogenic lost

1490

01:08:26,789 --> 01:08:24,190

cryogenic sleep but um or some other

1491

01:08:28,709 --> 01:08:26,799

type of stasis but you have to be able

1492

01:08:31,110 --> 01:08:28,719

to slow down you have to give a speed up

1493

01:08:32,729 --> 01:08:31,120

and it's going to take a lot of time to

1494

01:08:34,410 --> 01:08:32,739

do that when you're going really fast

1495

01:08:36,030 --> 01:08:34,420

you and you have to re expend that

1496

01:08:38,129 --> 01:08:36,040

energy too so you can't make a lot of

1497

01:08:40,410 --> 01:08:38,139

stopovers to pick up like hitchhikers

1498

01:08:41,849 --> 01:08:40,420

while you're on your way you go once you

1499

01:08:42,419 --> 01:08:41,859

start like moving once you're up to

1500

01:08:43,680 --> 01:08:42,429

speed

1501
01:08:45,649 --> 01:08:43,690
you're pretty much locked into that

1502
01:08:47,849 --> 01:08:45,659
course until you get to your destination

1503
01:08:50,220 --> 01:08:47,859
unless you have a vast amount of azure

1504
01:08:53,879 --> 01:08:50,230
fior and if you did go faster as you CA

1505
01:08:55,649 --> 01:08:53,889
thought some things like the warp drive

1506
01:08:57,030 --> 01:08:55,659
or warm or if we could ever get them

1507
01:08:59,789 --> 01:08:57,040
walking and then out to be honest I

1508
01:09:02,789 --> 01:08:59,799
don't think that we will these usually

1509
01:09:04,559 --> 01:09:02,799
get around that acceleration issue with

1510
01:09:06,269 --> 01:09:04,569
the wormhole you're really not traveling

1511
01:09:08,160 --> 01:09:06,279
through space although the implication

1512
01:09:10,829 --> 01:09:08,170
that it's one of those keys just a few

1513
01:09:11,939 --> 01:09:10,839

like in Stargate not quite right we're

1514

01:09:13,740 --> 01:09:11,949

something like the warp drive though

1515

01:09:15,720 --> 01:09:13,750

you're not actually moving you're just

1516

01:09:17,820 --> 01:09:15,730

moving the space on either side of you

1517

01:09:20,129 --> 01:09:17,830

so there you don't have to decelerate at

1518

01:09:21,780 --> 01:09:20,139

all though that comes with some problems

1519

01:09:23,129 --> 01:09:21,790

too we think if you're hanging towards

1520

01:09:24,479 --> 01:09:23,139

planet with one of these things on

1521

01:09:26,579 --> 01:09:24,489

you're very likely to when you

1522

01:09:32,490 --> 01:09:26,589

decelerate blow up the system you're

1523

01:09:36,050 --> 01:09:32,500

right I know and now okay let's we need

1524

01:09:40,079 --> 01:09:36,060

to stay on this I'm not gonna let it go

1525

01:09:42,720 --> 01:09:40,089

there is there resistance in space like

1526
01:09:46,530 --> 01:09:42,730
you know obviously we have resistance

1527
01:09:51,059 --> 01:09:46,540
here on earth and he will always slow

1528
01:09:54,439 --> 01:09:51,069
down you need more energy to to maintain

1529
01:09:56,580 --> 01:09:54,449
a speed out in space if we achieve

1530
01:09:58,140 --> 01:09:56,590
whatever it is right hundred thousand

1531
01:10:00,390 --> 01:09:58,150
and a thousand five hundred thousand

1532
01:10:03,330 --> 01:10:00,400
miles an hour are we able to shut

1533
01:10:07,710 --> 01:10:03,340
our engines and just cruise in that

1534
01:10:09,000 --> 01:10:07,720
direction or do we at that speed a 500

1535
01:10:10,890 --> 01:10:09,010
miles now speed of light is a hundred

1536
01:10:13,620 --> 01:10:10,900
eight thousand miles a second so it's

1537
01:10:15,240 --> 01:10:13,630
it's a lot faster but at that speed you

1538
01:10:16,620 --> 01:10:15,250

would drift for millions of years for

1539

01:10:17,790 --> 01:10:16,630

you have a noticeable drop in speed but

1540

01:10:19,620 --> 01:10:17,800

if you get close enough to the speed of

1541

01:10:22,020 --> 01:10:19,630

light you actually have to stop making a

1542

01:10:23,310 --> 01:10:22,030

ship kind of aerodynamic because even

1543

01:10:25,800 --> 01:10:23,320

though there's a ferry that all day or

1544

01:10:27,360 --> 01:10:25,810

you're going so fast that you're running

1545

01:10:29,970 --> 01:10:27,370

into it it basically does start to

1546

01:10:31,410 --> 01:10:29,980

create a drag effect now that's only

1547

01:10:33,570 --> 01:10:31,420

gonna happen we stocking up like half

1548

01:10:35,250 --> 01:10:33,580

the speed of light or clothes or but you

1549

01:10:37,410 --> 01:10:35,260

can slow down that way too it is one of

1550

01:10:39,000 --> 01:10:37,420

the free ways to slow down but it takes

1551

01:10:41,340 --> 01:10:39,010

a long time is just to extend a big

1552

01:10:43,650 --> 01:10:41,350

parachute basically and let it drag you

1553

01:10:45,660 --> 01:10:43,660

down it doesn't work too well lower

1554

01:10:47,310 --> 01:10:45,670

speeds though and things like Pioneer

1555

01:10:49,530 --> 01:10:47,320

voyage or those things are never going

1556

01:10:52,230 --> 01:10:49,540

to experience you know any sort of

1557

01:10:53,760 --> 01:10:52,240

significant drag any more than you or I

1558

01:10:55,590 --> 01:10:53,770

are you walking around the house and you

1559

01:10:59,790 --> 01:10:55,600

know we're very slow speed compared to a

1560

01:11:01,080 --> 01:10:59,800

supersonic jet you do have that concern

1561

01:11:03,930 --> 01:11:01,090

and that's great you can serve you're

1562

01:11:05,940 --> 01:11:03,940

doing FTL in a kind of classic Star Trek

1563

01:11:07,200 --> 01:11:05,950

war travel kind of way mm-hmm and so if

1564

01:11:09,210 --> 01:11:07,210

you want to stay at that speed you to

1565

01:11:11,130 --> 01:11:09,220

keep pushing and it means using more and

1566

01:11:13,730 --> 01:11:11,140

more fuel to keep up that speed and the

1567

01:11:15,480 --> 01:11:13,740

faster you go the more that there is and

1568

01:11:17,550 --> 01:11:15,490

against one of those reasons why you

1569

01:11:20,070 --> 01:11:17,560

probably don't want to try to be going

1570

01:11:22,380 --> 01:11:20,080

more about half the speed of light one

1571

01:11:25,530 --> 01:11:22,390

of the things that I have talked about

1572

01:11:29,120 --> 01:11:25,540

over and over again on this show for

1573

01:11:32,340 --> 01:11:29,130

years and years is arthur c clarke and

1574

01:11:34,620 --> 01:11:32,350

rama the entire series of books i don't

1575

01:11:38,040 --> 01:11:34,630

know how many times i have read them but

1576

01:11:39,570 --> 01:11:38,050

i've always contemplated that aspect and

1577

01:11:43,890 --> 01:11:39,580

i always thought that arthur c clarke

1578

01:11:46,290 --> 01:11:43,900

was ahead of the curve maybe maybe yeah

1579

01:11:48,300 --> 01:11:46,300

yeah maybe even i'm a lean and that's

1580

01:11:52,320 --> 01:11:48,310

the series though the force book great

1581

01:11:54,030 --> 01:11:52,330

the second book pretty good you talking

1582

01:11:58,140 --> 01:11:54,040

about when Gentry Lee came into the

1583

01:12:02,430 --> 01:11:58,150

picture yes yes nothing against Gentry

1584

01:12:07,520 --> 01:12:02,440

no I but you are correct okay so anyway

1585

01:12:10,800 --> 01:12:07,530

is that if if something was coming at us

1586

01:12:12,950 --> 01:12:10,810

they had some great speed would we

1587

01:12:14,600 --> 01:12:12,960

notice something

1588

01:12:17,090 --> 01:12:14,610

would we be able to see something that

1589

01:12:19,430 --> 01:12:17,100

was traveling at the speed of light or

1590

01:12:22,190 --> 01:12:19,440

nearly at the speed of light would we be

1591

01:12:24,140 --> 01:12:22,200

able to pick that up no well if it's

1592

01:12:25,640 --> 01:12:24,150

going it's all about how fast going if

1593

01:12:27,170 --> 01:12:25,650

it's going it exactly the speed of light

1594

01:12:29,360 --> 01:12:27,180

we'll never see it till the moment it

1595

01:12:31,610 --> 01:12:29,370

arrives right if it's going just a

1596

01:12:33,410 --> 01:12:31,620

little bit slower we will get to see it

1597

01:12:35,390 --> 01:12:33,420

but probably not a lot like if something

1598

01:12:38,180 --> 01:12:35,400

is a light hour out and it's moving at

1599

01:12:40,820 --> 01:12:38,190

you know 99% of speed of light you're

1600

01:12:43,310 --> 01:12:40,830

gonna get in a maybe 30 seconds of

1601

01:12:47,600 --> 01:12:43,320

warning time but and it's already it's

1602

01:12:48,830 --> 01:12:47,610

right there on you by then right and for

1603

01:12:50,150 --> 01:12:48,840

you know stellar distances that's

1604

01:12:51,530 --> 01:12:50,160

actually more than enough because you've

1605

01:12:53,210 --> 01:12:51,540

got something that's a Lightyear out

1606

01:12:55,220 --> 01:12:53,220

that's that gives you many days of

1607

01:12:56,480 --> 01:12:55,230

warning and it's all about how fast

1608

01:12:58,100 --> 01:12:56,490

they're going and only going half the

1609

01:12:59,900 --> 01:12:58,110

speed of light then there are twelve

1610

01:13:02,870 --> 01:12:59,910

light hours out you're gonna see them

1611

01:13:04,010 --> 01:13:02,880

when there's six hours out as a war so

1612

01:13:05,660 --> 01:13:04,020

you should always see a ship that's

1613

01:13:08,480 --> 01:13:05,670

slowing down to get to you especially

1614

01:13:10,640 --> 01:13:08,490

cuz it's gonna be again slowing down but

1615

01:13:13,280 --> 01:13:10,650

once you get into FTL zone you're not

1616

01:13:15,620 --> 01:13:13,290

going to you actually see it after it's

1617

01:13:17,780 --> 01:13:15,630

already passed by which is the way that

1618

01:13:20,660 --> 01:13:17,790

arthur c clarke has presented it in

1619

01:13:24,500 --> 01:13:20,670

Ramah in that it was like on top of us

1620

01:13:28,220 --> 01:13:24,510

slowing down right and that we it would

1621

01:13:31,040 --> 01:13:28,230

be like inside of Pluto's orbit before

1622

01:13:33,080 --> 01:13:31,050

we would even have a clue right of

1623

01:13:35,330 --> 01:13:33,090

course it's slowing down rapidly at that

1624

01:13:37,100 --> 01:13:35,340

point but that that would be it and

1625

01:13:40,310 --> 01:13:37,110

that's a frightening thing to wrap our

1626

01:13:42,170 --> 01:13:40,320

head around well it's we always say

1627

01:13:43,460 --> 01:13:42,180

there's no stealth in space but again if

1628

01:13:45,890 --> 01:13:43,470

you go in fast enough you don't need too

1629

01:13:48,020 --> 01:13:45,900

much stealth because you've got that

1630

01:13:50,780 --> 01:13:48,030

that surprise advantage don't seize you

1631

01:13:52,130 --> 01:13:50,790

- you almost say oh right of course you

1632

01:13:53,510 --> 01:13:52,140

don't really need that if you want you

1633

01:13:54,860 --> 01:13:53,520

militarily invade zone because you're

1634

01:13:57,320 --> 01:13:54,870

going that fast all you have to do is

1635

01:13:59,210 --> 01:13:57,330

not slow down you just throw your trash

1636

01:14:00,650 --> 01:13:59,220

out before you decelerate and let it hit

1637

01:14:02,510 --> 01:14:00,660

the planet you're heading towards and

1638

01:14:04,040 --> 01:14:02,520

you know the earth might only go on

1639

01:14:06,950 --> 01:14:04,050

thirty thousand miles now it's the

1640

01:14:08,360 --> 01:14:06,960

amount of the Sun but that stuff is

1641

01:14:10,190 --> 01:14:08,370

still movie the speed it's going out so

1642

01:14:12,650 --> 01:14:10,200

it's same as a spaceship hitting you

1643

01:14:14,930 --> 01:14:12,660

know interstellar debris you throw a ton

1644

01:14:16,220 --> 01:14:14,940

of garbage let's say a little a ton of

1645

01:14:18,050 --> 01:14:16,230

garbage out the front of your ship when

1646

01:14:20,840 --> 01:14:18,060

you're going near light speed it hits

1647

01:14:22,730 --> 01:14:20,850

that planet in front of you and you've

1648

01:14:24,110 --> 01:14:22,740

already got all your weapons deployed is

1649

01:14:25,460 --> 01:14:24,120

a war there's nothing no need to do

1650

01:14:25,950 --> 01:14:25,470

anything else the surface of that plan

1651

01:14:29,640 --> 01:14:25,960

on that's

1652

01:14:31,230 --> 01:14:29,650

is just squatched yes there's a little

1653

01:14:33,990 --> 01:14:31,240

need to supplies them beyond that when

1654

01:14:37,050 --> 01:14:34,000

your ship arrives it's already hit them

1655

01:14:39,000 --> 01:14:37,060

with a preemptive strike now when you

1656

01:14:41,430 --> 01:14:39,010

have started to put this data together

1657

01:14:42,270 --> 01:14:41,440

and by the way the people that work with

1658

01:14:44,910 --> 01:14:42,280

you

1659

01:14:47,910 --> 01:14:44,920

I think these concepts are fascinating

1660

01:14:50,850 --> 01:14:47,920

and the researches is just it's

1661

01:14:53,190 --> 01:14:50,860

unbelievable especially for me to go

1662

01:14:55,920 --> 01:14:53,200

through but when we start to contemplate

1663

01:15:00,000 --> 01:14:55,930

this and when you look at just our own

1664

01:15:02,460 --> 01:15:00,010

galaxy Isaac how much how much

1665

01:15:04,380 --> 01:15:02,470

intelligent life do you think could be

1666

01:15:08,000 --> 01:15:04,390

out there it doesn't have to be advanced

1667

01:15:11,160 --> 01:15:08,010

like at our level right our caveman

1668

01:15:13,290 --> 01:15:11,170

level of advancement how much how much

1669

01:15:16,830 --> 01:15:13,300

life do you think could be in our Milky

1670

01:15:18,420 --> 01:15:16,840

Way I would not be too surprised if we

1671

01:15:21,930 --> 01:15:18,430

found other life in this solar system

1672

01:15:24,270 --> 01:15:21,940

but not anything advanced it would not

1673

01:15:25,950 --> 01:15:24,280

surprise me we found simple life just

1674

01:15:27,510 --> 01:15:25,960

all over the place like every place it

1675

01:15:28,980 --> 01:15:27,520

could be well we could turn out to be a

1676

01:15:32,390 --> 01:15:28,990

lottery or than that too we don't really

1677

01:15:34,140 --> 01:15:32,400

have good models for abiogenesis yet

1678

01:15:36,360 --> 01:15:34,150

intelligence that's that's the other

1679

01:15:38,310 --> 01:15:36,370

story we look at the Fermi paradox we

1680

01:15:40,620 --> 01:15:38,320

say that there probably isn't any if we

1681

01:15:43,140 --> 01:15:40,630

if we draw that conclusion then it's

1682

01:15:44,820 --> 01:15:43,150

really technological life that's high or

1683

01:15:46,400 --> 01:15:44,830

you know that's at least a century ahead

1684

01:15:48,960 --> 01:15:46,410

of us right now that we're talking about

1685

01:15:50,640 --> 01:15:48,970

way all along the way the stumbling

1686

01:15:53,490 --> 01:15:50,650

block is that really cuts the numbers

1687

01:15:56,420 --> 01:15:53,500

down that is a lot harder to say the you

1688

01:15:58,650 --> 01:15:56,430

know the B had file a million years ago

1689

01:16:02,520 --> 01:15:58,660

we didn't start using it for pottery or

1690

01:16:04,380 --> 01:16:02,530

metal - about 10,000 years ago and you

1691

01:16:07,590 --> 01:16:04,390

can look at even like during Vespasian's

1692

01:16:10,950 --> 01:16:07,600

will or in the second century Roman M so

1693

01:16:12,600 --> 01:16:10,960

i 4th century boom we are the place born

1694

01:16:14,190 --> 01:16:12,610

down he didn't want to employ so in

1695

01:16:16,290 --> 01:16:14,200

technologies not as he didn't trust them

1696

01:16:20,100 --> 01:16:16,300

but because he said well how am I gonna

1697

01:16:22,320 --> 01:16:20,110

feed my people they have no jobs you

1698

01:16:23,580 --> 01:16:22,330

could have a civilization stud or you

1699

01:16:24,510 --> 01:16:23,590

know I think prior to about the

1700

01:16:27,270 --> 01:16:24,520

sixteenth century

1701

01:16:29,280 --> 01:16:27,280

there's no given that technology's gonna

1702

01:16:30,720 --> 01:16:29,290

keep advancing there isn't even now but

1703

01:16:32,730 --> 01:16:30,730

I'd say we're pretty much addicted to

1704

01:16:34,800 --> 01:16:32,740

the the pathway of more technology and

1705

01:16:37,080 --> 01:16:34,810

research the you know we were around

1706

01:16:38,280 --> 01:16:37,090

four million years with brains decently

1707

01:16:39,510 --> 01:16:38,290

unparticle we have now

1708

01:16:42,090 --> 01:16:39,520

and really didn't make much

1709

01:16:43,950 --> 01:16:42,100

technological progress so it could be

1710

01:16:46,680 --> 01:16:43,960

the entire galaxy is full up of

1711

01:16:49,110 --> 01:16:46,690

civilizations that onio lithic I would

1712

01:16:50,610 --> 01:16:49,120

tend to bet not but I don't have any you

1713

01:16:53,400 --> 01:16:50,620

know any evidence that that's just you

1714

01:16:55,380 --> 01:16:53,410

know my intuition says that intelligent

1715

01:16:58,050 --> 01:16:55,390

life of the caveman level for instance

1716

01:17:00,420 --> 01:16:58,060

is probably pretty decently Rael it

1717

01:17:04,170 --> 01:17:00,430

might be more common than stuff at all

1718

01:17:11,160 --> 01:17:04,180

level but I would tend to like that it's

1719

01:17:12,420 --> 01:17:11,170

still pretty Vail with our son is we're

1720

01:17:14,940 --> 01:17:12,430

blessed with something that's very

1721

01:17:16,790 --> 01:17:14,950

stable yes yeah and that is something to

1722

01:17:21,540 --> 01:17:16,800

always keep in mind on things like this

1723

01:17:23,970 --> 01:17:21,550

very stable a any variance in anything

1724

01:17:26,340 --> 01:17:23,980

with our son and we're not you and I are

1725

01:17:29,010 --> 01:17:26,350

not talking right now I have it's really

1726

01:17:31,440 --> 01:17:29,020

that simple isn't it well we could

1727

01:17:33,060 --> 01:17:31,450

probably survive if the son was more

1728

01:17:35,190 --> 01:17:33,070

active like a lot of stars in our class

1729

01:17:37,160 --> 01:17:35,200

so no ash we're not a freaking table

1730

01:17:40,410 --> 01:17:37,170

which is done the will bit of an outlier

1731

01:17:42,180 --> 01:17:40,420

if the son got less stable something

1732

01:17:43,920 --> 01:17:42,190

more extreme than amount of minimum or

1733

01:17:46,320 --> 01:17:43,930

the reverse where it was really

1734

01:17:48,300 --> 01:17:46,330

fluctuating all over the place in a case

1735

01:17:52,050 --> 01:17:48,310

like that we'd probably still survive

1736

01:17:54,000 --> 01:17:52,060

now unless was very extreme but you know

1737

01:17:55,680 --> 01:17:54,010

a long-term effect like that could boil

1738

01:17:57,960 --> 01:17:55,690

the atmosphere of a planet pretty easily

1739

01:17:59,700 --> 01:17:57,970

and stars are only ever getting hotter

1740

01:18:01,620 --> 01:17:59,710

they they start off cooler than they are

1741

01:18:04,140 --> 01:18:01,630

but after a billion years or so and they

1742

01:18:06,240 --> 01:18:04,150

just keep getting hotter as they slowly

1743

01:18:09,270 --> 01:18:06,250

walk their way up to that that subgiant

1744

01:18:11,700 --> 01:18:09,280

and then red giant stage and that shifts

1745

01:18:14,130 --> 01:18:11,710

the habitable zone for solar system and

1746

01:18:17,100 --> 01:18:14,140

we could have a lot of systems where it

1747

01:18:19,440 --> 01:18:17,110

started off inhabited and then the

1748

01:18:21,570 --> 01:18:19,450

atmosphere got stripped off and all that

1749

01:18:23,580 --> 01:18:21,580

life went away no necessary advanced

1750

01:18:25,610 --> 01:18:23,590

life like us we could survive a slow

1751

01:18:28,650 --> 01:18:25,620

incremental heating of the Sun right now

1752

01:18:30,810 --> 01:18:28,660

but obviously basic microbial life or

1753

01:18:33,270 --> 01:18:30,820

you know basic mammals cannot they don't

1754

01:18:34,980 --> 01:18:33,280

have technology and similarly you could

1755

01:18:36,840 --> 01:18:34,990

have plants that got seeded later on as

1756

01:18:39,920 --> 01:18:36,850

that Sun warmed up and then that warm

1757

01:18:42,360 --> 01:18:39,930

zone that habitable zone expanded and

1758

01:18:45,540 --> 01:18:42,370

something like that could be we also

1759

01:18:47,670 --> 01:18:45,550

about filters for what can get you to to

1760

01:18:49,560 --> 01:18:47,680

high advanced live that could be one of

1761

01:18:51,560 --> 01:18:49,570

those filters things that end up skinny

1762

01:18:54,020 --> 01:18:51,570

a lot of people out of the the

1763

01:18:57,650 --> 01:18:54,030

raishin is that a lot of plants only

1764

01:18:58,910 --> 01:18:57,660

habitable temporarily and they're not

1765

01:19:02,330 --> 01:18:58,920

habitable long enough for anything

1766

01:19:04,220 --> 01:19:02,340

advanced to show up and this is the big

1767

01:19:05,690 --> 01:19:04,230

problem with this is only guess what we

1768

01:19:08,420 --> 01:19:05,700

have to draw a logical inferences

1769

01:19:10,460 --> 01:19:08,430

because we still have so little data we

1770

01:19:12,890 --> 01:19:10,470

I mean we didn't have any plants until

1771

01:19:15,080 --> 01:19:12,900

about 20 years ago to look at but even

1772

01:19:16,940 --> 01:19:15,090

now with 5000 that sounds like a lot but

1773

01:19:20,090 --> 01:19:16,950

it's probably a trillion planets out

1774

01:19:22,490 --> 01:19:20,100

there at least and most of those plants

1775

01:19:23,960 --> 01:19:22,500

we found those are the easy ones to spot

1776

01:19:25,340 --> 01:19:23,970

they're the really big ones or the ones

1777

01:19:27,590 --> 01:19:25,350

where they close their Sun they don't

1778

01:19:30,080 --> 01:19:27,600

habitable anyway mm-hmm so that pool of

1779

01:19:33,470 --> 01:19:30,090

five thousand six thousand EXO planet is

1780

01:19:34,490 --> 01:19:33,480

now includes almost nothing that is

1781

01:19:36,290 --> 01:19:34,500

actually ortholite

1782

01:19:37,670 --> 01:19:36,300

not because those plants are real they

1783

01:19:40,370 --> 01:19:37,680

probably own but because they're the

1784

01:19:41,960 --> 01:19:40,380

harder ones to see mm-hmm and when we

1785

01:19:44,000 --> 01:19:41,970

have thousands of those that we can

1786

01:19:46,760 --> 01:19:44,010

actually see decently do some real

1787

01:19:48,170 --> 01:19:46,770

spectroscopy on then we might be able to

1788

01:19:50,390 --> 01:19:48,180

start talking about the probabilities of

1789

01:19:53,390 --> 01:19:50,400

this type of life you know this level of

1790

01:19:56,750 --> 01:19:53,400

live advancing to to microbial life or

1791

01:19:58,970 --> 01:19:56,760

to multicellular life or complex brains

1792

01:20:01,010 --> 01:19:58,980

until then we just kind of have to guess

1793

01:20:04,160 --> 01:20:01,020

off all intuition and that's never

1794

01:20:06,260 --> 01:20:04,170

trustworthy of course well and I like to

1795

01:20:09,410 --> 01:20:06,270

look at us you know what are we doing

1796

01:20:10,610 --> 01:20:09,420

here as as humans as earthlings we're

1797

01:20:12,080 --> 01:20:10,620

out there trying to figure this thing

1798

01:20:14,330 --> 01:20:12,090

out too as well we're looking for

1799

01:20:18,730 --> 01:20:14,340

searching for planets and and what what

1800

01:20:20,870 --> 01:20:18,740

could be out there et is a many alien

1801

01:20:22,610 --> 01:20:20,880

civilization that is out there that's

1802

01:20:25,400 --> 01:20:22,620

the only way to look at it they must be

1803

01:20:28,280 --> 01:20:25,410

doing the exact same thing but this is

1804

01:20:29,420 --> 01:20:28,290

where I think things get complicated you

1805

01:20:32,800 --> 01:20:29,430

just brought it up there could be a

1806

01:20:35,900 --> 01:20:32,810

trillion planets right a trillion that

1807

01:20:38,180 --> 01:20:35,910

undocumented just you know you can't you

1808

01:20:40,550 --> 01:20:38,190

can't go and map out and figure

1809

01:20:43,580 --> 01:20:40,560

everything give it a name and so I mean

1810

01:20:47,210 --> 01:20:43,590

it's just a tremendous amount but how

1811

01:20:50,480 --> 01:20:47,220

many of those alien civilizations know

1812

01:20:52,880 --> 01:20:50,490

about earth because we're one of a

1813

01:20:55,820 --> 01:20:52,890

trillion planets right it's the opposite

1814

01:20:58,220 --> 01:20:55,830

field of view right we're just one of a

1815

01:21:00,440 --> 01:20:58,230

trillion planets

1816

01:21:02,600 --> 01:21:00,450

these you see where I'm going with this

1817

01:21:04,700 --> 01:21:02,610

because my next question is alien

1818

01:21:08,450 --> 01:21:04,710

ancient aliens right

1819

01:21:10,760 --> 01:21:08,460

how many how many know about us if they

1820

01:21:12,410 --> 01:21:10,770

if they if we assume for the moment that

1821

01:21:13,790 --> 01:21:12,420

technology more or less goes the

1822

01:21:15,440 --> 01:21:13,800

direction we'll think and that

1823

01:21:17,060 --> 01:21:15,450

civilization more or less goes the way

1824

01:21:19,100 --> 01:21:17,070

that we're thinking where we expand out

1825

01:21:21,200 --> 01:21:19,110

ward not just to other stars but around

1826
01:21:24,500 --> 01:21:21,210
our own star into what we usually call a

1827
01:21:25,970 --> 01:21:24,510
Dyson swarm at that point in time if you

1828
01:21:27,740 --> 01:21:25,980
start talking about civilizations that

1829
01:21:31,330 --> 01:21:27,750
have access to the criminal billion

1830
01:21:33,500 --> 01:21:31,340
planetary man plants for the living area

1831
01:21:35,710 --> 01:21:33,510
they should actually be able to look at

1832
01:21:38,780 --> 01:21:35,720
every last star in the galaxy

1833
01:21:41,090 --> 01:21:38,790
simultaneously with much greater detail

1834
01:21:43,160 --> 01:21:41,100
than we have now without it actually

1835
01:21:44,150 --> 01:21:43,170
being like a major budgetary item you

1836
01:21:46,460 --> 01:21:44,160
know it'll be well those things where

1837
01:21:48,470 --> 01:21:46,470
the local space Congress only has the

1838
01:21:52,460 --> 01:21:48,480

you know it's like budgeting one

1839

01:21:54,860 --> 01:21:52,470

observatory and at that point if they

1840

01:21:56,600 --> 01:21:54,870

will around when light from our planet

1841

01:21:58,340 --> 01:21:56,610

would have each they owes they should

1842

01:21:59,510 --> 01:21:58,350

see us they should know were there they

1843

01:22:01,340 --> 01:21:59,520

don't have to wait to listen to your

1844

01:22:03,080 --> 01:22:01,350

radio signals they should have been

1845

01:22:04,640 --> 01:22:03,090

otoscope us out by our atmosphere for

1846

01:22:06,680 --> 01:22:04,650

instance and they could have been

1847

01:22:08,780 --> 01:22:06,690

sending flyby probes take photos and we

1848

01:22:10,910 --> 01:22:08,790

say well you might not be or tell from

1849

01:22:12,800 --> 01:22:10,920

the atmosphere radio is certainly a dead

1850

01:22:15,229 --> 01:22:12,810

giveaway but so something like the great

1851
01:22:16,610 --> 01:22:15,239
wall the pyramids it somebody builds a

1852
01:22:19,430 --> 01:22:16,620
you know we often talk about aliens in

1853
01:22:21,080 --> 01:22:19,440
terms of pyramids and you know the

1854
01:22:22,520 --> 01:22:21,090
pyramid would be one of the most obvious

1855
01:22:24,050 --> 01:22:22,530
things you could see from space you

1856
01:22:25,640 --> 01:22:24,060
couldn't see it from far off him you

1857
01:22:27,860 --> 01:22:25,650
can't see the moon landing sites from

1858
01:22:29,540 --> 01:22:27,870
Earth and Hubble mm-hmm but if you're in

1859
01:22:30,530 --> 01:22:29,550
orbit around the planet you're gonna fly

1860
01:22:32,150 --> 01:22:30,540
by with a satellite

1861
01:22:34,160 --> 01:22:32,160
you're gonna spot something like that it

1862
01:22:36,890 --> 01:22:34,170
sticks out like a sore thumb right and

1863
01:22:38,840 --> 01:22:36,900

you know you can't look at the pyramid

1864

01:22:41,390 --> 01:22:38,850

see on the ground say but that's natural

1865

01:22:42,560 --> 01:22:41,400

then they're gonna know there's

1866

01:22:44,630 --> 01:22:42,570

something down there that's intelligent

1867

01:22:45,860 --> 01:22:44,640

and I'd be surprised thing we had to

1868

01:22:47,240 --> 01:22:45,870

wait that long because they ought to be

1869

01:22:49,760 --> 01:22:47,250

able to pick things up from that calf

1870

01:22:51,530 --> 01:22:49,770

and just things like fire an individual

1871

01:22:53,770 --> 01:22:51,540

bonfires not like they get scoped out

1872

01:22:55,970 --> 01:22:53,780

but you start picking out you know

1873

01:22:57,320 --> 01:22:55,980

little trace and indicates in sign you

1874

01:22:59,390 --> 01:22:57,330

look a bit closer on something like why

1875

01:23:02,300 --> 01:22:59,400

all these tiny little files all over

1876

01:23:05,330 --> 01:23:02,310

these forests you know so they should

1877

01:23:06,740 --> 01:23:05,340

already have known about us if they

1878

01:23:08,300 --> 01:23:06,750

themselves were round obviously they

1879

01:23:10,970 --> 01:23:08,310

can't discover us until they they are

1880

01:23:11,330 --> 01:23:10,980

there but they should have known about

1881

01:23:12,979 --> 01:23:11,340

us

1882

01:23:16,189 --> 01:23:12,989

long time ago already if they were there

1883

01:23:20,000 --> 01:23:16,199

so we shouldn't be a new thing to them

1884

01:23:21,350 --> 01:23:20,010

per se and you know what have we talked

1885

01:23:23,930 --> 01:23:21,360

about them busyness we always have to

1886

01:23:25,939 --> 01:23:23,940

ask what's their motivation it's not raw

1887

01:23:28,520 --> 01:23:25,949

materials nobody's out there call me up

1888

01:23:30,080 --> 01:23:28,530

every last asteroid and planet right and

1889

01:23:31,910 --> 01:23:30,090

you can even suck material out of Suns

1890

01:23:36,919 --> 01:23:31,920

they are they've got way more than what

1891

01:23:38,330 --> 01:23:36,929

we have here and so the knowledge to a

1892

01:23:39,979 --> 01:23:38,340

la material is they have to be

1893

01:23:42,020 --> 01:23:39,989

understand what what does Earth have and

1894

01:23:43,669 --> 01:23:42,030

it's got really interesting flora and

1895

01:23:45,709 --> 01:23:43,679

fauna those are probably you know for

1896

01:23:46,760 --> 01:23:45,719

all the billions of wars out there you

1897

01:23:50,209 --> 01:23:46,770

know very last one of them has

1898

01:23:51,620 --> 01:23:50,219

ecosystems which is unlikely those are

1899

01:23:53,780 --> 01:23:51,630

all still going to be fairly unique

1900

01:23:55,370 --> 01:23:53,790

there's huge that number is is still

1901

01:23:57,080 --> 01:23:55,380

small compared to them of combinations

1902

01:23:59,270 --> 01:23:57,090

so they might be coming here to take

1903

01:24:00,830 --> 01:23:59,280

samples and of course earth culture

1904

01:24:03,350 --> 01:24:00,840

would probably very interesting to them

1905

01:24:05,419 --> 01:24:03,360

too and the funniest thing because I was

1906

01:24:07,070 --> 01:24:05,429

writing this up recently is looking in a

1907

01:24:08,839 --> 01:24:07,080

motivation to come and visit us if

1908

01:24:11,390 --> 01:24:08,849

you're one of those civilizations that

1909

01:24:13,700 --> 01:24:11,400

since the prime directive star exile zoo

1910

01:24:16,100 --> 01:24:13,710

hypothesis thing of shielding plants are

1911

01:24:17,689 --> 01:24:16,110

or they're primitive that implies you

1912

01:24:19,310 --> 01:24:17,699

find those culture was really

1913

01:24:22,100 --> 01:24:19,320

fascinating which means you probably

1914

01:24:25,040 --> 01:24:22,110

have a black market in like stolen

1915

01:24:27,680 --> 01:24:25,050

memorabilia and if it's like any sort of

1916

01:24:35,510 --> 01:24:27,690

regulatory F what we do you've probably

1917

01:24:39,379 --> 01:24:35,520

got people breaking those comic book

1918

01:24:43,700 --> 01:24:39,389

collection that is fascinating that is

1919

01:24:47,209 --> 01:24:43,710

fascinating of Rama by arthur c clarke

1920

01:24:48,649 --> 01:24:47,219

no way yeah yeah that's that's a pretty

1921

01:24:52,520 --> 01:24:48,659

interesting way to look at it and the

1922

01:24:56,060 --> 01:24:52,530

other the other if we flip this what

1923

01:24:58,399 --> 01:24:56,070

would make earth unique there's all the

1924

01:25:02,089 --> 01:24:58,409

gold in the universe out there that you

1925

01:25:05,390 --> 01:25:02,099

know it's you know water well hydrogen

1926

01:25:07,129 --> 01:25:05,400

is is not an issue in the universe you

1927

01:25:09,050 --> 01:25:07,139

know it is the third most common

1928

01:25:11,089 --> 01:25:09,060

material after hydrogen helium they all

1929

01:25:13,010 --> 01:25:11,099

quasars that pump out entire planetary

1930

01:25:15,260 --> 01:25:13,020

masses of water for their channels

1931

01:25:17,720 --> 01:25:15,270

that's right so what would make us

1932

01:25:21,570 --> 01:25:17,730

unique well we got good weed we've got a

1933

01:25:24,090 --> 01:25:21,580

great atmosphere it's certainly a

1934

01:25:24,990 --> 01:25:24,100

climate wise it would be a good place to

1935

01:25:27,660 --> 01:25:25,000

hang out

1936

01:25:29,970 --> 01:25:27,670

but I think you're right just coming by

1937

01:25:33,330 --> 01:25:29,980

and getting samples and going out and

1938

01:25:36,270 --> 01:25:33,340

and growing your own plants or things

1939

01:25:38,780 --> 01:25:36,280

that would be unique here is is

1940

01:25:42,390 --> 01:25:38,790

something to travel to Earth for hence

1941

01:25:44,640 --> 01:25:42,400

visitation and and probes and and and so

1942

01:25:48,450 --> 01:25:44,650

forth not necessarily to take over the

1943

01:25:50,850 --> 01:25:48,460

planet or the conquerors ya know and the

1944

01:25:53,820 --> 01:25:50,860

more important a place of value on on

1945

01:25:55,770 --> 01:25:53,830

you know that that sort of thing the

1946

01:25:57,600 --> 01:25:55,780

individual uniqueness of life or culture

1947

01:25:59,430 --> 01:25:57,610

the more likely they ought to want to

1948

01:26:02,040 --> 01:25:59,440

shield that from outside influence for a

1949

01:26:03,630 --> 01:26:02,050

while and the more you have a motivation

1950

01:26:07,080 --> 01:26:03,640

for people to want to sneak in and do

1951

01:26:08,190 --> 01:26:07,090

that right and so you know it's I'm not

1952

01:26:09,930 --> 01:26:08,200

saying that's what's happening of course

1953

01:26:11,880 --> 01:26:09,940

but you always well look at what the

1954

01:26:15,000 --> 01:26:11,890

motivations are and what they would do

1955

01:26:17,010 --> 01:26:15,010

if that was the case and you know if I

1956

01:26:18,600 --> 01:26:17,020

was trying to abduct people to get DNA

1957

01:26:20,310 --> 01:26:18,610

samples they could've got those DNA

1958

01:26:22,200 --> 01:26:20,320

samples a long time ago we haven't

1959

01:26:24,510 --> 01:26:22,210

changed that much and they could also

1960

01:26:26,820 --> 01:26:24,520

just you know abduct a mailbox instead

1961

01:26:28,140 --> 01:26:26,830

there's a thousand that was by people

1962

01:26:31,170 --> 01:26:28,150

who've touched those that's all the DNA

1963

01:26:32,880 --> 01:26:31,180

you need right right and when we come

1964

01:26:35,430 --> 01:26:32,890

back we're gonna take a break but I do

1965

01:26:39,840 --> 01:26:35,440

want to talk about we the the whole

1966

01:26:42,960 --> 01:26:39,850

independence day aspect of this of an

1967

01:26:44,670 --> 01:26:42,970

invasion is something that does need to

1968

01:26:46,350 --> 01:26:44,680

be discussed and you do it really really

1969

01:26:48,390 --> 01:26:46,360

well so when we come back we're going to

1970

01:26:52,400 --> 01:26:48,400

do that and also I encourage everybody

1971

01:26:55,500 --> 01:26:52,410

out there if you haven't visited Isaac's

1972

01:26:58,500 --> 01:26:55,510

YouTube channel start with the Fermi

1973

01:27:00,480 --> 01:26:58,510

paradox compendium but then after you do

1974

01:27:03,800 --> 01:27:00,490

that go straight to stupid aliens

1975

01:27:07,110 --> 01:27:03,810

because that's one of the presentations

1976

01:27:09,000 --> 01:27:07,120

I've ever heard to silence a lot of

1977

01:27:11,400 --> 01:27:09,010

people including myself so let's take a

1978

01:27:13,950 --> 01:27:11,410

break right here Isaac and when we come

1979

01:27:15,390 --> 01:27:13,960

back we'll pick up where we left off but

1980

01:27:18,960 --> 01:27:15,400

we've got to go too

1981

01:27:21,060 --> 01:27:18,970

why haven't we been invaded it's one of

1982

01:27:22,860 --> 01:27:21,070

the best conversations that one can have

1983

01:27:27,570 --> 01:27:22,870

with Isaac Arthur we're going to do that

1984

01:27:43,369 --> 01:27:33,530

[Music]

1985

01:27:50,849 --> 01:27:46,549

way out here we listen to Jimmy Church

1986

01:27:52,889 --> 01:27:50,859

you're listening to fade to black always

1987

01:27:55,709 --> 01:27:52,899

on the edge of the hottest alternative

1988

01:28:14,969 --> 01:27:55,719

talk jimmy church with fade to black

1989

01:28:18,689 --> 01:28:14,979

stay GRA radio.com hurricanes

1990

01:28:20,459 --> 01:28:18,699

earthquakes wildfires this year we've

1991

01:28:23,250 --> 01:28:20,469

experienced more than our fair share

1992

01:28:25,739 --> 01:28:23,260

this is Jimmy Church a fade to black and

1993

01:28:27,929 --> 01:28:25,749

last month I decided to make sure my

1994

01:28:30,089 --> 01:28:27,939

family does not have to worry about food

1995

01:28:33,839 --> 01:28:30,099

should we get caught in a real emergency

1996

01:28:35,729 --> 01:28:33,849

situation introducing Humana a healthy

1997

01:28:37,349 --> 01:28:35,739

storable product that tastes so good

1998

01:28:39,329 --> 01:28:37,359

that you'll want to eat it every day

1999

01:28:42,089 --> 01:28:39,339

instead of just during those times of

2000

01:28:45,479 --> 01:28:42,099

duress all new manna products have a 25

2001
01:28:47,599 --> 01:28:45,489
year shelf life our msg and GMO free no

2002
01:28:50,040 --> 01:28:47,609
preservatives and are made in America

2003
01:28:51,839 --> 01:28:50,050
with the new manna pack in your home

2004
01:28:54,569 --> 01:28:51,849
you'll be able to sleep at night knowing

2005
01:28:57,419 --> 01:28:54,579
that you've protected your family not

2006
01:28:59,939 --> 01:28:57,429
only have I tasted and tested I own it

2007
01:29:01,679 --> 01:28:59,949
now you can too just click on the new

2008
01:29:03,989 --> 01:29:01,689
manna banner on Jimmy Church radio.com

2009
01:29:06,449 --> 01:29:03,999
and use the promo code Jimmy when you

2010
01:29:08,099 --> 01:29:06,459
order in addition to a discount we'll

2011
01:29:12,750 --> 01:29:08,109
send you an autograph fade to black

2012
01:29:14,909 --> 01:29:12,760
t-shirt seriously gobekli tepe do you

2013
01:29:17,579 --> 01:29:14,919

want to be an official fade or not of

2014

01:29:19,799 --> 01:29:17,589

course you do this is Jimmy Church of

2015

01:29:23,089 --> 01:29:19,809

fade to black just go to our membership

2016

01:29:26,579 --> 01:29:23,099

section at Jimmy Church radio.com

2017

01:29:30,239 --> 01:29:26,589

so you love talk radio then you'll love

2018

01:29:33,089 --> 01:29:30,249

talk stream live.com talk stream live is

2019

01:29:35,339 --> 01:29:33,099

always on 24/7 with the best streaming

2020

01:29:37,409 --> 01:29:35,349

talk shows find your favorite talkers

2021

01:29:40,049 --> 01:29:37,419

and discover some new ones it's free

2022

01:29:42,329 --> 01:29:40,059

readily available online or on mobile

2023

01:29:44,250 --> 01:29:42,339

with any smartphone or tablet finding

2024

01:29:46,739 --> 01:29:44,260

your favorite talk shows all in one

2025

01:29:49,559 --> 01:29:46,749

place has gotten a whole lot easier just

2026

01:29:50,240 --> 01:29:49,569

go to talk stream live.com be sure to

2027

01:29:51,890 --> 01:29:50,250

download the

2028

01:29:56,960 --> 01:29:51,900

three apps from Google Play or the

2029

01:30:04,100 --> 01:29:56,970

iTunes App Store you listen to us and we

2030

01:30:07,400 --> 01:30:04,110

listen to you and so does the CIA kgr a

2031

01:30:09,350 --> 01:30:07,410

radio calm if you have hard water the

2032

01:30:10,880 --> 01:30:09,360

lime scale not only leaves white spots

2033

01:30:13,010 --> 01:30:10,890

at clogs pipes and breaks down

2034

01:30:15,140 --> 01:30:13,020

appliances costing you hundreds of

2035

01:30:17,030 --> 01:30:15,150

dollars in energy and where eliminate

2036

01:30:19,190 --> 01:30:17,040

limescale and other water issues like

2037

01:30:21,260 --> 01:30:19,200

brown staining and bad odors with hydro

2038

01:30:23,390 --> 01:30:21,270

care water products available from wave

2039

01:30:25,400 --> 01:30:23,400

home solutions waves affordable water

2040

01:30:27,350 --> 01:30:25,410

systems don't use salts or chemicals

2041

01:30:29,660 --> 01:30:27,360

you'll love the way your water tastes

2042

01:30:32,030 --> 01:30:29,670

smells and looks satisfaction guaranteed

2043

01:30:36,440 --> 01:30:32,040

for more information go to best water 1

2044

01:30:38,810 --> 01:30:36,450

2 3 com that's best water 1 2 3 com are

2045

01:30:41,450 --> 01:30:38,820

you intrigued by paranormal talk radio

2046

01:30:44,660 --> 01:30:41,460

you love the new paranormal radio app

2047

01:30:46,580 --> 01:30:44,670

from talk stream live you'll find a

2048

01:30:49,970 --> 01:30:46,590

great selection of talk shows covering

2049

01:30:52,370 --> 01:30:49,980

UFOs ghosts strange phenomena and much

2050

01:30:54,620 --> 01:30:52,380

more download the paranormal radio app

2051
01:30:56,200 --> 01:30:54,630
now and start listening to the very best

2052
01:30:58,370 --> 01:30:56,210
in paranormal talk entertainment

2053
01:31:00,740 --> 01:30:58,380
including the network you're listening

2054
01:31:03,950 --> 01:31:00,750
to right now the paranormal radio app

2055
01:31:08,720 --> 01:31:03,960
free in Google Play and the iOS App

2056
01:31:11,000 --> 01:31:08,730
Store you are listening to fade to black

2057
01:31:15,800 --> 01:31:11,010
with Jimmy Church on the game changer

2058
01:31:17,870 --> 01:31:15,810
Network hi I'm Lisa Vance you're

2059
01:31:20,810 --> 01:31:17,880
listening to Jimmy Church this is a

2060
01:31:24,670 --> 01:31:20,820
revolution the revolution will not be

2061
01:31:30,050 --> 01:31:24,680
televised the revolution is on radio

2062
01:32:07,470 --> 01:32:04,660
[Music]

2063
01:32:09,940 --> 01:32:07,480

[Applause]

2064

01:32:11,290 --> 01:32:09,950

welcome back fade to black I am your

2065

01:32:13,600 --> 01:32:11,300

host Jimmy Church you can follow me on

2066

01:32:17,230 --> 01:32:13,610

Twitter at Jay Church radio you can

2067

01:32:19,330 --> 01:32:17,240

follow Isaac at Isaac Arthur you know

2068

01:32:22,540 --> 01:32:19,340

what let me let me jump in really quick

2069

01:32:25,120 --> 01:32:22,550

Isaac is it Isaac a Arthur on Twitter I

2070

01:32:28,180 --> 01:32:25,130

think it is Isaac a of--the on twitter i

2071

01:32:29,320 --> 01:32:28,190

I I use whichever ones a free at the

2072

01:32:32,710 --> 01:32:29,330

time when you're logging into those

2073

01:32:34,710 --> 01:32:32,720

things is usually some other Isaac um a

2074

01:32:37,690 --> 01:32:34,720

double check yeah it is Isaac a although

2075

01:32:39,700 --> 01:32:37,700

underscore between the A's there you go

2076

01:32:41,350 --> 01:32:39,710

if there's a lot of other Isaac Arthur's

2077

01:32:44,380 --> 01:32:41,360

out there you need the a in the middle

2078

01:32:47,020 --> 01:32:44,390

to separate you from the imposters it's

2079

01:32:48,280 --> 01:32:47,030

actually all someone's there's another

2080

01:32:50,110 --> 01:32:48,290

Isaac although he actually looks a

2081

01:32:51,640 --> 01:32:50,120

little bit like me does Kraft design be

2082

01:32:55,750 --> 01:32:51,650

owes on you too but they actually took

2083

01:32:59,380 --> 01:32:55,760

videos that's a good guy to get to know

2084

01:33:01,180 --> 01:32:59,390

right there at some point yeah that's it

2085

01:33:01,690 --> 01:33:01,190

that's your show sponsor if I've ever

2086

01:33:04,900 --> 01:33:01,700

heard one

2087

01:33:06,610 --> 01:33:04,910

so look that's the big question that we

2088

01:33:11,230 --> 01:33:06,620

started to touch upon right before the

2089

01:33:12,940 --> 01:33:11,240

break is if the our galaxy and the

2090

01:33:14,560 --> 01:33:12,950

universe is teeming with life and

2091

01:33:16,750 --> 01:33:14,570

there's advanced civilizations out there

2092

01:33:18,790 --> 01:33:16,760

ten thousand a billion years a million

2093

01:33:22,360 --> 01:33:18,800

years more advanced than us then they

2094

01:33:25,750 --> 01:33:22,370

must be having our eye on planet Earth

2095

01:33:30,190 --> 01:33:25,760

why haven't they invaded and enslaved us

2096

01:33:32,440 --> 01:33:30,200

well okay I posed two things one they

2097

01:33:36,880 --> 01:33:32,450

would be enlightened beings and have

2098

01:33:39,160 --> 01:33:36,890

moved past you know death but then

2099

01:33:41,320 --> 01:33:39,170

there's the other side that maybe

2100

01:33:45,310 --> 01:33:41,330

they're just not interested and there's

2101
01:33:48,400 --> 01:33:45,320
nothing here for for them to enslave and

2102
01:33:50,670 --> 01:33:48,410
get a benefit from but that's the

2103
01:33:53,560 --> 01:33:50,680
question why haven't we been taken over

2104
01:33:55,510 --> 01:33:53,570
well I mean we've got different ways we

2105
01:33:56,590 --> 01:33:55,520
can look at it I tend to assume that the

2106
01:33:58,420 --> 01:33:56,600
reason we haven't been is because

2107
01:34:02,470 --> 01:33:58,430
nobody's out there able to do it yet um

2108
01:34:03,460 --> 01:34:02,480
but if they war you we hear this oh they

2109
01:34:05,530 --> 01:34:03,470
wouldn't be interested in us they'd be

2110
01:34:06,700 --> 01:34:05,540
so far beyond us and and that one never

2111
01:34:08,110 --> 01:34:06,710
holds water to me

2112
01:34:09,610 --> 01:34:08,120
I could imagine there'd be a lot of

2113
01:34:10,810 --> 01:34:09,620

people out there who didn't find us

2114

01:34:13,609 --> 01:34:10,820

interesting but they are people who

2115

01:34:15,949 --> 01:34:13,619

devote their entire lives to studying

2116

01:34:17,089 --> 01:34:15,959

plan so insects why wouldn't they you

2117

01:34:18,819 --> 01:34:17,099

know I'm totally we could talk to them

2118

01:34:21,500 --> 01:34:18,829

we would every talks there cats and dogs

2119

01:34:24,079 --> 01:34:21,510

so I don't like the idea that they were

2120

01:34:26,119 --> 01:34:24,089

just going to find us boring as say

2121

01:34:28,989 --> 01:34:26,129

people visit Kansas in Oklahoma all the

2122

01:34:31,819 --> 01:34:28,999

time inspire them being parochial a boy

2123

01:34:33,229 --> 01:34:31,829

and now they would have invaded us that

2124

01:34:35,959 --> 01:34:33,239

one's actually a little bit easier to

2125

01:34:37,489 --> 01:34:35,969

cover because the first thing is if if

2126
01:34:39,439 --> 01:34:37,499
we're out there and they're out they are

2127
01:34:40,849 --> 01:34:39,449
you know we're the four species they

2128
01:34:42,949 --> 01:34:40,859
ever met and they're gonna be kind of

2129
01:34:44,479 --> 01:34:42,959
curious about us or they were all over

2130
01:34:47,119 --> 01:34:44,489
the place and if they're all over the

2131
01:34:48,949 --> 01:34:47,129
place then you have to say well if they

2132
01:34:51,799 --> 01:34:48,959
invade us what is somebody else doing

2133
01:34:53,419 --> 01:34:51,809
you know we're not gonna have some close

2134
01:34:56,299 --> 01:34:53,429
neighbor who is the only one who's they

2135
01:34:57,949 --> 01:34:56,309
or you know it's just us or it's just us

2136
01:34:59,209 --> 01:34:57,959
in them and we are a bit of a puzzle

2137
01:35:00,919 --> 01:34:59,219
that they were kind of interested in

2138
01:35:03,949 --> 01:35:00,929

because it's the force dating life

2139

01:35:05,750 --> 01:35:03,959

development either or there's species

2140

01:35:07,639 --> 01:35:05,760

all over the place so which are probably

2141

01:35:09,770 --> 01:35:07,649

really old and powerful and might take

2142

01:35:11,089 --> 01:35:09,780

offense if somebody's just starts blow

2143

01:35:11,509 --> 01:35:11,099

up other people's plants or enslaving

2144

01:35:14,419 --> 01:35:11,519

people

2145

01:35:17,209 --> 01:35:14,429

mhm but then of course there's the other

2146

01:35:20,149 --> 01:35:17,219

motive is what is the actual motive to

2147

01:35:22,219 --> 01:35:20,159

invade to study sure I can see that one

2148

01:35:24,559 --> 01:35:22,229

easy enough but they don't need us for

2149

01:35:26,299 --> 01:35:24,569

slave labor they've almost got to have

2150

01:35:29,359 --> 01:35:26,309

better robots than we do now you know

2151
01:35:30,319 --> 01:35:29,369
and we don't need more either while the

2152
01:35:32,449 --> 01:35:30,329
biggest problems I'll give you no matter

2153
01:35:35,229 --> 01:35:32,459
slavery in the in the nineteenth century

2154
01:35:38,689 --> 01:35:35,239
was that me place was still dependent on

2155
01:35:40,429 --> 01:35:38,699
basically forced labor and you've got a

2156
01:35:43,609 --> 01:35:40,439
lot easier to ban that as we got better

2157
01:35:46,040 --> 01:35:43,619
automation what value do we have as

2158
01:35:49,969 --> 01:35:46,050
label or as slaves we really don't have

2159
01:35:51,169 --> 01:35:49,979
any and you know they're not gonna want

2160
01:35:52,909 --> 01:35:51,179
to grow us for food because they could

2161
01:35:54,619 --> 01:35:52,919
clone us and you know presumably they

2162
01:35:56,989 --> 01:35:54,629
don't actually have to kill people to

2163
01:35:59,449 --> 01:35:56,999

get meat from them so there's not an

2164

01:36:01,339 --> 01:35:59,459

obvious motivation to invade us to take

2165

01:36:02,869 --> 01:36:01,349

us over in the classic sense the ward

2166

01:36:04,849 --> 01:36:02,879

and you know that's just potentially

2167

01:36:07,309 --> 01:36:04,859

causing them problems why don't most

2168

01:36:09,259 --> 01:36:07,319

countries invade places nowadays the

2169

01:36:12,500 --> 01:36:09,269

climate the situation doesn't really

2170

01:36:16,009 --> 01:36:12,510

make that you you know viable either or

2171

01:36:18,079 --> 01:36:16,019

to do it or to want to do it and that's

2172

01:36:19,609 --> 01:36:18,089

that's very technology-based every

2173

01:36:21,169 --> 01:36:19,619

culture every race is gonna be a lot

2174

01:36:23,929 --> 01:36:21,179

different in our outlook so you might

2175

01:36:26,599 --> 01:36:23,939

have some that war or fine with that but

2176
01:36:27,370 --> 01:36:26,609
if we assume on the mediocrity principle

2177
01:36:29,200 --> 01:36:27,380
that we

2178
01:36:30,850 --> 01:36:29,210
fairly normal and we can I have to make

2179
01:36:33,670 --> 01:36:30,860
that assumption because we only got one

2180
01:36:35,020 --> 01:36:33,680
case to look at then you to kind of

2181
01:36:37,030 --> 01:36:35,030
guess there would be people who would be

2182
01:36:38,770 --> 01:36:37,040
very offended by that who might you know

2183
01:36:41,170 --> 01:36:38,780
take militant to issue to somebody going

2184
01:36:43,150 --> 01:36:41,180
around invading planets and again

2185
01:36:46,240 --> 01:36:43,160
there's no real motivation to do it for

2186
01:36:48,190 --> 01:36:46,250
you sort of obvious benefits but again

2187
01:36:50,830 --> 01:36:48,200
using the they're all collectors and

2188
01:36:52,600 --> 01:36:50,840

they lost your comic books example they

2189

01:36:54,760 --> 01:36:52,610

might have people staking claims to it

2190

01:36:57,100 --> 01:36:54,770

because they want those cultural

2191

01:36:58,750 --> 01:36:57,110

artifacts and so we've kind of music you

2192

01:37:00,910 --> 01:36:58,760

could have a hidden invasion where some

2193

01:37:03,670 --> 01:37:00,920

you know nation out there some space

2194

01:37:05,980 --> 01:37:03,680

nation invaded the planets seizes their

2195

01:37:09,040 --> 01:37:05,990

own violently protects it from other

2196

01:37:12,850 --> 01:37:09,050

people coming by and you know steals

2197

01:37:14,140 --> 01:37:12,860

away Wikipedia or the you know best 100

2198

01:37:18,310 --> 01:37:14,150

films what I want to sell on the market

2199

01:37:20,710 --> 01:37:18,320

is a war and so it kind of depends what

2200

01:37:22,420 --> 01:37:20,720

do we mean by invasion the classic

2201
01:37:25,420 --> 01:37:22,430
military invasion your Independence Day

2202
01:37:27,130 --> 01:37:25,430
scenarios those don't really walk and of

2203
01:37:28,510 --> 01:37:27,140
course they also be very short to you're

2204
01:37:29,800 --> 01:37:28,520
just not gonna win if they decide to

2205
01:37:31,600 --> 01:37:29,810
invade that way and they just want us

2206
01:37:33,850 --> 01:37:31,610
all dead because you don't have to rely

2207
01:37:35,680 --> 01:37:33,860
on a fleet to to kill everybody you just

2208
01:37:37,330 --> 01:37:35,690
as we say you and you have to stop at

2209
01:37:39,850 --> 01:37:37,340
the planets you just dump your trash out

2210
01:37:47,170 --> 01:37:39,860
for your eyes ram their planet and kill

2211
01:37:50,980 --> 01:37:47,180
everybody with the okay so now the this

2212
01:37:53,080 --> 01:37:50,990
is where for me a I look at us and I

2213
01:37:55,630 --> 01:37:53,090

think that we're growing up Isaac we're

2214

01:37:58,420 --> 01:37:55,640

maturing in fact you just mentioned that

2215

01:38:01,900 --> 01:37:58,430

in in a strange way about invading

2216

01:38:05,110 --> 01:38:01,910

another country even that is less and

2217

01:38:06,310 --> 01:38:05,120

less likely as the days move forward for

2218

01:38:08,230 --> 01:38:06,320

a lot of different reasons

2219

01:38:10,870 --> 01:38:08,240

but another reason is that we are

2220

01:38:15,190 --> 01:38:10,880

maturing hopefully one day we won't have

2221

01:38:17,470 --> 01:38:15,200

guns but an intelligent civilization out

2222

01:38:20,800 --> 01:38:17,480

there would develop in the same

2223

01:38:24,400 --> 01:38:20,810

direction and maybe would have to move

2224

01:38:26,440 --> 01:38:24,410

away from a warring a faction that is

2225

01:38:28,840 --> 01:38:26,450

out there trying to conquer because

2226

01:38:30,010 --> 01:38:28,850

there are other civilizations out there

2227

01:38:32,530 --> 01:38:30,020

too as well that they're in

2228

01:38:35,950 --> 01:38:32,540

communication with I would think and

2229

01:38:39,400 --> 01:38:35,960

that this is the way of the universe and

2230

01:38:40,810 --> 01:38:39,410

the way of the galaxy and that battling

2231

01:38:44,160 --> 01:38:40,820

and killing isn't

2232

01:38:46,810 --> 01:38:44,170

heart of an enlightened civilization I

2233

01:38:47,950 --> 01:38:46,820

mean I think that's that's poppy where

2234

01:38:50,260 --> 01:38:47,960

it's something but I'd like to be true

2235

01:38:51,910 --> 01:38:50,270

is that you know as species get more

2236

01:38:54,340 --> 01:38:51,920

technology to get more mature and

2237

01:38:56,530 --> 01:38:54,350

ethical but I you know you really can't

2238

01:38:58,030 --> 01:38:56,540

take that too much forgiven because

2239

01:39:00,190 --> 01:38:58,040

their idea of what South ago and all

2240

01:39:02,050 --> 01:39:00,200

idea I mean you go back and read a book

2241

01:39:04,690 --> 01:39:02,060

for the being a 20th century I was think

2242

01:39:06,400 --> 01:39:04,700

about HP Lovecraft love his walk while

2243

01:39:10,360 --> 01:39:06,410

the force guys to really explore the

2244

01:39:12,850 --> 01:39:10,370

idea of a vast and and huge universe but

2245

01:39:14,700 --> 01:39:12,860

man was a racist through and through and

2246

01:39:16,930 --> 01:39:14,710

a lot of people's in that year war and

2247

01:39:19,000 --> 01:39:16,940

somebody writing in the 22nd century

2248

01:39:22,420 --> 01:39:19,010

might tend to think we're all barbarians

2249

01:39:23,620 --> 01:39:22,430

too and they might have a completely

2250

01:39:25,690 --> 01:39:23,630

different scale for how they evaluate

2251

01:39:27,430 --> 01:39:25,700

that you try to protect a future ethics

2252

01:39:30,340 --> 01:39:27,440

it's usually not gonna go but you know

2253

01:39:31,960 --> 01:39:30,350

to successfully so we could have aliens

2254

01:39:37,420 --> 01:39:31,970

out there who hold views that we just

2255

01:39:38,950 --> 01:39:37,430

find absolutely loathsome and I think

2256

01:39:41,380 --> 01:39:38,960

though that you do tend to probably have

2257

01:39:44,170 --> 01:39:41,390

to go away from overt violence masks

2258

01:39:45,940 --> 01:39:44,180

your destruction just because it's so

2259

01:39:47,650 --> 01:39:45,950

much easier to blow things up than to

2260

01:39:49,750 --> 01:39:47,660

make them enemy technological

2261

01:39:52,480 --> 01:39:49,760

civilization is going to have had to

2262

01:39:54,340 --> 01:39:52,490

confront that that problem so well goes

2263

01:39:57,220 --> 01:39:54,350

well aren't they happy very warlike or

2264

01:40:00,460 --> 01:39:57,230

not they probably don't blow stuff up a

2265

01:40:01,900 --> 01:40:00,470

lot just because that's not going to be

2266

01:40:04,060 --> 01:40:01,910

the most effective way from their

2267

01:40:06,730 --> 01:40:04,070

perspective to go about you know winning

2268

01:40:09,550 --> 01:40:06,740

things it's too too much of exchange of

2269

01:40:11,530 --> 01:40:09,560

nukes everywhere or antimatter devices

2270

01:40:13,300 --> 01:40:11,540

or you know scorching a laser from

2271

01:40:17,470 --> 01:40:13,310

another solar system with an i-cord lson

2272

01:40:18,880 --> 01:40:17,480

beam that sort of practice is much too

2273

01:40:22,300 --> 01:40:18,890

much of a scorched earth literally

2274

01:40:23,770 --> 01:40:22,310

policy and so hopefully we don't see

2275

01:40:26,190 --> 01:40:23,780

that much of that sort of behavior in

2276

01:40:28,180 --> 01:40:26,200

the future from us or them or whoever

2277

01:40:29,920 --> 01:40:28,190

but we can't really rule it out either

2278

01:40:32,770 --> 01:40:29,930

there could be species out there they

2279

01:40:35,950 --> 01:40:32,780

were just openly genocide all this is

2280

01:40:39,820 --> 01:40:35,960

the 50th anniversary of Chariots of the

2281

01:40:41,950 --> 01:40:39,830

Gods and it's hard for me to wrap my

2282

01:40:47,560 --> 01:40:41,960

head around that it's been 50 years but

2283

01:40:50,380 --> 01:40:47,570

it has this is 2019 and the impact that

2284

01:40:53,050 --> 01:40:50,390

Eric had on popular culture and the

2285

01:40:55,190 --> 01:40:53,060

concept of this which you brought up HP

2286

01:40:57,980 --> 01:40:55,200

Lovecraft he certainly wrote about

2287

01:41:00,620 --> 01:40:57,990

the these theories a hundred years ago

2288

01:41:03,890 --> 01:41:00,630

but that's where we are today

2289

01:41:05,990 --> 01:41:03,900

how much visitation do you think has

2290

01:41:08,810 --> 01:41:06,000

happened in the past and even the

2291

01:41:10,700 --> 01:41:08,820

distant past on this planet well I mean

2292

01:41:12,440 --> 01:41:10,710

again my stated view on it is that

2293

01:41:15,050 --> 01:41:12,450

there's probably no other intelligent

2294

01:41:16,580 --> 01:41:15,060

species in our galaxy yet so I would

2295

01:41:18,320 --> 01:41:16,590

guess none but if there's anybody out

2296

01:41:21,110 --> 01:41:18,330

there who's doing it then I would guess

2297

01:41:23,000 --> 01:41:21,120

tons it's it's just you know we'd say

2298

01:41:25,340 --> 01:41:23,010

well the issue the phony paradox is not

2299

01:41:27,380 --> 01:41:25,350

that people would want to visit all it's

2300

01:41:29,330 --> 01:41:27,390

that they are so likely to want to visit

2301

01:41:31,400 --> 01:41:29,340

earth that it's almost unbelievable that

2302

01:41:33,320 --> 01:41:31,410

we wouldn't see them all the time and of

2303

01:41:34,940 --> 01:41:33,330

course many people feel that we do but

2304

01:41:36,560 --> 01:41:34,950

if they're out there I would take is it

2305

01:41:39,950 --> 01:41:36,570

almost a given that they have better

2306

01:41:41,330 --> 01:41:39,960

you're so many times it's ridiculous and

2307

01:41:42,950 --> 01:41:41,340

again from my perspective that means

2308

01:41:45,320 --> 01:41:42,960

they're probably not out they are but if

2309

01:41:46,820 --> 01:41:45,330

they are I just can't imagine why they

2310

01:41:48,620 --> 01:41:46,830

wouldn't have swung by you're not

2311

01:41:49,820 --> 01:41:48,630

because they'd be obsessed with auth but

2312

01:41:52,130 --> 01:41:49,830

when you're talking about massive

2313

01:41:55,370 --> 01:41:52,140

civilizations of who knows how many

2314

01:41:57,320 --> 01:41:55,380

quintillions of members somebody is

2315

01:42:00,530 --> 01:41:57,330

going to have written their own entire

2316

01:42:02,150 --> 01:42:00,540

thesis on earth even if almost nobody

2317

01:42:04,070 --> 01:42:02,160

even knows what the planet exists right

2318

01:42:05,960 --> 01:42:04,080

you know you just use specialized

2319

01:42:08,180 --> 01:42:05,970

societies you're gonna have people who

2320

01:42:10,130 --> 01:42:08,190

all all about all who probably know more

2321

01:42:12,890 --> 01:42:10,140

about Earth than we do and they've made

2322

01:42:14,450 --> 01:42:12,900

their entire life career but you'll have

2323

01:42:17,930 --> 01:42:14,460

fan clubs that might outnumber all

2324

01:42:20,090 --> 01:42:17,940

entire population Yeah right right and

2325

01:42:21,500 --> 01:42:20,100

just because their civilizations are so

2326

01:42:23,540 --> 01:42:21,510

huge that even though it's a tiny

2327

01:42:26,270 --> 01:42:23,550

portion that's interested it's still a

2328

01:42:28,340 --> 01:42:26,280

huge number yeah just like the Japanese

2329

01:42:30,680 --> 01:42:28,350

and the French know more about the Blues

2330

01:42:33,230 --> 01:42:30,690

here in the United States that we do

2331

01:42:36,920 --> 01:42:33,240

that live here that's a fascinating way

2332

01:42:43,130 --> 01:42:36,930

to look at it and then you you discuss

2333

01:42:46,340 --> 01:42:43,140

in in depth many times about coming here

2334

01:42:48,860 --> 01:42:46,350

if your focus was on planet Earth you

2335

01:42:52,190 --> 01:42:48,870

would spend so much time getting here

2336

01:42:54,200 --> 01:42:52,200

that you would know everything about the

2337

01:42:56,450 --> 01:42:54,210

earth our languages and everything about

2338

01:42:58,850 --> 01:42:56,460

us before you even arrived and that so

2339

01:43:01,760 --> 01:42:58,860

you would have an ability to to

2340

01:43:06,080 --> 01:43:01,770

communicate and you would know how to

2341

01:43:08,690 --> 01:43:06,090

build a hybrid human to represent us

2342

01:43:11,600 --> 01:43:08,700

here on earth too as well so we wouldn't

2343

01:43:13,610 --> 01:43:11,610

count-o an Android or you know you you

2344

01:43:15,410 --> 01:43:13,620

you have the options they are now it

2345

01:43:17,450 --> 01:43:15,420

might be really hard to mimic human

2346

01:43:18,770 --> 01:43:17,460

behavior you need so much what we do is

2347

01:43:21,020 --> 01:43:18,780

is something we've learned our whole

2348

01:43:22,820 --> 01:43:21,030

life and our brains are wild for a lot

2349

01:43:24,260 --> 01:43:22,830

of it but they should be able to cobble

2350

01:43:25,910 --> 01:43:24,270

together something now they might not be

2351
01:43:28,160 --> 01:43:25,920
able to do something that would pass for

2352
01:43:30,410 --> 01:43:28,170
human before they actually landed and

2353
01:43:32,240 --> 01:43:30,420
took samples but almost as soon as

2354
01:43:33,410 --> 01:43:32,250
they're out they are exposed to it they

2355
01:43:36,050 --> 01:43:33,420
should be able to replicate something

2356
01:43:37,250 --> 01:43:36,060
like that if they even need to you know

2357
01:43:39,920 --> 01:43:37,260
we have to say they're surveilling us

2358
01:43:42,080 --> 01:43:39,930
well you know we mentioned abducting a

2359
01:43:43,640 --> 01:43:42,090
mailbox oil or why not infiltrate an

2360
01:43:45,590 --> 01:43:43,650
Amazon warehouse in the middle of night

2361
01:43:49,370 --> 01:43:45,600
and put surveillance tracking gear in

2362
01:43:50,780 --> 01:43:49,380
every last random package mm-hm and that

2363
01:43:52,610 --> 01:43:50,790

comes your data pool and that's a very

2364

01:43:54,920 --> 01:43:52,620

big one and if you can't mimic them

2365

01:43:56,600 --> 01:43:54,930

after that then you probably just can't

2366

01:43:58,850 --> 01:43:56,610

do it period so you'd be stuck just

2367

01:44:01,420 --> 01:43:58,860

absorbing but it really shouldn't be a

2368

01:44:03,740 --> 01:44:01,430

problem we know we know how to surveil

2369

01:44:06,320 --> 01:44:03,750

you mean obviously we don't really do a

2370

01:44:08,570 --> 01:44:06,330

lot of messing about the few uncontacted

2371

01:44:10,240 --> 01:44:08,580

tribes we have but we could surveil them

2372

01:44:15,410 --> 01:44:10,250

so they wouldn't know it was us you know

2373

01:44:16,580 --> 01:44:15,420

I would not expect us to notice if

2374

01:44:21,110 --> 01:44:16,590

they were doing it with the intention of

2375

01:44:24,400 --> 01:44:21,120

being secret but they should have a huge

2376

01:44:26,480 --> 01:44:24,410

data pool on us and you know they they

2377

01:44:28,370 --> 01:44:26,490

have access to all of all information

2378

01:44:31,130 --> 01:44:28,380

nowadays because we have the Internet

2379

01:44:33,110 --> 01:44:31,140

but they asked you down here to access

2380

01:44:35,510 --> 01:44:33,120

that but they shouldn't have any problem

2381

01:44:37,400 --> 01:44:35,520

doing that I though you land some random

2382

01:44:39,590 --> 01:44:37,410

place send out some human looking

2383

01:44:42,350 --> 01:44:39,600

androids to go set up a silver for more

2384

01:44:44,060 --> 01:44:42,360

you know of download settle and now

2385

01:44:47,510 --> 01:44:44,070

you've got all that information with

2386

01:44:50,000 --> 01:44:47,520

fast radio bursts which are you know if

2387

01:44:53,060 --> 01:44:50,010

you're cosmologists these days or an

2388

01:44:55,820 --> 01:44:53,070

astrophysicist or an astronomer fast

2389

01:44:57,440 --> 01:44:55,830

radio bursts are the trend right now to

2390

01:45:01,850 --> 01:44:57,450

go out and find these things along with

2391

01:45:05,030 --> 01:45:01,860

exoplanets the window of our technology

2392

01:45:08,420 --> 01:45:05,040

here we've had radio waves emitting from

2393

01:45:11,450 --> 01:45:08,430

this planet for about a hundred years

2394

01:45:14,660 --> 01:45:11,460

but it's now very little of what we do

2395

01:45:15,980 --> 01:45:14,670

right everything is is is wired now our

2396

01:45:18,230 --> 01:45:15,990

communication is wired

2397

01:45:20,660 --> 01:45:18,240

we still have radio waves but it's but

2398

01:45:23,960 --> 01:45:20,670

we are quickly moving away from

2399

01:45:25,490 --> 01:45:23,970

as we advance as a civilization and

2400

01:45:26,480 --> 01:45:25,500

maybe in a hundred years there will be

2401

01:45:29,570 --> 01:45:26,490

zero

2402

01:45:31,460 --> 01:45:29,580

radio waves being emitted from here is

2403

01:45:33,680 --> 01:45:31,470

that this one that I have to always have

2404

01:45:35,000 --> 01:45:33,690

to put a caveat on is because it depends

2405

01:45:36,920 --> 01:45:35,010

on what you use to transmit if they got

2406

01:45:39,200 --> 01:45:36,930

something FTL then they probably use

2407

01:45:40,580 --> 01:45:39,210

that but you know it's hard to read all

2408

01:45:43,790 --> 01:45:40,590

signals nowadays because it hadn't been

2409

01:45:46,460 --> 01:45:43,800

digitally compressed but the one thing

2410

01:45:48,680 --> 01:45:46,470

you're least likely to compress and that

2411

01:45:50,930 --> 01:45:48,690

you want to make loudest to is something

2412

01:45:52,730 --> 01:45:50,940

like your GPS system or your your your

2413

01:45:54,110 --> 01:45:52,740

time and date system right and it would

2414

01:45:55,640 --> 01:45:54,120

not be to me all that weird for

2415

01:45:57,890 --> 01:45:55,650

civilization even when it's been around

2416

01:46:00,770 --> 01:45:57,900

a very long time as but our methods to

2417

01:46:02,900 --> 01:46:00,780

have some really loud beacon in a radio

2418

01:46:04,880 --> 01:46:02,910

spectrum that just shouted you're not

2419

01:46:07,900 --> 01:46:04,890

hello nice to meet you but the time is

2420

01:46:09,530 --> 01:46:07,910

12:22 p.m. over and over again yeah

2421

01:46:11,240 --> 01:46:09,540

because that's how you get your

2422

01:46:12,680 --> 01:46:11,250

navigational fix and they'd say that

2423

01:46:14,690 --> 01:46:12,690

would be more accurate than using a

2424

01:46:17,000 --> 01:46:14,700

neutron star for instance so some

2425

01:46:20,690 --> 01:46:17,010

galactic GPS would you know probably be

2426
01:46:22,160 --> 01:46:20,700
kicking around and once it's out there

2427
01:46:24,290 --> 01:46:22,170
you don't care if it's moving slow

2428
01:46:25,970 --> 01:46:24,300
because if you actually want people to

2429
01:46:28,370 --> 01:46:25,980
be able to calculate off of how fast

2430
01:46:31,310 --> 01:46:28,380
it's going so they might have something

2431
01:46:32,450 --> 01:46:31,320
metal and be using that but just because

2432
01:46:34,010 --> 01:46:32,460
you have something better doesn't si

2433
01:46:36,860 --> 01:46:34,020
mean you stop using the old system

2434
01:46:39,920 --> 01:46:36,870
either and we still do snail mail even

2435
01:46:41,540 --> 01:46:39,930
though we have email you know and a lot

2436
01:46:42,920 --> 01:46:41,550
of our mediums as we advanced new ones

2437
01:46:45,170 --> 01:46:42,930
they I would say oh it's gonna kill off

2438
01:46:48,530 --> 01:46:45,180

the video killed the radio star well

2439

01:46:50,600 --> 01:46:48,540

what are we doing right now years ago

2440

01:46:54,590 --> 01:46:50,610

yeah that's exactly right

2441

01:46:58,550 --> 01:46:54,600

and so the fast radio bursts that we are

2442

01:47:01,370 --> 01:46:58,560

picking up now if they were signals of

2443

01:47:04,150 --> 01:47:01,380

from an ancient civilization what

2444

01:47:08,090 --> 01:47:04,160

segments of their development are we

2445

01:47:10,040 --> 01:47:08,100

detecting here right yeah it would have

2446

01:47:11,660 --> 01:47:10,050

to be pretty decently far ahead it's

2447

01:47:14,000 --> 01:47:11,670

just because you replay mouth an entire

2448

01:47:15,620 --> 01:47:14,010

Sun to try to make it bulk out radio se

2449

01:47:17,750 --> 01:47:15,630

knows that's that's a lot of manpower

2450

01:47:19,850 --> 01:47:17,760

and resources to be thrown none si

2451

01:47:20,660 --> 01:47:19,860

high-tech it's just it's it's like the

2452

01:47:23,390 --> 01:47:20,670

Great Wall of China

2453

01:47:25,780 --> 01:47:23,400

it's a project you do with a lot of

2454

01:47:28,700 --> 01:47:25,790

people it's not Hall and it's just big

2455

01:47:32,780 --> 01:47:28,710

well and by the time that we detect it

2456

01:47:34,640 --> 01:47:32,790

are they still there I hope so

2457

01:47:36,650 --> 01:47:34,650

I mean they they will change

2458

01:47:39,800 --> 01:47:36,660

if you look in a fast radio boss from

2459

01:47:42,080 --> 01:47:39,810

10,000 light-years away 10,000 years ago

2460

01:47:43,820 --> 01:47:42,090

I mean we we wore a fairly advanced

2461

01:47:46,570 --> 01:47:43,830

civilization or late 10,000 years ago

2462

01:47:49,760 --> 01:47:46,580

but you know not nothing like we all now

2463

01:47:51,200 --> 01:47:49,770

and they will have changed a lot and

2464

01:47:52,670 --> 01:47:51,210

hopefully they would still be around

2465

01:47:54,560 --> 01:47:52,680

that's one of those other Fermi paradox

2466

01:47:57,500 --> 01:47:54,570

solutions is that you know life is

2467

01:47:59,330 --> 01:47:57,510

common but it kills itself off a lot and

2468

01:48:01,250 --> 01:47:59,340

I think once you actually up into space

2469

01:48:02,630 --> 01:48:01,260

that becomes fairly unlikely just

2470

01:48:05,300 --> 01:48:02,640

because it's like trying to exterminate

2471

01:48:07,190 --> 01:48:05,310

a virus you can get the hosts easy

2472

01:48:08,900 --> 01:48:07,200

enough you know you go blow up the plan

2473

01:48:10,130 --> 01:48:08,910

is walkie on the post who's got it but

2474

01:48:13,310 --> 01:48:10,140

it's already gone and spread on the

2475

01:48:14,750 --> 01:48:13,320

places by then and and since we're

2476

01:48:18,560 --> 01:48:14,760

intelligent well know what not to do

2477

01:48:19,940 --> 01:48:18,570

over again so I think once we're off

2478

01:48:21,590 --> 01:48:19,950

earth with something that's actually a

2479

01:48:23,390 --> 01:48:21,600

sustainable colony I like the moon or

2480

01:48:25,940 --> 01:48:23,400

mole as we can probably rule out that

2481

01:48:28,010 --> 01:48:25,950

civilizations blow themselves up la or

2482

01:48:29,210 --> 01:48:28,020

whether they exterminate themselves that

2483

01:48:31,070 --> 01:48:29,220

way I mentioned they probably do blow

2484

01:48:35,210 --> 01:48:31,080

themselves up a lot but not fatally so

2485

01:48:37,730 --> 01:48:35,220

and with this distant the the vast

2486

01:48:42,020 --> 01:48:37,740

distances that we are talking about here

2487

01:48:43,790 --> 01:48:42,030

the the ships that would be used and I

2488

01:48:46,070 --> 01:48:43,800

want to talk about the generational

2489

01:48:46,730 --> 01:48:46,080

craft because that's exactly what arthur

2490

01:48:49,640 --> 01:48:46,740

c clarke

2491

01:48:52,700 --> 01:48:49,650

presented to as well and in Ramah your

2492

01:48:55,760 --> 01:48:52,710

presentation is spot-on but what about

2493

01:48:57,440 --> 01:48:55,770

the flip side of that which like if we

2494

01:49:00,320 --> 01:48:57,450

go to

2495

01:49:02,420 --> 01:49:00,330

dune for instance where now we are

2496

01:49:06,740 --> 01:49:02,430

folding space and we're not actually

2497

01:49:09,290 --> 01:49:06,750

traveling these vast distances but we

2498

01:49:12,800 --> 01:49:09,300

have figured out a way to close that gap

2499

01:49:15,530 --> 01:49:12,810

and and make space travel instantaneous

2500

01:49:18,800 --> 01:49:15,540

that actually changes your colonization

2501
01:49:20,450 --> 01:49:18,810
profile completely I Frank Homer was

2502
01:49:22,220 --> 01:49:20,460
never entirely consistent about the

2503
01:49:23,450 --> 01:49:22,230
setting but I think at one point you

2504
01:49:24,770 --> 01:49:23,460
dimension that he wasn't even show off

2505
01:49:26,150 --> 01:49:24,780
the plants and the war on the same

2506
01:49:27,800 --> 01:49:26,160
universe so they might inhale out

2507
01:49:29,990 --> 01:49:27,810
realities mm-hmm

2508
01:49:31,820 --> 01:49:30,000
you know you if you can just fold space

2509
01:49:32,660 --> 01:49:31,830
to a location and it doesn't matter how

2510
01:49:34,910 --> 01:49:32,670
far away it is

2511
01:49:37,460 --> 01:49:34,920
you don't expand outward as a loose

2512
01:49:39,860 --> 01:49:37,470
sphere you might have your second colony

2513
01:49:41,480 --> 01:49:39,870

in a different galaxy you just go for

2514

01:49:43,520 --> 01:49:41,490

the lowest hanging fruit same applies

2515

01:49:45,140 --> 01:49:43,530

for if you're going to copy clones of or

2516

01:49:47,810 --> 01:49:45,150

that all uninhabited and in knowing it

2517

01:49:51,560 --> 01:49:47,820

realities your Empire mites

2518

01:49:52,970 --> 01:49:51,570

all over the place and because it's

2519

01:49:54,920 --> 01:49:52,980

closer to get to the surface of another

2520

01:49:58,310 --> 01:49:54,930

planet as a war than to fly the closest

2521

01:49:59,960 --> 01:49:58,320

all right and yeah you know June being a

2522

01:50:01,610 --> 01:49:59,970

great example of that we don't really

2523

01:50:02,720 --> 01:50:01,620

know what the the Empire looks like they

2524

01:50:04,430 --> 01:50:02,730

are though I think they do eventually

2525

01:50:05,600 --> 01:50:04,440

say it's a Galactic Empire which is

2526

01:50:08,840 --> 01:50:05,610

something I never liked when they

2527

01:50:10,370 --> 01:50:08,850

realize that and to trading plants that

2528

01:50:11,840 --> 01:50:10,380

are close partners might actually be

2529

01:50:12,980 --> 01:50:11,850

under solid galaxies with millions of

2530

01:50:14,330 --> 01:50:12,990

other plants in between that won't

2531

01:50:17,780 --> 01:50:14,340

happen it just because that's how the

2532

01:50:19,760 --> 01:50:17,790

trade routes went in then that's you say

2533

01:50:20,840 --> 01:50:19,770

that's probably not possible I don't

2534

01:50:22,540 --> 01:50:20,850

think we're ever gonna figure out a way

2535

01:50:25,790 --> 01:50:22,550

to travel faster in life but if we do

2536

01:50:27,560 --> 01:50:25,800

the method for how you do it is going to

2537

01:50:29,450 --> 01:50:27,570

you know going to dominate how you

2538

01:50:31,940 --> 01:50:29,460

actually go about traveling through

2539

01:50:34,430 --> 01:50:31,950

space the Alcubierre warp drive for

2540

01:50:36,290 --> 01:50:34,440

instance its maximum speed is I think

2541

01:50:38,840 --> 01:50:36,300

millions of light years a second on

2542

01:50:41,420 --> 01:50:38,850

people so you know you all traveling to

2543

01:50:43,010 --> 01:50:41,430

the other side of the galaxy almost

2544

01:50:46,250 --> 01:50:43,020

instantly and you're traveling to other

2545

01:50:48,230 --> 01:50:46,260

galaxies very easily and so distance no

2546

01:50:50,060 --> 01:50:48,240

longer has any effect you colonize by

2547

01:50:54,200 --> 01:50:50,070

whichever ones are the easiest ones to

2548

01:50:59,750 --> 01:50:54,210

colonize and when we when we look at the

2549

01:51:00,950 --> 01:50:59,760

original UFO hypothesis which is a

2550

01:51:03,830 --> 01:51:00,960

nuts-and-bolts

2551
01:51:06,530 --> 01:51:03,840
you know physical craft traveling these

2552
01:51:08,600 --> 01:51:06,540
great distances and i've always had

2553
01:51:10,880 --> 01:51:08,610
problems with you know a little flying

2554
01:51:14,270 --> 01:51:10,890
sauce or with a little et NAT where do

2555
01:51:17,900 --> 01:51:14,280
they sleep where's the food you know and

2556
01:51:20,240 --> 01:51:17,910
traveling unless they came from a bigger

2557
01:51:22,010 --> 01:51:20,250
ship number one that we didn't see but

2558
01:51:24,500 --> 01:51:22,020
the other thing is but won't because

2559
01:51:26,900 --> 01:51:24,510
it's easy they've got something else

2560
01:51:30,040 --> 01:51:26,910
figured out here that we don't have any

2561
01:51:32,570 --> 01:51:30,050
concept of and it's it's way beyond our

2562
01:51:35,830 --> 01:51:32,580
imagination that it's just quite frankly

2563
01:51:39,200 --> 01:51:35,840

easy to travel these great distances

2564

01:51:41,840 --> 01:51:39,210

nobody would imagine you know a thousand

2565

01:51:44,450 --> 01:51:41,850

years ago that if you want do a visit to

2566

01:51:46,130 --> 01:51:44,460

LA or to New York City that you would

2567

01:51:47,990 --> 01:51:46,140

just get in a call and drive they are

2568

01:51:50,090 --> 01:51:48,000

after an afternoon or an evening on the

2569

01:51:52,310 --> 01:51:50,100

road more hop on an airplane and do it

2570

01:51:53,360 --> 01:51:52,320

if you got a big mothership it's

2571

01:51:55,280 --> 01:51:53,370

probably not landing on the planet

2572

01:51:57,560 --> 01:51:55,290

that's just a lot of dissipation of heat

2573

01:51:58,940 --> 01:51:57,570

and so obviously not very cohort and so

2574

01:52:01,610 --> 01:51:58,950

you probably would then send down small

2575

01:52:02,630 --> 01:52:01,620

shuttles and those could be very compact

2576

01:52:04,250 --> 01:52:02,640

really only need to have room for the

2577

01:52:05,750 --> 01:52:04,260

person in them they probably a very good

2578

01:52:07,460 --> 01:52:05,760

animation that it could build anything

2579

01:52:09,860 --> 01:52:07,470

they really needed while they were down

2580

01:52:11,510 --> 01:52:09,870

on the ground you know some very high

2581

01:52:13,610 --> 01:52:11,520

tech for 3d printing so they wouldn't

2582

01:52:14,840 --> 01:52:13,620

necessarily big spaceships at all indeed

2583

01:52:17,570 --> 01:52:14,850

a space probe might be something the

2584

01:52:18,980 --> 01:52:17,580

size of a paperback that's just full of

2585

01:52:20,980 --> 01:52:18,990

compressed machinery that's gonna come

2586

01:52:23,150 --> 01:52:20,990

out and make copies of itself mm-hmm

2587

01:52:24,920 --> 01:52:23,160

following the blueprint to set up some

2588

01:52:27,770 --> 01:52:24,930

big observatory or whichever bunch used

2589

01:52:29,570 --> 01:52:27,780

to do right and you know you can hide

2590

01:52:31,100 --> 01:52:29,580

those too you know you might say well

2591

01:52:32,660 --> 01:52:31,110

it's building probes on the planet but

2592

01:52:34,310 --> 01:52:32,670

it might be building them just don't eat

2593

01:52:36,550 --> 01:52:34,320

the ground there's some kind of you know

2594

01:52:39,770 --> 01:52:36,560

vague thin net walk you can't even see

2595

01:52:41,300 --> 01:52:39,780

and we don't know how that FTL travel

2596

01:52:44,360 --> 01:52:41,310

would walk if it did we can talk about

2597

01:52:46,640 --> 01:52:44,370

if it doesn't but if it did they might

2598

01:52:49,280 --> 01:52:46,650

not need spaceships because I think you

2599

01:52:51,320 --> 01:52:49,290

know Hammond did this in his um combo

2600

01:52:52,850 --> 01:52:51,330

saga they don't they travel between

2601
01:52:54,650 --> 01:52:52,860
plants but they just do it from ground

2602
01:52:56,120 --> 01:52:54,660
to ground same as install gates they set

2603
01:52:59,210 --> 01:52:56,130
up a train that runs through a wormhole

2604
01:53:02,120 --> 01:52:59,220
on sofas or to planets you know it's

2605
01:53:07,820 --> 01:53:02,130
involved exactly and I I've always

2606
01:53:11,240 --> 01:53:07,830
thought that if you if we US are going

2607
01:53:13,040 --> 01:53:11,250
to go out and and discover well we're

2608
01:53:15,440 --> 01:53:13,050
not going to do it with us being on

2609
01:53:18,170 --> 01:53:15,450
board you and I I Isaac we're gonna have

2610
01:53:19,940 --> 01:53:18,180
probes and now and you've brought up 3d

2611
01:53:24,080 --> 01:53:19,950
printing so many in so many of your

2612
01:53:26,960 --> 01:53:24,090
presentations that now it's an easier

2613
01:53:29,330 --> 01:53:26,970

concept in that you would build as you

2614

01:53:32,240 --> 01:53:29,340

go he would build the probes as you go

2615

01:53:35,420 --> 01:53:32,250

you would go out you could go and figure

2616

01:53:38,000 --> 01:53:35,430

out the entire galaxy very quickly by

2617

01:53:40,220 --> 01:53:38,010

building as you go and and that's how

2618

01:53:44,600 --> 01:53:40,230

the exploration would happen and log

2619

01:53:48,500 --> 01:53:44,610

each planet and in solar system as you

2620

01:53:51,740 --> 01:53:48,510

went by 3d printing and building as you

2621

01:53:53,360 --> 01:53:51,750

come across the resources mm-hmm and it

2622

01:53:54,830 --> 01:53:53,370

doesn't take all that I mean we don't

2623

01:53:57,200 --> 01:53:54,840

know that every source is gonna have a

2624

01:53:59,120 --> 01:53:57,210

big plan around it but how much material

2625

01:54:02,540 --> 01:53:59,130

do you need to build a few more probes

2626
01:54:04,010 --> 01:54:02,550
to each stop right and you know you can

2627
01:54:05,600 --> 01:54:04,020
pack a lot into a probe there is a

2628
01:54:07,460 --> 01:54:05,610
minimum size you can make a spaceship

2629
01:54:08,810 --> 01:54:07,470
because of all the radiation collision

2630
01:54:11,510 --> 01:54:08,820
issues that doesn't let you send out

2631
01:54:13,520 --> 01:54:11,520
something if you can store in tile

2632
01:54:15,290 --> 01:54:13,530
consciousnesses on something the size of

2633
01:54:17,570 --> 01:54:15,300
a and

2634
01:54:19,760 --> 01:54:17,580
you can't build a spaceship that

2635
01:54:22,570 --> 01:54:19,770
smallest needs be a decently bagel we're

2636
01:54:25,700 --> 01:54:22,580
talking at least the size of a an SUV

2637
01:54:27,500 --> 01:54:25,710
that's still nothing for mantle one any

2638
01:54:29,540 --> 01:54:27,510

one random asteroid I mean one of the

2639

01:54:32,000 --> 01:54:29,550

big ones with names who has enough

2640

01:54:34,130 --> 01:54:32,010

material and to build such probes to go

2641

01:54:36,110 --> 01:54:34,140

to every single solar system in the

2642

01:54:38,330 --> 01:54:36,120

galaxy so you don't really have to

2643

01:54:40,790 --> 01:54:38,340

invest a lot of mass even if you decide

2644

01:54:44,120 --> 01:54:40,800

you want to conserve mass then at the

2645

01:54:46,010 --> 01:54:44,130

next stop they build more but those

2646

01:54:48,530 --> 01:54:46,020

probes don't have to be too simple

2647

01:54:51,380 --> 01:54:48,540

either as an example let's say I had

2648

01:54:53,090 --> 01:54:51,390

scanned copies of a research team the

2649

01:54:54,830 --> 01:54:53,100

same research team on every probe 2 or

2650

01:54:57,440 --> 01:54:54,840

100 or so people who exported everything

2651

01:54:59,840 --> 01:54:57,450

and when a pope arrives it finds

2652

01:55:02,600 --> 01:54:59,850

anything interesting it builds our

2653

01:55:04,940 --> 01:55:02,610

Android body for that export and uploads

2654

01:55:06,500 --> 01:55:04,950

that mind available to that Android and

2655

01:55:08,120 --> 01:55:06,510

bam you got your export they are on-site

2656

01:55:10,910 --> 01:55:08,130

they don't have to travel to make the

2657

01:55:12,860 --> 01:55:10,920

additional trip right and they just send

2658

01:55:15,140 --> 01:55:12,870

the information home and that's it and

2659

01:55:18,830 --> 01:55:15,150

they're constantly logging that's it

2660

01:55:21,920 --> 01:55:18,840

just logging and one of the aspects of

2661

01:55:23,930 --> 01:55:21,930

when you watch like Star Trek especially

2662

01:55:26,440 --> 01:55:23,940

the original series or you know what

2663

01:55:29,030 --> 01:55:26,450

Oroville is is really good by the way

2664

01:55:30,260 --> 01:55:29,040

it's really really the first couple

2665

01:55:32,690 --> 01:55:30,270

episodes I didn't like it then I

2666

01:55:32,990 --> 01:55:32,700

rewatched and it was great about lost in

2667

01:55:35,540 --> 01:55:33,000

space

2668

01:55:38,030 --> 01:55:35,550

I didn't like you reboot four episodes

2669

01:55:39,740 --> 01:55:38,040

that grew on me I can't wait for the

2670

01:55:41,330 --> 01:55:39,750

second season of loss in space it's

2671

01:55:43,160 --> 01:55:41,340

gonna be great but there's one thing

2672

01:55:45,740 --> 01:55:43,170

that they point out over and over again

2673

01:55:49,700 --> 01:55:45,750

that we lose sight of they are

2674

01:55:52,400 --> 01:55:49,710

discovering planets and stars that

2675

01:55:54,470 --> 01:55:52,410

weren't logged before or weren't named

2676
01:55:56,900 --> 01:55:54,480
and that would have to be the way that

2677
01:56:00,530 --> 01:55:56,910
it is if we're dealing with literally

2678
01:56:03,530 --> 01:56:00,540
trillions right it's just a that's all

2679
01:56:07,100 --> 01:56:03,540
you are out there doing is discovering

2680
01:56:08,960 --> 01:56:07,110
new systems ya know and I mean we might

2681
01:56:10,430 --> 01:56:08,970
be able to scale almost all of them heal

2682
01:56:12,770 --> 01:56:10,440
we have something called the zone of

2683
01:56:14,720 --> 01:56:12,780
avoidance which sounds much cooler than

2684
01:56:16,460 --> 01:56:14,730
it is it's the chunk of the galaxy we

2685
01:56:18,650 --> 01:56:16,470
can't see cuz the center of the galaxies

2686
01:56:19,850 --> 01:56:18,660
in the way there's second zone of

2687
01:56:24,500 --> 01:56:19,860
avoidance the other one is the one line

2688
01:56:26,030 --> 01:56:24,510

of Evo feet from the earth but you know

2689

01:56:27,200 --> 01:56:26,040

we all gonna have to get out there and

2690

01:56:29,300 --> 01:56:27,210

take a quick look at a lot of these

2691

01:56:30,500 --> 01:56:29,310

places much closer up

2692

01:56:31,940 --> 01:56:30,510

and say well he could build a big enough

2693

01:56:33,860 --> 01:56:31,950

telescope and you can build some

2694

01:56:35,840 --> 01:56:33,870

monstrous telescopes in space ain't

2695

01:56:38,090 --> 01:56:35,850

plant sized thin ones if you want to

2696

01:56:39,800 --> 01:56:38,100

mm-hmm but it's still gonna be so much

2697

01:56:41,030 --> 01:56:39,810

easier to send something out there as

2698

01:56:43,160 --> 01:56:41,040

they're saying with like the moon

2699

01:56:44,330 --> 01:56:43,170

landings for instance Hubble cannot see

2700

01:56:47,780 --> 01:56:44,340

the moon landing side so there's

2701
01:56:50,270 --> 01:56:47,790
anything more than one blowy pixel and

2702
01:56:52,370 --> 01:56:50,280
that's all best telescope of Naniwa it's

2703
01:56:55,580 --> 01:56:52,380
one of our best telescopes and the moon

2704
01:56:56,990 --> 01:56:55,590
is really really close if you want to

2705
01:56:58,520 --> 01:56:57,000
get good data on these places you're

2706
01:57:00,620 --> 01:56:58,530
going to need to send a ship out there

2707
01:57:02,360 --> 01:57:00,630
and it's either gonna be flying by at

2708
01:57:06,080 --> 01:57:02,370
near relativistic speed with just enough

2709
01:57:08,120 --> 01:57:06,090
time oh no is it war or it's gonna have

2710
01:57:09,770 --> 01:57:08,130
to stop slow down and look at the place

2711
01:57:11,990 --> 01:57:09,780
and if you got to prove this every

2712
01:57:13,970 --> 01:57:12,000
stopped and slowed down and that's been

2713
01:57:16,040 --> 01:57:13,980

designed to repair itself and nice and

2714

01:57:17,660 --> 01:57:16,050

high-tech you to kind of expect to go

2715

01:57:19,550 --> 01:57:17,670

how to do some kind of landing and

2716

01:57:22,220 --> 01:57:19,560

produce more probes on the spot to take

2717

01:57:23,990 --> 01:57:22,230

closer looks and again if it's

2718

01:57:26,270 --> 01:57:24,000

borderline artificial intelligence why

2719

01:57:28,610 --> 01:57:26,280

not send along scouting teams that way

2720

01:57:30,170 --> 01:57:28,620

too but these automated probes don't

2721

01:57:32,030 --> 01:57:30,180

really get there any faster and you or I

2722

01:57:34,130 --> 01:57:32,040

will they they have an advantage on

2723

01:57:37,010 --> 01:57:34,140

acceleration basically they can same top

2724

01:57:38,660 --> 01:57:37,020

speed so you might just send make you

2725

01:57:40,160 --> 01:57:38,670

lowered people on a colony ship there

2726

01:57:41,570 --> 01:57:40,170

they it's not that hard to build one

2727

01:57:43,550 --> 01:57:41,580

with that kind of technology if you've

2728

01:57:46,040 --> 01:57:43,560

got that tech you can send normal people

2729

01:57:47,750 --> 01:57:46,050

to so you could easily have huge

2730

01:57:49,790 --> 01:57:47,760

exploration missions that went and

2731

01:57:52,370 --> 01:57:49,800

visited these systems and colonize them

2732

01:57:55,160 --> 01:57:52,380

if there was if they were so inclined to

2733

01:57:56,900 --> 01:57:55,170

and you're you know you're not gonna

2734

01:57:58,730 --> 01:57:56,910

have a civilization really anymore

2735

01:58:00,470 --> 01:57:58,740

that's a single civilization but same as

2736

01:58:02,420 --> 01:58:00,480

a hunter-gatherer spanning from you know

2737

01:58:04,250 --> 01:58:02,430

Asia to North America want a single

2738

01:58:07,010 --> 01:58:04,260

civilization they will get spread out

2739

01:58:08,510 --> 01:58:07,020

there and they'll mutate into voyage we

2740

01:58:10,910 --> 01:58:08,520

don't say with aliens if they if they

2741

01:58:12,530 --> 01:58:10,920

don't exist yet wait a million years and

2742

01:58:14,270 --> 01:58:12,540

they will just they might have

2743

01:58:16,640 --> 01:58:14,280

originated from Earth there still be

2744

01:58:18,950 --> 01:58:16,650

alien to us because that's a lot of

2745

01:58:21,110 --> 01:58:18,960

devotions even without throwing in you

2746

01:58:24,200 --> 01:58:21,120

know artificial routes like site but la

2747

01:58:25,700 --> 01:58:24,210

so genetic engineering so this is the

2748

01:58:28,040 --> 01:58:25,710

question is are we the first ones they

2749

01:58:29,900 --> 01:58:28,050

or and is everyone if not going to at

2750

01:58:32,000 --> 01:58:29,910

the same way we would or close enough

2751
01:58:33,500 --> 01:58:32,010
that we can predict their behavior but

2752
01:58:35,480 --> 01:58:33,510
there's so many planets out there and

2753
01:58:37,160 --> 01:58:35,490
that's just our galaxy we're not limited

2754
01:58:38,110 --> 01:58:37,170
to all galaxy universe does not stop

2755
01:58:41,020 --> 01:58:38,120
there

2756
01:58:43,150 --> 01:58:41,030
and you can keep going after that yes

2757
01:58:45,730 --> 01:58:43,160
always between the galaxies even when

2758
01:58:47,200 --> 01:58:45,740
you look at the original we've got 30

2759
01:58:50,460 --> 01:58:47,210
seconds I'll just make a quick comment

2760
01:58:53,470 --> 01:58:50,470
when you look at the original Hubble

2761
01:58:56,800 --> 01:58:53,480
shots which are just a little tiny

2762
01:58:58,510 --> 01:58:56,810
little piece of everything and you blow

2763
01:59:01,210 --> 01:58:58,520

that up and everything that we thought

2764

01:59:05,950 --> 01:59:01,220

were stars are galaxies and galaxy

2765

01:59:08,620 --> 01:59:05,960

clusters infinite great and I'd actually

2766

01:59:10,030 --> 01:59:08,630

be infinite to my you see a certain

2767

01:59:11,980 --> 01:59:10,040

distance there's nothing to indicate the

2768

01:59:14,920 --> 01:59:11,990

universe ends at that area it might be

2769

01:59:17,200 --> 01:59:14,930

infinite in size it's crazy when you

2770

01:59:19,570 --> 01:59:17,210

think about that because each one is a

2771

01:59:22,360 --> 01:59:19,580

hundred billion two hundred billion the

2772

01:59:24,870 --> 01:59:22,370

the numbers and those are the what's

2773

01:59:27,820 --> 01:59:24,880

inside of each galaxy and then there are

2774

01:59:30,160 --> 01:59:27,830

literally hundreds of billions maybe

2775

01:59:32,920 --> 01:59:30,170

even a trillion or an infinite amount of

2776

01:59:34,720 --> 01:59:32,930

galaxies it blows my mind absolutely

2777

01:59:38,080 --> 01:59:34,730

blows my mind let's take a brace is

2778

01:59:38,380 --> 01:59:38,090

really big it's really big our guest

2779

01:59:40,540 --> 01:59:38,390

tonight

2780

01:59:42,700 --> 01:59:40,550

Isaac Arthur when we come back we're

2781

01:59:44,500 --> 01:59:42,710

gonna continue the conversation but I

2782

01:59:46,990 --> 01:59:44,510

want to talk a little sci-fi and we're

2783

01:59:50,600 --> 01:59:47,000

gonna do that next and gaming there's a

2784

01:59:54,140 --> 01:59:50,610

method to my madness stay with us

2785

02:00:01,250 --> 01:59:56,370

everybody's Rob Halford the mental guard

2786

02:00:07,080 --> 02:00:04,529

this is kera digital broadcasting

2787

02:00:10,319 --> 02:00:07,090

station Salt Lake City Utah

2788

02:00:12,029 --> 02:00:10,329

Van Buren Arkansas poor water quality is

2789

02:00:13,049 --> 02:00:12,039

a major health issue and it's only

2790

02:00:14,939 --> 02:00:13,059

getting worse

2791

02:00:16,770 --> 02:00:14,949

municipalities can't keep up standards

2792

02:00:19,890 --> 02:00:16,780

have dropped and pollutants are

2793

02:00:21,720 --> 02:00:19,900

increasing where does it all end it ends

2794

02:00:23,430 --> 02:00:21,730

by keeping the pollutants outside of

2795

02:00:25,500 --> 02:00:23,440

your home with hydro cares advanced

2796

02:00:27,899 --> 02:00:25,510

systems available at wave home solutions

2797

02:00:29,399 --> 02:00:27,909

no less than the best purification

2798

02:00:31,439 --> 02:00:29,409

materials and processes have been

2799

02:00:33,149 --> 02:00:31,449

developed by Hydra care to provide you

2800

02:00:35,790 --> 02:00:33,159

with healthy clean water for drinking

2801
02:00:37,739 --> 02:00:35,800
cooking and showering hydro care far

2802
02:00:41,009 --> 02:00:37,749
surpasses the competition in removing

2803
02:00:43,799 --> 02:00:41,019
chlorine odors iron led chemicals

2804
02:00:45,810 --> 02:00:43,809
limescale and much more don't settle for

2805
02:00:47,700 --> 02:00:45,820
less when it comes to your water we'll

2806
02:00:49,739 --> 02:00:47,710
take care of the toughest water problems

2807
02:00:52,500 --> 02:00:49,749
for you whether it's from a city or well

2808
02:00:54,359 --> 02:00:52,510
source satisfaction guaranteed for more

2809
02:00:56,399 --> 02:00:54,369
information call eight eight eight nine

2810
02:00:59,790 --> 02:00:56,409
nine seven wave that's eight eight eight

2811
02:01:02,069 --> 02:00:59,800
nine nine seven w AV e or go to best

2812
02:01:04,919 --> 02:01:02,079
water one two three comm that's best

2813
02:01:05,820 --> 02:01:04,929

water one two three comm

2814

02:01:08,920 --> 02:01:05,830

Solutions

2815

02:01:11,690 --> 02:01:08,930

[Music]

2816

02:01:16,310 --> 02:01:11,700

your contact for current news and

2817

02:01:18,140 --> 02:01:16,320

trending topics kera radio.com does your

2818

02:01:20,300 --> 02:01:18,150

basement or crawlspace have a damp musty

2819

02:01:22,070 --> 02:01:20,310

smell while watch out that's a sign of

2820

02:01:23,900 --> 02:01:22,080

too much moisture and not enough

2821

02:01:25,340 --> 02:01:23,910

ventilation and that can mean increased

2822

02:01:27,440 --> 02:01:25,350

mold growth and their build-up of

2823

02:01:29,660 --> 02:01:27,450

harmful toxins and gases don't bother

2824

02:01:31,700 --> 02:01:29,670

with a dehumidifier it just circulates

2825

02:01:33,830 --> 02:01:31,710

the same unhealthy air now there's a

2826
02:01:35,960 --> 02:01:33,840
better way to remove these dangers and

2827
02:01:38,060 --> 02:01:35,970
odors it's with the computerized wave

2828
02:01:40,040 --> 02:01:38,070
moisture control unit that reduces

2829
02:01:41,840 --> 02:01:40,050
moisture and expels pollutants we

2830
02:01:43,910 --> 02:01:41,850
replaced our old dehumidifier with the

2831
02:01:46,190 --> 02:01:43,920
wave unit and in only three weeks our

2832
02:01:48,380 --> 02:01:46,200
basement is dry and the musty smell is

2833
02:01:51,230 --> 02:01:48,390
gone wave units require no maintenance

2834
02:01:53,330 --> 02:01:51,240
no buckets of water or filters and costs

2835
02:01:55,550 --> 02:01:53,340
only pennies a day to run breathe better

2836
02:01:57,980 --> 02:01:55,560
live healthier with an affordable no

2837
02:02:00,320 --> 02:01:57,990
maintenance wave unit call eight eight

2838
02:02:03,650 --> 02:02:00,330

eight seven one seven way eight eight

2839

02:02:09,369 --> 02:02:03,660

eight seven one seven wabe or visit dry

2840

02:02:15,770 --> 02:02:12,290

we own solutions

2841

02:02:20,069 --> 02:02:18,060

this is Jimmy Church of fade to black

2842

02:02:23,189 --> 02:02:20,079

and I only drink

2843

02:02:25,709 --> 02:02:23,199

fade to black blend coffee from River

2844

02:02:28,560 --> 02:02:25,719

Moon just click on the River Moon coffee

2845

02:02:32,759 --> 02:02:28,570

banner at Jimmy Church radio.com promo

2846

02:02:35,279 --> 02:02:32,769

code f2 b blend so are you tired of

2847

02:02:37,709 --> 02:02:35,289

being tired well then it's time to get

2848

02:02:40,080 --> 02:02:37,719

the tea hey it's Lisa here to tell you

2849

02:02:41,909 --> 02:02:40,090

about this all-natural all organic tea

2850

02:02:43,529 --> 02:02:41,919

I've been drinking that has had great

2851

02:02:46,469 --> 02:02:43,539

results for over 20 years

2852

02:02:48,299 --> 02:02:46,479

it's called life changed tea and it's

2853

02:02:50,909 --> 02:02:48,309

specially formulated to help detoxify

2854

02:02:53,609 --> 02:02:50,919

and cleanse your kidneys liver colon and

2855

02:02:55,020 --> 02:02:53,619

blood all at once the colon is one of

2856

02:02:57,779 --> 02:02:55,030

the most ignored organs in the human

2857

02:02:59,580 --> 02:02:57,789

body the faster that waste is eliminated

2858

02:03:01,589 --> 02:02:59,590

from the body the less time that way

2859

02:03:03,569 --> 02:03:01,599

sits in our intestines spreading toxins

2860

02:03:05,459 --> 02:03:03,579

to our bloodstream this tea helps

2861

02:03:07,709 --> 02:03:05,469

cleanse chemicals caused by outside

2862

02:03:10,379 --> 02:03:07,719

intruders from our entire digestive

2863

02:03:12,719 --> 02:03:10,389

system and get this weight loss can be a

2864

02:03:14,939 --> 02:03:12,729

side effect and with continued use of

2865

02:03:17,339 --> 02:03:14,949

the tea you can experience clearer

2866

02:03:20,009 --> 02:03:17,349

healthier younger looking skin increased

2867

02:03:21,419 --> 02:03:20,019

energy and a happier outlook on life so

2868

02:03:24,330 --> 02:03:21,429

if you're tired of being tired

2869

02:03:28,199 --> 02:03:24,340

get the life change tea at get the tea

2870

02:03:29,719 --> 02:03:28,209

calm that's get the tea calm and like me

2871

02:03:31,919 --> 02:03:29,729

you'll be glad you did

2872

02:03:33,629 --> 02:03:31,929

did you know that when you're on the

2873

02:03:36,089 --> 02:03:33,639

road with limited data or Wi-Fi

2874

02:03:38,009 --> 02:03:36,099

available you can still listen to every

2875

02:03:40,830 --> 02:03:38,019

minute of fade to black by just calling

2876

02:03:43,859 --> 02:03:40,840

six oh five five six two four four eight

2877

02:03:46,350 --> 02:03:43,869

two no smartphone app or Internet needed

2878

02:03:48,929 --> 02:03:46,360

it saves your data plan and no extra

2879

02:03:51,750 --> 02:03:48,939

cost if you have unlimited minutes just

2880

02:03:54,029 --> 02:03:51,760

call six oh five five six two four four

2881

02:03:56,639 --> 02:03:54,039

eight two you can listen to me Jimmy

2882

02:04:03,490 --> 02:03:56,649

Church on any phone anytime anywhere

2883

02:04:07,510 --> 02:04:05,190

[Music]

2884

02:04:12,260 --> 02:04:07,520

[Applause]

2885

02:04:14,890 --> 02:04:12,270

you wanna know a secret I love ponies I

2886

02:04:17,510 --> 02:04:14,900

really love ponies I'm serious I

2887

02:04:21,410 --> 02:04:17,520

couldn't stay stable without poor mr.

2888

02:04:26,620 --> 02:04:21,420

Brooks why fade to black because you

2889

02:04:30,650 --> 02:04:28,490

this is fade to black

2890

02:04:34,310 --> 02:04:30,660

with Jimmy Church on the game changer

2891

02:04:36,700 --> 02:04:34,320

radio network and kgr a the global radio

2892

02:04:45,910 --> 02:04:36,710

alliance

2893

02:04:50,740 --> 02:04:48,910

all right welcome back fade to black I'm

2894

02:04:53,080 --> 02:04:50,750

your host Jimmy church tonight Isaac

2895

02:04:55,240 --> 02:04:53,090

Arthur's here been waiting for this

2896

02:04:57,730 --> 02:04:55,250

conversation for a very long time and

2897

02:05:01,480 --> 02:04:57,740

I'm a little uh I'm a little overwhelmed

2898

02:05:03,550 --> 02:05:01,490

I need to uh I need to ground myself

2899

02:05:09,160 --> 02:05:03,560

again and I'm gonna do it with this

2900

02:05:11,500 --> 02:05:09,170

Isaac this is where my mind loses itself

2901

02:05:14,070 --> 02:05:11,510

with with all of these concepts and it's

2902

02:05:17,320 --> 02:05:14,080

this it's the concept of the hive mind

2903

02:05:22,480 --> 02:05:17,330

and I'm gonna take it a step further

2904

02:05:27,480 --> 02:05:22,490

the sci-fi science fiction community the

2905

02:05:30,730 --> 02:05:27,490

gaming community Dwarfs our ufology

2906

02:05:33,520 --> 02:05:30,740

conspiracy community and and each week I

2907

02:05:37,020 --> 02:05:33,530

speak to literally millions of in our

2908

02:05:41,710 --> 02:05:37,030

community and what is out there beyond

2909

02:05:43,540 --> 02:05:41,720

our community that doesn't even know

2910

02:05:45,870 --> 02:05:43,550

about coast to coast am or fade to black

2911

02:05:50,620 --> 02:05:45,880

right they don't know but the

2912

02:05:54,010 --> 02:05:50,630

conversations of alien tech and the the

2913

02:05:57,550 --> 02:05:54,020

complexities of all of this to get a

2914

02:06:01,660 --> 02:05:57,560

book written or to get a game done all

2915

02:06:04,240 --> 02:06:01,670

of these concepts are considered and the

2916

02:06:06,280 --> 02:06:04,250

question of alien life and how they get

2917

02:06:09,340 --> 02:06:06,290

here or how we would travel to the stars

2918

02:06:13,240 --> 02:06:09,350

and this technology is all encapsulated

2919

02:06:16,210 --> 02:06:13,250

in these in these concepts and ideas and

2920

02:06:20,200 --> 02:06:16,220

I believe that it's a high vine concept

2921

02:06:24,160 --> 02:06:20,210

that alien life out there is an accepted

2922

02:06:26,740 --> 02:06:24,170

an accepted reality and everybody

2923

02:06:31,420 --> 02:06:26,750

studies this and it reflects back into

2924

02:06:34,960 --> 02:06:31,430

your work as well I think we always say

2925

02:06:36,490 --> 02:06:34,970

with a hive mind you say could we have a

2926
02:06:37,900 --> 02:06:36,500
hive mind one day and say well we've had

2927
02:06:40,000 --> 02:06:37,910
a hive mind for quite some time

2928
02:06:43,240 --> 02:06:40,010
basic concept behind human intelligence

2929
02:06:45,130 --> 02:06:43,250
is that we specialize and we network and

2930
02:06:47,110 --> 02:06:45,140
then we invented writing we certainly

2931
02:06:48,850 --> 02:06:47,120
could include no hive mind dead people

2932
02:06:50,650 --> 02:06:48,860
as well they become part of the mixture

2933
02:06:53,050 --> 02:06:50,660
someone doesn't have to be there anymore

2934
02:06:54,430 --> 02:06:53,060
to to speak to us they could be on

2935
02:06:56,920 --> 02:06:54,440
another continent they could be dead for

2936
02:06:58,840 --> 02:06:56,930
a century we get these you know with

2937
02:06:59,320 --> 02:06:58,850
that space we call that come you know

2938
02:07:01,870 --> 02:06:59,330

community

2939

02:07:03,640 --> 02:07:01,880

right from the get-go but that's kind of

2940

02:07:05,830 --> 02:07:03,650

how that can advance and and to what

2941

02:07:06,910 --> 02:07:05,840

degree it would is is certainly going to

2942

02:07:08,770 --> 02:07:06,920

depend on the individual

2943

02:07:11,110 --> 02:07:08,780

we were talking now gaming you know it's

2944

02:07:13,210 --> 02:07:11,120

to me gaming is still pen and paper or

2945

02:07:14,680 --> 02:07:13,220

Dungeons & Dragons with the dice but I

2946

02:07:16,000 --> 02:07:14,690

guess these days that means more video

2947

02:07:18,460 --> 02:07:16,010

games

2948

02:07:21,370 --> 02:07:18,470

you know the science fiction the game

2949

02:07:23,260 --> 02:07:21,380

computer fassio sci-fi is where so many

2950

02:07:25,540 --> 02:07:23,270

of these ideas do actually end up kenny

2951

02:07:27,580 --> 02:07:25,550

explorer so a lot of times of the

2952

02:07:29,950 --> 02:07:27,590

channel we always like to me say the the

2953

02:07:31,870 --> 02:07:29,960

science inspires the science fiction and

2954

02:07:34,420 --> 02:07:31,880

the alt which come back and spiral

2955

02:07:36,550 --> 02:07:34,430

people or to go into the sciences and to

2956

02:07:39,160 --> 02:07:36,560

support the sciences and it's just it's

2957

02:07:41,830 --> 02:07:39,170

a constant feedback loop it is and i

2958

02:07:50,260 --> 02:07:41,840

believe it's it's the hive mind and we

2959

02:07:51,490 --> 02:07:50,270

don't even under constantly yeah it just

2960

02:07:53,680 --> 02:07:51,500

depends on the method for doing it I

2961

02:07:55,330 --> 02:07:53,690

mean author see clock of course know all

2962

02:07:57,750 --> 02:07:55,340

the sci-fi vitals and fifties sixties

2963

02:08:00,130 --> 02:07:57,760

and seventies were really into telepathy

2964

02:08:01,660 --> 02:08:00,140

that's kind of gone away from in science

2965

02:08:04,420 --> 02:08:01,670

fiction these days I think because we

2966

02:08:07,360 --> 02:08:04,430

can see it emerging as more they're the

2967

02:08:09,370 --> 02:08:07,370

technological telepathy where you can

2968

02:08:10,840 --> 02:08:09,380

connect people instantly you know the

2969

02:08:13,240 --> 02:08:10,850

bandwidth we use for that right now is

2970

02:08:14,800 --> 02:08:13,250

speech and audio and text but that's

2971

02:08:16,540 --> 02:08:14,810

likely to mutate into something much

2972

02:08:20,290 --> 02:08:16,550

more direct and high bandwidth in the

2973

02:08:21,670 --> 02:08:20,300

future and where that stops you know

2974

02:08:23,470 --> 02:08:21,680

where that goes there are so many

2975

02:08:25,900 --> 02:08:23,480

different options and it's not which one

2976

02:08:28,270 --> 02:08:25,910

will happen but more likely all of them

2977

02:08:30,910 --> 02:08:28,280

would happen you might have big classic

2978

02:08:32,080 --> 02:08:30,920

sci-fi hive minds like the Borg or you

2979

02:08:33,550 --> 02:08:32,090

might just have communities where people

2980

02:08:34,720 --> 02:08:33,560

are very used to you know talk to each

2981

02:08:37,120 --> 02:08:34,730

other from the other side of the planet

2982

02:08:38,740 --> 02:08:37,130

instantly you know we just don't know

2983

02:08:40,570 --> 02:08:38,750

how that's gonna happen but if you do

2984

02:08:43,180 --> 02:08:40,580

get such great communities poppy-up

2985

02:08:45,430 --> 02:08:43,190

nowadays because of that early hive mind

2986

02:08:47,170 --> 02:08:45,440

aspect I don't have to find that one

2987

02:08:49,600 --> 02:08:47,180

post in my town who shares my hobbies

2988

02:08:51,280 --> 02:08:49,610

anymore I can find the ten thousand

2989

02:08:52,990 --> 02:08:51,290

people on the planet who share my one

2990

02:08:55,840 --> 02:08:53,000

really bizarre hobby that only one a

2991

02:08:58,570 --> 02:08:55,850

million people enjoy and he all my one

2992

02:09:01,120 --> 02:08:58,580

interest and you know that's only going

2993

02:09:04,360 --> 02:09:01,130

to keep getting easier and better as

2994

02:09:07,570 --> 02:09:04,370

time goes on what do we do when we talk

2995

02:09:10,720 --> 02:09:07,580

about this concept of the hive mind

2996

02:09:13,410 --> 02:09:10,730

and also start to incorporate our other

2997

02:09:16,720 --> 02:09:13,420

scientific realities today which is

2998

02:09:19,200 --> 02:09:16,730

bonham quantum computing entanglement

2999

02:09:23,610 --> 02:09:19,210

you brought up tachyons earlier and

3000

02:09:26,260 --> 02:09:23,620

instant reactions at the atomic level

3001
02:09:29,170 --> 02:09:26,270
instant not not faster than the speed of

3002
02:09:34,000 --> 02:09:29,180
light but faster than that instant

3003
02:09:36,990 --> 02:09:34,010
across vast infinite distances could

3004
02:09:41,110 --> 02:09:37,000
there be communication that is happening

3005
02:09:42,640 --> 02:09:41,120
with an alien civilization here in in in

3006
02:09:46,800 --> 02:09:42,650
the now now that we don't even realize

3007
02:09:49,780 --> 02:09:46,810
that it's coming from another galaxy

3008
02:09:50,710 --> 02:09:49,790
possibly spooky action at distance and

3009
02:09:52,660 --> 02:09:50,720
we don't know that's necessarily

3010
02:09:53,860 --> 02:09:52,670
instantaneous just that's faster and

3011
02:09:55,690 --> 02:09:53,870
light it's always hard to prove

3012
02:09:58,840 --> 02:09:55,700
something that you know is zero infinity

3013
02:10:00,700 --> 02:09:58,850

as a war the problem with the quantum

3014

02:10:02,800 --> 02:10:00,710

entanglement a spooky action distance is

3015

02:10:05,110 --> 02:10:02,810

well that does happen faster and lights

3016

02:10:07,060 --> 02:10:05,120

as best as we can tell the only

3017

02:10:09,910 --> 02:10:07,070

information that sends is basically the

3018

02:10:11,710 --> 02:10:09,920

single bit of up or down and you can't

3019

02:10:13,240 --> 02:10:11,720

predict it what it's going to come out

3020

02:10:15,250 --> 02:10:13,250

as you can absorb it but you can't

3021

02:10:16,840 --> 02:10:15,260

predict it which makes it really hard

3022

02:10:18,520 --> 02:10:16,850

and no one's really thought of a method

3023

02:10:18,910 --> 02:10:18,530

yet to actually send information that

3024

02:10:20,620 --> 02:10:18,920

way

3025

02:10:22,990 --> 02:10:20,630

somebody might figure out how to do it

3026

02:10:24,280 --> 02:10:23,000

down the road but at the moment it

3027

02:10:27,730 --> 02:10:24,290

doesn't look like we can use that focal

3028

02:10:29,470 --> 02:10:27,740

communication if you can though all of a

3029

02:10:31,810 --> 02:10:29,480

sudden you've got a galactic internet

3030

02:10:34,030 --> 02:10:31,820

because you got galactic speed travel

3031

02:10:35,380 --> 02:10:34,040

and if you don't have the spaceships do

3032

02:10:37,620 --> 02:10:35,390

it you can start sending people around

3033

02:10:39,670 --> 02:10:37,630

it's just digitally to compress data

3034

02:10:41,200 --> 02:10:39,680

although that's going to take a huge

3035

02:10:42,250 --> 02:10:41,210

amount of bandwidth and we don't know

3036

02:10:44,500 --> 02:10:42,260

what the bandwidth on something like

3037

02:10:47,140 --> 02:10:44,510

that would be but even if it was just

3038

02:10:49,420 --> 02:10:47,150

basic text like a old-school your one

3039

02:10:52,270 --> 02:10:49,430

kilobyte per second modem right that

3040

02:10:54,250 --> 02:10:52,280

changes the game an awful lot and even

3041

02:10:56,860 --> 02:10:54,260

if it's not instantaneous but just much

3042

02:10:58,210 --> 02:10:56,870

faster and light you know it's a game

3043

02:11:00,370 --> 02:10:58,220

changer on how we would expect

3044

02:11:02,770 --> 02:11:00,380

civilizations to all out and how they go

3045

02:11:04,900 --> 02:11:02,780

about absorbing things you do not need a

3046

02:11:06,880 --> 02:11:04,910

very big sense or a probe on a planet

3047

02:11:08,800 --> 02:11:06,890

for instance if you can relay

3048

02:11:11,020 --> 02:11:08,810

instantaneously back and forth Central

3049

02:11:15,640 --> 02:11:11,030

Command what you want that Pro to look

3050

02:11:18,580 --> 02:11:15,650

at and do I want to I want to I want to

3051
02:11:19,600 --> 02:11:18,590
discuss teleportation and you know what

3052
02:11:22,300 --> 02:11:19,610
you're

3053
02:11:26,740 --> 02:11:22,310
your take on it is daunting it kind of

3054
02:11:29,680 --> 02:11:26,750
bummed me out actually sometimes very

3055
02:11:32,229 --> 02:11:29,690
optimistic no I spoil things with

3056
02:11:36,100 --> 02:11:32,239
people's up times too so we're gonna get

3057
02:11:39,459 --> 02:11:36,110
to teleportation but there the phenomena

3058
02:11:43,260 --> 02:11:39,469
of people on this planet of which there

3059
02:11:47,200 --> 02:11:43,270
are millions that are channeling

3060
02:11:49,240 --> 02:11:47,210
something what when you hear about this

3061
02:11:51,040 --> 02:11:49,250
and I know that you've you know you've

3062
02:11:54,070 --> 02:11:51,050
heard enough about you know channeling

3063
02:11:55,689 --> 02:11:54,080

different species or play Tian's or Zeta

3064

02:11:56,320 --> 02:11:55,699

Reticuli right and they're they're

3065

02:12:00,550 --> 02:11:56,330

channeling

3066

02:12:02,169 --> 02:12:00,560

and et presence and they're conveying

3067

02:12:03,810 --> 02:12:02,179

that information back to us here on

3068

02:12:05,950 --> 02:12:03,820

earth and they've got a message for us

3069

02:12:08,050 --> 02:12:05,960

ultimately what do you think is going on

3070

02:12:10,870 --> 02:12:08,060

is it the possibility of some type of

3071

02:12:14,729 --> 02:12:10,880

entanglement and communication that ET

3072

02:12:17,350 --> 02:12:14,739

is figured out and we are just you know

3073

02:12:19,300 --> 02:12:17,360

bumping into the radio signals if you

3074

02:12:21,580 --> 02:12:19,310

were but what do you think is happening

3075

02:12:27,310 --> 02:12:21,590

with that too many people are doing it

3076

02:12:30,310 --> 02:12:27,320

for it to be insanity right a mental

3077

02:12:32,080 --> 02:12:30,320

issue well you know this is the thing on

3078

02:12:33,729 --> 02:12:32,090

stuff like that is they say well you

3079

02:12:35,470 --> 02:12:33,739

can't accuse everybody being wrong or

3080

02:12:37,180 --> 02:12:35,480

being a lie or and of course I would

3081

02:12:38,800 --> 02:12:37,190

imagine some people do lie about it

3082

02:12:40,600 --> 02:12:38,810

there's always some folks who would but

3083

02:12:41,200 --> 02:12:40,610

they are people who lied about going to

3084

02:12:45,550 --> 02:12:41,210

California

3085

02:12:47,320 --> 02:12:45,560

arm but it doesn't uh say mean they're

3086

02:12:48,910 --> 02:12:47,330

right or they got the idea right - and

3087

02:12:50,439 --> 02:12:48,920

only they'd claim that either I mean

3088

02:12:52,990 --> 02:12:50,449

this is a mysterious thing that's going

3089

02:12:54,280 --> 02:12:53,000

on to them so they don't know how it

3090

02:12:56,350 --> 02:12:54,290

walks they just think that it does

3091

02:12:57,879 --> 02:12:56,360

there's a lot of holes that one would

3092

02:13:00,550 --> 02:12:57,889

have to have plugged for me that to make

3093

02:13:02,740 --> 02:13:00,560

sense a concept if we don't know how the

3094

02:13:04,390 --> 02:13:02,750

FTL thing is walking that someone's

3095

02:13:07,090 --> 02:13:04,400

usually communicate we can't say how

3096

02:13:09,669 --> 02:13:07,100

would it actually manifest but you would

3097

02:13:11,709 --> 02:13:09,679

expect in a case like that that if

3098

02:13:13,330 --> 02:13:11,719

you're talking someone far away they

3099

02:13:15,490 --> 02:13:13,340

would if they're sending an intentional

3100

02:13:18,070 --> 02:13:15,500

message want that message to be believed

3101

02:13:19,870 --> 02:13:18,080

so you know if I was trying to talk to a

3102

02:13:22,149 --> 02:13:19,880

civilization like all was from you know

3103

02:13:23,919 --> 02:13:22,159

the 25th century whatever I'd probably

3104

02:13:25,990 --> 02:13:23,929

be sending them stuff that they could

3105

02:13:28,209 --> 02:13:26,000

not possibly you know they that he could

3106

02:13:30,939 --> 02:13:28,219

verify and I have a really easy way to

3107

02:13:31,770 --> 02:13:30,949

do that if I'm far away because I'm back

3108

02:13:34,050 --> 02:13:31,780

in time

3109

02:13:36,120 --> 02:13:34,060

them.i Mayo going to be able to look at

3110

02:13:37,710 --> 02:13:36,130

a phenomena that I saw olio that the

3111

02:13:40,830 --> 02:13:37,720

light hasn't reaches yet for them and

3112

02:13:42,900 --> 02:13:40,840

say oh so if I predict a supernova that

3113

02:13:45,030 --> 02:13:42,910

I've already seen but they won't see for

3114

02:13:49,080 --> 02:13:45,040

another decade I can say look at the sky

3115

02:13:51,750 --> 02:13:49,090

you know October 12 2021 there will be a

3116

02:13:54,330 --> 02:13:51,760

supernova when that happens that you've

3117

02:13:55,830 --> 02:13:54,340

pretty much proven that behind any

3118

02:13:57,810 --> 02:13:55,840

reasonable doubt especially we doing

3119

02:13:59,160 --> 02:13:57,820

this multiple times or if you send

3120

02:14:00,810 --> 02:13:59,170

information this is how you build a

3121

02:14:03,690 --> 02:14:00,820

fusion reactor but even just those

3122

02:14:05,520 --> 02:14:03,700

observations you can tell them you know

3123

02:14:07,110 --> 02:14:05,530

this signal will arrive at this point in

3124

02:14:08,820 --> 02:14:07,120

time this star will do this at this

3125

02:14:10,860 --> 02:14:08,830

point time this one will flare at this

3126

02:14:12,600 --> 02:14:10,870

point in time and you will see them at

3127

02:14:14,160 --> 02:14:12,610

these times we already saw them you know

3128

02:14:18,120 --> 02:14:14,170

mm-hmm the light has a reach you yet

3129

02:14:20,820 --> 02:14:18,130

that is such a dead perfect proof of

3130

02:14:23,100 --> 02:14:20,830

what's going on that nobody's gonna you

3131

02:14:24,510 --> 02:14:23,110

know argue with that and so I think

3132

02:14:26,460 --> 02:14:24,520

that's where con comes back to the

3133

02:14:27,720 --> 02:14:26,470

skeptic thing is that's how I do it that

3134

02:14:29,190 --> 02:14:27,730

doesn't assay me that they do it that

3135

02:14:31,200 --> 02:14:29,200

way but they would do something along

3136

02:14:32,670 --> 02:14:31,210

those lines if I can think of a way to

3137

02:14:35,100 --> 02:14:32,680

do that off my head they can probably

3138

02:14:35,820 --> 02:14:35,110

think of a better one but they can use

3139

02:14:39,090 --> 02:14:35,830

that one

3140

02:14:41,610 --> 02:14:39,100

why don't they yeah it would mean if the

3141

02:14:43,620 --> 02:14:41,620

Yankees relations right it wouldn't be

3142

02:14:45,420 --> 02:14:43,630

if the Yankees won the World Series in

3143

02:14:47,400 --> 02:14:45,430

20 they wouldn't have that information

3144

02:14:50,120 --> 02:14:47,410

but they would have something that would

3145

02:14:52,230 --> 02:14:50,130

be from the heavens interstellar

3146

02:14:53,700 --> 02:14:52,240

something we could see that the light

3147

02:14:55,200 --> 02:14:53,710

got to us a little bit later

3148

02:14:57,300 --> 02:14:55,210

you know they know we're gonna see it at

3149

02:15:00,930 --> 02:14:57,310

this time they just tell us to look out

3150

02:15:02,580 --> 02:15:00,940

for it you know and that's how you would

3151
02:15:04,710 --> 02:15:02,590
go about proving something like that and

3152
02:15:06,810 --> 02:15:04,720
so it goes to motivations assuming they

3153
02:15:08,760 --> 02:15:06,820
exist to have motivations what is their

3154
02:15:11,760 --> 02:15:08,770
goal why are they doing this and if they

3155
02:15:13,950 --> 02:15:11,770
wore using those motivations what method

3156
02:15:15,180 --> 02:15:13,960
would they use if they wants to know

3157
02:15:18,180 --> 02:15:15,190
something if they are intentionally

3158
02:15:20,490 --> 02:15:18,190
sending us messages then they should as

3159
02:15:23,040 --> 02:15:20,500
we just showed have some very easy ways

3160
02:15:24,510 --> 02:15:23,050
to prove it if they want it proven we

3161
02:15:25,650 --> 02:15:24,520
don't know what they do it could be a

3162
02:15:28,260 --> 02:15:25,660
prank story could be an anthropologist

3163
02:15:29,400 --> 02:15:28,270

it could be you know some lone rebel

3164

02:15:31,200 --> 02:15:29,410

group that really doesn't want to give

3165

02:15:32,670 --> 02:15:31,210

away what their location is luckily

3166

02:15:35,460 --> 02:15:32,680

could be too exact about what data

3167

02:15:37,170 --> 02:15:35,470

they're doing and that's EB given one of

3168

02:15:39,480 --> 02:15:37,180

these theories though we have to look at

3169

02:15:41,310 --> 02:15:39,490

what the motive for that would be and

3170

02:15:42,750 --> 02:15:41,320

how they would proceed and it doesn't

3171

02:15:44,699 --> 02:15:42,760

hold up consistently it puts mark

3172

02:15:46,679 --> 02:15:44,709

against that that theory

3173

02:15:51,629 --> 02:15:46,689

let's bum everybody out and talk some

3174

02:15:54,060 --> 02:15:51,639

teleportation now you're okay I want you

3175

02:15:55,319 --> 02:15:54,070

to this is gonna be off of the top of

3176

02:15:59,339 --> 02:15:55,329

your head I don't think you've got this

3177

02:16:02,419 --> 02:15:59,349

data in front of you but you did talk

3178

02:16:08,819 --> 02:16:02,429

about the amount of information that

3179

02:16:12,089 --> 02:16:08,829

would need to be streamed from our own

3180

02:16:14,969 --> 02:16:12,099

body to reconstruct and you spewed out

3181

02:16:18,060 --> 02:16:14,979

these numbers in who predated not what

3182

02:16:20,580 --> 02:16:18,070

well there goes that idea it is a lot of

3183

02:16:22,949 --> 02:16:20,590

data yeah it's a lion I mean bandwidth

3184

02:16:24,750 --> 02:16:22,959

wise if you're trying to transmit a

3185

02:16:27,479 --> 02:16:24,760

human's memory that actually might not

3186

02:16:30,839 --> 02:16:27,489

be too big we don't know what the

3187

02:16:32,099 --> 02:16:30,849

posthumous but what's stored on they are

3188

02:16:34,200 --> 02:16:32,109

especially cuz you could propagate were

3189

02:16:36,719 --> 02:16:34,210

compressing a lot you might be able to

3190

02:16:38,759 --> 02:16:36,729

send that in something relatively small

3191

02:16:40,259 --> 02:16:38,769

I mean maybe even something that we

3192

02:16:42,299 --> 02:16:40,269

could store nowadays in the terabyte

3193

02:16:44,490 --> 02:16:42,309

range but that's still a lot of

3194

02:16:46,679 --> 02:16:44,500

bandwidth you think about new horizons

3195

02:16:49,860 --> 02:16:46,689

the probe it just uh just went by Ultima

3196

02:16:51,150 --> 02:16:49,870

Thule a few days back that thing is

3197

02:16:53,610 --> 02:16:51,160

going to some photographs they're gonna

3198

02:16:55,049 --> 02:16:53,620

take two years to transmit back to us

3199

02:16:59,219 --> 02:16:55,059

because it's transmitting about one

3200

02:17:00,299 --> 02:16:59,229

kilobyte a second Wow and it's not

3201

02:17:02,519 --> 02:17:00,309

because we just you know it's not that

3202

02:17:05,490 --> 02:17:02,529

old attack I think launched in 2005 at

3203

02:17:08,070 --> 02:17:05,500

the best we had at the time right it's

3204

02:17:11,250 --> 02:17:08,080

just that the power needed to send the

3205

02:17:15,059 --> 02:17:11,260

signal even with huger dishes listening

3206

02:17:16,349 --> 02:17:15,069

to it is enormous you know to send a

3207

02:17:19,320 --> 02:17:16,359

single byte that we're going to pick up

3208

02:17:21,000 --> 02:17:19,330

and so it has to send that data really

3209

02:17:23,879 --> 02:17:21,010

slow and it doesn't have that much power

3210

02:17:25,229 --> 02:17:23,889

and you can rant the power up a lot I

3211

02:17:26,939 --> 02:17:25,239

mean it hasn't had much power because

3212

02:17:29,700 --> 02:17:26,949

it's got a really tiny power source a

3213

02:17:31,650 --> 02:17:29,710

planet in another solar system has to

3214

02:17:33,599 --> 02:17:31,660

rant that power up even more but they

3215

02:17:36,780 --> 02:17:33,609

would have gigantic reactors to do that

3216

02:17:40,019 --> 02:17:36,790

with but when we're talking about the

3217

02:17:40,740 --> 02:17:40,029

human body now what what kind of

3218

02:17:42,750 --> 02:17:40,750

bandwidth

3219

02:17:44,219 --> 02:17:42,760

what's kinda goes up actually and you

3220

02:17:47,879 --> 02:17:44,229

intentionally talking about needing to

3221

02:17:49,439 --> 02:17:47,889

use potentially I mean that could be up

3222

02:17:51,450 --> 02:17:49,449

in the ten to twenty fourth bytes or

3223

02:17:53,459 --> 02:17:51,460

more and you could compress a lot of

3224

02:17:55,530 --> 02:17:53,469

that to I mean it's a lot of its we you

3225

02:17:58,110 --> 02:17:55,540

know repeated data someone might not be

3226

02:18:00,480 --> 02:17:58,120

okay with being compressed though yeah

3227

02:18:02,700 --> 02:18:00,490

but we don't even have all the same DNA

3228

02:18:04,379 --> 02:18:02,710

for each of our individual cells if you

3229

02:18:07,290 --> 02:18:04,389

actually want to send a blueprint of

3230

02:18:09,540 --> 02:18:07,300

every last atom in someone's body in

3231

02:18:12,419 --> 02:18:09,550

terms of what it was and where it was we

3232

02:18:14,190 --> 02:18:12,429

have something like 30 trillion cells

3233

02:18:15,629 --> 02:18:14,200

something along those lines and each one

3234

02:18:18,540 --> 02:18:15,639

of those cells is like a trillion atoms

3235

02:18:20,610 --> 02:18:18,550

in it you're talking about a packet that

3236

02:18:24,209 --> 02:18:20,620

would need a terabyte line and would

3237

02:18:27,900 --> 02:18:24,219

take still decades to send even at that

3238

02:18:29,340 --> 02:18:27,910

speed you know at a hundred times faster

3239

02:18:30,900 --> 02:18:29,350
than the fastest publicly available

3240

02:18:33,600 --> 02:18:30,910
internet it still is going to need

3241

02:18:35,430 --> 02:18:33,610
centuries to send a single person yeah

3242

02:18:37,140 --> 02:18:35,440
and that's problematic when you're using

3243

02:18:39,330 --> 02:18:37,150
for ladies o2 because those things

3244

02:18:40,980 --> 02:18:39,340
spread out over distance so you want to

3245

02:18:44,640 --> 02:18:40,990
avoid signal noise you do still have a

3246

02:18:48,360 --> 02:18:44,650
bandwidth limit so I to understand what

3247

02:18:50,669 --> 02:18:48,370
you just said so you've got 25 trillion

3248

02:18:54,180 --> 02:18:50,679
cells in in our body

3249

02:18:57,140 --> 02:18:54,190
okay that's one daunting figure but

3250

02:18:59,190 --> 02:18:57,150
what's inside of each one of those cells

3251

02:19:00,990 --> 02:18:59,200

trillions of individuals so I mean just

3252

02:19:03,540 --> 02:19:01,000

the DNA code alone is a billion of those

3253

02:19:05,310 --> 02:19:03,550

now to be fair you can compress a lot

3254

02:19:08,160 --> 02:19:05,320

you really don't need to have an exact

3255

02:19:09,510 --> 02:19:08,170

copy of every last strand of DNA because

3256

02:19:12,030 --> 02:19:09,520

even though most of us have one little

3257

02:19:13,650 --> 02:19:12,040

mutation off from each other you can

3258

02:19:15,150 --> 02:19:13,660

send just that mutation or you don't

3259

02:19:17,129 --> 02:19:15,160

even send it I don't really care if one

3260

02:19:18,959 --> 02:19:17,139

of my cells and lies with a different

3261

02:19:21,840 --> 02:19:18,969

DNA packet than had before if it's still

3262

02:19:25,169 --> 02:19:21,850

one of my DNA strands it's just a little

3263

02:19:27,930 --> 02:19:25,179

different but so you don't have to set a

3264

02:19:30,209 --> 02:19:27,940

perfect copy but that gets in the

3265

02:19:33,570 --> 02:19:30,219

question of how perfect a copy needs to

3266

02:19:35,070 --> 02:19:33,580

be to be the original person - and so if

3267

02:19:37,650 --> 02:19:35,080

you're trying to send all those last

3268

02:19:39,030 --> 02:19:37,660

data states and you know you might not

3269

02:19:40,410 --> 02:19:39,040

have a choice you might have to send the

3270

02:19:42,390 --> 02:19:40,420

entire you know when I take a photograph

3271

02:19:45,450 --> 02:19:42,400

of someone I don't get the photo shop

3272

02:19:46,740 --> 02:19:45,460

that photo I'm taking the exact data if

3273

02:19:48,450 --> 02:19:46,750

that's the way you capture that

3274

02:19:50,940 --> 02:19:48,460

information then you have to transmit it

3275

02:19:52,261 --> 02:19:50,950

that way - and that would require a ton

3276

02:19:54,120 --> 02:19:52,271

of bandwidth and we talk about something

3277

02:19:55,440 --> 02:19:54,130

a quantum entanglement as way of sending

3278

02:19:59,341 --> 02:19:55,450

teleportation you know teleporting

3279

02:20:02,730 --> 02:19:59,351

people that is entangling every last

3280

02:20:04,680 --> 02:20:02,740

single atom in their body will get like

3281

02:20:06,390 --> 02:20:04,690

a thousand I think as I'll call record

3282

02:20:08,011 --> 02:20:06,400

for entangling atoms at the same time

3283

02:20:09,570 --> 02:20:08,021

and that's another very controlled

3284

02:20:11,100 --> 02:20:09,580

circumstance right

3285

02:20:14,040 --> 02:20:11,110

I don't even know how you go about doing

3286

02:20:17,220 --> 02:20:14,050

that but if you could that's you know

3287

02:20:18,540 --> 02:20:17,230

again that's a massive massive thing and

3288

02:20:19,500 --> 02:20:18,550

then the kind of computing power need to

3289

02:20:23,551 --> 02:20:19,510

do something like that

3290

02:20:25,950 --> 02:20:23,561

is just obscene yes it's obscene and

3291

02:20:27,840 --> 02:20:25,960

then on the back end of that it's the

3292

02:20:30,301 --> 02:20:27,850

amount of time that it would take to do

3293

02:20:32,970 --> 02:20:30,311

the transfer you might as well just fly

3294

02:20:35,430 --> 02:20:32,980

there and and take a couple hundred

3295

02:20:37,500 --> 02:20:35,440

years and at least you know that every

3296

02:20:39,720 --> 02:20:37,510

atom in your body would arrive in the

3297

02:20:41,070 --> 02:20:39,730

way that it to part it because that's

3298

02:20:43,680 --> 02:20:41,080

the other thing you don't know if it's

3299

02:20:47,310 --> 02:20:43,690

gonna reconstruct now that the other

3300

02:20:50,190 --> 02:20:47,320

part of this is your consciousness you

3301

02:20:52,680 --> 02:20:50,200

know would that also be part of the

3302

02:20:54,780 --> 02:20:52,690

teleportation I understand your memories

3303

02:20:57,870 --> 02:20:54,790

could be but what about the stuff that

3304

02:20:59,310 --> 02:20:57,880

makes Isaac Isaac how does that's the

3305

02:21:03,030 --> 02:20:59,320

million-dollar question is though

3306

02:21:05,190 --> 02:21:03,040

because we don't know I I tend to

3307

02:21:07,380 --> 02:21:05,200

subscribe to the John Locke approach on

3308

02:21:09,301 --> 02:21:07,390

continuity of identity and consciousness

3309

02:21:10,890 --> 02:21:09,311

not cuz it's particularly provable it's

3310

02:21:12,030 --> 02:21:10,900

none of these things have any more

3311

02:21:13,290 --> 02:21:12,040

evidence to point under knee of the

3312

02:21:16,261 --> 02:21:13,300

others but because it's the one that

3313

02:21:18,450 --> 02:21:16,271

seems to make the most sense to me or at

3314

02:21:21,930 --> 02:21:18,460

least is the most comfortable to settle

3315

02:21:25,560 --> 02:21:21,940

on and the notion there is is so long as

3316

02:21:27,360 --> 02:21:25,570

I'm continuing my my existence more or

3317

02:21:30,960 --> 02:21:27,370

less same with any really abrupt changes

3318

02:21:32,730 --> 02:21:30,970

then my identity is persistent too but

3319

02:21:34,290 --> 02:21:32,740

that becomes a real issue if I let's say

3320

02:21:36,180 --> 02:21:34,300

I make a copy of myself on another

3321

02:21:38,670 --> 02:21:36,190

planet what about the copy that's back

3322

02:21:41,070 --> 02:21:38,680

the back here what about the copy they

3323

02:21:43,410 --> 02:21:41,080

brought online that was not quite right

3324

02:21:45,450 --> 02:21:43,420

so they stored it and another one's used

3325

02:21:46,470 --> 02:21:45,460

and then they wake up the damaged one

3326

02:21:48,360 --> 02:21:46,480

because they've gotta how to repair it

3327

02:21:50,820 --> 02:21:48,370

now there's two of me there which one's

3328

02:21:52,380 --> 02:21:50,830

me well apparently they're both me but

3329

02:21:52,980 --> 02:21:52,390

they're not really the same as each

3330

02:21:57,000 --> 02:21:52,990

other anymore

3331

02:21:59,810 --> 02:21:57,010

and I've never heard a explanation for

3332

02:22:02,280 --> 02:21:59,820

how to cope with that that was entirely

3333

02:22:04,170 --> 02:22:02,290

solid across the board and met all the

3334

02:22:06,570 --> 02:22:04,180

the goals we'd have for just being

3335

02:22:08,220 --> 02:22:06,580

somewhere else and I don't think you're

3336

02:22:11,130 --> 02:22:08,230

gonna get one either because it's it's

3337

02:22:12,930 --> 02:22:11,140

it's it's a little bit too subjective

3338

02:22:14,850 --> 02:22:12,940

and some things are abstract and things

3339

02:22:17,580 --> 02:22:14,860

like consciousness and identity are very

3340

02:22:19,020 --> 02:22:17,590

abstract concepts and I I do not think

3341

02:22:22,540 --> 02:22:19,030

that we're going to get a satisfactory

3342

02:22:25,059 --> 02:22:22,550

answer to those do you do you can

3343

02:22:28,090 --> 02:22:25,069

suicide right you know what I mean you

3344

02:22:31,960 --> 02:22:28,100

hit hit and go you hit go and then you

3345

02:22:33,910 --> 02:22:31,970

hit the there's the stall tract alright

3346

02:22:37,210 --> 02:22:33,920

you know if you're reassembling me down

3347

02:22:40,059 --> 02:22:37,220

there and just send me up here did you

3348

02:22:41,260 --> 02:22:40,069

just kill me of course you've got the

3349

02:22:43,450 --> 02:22:41,270

examples where I think they'd lead to

3350

02:22:44,940 --> 02:22:43,460

cover that and I came the episode it was

3351

02:22:47,110 --> 02:22:44,950

one with the two right course not

3352

02:22:48,670 --> 02:22:47,120

there's a copy room left alone on a

3353

02:22:51,429 --> 02:22:48,680

planet that was the extra that bounced

3354

02:22:55,120 --> 02:22:51,439

back which one of those is the vo one

3355

02:22:57,160 --> 02:22:55,130

right well you know and there is no

3356

02:22:59,500 --> 02:22:57,170

clear answer on something like that that

3357

02:23:03,429 --> 02:22:59,510

that I always I have not got an answer

3358

02:23:06,880 --> 02:23:03,439

that would be 100% solid now and there's

3359

02:23:09,660 --> 02:23:06,890

uh if if teleportation isn't the answer

3360

02:23:13,420 --> 02:23:09,670

an entanglement isn't the answer

3361

02:23:17,020 --> 02:23:13,430

science today and for me I think is is

3362

02:23:20,710 --> 02:23:17,030

is when it gets to quantum computing and

3363

02:23:24,040 --> 02:23:20,720

qubits is now strongly suggesting Isaac

3364

02:23:26,050 --> 02:23:24,050

that parallel worlds are real right and

3365

02:23:30,250 --> 02:23:26,060

for a quantum entanglement for a qubit

3366

02:23:32,320 --> 02:23:30,260

to operate correctly and the concepts of

3367

02:23:35,679 --> 02:23:32,330

quantum computing well then we have to

3368

02:23:37,990 --> 02:23:35,689

accept a parallel world a pair an

3369

02:23:38,620 --> 02:23:38,000

infinite situation to our right and to

3370

02:23:41,500 --> 02:23:38,630

our left

3371

02:23:42,940 --> 02:23:41,510

not necessarily we've got what we have

3372

02:23:44,830 --> 02:23:42,950

quite a few quantum theories but the two

3373

02:23:49,750 --> 02:23:44,840

people most familiar with our Copenhagen

3374

02:23:51,700 --> 02:23:49,760

and Mini Ward's mini wards has a lot of

3375

02:23:53,349 --> 02:23:51,710

following it's it's the the other big

3376

02:23:55,420 --> 02:23:53,359

one but Copenhagen tends to be the

3377

02:23:58,360 --> 02:23:55,430

slightly more popular if there's loose

3378

02:24:00,400 --> 02:23:58,370

last I checked not a lot they both allow

3379

02:24:02,650 --> 02:24:00,410

quantum computing as the peers take

3380

02:24:04,750 --> 02:24:02,660

place there is not a single shred of

3381

02:24:06,580 --> 02:24:04,760

evidence of any sort to back up

3382

02:24:08,620 --> 02:24:06,590

Copenhagen MIDI boards or any of the

3383

02:24:10,900 --> 02:24:08,630

other quantum interpretations we don't

3384

02:24:12,400 --> 02:24:10,910

know right if those exist you know

3385

02:24:13,990 --> 02:24:12,410

that's a pretty big deal and I think a

3386

02:24:15,520 --> 02:24:14,000

lot of folks like mini Wars cuz it gets

3387

02:24:16,990 --> 02:24:15,530

man the anthropic principle and

3388

02:24:20,020 --> 02:24:17,000

fine-tuning issues for the universe

3389

02:24:22,059 --> 02:24:20,030

those are big problem in Copenhagen I

3390

02:24:23,530 --> 02:24:22,069

know I tend to subscribe to Copenhagen

3391

02:24:26,160 --> 02:24:23,540

myself though I think I think many

3392

02:24:28,510 --> 02:24:26,170

awards would be more fun if it was true

3393

02:24:30,550 --> 02:24:28,520

if you have those that's not asking a

3394

02:24:32,349 --> 02:24:30,560

question do I bother the travel to

3395

02:24:35,671 --> 02:24:32,359

another solar system when I can just

3396

02:24:38,251 --> 02:24:35,681

step off onto a copy of or thwe or human

3397

02:24:40,291 --> 02:24:38,261

got wiped out 70,000 years ago by I can

3398

02:24:41,430 --> 02:24:40,301

only that asteroid the one that they

3399

02:24:43,411 --> 02:24:41,440

think killed off a lot of of

3400

02:24:44,041 --> 02:24:43,421

civilization at the time the or people

3401

02:24:46,680 --> 02:24:44,051

that sound think those really

3402

02:24:48,211 --> 02:24:46,690

civilization yet you go to that copy of

3403

02:24:50,940 --> 02:24:48,221

that plan because it's identical to all

3404

02:24:53,611 --> 02:24:50,950

as except it's uninhabited that's the

3405

02:24:56,551 --> 02:24:53,621

perfect place to set up a colony I mean

3406

02:24:58,470 --> 02:24:56,561

well I go tale form Rigel or Vega I

3407

02:25:00,390 --> 02:24:58,480

guess actually plant Vigo now I know

3408

02:25:02,281 --> 02:25:00,400

with that recently yes why how in eyes

3409

02:25:04,230 --> 02:25:02,291

those places when you can just step out

3410

02:25:06,211 --> 02:25:04,240

onto an empty copy of your own planet

3411

02:25:09,301 --> 02:25:06,221

that's different because and there'll be

3412

02:25:11,821 --> 02:25:09,311

so many versions every last minor

3413

02:25:13,890 --> 02:25:11,831

variation even one atom being one not

3414

02:25:16,621 --> 02:25:13,900

place off in a single rock is its own

3415

02:25:18,571 --> 02:25:16,631

multi course and so you have a virtually

3416

02:25:20,220 --> 02:25:18,581

unlimited number of these detect me is

3417

02:25:21,810 --> 02:25:20,230

still a finite number but it's well as

3418

02:25:24,451 --> 02:25:21,820

once we a shout of them exponent on the

3419

02:25:26,821 --> 02:25:24,461

exponent you know this new infinite

3420

02:25:29,071 --> 02:25:26,831

number of these things why why would you

3421

02:25:31,980 --> 02:25:29,081

ever colonize another solar system in a

3422

02:25:35,041 --> 02:25:31,990

case like that except to maybe your own

3423

02:25:38,661 --> 02:25:35,051

son starting to burn out you know are

3424

02:25:41,850 --> 02:25:38,671

you okay with that though because if if

3425

02:25:44,461 --> 02:25:41,860

quantum mechanics quantum theory if and

3426
02:25:47,581 --> 02:25:44,471
in quantum computers and and in Cuba if

3427
02:25:50,761 --> 02:25:47,591
they continues down its path Isaac you

3428
02:25:52,591 --> 02:25:50,771
are going to have to accept either the

3429
02:25:54,180 --> 02:25:52,601
many-worlds or Co but you you're gonna

3430
02:25:57,810 --> 02:25:54,190
have to go one way or the other or maybe

3431
02:26:00,511 --> 02:25:57,820
even another another reality that we

3432
02:26:02,730 --> 02:26:00,521
haven't theorized yet but are you okay

3433
02:26:05,100 --> 02:26:02,740
with that does your head explode or you

3434
02:26:06,661 --> 02:26:05,110
okay my head explodes whenever I deal

3435
02:26:08,251 --> 02:26:06,671
with mini Ward's or the size that

3436
02:26:10,020 --> 02:26:08,261
universe you know people talk about the

3437
02:26:11,640 --> 02:26:10,030
sheer scale of that and you're trying to

3438
02:26:14,161 --> 02:26:11,650

come to understand astronomical times

3439

02:26:15,571 --> 02:26:14,171

you can stay this stuff for years you

3440

02:26:17,761 --> 02:26:15,581

can learn all the math and your brain

3441

02:26:20,161 --> 02:26:17,771

still never really wraps around the

3442

02:26:21,480 --> 02:26:20,171

scale involved as to whether or not I'm

3443

02:26:23,671 --> 02:26:21,490

even another Theory comes up what gets

3444

02:26:25,291 --> 02:26:23,681

proven I think I'd be found that but you

3445

02:26:28,861 --> 02:26:25,301

know no until a time I'd like to think I

3446

02:26:30,841 --> 02:26:28,871

would be that's that's the core of

3447

02:26:32,671 --> 02:26:30,851

science is adapting when the knowledge

3448

02:26:34,770 --> 02:26:32,681

changes figuring out what it means and

3449

02:26:36,241 --> 02:26:34,780

and you follow the truth it doesn't

3450

02:26:37,621 --> 02:26:36,251

matter I mean it doesn't matter if you

3451
02:26:40,501 --> 02:26:37,631
accept it or not either the truth it's

3452
02:26:41,761 --> 02:26:40,511
the truth um but you know personally I'd

3453
02:26:43,201 --> 02:26:41,771
like to think that I would I mean it'd

3454
02:26:45,541 --> 02:26:43,211
be a little disappointing myself I

3455
02:26:47,011 --> 02:26:45,551
didn't but you know Spearville blind was

3456
02:26:48,389 --> 02:26:47,021
all about something there's this the

3457
02:26:51,349 --> 02:26:48,399
human nature so

3458
02:26:54,899 --> 02:26:51,359
what I have been enjoying lately is

3459
02:26:56,849 --> 02:26:54,909
listening to the physicists the

3460
02:26:58,800 --> 02:26:56,859
celebrity physicists who as well I

3461
02:27:01,800 --> 02:26:58,810
listen to all of their presentations I

3462
02:27:04,349 --> 02:27:01,810
study it how they are getting farther

3463
02:27:07,170 --> 02:27:04,359

farther apart from each other where they

3464

02:27:09,719 --> 02:27:07,180

thought that they had a grip on things

3465

02:27:11,849 --> 02:27:09,729

you know certainly 50 years ago but it

3466

02:27:13,710 --> 02:27:11,859

is unraveling now because the data is

3467

02:27:16,349 --> 02:27:13,720

coming in faster than anybody

3468

02:27:18,559 --> 02:27:16,359

and now anybody's Theory gets thrown on

3469

02:27:19,710 --> 02:27:18,569

the table and it's as valid as the next

3470

02:27:22,620 --> 02:27:19,720

um

3471

02:27:23,909 --> 02:27:22,630

I to a degree some of the I mean most of

3472

02:27:26,309 --> 02:27:23,919

the folks that people recognize the

3473

02:27:28,710 --> 02:27:26,319

names of this that physicists like I

3474

02:27:30,420 --> 02:27:28,720

don't do any active resource yeah I

3475

02:27:32,279 --> 02:27:30,430

don't know how much Tyson does and I

3476

02:27:33,090 --> 02:27:32,289

obviously doesn't do any at least I'm

3477

02:27:35,460 --> 02:27:33,100

not that I'm aware of

3478

02:27:37,319 --> 02:27:35,470

miss you okay coo I think still does but

3479

02:27:39,449 --> 02:27:37,329

you know the the the Tony new mine

3480

02:27:41,130 --> 02:27:39,459

saying most these theories are usually

3481

02:27:43,519 --> 02:27:41,140

folks people people never heard of and

3482

02:27:45,929 --> 02:27:43,529

you have to keep up with that um and

3483

02:27:47,609 --> 02:27:45,939

sometimes those get debunked sometimes

3484

02:27:49,469 --> 02:27:47,619

they get proven a lot of times they sit

3485

02:27:50,760 --> 02:27:49,479

for a decade Oh to you know they might

3486

02:27:52,139 --> 02:27:50,770

get a really big news article talking

3487

02:27:53,790 --> 02:27:52,149

about them and they just kind of lingo

3488

02:27:56,250 --> 02:27:53,800

of knocking proven or disproven for a

3489

02:27:58,679 --> 02:27:56,260

long time mm-hmm it takes a long time a

3490

02:28:00,210 --> 02:27:58,689

lot and we've done so well advancing the

3491

02:28:03,689 --> 02:28:00,220

field of physics in the last century

3492

02:28:06,149 --> 02:28:03,699

that wax don't slow down now because any

3493

02:28:09,120 --> 02:28:06,159

new step we need to take requires these

3494

02:28:11,189 --> 02:28:09,130

huge projects that that that even if you

3495

02:28:14,189 --> 02:28:11,199

could just give an infinite blank check

3496

02:28:16,469 --> 02:28:14,199

to still take 10 or 20 years to produce

3497

02:28:18,540 --> 02:28:16,479

the experiment that's going to find out

3498

02:28:19,979 --> 02:28:18,550

say something like fusion the biggest

3499

02:28:22,380 --> 02:28:19,989

hoard upon that is it takes us so long

3500

02:28:26,219 --> 02:28:22,390

just to build the thing and it's how to

3501

02:28:28,019 --> 02:28:26,229

rush that process yeah I know and you're

3502

02:28:30,059 --> 02:28:28,029

absolutely I've thought so much about

3503

02:28:31,170 --> 02:28:30,069

I've got to take a break here in 15

3504

02:28:34,260 --> 02:28:31,180

seconds but when you have guys like

3505

02:28:35,639 --> 02:28:34,270

Lawrence Krauss or Brian Greene and you

3506

02:28:38,670 --> 02:28:35,649

know that that are doing this research

3507

02:28:40,590 --> 02:28:38,680

and putting these ideas out there if

3508

02:28:43,469 --> 02:28:40,600

anything comes to fruition it's gonna

3509

02:28:45,809 --> 02:28:43,479

take 2025 years but they don't have

3510

02:28:47,639 --> 02:28:45,819

another project to move on to after that

3511

02:28:50,969 --> 02:28:47,649

you know what I mean it takes so much

3512

02:28:53,670 --> 02:28:50,979

time to do the one version of something

3513

02:28:55,529 --> 02:28:53,680

oh yeah and I mean I think they'd agree

3514

02:28:58,019 --> 02:28:55,539

- it's it's not about the individual it

3515

02:28:59,699 --> 02:28:58,029

says progressive generational step we as

3516

02:29:01,409 --> 02:28:59,709

a community if you would specific

3517

02:29:02,070 --> 02:29:01,419

although although everybody in general

3518

02:29:04,020 --> 02:29:02,080

because everyone

3519

02:29:07,740 --> 02:29:04,030

commits these things even they're just

3520

02:29:09,300 --> 02:29:07,750

paying tax on it takes a long time and

3521

02:29:11,219 --> 02:29:09,310

you know people are talk about could we

3522

02:29:12,870 --> 02:29:11,229

do these projects that would take us you

3523

02:29:14,760 --> 02:29:12,880

know thousands of years to do say well

3524

02:29:16,740 --> 02:29:14,770

we have we have done this we built

3525

02:29:18,179 --> 02:29:16,750

cathedrals that took centuries we've

3526

02:29:20,190 --> 02:29:18,189

committed to so many projects that are

3527

02:29:22,889 --> 02:29:20,200

multi-generational and this is just one

3528

02:29:25,170 --> 02:29:22,899

example it takes time but we got lots of

3529

02:29:26,429 --> 02:29:25,180

time now we're gonna take a break right

3530

02:29:28,620 --> 02:29:26,439

here I'm gonna hold you over for a

3531

02:29:30,900 --> 02:29:28,630

little over time I want to discuss two

3532

02:29:34,889 --> 02:29:30,910

things that we didn't get to tonight

3533

02:29:37,160 --> 02:29:34,899

one is dark energy I want to go there

3534

02:29:39,750 --> 02:29:37,170

and I want to close out the show with a

3535

02:29:42,210 --> 02:29:39,760

discussion on disclosure and what is

3536

02:29:44,460 --> 02:29:42,220

going on now and the possibility of what

3537

02:29:47,580 --> 02:29:44,470

our government may or may not know when

3538

02:29:49,620 --> 02:29:47,590

it comes to alien and ET contact you

3539

02:29:52,290 --> 02:29:49,630

want to stand by right there I'll be

3540

02:29:54,210 --> 02:29:52,300

glad to our guest is Isaac Arthur been

3541

02:29:55,469 --> 02:29:54,220

waiting for this stay right there we'll

3542

02:29:57,599 --> 02:29:55,479

be right back after this short break

3543

02:30:00,180 --> 02:29:57,609

gonna do a little over time this is fade

3544

02:30:24,679 --> 02:30:00,190

to black stay with us

3545

02:30:27,870 --> 02:30:24,689

[Music]

3546

02:30:33,300 --> 02:30:27,880

and you are listen to my boy Jimmy

3547

02:30:36,540 --> 02:30:33,310

Church Jimmy Church radio.com this my

3548

02:30:46,849 --> 02:30:36,550

popular opinion reading a book will not

3549

02:30:50,490 --> 02:30:46,859

make you smarter hurricanes earthquakes

3550

02:30:52,950 --> 02:30:50,500

wildfires this year we've experienced

3551

02:30:55,260 --> 02:30:52,960

more than our fair share this is Jimmy

3552

02:30:57,420 --> 02:30:55,270

Church of fade to black and last month I

3553

02:30:59,790 --> 02:30:57,430

decided to make sure my family does not

3554

02:31:02,479 --> 02:30:59,800

have to worry about food should we get

3555

02:31:05,370 --> 02:31:02,489

caught in a real emergency situation

3556

02:31:07,229 --> 02:31:05,380

introducing Humana a healthy storable

3557

02:31:09,360 --> 02:31:07,239

product that tastes so good that you'll

3558

02:31:11,670 --> 02:31:09,370

want to eat it every day instead of just

3559

02:31:13,740 --> 02:31:11,680

during those times of duress all new

3560

02:31:17,250 --> 02:31:13,750

manna products have a 25 year shelf life

3561

02:31:19,860 --> 02:31:17,260

our msg and GMO free no preservatives

3562

02:31:21,750 --> 02:31:19,870

and are made in America with the new

3563

02:31:23,580 --> 02:31:21,760

manna pack in your home you'll be able

3564

02:31:26,130 --> 02:31:23,590

to sleep at night knowing that you

3565

02:31:28,500 --> 02:31:26,140

protected your family not only have I

3566

02:31:30,900 --> 02:31:28,510

tasted and tested I own it

3567

02:31:32,639 --> 02:31:30,910

now you can too just click on the new

3568

02:31:34,979 --> 02:31:32,649

manna banner on Jimmy Church radio.com

3569

02:31:37,439 --> 02:31:34,989

and use the promo code Jimmy when you

3570

02:31:39,090 --> 02:31:37,449

order in addition to a discount we'll

3571

02:31:40,050 --> 02:31:39,100

send you an autograph fade to black

3572

02:31:44,070 --> 02:31:40,060

t-shirt

3573

02:31:46,110 --> 02:31:44,080

seriously gobekli tepe this is Jimmy

3574

02:31:49,139 --> 02:31:46,120

Church of fade to black and I take life

3575

02:31:52,380 --> 02:31:49,149

change tea supplements every single day

3576

02:31:57,599 --> 02:31:52,390

it's what I do click on their banner ad

3577

02:32:00,479 --> 02:31:57,609

Jimmy Church radio.com when you take the

3578

02:32:02,820 --> 02:32:00,489

beans from Central America with dashes

3579

02:32:05,250 --> 02:32:02,830

of indonesian and african mixed in and

3580

02:32:08,340 --> 02:32:05,260

then roast it to the dark side of fade

3581

02:32:11,490 --> 02:32:08,350

to black you create the ultimate brew of

3582

02:32:15,240 --> 02:32:11,500

Fringe introducing the fade to black

3583

02:32:15,751 --> 02:32:15,250

blend from River Moon coffee yes River

3584

02:32:18,691 --> 02:32:15,761

Moon

3585

02:32:20,850 --> 02:32:18,701

darkus customized roast was created for

3586

02:32:23,850 --> 02:32:20,860

the love of fade to black

3587

02:32:26,520 --> 02:32:23,860

the alchemy of masterful roasting and

3588

02:32:30,091 --> 02:32:26,530

smoking the beans is in every sip of

3589

02:32:33,091 --> 02:32:30,101

this full-bodied dark Java I need my

3590

02:32:34,981 --> 02:32:33,101

coffee dog deep with distinct

3591

02:32:38,131 --> 02:32:34,991

bittersweet chocolate highlights just

3592

02:32:40,560 --> 02:32:38,141

like the bunker leaning further into the

3593

02:32:43,861 --> 02:32:40,570

darkness of the roast is fade to black

3594

02:32:45,511 --> 02:32:43,871

blend from river moon coffee just click

3595

02:32:48,810 --> 02:32:45,521

on the banner at Jimmy Church radio.com

3596

02:32:53,751 --> 02:32:48,820

and use the promo code F to B blend for

3597

02:32:57,001 --> 02:32:53,761

15% off of your order today gobekli tepe

3598

02:32:58,711 --> 02:32:57,011

hi folks CBD is the home run hitter for

3599

02:33:00,291 --> 02:32:58,721

health right now why do you ask

3600

02:33:02,671 --> 02:33:00,301

because of what it does for the body

3601
02:33:04,890 --> 02:33:02,681
unfortunately I can't tell you all about

3602
02:33:06,751 --> 02:33:04,900
the benefit you know there's reasons do

3603
02:33:09,871 --> 02:33:06,761
your due diligence and log on to ancient

3604
02:33:11,640 --> 02:33:09,881
life oil com that's ancient life oil com

3605
02:33:13,680 --> 02:33:11,650
ancient life oil uses organic

3606
02:33:16,291 --> 02:33:13,690
ingredients and is blended in coconut

3607
02:33:19,621 --> 02:33:16,301
oil for some of the best benefits legal

3608
02:33:21,901 --> 02:33:19,631
in 50 states and none psychoactive logon

3609
02:33:25,171 --> 02:33:21,911
to ancient life oil calm that's ancient

3610
02:33:27,511 --> 02:33:25,181
life oil calm this is Jimmy Church of

3611
02:33:30,331 --> 02:33:27,521
fade to black and my family is safe

3612
02:33:33,270 --> 02:33:30,341
because of new manna emergency food

3613
02:33:36,661 --> 02:33:33,280

storage just go to the new manna banner

3614

02:33:41,461 --> 02:33:36,671

at Jimmy Church radio.com promo code

3615

02:33:44,100 --> 02:33:41,471

jimmy 10 are you intrigued by paranormal

3616

02:33:47,761 --> 02:33:44,110

talk radio you love the new paranormal

3617

02:33:49,501 --> 02:33:47,771

radio app from torque stream live you'll

3618

02:33:52,651 --> 02:33:49,511

find a great selection of talk shows

3619

02:33:55,350 --> 02:33:52,661

covering UFOs ghosts strange phenomena

3620

02:33:57,571 --> 02:33:55,360

and much more download the paranormal

3621

02:33:59,251 --> 02:33:57,581

radio app now and start listening to the

3622

02:34:01,261 --> 02:33:59,261

very best in paranormal talk

3623

02:34:03,060 --> 02:34:01,271

entertainment including the network

3624

02:34:05,970 --> 02:34:03,070

you're listening to right now the

3625

02:34:15,479 --> 02:34:05,980

paranormal radio app free in Google Play

3626

02:34:30,010 --> 02:34:19,210

it's not a lifestyle we chose we were

3627

02:34:34,770 --> 02:34:30,020

born this way k GRA radio.com this is KJ

3628

02:34:34,780 --> 02:34:47,530

[Music]

3629

02:34:51,261 --> 02:34:49,671

welcome back fade to black I'm Neil

3630

02:34:54,230 --> 02:34:51,271

Shiva Church - and live overtime tonight

3631

02:34:55,970 --> 02:34:54,240

with our guest Isaac Arthur want to

3632

02:34:56,560 --> 02:34:55,980

remind everybody what's going on this

3633

02:34:59,330 --> 02:34:56,570

week

3634

02:35:02,091 --> 02:34:59,340

tomorrow night Carolyn Ford is good to

3635

02:35:04,160 --> 02:35:02,101

be here and of course that is Hine Stein

3636

02:35:04,881 --> 02:35:04,170

in the ancient crystal skull of

3637

02:35:07,131 --> 02:35:04,891

consciousness

3638

02:35:08,570 --> 02:35:07,141

Wednesday night David Wilcock is going

3639

02:35:11,030 --> 02:35:08,580

to be here Thursday night Fator night

3640

02:35:12,740 --> 02:35:11,040

Torrisi and eros of course divine

3641

02:35:15,711 --> 02:35:12,750

frequency on the airwaves followed by

3642

02:35:17,930 --> 02:35:15,721

open lines all night long our guests of

3643

02:35:19,341 --> 02:35:17,940

course is Isaac Arthur and Isaac right

3644

02:35:23,150 --> 02:35:19,351

before the break where I was talking you

3645

02:35:25,301 --> 02:35:23,160

know discussing with you the the new

3646

02:35:27,440 --> 02:35:25,311

realities that are that a hitting

3647

02:35:30,051 --> 02:35:27,450

astrophysicists and physicists and

3648

02:35:34,251 --> 02:35:30,061

cosmologists around the world is dark

3649

02:35:37,910 --> 02:35:34,261

energy and this is this is totally new

3650

02:35:41,720 --> 02:35:37,920

this is when I say totally new

3651

02:35:42,860 --> 02:35:41,730

relatively new over the last they offer

3652

02:35:44,450 --> 02:35:42,870

colloquial when they are force

3653

02:35:45,860 --> 02:35:44,460

presenting this notion as an undergrad

3654

02:35:48,921 --> 02:35:45,870

that scientist eyes mostly they have the

3655

02:35:50,440 --> 02:35:48,931

[h__\h] coffee and cookies but they just

3656

02:35:52,370 --> 02:35:50,450

started noticing with the supernova

3657

02:35:54,470 --> 02:35:52,380

Charles Taylor building out the day of

3658

02:35:55,881 --> 02:35:54,480

that that the expansion rates for the

3659

02:35:57,080 --> 02:35:55,891

universe weren't quite matching out to

3660

02:35:59,810 --> 02:35:57,090

what we thought they were going to be

3661

02:36:01,220 --> 02:35:59,820

and that time the you know the emulsion

3662

02:36:03,140 --> 02:36:01,230

of the Oh balls was so big that we

3663

02:36:05,091 --> 02:36:03,150

couldn't actually tell it was expanding

3664

02:36:06,410 --> 02:36:05,101

attracting or whatever right but as we

3665

02:36:08,330 --> 02:36:06,420

would find that down we started seeing

3666

02:36:10,370 --> 02:36:08,340

that it's accelerating its expansion

3667

02:36:13,251 --> 02:36:10,380

right and that is a weird one because it

3668

02:36:16,310 --> 02:36:13,261

kind of arguably breaks conservation of

3669

02:36:18,501 --> 02:36:16,320

energy depending how once used to look

3670

02:36:20,660 --> 02:36:18,511

at that that's really much more complex

3671

02:36:22,251 --> 02:36:20,670

but we already kind of suspect that in

3672

02:36:25,070 --> 02:36:22,261

the first place because space takes

3673

02:36:26,690 --> 02:36:25,080

energy to make and all the way back in

3674

02:36:28,341 --> 02:36:26,700

nineteen stay we were starting to wonder

3675

02:36:31,671 --> 02:36:28,351

about whether or not she was really

3676

02:36:34,220 --> 02:36:31,681

concerned in that context and it's

3677

02:36:35,270 --> 02:36:34,230

really shaping you know the future of

3678

02:36:38,480 --> 02:36:35,280

what the universe is going to look like

3679

02:36:40,370 --> 02:36:38,490

down the road we don't know how fast

3680

02:36:42,470 --> 02:36:40,380

accelerating yet or if it's gonna speed

3681

02:36:43,461 --> 02:36:42,480

up and so we don't even know what the

3682

02:36:45,230 --> 02:36:43,471

end of the universe is going to look

3683

02:36:47,001 --> 02:36:45,240

like by now cuz it could be a big rip

3684

02:36:48,950 --> 02:36:47,011

scenario where think it's shredder poet

3685

02:36:51,501 --> 02:36:48,960

in 100 million years or 20 billion years

3686

02:36:53,690 --> 02:36:51,511

or it could be the more classic heat Tet

3687

02:36:58,220 --> 02:36:53,700

that we've tended to settle on in more

3688

02:36:59,570 --> 02:36:58,230

recent times and with the the awesome

3689

02:37:00,769 --> 02:36:59,580

thing about right now is that we will

3690

02:37:02,179 --> 02:37:00,779

probably get to see most

3691

02:37:03,460 --> 02:37:02,189

cool you knowledge that comes from this

3692

02:37:05,359 --> 02:37:03,470

over the next twenty or thirty years

3693

02:37:06,800 --> 02:37:05,369

although this is one of those problems

3694

02:37:07,369 --> 02:37:06,810

it might be you know where it's coming

3695

02:37:09,469 --> 02:37:07,379

from

3696

02:37:12,199 --> 02:37:09,479

could be going on for centuries to come

3697

02:37:16,130 --> 02:37:12,209

and you know when when we talk about

3698

02:37:17,899 --> 02:37:16,140

gravity there are so many different

3699

02:37:20,239 --> 02:37:17,909

things going on there's the gravity of

3700

02:37:22,729 --> 02:37:20,249

of ourselves and what's holding you know

3701

02:37:24,019 --> 02:37:22,739

us together there's that and expanding

3702

02:37:26,539 --> 02:37:24,029

out from that of course you know the

3703

02:37:28,250 --> 02:37:26,549

solar system in Earth and and you know

3704

02:37:30,409 --> 02:37:28,260

what's holding us together you go out a

3705

02:37:32,689 --> 02:37:30,419

step beyond that and and and the

3706

02:37:35,000 --> 02:37:32,699

galaxies and and how that's spiraling

3707

02:37:36,829 --> 02:37:35,010

and how gravity is holding that together

3708

02:37:39,409 --> 02:37:36,839

where we're not spinning off into

3709

02:37:42,109 --> 02:37:39,419

everything and then that but the

3710

02:37:45,529 --> 02:37:42,119

opposite it seems to be happening with

3711

02:37:47,479 --> 02:37:45,539

dark energy which is forcing things in

3712

02:37:49,809 --> 02:37:47,489

the opposite direction and not pulling

3713

02:37:52,939 --> 02:37:49,819

it together and then the original

3714

02:37:55,819 --> 02:37:52,949

concept that I think everybody accepted

3715

02:37:58,159 --> 02:37:55,829

for so long was that gravity the

3716

02:37:59,539 --> 02:37:58,169

universe would expand until gravity

3717

02:38:02,329 --> 02:37:59,549

would overtake it then pull it back

3718

02:38:04,519 --> 02:38:02,339

together and we would have another big

3719

02:38:07,340 --> 02:38:04,529

bang you would be like rinse repeat

3720

02:38:11,050 --> 02:38:07,350

you know lather and cyclic bags right

3721

02:38:13,369 --> 02:38:11,060

cyclic waiting so and and now I think

3722

02:38:16,340 --> 02:38:13,379

we're starting to take a harsh look at

3723

02:38:19,760 --> 02:38:16,350

this that we just maybe on a one-way

3724

02:38:23,349 --> 02:38:19,770

trip here right that it just may expand

3725

02:38:26,569 --> 02:38:23,359

out and eventually if we're still around

3726

02:38:30,349 --> 02:38:26,579

we will be completely by ourself that

3727

02:38:32,449 --> 02:38:30,359

the cosmos will be black there is a

3728

02:38:34,069 --> 02:38:32,459

second part I think I mean that's one

3729

02:38:36,170 --> 02:38:34,079

that's noise could happen just the local

3730

02:38:37,939 --> 02:38:36,180

galaxies by us all moach together as

3731

02:38:40,369 --> 02:38:37,949

they're already doing all galaxies a

3732

02:38:42,050 --> 02:38:40,379

cannibal and so as an drama and there's

3733

02:38:43,639 --> 02:38:42,060

talk about Andromeda and the Milky Way

3734

02:38:45,319 --> 02:38:43,649

colliding but we're actually probably in

3735

02:38:47,239 --> 02:38:45,329

a colliding with the Whirlpool yl ones

3736

02:38:48,800 --> 02:38:47,249

forced right those well more together

3737

02:38:50,779 --> 02:38:48,810

and everybody else will expand out

3738

02:38:52,130 --> 02:38:50,789

whatever see them 150 billion years from

3739

02:38:55,010 --> 02:38:52,140

now you wouldn't be able to see those

3740

02:38:56,119 --> 02:38:55,020

galaxies it says the most trace redshift

3741

02:39:00,349 --> 02:38:56,129

to things disappear know the

3742

02:39:02,960 --> 02:39:00,359

cosmological event horizon but in some

3743

02:39:05,090 --> 02:39:02,970

big rips noise for instance and if the

3744

02:39:07,039 --> 02:39:05,100

this pushing force of dark out she keeps

3745

02:39:08,719 --> 02:39:07,049

growing you could get to the point where

3746

02:39:10,969 --> 02:39:08,729

was actually ripping apart quarks

3747

02:39:13,369 --> 02:39:10,979

themselves and you actually can't really

3748

02:39:14,310 --> 02:39:13,379

rip quarks or parks when you do you make

3749

02:39:16,830 --> 02:39:14,320

more quark

3750

02:39:18,210 --> 02:39:16,840

so there are some scenarios for like the

3751
02:39:20,160 --> 02:39:18,220
big rip for instance where this just

3752
02:39:23,000 --> 02:39:20,170
kept growing until you had a new Big

3753
02:39:25,020 --> 02:39:23,010
Bang going on everywhere all at once and

3754
02:39:26,580 --> 02:39:25,030
when I actually showed that's not how

3755
02:39:27,810 --> 02:39:26,590
that happened in the first place you

3756
02:39:30,090 --> 02:39:27,820
said we talked about the size that

3757
02:39:32,160 --> 02:39:30,100
universe being really tiny but we only

3758
02:39:33,630 --> 02:39:32,170
mean the chunk we can see it could have

3759
02:39:35,429 --> 02:39:33,640
expanded everywhere and already been

3760
02:39:37,890 --> 02:39:35,439
infant in size in the first place right

3761
02:39:39,570 --> 02:39:37,900
um you know more infinity of Infinity

3762
02:39:42,330 --> 02:39:39,580
what's infinity plus infinity or times

3763
02:39:43,980 --> 02:39:42,340

infinity it's still infinity and so that

3764

02:39:45,690 --> 02:39:43,990

is actually one possibility of course we

3765

02:39:48,510 --> 02:39:45,700

would not survive that if it's really in

3766

02:39:50,100 --> 02:39:48,520

quark support but you could have that as

3767

02:39:51,600 --> 02:39:50,110

something that happens every hundred

3768

02:39:55,460 --> 02:39:51,610

billion years or so the universe truly

3769

02:39:57,929 --> 02:39:55,470

erupts as a whole new you know Big Bang

3770

02:39:59,850 --> 02:39:57,939

and why don't subscribe to myself one of

3771

02:40:01,350 --> 02:39:59,860

the more popular compendious for the Big

3772

02:40:03,320 --> 02:40:01,360

Bang for a long time not the

3773

02:40:05,820 --> 02:40:03,330

steady-state quasi steady state universe

3774

02:40:09,179 --> 02:40:05,830

where you had little micro Big Bang's

3775

02:40:10,350 --> 02:40:09,189

going off all the time or the idea was

3776

02:40:11,700 --> 02:40:10,360

that you'll have a little bit of

3777

02:40:13,560 --> 02:40:11,710

hydrogen appearing here and there at

3778

02:40:15,600 --> 02:40:13,570

random everywhere all the time and

3779

02:40:17,310 --> 02:40:15,610

because oh you wouldn't have that and

3780

02:40:20,520 --> 02:40:17,320

then we say well we got dark energy

3781

02:40:22,200 --> 02:40:20,530

doing that now I mean this is new space

3782

02:40:23,969 --> 02:40:22,210

that's appearing out of nowhere and it's

3783

02:40:25,530 --> 02:40:23,979

doing in probably tiny amounts we have

3784

02:40:27,450 --> 02:40:25,540

actually better narrow that down yet but

3785

02:40:29,429 --> 02:40:27,460

you could easily have tiny tiny little

3786

02:40:32,040 --> 02:40:29,439

packets of new space poppy-up in you all

3787

02:40:33,450 --> 02:40:32,050

the time you ignore them because all the

3788

02:40:37,260 --> 02:40:33,460

electrical forces hold you by together

3789

02:40:39,030 --> 02:40:37,270

but they'd still be going on yeah and so

3790

02:40:40,679 --> 02:40:39,040

you might have new little bits of space

3791

02:40:43,110 --> 02:40:40,689

pop up inside you and that's what caused

3792

02:40:46,469 --> 02:40:43,120

the expansion just adds up over distance

3793

02:40:48,150 --> 02:40:46,479

and what in the the okay there's two

3794

02:40:50,580 --> 02:40:48,160

directions I want to go in really

3795

02:40:54,030 --> 02:40:50,590

quickly one our Big Bang just happened

3796

02:40:58,410 --> 02:40:54,040

to be perfect in that gravity was right

3797

02:41:00,780 --> 02:40:58,420

the forces were right and and our

3798

02:41:04,020 --> 02:41:00,790

universe just wants to create things

3799

02:41:06,840 --> 02:41:04,030

right life is just like every I mean we

3800

02:41:10,460 --> 02:41:06,850

just planets and star but if it was off

3801
02:41:14,219 --> 02:41:10,470
by just a little bit things don't join

3802
02:41:15,510 --> 02:41:14,229
it it's just probably not I mean that's

3803
02:41:17,400 --> 02:41:15,520
the fine-tuning approaches that

3804
02:41:19,290 --> 02:41:17,410
everything is exactly perfect for us all

3805
02:41:19,770 --> 02:41:19,300
in a very tiny range compared to what it

3806
02:41:21,570 --> 02:41:19,780
could be

3807
02:41:23,460 --> 02:41:21,580
right well I have to say the model is

3808
02:41:24,900 --> 02:41:23,470
done for that I'll still if you're not

3809
02:41:26,700 --> 02:41:24,910
that you couldn't say that something

3810
02:41:27,300 --> 02:41:26,710
elsewhere in form with patterns like we

3811
02:41:29,969 --> 02:41:27,310
have now

3812
02:41:31,949 --> 02:41:29,979
and just might be very different but it

3813
02:41:32,969 --> 02:41:31,959

and that's just throwing out there that

3814

02:41:35,760 --> 02:41:32,979

those models aren't really all that

3815

02:41:38,789 --> 02:41:35,770

precise yet it does look like the

3816

02:41:40,679 --> 02:41:38,799

universe were in is is just perfect and

3817

02:41:43,559 --> 02:41:40,689

so you get the anthropic principle says

3818

02:41:45,329 --> 02:41:43,569

is it a freak coincidence or is it just

3819

02:41:47,369 --> 02:41:45,339

that we are the only places that had

3820

02:41:48,899 --> 02:41:47,379

eating emerge to notice that we were

3821

02:41:50,609 --> 02:41:48,909

perfect all you other places no life

3822

02:41:54,840 --> 02:41:50,619

emerges to notice that they are evil

3823

02:41:57,929 --> 02:41:54,850

sucks for life but that's exactly right

3824

02:42:00,479 --> 02:41:57,939

in that there could be infinite

3825

02:42:03,210 --> 02:42:00,489

universes out there that are dead

3826

02:42:05,550 --> 02:42:03,220

I net it just don't have any action

3827

02:42:09,000 --> 02:42:05,560

going on there Big Bang was just off by

3828

02:42:09,510 --> 02:42:09,010

a little bit and it just it just wasn't

3829

02:42:11,670 --> 02:42:09,520

right

3830

02:42:13,559 --> 02:42:11,680

yep the physical constants were just a

3831

02:42:16,619 --> 02:42:13,569

little bit off of that or the time for

3832

02:42:18,059 --> 02:42:16,629

the inflation was not quite right or and

3833

02:42:21,300 --> 02:42:18,069

there's so many ways that could have

3834

02:42:22,859 --> 02:42:21,310

played out that we result in no life and

3835

02:42:24,510 --> 02:42:22,869

the only caveat on that is that we

3836

02:42:25,979 --> 02:42:24,520

probably don't want to rule out that's

3837

02:42:28,829 --> 02:42:25,989

quite a few more than we would tend to

3838

02:42:30,539 --> 02:42:28,839

expect might be life bearing but I

3839

02:42:31,979 --> 02:42:30,549

wouldn't expect most of them to be it

3840

02:42:34,289 --> 02:42:31,989

just might be more than we tend to think

3841

02:42:36,239 --> 02:42:34,299

and right now we think that I'd say well

3842

02:42:38,239 --> 02:42:36,249

those numbers that's so small that you

3843

02:42:41,250 --> 02:42:38,249

need you know exponents to express it

3844

02:42:43,849 --> 02:42:41,260

and that again that goes in the

3845

02:42:46,289 --> 02:42:43,859

fine-tuning anthropic principle approach

3846

02:42:48,029 --> 02:42:46,299

you have to careful these numbers for

3847

02:42:50,460 --> 02:42:48,039

sometimes we'll say oh the universe is

3848

02:42:52,649 --> 02:42:50,470

so huge we had to have X Y or Z earth

3849

02:42:55,500 --> 02:42:52,659

takes up only a very tiny portion of

3850

02:42:56,819 --> 02:42:55,510

value of space that's here'll here and

3851
02:42:58,649 --> 02:42:56,829
you want to get to the next system that

3852
02:43:00,510 --> 02:42:58,659
it has a stone it you have to encompass

3853
02:43:02,699 --> 02:43:00,520
a valium that's a quadrillion times

3854
02:43:04,380 --> 02:43:02,709
larger than the sphere you'd make around

3855
02:43:06,750 --> 02:43:04,390
the earth the Sun at the Earth's

3856
02:43:08,670 --> 02:43:06,760
distance right and that's empty

3857
02:43:09,869 --> 02:43:08,680
that's pretty empty anyway and we don't

3858
02:43:11,939 --> 02:43:09,879
really think about anything being there

3859
02:43:14,939 --> 02:43:11,949
but earth is already a one Aitkin

3860
02:43:19,590 --> 02:43:14,949
chilean thing just by our solar system

3861
02:43:21,269 --> 02:43:19,600
existing by being so huge we don't know

3862
02:43:23,460 --> 02:43:21,279
what the math numbers on these really

3863
02:43:25,800 --> 02:43:23,470

suggest you well yet and we're going to

3864

02:43:27,329 --> 02:43:25,810

find out more but and as we're saying

3865

02:43:30,689 --> 02:43:27,339

you have to be patient with science it

3866

02:43:33,840 --> 02:43:30,699

takes a long time so it's fun though

3867

02:43:36,040 --> 02:43:33,850

and when we take that concept because

3868

02:43:44,500 --> 02:43:36,050

the odds of

3869

02:43:46,179 --> 02:43:44,510

you talk to a different scientists out

3870

02:43:48,760 --> 02:43:46,189

there and I'm knocking to name names but

3871

02:43:51,490 --> 02:43:48,770

we'll say well look it was just you know

3872

02:43:54,730 --> 02:43:51,500

lightning hit some amino acids on a

3873

02:43:58,059 --> 02:43:54,740

crystalline in a creek bed boom we had

3874

02:44:00,360 --> 02:43:58,069

DNA you know well we have no idea how

3875

02:44:03,370 --> 02:44:00,370

that happened really we know two things

3876

02:44:05,139 --> 02:44:03,380

reasonably well by inference that it

3877

02:44:06,550 --> 02:44:05,149

would have taken a decent chemical make

3878

02:44:08,469 --> 02:44:06,560

sure and that you need to have some kind

3879

02:44:10,809 --> 02:44:08,479

of energy input for them to live on and

3880

02:44:13,540 --> 02:44:10,819

so and then people sometimes think we

3881

02:44:15,370 --> 02:44:13,550

know more about this than we do we all

3882

02:44:17,290 --> 02:44:15,380

we do is we look at what circumstances

3883

02:44:18,550 --> 02:44:17,300

on earth might have had those and say

3884

02:44:20,469 --> 02:44:18,560

well that's a place it could have

3885

02:44:21,730 --> 02:44:20,479

happened we don't know yet we've no idea

3886

02:44:23,530 --> 02:44:21,740

it could have been thermal vents it

3887

02:44:25,330 --> 02:44:23,540

could have been tidal pools it could

3888

02:44:26,710 --> 02:44:25,340

have been panspermia comets coming down

3889

02:44:29,559 --> 02:44:26,720

with the earth cord that had some

3890

02:44:31,360 --> 02:44:29,569

microbes in them all we can say with

3891

02:44:33,700 --> 02:44:31,370

reasonable certainty is you need to have

3892

02:44:35,290 --> 02:44:33,710

a good chemical mixture and some sort of

3893

02:44:37,330 --> 02:44:35,300

energy input and you need the raw

3894

02:44:40,120 --> 02:44:37,340

materials in the fuel and a lot of time

3895

02:44:44,349 --> 02:44:40,130

yeah a lot of time a lot of time now

3896

02:44:47,110 --> 02:44:44,359

then there's what I'm gonna push you a

3897

02:44:49,599 --> 02:44:47,120

little bit the odds and you always

3898

02:44:51,790 --> 02:44:49,609

present these numbers really well you

3899

02:44:54,460 --> 02:44:51,800

know how many zeroes that we're gonna

3900

02:44:56,230 --> 02:44:54,470

put on the odds of DNA being created I

3901
02:44:58,870 --> 02:44:56,240
don't know but it would probably go from

3902
02:45:02,440 --> 02:44:58,880
here to Mars that's a big number if you

3903
02:45:05,070 --> 02:45:02,450
are going with luck right okay which is

3904
02:45:07,300 --> 02:45:05,080
what we're talking about your chance or

3905
02:45:09,490 --> 02:45:07,310
could there be and I'm not talking about

3906
02:45:13,030 --> 02:45:09,500
God or religion but could there have

3907
02:45:16,510 --> 02:45:13,040
been a divine type of interference here

3908
02:45:19,690 --> 02:45:16,520
from maybe panspermia or an ET

3909
02:45:23,559 --> 02:45:19,700
connection where we were placed here

3910
02:45:26,920 --> 02:45:23,569
that it wasn't odds and it wasn't luck

3911
02:45:31,210 --> 02:45:26,930
and it was in nature that possibly yeah

3912
02:45:33,070 --> 02:45:31,220
I mean yeah I I think the key thing and

3913
02:45:34,510 --> 02:45:33,080

sometimes folks missed this with the

3914

02:45:36,610 --> 02:45:34,520

science when you're doing it you all

3915

02:45:39,550 --> 02:45:36,620

obliged to stick to a certain specific

3916

02:45:40,750 --> 02:45:39,560

window for evidence and you don't stray

3917

02:45:41,980 --> 02:45:40,760

outside that the moment you start

3918

02:45:43,599 --> 02:45:41,990

straying outside of that you're no

3919

02:45:44,920 --> 02:45:43,609

longer doing science doesn't mean you're

3920

02:45:47,410 --> 02:45:44,930

doing illegitimate thought but you're

3921

02:45:48,760 --> 02:45:47,420

not doing the signs anymore and I always

3922

02:45:49,870 --> 02:45:48,770

try to stick to that because I don't

3923

02:45:52,469 --> 02:45:49,880

like when scientists

3924

02:45:55,780 --> 02:45:52,479

talking outside their fields too much

3925

02:45:57,370 --> 02:45:55,790

but simulation hypothesis a great

3926

02:45:59,410 --> 02:45:57,380

example of that we say what if we all

3927

02:46:01,359 --> 02:45:59,420

live inside a civilization and I saw you

3928

02:46:03,130 --> 02:46:01,369

inside a simulation mm-hmm and say well

3929

02:46:04,990 --> 02:46:03,140

that's very obviously example of

3930

02:46:06,580 --> 02:46:05,000

intelligent design caught what you want

3931

02:46:08,380 --> 02:46:06,590

for something like that whether it's a

3932

02:46:09,790 --> 02:46:08,390

programmer named Bob or whether it's God

3933

02:46:11,710 --> 02:46:09,800

or the great sandwich people you don't

3934

02:46:13,870 --> 02:46:11,720

know mm-hmm but that is something that's

3935

02:46:15,969 --> 02:46:13,880

very plausible to do we probably can

3936

02:46:18,460 --> 02:46:15,979

simulate and you know an artificial

3937

02:46:20,170 --> 02:46:18,470

universe of some scope with artificial

3938

02:46:22,349 --> 02:46:20,180

intelligence inside it that would think

3939

02:46:25,750 --> 02:46:22,359

that that was the real universe and

3940

02:46:27,700 --> 02:46:25,760

we're close to doing that now we're also

3941

02:46:30,550 --> 02:46:27,710

doing that now with gaming I mean it's

3942

02:46:32,080 --> 02:46:30,560

getting really good and and a big key

3943

02:46:34,870 --> 02:46:32,090

thing on this is that those universes

3944

02:46:36,070 --> 02:46:34,880

don't actually have to be real like in

3945

02:46:37,809 --> 02:46:36,080

the sense of being the same as the one

3946

02:46:40,059 --> 02:46:37,819

you're in you can set the physical lost

3947

02:46:42,010 --> 02:46:40,069

whatever you want them to be so what

3948

02:46:44,019 --> 02:46:42,020

passes for life inside those even though

3949

02:46:44,979 --> 02:46:44,029

it thinks it's alive and by any

3950

02:46:47,260 --> 02:46:44,989

reasonable standard would have to be

3951
02:46:49,530 --> 02:46:47,270
considered alive might not resemble the

3952
02:46:51,700 --> 02:46:49,540
universe it was simulated plum at all

3953
02:46:52,840 --> 02:46:51,710
you because that might be an experiment

3954
02:46:55,840 --> 02:46:52,850
they were doing to see what strange

3955
02:46:57,040 --> 02:46:55,850
things could actually produce life we

3956
02:46:59,439 --> 02:46:57,050
don't know about the higher level of

3957
02:47:01,179 --> 02:46:59,449
reality if it exists and I would tend to

3958
02:47:04,179 --> 02:47:01,189
argue that it's not really any more real

3959
02:47:07,719 --> 02:47:04,189
than at all there's not a new concept

3960
02:47:09,760 --> 02:47:07,729
which is just dressing up in science mmm

3961
02:47:12,880 --> 02:47:09,770
evidence is what matters for that though

3962
02:47:14,380 --> 02:47:12,890
and we don't have any evidence of it we

3963
02:47:16,000 --> 02:47:14,390

don't have any evidence for yesterday

3964

02:47:19,359 --> 02:47:16,010

and we probably can't actually get any

3965

02:47:21,609 --> 02:47:19,369

we will probably never know where life

3966

02:47:24,130 --> 02:47:21,619

started on earth well it was in a common

3967

02:47:25,479 --> 02:47:24,140

impact or thermo bent or tidal pool we

3968

02:47:27,880 --> 02:47:25,489

certainly aren't gonna know which one it

3969

02:47:29,979 --> 02:47:27,890

was and we would have no way to check to

3970

02:47:32,380 --> 02:47:29,989

see if somebody had done that so we can

3971

02:47:33,910 --> 02:47:32,390

only logically in for that somebody

3972

02:47:36,219 --> 02:47:33,920

probably didn't do that because they

3973

02:47:38,620 --> 02:47:36,229

they'd still be around where we can see

3974

02:47:40,330 --> 02:47:38,630

in contact and what they wore but again

3975

02:47:43,389 --> 02:47:40,340

you could poke holes that argument very

3976

02:47:44,859 --> 02:47:43,399

easily to it's you can't conclude that

3977

02:47:46,809 --> 02:47:44,869

that's what happened you can really say

3978

02:47:49,540 --> 02:47:46,819

it's a possibility on the table mm-hmm

3979

02:47:53,849 --> 02:47:49,550

yeah and when I consider all of that and

3980

02:47:57,899 --> 02:47:53,859

especially when we when

3981

02:48:01,380 --> 02:47:57,909

when we are told by Orthodox academics

3982

02:48:03,719 --> 02:48:01,390

that you know Darwin and development and

3983

02:48:05,910 --> 02:48:03,729

evolution and where we are talking about

3984

02:48:06,450 --> 02:48:05,920

hundreds of millions of years in a bit

3985

02:48:09,179 --> 02:48:06,460

you know

3986

02:48:09,929 --> 02:48:09,189

our ancestors were fish but here we are

3987

02:48:12,779 --> 02:48:09,939

today

3988

02:48:18,000 --> 02:48:12,789

well the reason why I poked holes in

3989

02:48:21,510 --> 02:48:18,010

that is is common sense you and I Isaac

3990

02:48:25,800 --> 02:48:21,520

homo sapien sapien 150,000 years old

3991

02:48:29,670 --> 02:48:25,810

that's it right that's it well there

3992

02:48:32,189 --> 02:48:29,680

isn't anything there isn't that of

3993

02:48:36,569 --> 02:48:32,199

course the missing link but there isn't

3994

02:48:39,420 --> 02:48:36,579

the slow development into us where we

3995

02:48:42,809 --> 02:48:39,430

just appeared here and that I I have a

3996

02:48:45,840 --> 02:48:42,819

hard time accepting that we just appear

3997

02:48:47,790 --> 02:48:45,850

that suddenly one day there was

3998

02:48:51,059 --> 02:48:47,800

something else and that virtually

3999

02:48:53,840 --> 02:48:51,069

overnight we are here and I I don't

4000

02:48:56,189 --> 02:48:53,850

understand how that is possible I

4001

02:48:57,840 --> 02:48:56,199

evolution doesn't always happen you know

4002

02:48:59,670 --> 02:48:57,850

and it's kind of long progression thing

4003

02:49:01,830 --> 02:48:59,680

if you have a really radical mutation

4004

02:49:03,990 --> 02:49:01,840

that that is actually useful and most on

4005

02:49:05,429 --> 02:49:04,000

ours that can spread very quickly we

4006

02:49:07,649 --> 02:49:05,439

will say though that was very quick but

4007

02:49:09,059 --> 02:49:07,659

you know 150,000 years and that you

4008

02:49:10,859 --> 02:49:09,069

would only nail that down to maybe a

4009

02:49:12,300 --> 02:49:10,869

couple thousand years think about what

4010

02:49:13,859 --> 02:49:12,310

we've done in a thousand years

4011

02:49:15,149 --> 02:49:13,869

one thing about what some species of the

4012

02:49:16,979 --> 02:49:15,159

missing link that are the missing link

4013

02:49:19,529 --> 02:49:16,989

is a million your time gap that's a lot

4014

02:49:21,000 --> 02:49:19,539

of stuff going on but were the only ones

4015

02:49:23,760 --> 02:49:21,010

though that's the thing we're the only

4016

02:49:25,439 --> 02:49:23,770

ones on this planet that's it that don't

4017

02:49:27,240 --> 02:49:25,449

do what we do and there was an

4018

02:49:29,849 --> 02:49:27,250

exclusivity on that if you're the four

4019

02:49:32,189 --> 02:49:29,859

species that pops up somewhere you make

4020

02:49:33,929 --> 02:49:32,199

a holder for new ones to emerge now

4021

02:49:35,189 --> 02:49:33,939

that's not to say that we were the only

4022

02:49:37,740 --> 02:49:35,199

one of those look like they were maybe

4023

02:49:39,120 --> 02:49:37,750

some other Homo sapiens well uh not

4024

02:49:40,800 --> 02:49:39,130

homeless a me although hominid lines

4025

02:49:43,679 --> 02:49:40,810

that more poppy fairly intelligent to

4026

02:49:46,469 --> 02:49:43,689

and we might have inbred with them all

4027

02:49:49,529 --> 02:49:46,479

Oh knock them out but we don't know they

4028

02:49:52,109 --> 02:49:49,539

say I know more data but we just don't

4029

02:49:54,149 --> 02:49:52,119

know and I I don't know full of we'll

4030

02:49:57,569 --> 02:49:54,159

find out you know I really don't which

4031

02:50:01,500 --> 02:49:57,579

takes me to my last question when it

4032

02:50:04,200 --> 02:50:01,510

comes to disclosure and in our UFO

4033

02:50:06,200 --> 02:50:04,210

community in the conspiracy community

4034

02:50:09,590 --> 02:50:06,210

disclosure the D word

4035

02:50:13,040 --> 02:50:09,600

is a really big deal and last year in

4036

02:50:14,750 --> 02:50:13,050

2018 we had a lot of UFOs in the

4037

02:50:17,180 --> 02:50:14,760

headlines and you know starting with the

4038

02:50:20,060 --> 02:50:17,190

New York Times and and everything that

4039

02:50:22,370 --> 02:50:20,070

happened last year it seemed like you

4040

02:50:24,110 --> 02:50:22,380

know the Pentagon and and somebody out

4041

02:50:26,240 --> 02:50:24,120

there is feeding this information back

4042

02:50:29,660 --> 02:50:26,250

into the community make got to be out of

4043

02:50:32,150 --> 02:50:29,670

control with Fox and CNN and BBC and

4044

02:50:34,550 --> 02:50:32,160

everybody reporting on this last year do

4045

02:50:38,000 --> 02:50:34,560

you think that the government is sitting

4046

02:50:40,670 --> 02:50:38,010

on information that they are not

4047

02:50:44,440 --> 02:50:40,680

releasing to us when it comes to the et

4048

02:50:46,580 --> 02:50:44,450

question whether we are alone or not

4049

02:50:47,570 --> 02:50:46,590

there's good things with the caveat I'm

4050

02:50:49,390 --> 02:50:47,580

sure the government's sitting on

4051
02:50:51,860 --> 02:50:49,400
information we don't have access to

4052
02:50:53,630 --> 02:50:51,870
whether that's military secrets so

4053
02:50:55,460 --> 02:50:53,640
extraterrestrials or just you know

4054
02:50:56,960 --> 02:50:55,470
individual like I have my wide walked

4055
02:50:58,580 --> 02:50:56,970
with some secret stuff back in the past

4056
02:51:01,070 --> 02:50:58,590
and it was usually something very

4057
02:51:03,560 --> 02:51:01,080
mundane like a specific frequency that

4058
02:51:07,340 --> 02:51:03,570
this airplane would be emitting at when

4059
02:51:08,810 --> 02:51:07,350
there's a high speed when we find that

4060
02:51:09,860 --> 02:51:08,820
that you know I can't speculate is what

4061
02:51:12,200 --> 02:51:09,870
we're gonna find in those because we

4062
02:51:14,240 --> 02:51:12,210
don't have it yet and one of the things

4063
02:51:16,580 --> 02:51:14,250

I always objective folks do and is is

4064

02:51:18,710 --> 02:51:16,590

assuming that you know there's not gonna

4065

02:51:20,480 --> 02:51:18,720

be something they are assuming

4066

02:51:21,860 --> 02:51:20,490

something's they oh that's bad too but

4067

02:51:23,300 --> 02:51:21,870

there is a habit of always assuming

4068

02:51:25,580 --> 02:51:23,310

there's nothing they are from the

4069

02:51:27,860 --> 02:51:25,590

skeptic angle and that's not good

4070

02:51:29,540 --> 02:51:27,870

skepticism you wait until you have the

4071

02:51:31,670 --> 02:51:29,550

information and then you draw

4072

02:51:33,440 --> 02:51:31,680

conclusions from that information you

4073

02:51:36,430 --> 02:51:33,450

check if that information is valid and

4074

02:51:38,330 --> 02:51:36,440

until you have it it's it's it's

4075

02:51:39,980 --> 02:51:38,340

fundamentally wrong from a scientific

4076
02:51:41,719 --> 02:51:39,990
perspective to be speculating on we

4077
02:51:43,490 --> 02:51:41,729
don't know what it says yet mm-hmm when

4078
02:51:46,070 --> 02:51:43,500
we do when we have that information we

4079
02:51:48,200 --> 02:51:46,080
check its validity we try to test its

4080
02:51:50,360 --> 02:51:48,210
validity in in whatever ways we can come

4081
02:51:52,280 --> 02:51:50,370
up with and then we draw conclusions off

4082
02:51:54,710 --> 02:51:52,290
that and whatever those conclusions say

4083
02:51:56,719 --> 02:51:54,720
all the ones we had to go with if

4084
02:51:58,430 --> 02:51:56,729
they're good conclusions those might get

4085
02:51:59,750 --> 02:51:58,440
knocked out 10 years later by a second

4086
02:52:00,980 --> 02:51:59,760
round of disclosure or more recent

4087
02:52:02,660 --> 02:52:00,990
information you know you always got

4088
02:52:06,050 --> 02:52:02,670

secrets or that stays secret because

4089

02:52:08,990 --> 02:52:06,060

they're time sensitive I don't expect to

4090

02:52:11,360 --> 02:52:09,000

see anything they are poor say but we'll

4091

02:52:14,810 --> 02:52:11,370

see we will see when we find out what it

4092

02:52:16,160 --> 02:52:14,820

says with all of the we were just

4093

02:52:17,580 --> 02:52:16,170

talking about science fiction in the

4094

02:52:20,520 --> 02:52:17,590

gaming community

4095

02:52:23,370 --> 02:52:20,530

and that entire genre as big as it is

4096

02:52:26,460 --> 02:52:23,380

and consider the rest of the planet and

4097

02:52:28,830 --> 02:52:26,470

forget about our UFO community we're

4098

02:52:30,599 --> 02:52:28,840

already believers were okay with it but

4099

02:52:33,599 --> 02:52:30,609

with everything that happened with the

4100

02:52:36,300 --> 02:52:33,609

New York Times and that explosion of the

4101
02:52:38,790 --> 02:52:36,310
the et question that went out nobody

4102
02:52:40,139 --> 02:52:38,800
jumped off any buildings Isaac right

4103
02:52:42,360 --> 02:52:40,149
that's one things that always gets me

4104
02:52:43,500 --> 02:52:42,370
say well maybe the aliens are staying

4105
02:52:46,920 --> 02:52:43,510
away from us because they're worried but

4106
02:52:48,300 --> 02:52:46,930
have shock I think the poor was like

4107
02:52:49,679 --> 02:52:48,310
half the population believes an

4108
02:52:51,660 --> 02:52:49,689
intelligent alien life while they

4109
02:52:52,950 --> 02:52:51,670
believe it's busy or not right and I'm

4110
02:52:54,270 --> 02:52:52,960
actually one of the rare exceptions that

4111
02:52:56,340 --> 02:52:54,280
I don't think it's around just cuz I'm

4112
02:52:58,920 --> 02:52:56,350
sure we have seen it in a more overt

4113
02:53:00,510 --> 02:52:58,930

fashion but I wouldn't find it shocking

4114

02:53:02,099 --> 02:53:00,520

I always took as a given that they were

4115

02:53:03,990 --> 02:53:02,109

intelligent species all over the place

4116

02:53:06,660 --> 02:53:04,000

until I thought on it more the phony

4117

02:53:08,610 --> 02:53:06,670

paradox angles that wooden rock my I

4118

02:53:10,230 --> 02:53:08,620

mean I'm sure be rather shocked you know

4119

02:53:12,750 --> 02:53:10,240

you can you can believe in something and

4120

02:53:14,820 --> 02:53:12,760

the Bible use has come face to face with

4121

02:53:17,280 --> 02:53:14,830

you it is a little bit different I I

4122

02:53:18,810 --> 02:53:17,290

imagine what caused quite the firestorm

4123

02:53:20,940 --> 02:53:18,820

but I don't think it would be a

4124

02:53:23,880 --> 02:53:20,950

civilization wrecking event and probably

4125

02:53:26,250 --> 02:53:23,890

old news by the end of the year I I

4126
02:53:29,910 --> 02:53:26,260
agree with you know I think it takes 15

4127
02:53:32,580 --> 02:53:29,920
minutes to become old news yeah it's it

4128
02:53:34,830 --> 02:53:32,590
would cycle because you use the example

4129
02:53:36,450 --> 02:53:34,840
of death you know the denial phase the

4130
02:53:39,320 --> 02:53:36,460
acceptance phase and stop those happen

4131
02:53:42,870 --> 02:53:39,330
was they keep cycling over get on you

4132
02:53:45,420 --> 02:53:42,880
but is it because is it because of

4133
02:53:48,360 --> 02:53:45,430
people like you and and the gaming

4134
02:53:50,490 --> 02:53:48,370
community and the movies and Hollywood

4135
02:53:53,760 --> 02:53:50,500
and in science fiction where we are just

4136
02:53:56,520 --> 02:53:53,770
acclimated now I think though to degree

4137
02:53:58,920 --> 02:53:56,530
now humans are bio very nature very

4138
02:54:00,540 --> 02:53:58,930

adaptable nor thinking you know we we I

4139

02:54:01,860 --> 02:54:00,550

mean people forget this we always used

4140

02:54:03,690 --> 02:54:01,870

to believe they were other intelligent

4141

02:54:06,090 --> 02:54:03,700

life-forms in ourselves on this planet

4142

02:54:08,099 --> 02:54:06,100

until relatively recently that's a new

4143

02:54:09,929 --> 02:54:08,109

thing that we you know there was nothing

4144

02:54:12,330 --> 02:54:09,939

shocking about the idea of a Yeti to the

4145

02:54:13,650 --> 02:54:12,340

people of ancient Europe you know right

4146

02:54:16,500 --> 02:54:13,660

whether or not they happened to be even

4147

02:54:19,290 --> 02:54:16,510

that one specifically this phase that

4148

02:54:20,550 --> 02:54:19,300

we're going through right now which may

4149

02:54:23,790 --> 02:54:20,560

possessed you know again there might be

4150

02:54:25,590 --> 02:54:23,800

nothing there but I don't think we'd be

4151

02:54:27,630 --> 02:54:25,600

overwhelmed by it but it does help to

4152

02:54:30,030 --> 02:54:27,640

acclimate here and say with with science

4153

02:54:30,520 --> 02:54:30,040

fiction that's part of the feedback loop

4154

02:54:32,381 --> 02:54:30,530

that how

4155

02:54:34,810 --> 02:54:32,391

justkeep we incorporate these new ideas

4156

02:54:36,400 --> 02:54:34,820

we ponder them we contemplate them we

4157

02:54:37,450 --> 02:54:36,410

come up with things we never expected

4158

02:54:40,631 --> 02:54:37,460

out of it so you know one's gonna

4159

02:54:43,390 --> 02:54:40,641

predict a smartphone right and we adjust

4160

02:54:45,100 --> 02:54:43,400

and it can be it does have an effect you

4161

02:54:47,080 --> 02:54:45,110

can't just say that it's you know if we

4162

02:54:49,240 --> 02:54:47,090

find aliens tomorrow or they land on the

4163

02:54:52,091 --> 02:54:49,250

White House front lawn yeah that's gonna

4164

02:54:54,220 --> 02:54:52,101

be very big news and still gonna be big

4165

02:54:56,470 --> 02:54:54,230

again I think it would be about 15

4166

02:54:58,150 --> 02:54:56,480

minutes it would be at live on TV and

4167

02:55:01,030 --> 02:54:58,160

then Trump's gonna step out and go get

4168

02:55:03,370 --> 02:55:01,040

this thing off of my lawn yeah you know

4169

02:55:05,110 --> 02:55:03,380

it's blocking traffic on Pennsylvania

4170

02:55:06,730 --> 02:55:05,120

Avenue and you think about the effect

4171

02:55:08,470 --> 02:55:06,740

and I say so how long is it gonna be

4172

02:55:09,940 --> 02:55:08,480

before somebody invites them to go to

4173

02:55:11,620 --> 02:55:09,950

their restaurant because they want them

4174

02:55:13,330 --> 02:55:11,630

to be the force we say on the alien

4175

02:55:14,711 --> 02:55:13,340

visitors came to my restaurant forced

4176

02:55:17,261 --> 02:55:14,721

that's all I'm doing

4177

02:55:20,140 --> 02:55:17,271

you know we all bio date your practical

4178

02:55:22,240 --> 02:55:20,150

creatures so what's up what's up next

4179

02:55:25,301 --> 02:55:22,250

for you what what's your next video

4180

02:55:26,801 --> 02:55:25,311

release what's the subject of making

4181

02:55:28,211 --> 02:55:26,811

Sons actually that's the Thursday

4182

02:55:30,850 --> 02:55:28,221

episode is gonna be about how you could

4183

02:55:32,320 --> 02:55:30,860

make stalls if you want to and some

4184

02:55:34,780 --> 02:55:32,330

variations you might make that be better

4185

02:55:35,980 --> 02:55:34,790

than the naturally occurring ones which

4186

02:55:37,600 --> 02:55:35,990

be interesting what if we start seeing

4187

02:55:39,400 --> 02:55:37,610

so us popping up where they didn't used

4188

02:55:42,190 --> 02:55:39,410

to exist before and it's in the cosmos

4189

02:55:43,690 --> 02:55:42,200

and it's another one was great exams or

4190

02:55:45,610 --> 02:55:43,700

say it's not as they all that high tech

4191

02:55:48,280 --> 02:55:45,620

technology helps it's just brute force

4192

02:55:50,200 --> 02:55:48,290

and maybe you don't have to spend years

4193

02:55:51,940 --> 02:55:50,210

traveling to other solar systems cuz you

4194

02:55:56,171 --> 02:55:51,950

just build your own solar system's

4195

02:55:58,511 --> 02:55:56,181

closer at hand how often do you do are

4196

02:56:01,211 --> 02:55:58,521

you like on a week-to-week production

4197

02:56:04,480 --> 02:56:01,221

schedule uh yeah we we do the weekly

4198

02:56:06,190 --> 02:56:04,490

episode on Thursday mornings and we do

4199

02:56:07,751 --> 02:56:06,200

in case you do extra bonus episodes or

4200

02:56:09,310 --> 02:56:07,761

livestreams interviews that kind of

4201
02:56:10,570 --> 02:56:09,320
thing but we always have an episode

4202
02:56:13,780 --> 02:56:10,580
every Thursday

4203
02:56:16,511 --> 02:56:13,790
it's a else's their bonus and I don't

4204
02:56:18,040 --> 02:56:16,521
think we missed one and actually I think

4205
02:56:21,430 --> 02:56:18,050
we never missed one since we start doing

4206
02:56:23,530 --> 02:56:21,440
a weekly I said absolutely absolutely

4207
02:56:26,470 --> 02:56:23,540
incredible work that you do and for

4208
02:56:29,051 --> 02:56:26,480
myself and our audience here I want to

4209
02:56:31,600 --> 02:56:29,061
thank you because you've managed to

4210
02:56:34,900 --> 02:56:31,610
crank out not only a large volume of

4211
02:56:36,131 --> 02:56:34,910
material but just absolutely fascinating

4212
02:56:38,261 --> 02:56:36,141
and well researched

4213
02:56:41,591 --> 02:56:38,271

no thank you for so much for having me

4214

02:56:43,301 --> 02:56:41,601

on - and we're gonna have you out the

4215

02:56:44,341 --> 02:56:43,311

next time around everybody I'm just

4216

02:56:47,671 --> 02:56:44,351

gonna let you know we're going to

4217

02:56:51,571 --> 02:56:47,681

the Fermi paradox and it'll be the

4218

02:56:53,520 --> 02:56:51,581

entire show maybe we'll have to do a

4219

02:56:56,671 --> 02:56:53,530

two-parter just like you've done yeah

4220

02:56:59,310 --> 02:56:56,681

your your commercial material is so much

4221

02:57:01,440 --> 02:56:59,320

so much material Isaac thank you so much

4222

02:57:02,821 --> 02:57:01,450

and we'll talk to you very soon

4223

02:57:05,041 --> 02:57:02,831

but thank you for taking the time

4224

02:57:07,921 --> 02:57:05,051

tonight looking forward to it thanks for

4225

02:57:10,350 --> 02:57:07,931

having me on Isaac Arthur and everybody

4226
02:57:12,661 --> 02:57:10,360
just go to Isaac I thank you Isaac Isaac

4227
02:57:15,060 --> 02:57:12,671
Arthur dotnet the links are over at

4228
02:57:16,621 --> 02:57:15,070
Jimmy Church radio.com and I think we

4229
02:57:18,991 --> 02:57:16,631
might have his YouTube channel up there

4230
02:57:21,631 --> 02:57:19,001
too as well but of course it is over at

4231
02:57:23,551 --> 02:57:21,641
isaac arthur dotnet fascinating

4232
02:57:25,110 --> 02:57:23,561
conversation now I got to remind

4233
02:57:27,600 --> 02:57:25,120
everybody what's going on this week

4234
02:57:29,730 --> 02:57:27,610
tomorrow night Caroline Ford will be

4235
02:57:31,951 --> 02:57:29,740
here we're going to discuss of course

4236
02:57:34,560 --> 02:57:31,961
for the first time Einstein the ancient

4237
02:57:36,511 --> 02:57:34,570
crystal skull of consciousness that'll

4238
02:57:38,281 --> 02:57:36,521

be tomorrow night Wednesday night David

4239

02:57:40,741 --> 02:57:38,291

Wilcock is here we're going to take a

4240

02:57:43,011 --> 02:57:40,751

little look at 2018 the year that was

4241

02:57:46,850 --> 02:57:43,021

but we're gonna look straight forward

4242

02:57:48,810 --> 02:57:46,860

into disclosure and the Great Awakening

4243

02:57:50,791 --> 02:57:48,820

for 2019

4244

02:57:52,951 --> 02:57:50,801

that'll be Wednesday night Thursday

4245

02:57:54,751 --> 02:57:52,961

night is another Fator night Teresa

4246

02:57:57,421 --> 02:57:54,761

Harris is going to be here divine

4247

02:58:00,841 --> 02:57:57,431

frequency on the airwaves followed by

4248

02:58:03,211 --> 02:58:00,851

open lines all night long with that I'm

4249

02:58:05,491 --> 02:58:03,221

gonna get out of here thank you - Isaac

4250

02:58:08,131 --> 02:58:05,501

Arthur once again a fascinating perfect

4251
02:58:09,180 --> 02:58:08,141
conversation tonight I'm your host Jimmy

4252
02:58:11,310 --> 02:58:09,190
Church fade to black

4253
02:58:13,860 --> 02:58:11,320
executive producer is Rita Kumari on

4254
02:58:16,381 --> 02:58:13,870
shows produced by Hill J palm Renee

4255
02:58:19,011 --> 02:58:16,391
Dennis and Bob announcers our Steve

4256
02:58:22,081 --> 02:58:19,021
harver Jean Vito a mark D Cove our

4257
02:58:25,411 --> 02:58:22,091
webmaster is drew the geek music doug

4258
02:58:27,690 --> 02:58:25,421
aldrich intro space boys space boy music

4259
02:58:32,180 --> 02:58:27,700
calm fade to black is produced by

4260
02:58:37,860 --> 02:58:34,860
thank you - Isaac Arthur Isaac

4261
02:58:40,230 --> 02:58:37,870
Arthur dotnet this broadcast zona

4262
02:58:41,821 --> 02:58:40,240
copyright a 2018 by fade to black in the

4263
02:58:43,340 --> 02:58:41,831

game changer Network it cannot be

4264

02:58:45,469 --> 02:58:43,350

rebroadcast

4265

02:58:47,540 --> 02:58:45,479

I'm loaded copied or used anywhere in

4266

02:58:49,099 --> 02:58:47,550

the known universe without written

4267

02:58:51,260 --> 02:58:49,109

permission from fade to black of the

4268

02:58:53,389 --> 02:58:51,270

GameChanger Network armies Jimmy Church

4269

02:58:56,689 --> 02:58:53,399

follow me on Twitter at Jade's Hertz

4270

02:58:57,410 --> 02:58:56,699

radio until tomorrow night everybody be

4271

02:59:06,230 --> 02:58:57,420

safe